Nutritional Health of Adolescents

Teaching Kitchen Planning Document

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ED5303 - Principles of Human Learning

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October 7, 2020

Cultural perceptions and stigmas have a great influence on an individual's food choices. The Health Belief Model explains that one's perception of the benefit and threat to eating a healthy diet creates barriers for healthy eating patterns. According to Morrow et al. (2017), common misconceptions that influence healthy eating patterns include the disbelief that healthy food can be affordable, easy to prepare, and tasty. Additionally, social pressures and the lack of knowledge and skills prevent many people from eating a healthy daily diet (Morrow et al., 2017). High school students are no exception to these eating patterns. Whether or not an adolescent consumes fruits and vegetables daily is dependent on their personal preferences, perceived barriers, and personal beliefs (Odum et al., 2018). The CDC (2011) reports that most adolescent students fourteen to eighteen years of age consume only one to two servings of fresh produce per day. Only eleven percent of teenagers consume the daily recommended servings of vegetables. Eating a nutritionally dense diet full of fresh fruits and vegetables reduces chronic illnesses, improves academic performance, and improves their mental health (CDC, 2011). Reducing perception barriers and improving dietary patterns in adolescents leads to multiple health benefits. For many adolescents, in order to improve the quality of their diets, it is imperative to reduce culture stigmas and change perception barriers through cooking and nutrition classes.

Saunders, C. (2019). [Students learning to slice tomatoes]. WellnessSLC Summer Camp.

Behavioral Learning Theory

Changing perceptions and negative attitudes towards healthy eating is a difficult behavior to change. The students need to understand that they have the ability to improve their own nutritional health. They also need to be taught important skills, such as preparing foods, to improve their level of efficacy. Changing the capacity and efficacy of self-regulation, through the use of reinforcers, is key in changing stigmas (Bandura et al., 2003). Participants will be given the opportunity to practice skills during class. They can learn through modeling done by the instructor. They can also learn vicariously by watching others in the class succeed. Modeling and vicarious learning are key factors in improving self-efficacy (Bandura et al., 2003). Additionally, being able to eat all of the food prepared in a teaching kitchen is a positive reinforcer. Those students who do not follow the classroom rules will not be allowed to participate.

A precourse assessment will be taken on the first day of class. The pretest will provide a baseline of nutritional knowledge, current dietary behaviors, and current perceptions about consuming and preparing healthy foods. The goal of a teaching kitchen is to reduce the stigmas about healthy eating and improve the adolescent's daily nutritional intake. The first step is to show students the negative effects of their current diet. For example, measuring out the sugar content of common foods provides a hands-on demonstration of what they eat on a daily basis. Once a student is aware of how much sugar is in certain foods, then they can be shown alternatives. Some of those alternative foods can be prepared during class and consumed as a reward. Students can also use web-based programs to improve their nutritional

Saunders, C. (2020). [Students learning to read food labels]. WellnessSLC Summer Camp.

literacy. A final assessment will be taken at the end of the course to determine changes in behaviors, attitudes, and perceptions.

The research conducted by Amaral e Melo et al. (2017), demonstrates that increasing the amount of fruits and vegetables in the diet of teens can be achieved through activities, games, web-based programs, and guided lessons (Amaral e Melo et al., 2017). Other research by Normayanti et al. (2020) and Dos Santos et al. (2020), demonstrates that guided, in-person instruction by a health professional is necessary in changing dietary behaviors. The teaching kitchen would include guided lessons and activities, be followed by food preparation, and include personal reflections. The behavior learning theory would keep students engaged. Misbehavior will cause a loss in privileges. Students will not be allowed to use the kitchen tools if they do not use them properly. Also, music will be used as a positive reinforcer. Students enjoy listening to music while preparing food. Students will be allowed to work in social groups as a positive reinforcer. Finally, personal reflections, participation, and completed activities will be graded and rewarded with a final grade.

Technology use is an important factor for a successful nutritional program for adolescents (Amaral e Melo et al., 2017). Technology improves motivation and keeps the content relevant to current learning styles. There are multiple free gamified, web-based programs available that make learning fun and exciting. Kahoot is a great online game that can help build health literacy through competition and technology.

