




Intuition: The BYU Undergraduate Journal in Psychology

Manuscript 1268

Nature's Pill: A Spotlight on Lifestyle and Adolescent Anxiety

Daniel Heckathorn

Follow this and additional works at: <https://scholarsarchive.byu.edu/intuition>

 Part of the [Psychology Commons](#)

Nature's Pill: A Spotlight on Lifestyle and Adolescent Anxiety

Daniel Heckathorn

Brigham Young University

Abstract

Anxiety disorders plague high numbers of adolescents throughout the world. This demographic seems particularly susceptible due to hormonal and social changes occurring in their lives (Kendall & Peterman, 2015). Through experimental and correlational studies, lifestyle changes (including exercise, diet, and sleep) have shown to be effective in reducing adolescent anxiety, while also acting as predictors of future anxiety susceptibility (Abdollahi & Talib, 2015; Asare & Danquah, 2015). While comparable in effectiveness to pharmaceutical approaches, changes in lifestyle cause no side effects. In considering long-term treatment of adolescent anxiety, it is suggested that lifestyle changes be the foundation of treatment plans to focus on causes and not simply symptoms. Lack of data regarding how often lifestyle changes are implemented in treatment plans presents a limitation in knowing how large of an issue this is. However, it is known that pharmaceuticals are commonly used with adolescents despite the lack of studies performed on that population regarding the lasting effects of medication (Voltas, Hernandez-Martinez, Arija, & Canals, 2017). When considering the side effects and uncertainty involved in the pharmaceutical treatment of adolescents for anxiety, lifestyle changes offer a safer, more long-term option that should be implemented before considering pharmaceutical interventions.

Nature's Pill: A Spotlight on Lifestyle and Adolescent Anxiety

Sixteen-year-old Joseph was a typical adolescent boy. He enjoyed participating in sports, performing in musical groups, and having fun with his friends. One morning, Joseph arose from his bed feeling strange. He believed he was merely ill and stayed home from school. However, the symptoms continued. He felt nauseous and had little desire to eat due to stomach discomfort. Upon returning to class, he began to feel light-headed and noticed his palms were perspiring. At times, he would even need to vomit in the bathroom due to intense distress. He could not eat in the cafeteria and lost an unhealthy amount of weight. Through his own research, Joseph determined he was experiencing the symptoms of an anxiety disorder. He also realized that his symptoms dissipated while he was playing sports. This realization led him to seek out more ways to live healthily. In addition to maintaining his exercise routine, he improved his diet and managed his sleep habits. These measures further lessened his symptoms of anxiety. Now in college, Joseph has nearly complete control over his anxiety. Although he is aware of his fragility, he has great confidence in the fact that he is in control and capable of dealing with his anxiety when it surfaces.

Joseph is not the only adolescent who has or will suffer from an anxiety disorder. Epidemiological studies have concluded that roughly one in six adolescents will suffer from an anxiety disorder, placing it among the most prevalent psychiatric disorders during adolescence (Beesdo, Knappe, & Pine, 2009). Additionally, total anxiety symptoms are even higher, with a prevalence of 46.7% (see Table 1; Voltas, Hernandez-Martinez, Arija, & Canals, 2017). The series of psychological and biological changes that occur during puberty place adolescents at an increased risk for such disorders (Kendall & Peterman, 2015). The low self-esteem associated

with this type of disorder can also present developmental impairments during this crucial stage (Maldonado et al., 2013). If left untreated, it can cause severe impairments in school and family life (Peters & Connolly, 2012). Additionally, those with unresolved anxiety disorders are 80% more likely to suffer from another comorbid disorder at some point in their lives, linking the anxiety with other psychopathological disorders such as depression or obsessive-compulsive disorder (Brown, Campbell, Lehman, Grisham, & Mancill, 2001). As expected with such a prevalent disorder, anxiety has attracted attention among professionals and non-professionals alike, resulting in a plethora of studies and treatments.

