An Adjunctive Holistic Approach to Adolescent Anxiety

A Literature Review

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By

Christine A. David

Chair: Meg Whiston, PhD

Reader: Rachelle Reinisch, DMFT

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Abstract

Adolescents have been reporting increasing levels of anxiety since the early 20th century. Societal and environmental influences are likely having a negative impact on adolescent mental health, including lack of nourishing foods, insufficient sleep, circadian rhythm disruption, and diminished levels of daily movement and exercise. This project proposes a holistic treatment approach to adolescent anxiety that can be used in addition to other traditional psychotherapeutic treatments options. The essential components of this holistic approach included the following self-care habits: improving nutrition, optimizing sleep, and increasing exercise. Individual Psychology can offer useful concepts, such as the Life Task Wheel, to better understand the changes an adolescent and family might make towards greater health. Therapists can expect to spend three to six months supporting and guiding their client while new durable habits are established. Further research regarding adolescents and health behavior change would be beneficial to a greater understanding of how therapists can best support adolescent clients with anxiety.
Acknowledgements

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Finally, I would like to offer my gratitude to the multiple health care practitioners who have helped me on my journey towards true health and wellness. You all have helped me to not only improve my health, but to learn a very important lesson: uncovering and treating the root causes of mental and physical health issues is much more powerful than naming the disease and taking a pill to cover up the symptoms. I hope to share this empowering perspective with the readers of this project as well as with my future clients.
Dedication

This project is dedicated to all those who struggle with mental health concerns during adolescence. The teenage years are challenging and dealing with mental health concerns during adolescence can often make this phase of life very unpleasant and painful. My hope in completing this research project was to shed light on a treatment option that would be more than a band-aid to the problem. This project has been an attempt to uncover and summarize some possible root causes, and solutions, for a too common mental health concern for today’s adolescents.

A quote from John Lubbock:

Health is much more dependent on our habits and nutrition than on medicine.
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An Adjunctive Holistic Approach to Adolescent Anxiety

Feelings of stress or occasional anxiety are normal human experiences. In some cases, stress can be positive and compel individuals toward growth and positive change. Stress and anxiety experienced for extended periods of time can become maladaptive and begin to diminish the functioning in daily lives (Meacham & Bergstrom, 2016). When short term stress becomes chronic and unrelenting, some people develop an anxiety disorder. Anxiety disorders differ from normal periods of stress and anxiety in that they have a negative impact on the functioning of people in their daily lives (American Psychiatric Association [APA], 2013).

Adolescents have been reporting increasing levels of anxiety since the early 20th century (Twenge, 2011). Studies across the decades of the 20th century found increasing numbers of adolescents feeling overwhelmed and reporting multiple psychosomatic complaints (Twenge, 2011). A 2017 study conducted by the Association for University and College Counseling Center Directors revealed a significant increase in the incidence of anxiety among incoming college students (Reetz, Bershad, LeViness, & Whitlock, 2017). In 2007, 36.7% of students reported anxiety as their primary concern and that number has risen steadily year by year, with the most recent data showing that in 2016, 50.6% of students reported anxiety as their primary concern (Reetz et al., 2017). This is an increase in reported anxiety of approximately 14% in nine years.

Adolescence is a time of constant change and growth, physically, cognitively, emotionally, and socially (WebMD, 2018; WebMD, n.d.). Adolescents frequently experience multiple pressures from school, social culture, peers, and parental expectations that can contribute to significant amounts of stress experienced for many years. In addition, many societal and environmental influences are likely having a negative impact on adolescent mental
Health, including lack of nourishing foods, insufficient sleep, circadian rhythm disruption, and diminished levels of daily movement and exercise (Presta, 2013; Sarchiapone, 2014; University of Chicago Pediatrics Clerkship, n.d.; University of Minnesota, 2016). Twenge researched how young people’s mental health has changed over time and stated, “I think the research tells us that modern life is not good for mental health” (as cited in Singal, 2016, para. 2). Many adolescents in the United States are now suffering with anxiety disorders.

While many treatments are available to help adolescents suffering with anxiety disorders, most do not treat the client in a holistic way. Many of the popular treatment models in wide use today are focused on psychological or behavioral aspects of anxiety related symptoms with the goal of reducing symptoms or teaching strategies to better cope with symptoms (Anxiety and Depression Association of America, n.d.a.). Few treatment models emphasize seeking and addressing the root causes of the anxiety as an integral part of the healing journey. The psychology of Alfred Adler, referred to as Individual Psychology, offers a lens for the therapist to view the adolescent living with anxiety. Through the concept of holism (body, mind, and spirit), therapists can view symptoms of anxiety from a root cause perspective by looking at the social, familial, mental, and physical aspects of each person’s experience (Powers & Griffith, 2012). In addition, multiple areas of the adolescent’s life can be addressed to improve both physical and mental health at the same time. Education and guidance on healthy lifestyle changes in the areas of nutrition, sleep, and exercise could enhance other treatment interventions (Mental Health America, n.d.), help reduce the likelihood of adolescents having anxiety disorders become long-term and chronic, and to help prevent additional mental health disorders in the future (Masley, 2005).
Anxiety and Adolescents

During the last decade, anxiety has become the most prevalent mental health concern for adolescents in the United States (Denizet-Lewis, 2017). Anxiety is a term describing different mental health disorders grouped under the category of anxiety disorders in the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM – 5; APA, 2013). The lifetime prevalence rate, among U.S. adolescents ages 13 to 18, of any anxiety disorder is estimated to be 31.9%. Among those adolescents who had an anxiety disorder, an estimated 8.3% had severe impairment. There is also a gender difference in the occurrence of anxiety disorders; 38% of adolescent females have a current or past anxiety disorder, and 26.1% of adolescent males have a current or past anxiety disorder (Merikangas et al., 2010). Three common types of anxiety disorders that occur during adolescence are social anxiety disorder, generalized anxiety disorder, and panic disorder (APA, 2013).

Social Anxiety Disorder

Social anxiety disorder is commonly referred to as social phobia (APA, 2013). Typical symptoms include significant fear and worry about social situations where the individual will need to interact with other people or where one will be exposed to possible scrutiny by others. Individuals with social anxiety disorder frequently fear their anxiety symptoms may be noticed by others or worry that they will not be able to avoid social situations. The fear and anxiety regularly experienced is out of proportion to the risk of harm based on their socio-cultural context (APA, 2013). The prevalence rate of social anxiety disorder during any 12-month period for adolescents is approximately 7%. A greater number of females are diagnosed with social anxiety disorder, and the average age of onset in both males and females is during early adolescence (APA, 2013).
Generalized Anxiety Disorder

Generalized anxiety disorder is more common in developed countries than in non-developed countries (MentalHealth.org, 2016). In the United States, approximately 0.9% of adolescents are diagnosed with generalized anxiety disorder (APA, 2013). Females are two times as likely as males to have generalized anxiety disorder. The primary symptoms of this disorder include excessive worry and anxiety about a number of life activities and events, and the intensity of the worry and anxiety are out of proportion with the actual significance of these events. Generalized anxiety disorder frequently causes difficulty concentrating, irritability, muscle tension, restlessness, and sleep disturbances (APA, 2013).

