

The Relationship Between Neuroticism, Poor Sleep, and Anxiety in Adolescents

Sihan Wang

*Shanghai American School Puxi, Shanghai, China
sihan01px2027@saschina.org*

Abstract. One in seven people aged 10 to 19 globally suffers from a mental illness, making up 15% of the worldwide disease burden in this age range. Young adults frequently experience emotional dysregulation, which is a common phenomenon linked with sleeping quality which exacerbates their lifestyle and mental well-being. For this reason, this paper explores the question of: What impacts does neuroticism have on adolescents' sleeping quality? From the peer-reviewed journals and empirical findings from a variety of experts in the field of psychology, it is suggested that adolescents have a high probability of encountering obstacles related to sleep and negative emotions. Exploring the relationship between sleep, anxiety, and neuroticism can provide insight into how these factors contribute to chronic mental health burdens, which provides helpful techniques for adolescents in overcoming emotional challenges. This research can be applied through a global lens since adolescents' mental health is a rising public health issue with significant impacts on society, such as education and communal well-being. Information about this field can help advise global strategies to promote teenagers' social and physical development. Therefore, it is hypothesized that adolescents who score higher on neuroticism will most likely experience anxiety, which negatively influences their sleeping quality. Ultimately, this report emphasizes the need for a multi-faceted approach that combines behavioral, psychological, and biological perspectives to further enhance adolescents' sleeping quality and mental health.

Keywords: Neuroticism, adolescents, anxiety, sleep

1. Introduction

The most widespread psychological issues among youths are anxiety disorders [1]. This child-development stage is substantial among youth because of the vulnerable neural sensitivity in the brain. Adolescence, in this case, is defined as a time span between 10 and 19 years, specifically childhood and adulthood [2]. This fits into the context of the concerning problem with mental well-being. Young adults with moderate and mild anxiety will tend to experience more stressful events due to the increase of physiological arousal, since anxiety is when an individual who experiences fear, dread, or uneasiness [3]. During this period, adolescents are gradually developing self-awareness and public image because of the complex environment they are encountering in society, such as peer pressure, academic stress, and high standards. This demonstrates that individuals who

worry frequently about their past or future will tend to score high in neuroticism, which is referred to as the pattern for experiencing distress and negative emotions [4]. Furthermore, disrupted sleeping trends can intensify emotional instability, leading to a cycle that is challenging for adolescents to overcome. Sleep disturbances among youth can interfere with memory consolidation, attention span, and emotion regulation, thus causing increased anxiety and the challenge to develop stress resilience. Neuroticism increases the sensitivity to stressors, and sleep deprivations can also have an additive effect, leading to the development of chronic mental health burdens, for example, depression or anxiety disorders. Therefore, neuroticism overlaps with stress sensitivity; investigating the relationship between sleep, anxiety, and neuroticism is important in mitigating the mental burdens adolescents experience.

2. Neuroticism and anxiety

Individuals with high levels of neuroticism are more likely to experience anxiety and stress. According to Phil Ciciora's research referring to Bo Zhang, a psychology professor at the University of Illinois, who stated in a meta-analysis the team demonstrated that all of the Big Five personality traits including agreeableness, conscientiousness, extraversion, neuroticism, and openness are associated with experiencing stress, neuroticism showed the strongest connection producing more than 1,500 effect sizes from roughly 300 primary studies [5]. This conveys that neuroticism is associated with elevated stress compared to other traits, meaning that neurotic individuals are more sensitive to their surrounding environment. The vast number of effect sizes conducted in a large quantity of studies strengthens the credibility of this conclusion, indicating that interventions targeting stress reduction will need to consider the factors of individual personality traits in order to be effective. Such sensitivity often exhibits in a rise of vigilance to potential threats, specifically frequent, intensified emotional responses to stressors. Similarly, Nieves Fatima Oropesa, who is from the National Library of Medicine, discovered that, through her research among the contributors of various publications, neuroticism was identified as one of the primary sources of depression or any psychological suffering [6]. Oropesa's finding builds upon Ciciora's research by showing how neuroticism leads to long-term psychological impacts specifically, distress, anxiety, or depression. Neurotic adolescents have a greater risk of experiencing frequent emotional burdens, which affects social interactions in their everyday lives. Consequently, the influence of neuroticism is beyond the context of temporary anxiety; instead, it also leads to chronic stress among adolescents. When supplementing long-term and daily stressors, neuroticism can be symbolized as if it is a magnifying glass, enlarging tension and negative emotions among youths. As a result, these two studies show a consistent trend correlating neuroticism with an increase in anxiety.