Many adolescents believe that eating healthy foods is too difficult to achieve and that nutrient-dense foods are not tasty (Morrow et al., 2017). Poor diet is connected to a variety of negative effects. Improving self-efficacy through reinforcers is necessary in order to improve the nutritional health of teens. The program should focus on improving self-efficacy by providing

teens with the opportunity to practice new skills, learn vicariously, and see modeling. Students need to practice preparing healthy foods in order to improve their self-efficacy. Daily personal reflection statements will enable the participants to build a connection between their newly learned skills and their perceptions. Positive and negative reinforcers are necessary to help maintain motivation. Students' participation privileges will be revoked in the case of poor classroom behavior. Students will be rewarded by being allowed to work in social groups. Assignments will be graded as another type of reinforcer.

Cognitive Learning Theory

Obesity for adolescents is defined as an individual having a BMI equal or greater to the ninety-fifth percentile. The epidemic of childhood obesity is a multi-faceted problem. Genetics, lifestyle choices, nutrition, environmental influences, and hormone factors can all influence weight gain among teenagers (Sanyaolu, 2019). These factors have caused teenagers to spend more time in a sedentary lifestyle. They are spending more time watching a screen. Screen time influences food stigmas and healthy food choices among adolescents. Food advertisements cause teenagers to eat more sugary or snack-like foods that are high in fat and sodium (Harris & Graff, 2012). Many researchers believe that the United States obesity problem among teenagers cannot be corrected without major intervention programs (Harris & Graff, 2012).

Adolescents are in dire need of interventions that improve their nutritional health and have a long-lasting effect. Using cognitive theories within a classroom has the potential to improve the dietary habits of adolescents. Some cognitive theory constructs include active learning, modeling, and building upon existing knowledge (Yilmaz, 2011). Piaget's constructivism learning theory also explains that learning must be done at the proper development stage in life (Yilmaz, 2011). Adolescence is a perfect time to begin nutritional

intervention. A teaching kitchen can easily use these constructs to solve the problem of poor dietary behaviors among teenagers.

Active learning is the key component of a teaching kitchen. Classroom participants will engage in hands-on food preparation. Students can also practice other nutrition skills such as reading food labels and measuring proper portion sizes. Additionally, students can research sugar content in foods. This type of hands-on learning has been shown to reduce the intake of sugary foods and reduce portion sizes among teens (Bagherniya et al., 2018). Teacher modeling will positively impact behaviors. According to Lee et al. (2016), having teachers that model healthy dietary behaviors positively influence food choices among teenagers. Vygotsky's social cognitivism learning theory supports this theory (Yilmaz, 2011). Learning happens through interactions with a knowledgeable instructor. Cognitive theories also believe that using an individual's existing knowledge as a baseline for learning is important. Assessing a knowledge baseline can be done through personal evaluations or discussions. Playing games that help students identify facts and myths about nutrition is a fun way to assess previous knowledge.

Saunders, C. (2019). [Students actively engaging in food prep.] WellnessSLC Summer Camp.

Sequential learning is a natural way for learning to occur within a teaching kitchen. The brain needs to learn the general concept before it learns the details (Degen, 2014). A typical teaching kitchen course would last approximately sixty minutes. The lesson would be broken out into four segments. The first segment would contain the general learning concept. The second segment would be a learning activity such as a game, research, and a discussion. The third

segment would be hands-on food preparation. The final segment would include reflection. Following this sequential learning process will help with brain encoding. Encoding is the first step in the development of memory. For information to be stored in the long-term memory section of the brain, learning must be *"with meaningful real-world examples"* (Degen, 2014, p 18). Additionally, learning must occur in small segments because the brain has a short attention span. Breaking a class into small segments and preparing foods that are both healthy and culturally appropriate will enhance a student's memory. Furthermore, these small segments will help with engagement and motivation.

Maintaining motivation with students can be accomplished through the process of flow. Degen (2014), explains that flow is established by creating tasks that are a balance between difficulty and skill level. Students need to be actively learning and doing a task that is not too difficult but not too easy. A teaching kitchen will help guide students into the process of flow. Activities will be created that require critical thinking skills, such as planning a meal that includes the right balance of macronutrients. This activity doesn't have a single solution. Students will have the flexibility to research their own food options based on their personal preferences. Hands-on cooking helps to build a connection. Finally, students will be asked to reflect at the end each lesson on their experience.