When it comes to treatment, many parents, generally as counseled by a therapist or psychiatrist, will elect a type of pharmaceutical intervention to reduce their child's symptoms of anxiety. Pharmaceutical treatments involving selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants, benzodiazepines, and others have generally been shown to reduce the symptoms of anxiety in adolescents; however, they are also associated with varying degrees of side effects, which will be discussed later (Velosa & Riddle, 2000). Along with these forms of interventions, therapists are realizing that changes in lifestyle can also yield very positive results. The implementation of exercise programs and the improvement of diet, for example, have resulted in significant reductions in anxiety symptoms in adolescents (Forsyth, Deane, & Williams, 2015; Stein & Dubowitz, 2015). Clearly, many more methods of treatment exist that are being tested and implemented for the symptoms of anxiety, but for the purposes of this review, the focus will be on two paths of treatment: pharmaceutical and holistic. Due to the plethora of therapeutic approaches and the confusion this could cause for caregivers, education regarding these particular types of treatment with adolescents is essential.

Unfortunately, studies pertaining to the treatment of adolescent anxiety are relatively sparse. This presents a problem when determining which method of treatment will be both effective and safe in the long term. In fact, much of the current research comes from studies on adults, with little research having been done on adolescent populations (Voltas et al., 2017). This creates difficulty when prescribing medication, because the therapist does not entirely know how the medication will affect the adolescent long term. An adolescent's biological and hormonal makeup differs from that of an adult. This makes it difficult to predict the effects that a particular medication will have (Short & Louca, 2015). Velosa and Riddle (2000), along with other medical professionals, agreed that additional research is necessary to better determine the safe use of pharmaceuticals in the adolescent population. This uncertainty means a practitioner must take great care and caution in the prescribing of medication for an adolescent to avoid undesirable effects.

Despite current gaps in relevant empirical evidence, what is known and well supported is that an unhealthy lifestyle deficient in nutritious foods and exercise has a strong correlation with poor self-esteem and mental health problems in adolescents, especially when paired with obesity (Melnyk et al., 2013). Additionally, the correction of an unhealthy lifestyle will likely have the reverse effect, without the risk of side effects (Melnyk et al., 2013). Lifestyle changes offer an alternative method of treatment for the suffering adolescent. If the root of the issue can potentially be solved without the implementation of pharmaceuticals that correlate with known as well as unknown side effects, that would be the preferable path. Such an education may also instill in the adolescent a habit of life-long conscientiousness in this area, bringing about further benefits. Although a combination of pharmaceutical interventions and professionally prescribed changes to daily routines (involving exercise, diet, and sleep) typically reduces general anxiety in

adolescents, a therapeutic focus on lifestyle changes should ideally constitute the foundation of any treatment plan (with or without pharmaceuticals), as this holistic approach is effective, supports long-term health and recovery, and can possibly resolve the underlying causes of anxiety before medication is needed.

A Holistic Approach

As stated previously, the preferable holistic treatment option for an adolescent suffering from anxiety would be both effective and safe. Lifestyle changes, such as exercise, diet, and sleep, can be effective while also freeing adolescents from the negative aspects of medication. These options should be both better understood and applied in treatment.

Exercise

When dealing with adolescent anxiety, physical exercise is a powerful treatment tool. Studies have shown that exercise can not only lower negative emotional states but also increase positive ones. In a study on adolescents in Ghana, physical exercise was found to be negatively correlated with both depression/anxiety and body dissatisfaction and positively correlated with self-esteem (Asare & Danquah, 2015). Physical exercise is a side-effect-free treatment option that could also be seen as a preventative measure towards the reduction of anxiety in adolescents. Another benefit is that exercise is not foreign to adolescents; it can be easily implemented into their lives or school curriculum without them even being aware that they are receiving psychological benefits. The same cannot be said of pharmaceutical interventions; they can seem foreign to students or lead them to feel different or isolated from their peers (Motta, McWilliams, Schwartz, & Cavera, 2012). Some may not see exercise as a viable option as compared to the effectiveness of pharmaceuticals. However, aerobic exercise has been shown to be equally as effective in reducing stress as antidepressants, which have about a 50% effectiveness rate in

addition to a placebo effect (P. Steffen, personal communication, March 5, 2018). As demonstrated, physical exercise is a viable treatment option, beneficial to not only adolescents who suffer from anxiety but to others as well.

