# IDENTIFYING BARRIERS TO HEALTHY EATING AND PHYSICAL ACTIVITY IN A LOW-INCOME COMMUNITY IN SOUTH-WESTERN KANSAS

by

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# Abstract

Obesity in adolescence is associated with a complex web of ecological, psychosocial, and physiological factors, and many of these factors relate to nutrition and physical activity behaviors. Before interventions are developed, researchers need to know what factors specifically influence an adolescent's food choices and physical activity within the community context. Cultural norms, school environment, and neighborhood attributes are examples of factors that may vary across different communities, and accounting for this variation can be quite challenging, unless community perspectives are acknowledged. The use of qualitative data from focus groups has shown to be an effective way of gathering community perspectives about the diversity of their views and experiences. The current study used focus groups to reveal facilitators and barriers to healthy eating behavior and physical activity engagement in 6th to 8th grade youth in a low-income community in South-Western Kansas. This methodology enabled community members (adolescents, parents, and teachers) to discuss and articulate their perceptions in relation to 6th to 8th grade youth's eating habits and physical activity, and assessed available resources, needs, and opportunities for developing effective and sustainable intervention approaches in the community. Using the socio-ecological model, individual influences (e.g., taste preferences), social influences (e.g., parent and peer influences), and larger contextual influences (e.g., school) on early adolescent health were assessed. This information will be used to develop interventions addressing factors at these different levels of influence that are needed to improve eating habits and physical activity of youth in the community.

# Table of Contents

List of Figures ..... vii
List of Tables ..... viii
Acknowledgements ..... ix
Chapter 1 - Introduction ..... 1
The Ignite Project: Sparking Youth to Create Healthy Communities ..... 4
References ..... 7
Chapter 2 - Literature Review ..... 9
The Use of Focus Groups in CBPR Models ..... 9
The Barriers and Facilitators toward Healthy Lifestyles ..... 10
Sensory Properties of Food ..... 11
Convenience, Availability and Cost of foods ..... 12
Hunger and Craving ..... 12
Emotions and Mood States related to Food ..... 13
Meanings Associated with Healthy and Unhealthy Eating ..... 13
Parental Influence on Eating Behaviors ..... 15
Environmental Influences on Food Choice ..... 16
Motivations for Eating Healthy ..... 17
Factors influencing Physical Activity ..... 18
Chapter 3 - Identifying Barriers to Healthy Eating and Physical Activity in a Low-Income Community in South-Western Kansas ..... 25
Introduction ..... 25
Methods ..... 27
Focus groups ..... 27
Recruitment ..... 28
Moderator's guide development ..... 29
Protocols ..... 30
*Data Analysis* ..... 31
Results ..... 31

Individual Influences ..... 31
Knowledge, Beliefs, Attitudes, and Behaviors of Adolescents toward Healthy Eating and Physical Activity ..... 31
Sensory Properties ..... 36
Emotions related to Sensory Properties ..... 44
Food preparation skills ..... 45
Hunger related to skipping meals ..... 46
Cost and Convenience of Foods ..... 47
Physical Activity on the weekends ..... 47
Perceived Facilitators of Healthy Eating Behavior ..... 48
Perceived Barriers of Healthy Eating Behavior ..... 50
Perceived Facilitators of Physical Activity ..... 54
Perceived Barriers to Physical Activity ..... 54
Interpersonal Influences ..... 55
Parental Control ..... 55
Meals at Home ..... 56
Cultural Factors ..... 56
Food rewards ..... 57
Peer Pressure ..... 57
After-school Activities ..... 58
Environmental Influences ..... 58
Eating Out ..... 58
Convenience Stores/Gas Station ..... 59
School Meals and Vending Machines ..... 59
Identified Strategies to Increase Healthy Eating Behavior ..... 61
Identified Strategies to Increase Physical Activity ..... 65
Conclusion ..... 66
Chapter 4 - Discussions, Conclusions and Recommendations for Future Research ..... 69
Recommendations ..... 73
Strengths and Limitations ..... 75
Conclusion ..... 76

Appendix A - Moderator's Guides ..... 80
Appendix B - Tables ..... 113

# List of Figures

Figure 1.1 Prevalence of obesity among boys aged 12-19 years, by race and ethnicity: United States, 1988-1994 and 2009-2010, adapted from Fryar et al. ..... 2
Figure 1.2 Prevalence of obesity among girls aged 12-19 years, by race and ethnicity: United States, 1988-1994 and 2009-2010, adapted from Fryar et al. ..... 3
Figure 1.3 Ignite Project Logo ..... 4
Figure 3.1 The Socio-ecological Model (SEM) ..... 30
Figure 3.2 Savory foods liked by adolescents who participated in the focus groups ..... 39
Figure 3.3 Sweet foods liked by adolescents who participated in the focus groups ..... 41
Figure 3.4 Disliked Foods Identified by Adolescents ..... 41
Figure 3.5 Preferred Fruits and Vegetables of Adolescents ..... 43
Figure 3.6 Primary Food Choice Factors of Adolescents ..... 44
Table B.1 Food Choice Activity Factors ..... 113

# List of Tables

Table 3.1 Meanings Associated with Healthy and Unhealthy Eating ..... 35
Table 3.2 Sensory Properties ..... 38
Table A.1. Moderators Guide for Adolescents ..... 80
Table A.2. Moderators Guide for Teachers ..... 91
Table A.3. Moderators Guide for Teachers ..... 102

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# Chapter 1 - Introduction

Across the globe, obesity poses a major threat to the health and wellness of youth. Obesity is defined as an excessively high amount of body fat or adipose tissue in relation to lean tissue. For children and adolescents (aged 2—19 years), the Center for Disease Control's Growth Charts are used to determine the corresponding BMI-for-age and sex percentile[1]. Obesity in youth can have harmful effects on the body in several ways. Obese children are more likely to have high blood pressure and high cholesterol, which are risk factors for cardiovascular disease (CVD) [2]. They are also at an increased risk for impaired glucose tolerance, insulin resistance and type 2 diabetes; are more likely to have breathing problems, such as sleep apnea, and asthma, as well as joint problems and musculoskeletal discomfort [3]. Fatty liver disease, gallstones, and gastro-esophageal reflux (i.e., heartburn) are also likely to afflict more children in the obese and overweight category [3]. They also tend to have a greater risk of social and psychological problems, such as discrimination and poor self-esteem, and this can continue into adulthood [3, 4]. Furthermore, obese children are more likely to become obese [5, 6]. Adult obesity is associated with a number of serious health conditions including coronary heart disease, diabetes, and some cancers [7]. Obesity in adulthood is likely to be more severe if the child was obese or overweight.

Over the last thirty years, overweight in children has doubled, from 15% in the 1970s to 30% in 2010, and obesity in children has tripled, from 5% to 15%, as seen in Figure 1. Now approximately 17% (or 12.5 million) of children and adolescents aged 2—19 years are obese.[8] Furthermore, certain demographic groups continue to see relatively higher increases, and some have higher rates of obesity than others. From Figure 1.1, we see that obesity is more common in boys than girls. Between 1999–2000 and 2009–2010, no statistically significant trends were seen in obesity prevalence in girls. However, a significant increase was seen in boys.[8]

Racial and ethnic disparities are prominent in obesity prevalence among U.S. adolescent girls and boys. Children from certain demographic groups are more likely than other children to be overweight. As seen from Figure 1.2, African American and lower-income children have a higher incidence of obesity overall. Both African American and Hispanic children are more likely to be overweight than white non-Hispanic children. Between 1988-1994 and 2009–2010, obesity prevalence in boys increased for all groups, as seen in Figure 1.2. Obesity prevalence in non-Hispanic white boys increased from 11.6% to 17.5%; from 10.7% to 22.6% among non-Hispanic black boys, and from 14.1% to 28.9% among Mexican-American boys.[8]

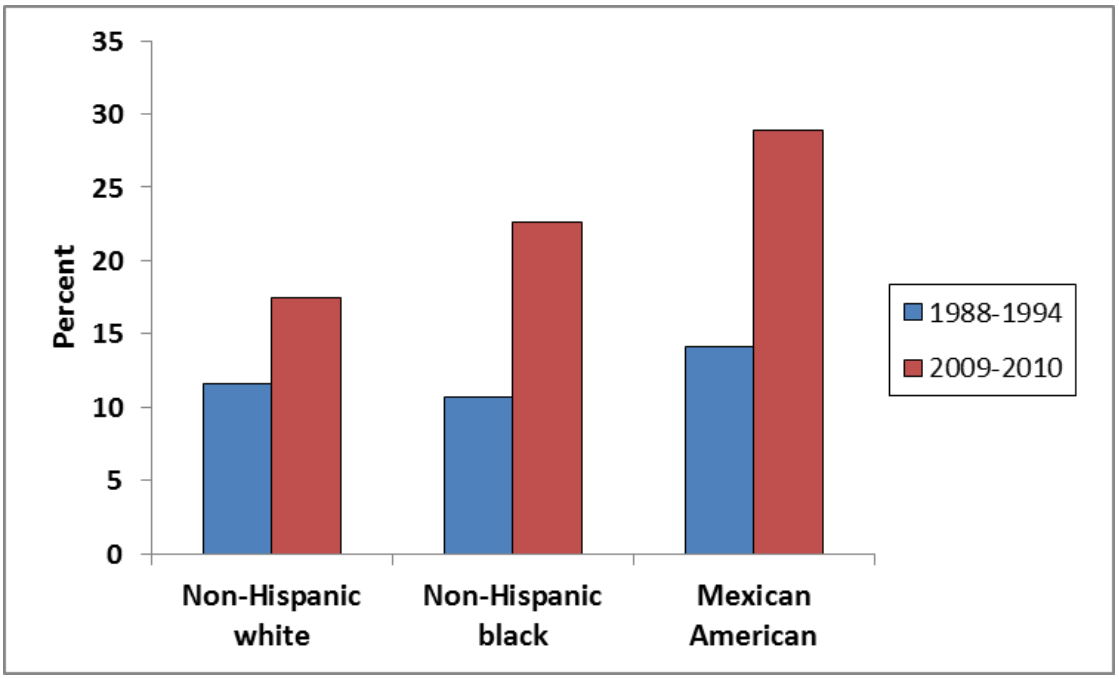



**Figure 1.1 Prevalence of obesity among boys aged 12-19 years, by race and ethnicity: United States, 1988-1994 and 2009-2010, adapted from Fryar et al.**

Among U.S. adolescent girls, the prevalence of obesity increased between 1988-1994 and 2009-2010; from 8.9% to 14.7% among non-Hispanic white girls; from 16.3% to 24.8% among non-Hispanic black girls, and from 13.4% to 18.6% among Mexican-American girls. [8]

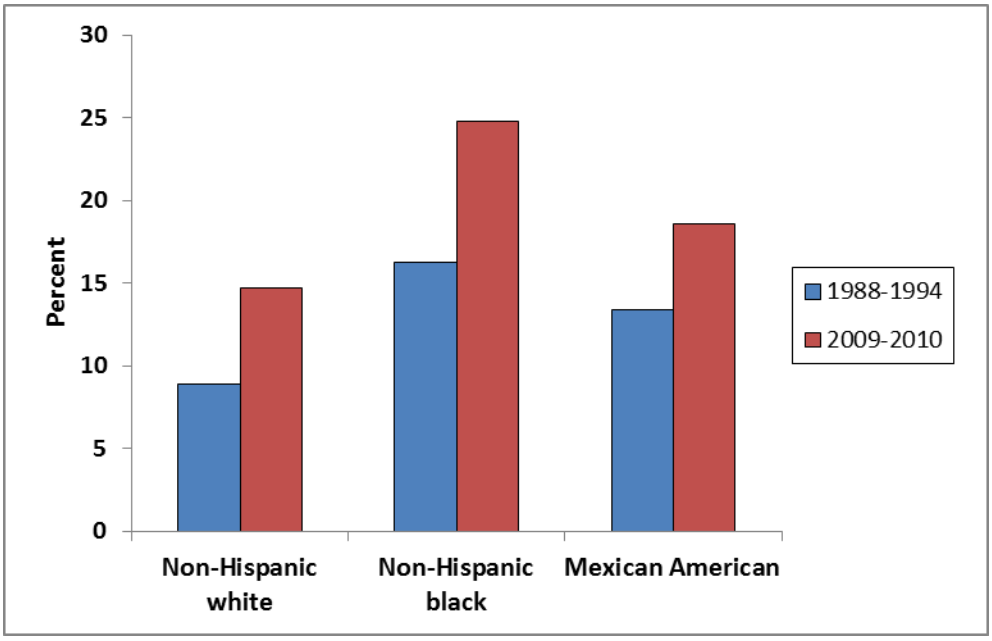



**Figure 1.2 Prevalence of obesity among girls aged 12-19 years, by race and ethnicity: United States, 1988-1994 and 2009-2010, adapted from Fryar et al.**

It is clear that even among the youngest of children, obesity rates are rising across the globe. This increasing trend in childhood obesity and overweight has increased the demand for more effective obesity prevention programs. However, it is no longer sufficient to directly translate findings from highly controlled trials to real-world community interventions in diverse environments, since these controlled trials do not account for variability in culture, resources and organizations. Research in the past decade had started to show how holistic, community-based approaches using local resources can pave the way for a future of effective public health interventions. Since childhood obesity is a complex problem with a complicated etiology, public health educators working with today's youth need to keep in mind the holistic components particular to the group of youth being studied.

## The Ignite Project: Sparking Youth to Create Healthy Communities

In order to determine why the obesity rate is rising among 6th-8th grade youth, it is important that they be included in identifying the barriers to healthy eating and physical activity, and in designing and implementing strategies to overcome those barriers. Thus, the Ignite project is using the Community-Based Participatory Research (CBPR) Model to engage youth, parents, teachers and other community members, in determining why pre-adolescent and early adolescent youth are overweight and obese, and planning and implementing strategies to address the barriers to healthy eating and physical activity. CBPR represents a paradigm shift in bridging the gap between science and practice, by enhancing community engagement to improve health outcome. [9] The Agency for Health Care Research and Quality, in a systematic review of community-based participatory research (CBPR) approaches, defined CBPR as follows:

"A collaborative research approach that is designated to ensure and establish structures for participation by communities affected by the issue being studied, representatives of organizations, and researchers in all aspects of the research process to improve health and well-being through taking action, including social change."[10]


**Figure 1.3 Ignite Project Logo**

A collaborative, multi-disciplinary team of nutrition scientists, communication specialists, youth development specialist, and sensory analysis and consumer behavior specialist has come together to address the obesity problem among pre-adolescent and early adolescent youth. One of the first objectives of the project is to determine the environmental and behavioral barriers to healthy eating and physical activity in this population. The use of qualitative data from focus groups is an effective way of gathering opinions from participants about the diversity of their views and experiences. [11] Sallis & Glanz stated that "[T]he involvement of community residents is essential to advocating for, and implementing, changes to create more healthful environments and policies (p 143)." [12] When changes are imposed by experts, residents may regard such changes as punitive or stigmatizing. For example, people living in a neighborhood may see a policy of restricting the number of fast food restaurants as limiting their access to cheap, convenient food sources. [13]

Neumark-Sztainer emphasizes the importance of adolescent input in developing interventions. She states, "[I]f interventions to improve adolescent nutrition are to be effective, they need to have adolescent input and address a broad range of factors, in particular environmental factors such as the increased availability and promotion of appealing, convenient foods within homes, schools, and restaurants." [14] Before interventions are developed and implemented in a community, it is very useful to know what factors influence their food choices and physical activity. Therefore, the current study uses focus groups to reveal those facilitators and barriers to healthy eating behavior and physical activity engagement. This methodology will also assess available resources, needs, and opportunities for developing effective and sustainable intervention approaches in the community. The objective of this study was to identify factors that

influence food choice, and barriers and facilitators of healthy eating behaviors and physical activity.

## References


1. Barlow SE and the Expert Committee. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: summary report. *Pediatrics*. 2007; 120 Supplement; S164—S192.

2. Freedman DS, Mei Z, Srinivasan SR, Berenson GS, Dietz WH. Cardiovascular risk factors and excess adiposity among overweight children and adolescents: the Bogalusa Heart Study. *J Pediatr*; 2007; 150(1):12—17.e2.

3. Han JC, Lawlor DA, Kimm SY. Childhood obesity. *Lancet*. 2010. 375(9727):1737—1748.

4. Swartz MB and Puhl R. Childhood obesity: a societal problem to solve. *Obesity Reviews* 2003; 4(1):57—71.

5. Whitaker RC, Wright JA, Pepe MS, Seidel KD, Dietz WH. Predicting obesity in young adulthood from childhood and parental obesity. *N Engl J Med*. 1997; 37(13):869—873.

6. Serdula MK, Ivery D, Coates RJ, Freedman DS. Williamson DF. Byers T. Do obese children become obese adults? A review of the literature. *Prev Med*; 1993. 22:167—177.

7. Freedman DS, Khan LK, Dietz WH, Srinivasan SR, Berenson GS. Relationship of childhood overweight to coronary heart disease risk factors in adulthood: The Bogalusa Heart Study. *Pediatrics*. 2001;108:712—718.

8. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of obesity and trends in body mass index among US children and adolescents. 1999-2010. *JAMA*. 2012 ;307:483-90

9. Wallerstein N, Duran B. Community-based participatory research contributions to intervention research: The intersection of science and practice to improve health equity. *Am J Public Health*. 2010; 100:S40–S46.

10. Viswanathan M, Ammerman A, Eng E, Garlehner G, Lohr KN, Griffith D, Rhodes S, Samuel-Hodge C, Maty S, Lux L, Webb L, Sutton SF, Swinson T, Jackman A, Whitener L. Community-based participatory research: assessing the evidence. *Evid Rep Technol Assess* (Summ). 2004; 99: 1–8.

11. Willis K, Green J, Daly J, Williamson L, Bandyopadhyay M. Perils and possibilities: achieving best evidence from focus groups in public health research. *Aust N Z J Public Health*. 2009. vol. 33, pp. 131–136.

12. Sallis JF, Glanz K. Physical activity and food environments: solutions to the obesity epidemic. *The Millbank Q.* 2009;87:123—54

13. Minkler M, Brechwich VA, Tajik M, Petersen D. Promoting environmental justice through community-based participatory research: the role of community and partnership capacity. *Health Educ Behav.* 2008; 35(1):119–137.

14. Neumark-Sztainer D, Story M, Perry C, Casey MA. Factors influencing food choices of adolescents. *J Am Diet Assoc.* 1999; 99, 929–936.

# Chapter 2 - Literature Review

## The Use of Focus Groups in CBPR Models

Focus groups provide a means of obtaining in-depth information from representatives of a target audience in an atmosphere that encourages discussion of attitudes and perceptions about a specific topic; groups are composed of a small number of participants who are asked an organized set of questions in a consistent manner. Focus group interviews provide insights into (a) complex behavior such as food consumption patterns, (b) consensus concerning a topic, and (c) gaps in communication between consumers and providers; (d) they allow participants to refine their views based on the responses of other participants [1].

CBPR is becoming more common in research studies addressing specific health issues such as breast cancer, colorectal cancer screening, smoking and lung health. In focus group research, community members may often be included in recruitment, conducting the groups, and dissemination of findings to the lay audience, to varying degrees. Many CBPR studies have used findings from the focus groups to guide topic selection or approaches, or for the development of relevant and practical interventions. An example of this is the study by Bogart and Uyeda [2] where African American HMO patients (the intervention targets) participated in focus groups to share their ideas for nutrition and physical activity. This aided in the final development of a fruit and vegetable promotion intervention.

In a 2008 CBPR project, researchers set out to explore rural Hispanics' perceived barriers to accessing and utilizing health care. Findings from focus groups helped identify barriers such as the lack of and limitations in health insurance coverage, high costs of health care services, communication issues involving patients and providers, legal status/discrimination, and

transportation concerns; and these findings revealed that these barriers could possibly be addressed using multiple educational and health service delivery policy-related strategies. [3]

Another study used focus groups to help identify barriers to participation among African Americans and Native Americans in genomics-related research. Their findings revealed that the CBPR process may increase willingness to participate among minorities in genomics-related research. [4]

In another study using a CBPR approach, Lutz and others developed a culturally relevant and sensitive health screening questionnaire for acceptable use with women enrolled in welfare transitions programs in the United States. Analysis of focus group interviews revealed both content and process issues (administering the tool). This distinction was an important finding since it stressed the importance of not only what women were asked, but how, when, and by whom they were asked.[5] Hence, the involvement of communities to engage in health and social issues is essential to diminish disparities.

