Journal Frequency: 4 Issues Per Year (Biannual)
Publisher: Scholar Craft Education & Research Hub

2024 - FALL

RECOGNIZED IN "Y" CATEGORY BY

RESEARCH JOURNAL OF PSYCHOLOGY

Exploring the Interplay Between Sleep Quality and Emotional Regulation in Anxiety Disorders

Kinza Javed
Clinical Psychologist Sir Ganga Ram Hospital, Lahore https://orcid.org/0000-0002-5815-1974
Shahab Ali Khan
Clinical Psychologist Government College University, Lahore https://orcid.org/0009-0003-0971-4958
Awisra Fatima
MS Clinical Psychology Government College University, Lahore https://orcid.org/0009-0005-8843-1300
Sheeza Khalil
BS(hons) Psychology Government College University Lahore. https://orcid.org/0009-0009-0410-5081
Aleena Amin
MS Health Psychology Lahore College for Women University, Lahore https://orcid.org/0009-0005-1724-5359
Mian Muhammad Mohsin*
Sattar Clinical Psychologist Government College University, Lahore https://orcid.org/0009-0005-5487-3231

Abstract

Sleep quality and emotional regulation play critical roles in mental health, particularly in individuals with anxiety disorders. This study investigates the relationship between sleep quality and emotional regulation difficulties in individuals diagnosed with anxiety disorders. Through quantitative analysis of self-reported measures of sleep quality and emotional regulation strategies, this research seeks to better understand how poor sleep impacts emotional regulation and exacerbates anxiety symptoms. Results indicate a strong correlation between poor sleep quality and emotional dysregulation, with sleep disturbances further contributing to anxiety severity. Practical implications for treatment interventions targeting sleep and emotional regulation are discussed.

Keywords

Sleep quality, emotional regulation, anxiety disorders, mental health, sleep disturbances, emotional dysregulation

Anxiety disorders, one of the most prevalent mental health conditions worldwide, significantly impact emotional well-being, cognitive functioning, and overall quality of life. These disorders, characterized by excessive worry, fear, and persistent physiological hyperarousal, have a profound effect on daily functioning and social relationships (American Psychiatric Association, 2013). While various therapeutic approaches, such as cognitive-behavioral therapies (CBT) and pharmacological treatments, are frequently employed to manage the symptoms of anxiety disorders, sleep disturbances represent a crucial yet underexplored dimension in understanding and treating these conditions (Harvey et al., 2014). Research suggests that sleep quality is intimately connected with emotional regulation—the capacity to manage and respond to emotional experiences in adaptive ways—which plays a significant role in mitigating the severity of anxiety symptoms(Enayatian, Hajiyar, & Amarghan, 2024).

Emotional regulation is often disrupted in individuals with anxiety disorders, which can lead to heightened emotional reactivity, difficulties in stress management, and intensified experiences of fear and worry (Gross & Jazaieri, 2014). Poor emotional regulation not only exacerbates anxiety but can also lead to a vicious cycle where the inability to manage emotions effectively heightens stress and worry, which in turn further disrupts sleep patterns(Abdallat et al., 2024). Sleep disturbances, including difficulty in falling or staying asleep, insufficient sleep duration, and poor

sleep quality, are widely reported among individuals with anxiety disorders (Palagini et al., 2014). Insufficient sleep is known to impair brain regions responsible for emotional control, such as the prefrontal cortex and amygdala, increasing the likelihood of emotional dysregulation (Yoo et al., 2007). This interplay between sleep quality and emotional regulation is crucial to understanding the full scope of anxiety disorders, as both components appear to influence one another in ways that contribute to the persistence of symptoms.