Diet

The food that is introduced into the body will affect how it functions. Food is the raw material from which the body and mind is built and maintained. In construction, if the materials purchased to complete a project are of poor quality, the finished product will be equally poor. The same applies with the human body. The brain consumes 20% of the energy in the body, while only accounting for 2% of the body's weight (Pant & Nayal, 2014). The brain's only option is to take that energy from the nutrition present in the body. In a study performed by Pant and Nayal (2014) to examine the effects of different diets on adolescent anxiety, participants who ate a natural diet were compared to those who consumed more processed foods. The results were significant: Traditional, natural diets were shown to protect against the symptoms of anxiety in adolescents while benefiting their health in other ways as well (Pant & Nayal, 2014). Hughes and Bryan (2003) found that foods high in carbohydrates and low in proteins can increase symptoms of anxiety. Thus, if adolescents are eating poorly, which they may be prone to do because of inexperience in choosing their own foods, anxiety symptoms will typically worsen. When diet is improved, the opposite will likely occur. If diet can be improved to reduce the symptoms of anxiety in adolescents, then it's something that should be considered by their healthcare professionals.

Sleep

Along with exercise and diet, sleep habits need to be addressed by those who work with adolescents with anxiety disorders. For example, about half of the adolescents in the United

States will sleep less than eight hours a night, especially on school nights (Baum et al., 2014). Short and Louca (2015) conducted an experiment testing the effects that sleep deprivation has on the mood of otherwise healthy adolescents. The subjects were observed under normal sleeping conditions and then under conditions where they were intentionally sleep-deprived. The results indicated that mood states worsen significantly when adolescents are deprived of sleep; adolescents experienced greater anxiety, depression, anger, and other negative emotions. Also, considering that the prefrontal cortex is still in development during adolescence, these mood deficits are even greater (Short & Louca, 2015). This means that adolescents who do not sleep enough will likely suffer more than a sleep-deprived adult. The combination of adolescents' lack of sleep and the anxiety-inducing effects of sleep deprivation presents an issue for society. Schools can help reduce anxiety by implementing programs that teach healthy sleep patterns. Exercise, diet, and sleep can form an effective treatment, especially when they are addressed simultaneously. A healthy, holistic approach may have the power to help.

Long-Term Perspective

The goal of treatment should be to help the adolescent manage anxiety in the present as well as in the future. The side effects and addictions associated with pharmaceuticals make a pharmaceutical approach more of a short-term solution; a holistic approach, however, can be applied long term. It is important to instill in adolescents the skills to help manage their anxiety; in doing so, their confidence will likely increase as well as their sense of control over their symptoms. Furthermore, the same methods that reduce their anxiety may also reduce adolescents' risk of other diseases and disorders throughout their life.

Side Effects

With regards to the use of medication in treatment, associated side effects should be considered before making a decision. For example, antidepressants utilized in the treatment of anxiety can lead to deleterious consequences. In children and adolescents, many antidepressants present a risk of increased suicidal tendencies (Wohlfarth et al., 2006). Other side effects of pharmaceuticals generally used for anxiety may include drowsiness, insomnia, emotional numbing, headaches, nausea, weight gain/loss, irritability, fatigue, constipation, blurred vision, etc. (Velosa & Riddle, 2000). Additionally, few (if any) longitudinal studies have been performed on the adolescent population to examine long-term effects of pharmaceuticals; thus, more side effects may still be revealed (Voltas et al., 2017). Parents and practitioners must consider these things when deciding on using medication with an adolescent; they must decide whether the pros outweigh the cons. Furthermore, anxiolytics are highly addictive (P. Steffen, personal communication, March 5, 2018). Adolescents are already at a higher risk of an anxiety disorder due to the biological changes occurring in them as well as the pressures of transitioning into adulthood (Kendall & Peterman, 2015). This could imply that their anxiety is possibly more of a phase than a lifelong disorder and that it could dissipate as their bodies adjust to biological changes. Thus, by prescribing an addictive substance, adolescents may continue to need it even after they would have otherwise been free of their symptoms. This may lengthen their treatment rather than shortening it as well as harm them. This would not be a long-term solution. Although the usage of medication is certainly warranted in cases where the adolescent is inconsolable or in a dangerous situation, any informed therapist should also carefully consider adolescents' habits regarding physical exercise and diet. Perhaps a suggestion to implement a healthier lifestyle

could be all that the adolescent needs to regain control, and they could be saved from the potentially harmful side effects associated with medication.

