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## Occupational Deprivation in Adolescents from Low-Income and Food Insecure Homes: A Screening Tool and After School Program

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OCCUPATIONAL DEPRIVATION IN ADOLESCENTS FROM LOW-INCOME AND FOOD  
INSECURE HOMES: A SCREENING TOOL AND AFTER SCHOOL PROGRAM

By

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A Scholarly Project

Submitted to the Occupational Therapy Department of

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This Scholarly Project Paper, submitted by Claire Eidenschink, OTS in partial fulfillment of the requirement for the degree of Master of Occupational Therapy from the University of North Dakota, has been read by the faculty advisor under whom the work has been done and is hereby approved.

*Scinda Janssen*

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Faculty Advisor: Scinda Janssen, PhD, OTR/L

*June 18, 2018*

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Date

## Permission

**Title:** Occupational Deprivation in Adolescents from Low-Income and Food Insecure Homes: A Screening Tool and After School Program

**Department:** Occupational Therapy

**Degree:** Master of Occupational Therapy

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Date: June 18<sup>th</sup>, 2018

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## Abstract

Adolescents who experience food insecurity are exposed to an increased risk of health disparities related to cognitive, psychosocial, and physical functioning (Cook & Frank, 2007). Each of these domains of functioning impacts occupational performance in all roles that an adolescent assumes. Of note, the role of a student is drastically impacted. Therefore, a program to address strategies for meeting basic needs within a familiar setting, such as a school, is relevant and necessary for this population. Such a program would offer an opportunity to close the gap in disparities and increase health outcomes of adolescents who experience food insecurity as well as the effect of low-income financial restrictions (Defosset, Gase, Ijadi-Maghsoodi, & Kuo, 2017). Adolescents are an underserved population in the United States healthcare system, particularly those who come from low-income households; henceforth, it is evident that there is a need for intervention among this population (Defosset et al., 2017).

The ecology of human performance (EHP) model was selected to analyze and guide product development (Dunn, Brown, & McGuigan, 1994). EHP is centered around transactions between the *person*, *context*, and *task*. There is a focus on increasing *performance range* through participation in various roles within meaningful occupations, while utilizing contextual supports that address the specific needs of the *person* (Dunn et al., 1994). Additionally, principles of pedagogy were applied to guide activity development to increase participation and retention of information (Knowles, 1990).

The product is two-fold: first, a screening tool and second, an after school program. The occupational therapy practitioner will distribute the screening tool to high schools in Minneapolis and Saint Paul, Minnesota school districts. The screening tool is used to identify adolescents who would benefit from intervention. The screening tool is briefly and privately completed during the

school day by the adolescent. The adolescent fills out the screen to identify their own needs. The privacy of the survey is important due to the feelings of shame that are commonly associated with revealing the need for assistance, as related to limitations from food insecurity (Burke, Cayir, Hartline-Grafton, Martini, & Meade, 2016). The occupational therapy practitioner leading the activities contacts the students who are interested in participating in the program. The after school program is divided into three activities that promote occupational performance, while providing the opportunity to access resources that help to alleviate food insecurity. The activities are focused around the identified areas of growth of the population based on findings from the literature review. Each activity in the program is divided into *person*, *context*, and *task* sections. All the activities are tailored to the areas of need for skill development related to budgeting, meal planning and preparation, and developing a healthy routine with emotional regulation.

Multiple authors reported that there were limited resources and programs available to adolescents who experience food insecurity and restrictions of a low-income budget (Burke et al., 2016; Shtasel-Gottlieb, Palakshappa, Yang, & Goodman, 2015; To, Frongillo, Gallegos, & Moore, 2014). The following program addresses the needs of the underserved adolescent population because it provides an opportunity for growth within the cognitive, psychosocial, and physical domains.



## Chapter I

### Introduction

There is a detrimental deficit in the availability of resources for nutritional and occupational support amongst adolescents living in poverty in Minneapolis, Minnesota. According to Feeding America, Minneapolis, which is in Hennepin County, has the highest number of food insecure individuals across the entire state of Minnesota (Gundersen, Dewey, Crumbaugh, Kato, & Engelhard, 2017). A primary role among many adolescents includes being a student. The success in that role and many others are jeopardized if basic nutritional needs are being neglected amongst (Maslow, 1943). Adolescents who experience poverty and low socioeconomic means are associated with having overall worse adult health outcomes in comparison to more financially sound peers (Day et. al, 2016). The problem of *occupational deprivation* highlights the fact that occupational therapy needs to be involved in assisting and preventing negative outcomes for adolescents who have limited resources and supports.

An occupational therapy practitioner offers adolescents skill-building opportunities for being a self-advocate by connecting with community resources to find ways to satiate their basic needs. By doing this, adolescents have a higher likelihood of academic success and that translates into more fruitful adult lives. The benefits of investing in the nutritional needs of adolescents to facilitate occupational engagement are numerous. High levels of occupational engagement in academia have a direct correlation to positive health outcomes as an adult, as academic success is a primary predictor of adult health outcomes (Centers for Disease Control and Prevention, 2015). While nutritionists are excellent resources for supporting nutrition, adolescents continue to have difficulty knowing exactly how to access appropriate nutritional resources, and they do not fully understand how hunger can negatively impact performance in

daily occupations. Being able to access these resources and integrate the use of the resources into daily routines is necessary to support adolescents who experience food insecurity. Therefore, this indicates that the role of occupational therapy is in demand to facilitate increased occupational performance and health outcomes among risk adolescents. The following scholarly project establishes the need for specific intervention through the literature review, the details about the methodological approach for designing the product, the actual showcasing of the product, and finally, the summary of the information covered.

The second chapter is the literature review, which contains information about the chosen population, supporting statistics, and analysis of research on food insecurity that emphasizes the need for intervention. This chapter includes defining constructs that are associated with food insecurity and hunger in order to outline the specific needs of the population. Additionally, the literature review includes information on the impact of food insecurity and low-income restrictions as related to psychosocial, physical, and cognitive development. Further, the role of occupational therapy is defined, and it details how the profession can cater to the specific needs of the population. Finally, the roles of the ecology of human performance model and pedagogy are described to establish a framework for product design and development (Dunn et al., 1994; Knowles, 1990).

Chapter three is the methodology section, which includes the discussion of methods that the student used to direct research and develop the scholarly project with assistance from an academic advisor. This section includes the decision making process related to the *why* and *how* questions for the development of the scholarly project. These questions are answered in terms of *why* this population required such a specific approach to intervention, and *how* did the concepts

throughout the project come to fruition. Therefore, the methodology provides the rationale for the full creation of the project and strategies that were used to guide development.

The fourth chapter is the product. The product is titled, *Food for Your Thoughts: An Adolescent After School Program*, which is designed for adolescents who experience food insecurity and restrictions of a low-income home. Firstly, the product includes a screening tool, which can be distributed to local Minneapolis- Saint Paul, Minnesota high schools by the occupational therapy practitioner leading the program to access the appropriate population. Secondly, the product portion includes the actual program, which is divided into three different activities. The activities are used to promote independence in adolescents and include the *Budget Buddy*, *Friendly Foods*, as well as *Healthy Habits and Self-Regulation* activities. The *Budget Buddy* activity has information on strategies for budgeting to increase an adolescent's ability to meet their basic needs through delegation and management of funds. The second activity, *Friendly Foods*, includes information on meal planning and preparation as it relates to nutrition. The third activity, *Healthy Habits and Self-Regulation*, is about managing fluctuating emotions that are caused by the effects of hunger and chronic food insecurity. Each activity is divided into the concepts of EHP as related to needs of the *person*, *context*, and *task* to address *performance range* deficits (Dunn et al., 1994). The product includes an instructor guide, facts about the topic, available resources, and a task performed in the activity to increase *performance range* of the participant.

Finally, the fifth chapter is the summary of the scholarly project. It includes an overview of the key points from the entire project. It also contains information and recommendations on implementation of the product. Further suggestions are included to expand the product. Then, the conclusion establishes the limitations of the product.

This chapter provided an overview to the organization of the scholarly project and outlined the demand for occupational therapy intervention. Each chapter offers something new to the big picture of creating a solution for adolescents who experience food insecurity. The following chapter gives detail to the specific needs of adolescents from food insecure, and low-income homes, through an extensive review of literature.

## Chapter II

### Review of Literature

Food insecurity and hunger are associated with poor medical outcomes, and impaired psychosocial function across a lifetime for United States' youth (Althoff, Ametti, & Bertmann, 2016). Approximately 39% of individuals who are caregivers for adolescents in Minneapolis-Saint Paul, Minnesota have reported experiencing household food insecurity in the past year (Bruening, Neumark-Sztainer, Loth, Maclehose, & Story, 2012). Adolescents who experience food insecurity are twice as likely to repeat a grade in school, three times more likely to have been suspended, and four times more likely to have no social supports in comparison to their food-sufficient adolescent counterparts (Alaimo, Olson, & Frongillo, 2001). Limited access to nutritional food can inhibit occupational performance for adolescents in academic, physical, and psychosocial domains (Alaimo et al., 2001). Education, instrumental activities of daily living, and social participation are all common occupations in which most adolescents routinely engage in, and *performance range* in each occupation can be influenced by limited access to food (Shanafelt, Hearst, Wang, & Nanney, 2016). The following chapter is a compilation and review of existing literature in relation to adolescents sensorimotor, psychological, and cognitive development as in correlation with the effects of food insecurity. The role of occupational therapy is also addressed as related to issues that surface for the population of adolescents who experience food insecurity while living within low-income means.

## **Constructs**

### **Food Insecurity, Hunger, and Food Security**

Food insecurity is defined as marginal or inadequate access to nutritionally fulfilling food, with an uncertain ability to obtain food in a way that abides with social expectations, whereas hunger is defined as a physically painful sensation that results from a lack of food (Cook & Frank, 2007). On the opposite end of the spectrum, food security is defined as an individual's ability to access safe and nutritious food in socially acceptable ways, without stealing or using alternate coping strategies (Cook & Frank, 2007).

Food insecurity is often associated with hunger, as hunger is a consequence of a household that is food insecure. The rate of households that are food insecure in the United States doubled to create all time historic highs between 2005-2012 (Berkowitz, Berkowitz, & Wexler, 2017). According to Seligman and Schillinger (2010), food insecurity rates rose by 32% in the United States from 1995 to 2008, and 21% of those households affected had children. Consequently, food insecurity is a growing problem across the United States.

### **Adolescents and Food Insecurity**

Youth are an underserved population in United States healthcare, particularly those who come from low-income households (Defosset et al., 2017). According to Nord (2009), households that include adolescents will face food insecurity 2.4 to 5.7 times more frequently than households where the oldest child is only eight years of age. This can occur because adolescents may be overlooked and viewed as more independent as compared to younger children when providing nutritional assistance (Nord, 2009). Low-income households often experience higher levels of food insecurity compared to financially stable homes. Food insecurity among individuals from low-income households result in health disparities related to

cognitive, psychosocial, and physical functioning (Cook & Frank, 2007). All these domains of functioning should be considered when evaluating the numerous roles that an adolescent assumes throughout the day.