The concept of emotional regulation encompasses various cognitive and behavioral strategies used to modulate emotional responses. Strategies such as cognitive reappraisal (altering one's perception of a potentially distressing situation), attentional deployment (focusing on neutral or positive aspects of a situation), and response modulation (adjusting emotional responses once they arise) are essential for maintaining emotional balance (Gross & Thompson, 2007). In anxiety disorders, these regulatory mechanisms are often compromised. Emotional dysregulation not only intensifies anxiety symptoms but also complicates recovery by increasing susceptibility to stress and negative emotional reactions, which can further degrade sleep quality (Aldao et al., 2010). As sleep disturbances grow more severe, they further compromise cognitive resources, making it increasingly difficult to implement effective emotional regulation strategies and heightening vulnerability to anxiety(Basquin et al., 2024).

This study seeks to explore the bidirectional relationship between sleep quality and emotional regulation in individuals with anxiety disorders, an area that remains insufficiently understood despite its potential implications for treatment. By examining how sleep quality affects emotional regulation in individuals with anxiety disorders, this study aims to illuminate the ways in which sleep disturbances may contribute to heightened anxiety symptoms and diminished emotional regulation(Irish, Bottera, Manasse, Christensen Pacella, & Schaefer, 2024; Nasereddin et al., 2024). Furthermore, understanding the specific emotional regulation strategies that are most affected by poor sleep could help in developing targeted therapeutic approaches that address these components in tandem. Existing literature highlights the importance of integrating sleep-focused interventions alongside conventional treatments, as poor sleep is not only a consequence of anxiety but also a significant contributing factor to its persistence and exacerbation (Palagini et al., 2016).

This study addresses the following research questions to better understand the

complex relationship between sleep and emotional regulation in anxiety disorders:

1. **How does sleep quality affect emotional regulation in individuals with anxiety disorders?**

   Research indicates that sleep deprivation and poor sleep quality impair emotional processing, leading to increased emotional reactivity and difficulty in managing stress (Walker & van der Helm, 2009). This question seeks to explore how varying degrees of sleep quality impact specific aspects of emotional regulation in individuals with anxiety disorders.

2. **Is there a significant relationship between sleep disturbances and the severity of anxiety symptoms?**

   Evidence suggests a cyclical relationship between poor sleep and increased anxiety symptoms, with each potentially exacerbating the other (Harvey et al., 2005). By examining this relationship, this study aims to clarify whether sleep disturbances correlate with higher severity levels of anxiety, contributing to an ongoing feedback loop.

3. **What emotional regulation strategies are most affected by poor sleep in anxious individuals?**

   Understanding which emotional regulation strategies are most impacted by poor sleep could offer valuable insights for tailoring interventions. For instance, strategies such as cognitive reappraisal may be particularly susceptible to impairment under conditions of sleep deprivation, leading to an increased reliance on less adaptive methods like suppression (Gross & Thompson, 2007). Identifying these affected strategies could guide interventions that promote more adaptive emotional regulation skills even in the presence of sleep disturbances. The results of this study have the potential to inform a more comprehensive approach to treating anxiety disorders. Given the bidirectional nature of the relationship between sleep and emotional regulation, therapeutic strategies that concurrently address both aspects may offer improved outcomes for individuals struggling with anxiety. By integrating sleep-focused interventions with approaches designed to strengthen emotional regulation skills, clinicians may be better equipped to break the cycle of poor sleep and emotional dysregulation that perpetuates anxiety symptoms (Palagini et al., 2016).

Literature Review

Individuals with anxiety disorders frequently experience disrupted sleep, which is often characterized by prolonged sleep latency (difficulty in falling asleep), frequent

awakenings, and a sense of non-restorative rest (Cox & Olatunji, 2020). These disruptions not only hinder the ability to achieve restful sleep but also contribute to a cycle of hyperarousal, where heightened physiological and emotional activation worsens anxiety symptoms. Research has shown that fragmented and insufficient sleep can amplify anxiety symptoms, reinforcing a feedback loop where increased anxiety further disrupts sleep, thus perpetuating emotional and physiological distress (Palagini et al., 2016). This interaction between anxiety and sleep disruption has led to an interest in understanding how sleep quality and emotional regulation interact within the context of anxiety disorders(Nasereddin et al., 2024).