## The Barriers and Facilitators toward Healthy Lifestyles

There has been an increasing interest in the factors that influence the lifestyles of adolescents with respect to their food choices and physical activity. Some studies have examined adolescents' perceptions about their own eating and physical activity habits, using qualitative methods. The next section outlines the barriers and facilitators to healthy lifestyles in children and adolescents as identified in those studies that have included qualitative research, mainly the use of focus groups.

### *Sensory Properties of Food*

Sensory properties of the foods, i.e. taste, smell, texture, etc. emerged as a very important factor in adolescents' food choices across different studies. Discussions from focus groups with adolescents in one study showed that although they had good nutritional knowledge, this knowledge was not the central motivation for food choice.[6] Instead, eating behavior was strongly determined by taste, texture, appearance and smell of the foods. Unhealthy foods were reported to be more rewarding with regards to these properties. Adolescents associated taste with primarily energy-dense foods such as sweets, chocolates, etc. Also, foods perceived as healthy, including green vegetables, were disliked due to their unpleasant sensory properties. In another study, adolescents mentioned that the taste and familiarity with the food, its appearance, smell, how it is prepared or served, whether the foods 'go together' and variety were all important in their food choice decisions.[7]

Power *et al.* found that adolescents preferred fruits over vegetables. Their study also uncovered that fruits and vegetables that were preferred less were those with strong or sour tastes, for example, grapefruit, asparagus or peas. The adolescents in the study also indicated a strong preference for many energy-dense snacks such as cookies, candy, and ice-cream, mentioning taste as the most important factor.[8] Molaison *et al* explored psychosocial factors that might mediate fruits and vegetable consumption among low-income black American adolescents. Within the personal domain, taste was the major factor influencing fruit and vegetable intake, where it could be both a barrier and a positive factor. In particular, the sweet flavor of fruit and the Southern tradition of adding sugar to vegetables was mentioned numerous times and with great emphasis by the focus group participants. [9]

### *Convenience, Availability and Cost of foods*

Convenience with respect to time was specified as an important factor to adolescents Evans et al.[10] Specifically, they mentioned the time that they had or wanted to spend on food was important in their food decisions. Furthermore, they also identified the amount of time parents had because of their work schedules or other commitments, factored into their choices. Convenience was also brought up with regards to how quick and easy something is to make, as well as transportability of the food. Adolescents in the McKinley *et al*. study identified the queue for 'healthier' food in the school cafeteria being too long and 'healthy' food taking too long to prepare and cook. They also mentioned convenience as an important factor (e.g. eating food on the run).[11]

Neumark-Sztainer *et al.* found that fruits and vegetables were not as convenient as other foods, and were also at a higher cost than other foods. They also discussed how eating places away from home, such as school and fast food restaurants do not promote these foods, or fail to make them appealing.[7] In the Croll *et al.* study, participants noted that unhealthy foods are much more readily available than healthy foods.[12] Similar barriers addressed in the Evans *et al.* study were easy access to unhealthy foods and lack of availability of healthy foods, parents' shopping habits which supported unhealthful food purchase.[10] Dammann and Smith identified that many of his low-income participants could be seen as 'opportunistic eaters' who have learned to overeat when food is abundant and tasty.[13]

### *Hunger and Craving*

Neumark-Sztainer *et al* also found that factors that adolescents found to be most important with regards to their food choice were their hunger or food cravings. This was associated with eating due to hunger or cravings for specific foods. [7] Some participants in the

Dammann and Smith study described how their families avoided wasting food at home and how they tended to overeat when food was available. Cravings were associated mainly with junk food, and being unable to stay away from it. [13]

### *Emotions and Mood States related to Food*

Stevenson *et al*. noted that for sensory properties, participants' responses were accompanied by 'visceral' or emotional responses to specific foods. Phrases such as 'smelly' or 'makes me sick' were sometimes accompanied by noises of distaste ('urgh'). Also, for some adolescents, sensory qualities of the food acted as a trigger for strong emotional reactions identifiable as neophobia, mood alteration, and disgust. Such reactions were occasionally mentioned as a barrier to trying novel or unfamiliar foods by individuals who reported themselves as 'fussy' or 'picky' eaters.[6] 'Picky/fussy' eaters are typically defined as children who consume an inadequate variety of foods through rejection of a substantial amount of foods that are familiar (as well as unfamiliar) to them. [14] Disgust was expressed at the thought of eating meat with bones in it, whole fish or fish fillets with skin. They seemed okay, however, with consuming processed version of these foods. They also associated certain mood states with the consumption of some foods such as chocolate, which was perceived as unhealthy. The reported foods were said to elevate moods when participants experienced negative mood states. [6] In the Harrison & Jackson study, some participants (mostly girls) associated negative emotions with unhealthy foods, in part because of their association with weight gain. [15]

### *Meanings Associated with Healthy and Unhealthy Eating*

Croll *et al.* investigated the meanings of healthy and unhealthy eating in adolescents. Healthy eating was mostly described as consuming specific foods, such as fruits, vegetables,

pasta, grains, and less fat. It was also referred to in the context of certain situations, such as eating at home versus outside of the home, and where the food was purchased e.g. ball-games. Healthy eating was also mentioned with regards to certain behaviors, such as watching fat and calories, and limiting junk food intake, eating breakfast, and having a balanced diet. They also mentioned benefits conferred by healthy eating such as positive growth and energy. Many participants in the study did not think that healthy eating was important to them at their age. In looking at gender differences, girls associated healthy eating with weight loss and appearance for special events such as a prom or other school social events. For boys, healthy eating was considered an important component in sports, with regards to how much energy they had. [16]

Power *et al.* found that most early adolescents had a limited understanding of healthy eating. While most healthy foods mentioned were fruits and vegetables, healthy breakfast, lunch, or dinner entrees, whole grains, low-fat meats, fish, nuts, or legumes were seldom mentioned. They were also confused about the healthiness of beverages such as juices, milk, and 'energy drinks,' where they mostly believed that 'diet' and 'natural foods' were healthy regardless of the content of the final product. It seemed however, that participants had a better understanding of unhealthy foods. They mentioned many healthy foods they enjoyed, particularly fruits and vegetables. [8] Neumark-Sztainer *et al.,* on the other hand, found that the adolescents appeared to be well informed about healthful eating but perceived many barriers to nutritious food choices. [7]

Stevenson *et al.* observed that the participants in their study recognized that less preferred foods were healthier than those preferred; however, taste was more important than healthfulness in their food preference. Healthy eating was very rarely viewed as positive on its own, but as a temporary necessity to avoid obesity. Interestingly, a dichotomization of foods into good and bad was seen, where desired foods were described as 'bad' or 'junk' and disliked foods as 'good' or

'good for you.'[6] This dichotomization is also seen by Chapman and Maclean. [17] Adolescent women in their study, divided foods into 'healthy foods" and 'junk foods', and associated different meanings with each of the categories. Healthy goods were described as 'good for you' and 'high in nutritional value.' Healthy food was seen as providing nutrients that the body needs and as not containing 'bad' substances like fat, sugar, cholesterol and preservatives. Unhealthy foods were described as 'not healthy', 'not too beneficial,' and 'you don't need them.' They agreed that such foods contain a lot of fat, sugar, cholesterol, calories, salt and additives. They also indicated that these foods were fattening, and caused acne to appear. Participants felt that enjoying junk food was seen as normal behavior for teenagers, while liking healthy food was seen as an oddity.[17]

A possible consequence of this dichotomization is that adolescents may view healthy eating as located within particular foods, as opposed to viewing the diet as a whole. Unhealthy foods were considered 'forbidden' and healthy eating was defined many times based on the exclusion of these foods. This may result in the belief that adopting a healthy diet is beyond their means, since their definition does not include foods that they prefer. This may also lead to a pathologization of their tastes and food preferences, and a self-fulfilling pattern of unhealthy eating. [6]

### *Parental Influence on Eating Behaviors*

Evans *et al.* identified parental influence as factoring strongly in adolescents' food choices with regards to cooking and purchasing behaviors of parents. Furthermore, rules surrounding eating/meals, family meal patterns, culture and relationship with parents were also identified in playing a role.[10] In Stevenson *et al.*'s study parents were reported to use energy dense foods as rewards. Most adolescents reported little or no involvement in the selection or

preparation of food in the home. Authors of the study indicate that this may prevent the development of self-efficacy with regards to maintaining a healthy diet; and adolescents may adopt the belief that their future independence would likely result in less healthier lifestyle. [6] Also, unhealthy eating during the period of adolescence is a likely form of rebellion in establishing independence from parental control, as described by Hill *et al.* [18]

Kahlor *et al.* observed that parents in their study revealed helplessness in the face of many constraints, and opted for faster alternatives such as quick dinner or fast food, where healthier options were viewed as time consuming. Long working hours and hectic schedules were further identified as barriers to eating healthier diets. The cost associated with healthy food was also perceived as a prohibitive factor, while unhealthy foods were viewed as the only alternative due to the perception that they were invariably less expensive. [19]

### *Environmental Influences on Food Choice*

Dammann and Smith investigated perspectives of low-income early adolescents on their food-related attitudes and behaviors at home, school, and restaurants. With regards to eating establishments they found that buffets were their favorite type of restaurant, and of strong appeal was the variety of tasty and palatable food in unlimited quantities. This unrestricted environment provided them the opportunity to indulge on their favorite food items, including high-calorie entrées and desserts. [13] In addition, the school environment can influence adolescents' eating behavior. This may be through policies (such as range and price of foods available), or through peer pressures related to food consumption or body image. [20, 21]

Bauer *et al*. found that even with recommended nutrition and physical activity programs and policies in place, there exist a number of barriers within the school environment that impede student participation in these opportunities. An example is that the lunches offered through the

National School Lunch Program that were served in the cafeterias, were often unpalatable. Furthermore, students had easy access to non-nutritious food options in the cafeteria. This combined with insufficient time to complete a full lunch, lead students to choose non-nutritious snacks instead of provided lunch. [22]

### *Motivations for Eating Healthy*

Power *et al*'s study determined that early adolescents understood the relationship among eating, activity, sleep and health. However, they seemed to be more motivated by short-term effects, such as weight-control, energy levels and sports performance, rather than long-term health.[8] In the Molaison *et al.* study, adolescents discussed that improved health or sports performance would influence them to eat more fruits and vegetables.[9] Neumark-Sztainer *et al.* found that the adolescents' lack of a sense of urgency was a barrier to nutritious food choices. [7]

Stevenson *et al.* identified barriers that highlighted tensions between adolescent body image and energy-dense food consumption. Results suggested a 'double-bind' between nutrition knowledge and the desire for unhealthy foods. This double-bind alludes to the fact they are know that many of the foods they desire are bad for them. One of the results of these conflicting pressures is that adolescents focus on weight, rather than health, as the motivating factor in their food choice. Adolescents were aware of long-term consequences of obesity, such as diabetes and cardiovascular disease, and linked them to pathological obesity rather than unhealthy eating behavior. Engaging in healthy eating behavior seemed to be linked to perception of weight, and attitudes to weight control behaviors, rather than short-term or long-term health. Thinness was highly valued as an attribute; however, views on extreme weight control behaviors in adolescence such as vomiting, skipping meals, diet pills, and commercial were regarded unacceptable. [6]

### *Factors influencing Physical Activity*

In Power *et al* 's study, students seemed to be more interested and engaged in those physical activities they found fun, with only a few reporting engaging in exercise for health benefits. Early adolescents, parents, and teachers reported that their families, friends, and schools influenced their physical activity patterns. Parental influence seemed to work through modeling, providing opportunities, and setting limits. Peer influences were seen as operating through modeling and shared activities. Schools were seen as having their influence by introducing various physical activities and healthy foods. In the study, students, parents, and teachers identified mentioned high levels of screen time (e.g., television, videogames, etc.) as a barrier to engaging in physical activity. Another important barrier identified was lack of money and transportation for certain activities (particularly organized sports). Also, the level of competitiveness in sports organizations was mentioned as a barrier in that many children may not have the physical skills necessary to participate in sports. Parents and teachers mentioned child safety as a barrier as it set limits on outdoor activity. Students also mentioned peer pressure as a barrier. An example given was that some of their friends did not engage in physical activity because of they were embarrassed about their abilities or because some physical activities were not deemed 'cool.' [8]

Goh *et al.* used a CBPR model to identify barriers to healthy lifestyles in adolescents. A frequent barrier to physical activity mentioned was poor quality and insufficient quantity of physical education in schools, and again, excessive media use at home. They identified that the physical education suffered from a lack of personal attention due to large class size, unqualified teaching staff, inadequate facilities, and uninteresting activities. Parents and youth identified peer

pressure, girls' uneasiness with changing in locker rooms, and students' general lack of motivation as barriers to be physically active. Parents were frequently for not making exercise an important priority in families and for consenting to excessive media use. Community level barriers included a dearth of safe places to exercise. They emphasized a need for accessible, inexpensive, and organized physical activities. [23]

Ries *et al.* 's study with urban African American adolescents noted largely negative environmental influence to their physical activity. Presence of dance clubs for young people, peers in the neighborhood, and harassment by police were identified as barriers. Financial barriers identified were cost of equipment and physical activity programs. Females indicated safety was more important, while males indicated that peer support and physical activity were important factors. Physical activity settings that were mentioned were facilities for sports and exercise and neighborhood characteristics (that encouraged walking and biking).[24] Previous research has showed that high crime and perceptions of safety are associated with lower levels of physical activity. [25]

Bauer *et al.* found that athletic competition and frequent gender- and weight-related bullying inhibited many students from enjoying and fully engaging in activities offered by the school, such as physical education, open gym, and after-school sports. During the day, safety and time constraints led many parents to drive their children to school even when they were within walking or biking distance. [22]

### *Facilitators of Healthy Eating*

Power *et al.* acknowledged that sports participation and cooking may relate to food-related self-perception. Active adolescents had a better sense of the relationship between energy intake and output, leading to a greater dietary balance. For non-participants in sports,

involvement in cooking was identified as an opportunity to increase understanding of nutritional knowledge and increase the sense of efficacy needed to develop and maintain a healthy lifestyle. Because adolescents seemed more concerned about the short-term than the long-term consequences of their eating patterns, educational efforts should target short-term factors than on long-term health. Giving parents' ideas about quick and easy-to-prepare healthy snack alternatives and dinner entrees, and enabling school administrators to add more healthy options in the lunch room, could help increase opportunities for adolescents to consume healthy foods at home and school settings.

Given the inherent preferences for unhealthy and energy-dense foods, parents, adolescents, and teachers should limit their availability and exposure to these foods. Interventions to increase physical activity should emphasize activities that are fun, inexpensive, easy accessible and inclusive, enabling maximum participation. Intrinsically motivating physical activities such as yoga, kick boxing, hip-hop dance, etc. could be introduced in an emotionally supportive, noncompetitive environment that focuses on enjoyment rather than performance and evaluation. Ideas about fun and inexpensive physical activities could be given to families to help them engage in physical activity together. Furthermore parents could be education on how to set and enforce rules regarding media use and screen time, and early adolescents could be encouraged to come up with strategies to address barriers affecting physical activity. [8]

Croll *et al.* states that a message of balance had to be reinforced for adolescents to understand that following healthy eating guidelines did not mean that 'junk foods' or favorite foods had to be completely eliminated from the diet. [16] Adolescents in the Neumark-Sztainer *et al.* study mentioned that making the healthful food look and taste better was instrumental in increasing their healthy eating behaviors. Making healthy foods the only available options by

removing unhealthful foods was another suggestion offered. These foods also needed to more available and convenient in order to help improve their eating habits. Having parents teach children how to eat healthfully when they are young was also mentioned as an opportunity. Advertising was identified as a potential opportunity to help motivate adolescents to eat healthy by making it 'cool' to eat healthy. [7]

## References


1. Krueger RA. *Focus groups. A practical guide for applied research.* 2nd ed. London: Sage; 1994.

2. Bogart LM, Uyeda K. Community-based participatory research: Partnering with communities for effective and sustainable behavioral health interventions. *Health Psychology*. 2009; 28(4):391–393.

3. Cristancho S, Garces DM, Peters KE, Mueller BC. Listening to rural Hispanic immigrants in the Midwest: A community-based participatory assessment of major barriers to health care access and use. *Qual Health Res*. 2008;18:633–646

4. Johnson VA, Edwards KA, Sherman SL, Stephens LD, Williams W, Adair A, et al. Decisions to participate in fragile X and other genomics-related research: Native American and African American voices. *JCD*. 2009;16(3):127–135.h

5. Lutz BJ, Kneipp S, Means D. Developing a health screening questionnaire for women in welfare transition programs in the United States. *Qual Health Res*. 2009; 19(1):105–115.

6. Stevenson C, Doherty G, Barnett J, Muldoon OT, Trew K. Adolescents' views of food and eating: identifying barriers to healthy eating. *J Adolescence*. 2007; 30:417-434.

7. Neumark-Sztainer D, Story M, Perry C, Casey MA. Factors influencing food choices of adolescents. *J Am Diet Assoc.* 1999; 99, 929–936.

8. Power TG, Bindler RC, Goetz S, Daratha KB. Obesity prevention in early adolescence: student, parent, and teacher views. *J Sch Health*. 2010; 80:13–19.

9. Molaison EF, Connell CL, Stuff JE, Yadrick MK, Bogle M: Influences on fruit and vegetable consumption by low-income black American adolescents. *J Nutr Educ Behav*. 2005, 37:246-25

10. Evans AE, Wilson DK, Buck J, Torbett H, Williams J. Outcome expectations, barriers, and strategies for healthful eating: A perspective from adolescents from low-income families. *Fam Community Health*. 2006; 29(1):17–27.

11. McKinley MC, Lowis C, Robson PJ, Wallace JM, Morrissey M, Morgan A, et al. It's good to talk: Children's view on food and nutrition. *Eur J Clin Nutr*. 2005; 59(4):442–551.

12. Croll JK, Neumark-Sztainer D, Story M. Healthy eating: What does it mean to adolescents? *J Nutr Educ Beha*v. 2001; 33(4):193–198.

13. Dammann, K. & Smith, C. Food-related attitudes and behaviors at home, school, and restaurants: perspectives from racially diverse, urban, low-income 9- to 13-year-old children in Minnesota. *J Nutr Educ Beha*v 2010; 42(6): 389-97

14. Birch LL, Johnson SL, Andresen G, Peters JC, Shulte MC. The variability of young children's energy intake. *N Engl J Med.* 1991; 324, pp. 232–235

15. Harrison M, Jackson L. A. Meanings that youth associate with healthy and unhealthy food. *Can J Diet Pract Res*. 2009; 70:6–12.

16. Croll JK, Neumark-Sztainer D, Story M. Healthy eating: What does it mean to adolescents? *J Nutr Ed.* 2001;33(4):193–198

17. Chapman G, MacLean H. 'Junk food' and 'healthy food': meanings of food in adolescent women's culture. *J Nutr Ed*. 1993;25:108–113

18. Hill AJ, Oliver S, Rogers PJ. Eating in the adult world: the rise of dieting in childhood and adolescence. *Br J Clin Psychol* 1992; 31:95–105

19. Kahlor L, Mackert M, Junker D, Tyler D. Ensuring children eat a healthy diet: a theory-driven focus group study to inform communication aimed at parents. *J Pediatr Nurs*. 2011; 26(1):13–24.

20. Nichter M. *Fat talk: What girls and their parents say about dieting*. London: Harvard University Press; 2003.

21. Wills W, Backett-Milburn K, Gregory S, & Lawton J. The influence of the secondary school setting on the food practices of young teenagers from disadvantaged backgrounds in Scotland. *Health Educ Res*. 2005; 20, 458–465.

22. Bauer KW, Yang YW, Austin SB. "How can we stay healthy when you're throwing all of this in front of us?" Findings from focus groups and interviews in middle schools on environmental influences on nutrition and physical activity. *Health Educ Behav*.2004; 31(1):34–46.