Shtasel-Gottlieb, Palakshappa, Yang, and Goodman (2015) conducted interviews and focus groups with individuals who experience food insecurity. Major themes that emerged from the discussion included community resources are crucial for youth who experience food insecurity, and there are many barriers inhibiting access to community resources for families. Any support or opportunity that could help adolescents cope with the physical, emotional, and psychosocial stressors associated with food insecurity would greatly prepare the United States population for a healthier and more successful generation ahead (Shtasel-Gottlieb et. al, 2015). Therefore, there is a need for the development of programs and attainment of resources that encourages growth and health among adolescents who are food insecure.

### **Maslow's Hierarchy of Needs**

With all the roles that an adolescent is expected to fulfill, the stress of obtaining food hinders the performance within each of those roles. There are levels of personal need that must be fulfilled before growth and development can occur (Maslow, 1943). If a person does not have basic physiological needs met, such as satiating hunger, then he or she is likely going to struggle with completing other life demands. Maslow's Hierarchy of Needs suggests that a person must fulfill all needs, starting at the lowest level of functioning before they can become successful in other roles and contexts, which in turn results in a positive developmental cycle and a fulfilling life (Henwood et al., 2014). The main concept of Maslow's approach is that once a level of needs is fulfilled, a person can pursue the next challenge of needs and goals in order to grow. The lowest level of functioning on this hierarchal scale includes securing food, water, warmth, and

rest (Maslow, 1943). These are classified as basic physiological needs. Unmet physiological needs can impede an individual's growth and development, especially in a crucial growth period such as adolescence. Those who are affected by food insecurity are at 100% higher odds of adverse effects on development resulting in poor to fair health through further stages of life (Cook & Frank, 2007). The physical pain of hunger and fatigue due to food insecurity inhibit an adolescent's skills and abilities to perform well in occupations such as education, leisure, instrumental activities of daily living, and social participation.

### **Impact of Food Insecurity on Performance**

#### **Physical Implications**

Food is the source of life as it drives one's existence; without it, life will perish. This is true in numerous senses. Values, beliefs, spirituality, and body functions combine to form the client factors that bring all aspects of life and function into a single body (American Occupational Therapy Association [AOTA], 2014). When an individual is unable to access food, their entire life system becomes impaired. Food insecurity, as it impacts individual nutrition, has a serious impact on the health of an adolescent not only in their current stage of development, but through all ages in their lifespan (Cook & Frank, 2007).

Related to caloric intake, many individuals who are food insecure do not have access to sufficient monetary funds to purchase nutritionally dense foods; therefore, they often resort to lower priced foods with more calories and less nutritional value (Seligman & Schillinger, 2010). These calorie dense foods cost less than the healthier counterpart. Seligman and Schillinger (2010) illustrated the example of purchasing cookies or potato chips, as these foods offer someone 1200 kcal of food, whereas the same amount of money provides only 250 kcal of carrots. In food supply stores, retail prices of fats and oils rose by 35% between 1985 and 2000,



and the prices of fresh produce rose by 118% (Seligman & Schillinger, 2010). Therefore, people are more likely to reach for the low cost and low quality food to fill the void in their stomach. Food is the source of life that helps the body function, and many deficits can occur related to mental, sensory, muscle, cardiovascular, hematological, immunological, and respiratory system functions if basic nutritional needs are not met (AOTA, 2014).

### **Physical Conditions Associated with Food Insecurity**

People with limited support and resources are at risk of many conditions such as hypertension, diabetes, obesity, and many other chronic diseases that are impacted by nutrition (Seligman & Schillinger, 2010). In the cycle of food insecurity and chronic disease as outlined by Seligman and Schillinger (2010), an inability to afford nutritionally adequate foods for a well-balanced diet regularly results in depression, fatigue, limited quality of sleep, and decreased physical activity. Nutrient deficits such as these are also associated with increased likelihood of developing chronic diseases (Seligman et al., 2009).

Seligman, Laraia, and Kushel (2009) discovered similar findings. The authors found that food insecure households among adults in the United States get fewer weekly servings of fruits and vegetables in comparison to financially well supported peers, this results in deficits in magnesium, zinc, calcium, and iron. Specifically, the micronutrient of iron offers many health benefits to those who consume it; however, it is often not found in affordable and calorically dense foods. If iron levels are impaired, the physical condition of iron deficiency anemia (IDA) could take effect. IDA is linked to deficits in cognition, attention, and behavior (Seligman et al., 2009). Unfortunately, children who experience food insecurity are at 140% higher odds of developing IDA, as compared to food-secure children (Cook & Frank, 2007). This can result in deficits in occupational performance, particularly in educational and social settings.

## **Occupational Deficits and Performance**

Physical and psychosocial conditions often exist comorbidly and correlate in their derivation of impairment. Vancampfort et al. (2018) studied adult habits related to physical activity as it interacts with psychological stability. The authors found that increased physical activity is linked to decreased suicidal ideation, as well as decreased depressive, anxious, and psychotic symptoms among the adult population. Similarly, Cook and Frank (2007) assessed adolescents ages 15-16 years old from households that were food insecure, and these adolescents were found to have increased rates of dysthymia. This condition is classified as a desire to die, have thoughts about death, and to have attempted suicide (Cook & Frank, 2007). Overall, there is a link that mental health and physical human performance are interdependent and influence occupational performance, particularly in adolescents affected by food insecurity.

## **Psychosocial Development and Human Performance**

### **Mental Health Conditions Associated with Food Insecurity**

Burke, Cay, Hartline-Grafton, Martini, and Meade (2016) explored the relationship between household food insecurity and mental disorders in children and adolescents (ages 4-17) in the United States to determine if there was a correlation between the two factors. There were 16,918 children and 14,143 adolescents involved in the study. Statistics were analyzed from the 2011-2014 National Health Interview Survey, the Strengths and Difficulties Questionnaire, and the United States Department of Agriculture (USDA) Household Food Security Survey Module to determine the level of mental disorders and food security among the population. Results of this study indicated that youths who experience food insecurity have a greater prevalence of mental disorders than the youth who do not experience food insecurity. Statistically, the odds of having a mental disorder with severe impairment was significantly higher in populations with

greater food insecurity. The authors asserted that mental disorders in the youth population of the United States could decrease through the improvement of household food security.

McIntyre, Williams, Lavorato, and Patten (2013) investigated the effect that childhood hunger had on people as they aged through adolescence and young adulthood as related to mental health outcomes. The secondary purpose of the study was to determine if childhood hunger was an independent variable in establishing a prediction of long-term mental health outcomes. The results of the study indicated that childhood hunger is a strong predictor of poor mental health outcomes in adolescence and adulthood, and childhood hunger is directly related to depression and suicidal ideation. These results are similar to previously mentioned results from Cook and Frank (2007), in which adolescents from food insecure households were more likely to have dysthymia, a desire to die, thoughts about death, and to have attempted suicide. Throughout each of the studies there is an evident deficit in psychosocial performance for adolescents who experience food insecurity.

### **Occupational Deficits and Performance**

Deficits in cognitive, academic, and psychosocial performance for children and adolescents (ages 6-11 and 12-16) were found to be significant amongst those from food insufficient backgrounds (Alaimo et al., 2001). Although this study was published in 2001, the contributions of this research are notable because the authors of this study were the first to establish a nationwide association between questionnaire-based family food insufficiency and negative developmental outcomes in school aged children. Children from food insecure backgrounds were found to have decreased skill in arithmetic, increased likelihood of repeating a grade, more likely to attend psychologist sessions, and more inadequacies in social performance than food secure peers. The results hailed that adolescents were more likely to have been

suspended from an academic setting, experience increased problems with developing healthy peer supports, and were more likely to have seen a psychologist for psychosocial and cognitive issues. Overall, the findings demonstrated negative academic and psychosocial outcomes for children and adolescents as they were connected to family-level food insecurity. These results indicate an increased risk for poor human performance in the occupations of social participation and education (Alaimo et al., 2001). Amongst increased odds of mental disorders in adolescents who are food insecure, this same population is at risk for disengaging in school, truancy, and drop-out, which impacts these same adolescents' ability to transition and engage in adulthood (Defosset et al., 2017).

Psychosocial development in relation to social skill deficits and poor reading performance were found to have strong correlations with food insecurity among girls (Cook & Frank, 2007). While adolescents from low-income households with mental health issues identify problems performing in educational settings, only half of this population seek out necessary services to facilitate improved performance (Defosset et al., 2017). Salvo, Silver, and Stein (2016) gathered data from a nationally representative sample with validated measures of household food insecurity and adolescent mental health to determine if there is a correlation between mental health as it relates to occupational performance and food insecurity. The authors concluded that households with food insecurity had adolescents with higher rates of mental health issues, along with emotional regulation difficulty, personal conduct problems, hyperactivity, and issues with peer pro-social performance (Salvo et al., 2016).

There are consistent findings that indicate food insecurity is associated with a higher prevalence of mental disorders in the adolescent population in the United States. There is also a correlation between the impact of these mental disorders on the United States healthcare

environment and families related to considerable economic and emotional strain (Burke et al., 2016). If this problem with food insecurity in adolescents is not addressed, there will not only be a spike in mental health issues, but also a negative impact on the general health of the adult population across the entire United States as adolescents develop and transition into new stages of life.

### **Health Outcomes Associated with Food Insecurity**

#### **Health Problems Tied to Low-Income Families**

According to Seligman and Schillinger (2010), in the cycle of food insecurity and chronic disease, there is a negative outcome for general health due to the restrictions of a limited income. When people affected by food insecurity are given the choice between medications that can control negative health factors or food, food often wins the battle (Seligman & Schillinger, 2010). This leads to medication nonadherence and postponement of seeking medical services, which can further impair overall functioning. Health and hunger then become two separate commodities with no winning single choice.

#### **Implications of Adolescent Hunger into Adulthood**

Farahbakhsh et al. (2015) found that coping strategies that were reportedly used by adolescents and young adults in college included skipping the purchases of necessary school supplies, selling or pawning possessions, and working more hours at a job, just to name a few methods. All these coping strategies for managing food insecurity inhibits a person's ability to adequately participate in daily occupations, particularly related to the pursuit of education (Farahbakhsh et al., 2015). Sleep is another area that is impaired due to anxiety that surrounds obtaining food, along with students working late hours after school to obtain financial supports to purchase food. Therefore, work schedules and routines cause impairment in daily functioning

secondary to the demands of a job and the need for income to purchase essentials such as food (Farahbakhsh et al., 2015). It is difficult to delegate an appropriate and healthy amount of time to job performance when the job is the only source of obtaining adequate nutrition for an individual.

There are many routines that impact occupational performance. Lohman, Gillette, and Nepl (2016) investigated the relationship between harsh parenting and food insecurity among adolescents to determine if those factors contributed to unhealthy body development upon transitioning into adulthood. The results indicated that females who were subjected to harsh parenting routines and high food insecurity in adolescence had a heightened likelihood of being overweight or obese (Lohman et al., 2016). The increased risk of obesity for female adolescents who are food insecure upon transitioning into adulthood foreshadows further development of chronic diseases that are associated with increased body weight. Through detection and prevention of food insecurity and hunger in childhood, general health outcomes can improve for this population upon transitioning into adulthood (McIntyre, Williams, Lavorato, & Patten, 2013). It is evident that food insecurity has a strong impact on adolescent and future adulthood development and health. As such, resources should be marketed to this population to decrease negative health outcomes.

