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# **Interventions That Reduce Anxiety and Depression to Support Mediation of Lifestyle Balance in Middle School Students**

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## Focus Question

To what degree does mediation of lifestyle balance in middle school-aged children have when implementing school-based interventions that address physical activity, nutritious diets, and healthy coping strategies in reducing depression and anxiety in students?

## Clinical Scenario

Mental health disorders are internationally known as a leading cause of disability throughout almost 20% of the adolescent population experiencing devastating mental health problems. Current statistics note that the prevalence of impaired mental health within this population has increased by 21% from 2001 to 2011, indicating a continuation of severe effects from poor mental health on this vulnerable population (Danielson et al., 2020). Allison et al. (2014) estimated that at the time the article was written, 14 million children in the United States had a mental health disorder that interfered with their daily life. Research from the Centers for Disease Control and Prevention (CDC, 2020) stated that 4.4 million children between the ages of three and 17 were diagnosed and impacted by anxiety, while 1.9 million children within the same age range were diagnosed with depression.

Adolescence is a significant period in a person's life that allows for the development of behaviors that may indicate future disorders in adulthood (Das et al., 2016). It is well-known that mental health instability has a negative impact on overall health in adults. Feiss et al. (2019) also indicated that anxiety and depression in the adolescent population is a reliable predictor of continued stress symptoms later in life. Research shows that more than 50% of adult mental disorders begin before the age of 18 and are associated with many environmental stressors including emotional and physical abuse from authority figures, violence within communities, and unprecedented diseases (Das et al., 2016). Long-term impacts from mental stress lead to a decrease in motivation and interest in activities, fulfilling roles and expectations, and ultimately affecting the future of one's skills and abilities to complete occupations (CDC, 2020).

Thus, the need to implement educational programs during a child's typical day at the middle school level could be a key factor in preventing the development of poor mental health in the child's future. In a recent study, a 15-week Creating Opportunity Personal Empowerment (COPE) Healthy Lifestyles Thinking, Emotions, Exercise, Nutrition (TEEN) program was implemented into a required science class with 31 middle school students in urban areas. After incorporating the COPE program into class content for five days, it was determined that physical activity had a positive effect on depression and anxiety scores and that suicidal ideation risk scores significantly decreased (Hoying & Melnyk, 2016).

A randomized control study conducted with 19 obese adolescents and the COPE program also revealed that depression and anxiety significantly decreased along with a significant increase in dietary changes (Melnyk et al., 2009). From a physiological standpoint, Hemoglobin A1c and triglycerides decreased while high density lipoproteins increased, creating healthier outcomes (Melnyk et al., 2009). Jacka et al. (2010) conducted a cross-sectional questionnaire



study, including 7,114 adolescents between ages 10-14 years old, that showed the prevalence between unhealthy diets and high rates of depression. The findings revealed that low intake of nutrient-dense foods, and high intake of high energy, nutrient-poor foods corresponded with adolescent depression (Jacka et al., 2010).

Occupational therapy in conjunction with healthcare professionals working within the school system have a role to implement an evidence-based plan of action that will improve the quality of life of students struggling with mental health disorders. Implementing a school-based intervention program produces the ability to reach many students simultaneously, and also prevents the need for students to attend therapy services outside of school hours (Feiss et al., 2019). Physical education curriculums should be directed towards allowing students to feel motivated for participation in healthy behaviors that can be practiced outside of the classroom. The purpose of this review is to address how occupational therapy practitioners can implement evidence-based intervention strategies in middle schools to decrease the prevalence of anxiety and depression and assist in the mediation of lifestyle balance for adolescents impacted by these mental health disorders.