23. Goh Y, Bogart LM, Sipple-Asher B, Uyeda K, Hawes-Dawson J, Olarita-Dhungana J, Ryan GW, Schuster MA. Using community-based participatory research to identify potential interventions to overcome barriers to adolescents' healthy eating and physical activity. *J Behav Med.* 2009; 32: 491- 502.

24. Ries AV, Voorhees CC, Gillelsohn J, Roche KM, Astone NM. Adolescents' perceptions of environmental influences on physical activity. *Am J Health Behav*. 2008;32:26–39

25. Molnar BE, Gortmaker SL, Bull FC, et al. Unsafe to play? Neighborhood disorder and lack of safety predict reduced physical activity among urban children and adolescents. *Am J Health Promot.* 2004; 18(5): 378-386

# Chapter 3 - Identifying Barriers to Healthy Eating and Physical Activity in a Low-Income Community in South-Western Kansas

## Introduction

Obesity in adolescence is associated with a complex web of ecological and psychosocial factors that has shown to impact healthy diet and physical activity. [1, 2] Obesity in youth can have harmful effects on the body in several ways, and obesity in adulthood is likely to be more severe if the child was obese or overweight. Over the last thirty years, overweight in children has doubled in the United States, from 15% in the 1970s to 30% today, and obesity in children has tripled, from 5% to 15%. Now approximately 17% (or 12.5 million) of children and adolescents (aged 2—19 years) are obese. Furthermore, certain demographic groups continue to see increases, and some have higher rates of obesity than others.[3] It is clear that even among the youngest of children, obesity rates are rising. This increasing trend in childhood obesity and overweight has increased the demand for more effective obesity prevention programs.

Research in the past decade had started to show how holistic, community-based approaches using local resources can pave the way for a future of effective public health interventions. Since childhood obesity is a complex problem with a complicated etiology, public health educators working with today's youth need to keep in mind the holistic components particular to the group of youth being studied. Factors such as cultural norms, neighborhood characteristics, and school environment, vary across different communities. Accounting for this variation can be challenging, unless community perspectives are acknowledged. [4]

The use of qualitative data from focus groups can be an effective way of gathering community perspectives about the diversity of their views and experiences. [5] Past qualitative research with adolescents has revealed several barriers to healthy eating. One of the primary factors that adolescents indicated drove their food choices was the sensory properties of the foods. Adolescents have repeated stated that they have a preference for many unhealthy foods, and perceive healthy food to be less appealing. This has impeded on their ability to make healthy choices. Other barriers cited in studies were convenience and lower cost of less nutritious fast food. [6, 7] Furthermore, the lack of availability and high cost of healthier food was identified as a major barrier. [8] The school environment provides easy access to energy-dense snacks through vending machines [7]. Peer pressure in the form of teasing was identified as a barrier, preventing students from eating healthy foods at school. Students did not find meals served through the National School Lunch Program appealing .[7]

Barriers to physical activity mentioned were high levels of screen time (e.g., television, videogames, etc.), lack of money and transportation for certain activities (particularly organized sports), the level of competitiveness in sports and safety as it set limits on outdoor activity. Poor quality and insufficient quantity of physical education in schools was mentioned as a barrier; specifically, the physical education suffered from a lack of personal attention due to large class size, unqualified teaching staff, inadequate facilities, and uninteresting activities. Girls' uneasiness with changing in locker rooms, and students' general lack of motivation were also seen as barriers against being physically active. [9, 10, 11]

Evidence from highly controlled interventions for adolescent/childhood obesity prevention has shown that they are limited in strategy and have little or no significant effects in reducing or preventing adolescent/childhood obesity. [12, 13, 14] A growing body of evidence

suggests that community involvement in intervention development and testing is fundamental for program effectiveness and sustainability. Community-Based Participatory Research (CBPR) is a collaborative approach to research that comprises of equal contributions from community members, organizational representatives and researchers within all facets of the research process. The approach enables participants to share their expertise in order to enhance knowledge and develop interventions that benefit the whole community. The emerging evidence shows promising results from obesity-prevention studies that incorporate wider community engagement or CBPR elements in their modeling approaches.[15]

The main purpose of conducting the focus groups was to enable community members (adolescents, parents and teachers) to discuss and articulate their perceptions in relation to 6$^{th}$ to 8$^{th}$ grade youth's eating habits and physical activity. This community involvement is in line with the tenets of the CBPR model; it allows for intervention development that considers the holistic components specific to the community, and identifies local resources and leadership to address challenges. [15] Before interventions are developed and implemented in a community, researchers need to know what factors influence food choices and physical activity. Therefore, the current study used focus groups to reveal facilitators and barriers to healthy eating behavior and physical activity engagement. This methodology also assessed available resources, needs, and opportunities for developing effective and sustainable intervention approaches in the community.

# Methods

## Focus groups

A total of nine focus groups were conducted with sixth to eight grade girls and boys, parents and teachers from Southwestern Heights in Plains, Kansas. Southwestern Heights

Junior/Senior High School is located in Kismet, KS and is one of three schools in Kismet-plains School District. It is a public school that serves 351 students in grades 6-12. Two mixed-gender groups each of the sixth, seventh and eighth grade were conducted. There were two parent groups and one group of teachers conducted. Participants per group for adolescents ranged from six to eight. The principal of the participating school was informed of the project through phone and email. All the principal investigators, community leaders and project coordinator officially met with the principal and requested his permission to have students and teachers of his school participate in the project. All focus groups were conducted in a room in the library. The school nurse remained the room for all groups. The groups were audiotaped and transcribed verbatim. We chose not to videotape because we believed the participants would be more comfortable and would speak more candidly. Institutional Review Board (IRB) approval for use of the focus group transcripts was received before starting on the focus groups.

### *Recruitment*

The district wide enrollment for schools was identified as the best days to recruit interested individuals for focus groups. The school nurse was instrumental in the recruitment process. As a valued and trusted member of the community and the school, she was able to identify the best time for recruitment of students and parents, as well as encourage participants to sign up. Graduate students working on the grant team were stationed next to nurse in the cafeteria for the enrollment process. They were first screened for the appropriate age group, and then given general information about the project and asked to enter their name, address and phone number if they were interested. Parents were also asked to do the same. Before the focus-groups were conducted, the nurse collected consent forms from students.

### *Moderator's guide development*

The focus groups followed a semi-structured format with open-ended questions. Specifically, we assessed individual influences (e.g., taste preferences), social influences (e.g., parent and peer influences), and larger contextual influences (e.g., school) on early adolescent health. Separate guides were created for parents and teachers. The questions were written to determine the behaviors, personal characteristics, and environmental factors that influence food choice and physical activity based on the socio-ecological model (SEM) (Figure 3.1). Davison and Birch [16], and Story *et al*. [17] developed models that show the individual as contributing their cognitions, skills and behaviors, lifestyle, biology and demographics. Their models show how the individual is rooted in other circles of influence that involve individual-level decision-making, including the social, physical and macro-level environments to which they are exposed. These include families, neighborhoods and the cultural environment. The individual factors are embedded in the interpersonal, organizational, and community and public policy levels. Stokols states that it clarifies the complex relationships "among persons, groups, and their sociopolitical milieus." [18] The SEM provides an excellent overarching framework for examining individual, organizational, and community factors in causes of childhood obesity. [18] Krug et al. wrote on the various structure levels which need to be addressed in order to positively impact overweight and obesity. These include the individual level (biological factors, knowledge, attitudes, traits), interpersonal (family, friends, peers, social identity), organizational (schools, churches, regulations, policies), community (social networks, neighborhoods, coalitions/organizations), and at a societal level (local, state, federal policies and laws, economics, education). [19]

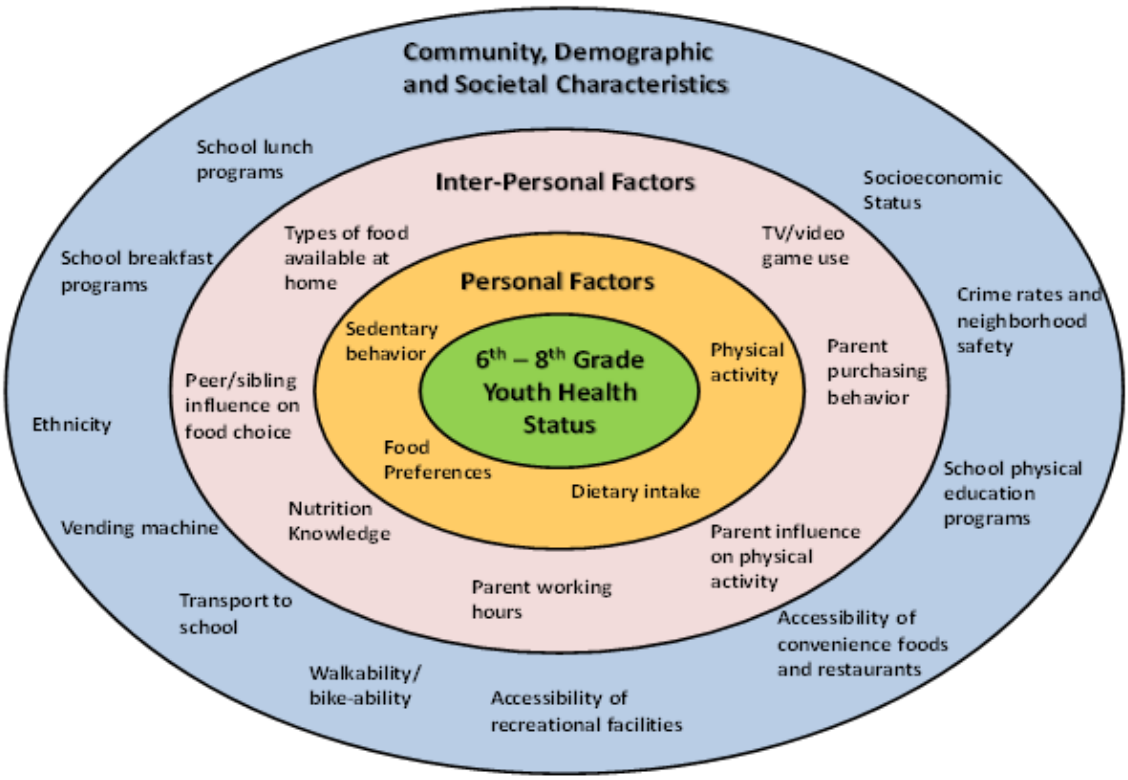



**Figure 3.1 The Socio-ecological Model (SEM)**

### *Protocols*

Focus groups were conducted at the schools and facilitated by the authors. The moderator and note-taker were RIVA trained (RIVA Market Research Inc., Bethesda, Md.). Standard focus group procedures were followed. Participants read and signed assent forms (early adolescents) or consent forms (parents and teachers). Ground rules for the focus groups were discussed (e.g., value the comments of all and allow all to speak). Participants were informed there were no "right or wrong answers" and their responses would be kept confidential. Groups were tape recorded. All procedures were approved by the university's institutional review board. The focus group questions are shown in Table A.1. One other change was made in some of the questions for the children after the first focus group. Some questions were changed by shifting focus from 'their' perspective to observations about their peers. They seemed more comfortable talking

about behaviors of their peers than themselves. The adult focus groups lasted about 1 to 1.5 hours, and the adolescent groups lasted about 1 hour.

### *Data Analysis*

Transcription was conduction verbatim by the moderator and graduate students. The sessions that were not transcribed by the moderator were compared to against the audiotaped filed by focus group team members to ensure accuracy in transcription. Using NVivo qualitative data analysis software (QSR International Pty Ltd. Version 10, 2012,) the transcribed data was then formatted, coded, and sorted using the organizing framework of the moderator's guide and into recurring trends and patterns. Members of the team with experience in focus group methodology and analysis reviewed the summary of emerging themes.

## Results

## Individual Influences

#### *Knowledge, Beliefs, Attitudes, and Behaviors of Adolescents toward Healthy Eating and Physical Activity*

Students viewed healthy eating as something black and white, and were quick to categorize them into 'good and bad for you' foods. Students overwhelmingly mentioned fruits and vegetables as healthy. There seemed to be some confusion about ingredients in foods that made them healthy or unhealthy. When asked why some of the fruits and vegetables mentioned were healthy, the younger students ($6^{th}$ and $7^{th}$ graders) were unable to answer. Some of the older participants mentioned 'empty calories' and 'low-fat.' When prompted what they meant by empty calories, they mentioned Coca-Cola, Pepsi, Sprite, Dr. Pepper, but were unable to articulate what the term meant. For 'low-fat', one participant said he thought these would be

foods that were low in sugar. Older students mentioned more specific reasons why they thought these foods were healthy such as water in the fruit, vitamins, minerals, and protein, and less fat. Some students referred to the health benefits of eating certain foods. They were much more vocal about describing unhealthy attributes of unhealthy foods. Sugar, fat, grease, and calories in excess, were brought up as attributes that made a food unhealthy. A few students mentioned moderate consumption of unhealthy foods. I think of definitely not me." They talked about their peers and said that "Yeah, mostly in the class is not true." Many students did not display positive attitudes towards healthy eating, "*I mean I would eat it. But if I had a choice I wouldn't eat it*." The participants who disliked the taste of many vegetables also said that they would not enjoy eating healthier. "*No, I want the junk food!*" They mentioned that any efforts at making them eat healthier would be met with rebellion - "*I would probably make a fuss, if they tried to make me eat healthier. I'll starve. I just never want to eat healthy*." One student mentioned that she resisted her parents' efforts to help her eat healthy, "*When my mom makes something with vegetables, I'll look for something in the fridge that doesn't have it*.". Some students talked about the lunch lady's attempts at getting kids to eat a plate of fruits and vegetables. Students said their peers found 'loop-holes' wherein they would pile their plates with fruits and vegetables to make her happy, and then throw it away.

When asked what they associated with the words healthy eating, students mentioned a variety of items, including vegetables, fruits, salad, vitamins, proteins, hydrated, bread, broccoli, tuna, water, vegetarian food and milk. Some students mentioned diets, and eating more of certain kinds of vegetables like lettuce and broccoli. This indicates that students feel that healthy eating is a property of certain foods. Disease prevention did not come up in any of the groups as a reason that they would eat healthily. Healthy eating situations were mentioned as periods when

students were involved in sports. However, they mentioned that they do not maintain this behavior when not participating in sports. Some students also mentioned healthier eating situations occurring at home. As a behavior, one student described healthy eating being more cautious with their food choices. Some foods were more contentious. For example, two students disagreed on the issue of whether ice-cream was healthy "I *think it's (ice-cream) healthy because of the milk.*" The other student contended with "*Yeah but still, it has like a lot of calories.*" They also tended to describe healthy eating in terms of avoiding or limiting unhealthy foods like junk foods, pop and fast foods. Kids also associated healthy eating with smaller serving sizes. Few participants compared other countries' fast food with America's and concluded that the fast food was much healthier in those countries. One participant mentioned "*When I went to Japan last year it was kind of amazing, because with the fast foods there's small servings and you think like oh my gosh that's really small, but it fills you up. It's small, but it's still good, you don't need more food. And over here it's so big and a lot of servings.*" When asked what participants associated with unhealthy food, positive emotional responses such as excitement, as well as negative emotional responses were elicited. They specified general items such as junk food, sugary foods, and uncooked food ,but also specific items such as hamburgers, cotton candy, meat, jawbreakers, chocolate fountains, chocolate, lollipops, candy, ice-cream, bubble-gum, raw meat, frozen meat, fat on the meat, monsters, fattening , chicken, lot of pop, lot of chips, and fudge. Soda was identified as an unhealthy beverage. For one participant, the word unhealthy triggered an image of "*A cop sitting on his desk with his feet up with a donut and coffee.*" Many participants described unhealthy foods as 'bad for you.' Unhealthy behaviors that they noticed in their peers included overeating of snacks from the vending machines at school. Another participant pointed out the lack of balance with their peers in school. Another unhealthy behavior

that participants pointed out was with regard to serving size wherein it was described as unhealthy to eat more than you need. Snacking behaviors of their peers was also tagged unhealthy. A list of adolescent participant comments that were elicited by the terms 'healthy' and 'unhealthy' eating is included in Table 3.1 below.

Most adult participants thought that kids had a general idea of healthy and unhealthy foods, but when it came to their food choices, were as not concerned about healthiness of foods. Some adults mentioned that at this age, it didn't factor into their food choices "*A lot of the kids don't think about whether it's healthy for them or not*." Kids' taste preferences ranked higher than healthiness of foods in decision making "*I think so, yes, they know….I think most of the kids they know what the best option for them is and what is not.*" They felt kids involved in sports paid more attention to what was healthy and unhealthy "*.. my son is in sports and sometimes when somebody offers him a pop, he says no, it reduce my endurance, so I think they know unhealthy*." With regards to their knowledge regarding healthiness of foods, some parents were doubtful, "*I've seen kids eating Cheetos, and I'll explain you know how it clogs your arteries and they just are like, "really?!" You know, as if they've never heard of that before. Sometimes I think they don't.*" Some parents noticed that even though their kids had knowledge of unhealthy foods, they were unable to resist the temptation of foods that tasted good, "*And my kids talk all the time about how bad sugar is for you even... My six year old where he'll come and ask me* '*Mom, how much sugar is in this bag of cereal?'* so you know that they know that sugar is bad for you, but it tastes good." When asked how kids would describe healthy eating behavior, they said "I think they would say eating fruits and vegetables.", "*Fruit, vegetables, proteins. Staying away from the sugar, candies, goodies*." These observations are consistent with what the adolescents mentioned in focus groups conducted with them.

**Table 3.1 Meanings Associated with Healthy and Unhealthy Eating**

| Healthy Eating |
| --- |
| Vegetables, fruits, salad, vitamins, proteins, hydrated, bread, broccoli, tuna, water, vegetarian food, powerade, and milk |
| Low-fat, no sugar, not processed, natural. |
| "Well, when I think of healthy food I think of fruit, ……. but just things like granola bars, drinking water, instead of drinking pop, not eating candy bars, just things like that." |
| "When you eat healthy food, kind of like salads, carrots, apples and stuff like that, it's more water, and sometimes tea but, I don't really drink pop, I kind of stopped drinking pop for a year now, which is good, because it's not really healthy, doesn't really do you any good so. I'm just drinking water or tea or something like that." |
| "I think of definitely not me." |
| "You're more cautious." |
| "Eating lettuce and vegetables all the time" |
| "Basically, I will think of the word diet." |
| "The ingredients. Like if it has fruits in it." |
| "(ice-cream) is healthy because of the milk." |
| "I guess maybe salad." |
| "Yeah, sometimes we'll have mixed vegetables or just one kind of vegetable. There is always something healthy though." |
| "I like eating at Subway. It is healthier. I like it there." |
| "I suppose that people eat more at home because it's more healthy, home style it's a…yeah, its healthier, like our family tries to make everything they can from scratch." |
| "Like sandwiches, like hamburgers, you know. Like peanut butter and jelly" |

| Unhealthy Eating |
| --- |
| "A lot of junk food eating." |
| "Soda, hamburgers, sugary foods, cotton candy, eating candy for a day, meat, jawbreakers, chocolate fountains, chocolate, lollipops, candy, ice-cream, bubble-gum, raw meat, frozen meat, fat on the meat, uncooked, energy drinks, monsters, fattening , chicken, junk food, Lot of pop, lot of chips, fudge" |
| "When you say the word unhealthy, this is automatically what I think of.. A cop sitting on his desk with his feet up with a donut and coffee" |
| "Sugar, grease, fat, calories" |
| "Just a lot of stuff that is really not good for you." |
| "...that like usually like is not on the nutrition-wise or is usually on the things that you're really not supposed to eat." |
| "Too many things are fried." |

When adolescent participants were asked what they thought of the words physical activity, they mentioned several activities such as basketball, football, riding bikes, moving up and down, running, lifting weights, riding bikes, walking, going outside and playing, walking their dogs, horse riding, and roller blading. Many participants discussed being actively involved in after-school sports, and that this was their main source of physical activity. References to physical activity were mainly positive, especially with the younger kids.