### **Programs and Resources for Individuals Experiencing Food Insecurity**

There are resources that exist for food insecurity; however, there is limited utilization of these services because it is not easy for this population to obtain access to the supports that do exist. As reported by Cook and Frank (2007), the Food Stamp Program, also known as SNAP, has been shown to reduce the impact that food insecurity has on a child's health status. There are 100% higher odds of adverse effects on development among individuals affected by food

insecurity, which results in fair to poor health through further stages of life (Cook & Frank, 2007). Related to the positive effects of SNAP, Leung, Epel, Willett, Rimm, and Laraia (2014) explored the impact that SNAP has on depression and overall food insecurity. Study results indicated that there were decreased experiences of depression among SNAP participants versus low-income, nonparticipants (Leung et al., 2014). Therefore, the potential for growth and more positive health outcomes lies within the availability of supplemental food assistance supports.

As previously mentioned, Cook and Frank (2007) found that iron deficiency has been associated with people who experience food insecurity. This micronutrient can influence cognition, attention, and behavior, which in turn can inhibit participation in occupations in academic settings. However, participation in food insecurity programs such as WIC and SNAP decrease the risk of iron deficiency; therefore, decreasing the adverse effects that correlate with cognitive and psychosocial components are lessened (Cook & Frank, 2007). Behavior and attitudes are heavily impacted by food insecurity, and these same behaviors and attitudes impact a person's ability to successfully perform in daily occupations.

Farahbakhsh et al. (2015) examined food insecurity in college age students. The results that indicated there were stigmas associated with seeking food support programs. There were two pathways of thought associated with accessing a food bank. The first pathway indicated that people did not utilize food bank services because they were ashamed with the stigma around seeking assistance. The second pathway included people who used the food bank services and did not want to be identified as using services due to feelings of shame and stigma that surround each specific food insecurity support (Farahbakhsh et al., 2015). These are common responses to daily situations among individuals who experience food insecurity (Burke et al., 2016). These

feelings can be addressed in occupational therapy services, along with associated feelings of stress, anger, shame, frustration, anxiety, and sadness.

### **Role of Occupational Therapy**

#### **Adolescent Occupations**

Occupational therapy is a beneficial service to the population of adolescents who are food insecure. Occupational therapy is defined as “the therapeutic use of everyday life activities (occupations) with individuals or groups for the purpose of enhancing or enabling participation in roles, habits, and routines in home, school, workplace, community, and other settings” (AOTA, 2014, p. 1). Occupations that an adolescent is regularly expected to be involved in ranges from education, to social participation, and to instrumental activities of daily living (AOTA, 2014). Occupational therapy services are highly relevant to treating adolescents who are food insecure, as the healthcare field often overlooks this population. Further, this population is the least likely to utilize healthcare services (Bastable, Gramet, Jacobs, & Sopczyk, 2011).

DeFosset et al. (2017) examined the correlation between the prevalence of adolescent mental health conditions and the lack of services available for adolescents from low-income households. This correlation between mental health and limited services available to support adolescents was analyzed within a school-based setting. The results of the study indicated that there were two factors associated with a lack of adolescent engagement in mental health services. The factors that influenced the limited pursuit of services included 1) the distrust in the quality of the provider rendering services, as well as in the quality of the treatment setting, and 2) the disbelief that the adolescent’s situation could be improved through intervention.

When the adolescent participants reviewed the methods of intervention for improving their mental health outcomes, many of the adolescents expressed value in talking about their



problems. However, their follow-through with this communication-based coping mechanism was impacted by the trust in the relationship with the adult leader and whether that relationship was positive (DeFosset et al., 2017). Due to financial limitations for adolescents from food insecure homes, there may be pressure to start working, which can replace the time and benefits that would regularly occur in an academic setting. By phasing students out of school and into work before adulthood, opportunities that could help adolescents cope with stressors and develop in the academic system could be lost due to the press for meeting basic needs through the acquisition of funds. Human performance for adolescents from low-income households within physical, social, and cultural environments is negatively influenced by limited accessibility to appropriate mental health services. Occupational therapy services are an essential component to the health care team, particularly in mental health, as occupational therapy is client-centered and focused on building positive relationships with those who they serve.

Burke, Cay, Hartline-Grafton, Martini, and Meade (2016) investigated the association between mental disorders in the United States and the severity of household food insecurity within children and adolescent populations. The authors concluded that there was a correlation between mental disorders and food insecurity because as food insecurity severity increased, the odds of developing a mental disorder increased as well. The authors stated that this association was concerning as mental disorders act as a roadblock to growth in an educational setting, as well as in social contexts (Burke et al., 2016).

Further related to occupational performance, another set of authors explored the connection between classroom participation, attendance, academic performance, engagement, and negative effects on child weight as it relates to the Breakfast in the Classroom (BIC) program (Corcoran, Elbel, & Schwartz, 2016). The BIC program provides food to students at the

start of the school day in hopes of creating a more conducive environment for learning. The effects of this program were investigated further since three out of every four students come from a low-income household in New York City, and only one third of students take breakfast from the free breakfast program (Corcoran et al., 2016). There are numerous negative health effects associated with food insecurity, which is why accessing available nutritional supports is essential in supporting the development of food insecure youth. If these basic needs related to food security, shelter, and safety are not met, then there are increased odds of physical impairments secondary to the effects of hunger, which in turn, influence an adolescent's ability to physically perform as well as mentally function and develop.

This also establishes a need for occupational therapy intervention to address the underlying reason for lack of access to services. Thus, students are at increased odds of developing occupational deficits in education, and social capacities, all of which occupational therapy practitioners have the tools to address. By providing services to support the wellbeing of adolescents in multiple occupations, the potential for a healthier adult population in the future becomes a more attainable goal. Therefore, occupational therapy would be a highly pertinent field to incorporate into facilitating low-income adolescent performance in a variety of occupations.

### **Evaluation of Food Insecurity**

There is limited existing literature related to specific evaluation methods used for adolescents from low-income and food insecure homes. However, there are tools that have been adapted to gather meaningful information that can guide purposeful intervention for this population. The Canadian Occupational Performance Measure (COPM) was used in a study completed by Leto and Schmelzer (2016) to assess satisfaction with daily task performance for

both pre and posttests during a study related to food insecurity. The Making Meals Performance Measure (MMPM) was another tool utilized in the study to gather information about food insecurity in adolescents. The MMPM is in the process of becoming a validated measure for occupational therapists (Leto & Schmelzer, 2016). This tool was created to gather information related to the amount of meals a person regularly has in a day, the ratio of food available compared to the quantity of food used, and the level of intricacy that went into prepared meals. Both tools are beneficial for developing an assessment of needs in the adolescent population who experience restrictions related to food insecurity and low-income limitations. Concepts from both the COPM and MMPM are used within the screening tool of the product, which is to be distributed to high schools to identify the population of need that would benefit from occupational therapy services.

### **Interventions to Decrease Effects of Food Insecurity**

In the context of temporality, adolescents are in a stage of development where they can conceptualize causes of disease and recognize factors that can impact one's health status (Bastable et al., 2011). Adolescents are also able to put value into the ideas of promoting health and preventing disease in their own lives (Bastable et al., 2011). It is evident that there is a need to intervene among this population to counteract the negative health outcomes that result from poor physical health secondary to food insecurity. Occupational therapy services can assist an adolescent with creating a plan to integrate physical activity into their routine, while also implementing motivational strategies to facilitate participation in exercise, along with promoting physical health through collaboration and demonstration of appropriate exercises.

Additionally, mental health is imperative to address among adolescents who are food insecure, as there are exponentially higher odds of experiencing cognitive and psychosocial

impairments within this population (Alaimo et al., 2001). This area of human performance can be individually addressed and treated through occupational therapy intervention as well. There are increased symptoms of depression and anxiety within adolescents who are food insecure. Deficits in the psychosocial domain are treated through self-expression activities that promote self-disclosure of personal needs. The activities can also facilitate pro-social performance to increase success in gaining peer support and understanding. These areas of need are also treated through education on the use of appropriate coping skills for increased self-management when faced with daily problems in a variety of occupational settings.

Alaimo et al. (2001) found that there is a more deficient quality of arithmetic skill amongst adolescents who are food insecure. Therefore, there lies the opportunity for occupational therapy practitioner to provide skill building that helps adolescents build budgeting skills that are needed to manage an income and plan for food acquisition. By practicing budgeting, there is also a gap for food preparation and meal planning that is beneficial to address. Related to the stress and limitations in psychosocial and physical development associated with food insecurity, it would also be of benefit for this population to build skills and routines related to healthy habits. Adolescents experience negative emotions at an increased frequency and severity than adults and children (Cracco, Goosens, & Braet, 2017). Therefore, emotional regulation strategies are essential in facilitating meaningful occupational engagement while instilling independence in adolescents who are affected by food restrictions and low-income financial resources. There is a need for occupational therapy services among the adolescents who are food insecure population, in psychosocial, cognitive, and physical domains as each of these have increased health disparities that impact ability to function (Cook & Frank, 2007). The

individual functioning is impaired, and this results in occupational deficits amongst instrumental activities of daily living, social participation, and education.

### **Ecology of Human Performance**

Models within the scope of occupational therapy were created to guide intervention and to create a cohesive plan for an individual client in order to provide client-centered care. The ecology of human performance (EHP) is a model that is applicable to the purpose of this scholarly project because the model guides the view of the *person* through their transaction with *context* and *tasks* (Dunn et al., 1994). The result of the *person-task-context* transaction allows the *person* to be viewed in a holistic manner where the overall outcome being assessed is human performance. Food insecurity in adolescents creates health disparities related to cognitive, psychosocial, and physical functioning (Cook & Frank, 2007).

All of these areas are addressed in the focus of the *person* within EHP concepts. The *person* is comprised of sensorimotor, cognitive, and psychosocial domains, and each of these individual factors influences the meaning as well as performance of a *person* in their unique *tasks*, and *contexts* (Dunn et al., 1994) There are numerous *tasks* that are regularly performed by adolescents within their unique personal domains that help them to develop roles. In the role of a social being, adolescents are able to identify health promoting behaviors, though these behaviors may not be participated in secondary to the impact of social pressures from peers, which can increase risk taking behaviors (Bastable et al., 2011). A person's role changes as they participate in different tasks, and since each role has new demands, *performance range* changes based on skills that a person possesses. Tasks in which, an adolescent is commonly involved in include the occupations of instrumental activities of daily living, social participation, and education. A goal of an increased *performance range* can only be achieved through the pursuit of behaviors that

facilitate task completion (Dunn et al., 1994). The *performance range* piece within the goal of engaging in these occupations is influenced by food insecurity, as that impairs the essential functions within the sensorimotor, cognitive, and psychosocial domains.

There is a unique contextual factor that influences the role performance of *person* in occupations as well. In EHP, the *context* is created by a temporal context and environmental context (Dunn et al., 1994). The temporal *context* is where the person is viewed within a time, place, and frequency of task participation, as specific examples this can be seen through phase in development, or a step within the life cycle (Cole & Tufano, 2008). The stage of development that adolescents are in between ages 12-19 allows them to become logical thinkers, connect thoughts and beliefs, while contemplating different points of view, as well as identify objects and events and the way they can interact (Bastable et al., 2011).