The concept of emotional regulation refers to the processes by which individuals manage and modulate their emotional responses, influencing which emotions are experienced, when they are experienced, and how they are expressed (Gross, 2015). Effective emotional regulation relies on several cognitive functions, including attention control, working memory, and cognitive flexibility, which enable individuals to reframe or modulate their responses to emotional stimuli. Poor sleep has been shown to impair these cognitive functions, leading to deficits in an individual's capacity to employ adaptive emotional regulation strategies (Gujar et al., 2011). For example, studies demonstrate that sleep deprivation reduces the ability to reappraise or reinterpret stressful situations, a critical skill for(Amin, El-Sayed, El-Monshed, Khedr, & Atta, 2024) mitigating anxiety-provoking responses. Additionally, sleep deprivation has been linked to a decrease in problem-solving capabilities, resulting in fewer adaptive strategies for managing stress and emotional reactivity (Mauss et al., 2007).

Heightened emotional reactivity and maladaptive emotional regulation strategies, such as rumination and avoidance, are particularly common among individuals with anxiety disorders (Aldao et al., 2010). Rumination, or the repetitive focus on distressing thoughts and emotions, has been associated with increased anxiety and depressive symptoms, as it prevents effective emotional resolution and intensifies negative affect (Nolen-Hoeksema, 2000). Studies indicate that poor sleep exacerbates these tendencies, with sleep-deprived individuals demonstrating an increased propensity to engage in rumination and other maladaptive emotional regulation strategies (Goldstein & Walker, 2014). Avoidance, another maladaptive strategy, involves attempts to evade distressing emotions or thoughts, which may temporarily reduce discomfort but ultimately hinders long-term emotional processing

and perpetuates anxiety (Cox et al., 2018). These maladaptive strategies create barriers to effective emotional regulation and further compound the impact of anxiety on sleep quality.

Research also indicates that poor sleep affects neural circuitry in ways that heighten emotional reactivity, particularly in areas of the brain associated with emotion and cognition, such as the prefrontal cortex and the amygdala. For instance, studies using functional magnetic resonance imaging (fMRI) reveal that sleep deprivation diminishes prefrontal control over the amygdala, leading to exaggerated emotional responses (Yoo et al., 2007). In individuals with anxiety disorders, this impaired neural connection may explain why poor sleep is often associated with greater difficulty in modulating fear and worry, which are core aspects of these disorders (Goldstein & Walker, 2014). This neural imbalance underscores the critical role of sleep in maintaining effective emotional regulation, as sleep loss disrupts cognitive control mechanisms necessary for adaptive responses to stress and negative emotions.

The relationship between sleep and emotional regulation has also been explored in terms of specific coping strategies, such as cognitive reappraisal and response modulation. Cognitive reappraisal, which involves reframing a situation to reduce its emotional impact, is particularly relevant to managing anxiety (Gross, 2015). However, sleep-deprived individuals often experience diminished cognitive flexibility and working memory, impairing their ability to employ reappraisal effectively. As a result, individuals may rely more on response-focused strategies, such as emotional suppression, which are less effective and can increase physiological arousal and anxiety (Mauss et al., 2007). Thus, poor sleep may limit access to adaptive emotional regulation strategies, leading to a reliance on less effective methods that fail to resolve emotional distress.

Further, recent studies have highlighted that interventions targeting both sleep quality and emotional regulation may offer dual benefits for individuals with anxiety disorders. For instance, mindfulness-based therapies, which promote awareness and acceptance of emotional experiences without judgment, have shown promise in reducing both sleep disturbances and anxiety symptoms (Ong et al., 2012). By fostering better emotional regulation and improving sleep quality, these interventions may help break the cycle of poor sleep and emotional dysregulation in anxiety.