### *Sensory Properties*

Many adolescent participants discussed the importance of sensory appeal of food and its influence on their food choices. Figure 3.6 shows that 'Taste' ranked highest for most adolescents in the focus groups. Taste and appearance were the two factors that were mentioned most frequently and appeared to be crucial in making decisions about food choices. If it did not look or taste good, many kids said they would not eat it. Tomatoes were an example of a vegetable disliked by many participants because of their taste and appearance. "*I don't like tomatoes because the seeds and things in the middle gross me out. Yeah I don't like the way it*

*looks. How the seeds and things and stuff.*" Familiarity with the food, texture, authenticity of the food, whether or not the foods "go together," and variety were also mentioned with regard to the sensory appeal of the food. Sweet, salty and high-fat foods were reported to have an undeniable sensory appeal by kids. They repeated mentioned enjoying 'junk food', fried foods, and many energy-dense foods, such as chips, and candy, because they were high in palatability. Many of their liked and disliked foods are included in Figure 3.2, 3.3 and 3.4. Some participants mentioned a dislike for very sour fruits and bitter vegetables. Their preferred fruits and vegetables are included in Figure 3.5. However, candy and soda with a sour flavor were reported to be appealing to some kids. Many comments about foods from the school lunch such as "*It just doesn't taste right*" and "*It tastes weird*" indicate that kids find these foods unappealing due to their inauthenticity. Table 3.2 lists comments of adolescent participants with regard to sensory properties of foods. Comments from adult participants were in agreement with the kids. Many parents mentioned that taste and appearance of foods was the key to kids' food choice decisions. They wouldn't eat foods that didn't taste good. Cravings for foods were mentioned in relation to their sensory appeal. Parents mentioned kids craving certain sugary and salty foods. "*Craving, they are like 'Oh, I want some chips' so then they will go to the EZ Stop and get the chips."*

**Table 3.2 Sensory Properties**

| Appearance |
| --- |
| **Positive:**<br>"Cauliflower, because it looks like snow"<br>"I like broccoli because it looks like a tree."<br>"(unhealthy food is good because).. it doesn't look gross"<br>**Negative:**<br>"Like, if it looks weird, I won't eat it."<br>"I don't like tomatoes because the seeds and things in the middle gross me out. Yeah I don't like the way it looks. How the seeds and things and stuff"<br>"If it looks uh… If it looks like broccoli, I won't eat it."<br>"I just don't like the way they look. They are red (tomatoes)" |

| Taste |
| --- |
| **Positive:**<br>"Taste, flavor"<br>"I like the taste of sour."<br>"(I like) Sierra Mist, Pepsi, Dr. Pepper, mountain dew.. Because of the taste"<br>"Fried things taste better."<br><br>**Negative:**<br>"I don't really eat Sonic like once I tried their French fries and tried drinking Coke and it left a really weird aftertaste in my mouth."<br>"I don't like fish. I don't like the taste."<br>"Bananas I don't like taste"<br>"Tangerines – I don't like them because they are sour"<br>"I don't like their (McDonald's) hamburgers. It has way too much salt on it."<br>"They (squash) never taste good."<br>"The taste (of peas)."<br>"I've tasted them, they are just weird (tomatoes)"<br>"(School lunch) It was cold and didn't taste good. It tasted weird. Because I like the potatoes, it's one of my favorite foods, but this just tasted weird, and not right and gross, you know." |

"I just don't like the taste of it (tomatoes). Well I never really liked it. a few years ago , maybe I'll like it now, maybe my taste buds have changed, took a bite of it, and nope, never-mind"

"(School lunch casserole) I did too, but it didn't taste as good as it would like just having vegetables."

"And like nasty stuff in there and you can tell it's in there and it just made people not eat it."

"I don't know about it (mushrooms), it's not correct, like they put them in like a casserole something like that,

it's just doesn't taste right"

"One time I ate it with salad and the ranch tasted so weird."

"Meat - the texture is off, the flavor is off, it doesn't taste right, it's just something different about it."

"(tater tots) Nasty. Taste like carrots. Yeah. Ugh. Ew"

**Texture**

**Positive:**

"I like carrots. Because it's crunchy and orange."

"Carrots are fun to chew on."

"The softness"

"Crispy Bacon!"

**Negative:**

**"(**Meat) the texture is off, the flavor is off, it doesn't taste right, it's just something different about it."

"I agree with him. It was sometime this year, they had the hamburger and I'm not a big fan, and I don't eat hamburgers and I kind of tried it this year and it was alright, but something that I noticed was that it was really really chewy, it was kind of weird, I don't know what was going on so I just kind of ate it. But I don't think that's how it's supposed to be. It felt weird."

**Figure 3.2 Savory foods liked by adolescents who participated in the focus groups**

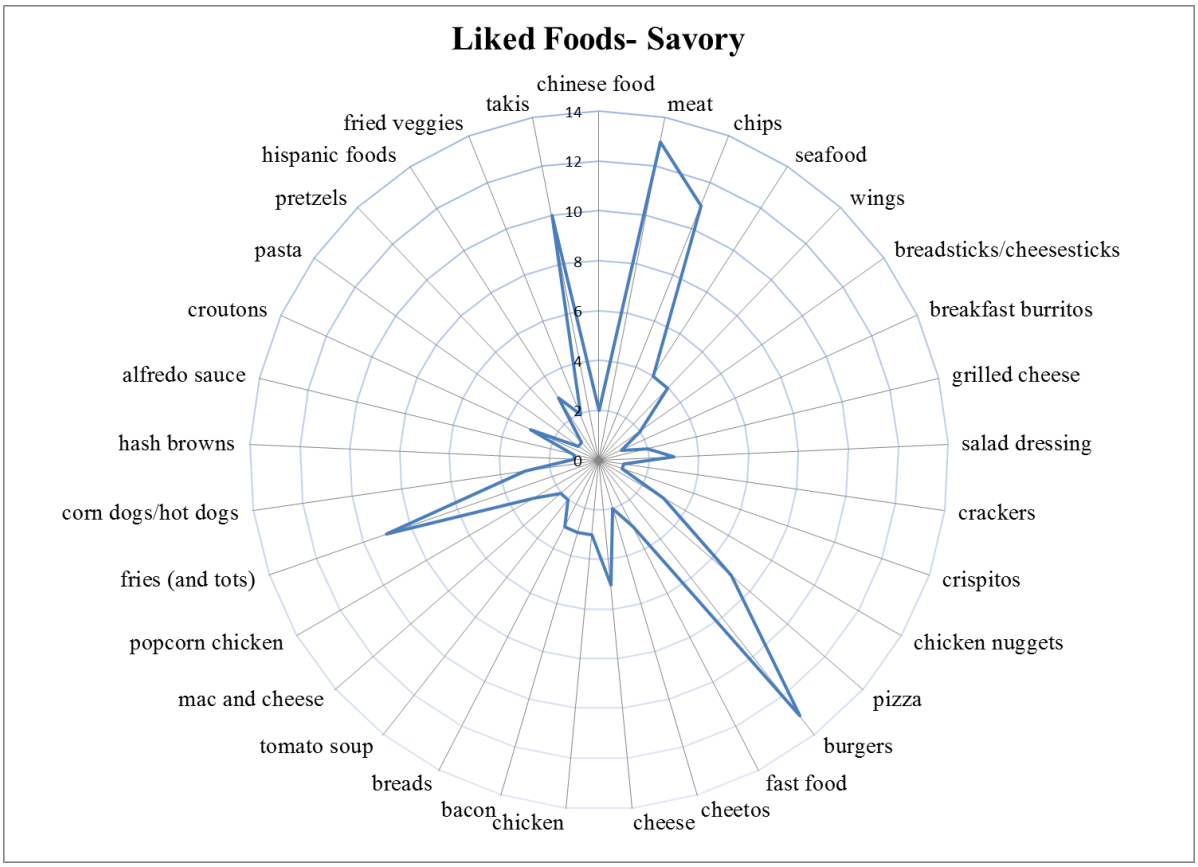

Liked Foods- Savory
chinese food
meat
chips
seafood
wings
breadsticks/cheesesticks
breakfast burritos
grilled cheese
salad dressing
crackers
crispitos
chicken nuggets
pizza
burgers
fast food
cheetos
cheese
chicken
bacon
breads
tomato soup
mac and cheese
popcorn chicken
fries (and tots)
corn dogs/hot dogs
hash browns
alfredo sauce
croutons
pasta
pretzels
hispanic foods
fried veggies
takis
14
12
10
8
6
4
2
0

**Figure 3.3 Sweet foods liked by adolescents who participated in the focus groups**

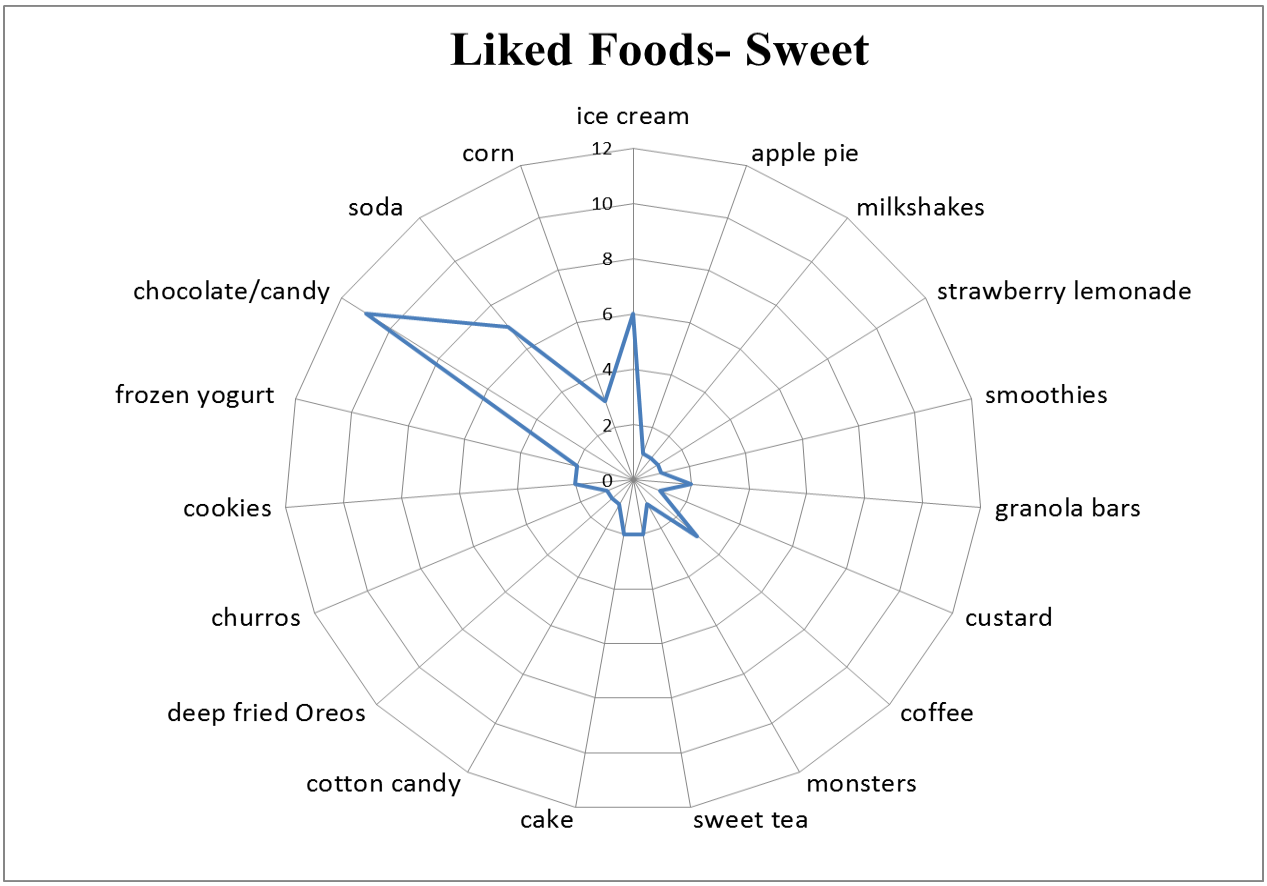



**Figure 3.4 Disliked Foods Identified by Adolescents**

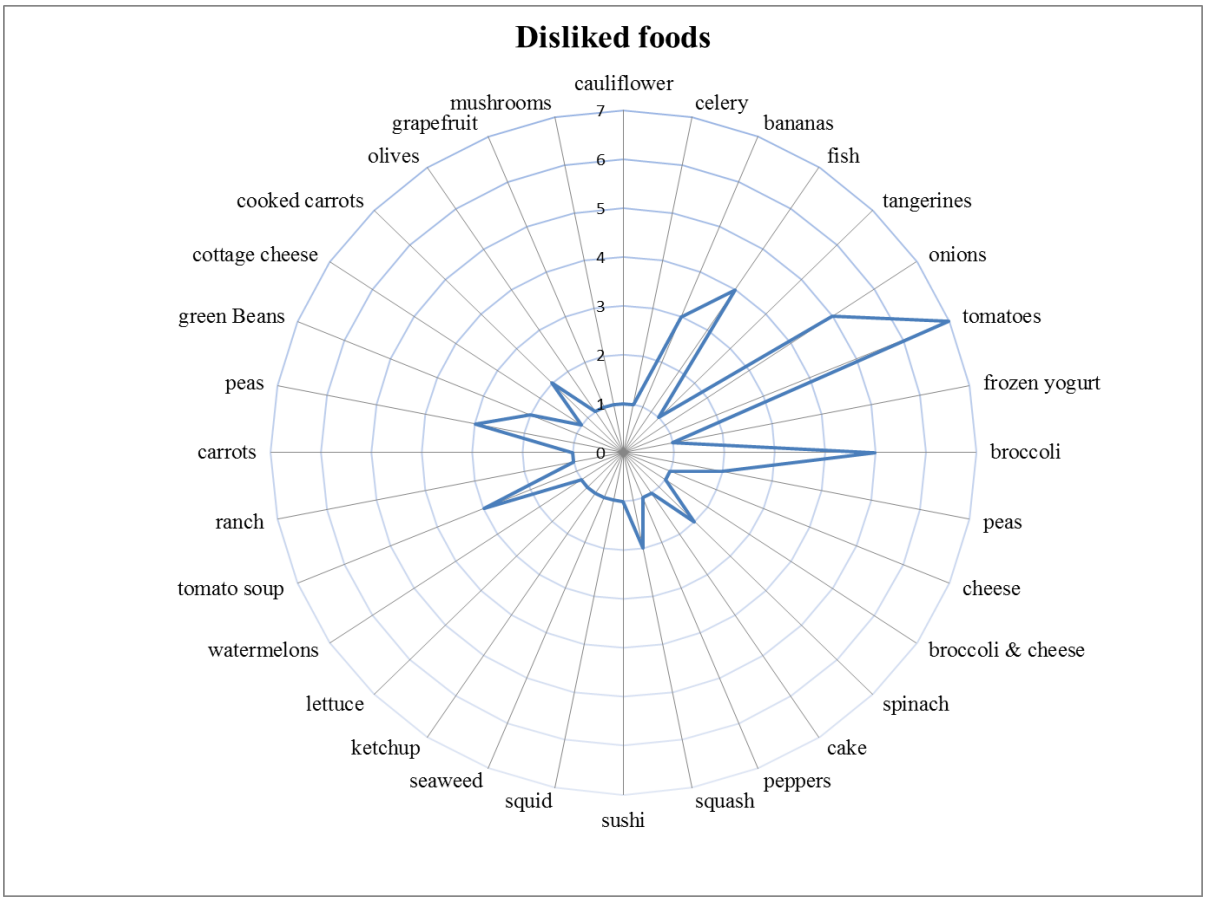
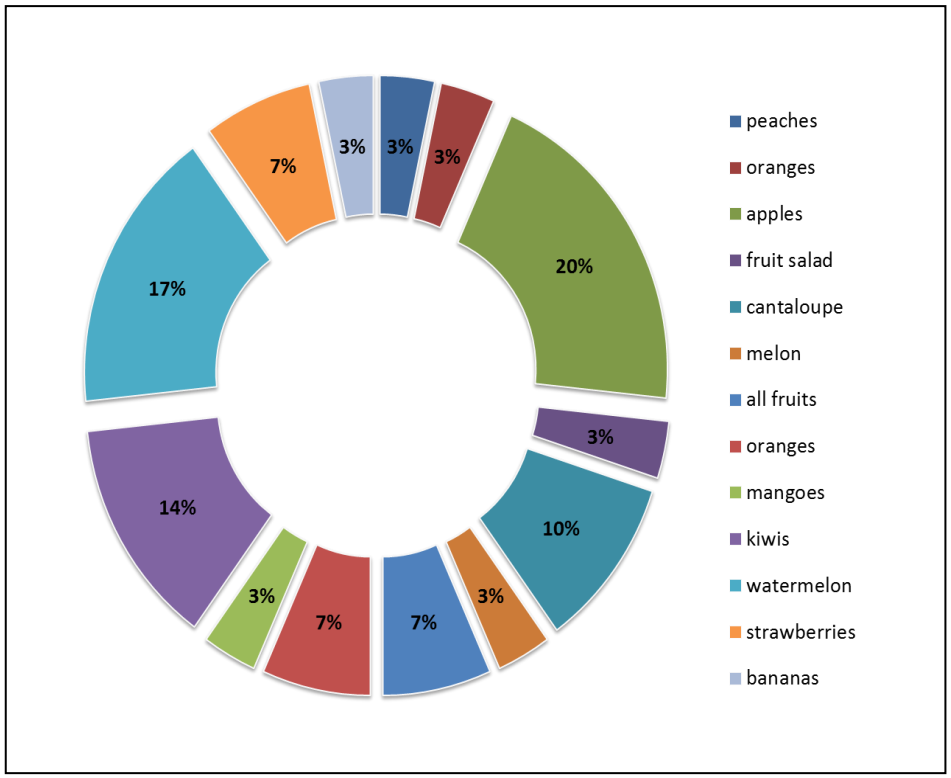

Disliked foods
cauliflower
celery
bananas
fish
tangerines
onions
tomatoes
frozen yogurt
broccoli
peas
cheese
broccoli & cheese
spinach
cake
peppers
squash
sushi
squid
seaweed
ketchup
lettuce
watermelons
tomato soup
ranch
carrots
peas
green Beans
cottage cheese
cooked carrots
olives
grapefruit
mushrooms
0
1
2
3
4
5
6
7