Panic Disorder

Panic disorder affects approximately 2-3% of adolescents in the United States (APA, 2013). Panic disorder is characterized by unexpected attacks that include a sudden surge of either recurrent intense fear or intense discomfort. According to the DSM – 5 (APA, 2013), four or more additional symptoms must be experienced to meet the full diagnostic criteria for panic disorder: fear of dying, fear of going crazy, feelings of unreality, numbness and tingling sensations, chills or heat sensation, dizziness or lightheadedness, chest discomfort, feelings of choking, sensation of shortness of breath, trembling, sweating, and heart pounding or accelerated heart rate. Additionally, some individuals with other anxiety disorders may have experienced panic attacks in response to the object or event that causes their anxiety such as a social performance situation or in response or anticipation of a specific phobia. Non-Latino Caucasians have a higher incidence of panic disorder as compared to African Americans, Latinos, Caribbean Blacks, and Asian Americans, and twice as many females are affected by panic disorder during adolescence (APA, 2013).
Therapeutic Interventions

A number of therapeutic interventions are used in the treatment of anxiety disorders in adolescents. Some of the commonly used therapeutic interventions will be divided into two main categories, behavioral/experiential and psychological/systemic. Behavioral/experiential therapies include cognitive behavioral therapy, which is also known as CBT, psycho-education in coping skills, mindfulness and relaxation training, and expressive therapies, which can include art therapy, music therapy, dance movement therapy, and psychodrama (American Academy of Child and Adolescent Psychiatry [AACAP], 2015; Mahrer, 2001). Psychological/systemic therapies include child and adolescent anxiety psychodynamic psychotherapy (CAPP), family therapy, group therapy, and interpersonal therapy (AACAP, 2015).

Behavioral – Experiential

Cognitive behavioral therapy. Cognitive behavioral therapy involves learning how to change cognitions and behaviors with the goal of addressing thoughts, feelings, and behaviors (Bubrick, n.d.). Cognitive behavioral therapy is generally a time-limited therapy with the goal of teaching the client to become their own therapist and develop the ability to better manage their anxiety (“Anxiety BC”, n.d.). When CBT is used to treat youth, including adolescents, the behavioral components are frequently emphasized. This therapeutic approach is structured around the idea that how a person acts, and how a person thinks, affect how that person feels (Bubrick, n.d.). Cognitive behavioral therapy often includes exposure and response prevention to help clients become accustomed to situations that trigger anxiety in a safe and incremental fashion (Bubrick, n.d.)

Psychoeducation on coping skills. A psycho-educational approach to treating anxiety is often used to teach a variety of coping skills adolescents can use to prevent and address anxious
feelings. Some examples of coping skills to help diminish anxiety symptoms include relaxation strategies, writing out feelings and thoughts, and talking back to the anxious or negative thoughts (Hurley, n.d.). Common relaxation strategies therapists teach to help calm anxiety include progressive muscle relaxation and deep breathing. Writing can also be a helpful tool to use in the treatment of anxiety; worry journals, gratitude journals, and worry boxes are frequently utilized in the treatment plans for adolescents (Hurley, n.d.). An additional set of coping skills to manage anxiety include strategies to help the client “talk back” or “think back” in response to negative and worrisome thoughts (Bubrick, n.d.). Creating a character who can be visualized and talked back to during times of anxiety is helpful for some younger adolescents, while for older adolescents thought-stopping techniques help to interrupt the worrisome thoughts and keep them from spiraling out of control (Hurley, n.d.).

**Expressive therapies.** Expressive therapies are generally used in conjunction with traditional psychotherapy and involve using one’s senses or body, hands, or voice to create and receive expressive experiences that assist in the therapeutic process (Walsh, 1993). Examples of expressive therapies include dance movement therapy, art therapy, music therapy, poetry therapy, and drama therapy (Scheufele, 2000). Expressive therapy can be appealing to adolescents being treated for anxiety when they find it difficult or uncomfortable to sit and just talk to a therapist for an hour every week (Jeong et al., 2005).

**Psychological – Systemic**

**Child and adolescent psychodynamic psychotherapy.** Child and adolescent anxiety psychodynamic psychotherapy (CAPP) is a short-term therapy consisting of twice weekly sessions conducted in a specific manner, follows a manualized protocol, and is intended for youths ages 8-16 (Silver, Shapiro & Milrod, 2013). This short-term therapy is conducted under a
psychoanalytic framework intended to help clients develop insight regarding their symptoms and underlying psychological meanings. Additionally, CAPP has been used to treat adolescents with social phobia and generalized anxiety disorder alone and in combination with other therapeutic approaches (Silver et al., 2013).

**Family therapy.** Family therapy is often used as part of a treatment plan for adolescents with anxiety. Family cognitive behavioral therapy has proven to be especially helpful when the adolescent’s parents also experience anxiety (Kendall, Hudson, Gosch, Flannery-Schroeder & Suveg, 2008). Family cognitive behavioral therapy often includes coping skills training, in vivo exposure and parent communication training (Kendall et al., 2008).

Other types of family therapy used in the treatment of adolescents with anxiety include systemic approaches such as structural family therapy, strategic family therapy, and intergenerational family therapy (Winek, 2010). An underlying theory behind these approaches to family therapy is that adolescents with the anxiety disorders are viewed as part of the family system. Family therapists will include the use of the genogram as part of the therapeutic process. A genogram, sometimes known as a family diagram, is a diagram-like representation of a person’s familial relationships (Baege, 2005). In addition, key components of systemic family therapies include a focus on differentiation of the self and emotional triangles (Baege, 2005).

**Group therapy.** Group therapy is a treatment option that can be helpful for some adolescents with anxiety disorders. In a group setting it is important that the developmental stage and maturity level of the group is similar enough to allow for group cohesion (Kymissis, 1996). Group therapy has been particularly helpful in adolescents with social phobia (Hayward et al., 2000). A unique benefit of group therapy for adolescents with anxiety is that the social aspect of the group allows a unique opportunity to gradually work on tasks that are fear
provoking such as speaking in front of others, expressing true emotions in front of others, or interrupting a peer or adult in a group setting. The group setting allows for a safe space where adolescents can learn to tolerate anxiety with their peer group (Hoekstra, n.d.).

**Interpersonal therapy.** Interpersonal therapy for adolescents is a formalized short-term, intensive therapeutic approach called teen IPT. When therapists use teen IPT, the therapist’s primary goal is a reduction or resolution of the symptoms caused by anxiety. Symptoms are reduced during teen IPT as therapists focus on helping adolescents improve their social support network and social functioning by repairing or strengthening their relationships with peers and family. Teen IPT is commonly used to treat depression as well as anxiety and has been especially useful for adolescents living with both depression and anxiety (Paradigm Malibu, 2016).

**Alternative Therapeutic Interventions**

A number of alternative interventions are used to treat anxiety in adolescents including relaxation techniques, meditation, yoga, and acupuncture (Anxiety and Depression Association of America, n.d.b). Another option for treating anxiety in adolescents is using an approach to treatment where the client’s mind and body are addressed as essential components of achieving good mental health. One of the first theorists in the field of psychology to propose the idea that the client’s whole person is integral to their mental health was Alfred Adler. According to Griffith and Powers (2007), Adler referred to treating the whole person as *holism*. Holism refers to the concept that the whole is greater than the sum of its parts (Griffith & Powers, 2007). The mind, body, and spirit are inextricably intertwined, and true well-being cannot be achieved by addressing only one area to the exclusion of other areas. A popular word, in current use, to convey a similar idea to Adler’s holism is the term *holistic* (Mandel, 2009). A holistic approach
to achieving and maintaining mental health would include addressing the foundational habits that contribute to creating a state of health and balance in the body and the brain (Mandel, 2009).

Holistic approaches include three foundational health components: nutrition, sleep, and exercise. The importance of addressing these three lifestyle components is that the adoption of each of these health habits supports the others. For example, when people are well rested, they are better able to make healthy food choices (Greer, Goldstein, & Walker, 2013). When adolescents spend more time exercising, they have more restorative sleep (Rosen, 2009). A study of 434 Swiss teenagers found those who spent more hours per week exercising had better sleep quality, fewer sleep awakenings, better concentration, and less depressive and anxiety symptoms during the day (Rosen, 2009). This effect is not believed to be due to physical fatigue but due to changes in brain wave patterns of the student-athletes (Rosen, 2009). St. Onge, Mikic, and Pietrolungo (2016) found that sleep quality was strongly influenced by diet quality on a day to day basis, meaning that what one eats today could influence the quality of sleep tonight.