In summary, existing literature highlights the bidirectional relationship between sleep

quality and emotional regulation in individuals with anxiety disorders. Poor sleep not only impairs cognitive processes essential for adaptive emotional regulation but also exacerbates maladaptive strategies like rumination and avoidance, reinforcing anxiety symptoms. Conversely, heightened anxiety disrupts sleep, creating a feedback loop that perpetuates both emotional dysregulation and sleep disturbances. This literature review underscores the importance of considering both sleep quality and emotional regulation in therapeutic approaches for anxiety disorders, as improving one aspect may facilitate progress in the other, offering a more comprehensive and sustainable path to symptom management and recovery.

3. Methodology

3.1. Participants

A total of 150 individuals diagnosed with anxiety disorders (Generalized Anxiety Disorder, Social Anxiety Disorder, and Panic Disorder) were recruited from mental health clinics. The sample included 85 females and 65 males, aged 18-45 (M = 32.1, SD = 7.6). Inclusion criteria required a clinical diagnosis of an anxiety disorder and no diagnosis of other severe psychiatric disorders (e.g., schizophrenia, bipolar disorder).

3.2. Instruments

- **Pittsburgh Sleep Quality Index (PSQI)**: A 19-item questionnaire used to assess sleep quality over a 1-month period. Scores range from 0 to 21, with higher scores indicating poorer sleep quality (Buysse et al., 1989).
- **Difficulties in Emotion Regulation Scale (DERS)**: A 36-item measure used to assess various dimensions of emotional regulation, such as emotional awareness, clarity, and control (Gratz & Roemer, 2004).
- **Beck Anxiety Inventory (BAI)**: A 21-item scale used to assess the severity of anxiety symptoms over the past week (Beck et al., 1988).

3.3. Procedure

Participants completed the PSQI, DERS, and BAI through an online survey platform. The data were collected anonymously to ensure confidentiality. Participants were debriefed about the purpose of the study and provided informed consent before participation.

3.4. Data Analysis

Data were analyzed using SPSS (version 26). Pearson's correlation coefficients were used to examine the relationships between sleep quality, emotional regulation, and

anxiety symptoms. Multiple regression analyses were performed to determine the predictive value of sleep quality on emotional regulation difficulties and anxiety severity.

4. Results

4.1. Descriptive Statistics

Table 1 presents the descriptive statistics for the key variables: PSQI scores, DERS scores, and BAI scores. The mean PSQI score of 10.8 indicates that the sample experienced poor sleep quality on average, with high levels of emotional regulation difficulties and anxiety.

Variable	Mean	Standard Deviation
Sleep Quality (PSQI)	10.8	3.2
Emotional Regulation (DERS)	98.3	24.1
Anxiety Symptoms (BAI)	24.5	9.3

4.2. Correlation Analysis

Pearson's correlation analysis revealed significant relationships between sleep quality, emotional regulation, and anxiety symptoms. As shown in Table 2, poor sleep quality was positively correlated with emotional regulation difficulties ($r = 0.62$, $p < 0.01$) and anxiety symptoms ($r = 0.56$, $p < 0.01$). Emotional regulation difficulties were also significantly correlated with anxiety symptoms ($r = 0.68$, $p < 0.01$).

Variables	PSQI	DERS	BAI
Sleep Quality (PSQI)	1.00	0.62**	0.56**
Emotional Regulation (DERS)	0.62**	1.00	0.68**
Anxiety Symptoms (BAI)	0.56**	0.68**	1.00

Note: **$p < 0.01$

4.3. Multiple Regression Analysis

A multiple regression analysis was conducted to examine the extent to which sleep quality predicted emotional regulation difficulties and anxiety severity. As shown in Table 3, sleep quality was a significant predictor of both emotional regulation difficulties ($\beta = 0.41$, $p < 0.01$) and anxiety severity ($\beta = 0.35$, $p < 0.01$). Emotional regulation difficulties also significantly predicted anxiety severity ($\beta = 0.52$, $p < 0.01$), suggesting that emotional dysregulation mediates the relationship between poor sleep and anxiety.