**Figure 3.5 Preferred Fruits and Vegetables of Adolescents**



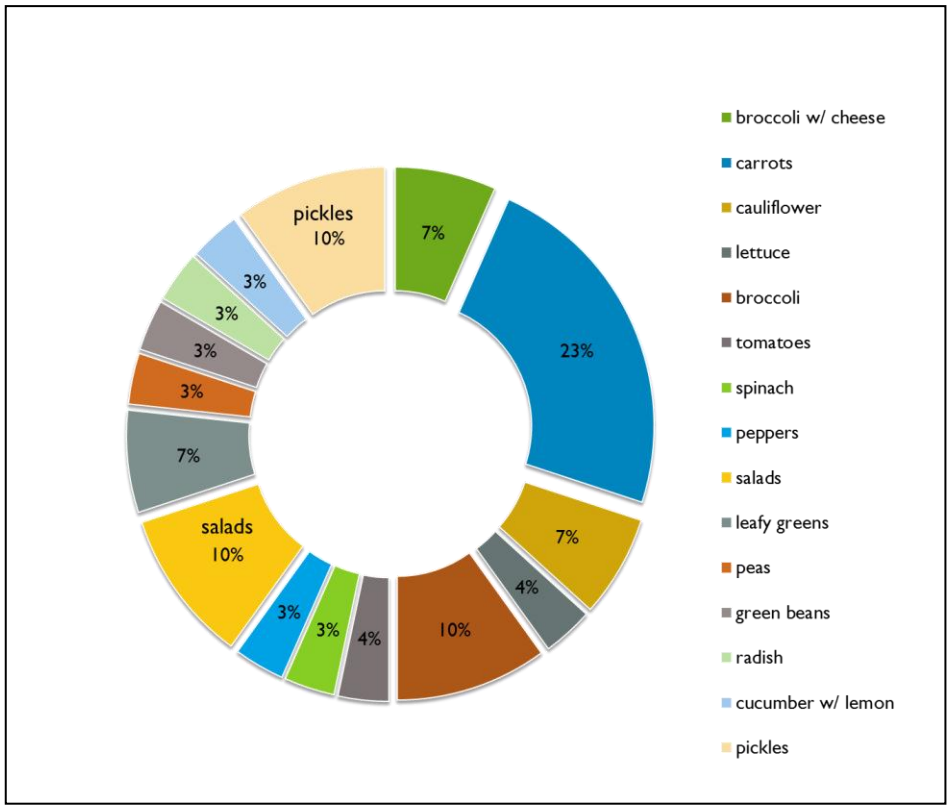
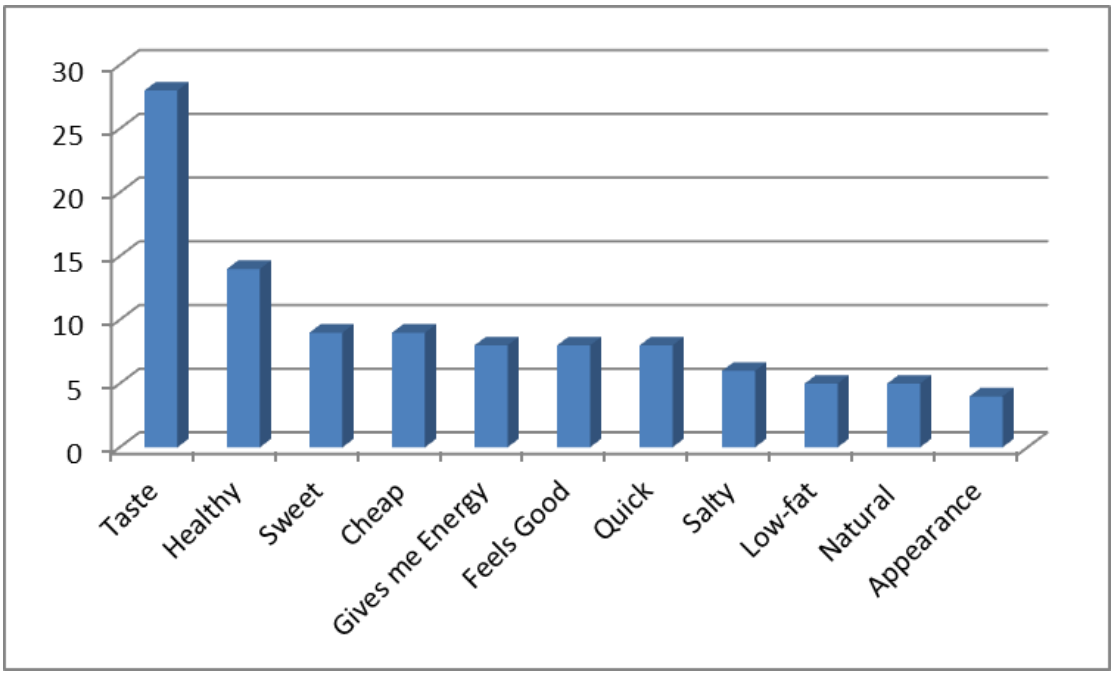



**Figure 3.6 Primary Food Choice Factors of Adolescents**




***Emotions related to Sensory Properties***

There was a strong disgust response associated with onions, broccoli, and tomatoes. Students described these items with the word 'nasty.' Many of the school lunch offerings, such as hot dogs, orange juice, lettuce, and the meat also elicited similar responses. This response was also associated with perceived inauthenticity of these items. Students talked about how the foods did not taste like they were supposed to. One student said "*Last year, I heard one of the cooks or whatever, they said that they put like half, 50% of its turkey, and I don't know what's the rest is, I just feel disgusted and I don't want to eat. I don't ever bother to eat it. It's not natural."* A negative emotional response was also associated with the food being unsafe to eat. One student said "*One time I know one guy who had mold on his hotdog*". Another said "*I think the milk is expired sometimes*." Another student relayed his experience of getting sick from eating broccoli and cheese at school lunch. Some students also felt anger and frustration at being forced to eat

healthy. Some foods elicited negative emotional responses, while others elicited positive responses. Students talked about items from their old school lunch with delight. "*The day they give me enchiladas, I'd be like aww I love you guys*." The mention of the words 'unhealthy foods' prompted visible excitement from the younger of the students, implying that they know these foods are unhealthy, but are drawn to them anyway.

Many adults mentioned that their kids were picky eaters. They reported difficulty when introducing a new food into their child's diet. This behavior tied in with a disgust response to new foods. Kids mainly choose foods based on taste and appearance, so attempts at introducing new vegetables or other foods were reportedly met with resistance. This was identified as a problem since these kids get limited nutrition from the school lunches due to their food choices. One parent observes that her daughter was more picky than her son. Some parents said their strategy to deal with picky eating was getting their kids to try it first. "*If its something that they've never had before, we just ask them to just try it, because they might like it. So that's how we introduce some of our new stuff."*

***Food preparation skills***

Few adolescent participants mentioned that they helped with food preparation. They specifically enjoyed baked goods such as cookies, pie, cupcakes, pizza, and brownies. Also, some students mentioned helping their moms making the dough for tortillas, hamburgers, rice and tortas. Some older adolescent participants mentioned that parents really needed help because they worked. Some said they helped in the kitchen when they felt like it. Some enjoyed making and eating macaroni and cheese. Some kids mentioned their lack of efficacy when it came to food preparation. Some mentioned experiencing accidents in the kitchen and losing the trust of their parents to prepare food by themselves. Parents indicated that most kids do not get involved

in meal preparation. They said what was available to kids was mostly "*Whatever I make for them*." Some parents mentioned that their kids do help with meal preparation or occasionally make their own simple foods. Overall, adolescents did not seem to have a significant role in meal preparation on a daily basis.

***Hunger related to skipping meals***

Hunger experienced by students, stemming from small portion sizes and dislike of many food items available at the school cafeteria, seemed to be a frequent issue. They mentioned being in a state of constant hunger. As a result of this hunger and its associated food unavailability, students mentioned their tendency to overeat when food became available (usually on the bus to get home, or upon their arrival home). There also was the tendency to indulge in tasty, quick and easy to access foods, and these were mostly mentioned to be energy-dense foods. "*I guess when you get home its more tempting to just eat the first thing that you see, no matter if its junk food, because it's more filling and tasty*." Also kids mentioned that it was difficult to focus during the last few hours of class, especially on days when they disliked the main meal served at lunch. For students in after-school programs, this meant that they were engaging in sports without being properly nourished. When the food is filling and they liked the food served, the students said they felt more satiated and had more energy throughout the day. If kids did not like the food, they said they usually ate the sides or nothing at all. Some students who identified themselves as picky said they had an especially hard time with many of the foods served at lunch. On the bus ride home, many kids snacked on junk food. Kids reported bringing these snacks from home and passing them around like a 'potluck' on the bus. Parents had similar views of hunger experienced by the kids. Parents vehemently disagreed with school policies that dictate how much food their

children could consume at lunch. Many parents felt that it was bad to limit food since early adolescents are in their growing year, and should be able to eat until they are satiated.

### *Cost and Convenience of Foods*

Money was also said to factor in strongly into food choice decisions for many adolescents in this population Adults mentioned that kids would prefer cheaper options. "*Well, if you are talking about kids having to pay for it, I think, with the money they have in their pocket, it does matter what it costs. And in our population, we have a lot of really poor kids, so I think the cheap part would be pretty big on their list. As far as kids are generally around here, I think that is important, because they don't have the money to go just get anything."* Some parents also mentioned that cost was important when they were going out to eat as a family. McDonald's was referred to as a cost-effective option. "*Subway's a lot more expensive. We sometimes skip Subway and go to McDonald's because it's kind of expensive*." Adolescents mentioned many items that were cheap were also quick and were 'junk foods.' Adults said they sometimes steered away from perceived healthier restaurants because they are more expensive. Convenience, a lifestyle factor, was said to influence kids' food choice. Many adults said kids prefer foods that are 'quick' and 'easy.' They also described kids as impatient with regards to their food choices. Food items like ramen noodles were mentioned in the context of foods that were convenient. "*they don't like to wait for anything, which kind of goes back to convenient, but, yes, quick*." Some adults said that if families lived out in the country, and this influenced their food choices, in that they prefer convenience foods more often. Convenience was also associated with food cost, wherein many adolescents said that the foods that they thought were convenient, were also cheaper.

### *Physical Activity on the weekends*

Some students were physically active on weekends, but students also mentioned being very tired and wanting to relax on weekend. Some students mentioned being busy with chores such as cleaning and babysitting on the weekends. Some family activities mentioned were deer and duck hunting, picnicking and playing sports such as soccer, softball and basketball. Many students mentioned playing videogames with their peers. Just Dance, Call of Duty, Minecraft and Blackout were popular games with all groups. The time that they engaged in playing videogames ranged from half an hour to two hours at a time, mostly over the weekend. They reported consuming soda and chips such as Lays and Takis (rolled, deep-fried, spicy corn tortilla chips) while playing.

***Perceived Facilitators of Healthy Eating Behavior***

Good taste and texture were identified as the main facilitators of eating healthy. Many participants noted that sports involvement encouraged students to engage in healthy behaviors. "*If you're in sports you can't drink like root beer and anything like that. You can't drink any kind of soda if it has sugar in it really. Unless it's like a healthy drink*." These healthy drinks were identified as water, Gatorade and Powerade. When comparing kids who were athletic with those who did not participate in any sports, students noted that they were eating healthier in general. Eating at home was identified as a facilitator as well. "*I suppose that people eat more at home because it's more healthy, home style it's a…yeah, its healthier, like our family tries to make everything they can from scratch*." Some participants mentioned family members such as their mom, brother or uncle as helping them make healthier choices. Having a family member who had a health condition was said to influence their behavior in a positive way.

Many parents mentioned their influence as facilitating kids' healthy eating behavior. Rules that parents enforced, such as, increasing 'colors' in their diets (through introducing more

varied fruits and vegetables) and limiting junk food/soda in the house were identified as actions that facilitated healthier eating in the home. They said it was important to promote consumption of healthy snacks. "*instead of have cookies at our house we have yogurt or, things like that*." Parents also mentioned encouraging their kids to substitute 'bad-for-you' foods with 'better-for-you' foods "*Yeah, I try to get him to drink more juices. Juice or water, or least some of the Gatorade, that actually, helps put a little something else in him besides just sugar*." One parent brought up the issue of accessibility, and what parents mentioned that accessibility was a big "*I really don't know if it was just a matter of education or just accessibility, you know?*" She felt that having healthier snacks accessible to kids at home was more effective "*my step daughter used to live in Liberal and when she came to live with us she lost a lot of weight and she attributed it to us having better snacks*."

Their own positive behaviors were said to influence their kids' behavior in a strong way "*I was raised, my dad was very healthy, so…Just at home, you know it's passed on to my kids I guess*." Adult participants believed that parents are role models for their kids. "*From the parents. Basically, they're going to do what they have seen growing up. I think when we say no, that's not very good for you they know that*." If parents set a good example with regards to their eating behavior, they believed that kids were more likely to follow suit, "*You know, but, it's my opinion or observation that they will do what you do, you order water, they are more likely to order water."* Other positive role models were identified as influencing kids at this age to eat healthier. One teacher gave an example at work, " *The social studies' teacher, when he fills his plate, he has a rule that he puts over fifty percent fresh fruits and vegetables,….he models that because the kids watch him and he makes a big deal if he notices somebody else is getting a lot salad and*

*eating it*." This type of role modeling influenced kids to put more fruits and vegetables on their plates.

Coaches were also identified as strong influencers in their diets while being active in sports. However, this behavior was maintained mostly as a function of involvement in sports, and not throughout the year. "*I think when the kids play the sports, I think all the coaches tell them you shouldn't drink pop you shouldn't do this, you know. Stay in the best shape you can, so my daughter does a little better during sport season than some of the other times.*"

### *Perceived Barriers of Healthy Eating Behavior*

Overall, adolescent participants felt that it was not easy for them to eat healthy. The options for eating unhealthier were more enticing and tempting to kids their age. "*There is a lot of temptation. Most people don't have that much will power.*" The numerous options for good-tasting and cheap foods were also mentioned as a facilitator for consumption of these unhealthy foods. They also mentioned how the 'bad for them' foods were placed strategically in stores, and that this further inhibited their ability to resist these foods. One participant highlighted the need for understanding the 'balance' with their food consumption. "*There has to be a kind of balance that, and I guess, us being young, it's hard to know that balance*." Their access to healthy, nutritious food items was dependent mainly on their parent or guardian. One participant said that buying fresh fruits and vegetables was a burden, "*The cost and then waste like my mom, she brought fresh bananas. My step dad and sister didn't eat any so it went to waste, so she said she's not going to buy them anymore*."

Many participants identified that a huge barrier to healthy eating was their own attitude towards it. The participants who disliked the taste of many vegetables also said that they would not enjoy eating healthier. "*No, I want the junk food!*" They mentioned that any efforts at making

them eat healthier would be met with resistance "*I would probably make a fuss, if they tried to make me eat healthier. I'll starve. I just never want to eat healthy*." Another barrier was their tendency to find 'loopholes' in a system designed to help students eat healthy. One student described such a rule at school lunch " *The lunch lady would stand out there and she would check you and see if you had that amount. She used to stand at the salad bar and you would have to get this cup of just fruit or vegetable or if you didn't get it she made you go back and get it. A lot of people didn't eat it anyway, they just filled it with like a fruit or vegetable they didn't like and just left it on their tray or gave it to a friend or something*." Another student stated an example related to her parents "*When my mom makes something with vegetables, I'll look for something in the fridge that doesn't have it."*

Access to produce was considered limited and expensive in this community, and many adults said it strongly played into their purchasing behaviors. Cost was also identified as a very strong barrier against eating healthy. They mentioned several fruits and vegetables that were very expensive. Adults also explained that there were differing income levels in this community; while some parents can afford to buy fruits and vegetables for their kids, there are many more that have financial barriers against them. With these items being perishable as well as expensive, most parents would opt out of these purchases. Parents also talked about how cost contributed to kids' unhealthy eating behaviors during games. They recognized how the ready-to-eat snacks are preferred because they present less of a hassle. They also mentioned cost as a factor that impacted this decision. Adults mentioned kids being impatient with regards to their food choices. This results in many situations where quick and easily accessible junk foods are immediately available to kids who may not be willing to wait for a healthier alternative.

Parents also mentioned that while their rules at home enabled kids to eat healthier, they didn't think that behavior would hold outside of the home. "*…I'm sure at school, when they have parties and stuff, I'm sure that they do.*" "*I think most kids probably do (eat junk food), if it's available*." Many parents thought it was solely their responsibility to ensure their kids eating behavior "*I think it depends on how you manage them in the home 'cause I try to avoid sodas*." "*We need to try to steer them away from the really unhealthy stuff. And of course pizza. They like to eat Pizza Hut or something."* While parents perceived themselves as facilitators of healthy behaviors, they also identified themselves sometimes as promoting unhealthy behaviors. Working parents mentioned convenience as taking precedence over the healthiness of foods at times. "*and I think sometimes parents will do the wrong things, for example for mostly of the parents who work and we come to home at six, seven in the afternoon, and we try to cook something fast, and what is a more regularly a fix hamburgers, hotdogs, so we are trying to cover at the moment, and sometimes, especially for me I know I am wrong and trying to offer this to my kids, to my family*." Planning ahead was also sometimes not an option for working parents. Time was mentioned as a barrier with regard to food preparation. When kids are hungry, and meals were not immediately available, they resorted to eating 'junk food' that was readily available at home. "*Yeah because sometimes they are hungry…. so I need to cook something fast see I need to wait 30 minutes or an hour, they ate everything and when the food is ready they don't…they'll go and eat chocolate*."

Traveling and being on the road was also identified by some as a facilitator of unhealthy eating. Families tended to opt for quick, convenient and cheap foods while on the road. There may also not be any healthy options to choose. Culture was also mentioned as a barrier against

healthy eating. She continued that where tortillas, meat, rice and beans may be more of a staple meal; and fruits and vegetables may not be part of many families' diets currently.

Kids' preference of taste over what is 'good for them' was also mentioned as a barrier. Even when parents made the healthier options available to them, kids regularly pass them over for the more preferred and less healthy options. Some parents expressed frustration with the school's preoccupation with foods. Food rewards were identified as all too common and strong facilitators of unhealthy eating among their kids. One parent, exasperated, pointed out the absurdity of rewarding kids with unhealthy snacks at school, "*Have the school lunch program is supposed to be healthy and give them donuts as a reward in class*?

One unintended consequence of the changes to school lunches includes kids substituting unappealing 'healthier' options for more appetizing ones. "*.. The school lunches have gone to low fat so when my kids did eat salads every day. Now they won't cause the dressing is…I won't even eat a salad anymore so I understand what they are trying to do, the government is trying to reduce fat, but in a sense they are making the kids eat a bowl of cheese instead because there is nothing else to eat.*" Parents also disapproved of the amount of food that the kids were allowed to eat at lunch. They said kids substituted their main source of nutrition with 'junk' on the salad bar or from the vending machine. One participant talked about a 'decoy salad' that she witnessed kids eating. It consisted of cheese, croutons, and ranch. "*I see a lot of kids get the salad bar, they'll get like cheese with ranch on it. Croutons with ranch." "Well, they're, they're limited on the main dish and so what are they going to fill up on? There's not much on the salad bar. Croutons, you know like, crackers, so I think it's kind of backfired I think*." Adults also complained about the unhealthiness of the school breakfasts. "*So you're getting the sugary, I*

*mean not a lot of sugar, but you're getting the sugary fruit cup and then you're getting the sugary cereal and so…*"

### *Perceived Facilitators of Physical Activity*

Things that motivated them to be physically active were boredom, a sunny day, playing a sport that they enjoyed, 'feeling like it.' One student mentioned physical activity mitigating anger and frustration. Students specified certain videogames as facilitators of physical activity. The WiiFit was repeatedly mentioned as a videogame console that increased their physical activity in a fun way, because they needed to move around as part of the game. They spoke excitedly about a videogame called Just Dance. One student brought up socializing as a facilitator of physical activity. . "*More social life can actually probably help because they're with their friends a lot more… Instead of being at home, sitting and watching TV."* Many students also mentioned participating in afterschool sports activities which increased their overall physical activity. Many students were involved in after-school sports programs, which consisted of approximately two hours of moderate to vigorous physical activity. Students mentioned a variety of sports that they participated in, such as volleyball, football, tennis, and basketball. However, students who didn't participate in sports said that there were other ways to be physically active. "*And I'm mostly into music and reading and stuff, but I still find time to run and lift weights and do stuff*." Students who lived in the countryside said they enjoyed more outdoor activities like horse-riding. One student said "*During the summer, I have pigs and everything, so that's how I get my physical activity. We have to let them out and I have to chase them*."

### *Perceived Barriers to Physical Activity*

Students reported many barriers to them being physically active. Being busy with homework, family travel time, taking care of siblings, being tired or weak, having low energy, being lazy, playing video games, watching TV, and having no motivation to be active, were some identified barriers. Some participants mentioned after-school activities being too competitive and not enjoyable. There was pressure associated with being involved in these activities *"(Volleyball) can be (intense). Like if we're really really tired and also if you're injured it messes up some things*." Students reported more tiredness as the week set in "*Like the first day, when the Monday comes, you have the weekend to rest, it's not really that bad, but after that it's like. I so don't want to be here, I am so tired. I want to sleep*." Low energy during practice was mentioned by several students as a barrier. This was related to school lunch, since many students avoided the main meal and remained hungry through the rest of the afternoon. Some mentioned not liking 'boring' sports like golf. One student brought up the change in videogames as a barrier. Some students said that their own laziness was a barrier. Lack of motivation was another barrier. Another student spoke of a friend who she was unable to motivate *"I have a friend that she doesn't want to do anything and I tried to get her to play with me but she won't."* Seasonal barriers were also brought up. "*I think when the weather is nice, you can get the kids active, but in the middle of winter, if there is not an organized sport. I don't think so. Do you see it? And I mean, and my kids…"* Adults mentioned sedentary behaviors such as TV, videogames, texting and using the computer that inhibited activity. "*And they don't, they prefer to sit and play videogames and watch TV than go outside and play*."