### **Synthesis of Evidence Review**

For this critically appraised topic, the researchers reviewed a total of 30 peer-reviewed articles discussing interventions for mediation of lifestyle balance in adolescent mental health. Various combinations of databases were searched through the University of North Dakota's School of Medicine and Health Sciences (UND SMHS) online library. In addition, government databases were utilized to gather relevant statistics. Key search terms used to find articles for the review included the phrases middle school children, anxiety, depression, mental health interventions, lifestyle techniques, and mental health. To limit the number of articles found, Boolean phrases were used such as (middle school children) AND (anxiety and depression) AND (mental health interventions). Articles were screened for inclusion and exclusion criteria based on population, intervention type, and mental health conditions. Inclusion criteria consisted of student populations aged eight to 19-years-old, a variety of mental health interventions, and articles less than five years old. Exclusion criteria included expensive interventions, appointment-based interventions, discussion of populations above the age of 19-years-old, and medication-based interventions. A literature gap was identified between 2009 until 2014 due to a lack of research focused on anxiety and depression in younger populations. However, some of the articles were pilot studies and systematic reviews stemming from the original randomized control trials conducted in earlier years.

A final summation of articles resulted in one Level I systematic review, one Level I systematic review and meta-analysis, two Level II randomized control trials, and one level N/A cross-sectional questionnaire study. A few of the chosen studies examined the COPE Healthy Lifestyles TEEN program, which was incorporated into school systems in hopes of providing mediation for lifestyle balance in middle school students (Hoying & Melnyk, 2016). The remaining studies examined other related treatment plans for mental health that ultimately lead to support of this school-based intervention.



## **Impact of Nutrition on Mediation of Lifestyle Balance**

The first major topic identified included improvement of adolescent mental health based on healthy nutrition and physical activity interventions for decreasing anxiety and depression in middle school students. However, low socioeconomic status, social content, and individual backgrounds seem to have affected the outcomes of adolescents being able to sustain a healthier diet (Jacka et al., 2010). Jacka et al. (2010) conducted a cross-sectional questionnaire study that concluded children who ate healthier foods were less likely to crave unhealthy foods. One limitation of this research was that there was not a statistical relationship linking the concept of depression to unhealthy diets (Jacka et al., 2010). However, there was a strong relationship between those that were diagnosed with depression and those who ate unhealthy diets, implying a subjective correlation between the two (Jacka et al., 2010).

## **Impact of School-Based Interventions on Adolescent Mental Health**

Feiss et al. (2019) conducted and published a systematic review and meta-analysis identifying and evaluating the efficiency of school-based programming and the impacts on reducing internalized mental health problems of adolescents. There are between 31.9% of adolescents aged between 13 and 18 that have been or are currently diagnosed with anxiety disorder and 31.5% that have experienced depressive symptoms (Feiss et al., 2019). Feiss et al. (2019) conducted individual meta-analyses for each of the main mental health outcomes (stress, depression/depressive symptoms, and anxiety). To control for bias, two researchers independently assessed the risk of bias following the Cochrane Handbook for Systematic Reviews of Interventions guidelines (Feiss et al., 2019). There were a total of 42 studies included in the meta-analyses, and a total of 7,310 adolescent participants. Of the 42 studies that were included 38 measured depressive symptoms, 20 measured anxiety symptoms, and four measured stress symptoms. Results of the meta-analysis found that dosage and race influenced the effectiveness of depressive programs (Feiss et al., 2019). It concluded that programs aimed at minimizing depression and/or anxiety symptoms in adolescents were generally effective, but programs aimed at reducing stress were not effective (Feiss et al., 2019).

From the studies that were analyzed, interventions that had an aim of reducing depression/depressive symptoms were the most common interventions used in treating internalized mental health disorders (Feiss et al., 2019). Additionally, the results that were obtained emphasized that targeted programs were more effective in reducing depressive symptoms compared to universal programs (Feiss et al., 2019). One barrier that was identified in the meta-analysis was that less than half of the studies (16 studies) assessed more than one of the outcome variables including stress, anxiety, and depression (Feiss et al., 2019). Stress has the potential to have many negative impacts on adolescents regarding occupational performance and the ability to respond positively to cognitive-based therapy (CBT) interventions (Feiss et al., 2019). A high level of stress is also associated with having two co-existing internalizing disorders (Feiss et al., 2019). This warrants the idea that future assessments of multiple internalizing disorders should be considered to include stress reduction techniques that help produce positive outcomes for higher stress levels (Feiss et al., 2019). Another idea that was emphasized discussed that, as the prevalence of disorders in adolescents increases, new strategies should be developed without decreasing the quality of care (Feiss et al., 2019). It is important



that school-based programming continue to include students who do not meet clinical criteria for internalizing disorders as programs can benefit a variety of students (Feiss et al., 2019).