Social Constructivism Theory

Adolescence is a time for growth and change. As a result, it is imperative that a teenager receives the proper nutrients to support this change. However, negative perceptions and stigmas greatly influence dietary behaviors among teenagers. Perceptions about healthy eating can be established and changed through interventions within the social context of an individual. Sociocultural theory explains that learning occurs through the interactions of one's environment

(Yilmaz, 2011). The environment can be intrapersonal, family, peers, school, community, and laws or policies. Vygotsky and Bronfenbrenner believed that development occurs through collaboration, guided participation, and scaffolding (Phan & Australian Association for Research in Education, 2012). Learning is not an isolated incident, it is developed through a series of social interactions and the environment. This statement is true for all ages across a human's lifespan, including adolescents. Research completed by Moreno-Maldonado et al. (2018), demonstrates that only thirty-five percent of teenagers consume fruit on a daily basis. However, the intake of healthy foods can be increased if an intervention plan is developed with a focus on positive peer pressure and changing the school environment (Moreno-Maldonado et al., 2018). Other research has shown that the family environment is equally important in affecting the dietary behaviors of teens (Yuhas et al., 2020).

The fundamental strategies for social constructivist theory include collaboration, guided participation, and social interactions. In order for learning to occur an individual must collaborate with others (Phan & Australian Association for Research in Education, 2012). They must also learn through guided teaching methods and social interactions. To create a successful nutritional intervention program for adolescents, social constructivists strategies must be utilized.

The teaching kitchen creates an environment where the social constructivist strategies are used. Group work within a classroom allows for students to share experiences and learn from others. Within the teaching kitchen classroom, cooking teams will be assigned. Classwork would include a learning activity that would require partner work and group discussions. Group work allows for students to discuss and observe cultural differences with the group. For example, the learners will be asked to research and discuss staple foods within different cultures. Hassan et al. (2020), explains that understanding family trends, beliefs, and practices will improve a teenagers

intake of fruits and vegetables. Preparing food that is healthy and culturally relevant is important in maintaining engagement. Middle and high school students are very social and enjoy working with their peers during classes. The benefit of group work is that it helps to maintain motivation and engagement during class. Guided participation will occur throughout the classroom. For example, the teacher will do a food demonstration prior to students actively cooking. Additionally, the first segment of each class will begin with a teacher-guided lesson on the general learning concept of the day. Within a teaching kitchen environment, social interactions happen both between the teacher and the student and between the students. During the cooking sessions a teacher can provide a student with immediate feedback. This interaction helps to keep the adolescent motivated to continue with their work. Also, groups will be created based on the learner's skill level. Students will be able to interact with others by sharing knowledge.

Saunders, C. (2019). [Group work in the kitchen.] WellnessSLC Summer Camp

Conclusion

The overall goal of a teaching kitchen is to improve the dietary habits of adolescents. In order to achieve this, the negative perceptions and stigmas about healthy foods must be changed. Successful programs have demonstrated that the intervention must focus on the social context of learning. Moreno-Maldonado et al. (2018) explains that school-based nutritional programs that include peer interactions reduce junk food intake among middle school and high school students. Additionally research demonstrates that changing an adolescent's perception about food through social connection can reduce the intake of sugary beverages (Yuhas et al., 2020). A teaching

kitchen has the potential to change behaviors and perceptions through collaboration, guided participation, and social interactions. By the end of a course, students are expected to have learned a variety of skills. Students should be able to identify and prepare foods that are important for body growth and health. They will be able to critically compare different foods so that they can make healthier choices. Negative perceptions about healthy food will be changed. They will also be able to understand the differences between carbohydrates, proteins, and fats. Food is important in every culture. Therefore it is important for adolescents to participate in an activity that will help them for the rest of their lives. Students will be able to perform basic kitchen skills such as measuring, cutting, food safety, baking, and roasting. Participants should be able to successfully prepare multiple plant-based foods for every meal of the day, be able to compare food options and select the healthier one, and understand how to adjust their meals to be culturally relevant. Students will engage in real-life learning that is both memorable and challenging. Adolescence is a time for children to grow into adults. It is important that these teenagers learn nutrition and cooking skills in order to improve their quality of life both now and through adulthood.