Finally, Storey et al. (2009) showed that when adolescents make healthier food choices, they are more likely to have a higher level of physical activity. Figure 1 illustrates the interrelationship between nutrition, exercise, and sleep and how healthier habits in one area help support healthier habits in the other two areas.
Figure 1. Interrelationship between nutrition, exercise, and sleep.

Nutrition

A new field of study and practice has emerged over the past decade called nutritional psychiatry (International Society of Nutritional Psychiatry Research [ISNPR], n.d.). The field of nutritional psychiatry includes a review of the role of dietary patterns, nutrient status, and the microbiome and the effects on mental health outcomes. Akhondzadeh, Gerbard and Brown (2013) found that vitamins, minerals, and amino acids improve symptoms of anxiety disorders as well as other mental health disorders. In addition, the correction of vitamin and mineral deficiencies can be essential for full recovery. In popular Western culture, there are frequent debates over which dietary patterns bestow optimal health, such as the paleo diet versus a vegan diet, or a Mediterranean diet versus the USDA MyPlate guidelines (Experience Life Team, 2012; Roebber, 2016). Although this constant debate can lead the public to feel confused and frustrated about what they should be eating, research with a focus on the role nutrition plays in improving and sustaining mental health has revealed common themes that can be implemented by most families with adolescents in a practical way. Changing one individual’s eating habits is not always an easy task, and certainly changing a family’s eating habits to support the adolescent is not a change to be taken lightly.
The field of nutritional psychiatry is growing quickly due to the strong and often rapid positive effects that good nutrition can have on improving mental health concerns such as anxiety. In addition, positive dietary interventions will not have any negative side effects, which is a concern for adolescents using pharmaceutical interventions (Naidoo, 2016). The biggest challenge to be faced in using dietary interventions for adolescents with anxiety is that the social structure and family structure may not be supportive of healthier nutrition habits, and adolescents could feel they need to eat differently than those around them (Chan, 2011).

**Adding healthy foods.** When people consider improving their diets, they often think about what they need to stop eating or what they cannot eat any longer. In contradiction to this common way of thinking about food, nutritionists, dieticians, and behavior change researchers have found that helping people focus on adding more healthy foods has a larger impact on improving their diet quality over the long term (Webb, 2011). Blake noted the best way to get people to eat healthier foods is to encourage them to eat more of certain foods instead of telling people what to eat less of. Blake also suggested helping people make changes one step at a time (as cited in Webb, 2011). For therapists interested in helping clients improve anxiety symptoms through improved nutrition, what should that first change be? In order to determine what the most important nutritional change is to help the largest number of adolescents with anxiety, research from three areas of nutritional study were examined: nutrient deficiencies, sub-optimal antioxidant levels, and specific foods or nutrients reported to affect anxiety and mental health.

**Nutrient deficiencies and sub-optimal antioxidant levels.** Large percentages of American adolescents have nutrient deficiencies likely affecting their mental health as well as their overall health (Berner. Keast, Bailey & Dwyer, 2014). Adolescents consume sub-optimal amounts of B-12, riboflavin, niacin, and selenium but the deficiency rate for these nutrients is
less than 10% (Baily et al., 2014). Other nutrients have a much higher rate of inadequate intake among adolescents. Table 1 illustrates the percentage of 14 to 18-year-olds with dietary intake below the estimated average requirement for their age group.

Table 1

*Inadequate intake among 14-to-18 year old adolescents: (Nutrients from food alone)*

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Deficiency rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamin D</td>
<td>98%</td>
</tr>
<tr>
<td>Vitamin E</td>
<td>99%</td>
</tr>
<tr>
<td>Magnesium</td>
<td>90%</td>
</tr>
<tr>
<td>Vitamin A</td>
<td>57%</td>
</tr>
<tr>
<td>Calcium</td>
<td>81%</td>
</tr>
<tr>
<td>Vitamin C</td>
<td>45%</td>
</tr>
<tr>
<td>Vitamin B6</td>
<td>18%</td>
</tr>
<tr>
<td>Folate</td>
<td>19%</td>
</tr>
<tr>
<td>Zinc</td>
<td>24%</td>
</tr>
<tr>
<td>Iron</td>
<td>12%</td>
</tr>
<tr>
<td>Copper</td>
<td>16%</td>
</tr>
</tbody>
</table>

*Note:* Adapted from National Health and Nutrition Examination Survey (NHANES) study data, by R. Baily, L. Berner, J. Dwyer, & D. Keast, 2014. Vitamin D can be formed in the skin upon exposure to sunlight (without sunblock) for an adequate period of time during certain months of the year depending upon geographic location.

The Environmental Working Group (EWG) lists food suggestions that offer the nutrients needed for adolescents to meet their nutrient needs. The main types of foods listed to address the top five nutrient deficiencies in the U.S. among 14 to 18-year-olds are fatty fish, mushrooms, sun
exposure, nuts and seeds, green leafy vegetables, legumes, orange vegetables, tomatoes, kale, broccoli, citrus fruits, and all other fruits and vegetables (EWG, 2014).

Anxiety symptoms are correlated with a lower consumption of antioxidants (Naidoo, 2016). Therefore, experts at Harvard suggest that people with anxiety can adjust their diet to include many more foods rich in antioxidants. The antioxidant rich foods suggested include beans, fruits and berries, nuts, spices, and vegetables (Naidoo, 2016). These same foods, fruits and vegetables, nuts and seeds, beans and legumes, along with fish and seafood, are suggested to help eliminate the most common nutrient deficiencies found among adolescents (EWG, 2014).

In addition, the Mental Health Foundation of the UK listed specific foods to assist with specific mental health symptoms (Mental Health Foundation, 2018). The most commonly listed foods to assist with anxiety and stress symptoms include fruits and vegetables, fish, organ meats, intact whole grains, nuts and seeds, and beans and legumes (Mental Health Foundation, 2018). Three categories of foods often missing from adolescents’ diets in the U.S. appeared on the suggested food lists from EWG and Harvard; fruits and vegetables, beans and legumes, and nuts and seeds (EWG, 2014; Naidoo, 2016; Mental Health Foundation, 2018). Nuts and seeds are under-consumed in the U.S., with approximately 30% of U.S. adults consuming the recommended 5 or more servings of nut/seeds per week (Rehm & Drewnowski, 2017). One study showed that by replacing usual snacks with tree nuts, adolescent diet quality improved; the study results showed that nut/seed snackers consumed less empty calories, more healthy fats, more dietary fiber, more magnesium, and more potassium (Rehm & Drewnowski, 2017). Raising consumption of fruits and vegetables, beans and legumes, and nuts and seeds may simultaneously help address nutrient deficiencies, raise antioxidant levels, and include foods that assist in the reduction of anxiety symptoms.
**Fruits and vegetables.** For therapists who want to help adolescent clients with anxiety heal and feel better mentally and emotionally, the first group of foods most likely to have a meaningful impact are fresh fruits and vegetables (Blanchflower, Oswald, Stewart-Brown, 2013). Multiple studies in the United States and Canada show that adolescents do not consume adequate amounts of fruits and vegetables to meet nutritional needs (Minaker & Hammond, 2016; The Buzz, 2018). In a study conducted by Blanchflower et al. (2013), positive mental health rose in a dose-dependent response to the daily servings of fruits and vegetables, meaning that a higher number of daily servings equated with higher ratings of well-being. Participant ratings of well-being and mental health peaked at approximately 7 servings of fruits and vegetables per day in this cross-sectional study of more than 80,000 randomly selected participants from Britain.