The environmental aspects are composed of physical, social and cultural aspects. Physical environments can be made up of equipment, tools, and objects that hinder or facilitate the person's ability to engage in tasks that contribute to goal achievement in the scope of human performance (Dunn et al., 1994). Social environments also influence human performance, as this environment is made of expectations within certain roles inside of institutional, organizational, and economic systems (Dunn et al., 1994). This environment is relevant to adolescents who identify with the food insecure population because there are numerous roles and expectations that a person is expected to perform in, while their basic needs are not being met. The cultural piece of the environment also influences role performance and the type of expectations put on the adolescent for obtaining meaningful goals. Cultural environments are a combination of values, beliefs, and customs, which can be linked to political, educational, vocational, and financial groups and opportunities (Dunn et al., 1994). The culture within a low-income family

experiencing food insecurity is different than that of a more privileged household. There are different needs and values within households that drive performance and the types of goals being sought after.

### **Discussion**

Adolescents who experience food insecurity secondary to living in low-income households face many challenges in daily and lifelong contexts. Physical or sensorimotor implications of living in a household that is food insecure result in disparities related to hypertension, diabetes, obesity, and many other chronic diseases (Seligman & Schillinger, 2010). The side effects of these physical conditions can impair cognition, attention, and behavior, which tie into the psychosocial domain. Barriers in an adolescent's psychosocial scope of functioning within a household that is food insecure include increased odds of mental health issues, emotional dysregulation, issues with personal conduct, hyperactivity, and poor peer socialization skills (Salvo et al., 2016). These barriers influence an adolescent's ability to fully engage in an educational setting, as well as behave appropriately in social situations, and solve problems during certain activities of daily living that are associated with health management.

Household food insecurity results in a detrimental risk to a child's growth, health, cognition and behavior (Cook & Frank, 2007). As there is a pronounced issue related to food insecurity in households within the Minneapolis-Saint Paul, Minnesota region, there is a need for evaluation and treatment that would benefit this population (Bruening et al., 2012). Adolescents from households that are food insecure face numerous problems within physical and psychosocial human performance, which creates outcomes for poor adult health in the future. Numerous occupations are impacted by food insecurity and hunger in the adolescent population.

The occupations that adolescents face the most distress in secondary to food insecurity are social participation, instrumental activities of daily living, and education.

As previously mentioned, the lowest level of functioning in Maslow's hierarchical scale must be addressed before further development can occur. This concept reinforces the need for treatment amongst an underserved population, as the basic need of food security is not adequately being addressed (Maslow, 1943). There is an evident need for a product that addresses the needs of the underserved adolescent population who experience food insecurity, in order to increase sensorimotor, psychological, and cognitive outcomes for a healthier population with a higher quality of life. Intervention from occupational therapy is necessary due to the emphasis on facilitating meaningful participation in daily roles, habits, routines, and occupations (AOTA, 2014). Occupational therapy has a focal concept based on the development and progression of meaningful skills in a challenging yet rewarding manner, which allows a person to feel satisfied with life. Maslow's Hierarchy of Needs has a focus on growth related to meeting baseline level needs primarily in order to facilitate further ability to build skills. Occupational therapy practitioners approach intervention similarly by establishing a foundation and upgrading skill development to increase a person's performance range and overall satisfaction with daily life. Therefore, occupational therapy intervention based around skill development is essential in supporting the development and growth of adolescents who experience food insecurity in the United States. The following scholarly project includes a guide to intervention that increases performance range in daily occupations, in which adolescents who are food insecure regularly engage.



## Summary

Adolescents who experience food insecurity and restrictions of a low-income budget would benefit from intervention under the scope of occupational therapy due to the increased risk of negative outcomes related to physical, emotional, and cognitive development. The product offered in this scholarly project addresses each of the areas of functioning that are at risk for poor development as an effort to increase positive health outcomes. Adolescents experience heightened emotional responses to stimuli, especially those who are impacted by hunger; therefore, this population would benefit from emotional regulation strategies to enhance psychosocial well-being. Physical health and nutrition are also areas of impairment in many adolescents that experience food insecurity. Occupational therapy services are necessary for intervention with this population due to the emphasis on client-centered approaches, with extensive training in therapeutic use of self that can create an inviting environment for adolescents. In summary, there are numerous skills that adolescents have the opportunity to practice and build upon through participation in an occupational therapy based after school program.

## Chapter III

### Research Methodology

The product is tailored to adolescents who experience food insecurity that come from low-income households in Minneapolis and Saint Paul, Minnesota. As previously mentioned in the literature review, at least 39% of adolescent caregivers in Minneapolis-Saint Paul, Minnesota reported experiencing household food-insecurity over the course of a year (Bruening et al., 2012). Current literature supports that there is an issue related to adolescent development in cognitive, psychosocial, and physical domains amongst individuals who are specifically hailing from low-income households and from homes that experience food insecurity (Althoff, et al., 2016). Many of the studies reviewed identified needs for intervention in the adolescent population in order to decrease poor health outcomes as they transition into adulthood. Among occupational therapy specific literature, however, there are limited resources available that give detail to the issues related to adolescent development, food insecurity, and appropriate intervention. Therefore, there was an identified need to create a product that addresses the full ecological scope of the person specifically related to adolescents, as adolescents are the most underserved population in the United States (Bastable et al., 2011). This chapter serves as an informative guide to the strategies and approach to the conceptualization and development of this scholarly project.

The approach to the review of literature and general development of the project was guided by skills that were developed in qualitative and quantitative research courses offered at the University of North Dakota in the Occupational Therapy Department. The analysis of existing research offered an emersion into new ideas, rationale, thought processes, and educated choices, which guided the methodology and development of this scholarly project. It was this

evolution of thought that facilitated the development of the scholarly project. I further developed my research analysis skills over the course of this important opportunity for application with a topic that I am passionate about.

### **Adolescent Need for Intervention**

The population of adolescents who come from low-income households was chosen as the primary focus for the product for numerous reasons. There is an evident need for a program that is centered on psychosocial, cognitive, and sensorimotor interventions. The literature that emerged was related to the disparities in well-being between people who come from low-income households compared to those who live within larger means. The data that was utilized to determine the necessity for the product was gathered through peer-reviewed articles from multiple databases.

Through the series of articles that I reviewed, there was an evident deficit in the interventions available to adolescents who come from low-income households that experience food insecurity. If issues such as food insecurity and financial limitations were left unaddressed in adolescence, there would be a cyclical pattern of disparities amongst families and communities. This led to the conclusion that a product that addressed all aspects of the person within sensorimotor, psychosocial, and cognitive domains would be beneficial for adolescent development. This population is often underserved and would benefit from skill building tasks to aid in the successful transition into adulthood (Bastable et al., 2011).

The process of developing this product consisted of numerous steps. The population of adolescents from low-income households who experienced food insecurity was often identified as a gap in healthy outcomes for the United States across various sources of literature (Burke, Cayir, Hartline-Grafton, Martini, & Meade, 2016; Cook & Frank, 2007; Seligman & Schillinger,

2010). There was literature to support the need for a program, yet there was little literature that had the tools to compile the needs and create a meaningful intervention. The gap in treatment for these adolescents posed as an opportunity to create a meaningful and relevant program that addressed the needs of an adolescent population that was being underserved. By understanding the general needs of the population, it became glaringly evident for what the focus of each activity was going to be. I established that building skills related to each of the identified areas of growth were necessary to facilitate development for adolescents at risk of poor health outcomes secondary to food insecurity. After compiling a literature review and establishing a need, the conceptualization of how to apply the findings into the product evolved.

### **Contacting the Population**

The occupational therapy practitioner will distribute the screening tool to high schools in Minneapolis and Saint Paul, Minnesota school districts to allow for easy access and identification of the appropriate population. Through a process of deliberation on the resources that restrict participation for adolescents in a low-income household, the most reasonable location to implement the skill building opportunity was determined to be in an after school program. By holding the program in the high school, the participants would not need to find transportation to a new site, and participants would be in a familiar setting to facilitate participation. By implementing the product as an after school program, only students who have identified specific needs as selected through the use of a screening tool will participate. This decreases isolation and distraction from other individuals that may not come from a low-income background who would not find such services necessary. A factor that was identified in the literature that pertains to people who experience deprivation of basic needs, was the feeling of shame related to limited access to financial and nutritional resources (Shtasel-Gottlieb et al.,

2015). Since there is potential for the feeling of shame, having personal challenges exposed to an entire classroom of peers would likely not facilitate growth. Therefore, having an after school program with other adolescents who are experiencing similar issues is imperative. Adapting and creating the tool for the population in need was made possible through the process of gathering data based on an extensive literature review.

## **Integration of Literature**

### **Evaluation of Literature**

After identifying the population of interest and areas of need, there was a call to further review and analyze the data that supported such need for implementation of a new product. I completed this through an analysis of literature that was available through the databases that contained peer reviewed literature. Databases included: OT Search, EBSCOhost, PubMed, Google Scholar, and CINAHL. The search terms that were used to locate pertinent literature across each database include: adolescents, youth, low-income, food insecurity, food insufficiency, hunger, academics, mental health, psychosocial, physical health, disease, disparities, diversity, United States, Minnesota, Minneapolis, Saint Paul, occupational therapy, emotions, emotional regulation, development, cognitive performance, supplemental programs, ecology of human performance, performance range, and pedagogy.

This review of literature was compiled by the author of this scholarly project into *reading summaries*. The critical review of literature that developed into the *reading summaries* included detailed descriptions of the level of rigor of the study, information on the outcome measures, the purpose, the findings, and how the information from the study related to the development of this particular product. Through this review emerged the themes. The reading summaries were classified based on the findings, the sections related to psychosocial health, sensorimotor

development, cognition, and general health outcomes for adolescents as they transition into adulthood. For further development of the outline for the literature review, I collaborated with the scholarly project advisor, who offered input related to strategies for establishing an evident need for the development of a product. The outline was developed further, and more supporting evidence was compiled into the literature review. Through the process of collaboration with the advisor, the literature review developed into an urgent demand for intervention amongst adolescents from low-income and food insecure homes.

### **Findings of Critical Reviews**

A study that was referenced in numerous articles in the literature review related to the topic of this scholarly project was called the National Health and Nutrition Examination Survey (NHANES). The NHANES study is a cross-sectional continuous study began in 1999 and is still conducted today in the United States by the National Center for Health Statistics (Quyen, Frongillo, Gallegos, & Moore, 2014). Information from the NHANES provides data on children and adults related to the status of physical, mental, and emotional health as well as nutrition amongst the U.S population (Alaimo et al., 2001).

Results and analysis from various years of data collection through NHANES appeared to regularly support the idea that people who come from low-income households that experience food insecurity, are often at a disadvantage socially, emotionally, and physically (Leung et al., 2014). Results that were associated with NHANES findings included that limited access to food decreases an adolescent's ability to develop cognitively and psychosocially (Alaimo et al., 2001). With NHANES as a primary reference, it was determined that youth who experienced any level of food-insecurity are less likely to engage in healthy habits such as exercising, and this often translates into poor physical health in adulthood (Quyen et al., 2014). Numerous findings suggest

a correlation between health disparities and people who experience low-income restrictions on a regular basis (Seligman & Schillinger, 2010).