## Interpersonal Influences

### *Parental Control*

Parental control rated high in this population. Parents exercised control over their kids with respect to establishing nutrition rules at mealtimes, holding purchasing power, and providing transport. Kids said that they mostly had no purchasing power in the family. If they wanted a specific food item, they would have to 'put it on the list'. Hence, their access to healthy, nutritious food items was dependent mainly on their parent or guardian. "*I want this and this and this but the thing is that sometimes we don't have money for it and sometimes waste it.*" One participant said that buying fresh fruits and vegetables was a burden because of the cost and also that these went stale quickly "*The cost and then waste like my mom, she brought fresh bananas. My step dad and sister didn't eat any so it went to waste, so she said she's not going to buy them anymore*."

***Meals at Home***

Most participants said their meals were prepared by a family member. Working parents mentioned planning their meals ahead of time. Participants said they were very hungry at dinner time since many of them took part in after school sports and reached their homes late in the evening. "*My dad will sometimes cook, and if he has something cooked, I'll eat that, but if there's not anything cooked, then I'll just eat so much of whatever.*" Some participants had parents who worked late and hence would have to heat up TV dinners or wait for them to arrive home. These were identified as potential opportunities to snack on palatable energy-dense foods. Many Hispanic participants mentioned that they ate a lot of Mexican food at home, and this was prepared by a family member.

***Cultural Factors***

Many students mentioned the 'Hispanic influence' on their foods. They associated spicy and flavorful attributes with Hispanic items. Takis, quesadillas, enchiladas and tortas were

mentioned as popular foods among kids. One adult participant however, mentioned that the traditional cuisine did not include fresh fruits and vegetables. Rice, beans and quesadillas were more commonly prepared and consumed in her home.

***Food rewards***

Students reported getting sugary snacks in class for doing well on their tests. They also mentioned having the opportunity to chew gum in class. The seventh grade kids mentioned a reward system in one class that they had. "*In our class… if we get our planner signed for a grade and if we get that signed for ten days, we get a candy bars, and if we get it for forty days, the whole class gets a pizza party*." Another seventh grader adds, "*Sometimes in twenty days you'll get a king size candy bar. Thirty days you can get a king-size plus Gatorade*." The students seemed to agree that this was a motivator for them to do well in class. Some participants believed that unhealthy food rewards would help motivate them to eat healthier "*If you give me a big giant cookie at the end, I'll probably do it.*"

There was also an expectation for parents to bring snacks to games. "*For after the game so you know if it's a parent's choice what they bring*." However, cost and time often play into parents' choices, resulting in more unhealthy food rewards for kids. "I *mean if you're going to bring fresh fruit you have to buy it, bring it and cut it up. It's just…You're not going to bring apples and my daughter gets mad at me if I bring like trail mix or something. Kids don't want that!*"

***Peer Pressure***

Peer pressure was identified as strongly influencing some of the kids' food choices in school. "*My son is very worried about what other people think about him. And I was just talked with the lunch ladies the other day, and they had some steamed broccoli and stuff on the salad*

*bar, and I said if we were at home, my son would have taken that steamed broccoli and he would take the cauliflower, he would chose to eat all that. But at school, it's not cool to eat the steamed broccoli and steamed cauliflower, so he's not going to pick that up…*" While participants of the adolescent groups themselves did not bring up the influence of peer pressure, the effects of peer pressure were seen real-time in the groups; participants were sometimes chided or ridiculed for saying they ate certain foods or engaged in certain behaviors.

While participants of the adolescent groups themselves did not bring up the influence of peer pressure, the effects of peer pressure were seen real-time in the groups; participants were sometimes chided or ridiculed for saying they ate certain foods or engaged in certain behaviors. For example, one participant who mentioned that he liked eating seafood was met with ridicule from other participants who expressed disgust at that food category. Another participant who expressed that 'cheap' factored into his food choice items was pressured into changing his opinion by another participant.

### *After-school Activities*

Many adolescent participants were involved in afterschool activities. Adults mentioned it as a good source of physical activity for kids. Some of the sports they mentioned were basketball, football, volleyball, baseball and softball. "*Our recreation commission is almost tied in with the school system here. And so all the kids if they're offering the extra-curricular sports outside of the school sports, they all get note about it, if they want to sign up for it. But the rec really does a good job of making it available to everybody. So I don't if they could do a lot better than they do*."

## Environmental Influences

### *Eating Out*

While some kids mentioned going out to eat with friends, the majority said this was an activity that they engaged mainly with family. Most restaurants were located far away from where the kids live. The Tavern, a restaurant in Plains was quite popular with the kids. They mentioned chicken tenders, steak, French fries, tater tots, cheeseburgers and soda as items they enjoyed. The main purchaser of foods and snacks in the household were parents. Kids reported that they bought most of their snacks from Wal-Mart or Dillons. Many kids mentioned enjoying fast-foods like items from McDonald's, Burger King, Sonic and Pizza Hut. French fries, hamburgers, ice-cream, wings and pizza were frequently mentioned. However these are located in Liberal, KS, which is 30 miles away from where most of them live. This is not in their immediate environment, suggesting that parents are enabling their kids to eat at these places. Kids who travelled a lot on weekends for games or other activities said they ate out at fast food places more. They mentioned that they liked the fact that the food was quick, cheap, good tasting, and more available. Some kids said that the food gave them energy and made them feel good. Some said that the food was greasy and it made them feel worse. Many considered Subway a healthy choice, and that they liked eating there. Large portion sizes were mentioned by older students in context of fast food restaurants.

***Convenience Stores/Gas Station***

An option for kids in Plains that they could shop for themselves for snacks was the one and only gas station. They mentioned a range of 'junk foods' that they could and did buy, such as, chips, chicken strips, burritos, French fries, soda, candy, ice cream, donuts, etc. Kids who lived in Plains said they could walk or bike to these places. Those that lived in Hayne however, needed transport.

***School Meals and Vending Machines***

Many kids mentioned skipping breakfast. They did not eat breakfast at home because they didn't have time to eat it in the morning. Some reasons they mentioned for not eating breakfast at school was because it was too crowded, it costs money, and they didn't like walking over to the cafeteria in the morning. Overall, when probed many of the kids couldn't articulate clearly why they didn't eat breakfast. The most common breakfast items mentioned were orange/grape juice, milk, cereal, fruit and granola bars. Comments about the school lunch program were overwhelmingly negative. Comments have been summarized in the table below. Many kids reported skipping the main meal on the days that they felt it unpalatable. Some ate it because they were hungry and many ate the sides, such as the crackers and the fruits as well as items from the salad bar. Participants mentioned that the salads they made were mostly doused in cheese, croutons and ranch dressing. The main issues that they had with the school lunch menu were the taste, appearance, lack of variety, and inauthenticity of the food served. Responses were visceral and emotional, and many kids seemed frustrated with the school lunch. . Adults identified school lunches and breakfasts as very important sources of meals for kids in this community "*It's where a lot of them get their only meal*." Either due to lack of time or money, many kids did not opt to bring their own lunches to school. "*They're free and reduced …I mean my kids is just don't have time to make lunch at home so they are going eat here.*" However, parents and teachers received several complaints from their kids and students about the school lunches. Many had complaints about the taste and appearance of the meals. These were attributed to recent changes to the school lunch menu. *I think just frozen food that has been heated*", "*Because I don't think it has much flavor to it. I don't know, but, just one of the yes, I don't know. No flavor, no. No salt, no you know.*" They noticed kids not eating or disposing meals

they did not like. "*My kids hate them. Since they did all this changing, ..My kids say that didn't like it, they just threw it in the trash."*

Students said that they had the option to use the vending machine before and after school. The vending machines were reported to be popular with the kids, Adult and student participants recognized that the vending machines were a source of unhealthy food for kids. The reported items sold in the vending machine were pop tarts, chocolate milk, chips, beef jerky, Gatorade, Powerade, juice, crackers, soda, candy, hot Cheetos, and trail mix. Students said that they had the option to use the vending machine before and after school. "*Junior high doesn't have access to it until after school. …. So if they want something before they get on the bus they have to hustle down there and to get the snack from the snack machine and then get it on the bus. Or take it to practice with them if they go practice or whatever*." The vending machines were reported to be popular with the kids, *"Yeah, they use it (vending machine) constantly, they buy three to five chips and pop, it's kind of amazing how much they can eat, and I don't really think it's good for them, but."* Adult and student participants recognized that the vending machines were a source of unhealthy food for kids. "*We have a, there is snack bar or snack machine down there, but it supposed to be all healthy food, not necessarily, because it got pop tarts and stuff there, I don't know that its necessarily healthy."* The reported items sold in the vending machine were pop tarts, chocolate milk, chips, beef jerky, Gatorade, Powerade, juice, crackers, soda, candy, hot Cheetos, and trail mix.

***Identified Strategies to Increase Healthy Eating Behavior***

Participants in this study described a number of different strategies to mobilize healthy eating for kids. The major healthy eating strategies identified are described below.

**i. Avoidance/limitation of unhealthy foods; Substitution of healthy for unhealthy foods**

Increasing specific categories of foods like fruits and vegetables to the diet was repeatedly mentioned. Avoiding items like pop and junk food was mentioned. Eating more salad and drinking more water were also brought up as ways to increase healthiness in one's lifestyle. Food-preparation wise, limiting the amount of fat or was suggested. Participants thought that vegetable burgers were a potential healthy substitution for hamburgers, since they felt it was a good source of vegetables. Also, several students mentioned substituting 'bad for you' junk foods with 'good for you' foods like vegetables.

**ii. Introducing Incentives for Eating Healthy**

Some students mentioned that rewards would be good motivators for eating healthy. "*If she eats healthy the whole week, she gets something at the end of the week.*" Food rewards were specified by some students as well. "*If you told me that a giant cookie would be waiting at the end of it all, then maybe*."

**iii. Increasing Parent Involvement**

Many participants saw parent participant in schools and programs as important. They agreed that educating parents would enable them to make healthier choices, but that it was a challenging course of action. "*It goes back to teaching parents. I think would need to take it back even further. I mean I think that we can teach, teach, teach them all they want when they get home it's going to be what's available,….but I still see that is one of the biggest barriers is the parents. What they have available.*" Since parents are strongly influential figures in their kids' healthy eating habit development, parents need to instil their kids with the right information. "*Well, like she is talking about educating parents, which we talked about that a lot and everything we do, successful kids is educating parents*." They suggested reviving activities such as 'Family Fun Nights' that were popular with families in the past. However, parent involvement

they said needed to increase. Money for the program was dwindling however, and in the wake of this information, the need for a sustainable intervention which did not require as much investment with regards to money, time, and resources was specified. Additionally, they identified parent-teacher conferences as a good venue to involve parents.

**iv. Garnering Student Input**

Adults mentioned that listening to kids and gathering their views on nutrition and physical activity would reveal insights that may help adolescents improve their behavior. They also mentioned getting their views on nutrition and physical activity "*... They come with different comments and they will give good information that without it we would never know*."

**v. Increasing Knowledge and Interest in Healthy Eating**

Offering nutrition and health education classes were mentioned by students as a strategy to enhance healthy eating behavior. One student pointed out that the way in which the classes were offered was going to be important. He emphasized that a stimulating and inspiring session would garner more interest. Another student mentioned the importance of getting students interested and invested in their food choices. This, she explained, would improve their healthy eating behavior. Most adults agreed that students needed more nutrition information. However, getting kids interested and excited while providing information was deemed a good strategy. Encouraging kids to use their creativity and be involved in more hands-on activities were identified as strategies to help them retain this information. The use of technology and social media to educate was also brought up. One parent mentioned how kids were using social media sites like Pinterest to get healthy recipes.

The important of having visual tools to help disseminate ideas and information about healthy and unhealthy eating was also brought up by parents and teachers. Another parent

mentioned focusing on the consequences of unhealthy behaviors. Enabling kids to create healthy snack products was also defined as a strategy.

**vi. Improve Quality of School Lunches and Breakfast**

Improving school lunch and breakfast offerings was acknowledged as one of the most important strategies in improving adolescent eating behavior in this population. Some comments about the need for improving the nutritional quality of the school breakfast program were mentioned. Increasing choices of the meals, improving options on the salad bar, and bringing in natural ingredients were approaches mentioned by adults. Some of the older adolescent participants mentioned increasing transparency with regards to the source of their foods and what it contained. Many of the comments were directed towards the nondescript meat that was sometimes offered at the school lunches. Reducing the pre-cooked components was the school lunch was also deemed important. Adolescents desired bringing back good taste and flavor to the school lunch menu and take out reported 'nasty stuff' like tater-tot casserole, cottage cheese, and sweet potato tater tots. Students asked to serve more varieties of fruits that kids like to eat, specifically oranges, watermelon, kiwi, pineapples, and pears. Kids were divided on the issue of increasing vegetable varieties. There was a clear preference for fruits. They also mentioned increasing available options at the salad bar to such items as dried fruit, nuts and different kinds of salad dressings. The low-fat ranch dressing that was currently being used for the salad was repeatedly tagged as 'gross'. Students asked for the old version to be brought back. Some students wanted "*healthier meat, less greasy*". Some students mentioned taking soda and the unhealthy options out from the vending machines. One student suggested getting the community involved with the school lunch. Introducing foods that kids enjoyed was suggested frequently,

especially by the younger members of the group - "*add dessert to every meal*", "*pizza Fridays*", and "*Get the enchiladas back.*"

Many adult participants contrasted the school lunch at the junior high with the elementary school, which was described as higher in quality. They suggested looking to the elementary school for guidance for improving their lunch offerings. Mixing too many things together was identified as unappetizing. Instead of mixing vegetables into the meal, they suggested putting them on the side for kids to eat. Improving the taste, texture and appearance were mentioned as strategies to improve school lunch.

**vii. Limit serving size**

Students recognized that a strategy to improve their own healthful eating would be to focus on their serving sizes. Some students said they would try to get others to "*not eat that much*." And that they would want to encourage others to "*get the one serving not the whole thing and put it on your plate.*"

***Identified Strategies to Increase Physical Activity***

Many participants emphasized the value of 'having fun' while engaging in physical activity. Across all groups this was brought up as a stronger motivator to increase physical activity. Some students indicated that they desired more fun in their afterschool activities. Some students identified getting others involved in a sport as a strategy. Not everyone agreed with this line of thinking. Students brought up the fact that many students were unable to participate in sports due to medical reasons. One student said he would quit school if it became mandatory to play a sport. He highlighted other ways to be physically active, such as lifting weights. Some said strategies should target reduction of TV and video-games; however, others said that playing games like the Wii Fit would be a good strategy to increase physical activity in kids. Increasing

the variety of sports offered at school was mentioned as a strategy. Some mentioned tricking students into being physically active. Motivating kids with food rewards was mentioned as a strategy, as well as targeting energy imbalance by "*making them run more than eat*." Adults said interventions need to focus on ways kids can be active at home. Adults suggested focus on ways to improve parental involvement, especially if their kids did not participate in after school activities. Family fun nights which involved families and their kids were referenced as a strategy to increase physical activity. However transportation was mentioned as barrier to overcome. Adults also mentioned the utility of having a community or recreation center for winter-time.

## Conclusion

Our study provided in-depth information about 6th to 8th grade adolescents' perceptions of factors influencing their food choices and physical activity. Discussions of the multiple individual, social and environmental influences on food choice and physical activity supported the theoretical framework of behavior based on the Socio-ecological model. Factors viewed as most important in influencing food choices included the food's appeal, its convenience, the time involved in eating it, and availability. The temptation of foods high in fat and sugar is often overwhelming, and their availability, low-cost, and convenience promotes their consumption. Lack of motivation to be healthy as well as knowledge gaps, also influenced their food choices. In addition, the many social and behavioral issues facing adolescents may make nutrition and physical activity a lower priority for them, and their parents.

# References


1. Koplan J, Liverman CT, Kraak VI. Institute of Medicine Committee on Prevention of Obesity in Children. Preventing childhood obesity: Health in the balance. 2005. Washington, DC: National Academies Press.

2. Levi J, Segal LM, Gadola E. F as in fat: How obesity policies are failing in America. Washington, DC: Trust for America's Health. 2007.

3. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of obesity and trends in body mass index among US children and adolescents, 1999-2010. *JAMA*. 2012; 307:483-90

4. Wallerstein N. Commentary: Challenges for the field in overcoming disparities through a CBPR approach. *Ethnic Dis.* 2006; 16(1 Suppl 1):S146–S148.

5. Willis K, Green J, Daly J, Williamson L, Bandyopadhyay M. Perils and possibilities: achieving best evidence from focus groups in public health research. *Aust NZ J Publ Heal*. 2009; vol. 33, pp. 131–136.

6. Croll JK, Neumark-Sztainer D, Story M. Healthy eating: What does it mean to adolescents? *J Nutr Ed*. 2001; 33 (4):193–198.

7. Cullen KW, Hartstein J, Reynolds KD, Vu M, Resnicow K, Greene N, et al. Improving the school food environment: Results from a pilot study in middle schools. *J Am Diet Assoc*. 2007; 107(3):484–489.

8. Evans AE, Wilson DK, Buck J, Torbett H, Williams J. Outcome expectations, barriers, and strategies for healthful eating: A perspective from adolescents from low-income families. *Fam Community Health*. 2006; 29(1):17–27.

9. Power TG, Bindler RC, Goetz S, Daratha KB. Obesity prevention in early adolescence: student, parent, and teacher views. *J Sch Health*; 2010. 80:13–19.

10. Goh Y, Bogart LM, Sipple-Asher B, Uyeda K, Hawes-Dawson J, Olarita-Dhungana J, Ryan GW, Schuster MA. Using community-based participatory research to identify potential interventions to overcome barriers to adolescents' healthy eating and physical activity. *J Behav Med.* 2009.

11. Ries AV, Voorhees CC, Gillelsohn J, Roche KM, Astone NM. Adolescents' perceptions of environmental influences on physical activity. *Am J Health Behav*. 2008;32:26–39

12. Campbell K, Waters E, O'Meara S, Kelly S, Summerbell C. Interventions for preventing obesity in children. Cochrane. *Database Syst Rev*. 2002; CD001871.

13. Doak CM, Visscher TLS, Renders CM, Seidell JC. The prevention of overweight and obesity in children and adolescents: a review of interventions and programmes. *Obes Rev*. 2006; 7:111-36

14. Flynn MA, McNeil DA, Maloff B, et al. Reducing obesity and related chronic disease risk in children and youth: a synthesis of evidence with "best practice" recommendations. *Obes Rev*. 2006; 7(suppl 1): 7–66

15. Viswanathan M, Ammerman A, Eng E, Garlehner G, Lohr KN, Griffith D, Rhodes S, Samuel-Hodge C, Maty S, Lux L, Webb L, Sutton SF, Swinson T, Jackman A, Whitener L. Community-based participatory research: assessing the evidence. *Evid Rep Technol Assess* (Summ). 2004; 99: 1–8.

16. Davison KK & Birch LL. Childhood overweight: A contextual model and recommendations for future research. *Obes Rev*. 2001; 2, 159-171.

17. Story M, Neumark-Sztainer D, French S. Individual and environmental influences on adolescent eating behaviours. *J Am Diet Assoc*. 2002;102:S40-S51

18. Stokols D. Translating social ecological theory into guidelines for community health promotion. *Am J Health Promot*. 1996; 10, 282-298.

19. Krug EG, Dahlberg L, Mercy J, Zwi A and Lozano R. World report on violence and health. Geneva, World Health Organization. 2002.

# Chapter 4 - Discussions, Conclusions and Recommendations for Future Research

The Socio-ecological Model (SEM) was used in this study to identify a range of personal, interpersonal and behavioral factors that influence eating and physical activity behavior of 6th to 8th grade youth in a rural Kansas community. The identification of predictive factors at multiple levels of influence is crucial because these factors may be the most potent and amenable to change, and should form the foundation for planning interventions [1]. Results from the focus groups suggest numerous interrelated factors associated with food choices: socio-environmental factors (e.g., parent influence, food cost, availability); personal factors (e.g., sensory properties, knowledge, attitudes, motivation, food preferences); and behavioral factors (e.g., meal patterns, meal-skipping). [2, 3] The findings also demonstrate the influence of competing demands, lifestyle factors and busy schedules on family and individual food practices. Health-giving attributes of foods did not have great significance, and that adolescents' choices hinged on likes and dislikes, convenience and influence of the family. The influences on their choices are complex as are the barriers to them engaging in healthy behaviors.