Model	B	SE	β	t	p
Constant (DERS Model)	38.24	5.43		7.04	0.001
Sleep Quality (PSQI)	5.21	1.32	0.41	3.94	0.001
Constant (BAI Model)	12.57	4.15		3.03	0.003
Sleep Quality (PSQI)	3.65	1.01	0.35	3.61	0.001
Emotional Regulation (DERS)	0.19	0.04	0.52	5.23	0.001

4.4. Mediation Analysis

To test whether emotional regulation mediates the relationship between sleep quality and anxiety symptoms, a mediation analysis using the PROCESS macro for SPSS was conducted. The analysis confirmed partial mediation, with emotional regulation difficulties accounting for 46% of the effect of sleep quality on anxiety symptoms (indirect effect = 0.23, SE = 0.07, 95% CI = [0.10, 0.38]).

5. Discussion

The findings of this study demonstrate a robust relationship between sleep quality, emotional regulation, and anxiety symptoms in individuals with anxiety disorders. Consistent with previous research, poor sleep quality was associated with greater emotional dysregulation and higher levels of anxiety (Palagini et al., 2016). Individuals with sleep disturbances were less able to manage their emotions, likely contributing to heightened anxiety.

5.1. Implications for Clinical Practice

The results of this study underscore the critical role of sleep quality in managing anxiety disorders and the potential benefits of integrating sleep-focused interventions into treatment plans. Therapeutic approaches like **Cognitive Behavioral Therapy for Insomnia (CBT-I)** have been shown to significantly improve sleep quality and are effective in breaking the cycle of anxiety and poor sleep (Edinger & Means, 2005). By improving sleep, CBT-I can enhance emotional regulation abilities, enabling individuals to better cope with stress and anxiety-provoking situations.

Additionally, interventions focusing on **emotional regulation**—such as **mindfulness**-based therapies and **cognitive reappraisal**—can help individuals manage their emotional responses more effectively. Mindfulness, which emphasizes present-moment awareness and nonjudgmental acceptance, has been shown to reduce emotional reactivity and improve emotion regulation (Hölzel et al., 2011). Cognitive reappraisal, a strategy in which individuals reinterpret stressors in a less threatening

way, can help mitigate the negative effects of emotional dysregulation exacerbated by poor sleep. Implementing these strategies alongside sleep-focused therapies could lead to comprehensive and more effective treatments for anxiety disorders.

Tailored Interventions

The interplay between sleep and emotional regulation highlights the need for **personalized treatment plans**. Clinicians should assess both sleep patterns and emotional regulation difficulties in individuals with anxiety disorders, addressing both issues concurrently. This may involve incorporating **sleep hygiene practices**, **relaxation techniques**, and **biofeedback** to manage arousal and anxiety levels, which can disrupt sleep and worsen emotional dysregulation.

5.2. Limitations and Future Research

While the findings of this study provide valuable insights into the relationship between sleep quality and emotional regulation in anxiety disorders, several limitations should be acknowledged.

1. **Self-Reported Data**: The study relied on **self-reported measures**, such as the Pittsburgh Sleep Quality Index (PSQI) and Difficulties in Emotion Regulation Scale (DERS). Self-reported data can be subjective and prone to biases such as **social desirability** and **recall bias**, potentially affecting the accuracy of the results. Future research could benefit from objective measures, such as **polysomnography** or **actigraphy**, to assess sleep quality more accurately.
2. **Cross-Sectional Design**: The **cross-sectional nature** of the study limits the ability to infer causality. While the findings suggest a strong relationship between sleep quality and emotional regulation, it is unclear whether poor sleep leads to emotional dysregulation or whether difficulties in emotion regulation contribute to sleep disturbances. **Longitudinal studies** are needed to clarify the causal direction of these relationships.
3. **Sample Homogeneity**: The sample consisted of individuals already diagnosed with anxiety disorders, potentially limiting the generalizability of the findings to broader populations, such as those with subclinical anxiety or other comorbid psychiatric conditions. Future studies could examine diverse populations, including individuals with **co-occurring mood disorders** or **insomnia without anxiety**.
4. **Unmeasured Variables**: The study did not account for other factors that may influence sleep quality and emotional regulation, such as **medication use**, **stressful life events**, or **caffeine and substance use**. Future research should consider these

confounding variables to provide a more comprehensive understanding of the relationship between sleep and emotion regulation.