Blanchflower et al. (2013) attempted to control for many confounding factors including employment status, income, social class, education, major illness, exercise, smoking, and body mass index. Blanchflower was able to demonstrate that consumption of fruits and vegetables was not only a marker for other healthy behaviors, but more likely to be a cause of better mental health. A study conducted by White, Howarth, and Connor (2013) also found that increased fruit and vegetable consumption can improve mental health. One study demonstrated that fruit and vegetable consumption predicted improvements in positive affect the following day and promoted positive feelings in young adults on the day of consumption (White et al., 2013). White et al. (2013) found when young adults consumed a higher number of fruits and vegetables, they reported feeling happier, more energetic, positive and calmer than baseline during the day of consumption and the following day. Significant improvements in affect occurred with the daily intake levels of approximately 7-8 fruit and vegetable servings per day (White et al., 2013).
Brookie, Best and Conner (2018) expanded on the White et al. (2013) studies and revealed that higher intakes of vegetables and fruits are associated with improved mental health status. Brookie et al. (2018) wondered if the reduced micronutrient availability in fruits and vegetables, cooked or processed, would benefit mental health to the same degree as raw fruits and vegetables. After controlling for factors such as BMI, sleep, smoking, physical activity, alcohol use, and socio-economic status, Brookie et al. (2018) found consumption of raw fruits and vegetables predicted more positive mental health outcomes than consumption of processed fruits and vegetables. The ten raw foods with the highest association to better mental health were kiwifruit, cucumber, berries, citrus fruit, lettuce, grapefruit, dark leafy greens, apples, bananas, and carrots (Brookie et al., 2018). By educating and encouraging clients on the importance of consuming seven or more servings of fruits and vegetables per day, including some raw vegetables, clients may be able to feel a positive impact on mental health within 24 hours (Brookie et al., 2018; White et al., 2013).

**Beans and legumes.** Beans and legumes go by many different names around different areas of the globe. The bean category includes all types of beans, such as black, red, kidney, pinto, and foods referred to as pulses, lentils, and most peas, such as green and yellow split peas, black eyed peas, and chickpeas (American Pulse Association, n.d.). This group of foods provides many nutrients deficient among adolescents. Beans and legumes provide many B-vitamins, iron, folate, calcium, potassium, zinc, and phosphorus, as well as protein and fiber (Wax, 2016). Beans and legumes were identified as foods that should be consumed more by adolescents to address nutrient deficiency (EWG, 2014). Beans and legumes are important contributors to the dietary intake of folate, which is a key nutrient associated with mental health; for example one cup of lentils contains 90% of the recommended daily allowance of folate.
In addition, beans and legumes serve as a top source of antioxidants, along with fruits and vegetables, to address the sub-optimal antioxidant levels that can be affecting anxiety (Naidoo, 2016). Finally, the Mental Health Foundation of the UK listed beans and legumes on its suggested food grid; beans and legumes are listed as foods that help counter stress and anxiety due to the nutrients they contain (as cited in National Alliance on Mental Illness [NAMI], 2018).

**Nuts and seeds.** Nuts and seeds are dense in many nutrients that adolescents generally under-consume, such as vitamin E, magnesium, calcium, zinc, iron, copper, B-6, selenium, and omega-3 fatty acids (EWG, 2014; NAMI, 2018). According to Dr. Ramsey, an integrative psychiatrist, nuts are full of healthy monounsaturated fats that help in absorbing fat-soluble nutrients, provide fiber and protein, and provide important minerals for brain health (as cited in Stetka, 2015). For example, foods rich in zinc and magnesium have been linked to lowered anxiety levels (Naidoo, 2016). A one quarter cup serving of shelled pumpkin seeds, sometimes called pepitas, contains 45% of daily recommended intake (DRI) of magnesium, 23% of the DRI of zinc, 64% of the DRI of manganese, 57% of the DRI of phosphorus, 48% of the DRI of copper, and 16% of the DRI of iron (Mateljan, 2018). A quarter cup serving of almonds also contain magnesium (15% of DRI) which is linked with a reduction in anxious symptoms, along with 49% DRI of biotin, 40% of DRI of vitamin E, 26% of DRI of copper, and 23% of DRI of manganese (Mateljan, 2018). Most other nuts and seeds are similarly nutrient dense. For example, walnuts and chia seeds are very high in antioxidants and omega-3 fatty acids (Gunnars, 2017). Finally, pistachios and pecans offer high levels of antioxidants as well as other important nutrients (Platkin, n.d.). Nuts are often referred to as brain food by a variety of sources due to a high density of nutrients that are difficult to obtain in other foods (Axe, n.d.; Gunnars, 2017;
Platkin, n.d.). Helping clients incorporate more nuts and seeds into their diets will likely be beneficial.

**Healthy Sleep During Adolescence**

The benefits of adequate quality sleep go beyond improving mental health. Other benefits of adequate sleep include improved academic performance, improved physical performance in sports and extracurricular activities, as well as improving mood in general (Cline, 2009). Yet, many adolescents in our society are chronically sleep deprived; in a National Sleep Foundation survey, 87% of high-school students were getting insufficient sleep (National Sleep Foundation, 2006). According to the National Institutes of Health, adolescents need at least 9 hours of sleep per night, yet only 9% of high school students meet this recommendation (as cited in Gregoire, 2015). Sleep statistics vary according to the survey, but there is a clear pattern of adolescents getting too little sleep to support optimal health, growth, and development (Cline, 2009; Gregoire, 2015; National Sleep Foundation, 2006).

The cause of this significant sleep problem is likely multifactorial. In recent years, some sleep researchers have proposed a new lens through which to view the issue of sleep in adolescence in the US and propose a biopsychosocial and contextual model (Becker, Langberg & Byars, 2015). An important aspect of Adlerian psychological theory is using a positive biopsychosocial approach to finding solutions to problems (Griffith & Powers, 2007). Using this biopsychosocial model can help answer the question of why so many adolescents get inadequate sleep and possibly point to some solutions. Some of the biological, psychological, and social issues affecting adolescent sleep include lack of proper nutrition and adequate exercise, dysregulated or mismatched circadian rhythms caused by lack of natural light or excessive blue light from electronic devices, elevated stress levels due to school, family, and societal issues.
expectations, lack of familial awareness or support for proper sleep hygiene, inappropriate timing of after-school activities that run late into the evening, and school hours that begin too early to allow for a full night’s sleep (Becker et al., 2015; National Sleep Foundation, 2006; University of Minnesota, 2016).

Poor mental health outcomes and a higher risk for mental health problems may be caused by, or at least exacerbated by, inadequate sleep (Dagys et al., 2012; Rodriquez, 2015). A lack of sleep during adolescence, a key period of development for the brain, can predispose adolescents to developing mental health disorders in the future (Forbes, 2017). In a study led by Winsler, Deutsch, Verona, Payne and Szklo-Coxe (2015), researchers attempted to quantify how much each hour of lost sleep affected participants. The research team attempted to control for variables such as income and family status. This study included an ethnically diverse group of nearly 28,000 suburban high schoolers, and the average amount of sleep reported on school nights was six and a half hours, although about 9 hours of sleep is recommended (Winsler et al., 2015). Winsler et al. (2015) found each hour of sleep lost per night was associated with the following mental health symptoms: a 58% increase in suicide attempts, a 42% increase in considering suicide, and a 38% increase in feeling sad and hopeless. Although these findings did not directly reflect anxiety symptoms, they did portray the strong influence that a lack of adequate sleep can have on mental health in general. According to Winsler, “…the majority of research evidence supports the causal direction being lack of sleep leading to problems rather than the other way around” (as cited in Rodriquez, 2015, para. 3).