The gaps that surfaced in the studies related to lack of interventions available to people from low-income homes, particularly the adolescent population. The gaps that were found in studies that used NHANES research as a reference while gathering information on nutrition and overall health of youth and adults were varied. The areas of growth for the data accumulation and analysis process relate to obtaining more information specifically based on personality traits of youth surveyed, school and neighborhood influences, parental characteristics, and amount of time spent in poverty (Alaimo et al., 2001). NHANES also excluded homeless children in the compilation of their data, and consequently, this could be a limitation due to the fact that people who live under low-income restrictions experience greater rates of homelessness. Overall there are a large array of issues that face adolescents who experience food insecurity and low-income financial restrictions, and in the conclusion of many of the reviewed articles there was a call to action for intervention to provide support to this population (Lueng et al., 2014).

The product of this scholarly project is designed as a program to be integrated into three separate activities to address challenges as outlined in supporting literature for adolescents who come from low-income households and experience food insecurity. The restrictions that come with trying to survive on deprived means of income leaves these adolescents at higher rates of cognitive, psychosocial, and physical health deficits compared to their more financially and nutritionally stable counterparts (Cook & Frank, 2007). Areas of growth that were influenced were specifically related to financial, emotional, academic, and physical health and development for adolescents. Therefore, the product is tailored to those specific needs through a series of

educational and practical interventions that help adolescents who are at risk develop skills and healthy roles during this pivotal stage of development.

### **Application of Literature**

According to Maslow (1948), people must first establish an ability to meet their basic needs such as sleep, shelter, and food before they can advance their thought processes. As such, the activities address each identified area of need in some format. Many adolescents who experience food insecurity have difficulties with inattention, and this directly relates to academic performance and being able to focus in a classroom setting (Salvo, Silver, & Stein, 2016).

Therefore, many adolescents who experience food insecurity have been found to have impaired arithmetic abilities. Thus, it is essential that the product address this deficit with a functional approach. Hence, the first activity is related to budgeting support focused on creating a plan to delegate expenses towards necessities such as food and housing costs. By creating a budget, the adolescents build skills that help them plan ahead for expenses so that they are not left without a basic need. When left without a basic need, a person is unable to cognitively grow and develop (Maslow, 1948). Adolescents who have limited finances due to restrictions of low-income resources are faced with greater challenges to meet basic needs. Thus, this population would benefit from building budget management skills.

The second activity is focused around helping adolescents increase their meal planning abilities while giving them the opportunity to build upon their budget planning skills. As math skills were found to be a deficit amongst adolescents from low-income homes, it is concluded that budgeting for food is also a difficult task, especially when faced with limitations on spending. Adolescents who experience food insecurity also experience greater social deficits, which leaves them limited in options for support. Consequently, this may lead to maladaptive



coping mechanisms to deal with feelings of isolation. Thus, having an activity that addresses the psychosocial needs through group intervention and meal preparation is essential and relevant to the population (Salvo, et al., 2016). Nutrition deficiencies were also associated with people who experience hunger and food insecurity, which in turn correlated with poor physical health outcomes (Seligman et al., 2009). The need was identified for intervention based on the ability to choose healthy foods, practice preparing nutritious meals, all while abiding by a budget in order to decrease limitations that occur secondary to food insecurity.

The third activity correlates with healthy habits and emotional regulation. Adolescents experience increased risk of using maladaptive coping strategies to manage fluctuating emotions (Cracco et al., 2017). Additionally, adolescents who are impacted by food insecurity are also at a higher risk of being diagnosed with a mental health issue. Mental health issues such as depression and anxiety are associated with limited problem-solving capacities, an inability to reappraise situations, and poor acceptance of change (Sendzik, Schafer, Samson, Naumann, & Tuschen-Caffier, 2017). Therefore, adolescents would often turn to maladaptive strategies such as avoiding issues, ruminating on problems, and suppressing emotions. The impact of food insecurity on an adolescent adds another level of instability beyond the already heightened risk of using maladaptive strategies amongst food secure adolescents (Cracco et al., 2017). This activity builds upon the first two tasks because it creates an opportunity for the population to build a routine that can increase overall life stability and satisfaction. By determining triggers that result in unhealthy behaviors, the adolescents can increase their emotional regulation and role performance. As adolescence is identified as a specifically vulnerable stage in development, it is pivotal that a program should be implemented to facilitate emotional regulation. This will, in turn, increase the adolescent's ability to respond to challenges in an adaptive way (Cracco et al.,

2016). By having the participants in the program identify triggers for personal maladaptive responses, the participants will increase insight and ability to cope positively with new challenges. By gaining these skills, an adolescent is more likely to have a successful societal integration as an adult (Cracco et al., 2016). There are many factors that influence adolescent success and the successful transition into adulthood. Consequently, occupational therapy intervention is necessary, which is why it was used to create an intervention plan where specific models were applied to develop the learning principles to increase retention and personalization.

### **Application of Models**

#### **Rationale for EHP**

The ecology of human performance (EHP) model was applied to the product because it provided a full guide to addressing the daily needs of adolescents who experience food insecurity (Dunn et al., 1994). This model is centered around the transaction between the *person*, *context*, and *task*. *Tasks* are the activities that an adolescent participates in due to the meaning that they hold to the *person*. The *person* is made up of roles and experiences, and each person has their own compilation of sensorimotor, psychosocial, and cognitive demands (Dunn et al., 1994). Each of those traits leads to a person's level of performance in occupations. Participation in tasks leads to role performance and occupational performance. To illustrate, an example would be completing school assignments as an adolescent. When an adolescent completes an assignment for school, they perform as an active role of a student, and the effort they put into the assignment is what reflects role performance. The ability for that student to complete the *task* is considered the *performance range*, or capacity for educational performance (Dunn et al., 1994). The homework assignment would be considered a *task*, and completion of that *task* is a building block to participation in the full occupation of education. The *context* is in the school itself in this

example, and the support or deterrents that influence the student's ability to perform the task.

The EHP model ties together all of the components of individual performance. This approach is relevant because throughout the literature review there were multiple performance range deficits that were associated with adolescents who experience food insecurity. As EHP is a transactional model, if even one portion of the *person, context, or task* is impaired, the full capacity for maximum *performance range* is limited (Dunn et al., 1994). Hence, each of those components are addressed within every activity of the product.

### **Rationale for Pedagogical Intervention**

Pedagogy was the second model applied to the sequence of product development due to the relevancy to the population of adolescents from low-income households who experience food insecurity (Knowles, 1990). As detailed in pedagogical concepts, the adolescent stage of development outlines that this stage comes with a new set of skills that supports learning, such as the development of abstract thought through newly functioning formal operations (Knowles, 1990). At this stage in development, adolescents are able to grasp concepts, deliberate points of interest, recognize cause and effect situations, and understand relationships between events and objects (Knowles, 1990). Adolescent learning strategies are applied throughout the program. Initially, students are given the screening tool to ensure confidentiality through personal surveys that are only seen by the student and the instructor. If the student is recognized as at risk for deficits in development based on food insecurity and low-income restrictions, then they are given the choice to participate in the after school program (Bastable & Dart, 2011).

The strategies for learning with adolescents include allowing them to test convictions (Brown, Teufel, & Birch, 2007). This ties into the shame that often surrounds those who are impacted by food insecurity; therefore, the program allows adolescents to admit what they feel,

and experience related to food insecurity in a safe environment (Shtasel-Gottlieb et al., 2015). Further, it provides adolescents with strategies to manage risk factors on their own to determine their personal level of need and potential benefits of applying program details to daily life. Another important part of adolescent learning is giving rationale for each intervention (Brown et al., 2007). This is done throughout each activity in the program, as each activity begins with information and statistics about the person and how food insecurity can impact function. There are multiple pedagogical concepts of learning that are specific to adolescent needs that were applied throughout the product in order to create an effective outcome.

### **Rationale for Occupational Therapy Intervention**

Occupational therapy practitioners are qualified to implement this product and to educate the adolescents who are at risk for a variety of reasons. Throughout the academic career for these practitioners, there is an emphasis on strategies for teaching and learning. These include strategies specifically based on adolescent needs and development. As related to the concepts of EHP, occupational therapy practitioners are trained through both academic and clinical experiences. This approach to education facilitates a practitioner's ability to evaluate and address each component of a person based on specific cognitive, psychosocial, and sensorimotor needs. By using a holistic approach to intervention, participants receive the most client-centered approach possible. This allows for a creative and supportive environment based on personal needs of each adolescent in the program.

### **Advisement**

Throughout the course of development of this scholarly project, the student had the opportunity to brainstorm concepts with the academic advisor and receive feedback that assisted in guiding product development. The student utilized the feedback through the revision and editing process in order to cultivate an effective and meaningful product. The academic advisor who provided insight and guidance on components during the process of development guided the creation of this scholarly project. This included the conceptualization for the direction of the topic of the project, the topic proposal, literature review, product, methodology, introduction, and summary. The academic advisor also provided input related to the model application process with EHP concepts. Throughout the evolution of the scholarly project, the academic advisor provided support and education related to forging the development of a unique product. Further, the academic advisor provided education on the details that go into the oral comprehension presentation and poster design for Frank Low Research Day in April of 2018.

### **Summary**

The methodology section was about the process of exploring relevant literature and outlining an approach to develop a product that serves the identified population with an evident need. This section included information on the specific needs of adolescents that were found in the literature, which guided the product development. The process of how the literature was found and evaluated was also included in this section, along with the strategies for identifying relevant themes. Principles of EHP and pedagogy were explained as related to the procedure of implementing each concept into the product. Henceforth, the following chapter is the presentation of the product.

## Chapter IV

### Product

The product for this scholarly project is titled *Food for Your Thoughts; An Adolescent After School Program*. The physical, cognitive, and psychological effects of limited nutritional, as well as financial, resources for adolescents from low-income households can greatly impair participation in numerous daily occupations. Approximately 39% of caregivers for adolescents in Minneapolis-Saint Paul, Minnesota have reported experiencing household food insecurity in the past year (Bruening et al., 2012). Issues with academic performance, physical health, and overall growth, as well as development, tie back to a deficiency in nutritional availability. Adolescents who experience food insecurity are twice as likely to repeat a grade in school, three times more likely to have been suspended, and four times more likely to have no social supports than their food sufficient adolescent counterparts (Alaimo et al., 2001). This product is a guideline for an after school program for adolescents who could benefit from building skills related to financial management, meal preparation, and emotional regulation. By building these skills, adolescents would be more likely to increase their *performance range* in occupations such as school, work, social participation, as well as health and home management.

The after school program is divided into three activities with educational and interactive worksheets to guide the skill development. The activities include: *Budget Buddy*, *Friendly Foods*, and the *Healthy Habits and Self-Regulation* tasks. Within each activity, there is an introduction to the focus of the day, including topics such as financial management, meal preparation, and emotional regulation. The model of ecology of human performance (EHP) was utilized as a primary source to guide the development of the program (Dunn et al., 1994). EHP was chosen due to the emphasis on increasing *performance range* through skill building tasks

that incorporate the needs of the person related to specific contextual needs. Each activity is divided into three portions including *person*, *context*, and *task*, which results in an increased *performance range* for the adolescents engaging in the program. The phrases, *student* and *person*, are used interchangeably as *person* refers to the concepts of EHP, and *student* refers to a specific role of the person within a particular context. The portion that addresses the *person* includes education based on facts and statistics that tie into the theme of the activity. The *context* is consistent through each activity within the after school setting. There is a combination of environmental and temporal aspects related to adolescent routines, roles, and habits that develop for a *person* within a low-income setting. The *context* portion of each activity includes a list of financial and nutritional support programs within the community as well as at a state and national levels. The goal of these supports is to help an adolescent define his or her needs and to assist in accessing appropriate programs. The *person* learns skills related to meaningful *tasks* and completes an activity related to the topic as an opportunity to build a foundation for healthy participation in meaningful roles and occupations as adolescents develop and transition into adulthood.