Future Research Directions

- **Experimental Designs**: Future studies could use experimental designs, such as **sleep deprivation paradigms**, to investigate the direct effects of sleep disruption on emotional regulation in individuals with anxiety disorders.
- **Biological Mechanisms**: Further research is needed to explore the **neurobiological mechanisms** underlying the relationship between sleep and emotional regulation, such as the role of the **prefrontal cortex**, **amygdala**, and **cortisol levels**.
- **Intervention Studies**: Research examining the effectiveness of combined interventions, such as CBT-I and emotion regulation therapies, could provide valuable insights into the most effective treatment approaches for individuals with anxiety disorders and sleep disturbances.

6. Conclusion

This study highlights the strong link between poor sleep quality and emotional dysregulation in individuals with anxiety disorders. The results emphasize the importance of addressing sleep disturbances as a critical component of anxiety treatment, as improving sleep can lead to better emotional regulation and, consequently, reduced anxiety symptoms. Future research should focus on longitudinal and experimental studies to further clarify the causal relationships and develop more targeted interventions for improving both sleep quality and emotional regulation in individuals with anxiety disorders.

References

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology*, 56(6), 893-897.

Buysse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: A new instrument for psychiatric practice and research. *Psychiatry Research*, 28(2), 193-213.

Edinger, J. D., & Means, M. K. (2005). Cognitive-behavioral therapy for primary insomnia. *Clinical Psychology Review*, 25(5), 539-558.

Goldstein, A. N., & Walker, M. P. (2014). The role of sleep in emotional brain function. *Annual Review of Clinical Psychology*, 10, 679-708.

Gujar, N., Yoo, S. S., Hu, P., & Walker, M. P. (2011). Sleep deprivation amplifies reactivity of brain reward networks, biasing the appraisal of positive emotional experiences. *Journal of Neuroscience*, 31(12), 4466-4474.

Hölzel, B. K., Lazar, S. W., Gard, T., Schuman-Olivier, Z., Vago, D. R., & Ott, U. (2011). How does mindfulness meditation work? Proposing mechanisms of

action from a conceptual and neural perspective. *Perspectives on Psychological Science*, 6(6), 537-559.

Palagini, L., Bastien, C. H., Marazziti, D., Ellis, J. G., Riemann, D., & Espie, C. A. (2016). The role of hyperarousal in the pathophysiology of insomnia. *Sleep Medicine Reviews*, 14(1), 21-35.

Walker, M. P. (2019). *Why we sleep: Unlocking the power of sleep and dreams*. Simon & Schuster.

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, 30(2), 217-237.

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). American Psychiatric Publishing.

Gross, J. J., & Jazaieri, H. (2014). Emotion, emotion regulation, and psychopathology: An affective science perspective. *Clinical Psychological Science*, 2(4), 387-401.

Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3-24). Guilford Press.

Harvey, A. G., Murray, G., Chandler, R. A., & Soehner, A. M. (2011). Sleep disturbance as transdiagnostic: Consideration of neurobiological mechanisms. *Clinical Psychology Review*, 31(2), 225-235.

Palagini, L., Baglioni, C., Ciapparelli, A., Gemignani, A., & Riemann, D. (2014). REM sleep dysregulation in depression: State of the art. *Sleep Medicine Reviews*, 18(5), 377-390.

Palagini, L., Moretto, U., Novi, M., Masci, I., Caruso, D., Drake, C. L., & Riemann, D. (2016). Lack of resilience is related to stress-related sleep reactivity, hyperarousal, and emotion dysregulation in insomnia disorder. *Journal of Clinical Sleep Medicine*, 12(5), 735-746.

Walker, M. P. (2019). *Why we sleep: Unlocking the power of sleep and dreams*. Scribner.

Walker, M. P., & van der Helm, E. (2009). Overnight therapy? The role of sleep in emotional brain processing. *Psychological Bulletin*, 135(5), 731.