3. Neuroticism and sleep

Adolescents with high levels of anxiety often experience poorer sleep, including longer sleep latency. This relationship needs to be called to action because adolescence is a critical phase for brain development, so commotions with sleep can influence cognitive function and maturity. According to Danica C. Slavish, a health psychologist at Texas University, stated, in cross-sectional and experimental sleep deprivation studies, hyperarousal has been gradually becoming one of the most significant vulnerability factors for poor quality sleep [7]. This portrays that individuals who score high in neuroticism tend to be triggered by anxiety, which activates mental hyperarousal at night and disrupts sleeping cycles. Hyperarousal not only includes rushing thoughts but also elevated biological responses, specifically an increase in heart rate and cortisol levels, which hinders

the changeover to curative sleep. Shur Fen Gau, at the College of Medicine in Taiwan, researched the impacts of neuroticism on the sleeping quality of adolescents and found results in among all of the participants who are in the high neuroticism group, which included 67 boys (36.6%) and 116 girls (63.4%) [8]. This implies that females are more likely to be neurotic compared to males due to the potential reason of hormonal factors and socialization. He then further exemplifies the results gathered from the adolescents' self-reported survey, in which participants who scored high in neuroticism demonstrated shorter sleep time during school nights compared to the low neurotic subjects [8]. Gau's empirical data and findings on neurotic adolescence, which tend to have shorter sleep, corroborate Slavish's cross-sectional study, suggesting that hyperarousal and emotional sensitivity are the primary causes of sleep insufficiency. Furthermore, Stephan Yannick, a clinical psychologist researching the Big Five Personality Trait, further supports this argument by stating neuroticism is linked with an increase of stress sensitivity, poor mental and physical health, which has a chance of disrupting sleeping quality [5]. When neuroticism increases, it may activate stress pathways. These sleep distractions can impact the regulation of emotions, resulting in more irritability, impaired concentration and decision making, which negatively interferes with adolescents' sleeping patterns. His work provides clarification of why neurotic teenagers have shown less sleep in Gau's study and supports the argument of how anxiety shows vulnerability in sleep. Overall, the convergence of these studies features a complex relationship between personality traits, emotional arousal, and human sleeping pattern, which emphasizes the importance of comprehensive methodologies to improve adolescent's well-being. Together, all sources develop an interrelated argument that adolescents with more anxiety are most likely to exhibit negative impacts on sleeping quality.

On the other hand, Hans J. Eysenck, a German psychologist researching intelligence and personality, believed that Neuroticism, depression, and anxiety are not completely in a relationship; instead, it is probably due to short-term fluctuations rather than to a fundamental variation between the genetic traits [9]. He believes that interventions affecting sleep and emotional regulation are less serious because fluctuations will just resolve gradually over time. Eysenck's perspective on how the relationship between neuroticism and negative emotions is short-term undermines the argument that adolescents with more anxiety tend to show poor sleeping patterns.

However, an American psychologist, David H. Barlow, refutes his opinion by stating neuroticism can be inherited, since the presence of genetic contributions is estimated to compile between 40-60% of the adjustment in the expression of this trait [10]. Barlow reveals the logistics of how neuroticism is rooted in genetics, showing that chronic anxiety or stress are not short-term variations but instead stable tendencies. This genetic predisposition supports the reason why some adolescents are experiencing sleep disruptions despite changes in daily life. Furthermore, the sleep disturbances among adolescents have shown that it is not momentary, rather it reflects a durable emotional trend that needs to be intervened or mediated. Therefore, Barlow weakens Eysenck's claim and supports the argument that adolescents with high levels of anxiety tend to have a negative impact on sleeping quality.

4. Enhancing sleep quality

People with high neuroticism should practice breathing techniques to reduce autonomic arousal and support sleep initiation. Through regulating the body's physical and biological response to negative emotions, practicing breathing can assist adolescents by having a smooth transition caution to recreation. The 4-7-8 strategy can allow organs and tissues in people's bodies for an oxygen boost from your lungs outward [11]. Reviewed by Dr. Mia Armstrong, this technique is beneficial in

reducing sleep insufficiency because of the accessibility and regulation of breathing pattern. Also, practicing 4-7-8 in a daily basis can also decrease the frequency of intrusive thoughts that disturb sleep. This breathing practice activates the parasympathetic nervous system, which directly utilizes oxygen to promote relaxation. In addition, it is also recommended to seek for professional support, according to Jamie Walker, who is in the Clinical Psychology Department of Arkansas University stated, the primary aim of CBT-I is to assist patients in establishing realistic sleep expectations through (1) identifying dysfunctional beliefs related to sleep that leads to insomnia or arousal, (2) evaluate the accuracy of these beliefs, (3) modifying them to be more realistic and rational [12]. CBT-I, apart from the fact that it addresses cognitive alterations, instead it also encourages the development of consistent sleeping, routine, hygiene, and habits that have been shown to increase sleep duration. Furthermore, it promotes cerebral reformation and behavioral methods to develop a healthier sleeping performance. Through realistic sleeping expectations and the 4-7-8 breathing technique, improvements among adolescents with high neuroticism may vary depending on treatment adherence.