### **Product Description**

The product is made up of a screening tool and an after school program. The occupational therapy practitioner will distribute the screening tool to high schools in Minneapolis and Saint Paul, Minnesota school districts in order to establish a participant base. The adolescents are provided the screen by teachers throughout the school day. Once the occupational therapy practitioner retrieves the screens and analyzes interest and need, the participants are contacted and scheduled for participation in the after school program. The actual program consists of three activities, which are presented in a two-hour session once a week, over the course of three

weeks, to cover all three activities. The after school program is divided into three different activities, which include budgeting, meal planning and preparation, as well as emotional regulation as it relates to development of healthy habits. Each of the three activities comes with guidelines for the instructor. The activities also include an information packet for the students. These packets include information related to facts that support the need for occupational therapy-based intervention for food insecure individuals, as well as the contextual supports that promote the use of need-based resources, and the task worksheet. According to the concepts of pedagogy, it is beneficial to have a bright and stimulating presentation of information for adolescent approaches to education (Knowles, 1990). However, this approach was not chosen due to inattention that correlates with the deficits in the population of people who are impacted by food insecurity and low-income financial restrictions (Salvo et al., 2016). The adolescents in the program have a greater opportunity to further develop based on decreased level of distractibility with presentation of information. The activities are centered around the actual process of practicing and doing to increase carryover into daily life upon completion of the program.

The first portion is the budgeting support activity called the *Budget Buddy* that is centered on having adolescents keep track of monthly expenditures. This activity provides students with an opportunity to increase functional arithmetic skills as they relate to participation in daily occupations such as academics, meal planning, and participation in leisure or social activities. The students also explore financial resources that are available in the community. These supports can increase a person's ability to obtain items related to meeting basic needs that may be regularly limited within a low-income household. The purpose of this activity is to increase personal management of resources while creating a budget for to facilitate role development and organizational skills to prepare for the transition into adulthood.



The second activity, which is named *Friendly Foods*, has a focus on developing meal planning and preparation skills. There is also an emphasis on establishing a routine that has nutritious foods integrated into the diet to increase psychosocial stability and physical health. The first section of the activity includes education about the effects of having a routine healthy diet as it relates to occupational performance and overall health. The students have the opportunity to explore local and nationwide resources that can provide either nutritional support through food distribution or financial support with monetary relief. Further, the students practice using the *Spend Smart Eat Smart* App that has tips for meal planning with healthy recipes, and articles about benefits of a variety of foods. The following section of the second activity is related to the task of preparing an actual meal with peers and establishing the use of a meal planning tool schedule. The student applies strategies that incorporate the results from the budgeting support task into the meal planning task to increase carryover of skills into multiple occupations. The adolescents practice communication skills and plan to make a meal together to facilitate the role of a self-sufficient individual, a socially supportive peer, a family member, or a roommate.

The third activity called *Healthy Habits and Self-Regulation*, has an emphasis on implementation of a healthy routine, which can be used to decrease the attention and emotional regulation difficulties that greatly influence people who experience food insecurity and hunger (Salvo et al., 2016). The education portion is where students are provided the information on emotional regulation and the benefits that are associated with using adaptive coping strategies. The adolescents use the contextual section of the activity to explore local supports and resources that can be used as healthy and alternative coping mechanisms for self-regulation. Adolescents develop healthy self-management coping mechanisms in this activity in order to increase overall

health and self-control. This is done as an alternative to the five most commonly used maladaptive strategies used in adolescence, which include withdrawing, ruminating, self-deprecation, giving up, and aggression (Cracco et al., 2017). In the second section of the final activity, the adolescents practice going through a thought expression and challenge log to problem solve for new strategies to process emotions in a constructive manner. One adaptive coping mechanism is distraction, which is applied as adolescents further explore leisure pursuits that can act as both a distraction, as well as an opportunity for social support. All three activities are centralized around the concept of increasing health outcomes and performance range of adolescents who experience food insecurity and limitation from low-income environments.

### **Ecology of Human Performance**

The primary concepts of the ecology of human performance (EHP) model include the *person*, *context*, and *task* (Dunn et al., 1994). This frame of reference is pertinent to the development of the product for food insecure youth from low-income households because of the emphasis on expanding a person's performance range. The *performance range* has a large opportunity for development and expansion in the adolescent stage of life. According to Piaget (1976), upon reaching the stage of adolescence, a *person* increases a personal capacity for thoughts that are abstract, understands the relationships between cause and effect, and can utilize logic, deductive and inductive reasoning.

This is a pivotal stage in physical, cognitive, and psychosocial development within pedagogical learning. During adolescence there is an increased ability to grasp relationships between healthy choices, disease, and illness (Bastable et al., 2011). There is an ability that emerges within adolescents that allows them to gather a stronger understanding of the concepts of health promotion and prevention of disease. Therefore, the implementation of a program that

has core concepts associated with promoting health and preventing disease in a population that is at risk, such as adolescents from low-income and food insecure households, is relevant and essential to community needs.

The adolescent person is impacted immensely by unique traits and resiliency factors. This is why the product is centered on general skill building concepts yet has room for adaptation to specific needs of each adolescent. The skill building opportunity that this product provides draws from the relevancy and meaning that is attached to each task within the program. The general tasks in this product are related to financial management, meal preparation, and health management. These tasks become more meaningful and offer greater opportunity for personal growth to those who face challenges with engaging in those occupations each day. As outlined in the literature review, there is an evident need to support adolescents impacted by low-income resources and food insufficiency related to performance in these occupations (Shtasel-Gottlieb et al., 2015). The person has a unique set of abilities, skills, and capacities that allow for growth and development (Cole & Tufano, 2008).

The context surrounding each adolescent is more concrete. Within this population, the temporal aspects of context including developmental stage, educational demands, and the increased risk of facing a disability are fairly consistent across the board. As this population has a consistent overlap in a physical environment, which is school, this is an effective place to distribute a screening tool to identify potential candidates that would benefit from the after school program. Each person also faces a set of social norms, expectations, and routines within each role and environment that they take part in. By engaging in the after school program, adolescents are able to build skills and create a more positive and productive routine within their varying home environments. There are also a set of cultural factors that impact a person and their

performance range. These include cultural factors associated with political, lawful, educational, and financial assistance, opportunities, and beliefs (Cole & Tufano, 2008). There are many environmental and personal factors that impact performance range. The tasks that adolescents engage in during the program become meaningful and beneficial because of the unique personal and environmental factors that creates the need for this specific task intervention.

*Tasks* are completed to achieve a goal. The goal for adolescents completing this program is to build personal skills and abilities in order to facilitate engagement in environments that support development and readiness while preparing to transition into adulthood. *Tasks* are adaptable to the needs of the person based on their meaningful roles and occupations. The ability of a person to complete tasks leads to both the ability to perform occupations as well as to live up to the demands of each role. When a person builds skills through task participation they create a new performance range for themselves. The interaction between a person and their unique skills with the environment creates the ecological scope, in which a person is viewed in terms of their behaviors and performance.

*Performance range* is the result of the transaction between the *person*, *context*, and *task* (Dunn et al., 1994). The *performance range* can be impacted by limited access to contextual supports and resources. The resources relevant to this population include those that can provide financial or nutritional support, in order to decrease the impact that food insecurity and a limited income have on performance range. *Performance range* is also limited by a person's skills and abilities, as these are the foundation of having the ability to locate and access alternate supports and programs (Cole & Tufano, 2008). Many adolescents have not yet had the opportunity to locate and access resources on their own, which is why participating in the after school program would be beneficial to the development of independence to increase *performance range*.

## **Screening Tool**

The screening tool that was developed for the product is used to identify potential participants for the program. The screening tool includes seven questions and each question pertains to hunger, health, and finances, all of which are addressed in the program. These screens are distributed to high schools near Minneapolis-Saint Paul, Minnesota that primarily have adolescents from low-income households. The occupational therapy practitioner leading the program contacts teachers and requests that the screen be distributed to students individually in a quiet setting in order to decrease distractions, and to acquire the most opportune sample. The practitioner then collects the screens and assesses each response sheet to determine the level of need and interest for program participation among students. The students who are eligible are then contacted based on the information that they provided. The screening tool is the first step in the road to helping adolescents build a brighter future.



# Food for Your Thoughts: An Adolescent After School Program

### **Screening Tool Guide**

The screening tool that was developed for the product is used to identify potential participants for the program. The screening tool is seven questions and each question relates to hunger, health, and finances, each of these areas are addressed in the after school program. The occupational therapy practitioner will distribute the screening tool to high schools in Minneapolis and Saint Paul, Minnesota school districts that primarily have adolescents from low-income households. The occupational therapy practitioner leading the program requests that the screen be distributed to students individually in a quiet setting, in order to decrease distractions, and to acquire participants that can benefit from intervention. The practitioner then assesses each response sheet to determine the level of need and interest among students. The students who are eligible are contacted based on the personal information that they provided at the top of the screen. After students are contacted, the schedule is set for the after school program and the students are informed of the dates. The students then participate in the three activities during a two-hour session once a week, over the course of three weeks, to cover all three activities.

Name:

Phone #:

Email:

***Food for Your Thoughts Screening Tool***

Please fill out this form to the best of your ability. Nobody will see your answers except for you and the instructor of an after school program called *Food for Your Thoughts*. The purpose of the after school program is to help students build skills that will assist in the transition process into adulthood.

1. Do you often ( 8+ hours of the day) feel hungry because you haven't had enough to eat?

Yes                  No

2. Do you or your family currently receive food or financial assistance from local or national programs?

Yes                  No

If so, which program (s)?

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3. Do you feel like you often (daily) get hungry and have a difficult time paying attention to school or work?

Yes                  No

4. Do you feel like you have a healthy diet?

Yes                  No

5. Do you regularly experience difficulty with choosing healthy foods due to limited finances?

Yes                  No

6. Would you like to learn more about food assistance programs that can offer you and your family more nutrition resources?

Yes                  No

7. Would you like to learn about how to budget your money, strategies for meal planning, and approaches help manage quickly changing emotions?

Yes                  No

Additional Comments and Questions:

Budgeting

Eating

Emotions



## Activity 1: Budget Buddy Instructor Guidelines

### Section A:

This section addresses facts related to food insufficiency, as well as contextual opportunities related to human performance. This is about addressing the ecology of the **task, person**, as well as the **context**, and how each factor influences **performance range**.

#### Person:

1. Use paraphrase, reflect, and probe techniques to lead a discussion about facts in the *person* portion related to academic performance and overall health.
2. Have students discuss their experiences with jobs, hours spent working, and where they spend money once earning it.
3. Discuss items that the *person* wants or needs that they experience difficulties with obtaining due to a limited budget.

#### Contextual Supports:

1. Educate students on available resources that can offer financial support to decrease the burden of a restricted budget.
2. Have students individually utilize school computers or iPads to research local programs that offer financial support for items that are regularly not obtained due to limitations in finances.
3. Discuss findings of program availability with the group, and brainstorm strategies for saving money and budgeting.