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Moreno-Maldonado, C., Ramos, P., Moreno, C., & Rivera, F. (2018). How family socioeconomic

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to identify factors associated with adolescent sugar-sweetened beverage intake. *Journal of the Academy of Nutrition and Dietetics, 120(9), 1557–1567.* https://doi.org/10.1016/j.jand.2020.01.019

Appendix A

Annotated Bibliography

Amaral e Melo, G. R., de Carvalho Silva Vargas, F., dos Santos Chagas, C. M., & Toral, N. (2017). Nutritional interventions for adolescents using information and communication technologies (ICTs): A systematic review. *PLoS ONE, 12(9), 1–12.* https://doi.org/10.1371/journal.pone.0184509

Amaral et al. (2017) collected eleven different nutritional intervention programs for adolescents to determine the effectiveness of each program. The programs all consisted of teens from fourteen to nineteen years old. The programs were offered in a variety of contexts, such as schools, health clinics, and community centers. The collection of research studies were particularly chosen to show if the use of technology in nutritional intervention programs makes a greater and longer lasting impact on adolescents. The type of technology highlighted includes computer or web-based games, CD-ROMs, text messages, or a combination of those listed. This article also shows the amount and timing of follow up completed after the intervention program was completed. Successful programs concluded an integration of web-based games, regular lessons, and using the social cognitive theory model.

Bagherniya, M., Taghipour, A., Sharma, M., Sahebkar, A., Contento, I. R., Keshavarz, S. A., Darani, F. M., & Safarian, M. (2018). Obesity intervention programs among adolescents using social cognitive theory: a systematic literature review. *Health Education Research*, *33*(1), 26–39. https://doi.org/10.1093/her/cyx079

Bagherniya et al. (2018), collected several intervention programs that use cognitive theories to reduce obesity in adolescents. There is a collection of twelve studies that are compared and analyzed. All of the participants in the study were between the ages of twelve and

eighteen years. Most of the studies showed that teaching self-regulation skills along with goal setting made positive improvements. Additionally, intervention programs that focused on self-efficacy and lasted longer than six months had the greatest impact. Several studies concluded that several intervention programs reduced the total hours spent watching a screen.

Dos Santos, H., Walbolt, M. M., Arthur, K. N., Sherman, C., Dehorn, S., Herring, R. P., & Reis, W. (2020). The effect of the shapedown program on bmi, waist-hip ratio and family functioning - a family-based weigh-reduction intervention serviceable to low-income, minority communities. *Journal of Cultural Diversity, 27(1), 22–28.*

Dos Santos et al. (2020), research demonstrates the importance of an organized nutrition program to reduce obesity among adolescents. Adolescents with a BMI greater than eighty-fifth percentile along with their parents were recruited to participate. The participants were mostly Latinos. Each participant participated in an eight-week program called SHAPEDOWN. This program was facilitated by physicians. The participants received weekly in-person instruction and at home workbook activities. The lessons focused on culturally appropriate nutrition, communication skills, family cohesiveness, and stress management. The participants were all tested before and after the program. There was a noticeable reduction in BMI in participants.

Hassan, F., Kalsoom, S., Sheikh, N. H., & Humayun, A. (2020). Factors affecting food consumption patterns and dietary practices of adolescent girls: An explanatory sequential mixed method study. *Annals of King Edward Medical University, 26(1),* 9–18.

Hassan et al. (2020), studied four-hundred and seventy adolescent girls to determine which social factors affected eating behaviors. The study consisted of multiple surveys and focus groups. The study determined that eggs, lentils, beans, and fruit are the staple food items consistent with a healthy diet. How frequently the adolescent girls maintained healthy eating

habits was determined by family trends, personal beliefs, taste preferences, and finances. Through the study it was decided that the family's social context lays the foundation for healthy eating habits. The recommendation for an adolescent nutritional intervention program is to consider including the entire family. Interestingly, this study found that adolescents that came from low-income families adhered to maintaining healthier eating habits. The study concluded that many teens could not afford to purchase junk food and therefore they ate more fruits and vegetables at home.

Lee, J., Jeong, S., Ko, G., Park, H., & Ko, Y. (2016). Development of a Food Safety and Nutrition Education Program for Adolescents by Applying Social Cognitive Theory. *Osong Public Health and Research Perspectives*, *7*(4), 248–260. https://doi.org/10.1016/j.phrp.2016.05.005

Lee et al. (2016), used self-efficacy as a driver to create a new nutrition and food safety program for middle and high school students. The program focused on seven themes: caffeine, food additives, foodborne illnesses, nutrition and meal planning, obesity, eating disorders, and food labels. The intervention used personal and environmental factors to influence change. Students participated in hands-on activities such as role-playing and games. Teachers would model behaviors. Posters were displayed around the classroom. Evaluation of the program was done through knowledge tests and personal assessments. The majority of the adolescents reported improvements in self-efficacy, self-regulation, and skills which resulted in positive behavior changes in every participant.