**Circadian rhythms and sleep hygiene.** Adequate quality sleep relies upon a properly functioning circadian rhythm and good sleep hygiene, which are daily habits of living conducive to getting sufficient quality sleep (Cline, 2009). Circadian rhythms, sometimes referred to as the
body’s biological clock, are the mental, physical, and behavioral pattern of fluctuation that occurs within human beings during a 24-hour period. A properly functioning circadian rhythm is crucial to a healthy sleep-wake cycle (Byrd et al., 2014). Healthy sleep-wake cycles can be established and maintained by good “sleep hygiene,” a term that refers to the recommended behavioral and environmental practice that is intended to promote better quality sleep (Byrd et al., 2014). See the appendix for suggestions on how adolescents can develop good sleep hygiene habits.

Cline (2009), a clinical psychologist and fellow of the American Academy of Sleep Medicine observed, “When children are little, we get them off to a good start by keeping regular sleep schedules and teaching children about importance of sleep…good sleep hygiene…will also help your teen get the sleep he or she needs” (para. 8). Unfortunately, many of these helpful sleep habits begin to fade during the middle childhood years and by adolescence, when schedules get busier, school begins earlier, homework increases, and the temptation of glowing screens abound, most of these good sleep hygiene habits have been lost, or are only applied sporadically (Garey, n.d.; National Sleep Foundation, 2006). According to some sleep specialists, adolescents are not likely to change their sleep habits unless they know and value the benefits more sleep will give them, such as feeling better and performing better (American Academy of Sleep Medicine, 2005; Cline, 2009; Garey, n.d.). In addition, sleep experts agree parents have to be willing to put in the work of guiding and supporting their child in getting enough quality sleep (American Academy of Sleep Medicine, 2005; Cline, 2009; Garey, n.d.).

**Exercise**

Exercise and physical movement are frequently used in integrative and holistic approaches to improving mental health (Amen, 2013; Gordon, 2008; Otto & Smits, 2011). In
addition to the indirect positive effects that exercise has on mental health by improving sleep, there are also direct positive effects exercise has on mental health. In multiple studies, exercise has been as effective as selective serotonin reuptake inhibitors (SSRI’s), and, in some studies, the results of exercise were better than treatment with SSRI’s, and the positive effects of exercise were more long-lasting (Gordon, 2008). Exercise is also important to the general health of the brain. Exercise allows the heart to circulate more blood to the brain, which increases the supply of nutrients, glucose, and oxygen available to help the brain function optimally (Amen, 2013; Konopka, 2015). Other benefits of exercise on the brain include encouraging the growth of new brain cells via brain derived neurotropic factors (BDNF), improving cognitive ability, and lessening depressive symptoms and anxiety (Amen, 2013; Konopka, 2015). Small clinical trials, as well as large population-based studies, have provided evidence that strongly suggests that exercise, when used as an intervention to improve mood, is very powerful and offers benefits such as decreased feelings of hostility, stress, and anxiety (Otto & Smits, 2011). The biggest challenge with using exercise to improve mood and decrease anxiety is maintaining a regular exercise habit over the long term (Otto & Smits, 2011).

Environmental support. Li et al. (2016) found that fewer than 9% of high school students met the minimum 60 minutes per day of recommended moderate to vigorous physical activity. The family, social, and school environments can help propel adolescents toward regular exercise. For example, Otto and Smits (2011) suggested families try to make at least one “workout” per week a family activity, as this will help ensure that the family supports each other in regular exercise and that it may be more fun and enjoyable. Otto and Smits (2011) offered other suggestions to help parents introduce physical activity into the children’s lives in a positive
way. Evidence suggests that focusing on having fun, instead of competing, and offering active options can help ensure adolescents can find physical activities they enjoy (Otto & Smits, 2011).

Schools can play a major role in offering sufficient opportunities for physical activities before, during, and after the school day (Ratey, 2013). One school district in Naperville, Illinois, implemented a zero-hour physical education (PE) program where students participated in an innovative PE program right before the regular school day. The results of the PE program included improved student academic performance and improved self-esteem, improved mood, and increased ability to handle stress (Ratey, 2013). The Naperville school district also offered non-traditional PE class options such as rock climbing and kayaking to help the greatest number of students find physical activities they enjoy and will continue practicing into adulthood (Ratey, 2013).

**Activity options.** Cardiovascular activities have been widely studied in terms of the effects on mental health, but other types of exercise, such as strength training, and skill-based movements such as martial arts and dance have had positive effects on improving mental health (Amen, 2013; Gordon, 2008; Otto & Smits, 2011; Wasmer Andrews, 2017).

**Cardiovascular exercise.** According to Hogan (2006), cardiovascular exercise increases BDNF, optimizes levels of serotonin, dopamine, and increases levels of opioids in the brain. The simplest and most convenient cardiovascular exercise may be walking. Walking or biking to school could be a good option if the distance to school is reasonable. In a Danish experiment of 20,000 children between the ages of 5 and 19, Goodyear (2013) found children who walked or biked to school had a greater ability to concentrate for the following four hours during the school day. Walking offers an opportunity to socialize and exercise at the same time. Other forms of cardiovascular exercise include biking, swimming, rollerblading, skating, running, cross-country
skiing, aerobics videos, and health club cardio machines. The adolescent should try different things to find which they enjoy most and rotate them depending upon the season (Otto & Smits, 2011).

**Resistance training exercise.** According to Strickland and Smith (2014), resistance training reduces anxiety after only a single training session, and there is a continued reduction in anxiety with long-term resistance training; these results have been replicated with a diverse population group. The most effective intensity for reducing anxiety was low to moderate intensity level resistance equivalent to 70% of the 1 repetition maximum or less (Strickland & Smith, 2014). Females responded especially positively to the anxiety reducing effects of resistance training (Strickland & Smith, 2014). This gender difference may be important to discuss with female therapy clients as female adolescents may be less likely to participate in resistance training activities, possibly due to social norms, and therefore, miss out on the anxiety reducing benefits.

**Outdoor exercise.** Multiple studies revealed that exercising outdoors may have even more power to promote positive mental health than exercise conducted indoors. Thompson Coon et al. (2011) completed a systematic review and analyzed data from 11 trials considering factors of indoor vs. outdoor exercise. Thompson Coon et al. found that mental well-being measures in most of the trials indicated that exercise in a natural outdoor environment contributed to greater feelings of renewed energy, positive engagement, decreased anger and depression, and decreased levels of tension. In addition, more participants in the natural environment exercise groups reported enjoying the exercise and stated they would be more likely to participate in that particular outdoor exercise in the future (Thompson Coon et al., 2011).
Individual Psychology

The theoretical psychological framework established by Alfred Adler is generally referred to as Individual Psychology (Griffith & Powers, 2007). Individual Psychology can offer some useful concepts to better understand the changes an adolescent and family might make in order to implement the holistic approach to treating adolescent anxiety.

Community Feeling/Social Interest/Gemeinschaftsgefühl

There is not a perfect translation from German to English for one of Adler’s key concepts, Gemeinschaftsgefühl. Attempts at capturing the complete meaning in English have been most accurately portrayed with the terms “community feeling” or “social interest,” which attempt to describe an individual’s awareness of belonging, acknowledging responsibility for shaping and contributing to the larger community, and actively taking an interest in the interests of others (as cited in Griffith & Powers, 2007). According to Adler, community feeling or social interest must be cultivated and trained in people, although each person is born with an inherent capacity to learn this, similar to the ability to learn language upon sufficient exposure (as cited in Griffith & Powers, 2007).