5. Conclusion

In conclusion, the research suggests adolescents who have high neuroticism scores are often more vulnerable to anxiety. Through Ciciora's reference to Zhang's meta-analysis study depicting neuroticism as the strongest predictor of stress among the Big Five traits, it is noted that the activation of physiological arousal influences the ability to maintain a consistent sleep pattern and positive mental health. Although Eysenck argues that these emotional responses may be temporary, studies from Gotter and Walker have recommended breathing techniques and the advice to seek professional support in overcoming anxiety-related sleeping difficulties. The 4-7-8 is a simple and feasible approach to reducing catastrophic thinking or mindset among youths, which can be applied on a daily basis with negligible restrictions. When resolving mild anxiety, it is suggested to seek support from established organizations, specifically by participating in group therapy sessions. Arias-Pujol, from the National Institute of Health, stated to encourage autonomy and maturation through interactions between peers and their therapists in a secure and inclusive environment. Understanding the correlation of neuroticism, anxiety, and sleep can provide an opportunity for adolescents to develop coping strategies against negative emotions, which supports their long-term mental well-being. Moreover, further exploration in this field of personality psychology and sleep can support the expansion of educational, clinical, and therapeutic programs from becoming more widespread. Dedicating time to assist high-risk teens enduring through emotional strains are the healthiest approach of achieving growth in the near future. Utilizing the information on neuroticism, sleeping health, physiological arousal, and possible solutions can encourage more people to advocate for helping adolescents to cope with emotional challenges and pursue an optimistic life.

References

- [1] Paulus, J. D., Vanwoerden, S., Norton, P. J., & Sharp, C. (2016). From neuroticism to anxiety: Examining unique contributions of three transdiagnostic vulnerability factors. *Personality and Individual Differences*, 94, 38–43. <https://doi.org/10.1016/j.paid.2016.01.012>
- [2] Uccella, S., Cordani, R., Salfi, F., Gorgoni, M., Scarpelli, S., Gemignani, A., Geoffroy, P. A., De Gennaro, L., Palagini, L., Ferrara, M., & Nobili, L. (2023). Sleep deprivation and insomnia in adolescence: Implications for mental health. *Brain Sciences*, 13(4), 569. <https://doi.org/10.3390/brainsci13040569>
- [3] MedlinePlus. (2023, October 17). Heart attack. National Library of Medicine (US). <https://medlineplus.gov/heartattack.html>

- [4] Stephan, Y., Sutin, A. R., Bayard, S., Križan, Z., & Terracciano, A. (2018). Personality and sleep quality: Evidence from four prospective studies. *Health Psychology, 37*(3), 271–281. <https://doi.org/10.1037/hea0000577>
- [5] Ciciora, P. (2022, December 16). Paper: Neurotic personality trait a key risk factor for stress perception. College of Liberal Arts & Sciences, University of Illinois. <https://las.illinois.edu/news/2022-12-16/paper-neurotic-personality-trait-key-risk-factor-stress-perception>
- [6] Oropesa Ruiz, N. F., Mercader Rubio, I., Gutiérrez Ángel, N., & Pérez García, M. A. (2022). Neuroticism and emotional intelligence in adolescence: A mediation model moderate by negative affect and self-esteem. *Behavioral Sciences, 12*(7), 241. <https://doi.org/10.3390/bs12070241>
- [7] Slavish, D. C., Sliwinski, M. J., Smyth, J. M., Almeida, D. M., Lipton, R. B., Katz, M. J., & Graham-Engeland, J. E. (2018). Neuroticism, rumination, negative affect, and sleep: Examining between- and within-person associations. *Personality and Individual Differences, 123*, 217–222. <https://doi.org/10.1016/j.paid.2017.11.023>
- [8] Gau, S. F. (2000). Neuroticism and sleep-related problems in adolescence. *Sleep, 23*(4), 495–503.
- [9] Eysenck, H. J. (1991). Neuroticism, anxiety, and depression. *Psychological Inquiry, 2*(1), 75–76. <http://www.jstor.org/stable/1449418>
- [10] Barlow, D. H., Ellard, K. K., Sauer-Zavala, S., Bullis, J. R., & Carl, J. R. (2014). The origins of neuroticism. *Perspectives on Psychological Science, 9*(5), 481–496. <http://www.jstor.org/stable/44290035>
- [11] Gotter, A. (2024, September 30). 4-7-8 breathing: How it works, how to do it, and more. Healthline. <https://www.healthline.com/health/4-7-8-breathing#how-it-works>
- [12] Walker, J., Muench, A., Perlis, M. L., & Vargas, I. (2022). Cognitive behavioral therapy for insomnia (CBT-I): A primer. *Clinical Psychology and Special Education, 11*(2), 123–137. <https://doi.org/10.17759/cpse.2022110208>