### Section B:

#### Task for Budget Buddy:

1. Introduce the budget plan activity and discuss benefits related to increased control of finances and ability to obtain baseline needs. The benefits of the plan also include monitoring spending on “wants” that can be cut down to increase availability of items that are more “needs” based.
2. Students will now discuss personal plan with a partner and have the pair brainstorm strategies for dividing the available money that they each have in their personal budget.
3. Have students reflect on available resources as discussed in Section A. Students will then explore program requirements to determine if they are eligible for support.
4. Students will incorporate financial support that programs offer into a new budget plan to evaluate if needs are more easily met.

**Activity 1: Budget Buddy**  
**Section A**

**Personal Factors:**

- Impact of limited financial support on health:
  - Adolescents from low-income backgrounds are at an increased risk of poor health outcomes than others who have more financial means (Day et al., 2016).
  - There are numerous health inequalities that negatively impact disease risk factors among people from low-income backgrounds related directly to experiencing food insecurity (Power & Matthews, 1997).
  - Children from food insecure backgrounds were found to have decreased skill in arithmetic, increased likelihood of repeating a grade, and increased risk of suspension from academic settings (Alaimo et al., 2001).
  - There is a need for educational, and emotional support from a young age to facilitate positive prevention strategies among social groups, particularly those at a disadvantage to quality health outcomes from low-income supports (Power & Matthews, 1997).
  - People affected by food insufficiency have demonstrated significantly lower math performance skills than a more financially supported counterpart (Alaimo et al., 2001).

### Contextual Supports & Resources:

- **Minnesota Food Assistance Program (MFAP):** A state funded program that provides financial support to families to buy nutritional foods that support their needs. This is a support program for people who cannot enroll in other food assistance programs secondary to citizenship requirements.
- **Minnesota Family Investment Program (MFIP):** This program provides both money and food assistance. Parents of children under the age of 19 years old can apply, as can people from low-income homes, under-employed, or unemployed. Another portion of the program is to provide parents with access to the Divisionary Work Program, which helps them immediately find a job instead of having to access welfare.
- **Transit Assistance Program (TAP):** The TAP program is available to people who experience low-income budget restrictions who need an affordable mode of transportation. Applicants must provide proof of need based on enrollment in other programs, a community card, or family summary card. This allows people to access the Metro Transit system in Minneapolis-Saint Paul, Minnesota for a one dollar fare over the course of a year. More information can be found at the website: <https://www.metrotransit.org/tap-riders>
- **Way to Grow:** Through the Minnesota Department of Health this program offers educational opportunities, peer support, and supplies that supplement basic needs for people who experience budget limitations.

**Budget Buddy Task: Section B**

<b>Monthly Income</b>	<b>Monthly Expenses</b>
Paycheck (2 per month): \$ _____	<b>Home Expenses</b>
SNAP Allotment: \$ _____	Rent: _____
Family Social Security: \$ _____	Utilities: _____
Other: \$ _____	Phone Bill: _____
<b>TOTAL: \$ _____ Monthly Income</b>	TV (Cable/ Netflix): _____
Monthly Income $\div$ 4 = \$ _____ <b>Weekly Income</b>	<b>Transportation</b>
	Bus Pass: _____
	Ride Services (Lyft/Uber): _____
	Car: _____
	Maintenance: _____
	Gas: _____
	Insurance: _____
	<b>Personal Items</b>
	Clothing: _____
	Toiletries: _____
	Entertainment: _____
	Gifts: _____
	Savings: _____
	Medication: _____
	Other: _____
	<b>TOTAL: \$ _____ Monthly Expenses</b>
	Monthly Expenses $\div$ 4 = \$ _____ <b>Weekly Expenses</b>

**Total Monthly Income - Total Monthly Expenses = \$ \_\_\_\_\_ amount leftover/under**

**\$ Leftover  $\div$  4 = \$ \_\_\_\_\_ Weekly Food Budget**

## Activity 2: Friendly Foods Instructor Guidelines

### Section A:

This section contains facts related to food insufficiency as it relates to nutrition and meal planning skills. It also has contextual opportunities related to human performance. This is about addressing the ecology of the **task, person**, as well as the **context**, and how each factor influences **performance range**.

#### Person:

1. Provide education on benefits and drawbacks related to food choices and availability as it corresponds with overall health.
2. Lead a discussion around the topic of food availability, meal preparation skills, and emotions as they relate to hunger and *performance range*.
3. Have students share experiences about performance in occupations related to having nutritious and filling food compared to performance deficits that arise while experiencing hunger.

#### Contextual Supports:

1. Educate students on available resources that offer financial or nutritional support to decrease the burden of a restricted budget as it correlates with health outcomes.
2. Have students individually utilize school computers or iPads to research local programs that offer financial and nutritional support for adolescents. These could be government or community programs, church services, food pantries, food shelves or other local opportunities.
3. Discuss findings of program availability with the group.
4. Students will explore the *Spend Smart Eat Smart* App on the iPads or their cell phones, as it is a free download. Have each student read a different resource on the app related to nutrition, affordable recipes, and tips for grocery shopping.
5. Brainstorm strategies in large group discussion for making the most of kitchen supplies, and cooking ingredients that are affordable and have good nutritional value.

### Section B:

#### Task for Friendly Foods:

1. Introduce the friendly foods activity and discuss benefits of healthy meal planning related to development and overall health benefits.
2. Provide ingredients and supplies for one of the three recipes that are offered in this program. Provide guidance and instruct the students to prepare the meal as a group.
3. Enjoy the meal together and discuss the changes in mood that each student experiences once having a fulfilling meal.
4. Have the students create a mealtime and snack time schedule based on times of day that they experience the heaviest amount of hunger.
5. Next, students will choose a recipe from the *Spend Smart Eat Smart* App.
6. Now instruct the students to create a shopping list from the *Spend Smart Eat Smart* App with ingredients from a recipe that they found that is both affordable, and nutritious.

## Activity 2: Friendly Foods Section A

### Personal Factors:

- How Nutrition Impacts Development:
  - Adolescents who experience hunger have an evident decrease in performance in academia, which correlates with overall worse health outcomes as an adult (Center for Disease Control and Prevention, 2015).
  - Meal status has been shown to correlate with household income (Widome, Neumark-Sztainer, Hannan, Haines, & Story, 2009 (1)).
  - Eating breakfast is a protective factor against becoming overweight in the adolescent population (Widome, et al., 2009).
  - Adolescents impacted by food insecurity perceived barriers in healthy eating related to their preferences and the convenience or attainability of the food (Widome, et al., 2009).
  - Making grocery lists, shopping for sale foods, and planning meals can positively impact the diet of low-income families (Hersey et al., 2001).

### Contextual Supports & Resources:

- **Summer Food Service Program (SFSP):** When school is not in session, children 18 and under who are limited by low-income resources can receive nutritious meals.
- **Supplemental Nutrition Assistance Program (SNAP):** Federal program that assists people with a low-income access nutritious and balanced meals. Toll-free SNAP information at 1-800-657-3698.

- **Women, Infant, and Children (WIC) Food and Nutrition Service:** This program is offered to women from low-income backgrounds who are pregnant or have a child who is up to 5 years old. Federal grants to the state that can be used as a source for supplemental food assistance, healthcare referrals, and education on nutritious choices to promote health. The My Food Finder App is free to download and provides a shopping guide of what foods are available to people who receive WIC benefits.
- **WIC Farmers' Market Nutrition Program (FMNP):** Available to those who are certified to receive WIC benefits or are on the waiting list to receive support. Program supplies fresh, unprepared produce, locally grown vegetables and fruits through the use of special coupons. More information found at [Benefits.gov](https://www.benefits.gov).
- **Fare For All:** A monthly opportunity to purchase fresh fruits, vegetables and meats at 40% off store prices at locations across the Twin Cities Metro area. Check online for more information about locations and time of service. No paperwork, this program is open to everyone.
- **Spend Smart Eat Smart App:** A free App that has affordable recipes, and information about various kinds of food related to nutrition benefits, storing, cleaning, and preparing tips. There is also a calculator in the app that compares the price and quantity of a type of food to determine which is a better deal between two different marketers. There are also videos that provide input on how to store food, safety tips for the kitchen, food shopping advice, food preparation ideas, and simple and healthy cooking demonstrations.

### Friendly Foods Task: Section B

Weekly Food

Budget: \$ \_\_\_\_\_

<b>Sunday</b>	<b>Monday</b>	<b>Tuesday</b>	<b>Wednesday</b>	<b>Thursday</b>	<b>Friday</b>	<b>Saturday</b>
Breakfast:	Breakfast:	Breakfast:	Breakfast:	Breakfast:	Breakfast:	Breakfast:
Lunch:	Lunch:	Lunch:	Lunch:	Lunch:	Lunch:	Lunch:
Dinner:	Dinner:	Dinner:	Dinner:	Dinner:	Dinner:	Dinner:

1. Write a time to eat breakfast/lunch/dinner.
2. Write a plan for what will be prepared for each meal of the day throughout the week.
3. Create a shopping list for ingredients.
4. Check the local grocery store ad and online site for prices. Compare to weekly budget and amount of meals recipe will provide. Use the Spend Smart, Eat Smart App calculator that compares the value of two retailer's products to determine which is a better deal.

Tip: Choose ingredients on sale or that can be purchased with food assistance programs and build a menu around those items.



## **Recipe 1: Eggstra Delicious Breakfast**

### **Kitchen Utensils Needed:**

13" x 9" Baking pan  
Pasta pot  
Colander  
Spatula  
Whisk  
Cooking spray  
Mixing bowl  
Knife

### **Ingredients:**

12 eggs (as prepared according to package instructions)  
1 cup of dairy milk or powdered milk (as prepared according to package instructions)  
½ cup shredded cheese  
¾ cup spinach  
1 teaspoon of onion powder

### **Steps:**

1. Crack 12 eggs into mixing bowl.
2. Add 1 cup of milk and use whisk to mix with eggs until fluffy.
3. Combine ½ cup shredded cheese, ¾ cup of spinach, and 1 teaspoon of onion powder with egg mixture.
4. Spray 13" x 9" baking pan with cooking spray.
5. Add all mixing bowl contents to baking pan.
6. Cook for 30 minutes at 350 degrees in the oven. Add 2 minutes to baking if dish until contents look browned and cooked.

\*\*\* May use powdered *milk* or *eggs*. Follow preparation instructions on commodity container.

**Enjoy!**

## **Recipe 2: Chicken & Broccoli Mac**

### **Kitchen Utensils:**

Pasta pot

Colander

Skillet

Spatula

Perforated pasta stirring spoon

### **Ingredients:**

1 box of mac n' cheese (7.25 ounces)

½ cup of plain Greek yogurt

1 cup of steamed broccoli

1 chicken breast that is diced- fresh or canned

### **Steps:**

1. If using fresh chicken, cook thawed chicken breast on stovetop until no longer pink in the center.
2. Cook pasta as directed on box.
3. Instead of adding the ingredients on the box, add ½ cup of plain Greek yogurt, 1 cup of steamed broccoli, and diced chicken to pasta pot. Mix.