Community feeling or social interest is also used as a scale to perceive the level of “adaption” or mental health of the individual; when a person is struggling with mental health issues as demonstrated by feelings of discouragement, alienation, or isolation, then the person has a diminished sense of community feeling or social interest (Griffith & Powers, 2007; Griffith & Powers, 2012). This idea has application to adolescent anxiety. The cause, and most likely the resolution, of adolescent anxiety is often multifactorial, including factors within the individual, family, school, and social environment (Mosak & Maniaci, 1999). If diminished mental health, as defined by Adlerian concepts, would mean diminished adaption (to the family,
school, and social environment) then it could be assumed the adolescent is experiencing diminished levels of community feeling or social interest. A lack of community feeling or social interest may be a significant challenge faced by adolescents and their families as they attempt to change health behaviors and develop new habits. A new type of community feeling or social interest needs to be developed within the family to allow the adolescent and parents to demonstrate support for each other during the transition to new health habits. A therapist can encourage family members to be kind, loving, and supportive to both themselves and each other as they do the hard work necessary to change to long-term healthy habits.

**Life Tasks**

Alfred Adler observed that each person is confronted with unavoidable tasks of life (as cited in Griffith & Powers, 2007). Historical models of the life tasks consisted of three tasks; *love, work, and social* tasks (Griffith & Powers, 2007.) According to Mosak and Maniaci (1999), over time, other respected Adlerians, such as Dreikurs and Mosak, proposed two additional life tasks, the *self* task and the *spiritual* task, as well as an alternate version of the life tasks, which are often signified as a wheel with five sections (see figure 2). In a therapeutic relationship, an Adlerian therapist may use a discussion of the life task wheel as part of the assessment. One way the life task wheel is used in therapy is to ask the client to rate, on a scale of 1-10, satisfaction with a specific area of life. After rating each category, the therapist then probes for areas of improvement and motivation to make changes to that particular area. This is also an opportunity for the therapist to offer psycho-education to the client on the importance of addressing a particular life task, and to open a discussion on one task area that may be lacking and one that may be contributing to the client’s presenting concerns (Mosak & Maniaci, 1999). Ultimately, clients decide what area(s) they are motivated enough to work on changing. Then,
the Adlerian therapist can offer encouragement, help the client with investigation and gathering knowledge, guide the client through interpretation, and help the client through the therapeutic change process.

![Figure 2. Adlerian life tasks.](image)

**Work.** The work task pertains to productivity toward the common good and providing for personal needs in the form of constructive interdependence (Mosak & Maniacci, 1999). Although some adolescents do have paid employment, for most adolescents the primary work task is education. In addition, an adolescent may contribute to the household by maintaining one’s own room, washing clothes, watching younger siblings, or completing chores.

**Love.** The love task is also referred to as the sexual task. The love task pertains to (a) the individual defining what it means to identify as female, male, or neither, (b) the individual’s perception of sexual development (through puberty), and (c) how the individual feels about romantic relationships and sexual behavior (Mosak & Maniacci, 1999). For adolescents, the love
task can be a source of stress and anxiety if issues related to gender identity, sexual orientation, puberty, and romantic relationships are not going smoothly.

**Social.** The social task pertains to the fact that human beings are communal and social creatures. Without the ability to live in community and cooperation with others, human beings could not survive as a species; humans need each other (Mosak & Maniacci, 1999). Embedded within the social task are the concepts of belonging, relating and interacting with other people (Griffith & Powers, 2007; Mosak & Maniacci, 1999). Adolescents are often acutely aware of the importance of the social task including belonging to the right friend group and relating to peers in a way that portrays a certain image. If adolescents are unhappy with their peer group, or if they wish to display an identity that is new or different, they may experience anxiety related to these issues.

**Spiritual.** This task pertains to the individual’s relationship to God, belonging to a religious group (if applicable), human nature, ideas about metaphysical issues such as morality and the afterlife, and the general meaning of life or goal of living (Mosak & Maniacci, 1999). For some adolescents, spiritual and metaphysical questions will seem nearly impossible to answer, and for others they may think they already know all the answers to questions regarding spirituality and metaphysical issues posed by considering the spiritual task. An adolescent’s prior experiences, and the education received from family, school, and religion will largely affect each individual’s perception of the significance and certainty of beliefs related to this life task.

**Self.** The self task pertains to four subtasks that include survival, body image, opinion, and evaluation. The survival aspect of this task relates to the individual’s health and how well one cares for personal health needs. Does the individual eat healthfully, take time to rest and sleep, use the body in a health-giving way, and make generally safe choices? The body image
subtask relates to whether or not individuals like their bodies and how closely their perception of their body matches reality (Mosak & Maniacci, 1999). The opinion subtask relates to an individual’s opinions and feelings about the self. The evaluation subtask pertains to whether or not individuals generally view themselves as good, bad, or otherwise, and this self-evaluation is derived from the empathetic bonding that occurred, or failed to occur, between themselves and parents and caregivers (Mosak & Maniacci, 1999). An especially relevant subtask for adolescents with anxiety who use the holistic treatment approach is the self-task subtask of survival as it relates to health-promoting behaviors. The therapist can use discussion about the self-task to segue into a discussion of the adolescent’s current level of self-care in the categories of nutrition, sleep, and exercise. In addition, the therapist may choose to include other aspects of self-care such as taking time to relax or play, spending time alone and with others, enjoying time with hobbies, or spending time in nature.

**Discussion**

The proposed holistic treatment approach to adolescent anxiety can be used in addition to other traditional psychotherapeutic treatments options. The essential components of this holistic approach include the following self-care habits: improving nutrition, optimizing sleep, and increasing exercise. When these three components are used together they serve to support the adoption and continuation of the other self-care habits. A summary of the key components of the holistic approach to adolescent anxiety:

- Address nutrient deficiencies by adding more healthy foods to the diet
- Include 7 or more servings of fruits and vegetables daily
- Increase consumption of beans and legumes, ideally one serving per day
- Eat a variety of nuts and seeds
• Positive parental support for regular sleep patterns
• Prioritize enough time for sleep, most adolescents need 9 hours per night
• Keep regular bed-times and wake-times, minimize weekend variation
• Create a cool, quiet, and dark bedroom, no blue spectrum lights at night
• Establish a wind-down routine
• Avoid caffeine (and alcohol, nicotine, or other drugs)
• Establish a regular exercise routine
• Gather support from friends, family, and social environments
• Include a variety of physical activities
• Cardiovascular exercise
• Resistance training
• Move and play outside (Brookie et al., 2018; Blanchflower et al., 2013; Cline, 2009; White et al., 2013; Garey, n.d.; Harvard Medical School Sleep Medicine, 2007; Otto & Smits, 2011; Shellenbarger, 2017; Strickland & Smith, 2014).

Individual Psychology’s life-task wheel offers a tool to help identify the need for change in the area of self-care (Myers & Sweeney, 2004). When the therapist is using the life-task wheel to assess for the client’s desire and readiness for change, the discussion can continue into more detail about the self-care section of the wheel. The client can rate, on a scale of 1 to 5, all categories, how often and consistently they engage in each supportive healthy habit; how consistently they consume 7 or more servings of fruits and vegetables daily; how consistently they eat beans or legumes each day; and how consistently they eat nuts or seeds once per day. Next the client can rate how consistently they get 9 hours of sleep, how well they keep regular bed-times and wake-times, if they have created a cool, quiet, and dark bedroom with no blue
spec

trum lights at night, if they have a wind-down routine used nightly, and how often they avoid caffeine (alcohol, nicotine, or other drugs).

Finally, the client can rate how consistently they engage in 60 minutes or more of physical activity each day, and how frequently weekly exercise activities include at least one cardiovascular session, one strength building session, and one exercise activity conducted outdoors. For example, a rating of 1 would mean the client never participates in that habit, a 3 would mean the client participates in that habit about 50% of the time, and a rating of 5 would mean they engage in that habit every day. This rating scale could be redone, approximately once per month, to assess the progress that client is making toward improving habits and becoming more consistent. If a client rated a 1 in all categories, the composite score would be 13. If a client rated a 5 in all categories, the composite score would be 65. The therapist should use professional judgment when using the rating scale for each client and ensure it is used as a guide for awareness, growth, and encouragement.