Confidence and Control

The ability to manage one's own anxious symptoms without the need for a pill can create a sense of confidence and control in the life of a suffering adolescent. This was the case with Joseph, who was referenced previously. As he learned what he could personally do to reduce his anxiety, his own happiness and confidence in his methods increased. This is very important because of the placebo effect, indicating that the more confidence a patient has in his/her treatment, the more effective it will be. In other words, belief in a method can have a physiological effect (P. Steffen, personal communication, March 5, 2018). The lifestyle changes presented involve skills and habits that the adolescents can learn to do on their own. The need for adolescents to take medication can cause them to feel different from their peers (Motta et al., 2012). And lower self-esteem is correlated with increased risk of anxiety, specifically social anxiety in adolescents (Abdollahi & Talib, 2015). Thus, the very act of taking medication could be worsening their symptoms. Learning how to improve one's lifestyle may not only bring about a reduction in anxiety but may also reduce the risk of other psychological and physical ailments throughout the adolescent's life (P. Steffen, personal communication, March 5, 2018). This approach can be applied across the lifespan, while medications typically cannot. With a pharmaceutical approach, the adolescent takes a pill and hopes it works. They are dependent on that pill. With a lifestyle-centered approach, the ability to control anxiety comes more from within, without the risk of negative effects, and that knowledge persists for the rest of their lives.

Focusing on Causes, Not Symptoms

Certain unhealthy lifestyle habits contribute to anxiety in adolescents who may have been healthy otherwise. Administering medication while ignoring the anxiety-conducive lifestyle is merely covering up symptoms temporarily. The focus should be on the causes and not just the symptoms. A lifestyle-centered approach involves examining possible underlying causes and attempting to fix those first, potentially without the need of further medication.

Habits Conducive to Anxiety

If the underlying causes of adolescent anxiety can be tied to his/her lifestyle, the adolescent's lifestyle should be addressed. For example, adolescent obesity has generally increased over the years (Ogden et al., 2016). With the increase in obesity, it is no wonder that anxiety is so rampant; adolescents who are sedentary or obese are more likely to develop anxiety (Abdollahi & Talib, 2015). Sedentary behavior may imply a lack of exercise, and obesity can be tied to lack of exercise, poor diet, and sleep. Many adolescents will go to school without breakfast and later consume high-fat diets such as fast food. Research has shown that both the omission of breakfast and a high-fat diet are conducive to anxiety in adolescents (Del Rio, Morales, Ruiz-Gayo, & Del Olmo, 2016; Richards & Smith, 2016). Rather than only prescribing medication, education regarding diet and exercise should be implemented, which would also reduce the adolescent's risk of obesity and thus reduce their risk of anxiety.

Along with diet and exercise, sleep is also associated with adolescent mental health. Using a longitudinal study of adolescents' sleep habits, it was determined that going to bed later and sleeping less is a determinant of anxiety, depression, and risk of self-harm in adolescents, stressing the value of sleep education in that population (Matamura et al., 2014). Exercise, diet, and sleep patterns are all lifestyle habits that, when done incorrectly, can bring about anxious

symptoms in an adolescent. By focusing on aspects of the adolescent's lifestyle that may be contributing to anxiety, the problem could possibly be solved without further need of pharmaceuticals. The aim should be creating a strong foundation of treatment in the adolescent and working up from there. Similar to Maslow's hierarchy of needs, once the foundational needs are met, further measures may be implemented which could involve pharmaceuticals.

Conclusion

Joseph's story is one of success and victory over anxiety through holistic means. His situation may not be the same as every anxious adolescent; however, the means by which he gained control can still be explored and considered in the treatment of others. Anxiety is one of the most common psychological disorders to occur in adolescence, making it a serious issue (Beesdo et al., 2009). Both pharmaceuticals and lifestyle changes have shown to be effective in the reduction of anxiety; however, it appears the implementation of an exercise routine, healthy diet, and good sleep habits offers benefits without the risk of harmful side effects. In some cases, these side effects can even prove deadly in the case of suicidal thoughts and behaviors (Wohlfarth et al., 2006). A holistic solution involving lifestyle changes can be appealing to both parents and therapists who are seeking a long-term solution to an adolescent's anxiety. Although changing one's habits does require more effort, especially on the part of the adolescent, it may teach valuable skills that can be applied throughout the lifespan as they gain confidence and control over their symptoms.