Findings from this study indicated that while young people have a general understanding of what it means to eat healthily, nutritional knowledge may not be the main determinant of food choice. Rather, food preferences appear to be the central motivation for young people's food choices. Other qualitative studies found similar perceptions among young people and revealed that factors such as taste, texture, appearance and smell were more important than nutritional knowledge in influencing food choices. [3, 4,5] Also, similar to other studies, for some adolescents,

sensory qualities of the food acted as a trigger for strong emotional reactions identifiable as neophobia, mood alteration, and disgust. Such reactions were occasionally mentioned as a barrier to trying novel or unfamiliar foods by individuals who reported themselves as 'fussy' or 'picky' eaters.[6] Disgust was expressed at certain items like tomatoes, seafood, and some items served at the school lunch. They also expressed positive emotions with the consumption of some foods such as chocolate, which were also perceived as unhealthy.

A unique finding is that many adolescents prefer to deprive themselves of any nutrition rather than consume foods that did not taste or look good. This was stated in context of the lunch offerings at school, which are a main source of nutrition for nearly all adolescents. This withholding behavior was also related to peer pressure wherein some foods were socially unacceptable to eat because of their taste or appearance. Hunger related to skipping meals resulted in over-indulgence of preferred energy-dense foods when they became available. Similar findings were reported by Dammann and Smith, where they identified that many of his low-income participants could be seen as 'opportunistic eaters' who have learned to overeat when food is abundant and tasty.[7]

Tiredness and lack of energy were related to hunger and also linked to reduced performance in sports. Eating healthy and engaging in physical activity was regarded as a punishment by some, and this was observed when participants said they expected unhealthy food rewards for engaging in healthy behaviors. This indicates a severe lack of motivation. Similar results were reported in the Power *et al*., Molaison *et al*., and Neumark-Sztainer *et al*. where adolescents seemed to have very little motivation to engage in healthy behaviors.[5, 8, 9] Convenience and time constraints had a major influence on adolescents' food choices in our

study. The focus on food rewards was brought up as an important issue to be addressed. Kids' expectations as well as cost and convenience were related to this issue.

Adolescents' knowledge with regards to nutrition seemed to be lacking, indicating a need for nutrition education. Students fell into a pattern of categorizing foods into 'good' and 'bad for you.' Students overwhelmingly mentioned fruits and vegetables as healthy, but the vast majority did not touch upon other sources of nutrition such as whole grains, dairy, and protein, etc. Some questions brought up by the participants about health and nutrition indicated a considerable knowledge gap. There seemed to be confusion about ingredients in foods that made them healthy or unhealthy, such as milk in ice-cream. When asked why some of fruits and vegetables were healthy, the younger students were unable to answer, indicating a knowledge gap. Also, participants mentioned terms like 'empty calories' and 'low-fat', but were either inaccurate or wholly unable to articulate what the term meant. When asked what they associated with the words healthy eating, students mentioned a variety of items, including vegetables, fruits, salad, vitamins, proteins, hydrated, bread, broccoli, tuna, water, vegetarian food and milk, indicating that they feel that healthy eating is a property of very specific foods.

Disease prevention did not come up in any of the groups as a reason that they would eat healthily. All this points towards a general and limited understanding of healthy eating and nutrition in the population and addresses the need for education. Power *et al*. similarly found that most early adolescents in his study had a limited understanding of healthy eating. [8] Stevenson *et al*. found a dichotomization of foods into good and bad, where desired foods were described as 'bad' or 'junk' and disliked foods as 'good' or 'good for you.'[6] This dichotomization is also seen by Chapman and Maclean. [10] A possible consequence of this dichotomization is that adolescents may view healthy eating as located within particular foods, as

opposed to viewing the diet as a whole. Unhealthy foods were considered 'forbidden' and healthy eating was defined many times based on the exclusion of these foods. This may result in the belief that adopting a healthy diet is beyond their means, since their definition does not include foods that they prefer. This may also lead to a pathologization of their tastes and food preferences, and a self-fulfilling pattern of unhealthy eating. [6]

With regards to interpersonal factors, adolescents in this population depended very heavily on others for their main sources of nutrition. Parents, friends and school were all listed as primary providers or sources of nutrition. Parents mentioned enforcing rules about health and nutrition in the home, but were not confident in their child's ability to conduct themselves according to those rules outside the home. Parental control was also associated with transportation barriers, as well as cost and availability of foods and participation in after-school sports. Furthermore, their perceived self-efficacy with regards to food preparation was generally low. As they become more nutritionally independent, their lack of efficacy with regards to healthy behaviors may diminish further without parental control. Similar findings were reported by Evans *et al.* , Stevenson *et al*. and Kahlor *et al.* [6, 11, 12] Authors of the Stevenson *et al*. study indicate that this may prevent the development of self-efficacy with regards to maintaining a healthy diet; and adolescents may adopt the belief that their future independence would likely result in less healthier lifestyle. [6]

Also, unhealthy eating during the period of adolescence is a likely form of rebellion in establishing independence from parental control, as described by Hill *et al.* [13] Parents in our study further reported that their influence was related to cost and convenience factors. Working parents mentioned convenience as taking precedence over the healthiness of foods at times. Planning ahead was also sometimes not an option for working parents. Time was mentioned as a

barrier with regard to food preparation. When kids are hungry, and meals were not immediately available, they resorted to eating 'junk' that was readily available at home.

They reported that this constraint sometimes led to unhealthy food preparation for their children. Fruits and vegetables were an expensive option. Furthermore, since grocery stores were not immediately accessible to many parents, they opted out of fresh produce that did not keep for longer periods of time. Kahlor *et al.* observed similarly, that parents in their study revealed helplessness in the face of many constraints, and opted for faster alternatives such as quick dinner or fast food, where healthier options were viewed as time consuming. Long working hours and hectic schedules were further identified as barriers to eating healthier diets. The cost associated with healthy food was also perceived as a prohibitive factor, while unhealthy foods were viewed as the only alternative due to the perception that they were invariably less expensive. [12]

Environmental influences in this population were mostly the school and convenience stores located close to adolescents' homes. There exist a number of barriers within the school environment that impede student's ability to maintain healthy behaviors. An example is that the lunches offered through the National School Lunch Program that were served in the cafeterias, were often unpalatable. A consequence of this includes kids substituting unappealing 'healthier' options for more appetizing ones. Kids substituted their main source of nutrition with 'junk' on the salad bar or from the vending machine. Bauer *et al*. observed similar findings in their study.[14]

***Recommendations***

Effective interventions need to focus on health-related issues of relevance to adolescents, such as the associations between eating behaviors and school achievement, sports success, and appearance and focus on making healthful choices easier and tastier through environmental

changes (e.g., attractive fruits and flavorful meals in the school cafeteria,) and skill building among adolescents. The suggestions made by participants should be incorporated into interventions. Many adolescents seemed aware that their diets were unhealthy, and report that greater availability of good tasting, convenient and less-expensive foods would help them improve their food choices. Power *et al*. acknowledged that participation in sports and food preparation may relate to food-related self-perception. Active adolescents had a better sense of the relationship between energy intake and output, leading to a greater dietary balance. For non-participants in sports, involvement in cooking was identified as an opportunity to increase understanding of nutritional knowledge and increase the sense of efficacy needed to develop and maintain a healthy lifestyle.[8]

At the individual level, interventions that emphasize the good taste of healthful foods and convenient ways to include them in the diet may be effective strategies. At the interpersonal level, family and friends are social influences that are proximal to the adolescent and should be targets for intervention change. Encouraging family meals and increasing availability and accessibility of healthful foods in the home are potential approaches. Strategies also need to be developed for changing peer norms around healthful eating and providing peer support for healthful eating. Many of the adolescents' suggestions also focused on changes in the environment (e.g., make healthful foods taste and look better, eliminate unhealthy food options).

Strategies are needed to reduce environmental barriers to making more healthful food choices and create more opportunities to engage in more healthful eating behaviors. Though these suggestions seem straightforward, their implementation may be quite complicated and involve linkages with schools, parents, and policy makers. Pricing has a strong effect on food choices and offers potential for an innovative environmental behavior change strategy.

Community action efforts for social change should also be considered for improving the dietary behaviors of adolescents. Interventions among adolescents should also involve increasing perceived self-efficacy to choose healthy foods [6] and increase physical activity given that behavior change can be achieved by strategies to improve self-efficacy.[17]

Focus should also be placed on the health beliefs and values considered most important, mainly relating to improving health, increasing energy and feeling good. Family involvement is also needed to ensure that healthy foods are available at home and to encourage participation in food buying, preparation and serving.[18] The students' lack of knowledge about foods indicate the need for education about the nutritional content of food, in order to make appropriate food choices. Health promotion materials to reinforce these messages and to give older students an easily available source of reference to check their food choices may also be helpful.

The importance of 'fun' was mentioned time and again. Interventions that engage participants are more likely to be sustainable. Nutrition education programs should focus on hands-on activities and skill-building. Physical activity interventions should be less competitive and more enjoyable to adolescents. The use of social media resources, such as Pinterest and Vine were also suggested. Developing interventions that include, engage, and empower youth to create change are particularly important. Youth participation in partnership with adults provides a promising strategy to address important issues for adolescents and their communities. [18, 19] Prioritizing youth participation in developing program activities may result in more acceptable, sustainable, and 'cooler' interventions.

### *Strengths and Limitations*

An important strength of this study was its focus on adolescents and adults in this community; input about them was collected from community members themselves. Other

strengths include the diversity of the study population in terms of ethnic background, grade level, and gender; data collection procedures that allowed for idea generation through group interaction; a rigorous study protocol; and data analysis procedures that ensure the internal validity of the findings. Involving experienced qualitative researchers in focus group implementation and question development also enhanced the study. Although the focus groups provided a great deal of rich data, there are several limitations that must be acknowledged. The findings of this study might also be limited by the respondents' tendency to provide socially desirable responses. The moderators attempted to reduce this bias by informing participants that there were no right or wrong answers, and that everything discussed in the focus group was confidential. Also, respondents were directed to talk about their peers, an attempt to make them more comfortable with sharing socially undesirable behaviors. It is also highly probable that some factors, such as body image, may have been too sensitive to bring up or discuss at length within the group setting. The findings of this study cannot be extrapolated or generalized to the population as a whole; however, the qualitative nature of the study supports and extends many of the findings that have been previously reported in the literature.

### *Conclusion*

Adolescence is a critical time physically, socially, and psychologically. Establishing proper nutrition and making healthy choices are key to supporting adolescents' growth and development, and to ensuring that they will establish lifelong healthy eating practices. An unhealthy diet and lack of physical activity results in obesity and obesity-related illnesses in adulthood, and implementing healthy eating practices during the teen years will help reduce the likelihood of weight-related problems later in life.

Our study provided in-depth information about 6th to 8th grade adolescents' perceptions of factors influencing their food choices and physical activity. Discussions of the multiple individual, social and environmental influences on food choice and physical activity supported the theoretical framework of behavior based on the Socio-ecological model. Given our findings, it is not surprising that the dietary intake of many adolescents is inadequate in some food categories and excessive in others. Factors viewed as most important in influencing food choices included the food's appeal, its convenience, the time involved in eating it, and availability. The temptation of foods high in fat and sugar is often overwhelming, and their availability, low-cost, and convenience promotes their consumption. Rushed lifestyles for parents and adolescents, leaves them less time for family meals and food preparation. In addition, the many social and behavioral issues facing adolescents may make nutrition a lower priority for them, and their parents.

Interventions addressing factors at the different levels of influence, which complement and build upon each other, are needed to improve eating behaviors of youth. Interventions need to focus both on behavior change and environmental change. The challenge of helping adolescents adopt healthful eating behaviors will require multifaceted, community-wide efforts. A youth perspective is important because programs and policies are often developed from adult's perspective and thus fail to address the potentially unique motivations and eating practices of youth.

# References


1. Krug EG, Dahlberg L, Mercy J, Zwi A and Lozano R. World report on violence and health. Geneva, World Health Organization. 2002.

2. Perry CL. Changing Health Behavior: How to Develop Community-wide Programs for Youth. 1999. Sage Publications, Inc, Thousand Oaks, Calif

3. Baranowski T, Perry CL, Parcel G. How individuals, environments, and health behaviors interact. *Health Educ Behav*. San Francisco, Calif Jossey-Bass/Pfeiffer. 1997;153- 178

4. Glanz K & Rimer BK. Theory at a glance: A guide for health promotion practice. Washington, DC: Department of Health and Human Services, National Cancer Institute. 1997

5. Neumark-Sztainer D, Story M, Perry C, Casey MA. Factors influencing food choices of adolescents. *J Am Diet Assoc.* 1999; 99, 929–936.

6. Stevenson C, Doherty G, Barnett J, Muldoon OT, Trew K. Adolescents' views of food and eating: identifying barriers to healthy eating. *J Adolescence*. 2007; 30:417-434.

7. Dammann, K. & Smith, C. Food-related attitudes and behaviors at home, school, and restaurants: perspectives from racially diverse, urban, low-income 9- to 13-year-old children in Minnesota. *J Nutr Educ Beha*v 2010; 42(6): 389-97
8. Power TG, Bindler RC, Goetz S, Daratha KB. Obesity prevention in early adolescence: student, parent, and teacher views. J Sch Health; 2010. 80:13–19.

9. Molaison EF, Connell CL, Stuff JE, Yadrick MK, Bogle M: Influences on fruit and vegetable consumption by low-income black American adolescents. *J Nutr Educ Behav* 2005; 37:246-25

10. Chapman G, MacLean H. 'Junk food' and 'healthy food': meanings of food in adolescent women's culture. *J Nutr Educ*.1993;25:108–113

11. Evans AE, Wilson DK, Buck J, Torbett H, Williams J. Outcome expectations, barriers, and strategies for healthful eating: A perspective from adolescents from low-income families. Fam Community Health. 2006; 29(1):17–27.

12. Kahlor L, Mackert M, Junker D, Tyler D. Ensuring children eat a healthy diet: a theory-driven focus group study to inform communication aimed at parents. *J Pediatr Nurs.* 2011; 26(1):13–24.

13. Hill AJ, Oliver S, Rogers PJ. Eating in the adult world: the rise of dieting in childhood and adolescence. *Br J Clin Psychol* 1992; 31:95–105

14. Bauer KW, Yang YW, Austin SB. "How can we stay healthy when you're throwing all of this in front of us?" Findings from focus groups and interviews in middle schools on environmental influences on nutrition and physical activity. *Health Educ Behav*.2004; 31(1):34–46.

15. Kingery M. Self-efficacy and the self-monitoring of selected exercise and eating behaviours of college students. Health Educ. 1990; 21, 26-29.

16. Strecher VJ, De VelIis BM, Becker MH, and Rosenstock IM. The role of self-efficacy in achieving health behaviour change. Health Educ Quart. 1986; 12, 73-92.

17. Vandongen R, Jenner DA, Thompson C, et al. A controlled evaluation of a fitness and nutrition intervention program on cardiovascular health in 10- to 12-year-old children. Prev Med. 1995; 24, 9-22.

## Appendix A - Moderator's Guides

**Table A.1. Moderators Guide for Adolescents**

COLLEGE OF HUMAN ECOLOGY, KANSAS STATE UNIVERSITY

# Moderator's Guide(Short)

For Adolescents

**Ignite Project Team**

**SUMMARY**

| | |
|---|---|
| **Objective** | To identify barriers to healthful eating and physical activity in $7^{th}$ – $8^{th}$ grade adolescents at Southwestern Heights. |
| **Number of groups** | Minimum: 4 groups of adolescents (6-7/group) |
| **Introduction, Rules and Rapport building** [15 minutes] | • **Introduction**<br>• **Information about project**<br>• **Acknowledgement**<br>• **Agenda**<br>• **Disclosures**<br>• **Permissions**<br>• **Guidelines**<br>• **Activity/low anxiety questions** |
| **In-Depth Investigation** [100 minutes] | • Adolescents' Food Habits, Preferences, Influences, and Barriers (20 minutes)<br>• Beliefs and Perceptions of Healthy and Unhealthy Eating **Activity I** (20 minutes)<br>• Beliefs and Perceptions of Healthy and Unhealthy Eating (20 minutes),<br>• Identifying strategies for healthful eating(15 minutes)<br>• Food Choice **Activity II** (15 minutes)<br>• Adolescents' Physical Activity Habits, Preferences, Influences, and Barriers (20 minutes),<br>• Identifying strategies for healthful eating(15 minutes) |
| **Closure** [5 minutes] | • Last thoughts/Closing comments/Thanks<br>• Mention opportunity to be part of the steering committee |

**Intro**: Hello. My name is ….. I work at Kansas State University as a Graduate Student, and I'm helping out the Ignite project by leading today's discussion with you. Our purpose today is to discuss your food habits and physical activity, and to get your comments/input on those topics.

**Information about Project**: What we discuss today will be helpful in developing Ignite – you may have seen our flyers and posters around hopefully. The projects main goals are to help build healthier and more active communities. And you will get a chance to be a part of it.

**Acknowledgment**: And so I want to thank you for coming today - your input is very important to this project.

**Agenda**: Today, you will be doing several things: taking an active role in the group discussion, occasionally doing breaking out into groups and a couple of activities. This is a free-flowing discussion. Remember that there are no wrong answers.

**Disclosures:** I want to let you know that the session is being taped to help me to write an accurate report. Anything that you say here will remain anonymous. We want to record not who said what, but "what got said."

**Permission:** We request that you stay in the room and present for the entire session. If you have to go to the restroom however, I ask that only one person be up or out at the time.

**Guidelines**: In order to make this a smooth session, here are some guidelines:

1. Talk as loud as you can so that the recorder gets it.

2. Please avoid side conversations with your neighbors.

3. We ask that you talk one at a time.

4. If you want to piggyback off of someone else's comments, you want to agree, or disagree, or give an example, feel free to do that.

5. We're interested in hearing from each of you – so if you're talking a lot, I may give others a chance. And if you have not got a chance to say much, I may call on you. It's just to make sure that everyone has a chance to share their ideas.

6. There are no right or wrong answers. We expect that you will have different points of view. We encourage you to say what you think or believe, whether or not anyone else agrees with you

7. If your cell phones are not switched off, I ask you to please do so for reminder of the session.(take out your own phone and switch it off)

**General Intro Questions:** Before we start, I would like to meet each of you.. Tell me: (FLIP-CHART

- Your first name
- Your favorite place to eat and what you like to get there.

**Adolescents' Food Habits, Preferences, Influences, and Barriers [20 minutes]**

# We're not going around the table anymore, so just jump into the conversation whenever you want

1. Describe to me the things that you usually like to eat?
    a. Probe1: Why do you like to eat those foods?

2. Describe to me the things that you don't like to eat?
    a. Probe1: Why don't you like to eat those foods?

3. What are some of your favorite restaurants to eat at?
    a. Probe1: What do you like about it?
    b. Probe2: What do you eat there?
    c. Probe3: How often do you go there? [Once a week, once a month?]

4. What kinds of foods are generally eaten at mealtimes in your home?
    a. Probe1: Are there any rules in your home for eating? Like what?
    b. Probe2: Do you help cook?

5. Tell us about school lunch. How does your school work?
    a. Probe1: Do you have a choice in school lunch?
    b. Probe2: What do you think of school food?
    c. Probe3: What happens if you do not like the school lunch?
    d. Probe4: Do you bring your lunch to school? Why/why not?

6. Where do you get most of your nutrition information?

**Beliefs and Perceptions of Healthy and Unhealthy Eating [20 Minutes]**

1. What comes to mind when you think of healthy eating?

2. Give me some examples of healthy foods that you eat.

3. What are some reasons why you like eating these foods?

4. What comes to mind when you think of unhealthy eating?

5. Give me some examples of unhealthy foods that you eat.

6. What are some reasons why you eat these foods?

********If Fast food is mentioned **********

1. I hear you talking a lot about fast foods. What do you consider fast food to be?
   Probe1: Give me some reasons why you like to eat fast foods?
   Probe2: What are some reasons why you don't like fast food?