**Implications for Practice**

Behavior change is challenging (Basaraba, 2017). In one study conducted by Lally, Van Jaarsveld, Potts, and Wardle (2010), participants were asked to change one health-related behavior, such as an eating behavior or physical activity behavior. The behavior selected was new to their daily routine and participants were asked to try and perform the new habit based on a cue of their choice at least once per day. Participants chose behaviors such as eating a piece of fresh fruit with lunch, meditating, or running for 15 minutes before dinner each day. Researchers found that nearly half of the subjects did not perform their chosen behavior consistently enough to create a habitual or automatic behavior (Lally et al., 2010). Lally et al. (2010) found the median number of days needed for a behavior to become automatic was 66 days, although the
range in number of days required to establish a new habit ranged from 18 days up to 254 days. This large time range to successfully form a lasting habit is important for therapists to be aware of when supporting clients through the process of establishing new habits. This research suggested a therapist should plan to spend three to nine months supporting clients through the process of developing new healthy habits such as those proposed in this holistic treatment approach.

The process of successful behavior change has also been studied extensively by Prochaska, Norcross and DiClemente (2006), and they propose a six-stage model for conceptualizing the change process. The first stage is precontemplation where people do not yet acknowledge their need for, or intention of, changing. In many cases, precontemplators do not want to change, but will try to change others around them. The second stage is contemplation, where people acknowledge their need or desire to make a change and begin to consider solutions to problems. People often struggle to gain understanding of their issue and attempt to figure out the causes of their problems. The third stage is preparation, in which people are making plans to change in the next month and may also make small adjustments to daily routines or thought patterns in preparation for making desired behavioral change. In this stage, individuals may announce plans to change and still hold on to some ambivalence about changing. The fourth stage is the action stage. In this stage, people change behaviors and surroundings, and this action stage requires the most time and effort. The action stage is most noticeable to others, so changers are most likely to get support and encouragement from others during this stage. The next stage is maintenance, in which people who have changed a behavior must now consolidate change into a permanent lifestyle and work to prevent relapsing to the old behavior. The maintenance stage can last from six months up to a lifetime. The sixth and final
stage is *termination*. In the termination stage, the old problem or previous habits have no strength to draw one back and are no longer a temptation. In termination, the new habit or behavior happens effortlessly and automatically. Some people do not reach the termination stage for a particular habit and instead remain in the maintenance stage continuously, depending on the situation, habit changed, and personal factors.

Prochaska et al. (2006) also stated the change process is not always a linear movement from one stage to the next. Prochaska et al. (2006) explained the process as a change spiral, in which changers can move back and forth between stages at various times during the process. A therapist can help clients identify which stage of the change process they are currently in regarding improving their nutrition, sleep habits, and exercise habits. Using the stages of change model may help to bring greater awareness to the therapeutic process and the therapist can provide psychoeducation about the client’s stage of change. Detailed assessments and guidance for each stage are described in *Changing for Good* and could be used, by the therapist to help guide behavioral change (Prochaska et al., 2006).

**Recommendations for Future Research**

An inadequate amount of research is available on the process of behavioral change as it applies to improving adolescent health-related behaviors. There are research studies available on helping children develop healthy habits that rely mostly upon the parents for setting limits, rules, and boundaries. There has been extensive research conducted on adults regarding improvement of health-related behaviors. Adolescents are in a unique position as their health habits are only partially determined by their parents, given greater independence, and progressively spend more time away from their parents.
For example, an adolescent’s diet is only partially determined by their parents; the parents choose what foods to buy and keep in the home, take the lead on how many home-cooked meals are eaten each week, and if those meals are eaten communally at the table or not. In addition, the parent may supply the lunch money or determine when and where the family eats out. Yet, as teens get older, they may have their own income source to purchase food of their choosing at school, convenience stores, social events, and when out with friends. This could make up a large portion of their diet and the parent has little direct influence. Research specific to adolescents and how best to help them improve their health-related behaviors would be beneficial. A greater understanding of how therapists and other health professionals can help adolescents develop and maintain health supporting behaviors, even when they are acting independently from their parents’ oversight, could help adolescents become and stay healthy as they move into adulthood.

**Conclusion**

Feelings of stress or occasional anxiety are normal human experiences. Stress and anxiety experienced for extended periods of time can become maladaptive and begin to diminish the functioning of people in their daily lives (Meacham & Bergstrom, 2016). Anxiety disorders differ from normal periods of stress and anxiety as they have a negative impact on the functioning of people in their daily lives (APA, 2013). Adolescents have been reporting increasing levels of anxiety since the early 20th century (Twenge, 2011). Societal and environmental influences are likely having a negative impact on adolescent mental health, including a lack of nourishing foods, insufficient sleep, circadian rhythm disruption, and diminished levels of daily movement and exercise (Presta, 2013; Sarchiapone, 2014; University of Chicago Pediatric Clerkship, n.d.; University of Minnesota, 2016). Various therapeutic
interventions are currently used to treat adolescents with anxiety disorders. Behavioral or experiential therapies include cognitive behavioral therapy, which is also known as CBT, psycho-education in coping skills, mindfulness and relaxation training, and expressive therapies, which can include art therapy, music therapy, dance movement therapy, and psychodrama (AACAP, 2015; Mahrer, 2001). Psychological or systemic therapies include child and adolescent anxiety psychodynamic psychotherapy, also known as CAPP, family therapy, group therapy, and interpersonal therapy (AACAP, 2015).

The purpose of this project was to propose a holistic treatment approach to adolescent anxiety that can be used in addition to other traditional psychotherapeutic treatments options. The essential components of this holistic approach included the following self-care habits: improving nutrition, optimizing sleep, and increasing exercise. When these three components are used together, they serve to support the adoption and continuation of the other self-care habits. Increasing fruits, vegetables, nuts, seeds, beans, and legumes can help to address nutrient and antioxidant deficiencies common to many U.S. adolescents. Improving sleep hygiene and providing psychoeducation about the importance of adequate sleep can help to increase the quantity and quality of sleep for adolescents with anxiety. Increasing the amount of exercise toward the recommended 60 minutes per day, and diversifying the types of exercise to include cardiovascular, resistance training, and outdoor exercise can help to address the anxiety symptoms adolescents experience (Otto & Smits, 2011).

Individual Psychology can offer useful concepts to better understand the changes an adolescent and family might make toward greater health. According to Adler, community feeling or social interest must be cultivated, although each person is born with an inherent capacity to learn these concepts, similar to the ability to learning language upon sufficient
exposure (as cited in Griffith & Powers, 2007). A new aspect of community feeling or social interest may need to develop within the family to allow the adolescent and parents to improve nutrition, sleep habits, and exercise habits together. The adolescent and their family will benefit from giving support to each other as they do the hard work needed to change to healthy habits that persist over a lifetime.

An additional Adlerian concept that can be a useful tool for therapists is to utilize the life-task wheel assessment when working with adolescents with anxiety. An especially relevant life task for assessing current levels of health promoting behaviors is the self-task. The therapist can use discussion about the self-task to explore the adolescent’s current level of self-care in the categories of nutrition, sleep, and exercise. The therapist can also use information on the six stages of change to help determine the client’s current what stage of change their client is currently at and assess their readiness for the preparation and action stages (Prochaska et al., 2006). Once a client has reached the preparation or action stage, the therapist can expect to spend three to six months supporting and guiding the client while a lasting habit is established (Lally et al., 2010).