Moreno-Maldonado, C., Ramos, P., Moreno, C., & Rivera, F. (2018). How family socioeconomic status, peer behaviors, and school-based intervention on health habits influence

adolescent eating behaviors. *School Psychology International 92(118).* https://doi.org/10.1177/0143034317749888

Moreno-Maldonado et al. (2018) completed a study of six thousand, eight-hundred, and fifty-one teenagers from eleven to sixteen years old. The goal of the study was to determine if school-based nutritional programs can improve eating behaviors. The study's focus was to use the socioecological model as an intervention method to affect eating behaviors. Baseline analysis determined that only thirty-five percent of the participants ate fruit every day. Additionally, forty-eight percent of the participants consumed candy and soda three or more times a week. The study determined that school-based nutritional interventions are successful when the intervention focuses on the social network of the teens. Interestingly, in schools that created policies that limited chips, soda, and candy, the consumption of those items was increased. They concluded that the cause of this seemingly backwards outcome was that junk food was still being offered at the school even though those foods were discouraged. When teenagers are given a choice between healthy foods and treats, they will always select the unhealthier options.

Normayanti, Suparyatmo JB, & Prayitno A. (2020) The effect of nutrition education on body mass index, waist circumference, mid-upper arm circumference and blood pressure in obese adolescents. *Electron J Gen Med. 17(5):em221.* https://doi.org/10.29333/ejgm/7884

Normayanti et al. (2020), research explains how educational programs are necessary to improve the health of adolescents. Sixty adolescent girls ages fourteen to seventeen participated in the study. All participants had a BMI greater than the ninety-fifth percentile. The participants were split into two equal groups. Both groups were given a booklet about the Dietary Approach to Stop Hypertension (DASH) dietary guidelines. In addition to the booklet, the treatment group

was given educational lessons about the DASH diet. All participants were given pre and post written tests and body measurements were taken. The treatment group that received educational lessons reduced their caloric intake by an average of five-hundred calories. Additionally, the treatment group increased their physical activity and lower body measurements. The control group showed an increase in caloric intake, a reduction in physical activity, and no change in body measurements. This article provided evidence that educational lessons are important in addition to providing written materials relating to nutrition.

Weybright E., Martinez A., Varrella G., Deen M., & Wright K. (2018). Teens as teachers: positive outcomes and recommendations for promoting healthy nutrition in adolescents. *Journal of Youth Development*, *13*(3), 43–60. https://doi.org/10.5195/jyd.2018.595

Weybright et al. (2018), analyzed a nutrition intervention program called YA4-H!. The program is focused on using teens to help support other teens with nutrition. The program is focused on learning through actively engaging in hands-on activities. YA4-H! adult coaches recruit adolescents within the community to train and become instructors. The teens then work with other people of the same age to improve nutritional knowledge and change behaviors. The program has shown to reduce sugar intake and portion sizes while increasing label reading and breakfast eating among teens. The program uses cognitive theory constructs of collaboration, active learning, and constructing knowledge through experiences and reflections.