Peer-based programs are another potential way to effectively reduce stigma and improve upon mental health outcomes when resources are limited in a school system (Feiss et al., 2019). Through the systematic review and meta-analysis, the results that were obtained emphasized the importance for continued school-based programs to be developed and implemented to help in the prevention, detection, and treatment of the internalizing mental health disorders of stress, anxiety, and depressive symptoms.

### **Other Interventions Impacting Adolescent Mental Health**

Das et al. (2016) completed a systematic review of articles including four categories of intervention types that could be used to improve the occupational performance of adolescents with poor mental health. Criteria for this study were determined to exclude non systematic reviews, systematic reviews focusing on other populations, and systematic reviews regarding other mental health disorders besides anxiety and depression. This was also determined as a limitation for this study, as the populations affected by mental health disorders span beyond youth and adolescent ages. In addition to school-based interventions, the article examined community-based interventions, digital platforms, and individual/family-based interventions to determine which platforms would positively impact adolescent mental health (Das et al., 2016). A total of 38 articles covering different intervention types were chosen based on the inclusion and exclusion criteria including 12 school-based interventions, six community-based interventions, eight digital platforms, and 12 individual or family-based interventions.

Community-based intervention types included “creative activities” such as music, dance, singing, drama, and visual arts that had been previously proven to implement positive effects on “behavioral changes, self-confidence, self-esteem, levels of knowledge, and physical activity,” and were found to have an average effect on reducing mental health problems and increasing occupational competencies (Das et al., 2016, p. 55). Digital platforms including mass media and module-based formats targeting behavioral treatments, such as computerized CBT, were found to have significant positive impacts on improving mental health but had no evidence of effective means of implementation into school settings (Das et al., 2016). There were only two individual/family-based interventions covered in the article that focused on home-based approaches, including healthy eating attitudes, eating disorder awareness, and promotion of self-esteem, while the remaining studies covered psychological interventions that have already been found to have a proven positive impact (Das et al., 2016). Results determined that school mental health programs focusing on proven interventions that positively impact mental health promotion, rather than prevention, are the most effective programs to use in adolescent and youth mental health (Das et al., 2016).

### **COPE Programs Implemented in Middle Schools**

Two studies examined the 15-week school COPE Healthy TEEN Lifestyles program, incorporated into a graduation-required class, and discussed the findings of a convenience sample including middle school students between the ages of 11, 13, and 15-year-olds (Hoying & Melnyk, 2016; Melnyk et al., 2009). This COPE program also showed the promise of



improving the competence of students who participated regarding nutritional knowledge, healthy eating, and healthy lifestyle balances. Anxiety, depression, and suicidal ideation had both significant decreases and increases in healthy lifestyle beliefs (Hoying & Melnyk, 2016; Melnyk et al., 2009). Physical health also improved including cholesterol, blood sugars, and overall body fat percentages (Hoying & Melnyk, 2016). Although researchers noted that CBT is the gold standard, it is not always accessible due to a shortage of mental health workers that are needed to perform appropriate administration. However, the COPE program contains important elements originally stemming from CBT (Hoying & Melnyk, 2016; Melnyk et al., 2009). The program was also standardized with homework assignments for each session, making it easy to integrate into school-based curriculums (Hoying & Melnyk, 2016; Melnyk et al., 2009).