Adolescents are in a unique position as their habits are only partially determined by their parents as they gain more independence and spend progressively more time away from their parents. Specific research regarding adolescents and health behavior change would be beneficial to a greater understanding of how therapists can best support adolescent clients with anxiety.
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Appendix

Sleep Hygiene Habits

A large body of research has been conducted on factors that contribute to a high quality of sleep. The following sleep hygiene habits may be helpful for clients needing further support in getting sufficient high-quality sleep to support their overall mental and physical health. Although the complete list of sleep hygiene habits can vary slightly depending upon the source, the following summary includes information consolidated and compiled from a variety of sleep hygiene experts.

**Parental influence**

Parental role modeling and established expectations about prioritizing sleep is very important in helping adolescents succeed in getting enough quality sleep. Making enough time and prioritizing sleep appears to be a society-wide issue. In the last Gallup poll on sleep habits, 40% of American adults reported getting less than 6 hours of sleep per night, while in 1910, the average American slept 9 hours per night (as cited in Howe, 2017). When parents lead by example, they can have a strong influence on the habits of an adolescent. According to Erklin, clinical psychologist, “The actions, words, and intentions that are unstated but observed hold a great deal of weight” (as cited in Northwestern Medicine, 2018, para.3). Parents can also set expectations and help adolescents establish good routines. Psychiatrist Dr. Carskadon stated, “There’s pretty good evidence that parental help with limit-setting around bedtimes and study times and media is helpful” (as cited in Garey, n.d., para.7). Experts generally agree that when parents can make sleep a priority, they will have more success in helping their adolescents with better sleep habits (Garey, n.d.).
Prioritize time for sleep. Cline (2009) suggested planning ahead to make a schedule to help avoid last minute all-night-long study sessions for tests or before projects are due. Parents can help set boundaries about how late an adolescent will be allowed to work at a job, how late one can stay out on the weekends, and try to offer guidance about choosing extra-curricular activities that end at least an hour before bed. In some cases, the late ending hour of sports, concerts, and competitions will be unavoidable, but those events will not occur every night. Parents can help their adolescents think carefully about enrolling in activities that will consistently keep them up past the time they need to be in bed. In addition, parents can be active advocates in the school systems for later start times in the morning and for earlier practice times for teams and clubs after school. Honest and realistic discussions about when homework time can fit in around after-school activities may be needed in order to avoid homework sessions that go too late into the night and interfere with sleep time. In reality, often there may not be enough time to do every extra-curricular, have the part-time job, get good grades, and get enough sleep (Shellendbarger, 2017). This is where parents and the therapist can be helpful and supportive of the adolescent during the process of deciding priorities.

Keep regular bed times and wake-up times. The body’s circadian rhythm is best supported by going to bed and waking up at the same time every day (Harvard, 2007). This can be especially challenging for adolescents when the time they need to go to sleep on school nights may be 9:30 and weekend social activities run much later. The American Academy of Sleep Medicine (2005) suggested allowing adolescents to stay up later on weekends but try not to vary the sleep and wake times by more than two hours on the weekends, if at all possible. The American Academy of Sleep specifically recommends that adolescents wake on the weekends within two hours of normal wake-up time so the body clock will not be so disrupted and
adolescents cannot wake on Monday morning (American Academy of Sleep Medicine, 2005). If the adolescent is very tired and needs to nap, then a short nap is okay with a limit of 30-45 minutes (American Academy of Sleep Medicine, 2005). Another recommendation regarding napping is to make sure the nap ends before 5pm as late day naps will decrease sleep drive, which is the biological process that helps people fall asleep (Harvard Medical School, 2007).

**Create a supportive sleep environment.** A quiet, dark, and cool environment is most conducive to good sleep (Harvard Medical School, 2007). Noise that creeps into the bedroom can be helped by a white noise machine or fan running on low speed. The best sleeping temperature is usually between 60-75 degrees with good ventilation (Harvard Medical School, 2007). In addition, a comfortable and supportive pillow and mattress can be helpful as well. The most difficult item may be creating a truly dark sleep environment. A dark sleep environment means no light filtering in under the door or around the edges of the curtain, no alarm clock lights, no tablets or computers blinking, and no cell phone lights that blink even when turned off (Harvard Health Letter, 2017). For most bedrooms, this will mean taking all electronics out of the bedroom, getting an alarm clock that can have the backlight display turned off, purchasing light blocking drapes as well as a blind or shade, and ensuring there are not hallway lights on outside the bedroom (Tuck, 2017). If a person needs to get up to walk to the bathroom in the middle of the night, it is suggested that a very dim light, preferably not an LED or fluorescent bulb, be turned on with just enough light to show the path and then turned off as soon as possible (Harvard Health Letter, 2017). Another option is purchasing special low-blue wavelength night lights, or small dim lamps with amber or red light bulbs that do not contain the spectrum of blue wavelength light (Harvard Health Letter, 2017). The blue wavelength light is what suppresses melatonin secretion, the hormone the body secretes to help fall asleep and stay asleep (Harvard
Health Letter, 2017). Lockley, a Harvard sleep researcher, stated that even dim light as low as 8 lux can interfere with melatonin secretion and disrupt the circadian rhythm. In addition, researchers found that one night’s worth of blue light exposure, 6.5 hours, can shift the circadian rhythms by up to three hours, which will make it harder to maintain a consistent sleep-wake cycle day to day (as cited in the Harvard Health Letter, 2017).

**Plan evening activities thoughtfully.** Experts suggest avoiding stressful or stimulating activities before bed such as doing work or having difficult emotional conversations. Adolescents, in particular, will need to be aware of trying to avoid doing homework close to bedtime that requires an electronic device or is particularly difficult or stressful. Dr. Van Gilder suggested that screens are turned off at least one hour before bedtime and that “off screen” homework could be done later in the evening (as cited in Garey, n.d.). If a phone, computer, or tablet absolutely must be used within an hour of bedtime, applications such as F.lux can be installed for free on most devices to remove the blue wavelength light emitted from the screen (Garey, n.d.). In addition, Dr. Van Gilder pointed out that using social media or YouTube will not be a helpful wind-down activity at night due to the blue light emitted by devices as well as the possibility that what is seen or read on social media sites could provoke anxiety right before bed (as cited in Garey, n.d.).

**Wind-down routines.** Experts suggest that parents help their adolescent establish a relaxing routine to help them unwind at night before bed. The more consistently this routine, the more effective it will be (American Academy of Sleep Medicine, 2005). For 30-60 minutes before bed, engage in some relaxing activities such as bathing or showering, reading or listening to a book, or practicing relaxation exercises (Harvard, 2007). If television is watched during this time, ensure that the content is not violent or frightening (AASM, 2005).
Avoid caffeine. A more well-rested adolescent will not need it, but until they become more rested on a regular basis, try to keep caffeine to the morning only and limit it to two cups of coffee worth of caffeine at the most (Cline, 2007). Avoid nicotine, alcohol, and other drugs; all of these substances generally reduce the quality of sleep people are able to achieve after consuming them (Harvard, 2007).

Boundaries for the sleeping space. Mental and physical boundaries can create a helpful association between the bed and going to sleep (Cline, 2007; Garey, n.d.). Experts suggest keeping all screens and work (or homework) out of the bedroom, if possible (Cline, 2009), and use the bed only for sleeping or doing relaxing activities prior to falling asleep, such as reading, journaling, or listening to relaxing music (Harvard, 2007).

Regular exercise routine. Exercise has been shown to help people sleep more soundly and fall asleep more quickly (Harvard, 2007). The American Academy of Sleep Medicine and Dr. John Cline recommend helping adolescents establish a regular exercise routine as well as consuming a healthy diet. Exercise in the morning and afternoon improve sleep quality, but experts caution not to perform high intensity exercise close to bedtime because it could keep a person awake (Cline, 2009; Harvard, 2007).