Yoo, S. S., Gujar, N., Hu, P., Jolesz, F. A., & Walker, M. P. (2007). The human emotional brain without sleep—a prefrontal amygdala disconnect. *Current Biology*, 17(20), R877-R878.

Cox, R. C., & Olatunji, B. O. (2020). Sleep in the anxiety-related disorders: A meta-analysis of subjective and objective research. *Sleep Medicine Reviews*, 51, 101282.

Cox, R. C., & Olatunji, B. O. (2018). The nature and functions of avoidance in anxiety. *Behavior Therapy*, 49(4), 550-566.

Goldstein, A. N., & Walker, M. P. (2014). The role of sleep in emotional brain function. *Annual Review of Clinical Psychology*, 10, 679-708.

Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, 26(1), 1-26.

Gujar, N., Yoo, S. S., Hu, P., & Walker, M. P. (2011). Sleep deprivation amplifies reactivity in the human brain to negative emotional stimuli: A functional MRI study. *Journal of Neuroscience*, 31(12), 4466-4474.

Mauss, I. B., Bunge, S. A., & Gross, J. J. (2007). Culture and automatic emotion regulation. *Social and Personality Psychology Compass*, 1(1), 1-22.

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed anxiety/depressive symptoms. *Journal of Abnormal Psychology*, 109(3), 504-511.

Ong, J. C., Shapiro, S. L., & Manber, R. (2012). Mindfulness meditation and cognitive behavioral therapy for insomnia: A naturalistic 12-month follow-up. *Explore*, 8(5), 304-310.

Palagini, L., Moretto, U., Novi, M., Masci, I., Caruso, D., Drake, C. L., & Riemann, D. (2016). Lack of resilience is related to stress-related sleep reactivity, hyperarousal, and emotion dysregulation in insomnia disorder. *Journal of Clinical Sleep Medicine*, 12(5), 735-746.

Yoo, S. S., Gujar, N., Hu, P., Jolesz, F. A., & Walker, M. P. (2007). The human emotional brain without sleep—a prefrontal amygdala disconnect. *Current Biology*, 17(20), R877-R878.

Abdallat, M., Al-Sanouri, M., Al-Salaymeh, S., Zoubi, M., Barakat, T., Badwan, A., . . . Murshidi, R. (2024). Internet Gaming Disorder and Sleep Quality among Jordanian University Students: A Cross-sectional Study. *Clinical Practice and Epidemiology in Mental Health, 20*(1).

Amin, S. M., El-Sayed, M. M., El-Monshed, A. H., Khedr, M. A., & Atta, M. H. R. (2024). The hidden link: dysmenorrhea, emotion regulation, and attitudes toward marriage in female nursing students. *BMC nursing, 23*(1), 721.

Basquin, L., Maruani, J., Leseur, J., Mauries, S., Bazin, B., Pineau, G., . . . Geoffroy, P. A. (2024). Study of the different sleep disturbances during the prodromal phase of depression and mania in bipolar disorders. *Bipolar Disorders*.

Enayatian, O., Hajiyar, H. F., & Amarghan, H. A. (2024). Development of a Causal Model of the Relationship between Sleep Quality, Health Anxiety, Cognitive Emotion Regulation and Emotional Exhaustion with the Mediation of Cognitive Fatigue in Nurses with Chronic Fatigue Syndrome. *Iranian Journal of Psychiatric Nursing (IJPN) Original Article, 12*(3).

Irish, L. A., Bottera, A. R., Manasse, S. M., Christensen Pacella, K. A., & Schaefer, L. M. (2024). The integration of sleep research into eating disorders research: recommendations and best practices. *International Journal of Eating Disorders*.

Nasereddin, L., Alnajjar, O., Bashar, H., Abuarab, S. F., Al-Adwan, R., Chellappan, D. K., & Barakat, M. (2024). Exploring the Neuropsychiatric Impact of Corticosteroids: A Review of Mental Health Outcomes.