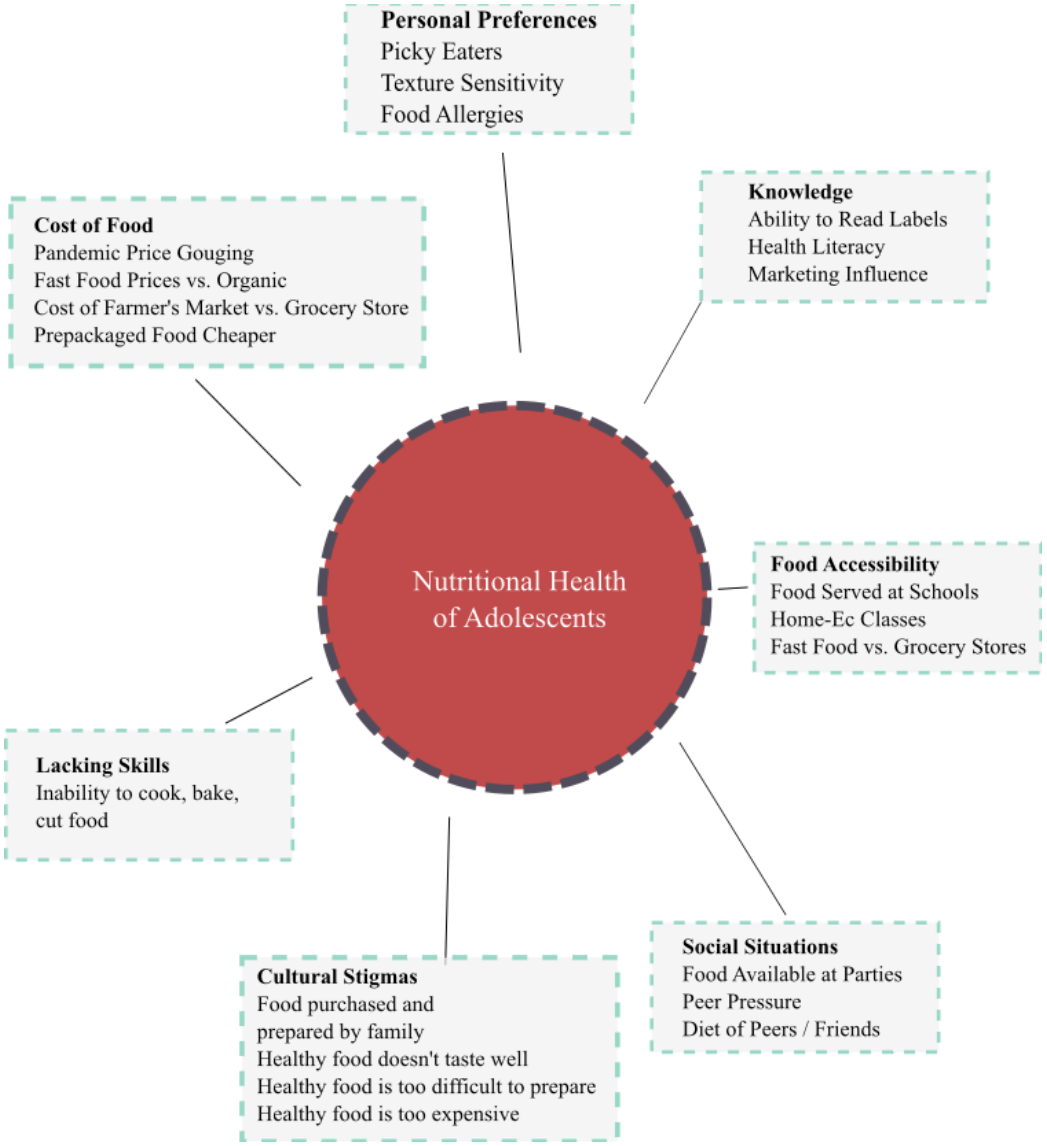
Yuhas, M., Porter, K. J., Hedrick, V., & Zoellner, J. M. (2020). Using a socioecological approach to identify factors associated with adolescent sugar-sweetened beverage intake. *Journal of the Academy of Nutrition and Dietetics, 120(9), 1557–1567.* https://doi.org/10.1016/j.jand.2020.01.019

Yuhas et al. (2020), claims that teenagers consume the highest amount of sugary drinks in the United States. This study used the socioecological approach to determine which elements influenced the consumption of sugary drinks. Over fifteen-hundred adolescents participated in the research. The study showed a connection between the participant's demographics, parents' socioeconomic status, self-efficacy, and perceptions and the intake of sugary drinks among teens. The study concluded that males tend to consume more sugary drinks than females. Also, the consumption of sugary beverages was determined by the participant's home environment. If sugary beverages were available at home, or if the parents used these drinks as a coping mechanism, then the intake was increased.

Appendix B

Concept Map and Graphic

Topic: Nutritional Health of Adolescents
Target Population: At-Risk High School Students, Ages 14 years - 18 years old
Concept Map:



Three Issues:

1. Cultural perceptions and stigmas surrounding healthy food greatly impact the quality of an adolescent's everyday nutritional health.
2. The lack of knowledge regarding healthy food choices and the impact of marketing can lead to poor food choices.
3. The inability to prepare and cook healthy foods prevents many students from preparing more meals at home.