********If Fruits and Vegetables are mentioned **********

2. Give me some reasons you and your friends eat fruits? What are some of the reasons you and your friends eat vegetables?

3. What kinds of fruits do you usually consume? Vegetables?
   a. Probe1: What about these FV do you like?

4. What are some of the reasons you don't like eating fruit? Vegetables?

5. If you wanted to eat more FV, would you be able to? Why or why not?

Probe1: How would you get them?

**Activity #2: Food Choice Attributes [15 minutes]**

Instructions:

i. Students are instructed to form groups of two (groups assigned by moderator)
ii. They are directed to look at the Flip-chart where there will be listed 10 words [Taste, Appearance, Gives me Energy, Healthy, Convenient, Cheap, Quick, Feel good, Sweet, Salty, Low-Fat, Craving, Natural, etc]
iii. They pick the five that are most important to them in making choice of food and write it down on a piece of paper, in their individual groups. [2 minutes]
iv. They share with the group what they wrote down. Moderator scores each item on the flip-chart as it is called out. [5minutes]
v. Discuss top 3 (Why are they important?) [5minutes]

**Adolescents' Physical Activity Habits, Preferences, Influences, and Barriers [10 minutes]**

1. What comes to mind when you hear the words 'physically active'?

2. What makes it hard or easy to be physically active? / What keeps you from being physically active sometimes?

3. What kinds of physical activities do you like? Why?
    a. Probe1: Not like? Why not?

**Identifying strategies [10 minutes]**

1. What kinds of things would help you make better food choices?

2. What can schools do the help students eat healthier?

   **Extra Q**: If you could change the school menu, what would you change?
   a. Probe1: Why?

3. What kinds of things would help you be more physically active?

4. What can schools do to help students be more physically active?

**Closure [5 minutes]**

Is there anything else you would like to tell us about health, physical activity, or eating?

Handout fliers - Mention opportunity to be part of the steering committee

Thank you so much for your time. The information you have provided us is invaluable

**Table A.2**. Moderators Guide for Teachers

COLLEGE OF HUMAN ECOLOGY, KANSAS STATE UNIVERSITY

# Moderator's Guide

PARENTS

**Ignite Project Team**

**SUMMARY**

| | |
|---|---|
| **Objective** | To identify barriers to healthful eating and physical activity in parents, teachers and community stakeholders of Meade. |
| **Numbers** | Minimum 2 groups of parents (6-8/group) |
| **Introduction, Rules and Rapport building** [10- 15 minutes] | • Introduction<br>• Agenda<br>• Information about project<br>• Acknowledgement<br>• Disclosures<br>• Permissions<br>• Guidelines<br>• Activity/low anxiety questions |
| **In-Depth Investigation** [80 minutes] | • Adolescents' Food Habits, Preferences, Influences, and Barriers (20 minutes)<br>• Beliefs and Perceptions of Healthy and Unhealthy Eating (35 minutes)<br>• Adolescents' Physical Activity Habits, Preferences, Influences, and Barriers (10 minutes)<br>• Identifying strategies (15 minutes) |
| **Closure** [2 minutes] | • Last thoughts/Closing comments/Thanks<br>• Mention opportunity to be part of the steering committee |

## INTRODUCTION, RULES AND RAPPORT BUILDING

**Intro**: Hello. My name is Janavi. I work at Kansas State University as a Graduate Student, and I'm helping out the Ignite project by leading today's discussion with you. Our purpose today is to discuss your food habits and physical activity, and to get your comments/input on those topics.

**Information about Project**: What we discuss today will be helpful in developing Ignite – you may have seen our flyers and posters around hopefully. The projects main goals are to help build healthier and more active communities. And you will get a chance to be a part of it.

**Acknowledgment**: And so I want to thank you for coming today - your input is very important to this project.

**Agenda**: Today, you will be doing several things: taking an active role in the group discussion, occasionally doing breaking out into groups and a couple of activities. This is a free-flowing discussion. Remember that there are no wrong answers.

**Disclosures:** I want to let you know that the session is being taped to help me to write an accurate report. Anything that you say here will remain anonymous. We want to record not who said what, but "what got said."

**Permission:** We request that you stay in the room and present for the entire session. If you have to go to the restroom however, I ask that only one person be up or out at the time.

**Guidelines**: In order to make this a smooth session, here are some guidelines:

1. Please talk one at a time.
2. Talk as loud as you can so that the recorder gets it.
3. Please avoid side conversations with your neighbors.
4. I want to hear from all of you, because you are here
5. It is completely OK to piggyback off of someone else's comments
6. Work for "equal air time", so that no one talks too much or too little
7. Allow for different points of view. There are no wrong answers.
8. Say what you think or believe, whether or not anyone else agrees with you
9. Only one person out of the room at a time.
10. If your cell phones are not switched off, I ask you to please do so for reminder of the session.(take out your own phone and switch it off)

**General Intro Questions:** Before we start, I would like to meet each of you before I start with questions. Tell me:

- Your first name
- Your favorite place to eat and what you like to get there.

**General Notes for Moderators:**

- After allotted time is over for any section, move on to next section or activity even though you have not finished all questions in that section. The questions are ordered highest to lowest priority.
- Ask the main questions exactly as they are so that comparison between groups in easier.
- Probes are included only for guidance (or a quiet group). Organic probes are welcome and preferred. Let the flow of discussion take priority.
- When printing off the guide for yourself, please increase the size of font and include plenty of spacing to make it easier to follow during focus group discussions.
- "Eat the guide". A nice phrase for knowing your guide through and through, and having the ability to switch sections based on the flow of the conversation.
- Plan ahead for activities so that you do not waste focus group time (write down headings, in order on flip-charts, etc)

## IN-DEPTH INVESTIGATION

**Adolescents' Food Habits, Preferences, Influences, and Barriers [20 minutes]**

7. Describe to me the things that your child usually likes to eat?
    a. Do you know why they like those foods?

8. Describe to me the things that your child does not like to eat?
    a. Do you know why they do not like those foods?

9. What kinds of foods are generally eaten at mealtimes in your home?
    a. Probe1: Do you set any rules in your home for eating? Like what?
    b. Probe2: How often do you get take-out?
    c. Probe3: How often do you dine out? Where?
    d. Probe4: Do you watch TV while dining? How often?

10. Do children bring their lunch to school? Why/why not?
    a. What kind of things do they bring?

11. What are some of your child's favorite places to eat/ restaurants with family?
    a. Probe1: What do you think they like about it?
    b. Probe2: What does your child usually eat there?
    c. Probe3: How often do you go?

12. Where does your child get most of their nutrition information?
    a. Probe1: Where do you get most of your nutrition information?

**Beliefs and Perceptions of Healthy and Unhealthy Eating [20 minutes]**

1. What does it mean for your child to be healthy?
    a. Probe1: Do your children try to eat healthy foods?
    b. Probe2: Why or why not?

2. Give me some example of healthy foods that your child eats

3. Are there things that prevent your child from making healthy food choices?
    a. Probe1: Like what?
    b. Probe2: How?

4. Give me some example of unhealthy foods that your child eats

******If Fast food is mentioned ********

5. I hear kids talking a lot about fast foods. What do you consider fast food to be?
    a. Probe1: Give me some reasons why your child likes to eat fast foods?
    b. Probe2: What are some reasons why they don't like fast food?

*******If Fruits and Vegetable are mentioned *******

1. Do your kids consume a lot of fruits and vegetables?

2. What are some of the reasons your kids eat fruits?
    a. What about vegetables?

3. What kinds of fruits do they usually consume? Vegetables?
    a. Probe1: What about these FV do you think they like?

4. What are some of the reasons you think they don't like eating fruit? Vegetables?

5. If your kids wanted to eat more FV, would you be able to? Why or why not?
    a. Probe1: How would they get them?

6. Who do you think would help them eat more FV?
    a. Probe1: How could they help them eat more FV?

**Adolescents' Physical Activity Habits, Preferences, Influences, and Barriers [10 minutes]**

4. What comes to mind when you hear the words 'physically active'?

5. What makes it hard or easy to be physically active? / What keeps your child from being physically active sometimes?

6. What kinds of physical activities do they like? Why do you think they like it?
    a. Probe1: Not like? Why not?

7. Describe any physical activities you do together as a family.

**Identifying strategies [20 minutes]**

5. What kinds of things would help your child make better food choices?

6. What can schools do the help your child eat healthier?

7. If you could change the school menu, what would you change? Why?

8. What kinds of things would help your child to be more physically active?

9. What can schools do the help your child be more physically active?

## Closure [5 minutes]

Is there anything else you would like to tell us about your child's health, physical activity, or eating?

Thank you so much for your time. The information you have provided us is invaluable.

(Mention opportunity to be part of the steering committee)

**Table A.3**. Moderators Guide for Teachers

COLLEGE OF HUMAN ECOLOGY, KANSAS STATE UNIVERSITY

# Moderator's Guide

TEACHERS

**Ignite Project Team**

**SUMMARY**

| | |
|---|---|
| **Objective** | To identify barriers to healthful eating and physical activity in parents, teachers and community stakeholders of Meade. |
| **Numbers** | Minimum 2 groups of parents (6-8/group) |
| **Introduction, Rules and Rapport building** [10- 15 minutes] | • Introduction<br>• Agenda<br>• Information about project<br>• Acknowledgement<br>• Disclosures<br>• Permissions<br>• Guidelines<br>• Activity/low anxiety questions |
| **In-Depth Investigation** [80 minutes] | • Adolescents' Food Habits, Preferences, Influences, and Barriers (20 minutes)<br>• Beliefs and Perceptions of Healthy and Unhealthy Eating (35 minutes)<br>• Adolescents' Physical Activity Habits, Preferences, Influences, and Barriers (10 minutes)<br>• Identifying strategies (15 minutes) |
| **Closure** [2 minutes] | • Last thoughts/Closing comments/Thanks<br>• Mention opportunity to be part of the steering committee |

## INTRODUCTION, RULES AND RAPPORT BUILDING

**Intro**: Hello. My name is …. and I'll be leading today's discussion. We would like to get your opinion on eating and physical activity habits of kids aged 12- 15, and to get your comments/input on those topics.

**Acknowledgment**: And so I want to thank you for coming today - your input is very important to what we are aiming to do.

**Agenda**: Today, you will be doing several things: taking an active role in the group discussion, occasionally doing breaking out into groups and a couple of activities. This is a free-flowing discussion. Remember that there are no wrong answers.

**Disclosures:** I want to let you know that the session is being taped to help me to write an accurate report. Anything that you say here will remain anonymous. We want to record not who said what, but "what got said."

**Permission:** We request that you stay in the room and present for the entire session. If you have to go to the restroom however, I ask that only one person be up or out at the time.

**Guidelines**: In order to make this a smooth session, here are some guidelines:

11. Please talk one at a time.
12. Talk as loud as you can so that the recorder gets it.
13. Please avoid side conversations with your neighbors.
14. I want to hear from all of you, because you are here
15. It is completely OK to piggyback off of someone else's comments
16. Work for "equal air time", so that no one talks too much or too little
17. Allow for different points of view. There are no wrong answers.
18. Say what you think or believe, whether or not anyone else agrees with you
19. Only one person out of the room at a time.
20. If your cell phones are not switched off, I ask you to please do so for reminder of the session.(take out your own phone and switch it off)

**General Intro Questions:** Before we start, I would like to meet each of you before I start with questions. Tell me:

- Your first name
- Your favorite place to eat and what you like to get there.

**General Notes for Moderators:**

- After allotted time is over for any section, move on to next section or activity even though you have not finished all questions in that section. The questions are ordered highest to lowest priority.
- Ask the main questions exactly as they are so that comparison between groups in easier.
- Probes are included only for guidance (or a quiet group). Organic probes are welcome and preferred. Let the flow of discussion take priority.
- When printing off the guide for yourself, please increase the size of font and include plenty of spacing to make it easier to follow during focus group discussions.
- "Eat the guide". A nice phrase for knowing your guide through and through, and having the ability to switch sections based on the flow of the conversation.
- Plan ahead for activities so that you do not waste focus group time (write down headings, in order on flip-charts, etc)

## IN-DEPTH INVESTIGATION

**Adolescents' Food Habits, Preferences, Influences, and Barriers [20 minutes]**

13. Describe to me the things that kids this age (12-15) usually like to eat?
    a. Do you know why they like those foods?

14. Describe to me the things that they don't like to eat?
    a. Do you know why they do not like those foods?

15. Can you tell us what kinds of foods are kids generally eating for breakfast?
    a. Lunch, dinner?
    b. Probe1: What about your own students?

16. Do kids bring their lunch to school? Why/why not?
    a. What kind of things do they bring?

17. Where do you see kids this age getting things to eat?
    a. Probe1: What do you think they like about it?
    b. Probe2: What about your students?

18. Where do students get most of their nutrition information?
    a. Probe1: Where do you get most of your nutrition information?

**Beliefs and Perceptions of Healthy and Unhealthy Eating [20 minutes]**

6. What does it mean for kids this age to be healthy?
    a. What about your students?
    b. Do your students try to eat healthy foods?
    c. Why or why not?

7. Give me some example of healthy foods that kids eat?

8. Are there things preventing kids this age from making healthy food choices?
    a. Probe1: Like what?
    b. Probe2: How?

9. Give me some example of unhealthy foods that kids eat?

******If Fast food is mentioned ********

10. I hear kids talking a lot about fast foods. What do you consider fast food to be?
    a. Probe1: Give me some reasons why your students like to eat fast foods?
    b. Probe2: What are some reasons why they don't like fast food?

*******If Fruits and Vegetable are mentioned *******

7. Do kids consume a lot of fruits and vegetables?

8. Do they have a lot of opportunities to eat fruits and vegetables?

9. What do you think are some of the reasons why kids eat any fruits?

a. What about vegetables?

10. What kinds of fruits do they usually consume? Vegetables?
    a. Probe1: What about these FV do you think they like?

11. What are some of the reasons you think they don't like eating fruit? Vegetables?

12. If kids wanted to eat more FV, would you be able to? Why or why not?
    a. Probe1: How would they get them?

13. Who do you think would help them eat more FV?
    a. Probe1: How could they help them eat more FV?

**Adolescents' Physical Activity Habits, Preferences, Influences, and Barriers [10 minutes]**

8. What does it mean for kids to be 'physically active'?

9. What makes it hard or easy for kids to be physically active? / What keeps kids from being physically active sometimes?

10. What kinds of physical activities do they like? Why do you think they like it?
    a. Probe1: Not like? Why not?

11. What about your own students?

12. Describe any physical activities you do together as a family.

**Identifying strategies [20 minutes]**

10. What kinds of things would help kids this age make better food choices?

11. What can schools do the help kids eat healthier?

12. If you could change the school menu, what would you change? Why?

13. What kinds of things would help kids to be more physically active?

14. What can schools do the help children be more physically active?

## Closure [5 minutes]

Is there anything else you would like to tell us about your students' health, physical activity, or eating?

Thank you so much for your time. The information you have provided us is invaluable.

(Mention opportunity to be part of the steering committee)

# Appendix B - Tables

**Table B.1 Food Choice Activity Factors**

| *Factors* | *Comments* |
|---|---|
| **Cheap** | "Yeah, because we don't have that much money in my family"<br><br>"You don't have pay that much."<br><br>"If you are in a hurry, you can ** meal"<br><br>"I don't have to pay with more money."<br><br>"McDonald's"<br><br>"Subway."<br><br>"Sonic"<br><br>"Yes. Pizza, ice-cream, potato chips"<br><br>"Cheese burger, like a McDouble"<br><br>"Two dollar or a dollar for a meal"<br><br>"Candy"<br><br>"And also tea that you can get for a dollar"<br><br>"It's just cheap to buy"<br><br>"My sister she goes to a college just around across the street. That's sort of what she does, but she doesn't. She has to go there for lunch and it's good for just a dollar a meal. I think mainly it's because of the cheapness"<br><br>"Like if you go to Dallas or somewhere, their food cost more higher."<br><br>"I don't know... Donuts, burritos, pizza, hot dogs"<br><br>"You can do whatever you want. We haven't been going out that much, like out to eat at a restaurant. We've been eating at home just because it's a lot cheaper."<br><br>"Times are tough" |

| *Factors* | *Comments* |
|---|---|
| | "My parents don't have money, like when it comes to me, I have to work for free, and my parents' idea is "we provide for you", so therefore, it's kind of funny, Exactly. "We provide for you" you do work for us, we made you live. There's your reward. So any money I get I have to keep on to, so case of emergency or if I wanted something or ..I have to save. I haven't been able to buy anything that I've wanted since for like oh gosh, it has been two years and I only have like um 50 bucks". |
| **Convenient** | "I don't have to like, you know, you can just grab it and you can just like eat it, you don't have to take time preparing it and stuff."<br><br>"Like candy, popcorn"<br><br>"No. its better like to take a time to see what your mom or dad is putting in it." |
| **Feel Good** | "I haven't had cotton candy in like 2 years, and I had it a week ago at the carnival."<br><br>"Monsters are good, I like Monsters."<br><br>"For example you have a really bad day. If you had a bad day, and if ** you got something to eat…then you will feel good after that"<br><br>"Tomato soup."<br><br>"I like chicken soup."<br><br>"Cake"<br><br>"All food makes me feel good."<br><br>"It's all silky makes me feel good…. Yeah, before it goes down, feels so good. And enchiladas. Soo good."<br><br>"I don't know. I don't know what I meant by feel good. It's just food is just I get it all the time. *** I guess, well there's foods that kind of get me mad or upset and not happy, and there's foods like I'm the happiest person in the world. And I finish my food" |

| *Factors* | *Comments* |
|---|---|
| **Give me Energy** | Lots of candy, Redbull, food, Dr. Pepper. Candy bars, salad, fruit, apples, pineapples, kiwis, strawberries, sweets, granola bars<br><br>"Like a monster!"<br><br>"The taste of it? Like sour?"<br><br>"So you have energy to get in shape? "<br><br>"Ok so if you were me you will have to work so hard. I need energy because I do a lot of activities. Because I have to do horse riding and other activities."<br><br>"Redbull gives you energy."<br><br>"I drink a lot of Gatorade. You get the chewy ones now." |
| **Healthy** | "Fruits and vegetables"<br><br>"Strawberries and apples."<br><br>"I suppose that people eat more at home because it's more healthy, home style it's a…yeah, its healthier, like our family tries to make everything they can from scratch." |
| **Low-Fat** | "Low in sugar and stuff"<br><br>"Healthy"<br><br>"It will make me slower"<br><br>"Carrots, corn, chicken" |
| **Natural** | "Like it has no, um, not sure (preservatives). It's better to like you can just pick it up and go wash it and eat it."<br><br>"Like when my mom buys something for me, the first thing I see is the thing and if I see artificial flavor, I get mad. I don't know. Because it's not natural flavor. First the candy. ** Airhead. Because yesterday I bought a pack of airheads and I saw artificial flavor, got mad."<br><br>"Last year, I heard one of the cooks or whatever, they said that they put like half, 50% of |

| *Factors* | *Comments* |
|---|---|
| | its turkey, and I don't know what's the rest is, I just feel disgusted and I don't want to eat. I don't ever bother to eat it. It's not natural."<br><br>"We live on a farm and we do 4-H. Several years my grand-parents has a cattle ranch so we get fresh vegetables from their garden. We can get fruit, we go to a little market, in I think ***, we get fresh honey, we get all kinds of things as natural as we can."<br><br>**"**And I also had natural because in my mind if something is natural then I assume it's somewhat healthier than something that might be artificial, maybe not the healthiest it can be, but to an extent." |
| **Quick** | "Beef jerky, Gatorade, gum, gummy worms, gummy bears, Hamburgers, takis, chex mix<br><br>"Dollar General, EZ Stop, MacDonald's."<br><br>"Apples. All you have to do is {makes biting noise}. Just go buy it."<br><br>"That I can eat really fast. Like a sandwich. Then I don't have to go home and make it. Like a small bag of Takis" |
| **Taste** | "Pistachios, because they taste good."<br><br>"Because it has to taste good otherwise l won't eat it."<br><br>"If it's nasty, I will just spit it out" |