Due to the fact that many poor lifestyle habits can contribute to anxiety in adolescents, addressing lifestyle first, as the foundation of treatment, can improve symptoms before medication is needed (Abdollahi & Talib, 2015; Del Rio et al., 2016; Matamura et al., 2014; Richards & Smith, 2016). This is a cause-focused rather than a symptom-focused approach. The

aim is full, long-term recovery. Covering up symptoms on the surface may only partially treat the anxiety, contributing to recurrence later. Treating the cause should treat the symptom, but treating the symptom does not always treat the cause.

Lifestyle changes in therapy do not eliminate the need for pharmaceuticals. Pharmaceutical approaches do help adolescents who suffer from anxiety (Velosa & Riddle, 2000). What is being argued here is that the effectiveness and usefulness of lifestyle changes in treatment should not be ignored. Therapists should examine the lifestyle of the suffering adolescent to identify possible areas of concern which could be contributing to their anxiety. After the patient is educated and those areas are properly addressed, pharmaceutical additions can prove useful if lifestyle changes alone are insufficient to reduce their symptoms. Nature has provided humankind with ways to be both healthy and happy. Perhaps the true solution lies simply in knowing where things have gone wrong and restoring the balance.

References

- Abdollahi, A., & Talib, M. A. (2015). Sedentary behaviour and social anxiety in obese individuals: The mediating role of body esteem. *Psychology, Health & Medicine, 20*(2), 205-209. doi:10.1080/13548506.2014.913799
- Asare, M., & Danquah, S. A. (2015). The relationship between physical activity, sedentary behaviour and mental health in Ghanaian adolescents. *Child and Adolescent Psychiatry and Mental Health, 9*(11), 1-8. doi:10.1186/s13034-015-0043-x
- Baum, K. T., Desai, A., Field, J., Miller, L. E., Rausch, J., & Beebe, D. W. (2014). Sleep restriction worsens mood and emotion regulation in adolescents. *Journal of Child Psychology and Psychiatry, 55*(2), 180-190. doi:10.1111/jcpp.12125
- Beesdo, K., Knappe, S., & Pine, D. S. (2009). Anxiety and anxiety disorders in children and adolescents: Developmental issues and implications for DSM-V. *Psychiatric Clinics of North America, 32*(3), 483-524. doi:10.1016/j.psc.2009.06.002
- Brown, T. A., Campbell, L. A., Lehman, C. L., Grisham, J. R., & Mancill, R. B. (2001). Current and lifetime comorbidity of the DSM-IV anxiety and mood disorders in a large clinical sample. *Journal of Abnormal Psychology, 110*(4), 585-599. doi:10.1037/0021-843X.110.4.585
- Del Rio, D., Morales, L., Ruiz-Gayo, M., & Del Olmo, N. (2016). Effect of high-fat diets on mood and learning performance in adolescent mice. *Behavioural Brain Research, 311*, 167-172. doi:10.1016/j.bbr.2016.04.052
- Forsyth, A., Deane, F. P., & Williams, P. (2015). A lifestyle intervention for primary care patients with depression and anxiety: A randomised controlled trial. *Psychiatry Research, 230*(2), 537-544. doi:10.1016/j.psychres.2015.10.001

- Hughes, D., & Bryan, J. (2003). The assessment of cognitive performance in children: Consideration for detecting nutritional influences. *Nutritional Reviews*, *61*(12), 413-422. doi:10.1301/nr.2003.dec.413-422
- Kendall, P. C., & Peterman, J. S. (2015). CBT for adolescents with anxiety: Mature yet still developing. *American Journal of Psychiatry*, *172*(6), 519-530. doi:10.1176/appi.ajp.2015.14081061
- Maldonado, L., Huang, Y., Chen, R., Kasen, S., Cohen, P., & Chen, H. (2013). Impact of early adolescent anxiety disorders on self-esteem development from adolescence to young adulthood. *Journal of Adolescent Health*, *53*(2). doi:10.1016/j.jadohealth.2013.02.025
- Matamura, M., Tochigi, M., Usami, S., Yonehara, H., Fukushima, M., Nishida, A., . . . Sasaki, T. (2014). Associations between sleep habits and mental health status and suicidality in a longitudinal survey of monozygotic twin adolescents. *Journal of Sleep Research*, *23*(3), 290-294. doi:10.1111/jsr.12127
- Melnyk, B. M., Jacobson, D., Kelly, S., Belyea, M., Shaibi, G., Small, L., . . . Marsiglia, F. F. (2013). Promoting healthy lifestyles in high school adolescents: A randomized controlled trial. *American Journal of Preventive Medicine*, *45*(4), 407-415. doi:10.1016/j.amepre.2013.05.013
- Motta, R. W., McWilliams, M. E., Schwartz, J. T., & Cavera, R. S. (2012). The role of exercise in reducing childhood and adolescent PTSD, anxiety, and depression. *Journal of Applied School Psychology*, *28*(3), 224-238. doi:10.1080/15377903.2012.695765
- Ogden, C. L., Carroll, M. D., Lawman, H. G., Fryar, C. D., Kruszon-Moran, D., Kit, B. K., & Flegal, K. M. (2016). Trends in obesity prevalence among children and adolescents in the