Previous evidence has also shown that depression in adolescents is a risk factor for continued depression into adulthood (Hoying & Melnyk, 2016; Melnyk et al., 2009). Adolescents with subclinical depression have shown decreased occupational performance, low self-esteem, poor coping skills, substance use, anxiety, obesity, teen pregnancy, social isolation, poor academics, and perceptions of low social support (Melnyk et al., 2009). These factors were determined as the main reason for adolescent suicide, which was the third leading cause of death in adolescents at the time of each study (Hoying & Melnyk, 2016; Melnyk et al., 2009). Obesity is also growing across the United States because budget cuts have affected schools' ability to introduce programs (Melnyk et al., 2009). Physical activity had the largest effect on middle school students, and it was indicated that obesity rates will decrease by incorporating physical activity into school settings through class sessions (Hoying & Melnyk, 2016; Melnyk et al., 2009). The public health crisis for mental health is a well-known problem, however, identification and early intervention are not happening frequently or quickly enough, making the need for school-based intervention more prevalent than ever before (Melnyk et al., 2009).

### **Clinical Practice Applicability**

Anxiety in the adolescent population commonly presents as fear and worry that is severe enough to impact everyday activities, including school, play, and home life (Centers for Disease Control and Prevention [CDC], 2020). Depression in the adolescent population is commonly experienced as persistent feelings of sadness and hopelessness in a child's everyday life (CDC, 2020). Results of these detrimental symptoms from poor mental health will eventually lead to a lack of motivation and performance in daily tasks. Poor occupational performance in daily roles, habits, and routines, could cause the vulnerable adolescent population to spiral into even worse mental states and cause more negative symptoms including poor nutrient intake and/or further weight gain into adult life (Melnyk et al., 2009). Habituation impacts might include fewer social interactions with other students and friends and not getting enough sleep to support paying attention in class, leading to poor participation and grades for schoolwork.

Occupational therapy, in collaboration with other health professions, has been shown to have a positive impact on the mediation of lifestyle balance within the student population. Occupational therapy services can assist in alleviating the anxiety and depression that has been proven so prevalent within the school-aged populations, by introducing a holistic program that addresses different aspects of mental health disorders. Occupational therapists also have the



knowledge and training to implement screening protocols within the school system that could help with the early identification of poor mental health in these younger populations. Through advocating for the implementation of mental health programs in the school system, an interdisciplinary approach involving healthcare workers already working within the school system can be utilized to provide supporting data on the need for implementation of these programs. Incorporating COPE into a school program would be beneficial to the adolescent population for enhancing coping skills, activity, healthier lifestyle choices, and preventing mental health disorders (Melnik et al., 2009).

The COPE Healthy Lifestyles TEEN program, which was found to be successful in improving adolescent mental health, consists of homework assignments and can be integrated into class curriculums. The adolescents that participated in the COPE program enjoyed it and did not want to change anything about the program when asked by the researchers. Researchers recorded that the students liked all the topics included and found the information very useful (Melnik et al., 2009). Current evidence has suggested that the implementation of school-based interventions that are focused on mitigating the symptoms of depression and anxiety can help to alleviate the symptoms. Although, some limitations need to be taken into consideration. In school-based programming, there are challenges with scheduling around students' classes, school cancellations, and holidays (Feiss et al., 2019). Also, there are times where required access to a clinical mental health professional is limited, and some schools may not have access or the funding required to implement these programs (Feiss et al., 2019). In return, when planning for future programs it is important to be flexible and able to accommodate different schools and students' schedules, along with a need to have direct contact with a clinical mental health professional (Feiss et al., 2019). Common limitations of implementing school-based programs included that exploration of the most accurate results would take time, but most aspects of the COPE program were only implemented for one semester. Body mass indexes were not able to be accurately re-evaluated due to the short period of time and factoring different body types (Melnik et al., 2009).

Based on the review of the COPE Healthy Lifestyles TEEN program, this program can be implemented into any graduation-required classes throughout the school system. Melnik et al. (2009) recommended if the program cannot be implemented into a school system because of budget constraints, there should be at minimum a component of physical activity added to classes throughout the day. In implementing physical activity into a teen's routine while at school, the aim is to increase the motivation and drive to continue the healthy habits and routines outside of school, potentially leading to an increase in the positive characteristics essential to a healthy lifestyle balance that can be continued throughout their life.





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