**Enjoy!**

### Activity 3: Healthy Habits and Self-Regulation Instructor Guide

This section includes facts related to hunger and how it impacts physical, and mental health, as well as performance in occupations. The contextual supports that an adolescent could benefit from are also listed. This is about addressing the ecology of the **task, person,** as well as the **context,** and how each factor influences **performance range.**

#### Section A

##### Person:

1. Educate students about the effects of food insecurity and hunger as they relate to health, and meaningful adolescent occupational performance.
2. Use paraphrase, reflect, and probe techniques to lead a discussion about engagement in meaningful tasks. Also discuss how participation in occupations can impact motivation and attention.
3. Discuss limiting factors that restrict participation in occupations.
4. Have students brainstorm about strategies to overcome these barriers to occupational engagement in a large group.

##### Contextual Supports:

1. Educate students on available resources that can offer emotional and occupational support.
2. Also discuss how participation in occupations can be used to cope and decrease the feelings of isolation, and inattention that are often associated with the feeling of chronic hunger or food insecurity.
3. Have students individually utilize school computers or iPads to research local programs that offer occupational and emotional support groups or activities to adolescents.
4. Discuss findings of program availability with the group and create a plan to attend at least one group during the week.

#### Section B:

##### Task for Healthy Habits and Self-Regulation:

1. Introduce the emotional regulation activity and discuss psychosocial and physical benefits to staying active and using healthy coping mechanisms.
2. Students will now follow the worksheet and fill it out with an example of a situation that they often feel overwhelmed or like they are having a difficult time regulating their emotions. They will then follow the worksheet through the coping mechanism plan to create a set of strategies to increase self-regulation and performance range in occupations.
3. The students will now share their example with a partner and will brainstorm further strategies for self-regulation that may not be included on the list.
4. Have students reflect on available resources and encourage students to utilize this plan regularly throughout participation in habitual roles to increase self-regulation and healthy habits in their daily routines.

### Activity 3: Healthy Habits and Self-Regulation Section A

#### Personal Factors:

Side Effects of Food Insecurity and Hunger (Bruening et al., 2012).

- Adolescents impacted by food insecurity are:
  - Twice as likely to struggle with establishing healthy relationships.
  - Twice as likely to repeat a grade and miss school days.
  - Three times more likely to be suspended.
  - Four times more likely to have no friends.
  - 7-12 times more likely to demonstrate conduct disorder.
  - More anxious, aggressive, defiant, and irritable than food secure adolescents.
- Reasons to be Active:
  - Acute exercise (15 minutes of aerobic exercise) can increase a young adult's ability to manage anger, anxiousness, and distress (Cracco et al., 2017).
  - Aerobic exercise increases a young adult's overall positive mood.
  - Adolescence is primarily the time the brain matures and develops cognitive and emotional regulation skills that allow someone to effectively regulate feelings.
  - Adolescents experience more intense negative emotional states than both children and adults (Salvo et al., 2016).
  - There are higher rates of emotional stability in adolescents who develop a daily routine for implementation of adaptive coping strategies for emotional regulation.

- Participation in meaningful activities and occupations as adolescents, decreases symptoms of anxiety.

### **Contextual Supports & Resources:**

- **After School Activities:** Contact the school to check availability of programs including sports, clubs, and free resources to all students including the exercise equipment in the weight room, or gym.
- **Community Center:** The local community center offers after school programs and activities for a low price or for free. Check online for more details for activities near you.
- **City Park Board:** Check the local park board website or office for upcoming events that have free food, games, leisure activities, clubs, and sporting opportunities.
- **Local Support Groups:** Including Substance Abuse and Mental Health Services Administration (SAMHSA). SAMHSA offers support to families and individuals with mental health needs and/or substance abuse issues.
- **Young Men's Christian Association (YMCA):** Offer reduced price memberships to people from low-income households. The YMCA has programs for exercising, art, and support groups in a family or peer-based setting. Support groups are offered to adolescents for substance abuse, anxiety, depression, anger management, and healthy relationships.

### Healthy Habits and Self-Regulation Task: Section B

Use this step-by-step problem-solving method to identify strategies for self-regulation.

Trigger	Emotion/Feeling	Initial Response	Healthy Response	New Emotion
E.g.) Sitting in math class before lunch when I'm hungry	Frustrated, agitated, angry	Talk back to teacher, or shutdown and tune out the lesson	Try deep breathing for 5 minutes while seated in classroom (Let teacher privately know what I am doing if asked)	Relaxed, focused

**Self-Regulation Strategies** (Circle all that apply):

Running	Lifting weights
Walking	Drawing
Yoga	Going Outside
Progressive Muscle Relaxation	Talking to Somebody
Guided Imagery	Journaling
Square Breathing/Deep Breathing	Listening to Music

What else works for me:

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## **Product Summary**

The development of this product was driven by an evident need for intervention found in the literature. Throughout the findings of the literature, there were numerous details about the increased risks of poor mental and physical health outcomes amongst adolescents who experience food insecurity. However, there were limited interventions available to reduce the prevalence of these problems. It was clear that the problem needed to be addressed at the root of the cause that is in terms of teaching adolescents about available resources and having them practice the skills that it would take to be independent with managing personal health and wellness. The concepts of the ecology of human performance model and pedagogy were applied to intervention because of the emphasis on balance in daily life with EHP and the approaches that pedagogy offers with increasing retention of learned skills for adolescents (Dunn et al., 1994; Knowles, 1990). The product is a result of research, creativity, and passion for helping a population that would benefit from intervention. The recommendation for the use of this product includes that an occupational therapy practitioner seeks out community grants to support their ability to implement and lead this program. Once the funds are allocated, the practitioner should contact the high schools where the program will be held in order to distribute the screens that allows for acquisition of participants, followed by the implementation of the actual program. This program will benefit many adolescents as they navigate the twists and turns of growing into well-functioning adults.

## **Chapter V**

### **Summary**

The activities in the product pertain to the identified needs of the adolescent population who are at a higher risk for psychosocial, cognitive, and sensorimotor deficits due to the impact of food insecurity (Cook & Frank, 2007). Academic success and overall health outcomes as an adult are associated with adolescents having adequate nutritional support (Centers for Disease Control and Prevention, 2015). An occupation that most adolescents participate in is education, which is why creating an after school program is an effective method of reaching the population in need. This scholarly project includes three activities that pertain to budgeting, nutrition, as well as healthy habits and emotional regulation. Each activity is designed based on evidence supported from the literature review. The interactive activities facilitate skill building for daily life, social support through peer interaction, and self-advocacy opportunities.

### **Role of the Literature Review**

The evidence throughout the literature guided the evolution of the product by establishing the need for intervention among adolescents. Numerous occupational deficits correlated with adolescent food insecurity, such as increased risk of absenteeism in an academic setting, hyperactivity, impaired social skills, and limited reading abilities compared to food secure peers (Cook & Frank, 2007). Therefore, addressing these areas of growth is beneficial to the community as a whole, as these adolescents will develop and age into the working adult population successfully. There was also evidence that emerged that supported creating a safe place to address personal needs about food insecurity to decrease the stigma and embarrassment that are associated with the experience (Shtasel-Gottlieb et al., 2015). The call for action persisted throughout each article related to the gap and demand for intervention amongst



adolescents who experience food insecurity. Due to the lack of available programs for the population, this product was developed to help give adolescents the skills they need to succeed.

### **Application of the Ecology of Human Performance**

For the formation of this product, the student utilized a theory based in occupational therapy practice to develop each activity. As this product is centered on addressing daily needs through skill building for enhanced performance in occupations, the occupational therapy-based theory that guided the process was EHP (Dunn et al., 1994). This model has an emphasis on addressing the needs of the *person* and their roles, based on interaction with unique *contexts*, and *task* demands in daily life. Through intervention, the adolescents are able to increase their performance range, which in turn boosts positive health outcomes and occupational performance. The ecological model also supports that limited ability to access and utilize contextual supports limits a person's development of skills and capabilities that impact performance (Dunn et al., 1994). Hence, the numerous contexts that surround the person's daily life are included in the product.

### **Product Development**

The population is reached by the occupational therapy practitioner leading the program distributes the screening tool to high schools in the Minneapolis-Saint Paul area. The screening tool is distributed to the student body by the teachers. The students fill out the questionnaire, which includes name and contact information along with brief personal experiences with food insecurity. The practitioner then collects the screens from the school and analyzes the adolescents interest and need for intervention. Once the eligible students from the school are contacted, the occupational therapy practitioner implements each activity. This program takes place immediately after school. Each of the three activities are presented in a two-hour session

once a week, over the course of three weeks, to cover all three activities. The after school program facilitates the opportunity to communicate with peers to find support and decrease the feelings of shame and embarrassment that are associated with reaching out for help (Shtasel-Gottlieb et al., 2015). The program takes place in a classroom within the school with the use of computers or iPads, chairs, and tables for the group. The second activity is held in the school kitchen or the teachers' lounge due to the nature of the meal preparation activity. This setting provides the comfort of a familiar context, as it is stationed in the adolescent's school. Students are given contact information of the instructor to contact them further with questions or concerns upon completion of the program as an effort to provide continued support.

### **Limitations**

There are challenges that limit the application of the program. Firstly, this includes adolescent availability for participation in the program, particularly on the same night as other students who are eligible for the program. Students may have alternative extra-curricular activities or jobs that they need to go to instead of attending the program. Another limitation is that the program is only written in English, which may cause difficulties to people whose English is not a primary language. If reading is also an area of difficulty for adolescents who experience food insecurity, then having worksheets and facts that involve having to read could limit retention. Additionally, the demands of the adolescent population may change in terms of what they are interested in and what they need; therefore, the program would have to be adapted as advancements take place. Further, by only having three activities, there is a limitation among opportunities for skill development that the adolescents find benefit towards growth. These limitations act as both a challenge and an opportunity for the occupational therapy practitioner that implements the product to help the activities grow. The practitioner implementing the

activities has to possess the skills to adapt, create, and modify the activities to the needs of the population. There is also no allocated financial reward to the therapist who implements the product. The occupational therapy practitioner implementing this product has to have passion for helping adolescents grow and develop while providing adequate support to facilitate their growth. The school where the program takes place needs to be comfortable with allowing the students to utilize school grounds by offering access to a classroom, technology, and the cooking space.

### **Further Research and Implications**

This product could be enhanced by including other occupations as detailed in the *American Occupational Therapy Association framework* (American Occupational Therapy Association [AOTA], 2014). Therefore, there is a need to locate relevant evidence to outline and support the need for intervention, specifically related to sleep routines, care of others, care of pets, and work, as well as many other occupations. Further development may include a pre-test, post-test opportunity to create outcome measures for success of the program. Follow-up sessions would also be important to consider while exploring retention and carryover of learned skills. Exploring the impact of different cultural norms would be beneficial to the program as well in order to create a more diverse understanding of needs. There are many opportunities to expand the program in order to reach the greatest population possible while providing client-centered care.

### **Summary**

With increased risk factors for impaired academic performance, poor mental health, adverse physical health outcomes associated with adolescent food insecurity, there is a discernible need for intervention (Cook & Frank, 2007). An occupational therapy student created

the three activities and screening tool presented within this product. There was an application of models and strategies that were designed to engage an adolescent learner. The student created this scholarly project through the analysis of research that contributed to the literature review, theoretical application, and creativity for product development. The academic advisor that supervised the process of creating and refining this project offered useful feedback and guidance throughout its evolution. There is an increased likelihood of positive health outcomes and academic success for adolescents who experience food insecurity, based on the provision of occupational therapy services. By feeding the bodies and minds of adolescents today, there is greater opportunity for a brighter future for these leaders of tomorrow.

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