- United States, 1988-1994 through 2013-2014. *Journal of the American Medical Association*, 315(21), 2292-2299. doi:10.1001/jama.2016.6361
- Pant, S., & Nayal, M. L. (2014). Dietary pattern can affect anxiety. *Indian Journal of Community Psychology*, 10(1), 147-153. Retrieved from <http://www.ijcpind.com>.
- Peters, T. E., & Connolly, S. (2012). Psychopharmacologic treatment for pediatric anxiety disorders. *Child and Adolescent Psychiatric Clinics of North America*, 21(4), 789-806. doi:10.1016/j.chc.2012.07.007
- Richards, G., & Smith, A. P. (2016). Breakfast and energy drink consumption in secondary school children: Breakfast omission, in isolation or in combination with frequent energy drink use, is associated with stress, anxiety, and depression cross-sectionally, but not at 6-month follow-up. *Frontiers in Psychology*, 7(106), 1-10. doi:10.3389/fpsyg.2016.00106
- Short, M. A., & Louca, M. (2015). Sleep deprivation leads to mood deficits in healthy adolescents. *Sleep Medicine*, 16(8), 987-993. doi:10.1016/j.sleep.2015.03.007
- Stein, B. D., & Dubowitz, T. (2015). Rx exercise: Physical activity is good medicine. *Journal of the American Academy of Child & Adolescent Psychiatry*, 54(10), 795-796. doi:10.1016/j.jaac.2015.07.013
- Velosa, J. F., & Riddle, M. A. (2000). Pharmacologic treatment of anxiety disorders in children and adolescents. *Child and Adolescent Psychiatric Clinics of North America*, 9(1), 119-133. Retrieved from <https://www.childpsych.theclinics.com/>
- Voltas, N., Hernandez-Martinez, C., Arija, V., & Canals, J. (2017). The natural course of anxiety symptoms in early adolescence: Factors related to persistence. *Anxiety, Stress & Coping: An International Journal*, 30(6), 671-686. doi:10.1080/10615806.2017.1347642

Wohlfarth, T. D., van Zwieten, B. J., Lekkerkerker, F. J., Gispen-de Wied, C. C., Ruis, J. R.,

Elferink, A. J. A., & Storosum, J. G. (2006). Antidepressants use in children and adolescents and the risk of suicide. *European Neuropsychopharmacology*, *16*(2), 79-83.

doi:10.1016/j.euroneuro.2005.10.004

Appendix

Table 1

Prevalence, Persistence, and Recurrence Rates of Adolescent Anxiety Symptoms by Gender

	Generalized anxiety disorder	Separation anxiety disorder	Social phobia
Prevalence rate	44.4%	35.1%	55.6%
Boys	41.3%	30.7%	48.0%
Girls	47.2%	39.0%	62.3%
Persistence rate over one year	62.9%	45.0%	68.9%
Boys	54.4%	42.9%	61.9%
Girls	68.9%	46.5%	73.2%
Recurrence rate over three years	13.8%	6.1%	7.8%
Boys	12.5%	2.1%	12.8%
Girls	14.6%	8.3%	5.6%

Note. Adapted from “The Natural Course of Anxiety Symptoms in Early Adolescence: Factors Related to Persistence” by N. Voltas, C. Hernandez, V. Arija, and J. Canals, 2017, *Anxiety, Stress, & Coping: An International Journal*, 30, p. 679.