

**Relationship between sleep quality and academic burnout in adolescents**  
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**Problem Statement**

In recent years, experts in education and educational psychologists have conducted significant research on the academic performance of students and related variables (Saif, 2011). Various factors influence the academic performance of students, with some factors improving academic performance and others weakening it. One of the factors that negatively affects academic performance is academic burnout (<sup>1</sup>Demetri et al., 2001; <sup>2</sup>Maslach et al., 2001; <sup>3</sup>Lee & Ashforth, 2008).

Academic burnout consists of three components: emotional exhaustion, a tendency toward depersonalization, and a sense of academic inefficacy (Maslach et al., 2001). Emotional exhaustion refers to feeling tired due to academic demands and requirements, as well as feeling emotionally drained (Maslach et al., 1984). Depersonalization involves negative, pessimistic, and disinterested feelings towards academic responsibilities, while a sense of academic inefficacy denotes a feeling of incompetence and lack of success in learning, which can reduce the energy level needed for learning and the individual's ability to concentrate (<sup>4</sup>Zhang, Gan, & Chen, 2007).

The concept of burnout was often considered as a work-related disorder (Maslach et al., 1984). However, in recent years, it has also been evaluated as an important concept in the school structure and learning environment. Although students are not technically employed, from a psychological perspective, their activities in school can be considered as work. They must attend classes and complete assignments to pass exams and graduate (<sup>5</sup>Schaffler et al., 2002).

The relationship between academic burnout and sleep disorders may have a bidirectional negative impact on each other (Schaffler et al., 2002). Different dimensions of academic burnout can lead to various sleep disorders such as insomnia, restless sleep, difficulty falling into deep sleep, and sleep deprivation, which in turn can exacerbate academic burnout (<sup>6</sup>Rodriguez et al., 2002). Furthermore, the quality and quantity of sleep are related to the students' abilities and performance. Sleep deprivation and sleep disturbances often accompany a decrease in oral and written performance in students (<sup>7</sup>Churchill, Ferrara, & Genaro, 2006).

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<sup>1</sup> Demerouti

<sup>2</sup> Maslach, C.

<sup>3</sup> Lee, C., & Ashforth, S. J.

<sup>4</sup> Zhang, Y., Gan, Y., Cham, H.

<sup>5</sup> Schaufeli, W. B et al.

<sup>6</sup> Rodrigues, Viegas, Silva, Tavares

<sup>7</sup> Curcio, G., Ferrara, M.

Therefore, sleep plays a crucial and essential role in the mental and physical health of individuals, especially during adolescence, a critical stage in human biological growth and life quality advancement. Quality of sleep is also significantly associated with the quality of social interactions. Nocturnal sleep disturbances can lead to problems such as daytime sleepiness, burnout, stress, headaches, and a decrease in individuals' performance in academic and university programs (<sup>8</sup>Hayes, Martin, Sesti, & Spitzer, 2004). Sleep deprivation in adolescents has more detrimental effects compared to adults, and the sleep pattern of adolescents is more vulnerable to biological, environmental, and social disruptors (<sup>9</sup>Luca & Short, 2014).

Sleep disorders are a group of psychiatric disorders that are of high importance in the assessment of community health and clinical settings. These disorders are associated with increased stress and concerns about health, irritability, concentration problems, and impaired educational functioning (<sup>10</sup>Hassler et al., 2005; Bran et al., 2006). Students experiencing academic burnout often experience high levels of stress and anxiety, which may lead to sleep disturbances (<sup>11</sup>Johnson & Lindblom, 2010). Research indicates that the higher the emotional burnout of students, the more daytime sleepiness they experience. Additionally, difficulties in initiating and maintaining sleep in adolescents are common and can be considered as indicators of poor sleep quality (<sup>12</sup>Pagnin et al., 2014; Batson & <sup>13</sup>Stevens, 2005).

Based on the above, it appears that sleep quality and various dimensions of academic burnout are correlated. Sleep quality and sleep disorders can impact academic burnout, and different aspects of academic burnout can affect sleep quality. Given the importance of sleep quality on the academic performance of adolescents, this study aims to investigate the relationship between sleep quality and academic burnout in adolescents.

### **Internal background**

In a previous study by Heidari, Ehteshamzadeh, and Morashee (2010), the relationship between the severity of insomnia, sleep quality, sleep disturbance, and mental health disorders with the academic performance of adolescent girls was examined. In this study, 184 adolescent female students in Ahvaz city were selected through cluster sampling. Data analysis using Pearson correlation coefficient and regression revealed a significant relationship between the severity of insomnia, sleep quality, sleep disturbance, and mental health disorders with the academic performance of adolescent girls in Ahvaz city. Furthermore, among the predictor variables, the severity of insomnia, sleep disturbance,

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<sup>8</sup> Hays, Martin, Sesti, Spritzer

<sup>9</sup> Louca, A., & Short, M. A.

<sup>10</sup> Hasler et al.

<sup>11</sup> Janson, M., & Lindblom, K.

<sup>12</sup> Pagnin, D et al

<sup>13</sup> Bootzin, R. R., Stevens, S. J.

and mental health disorders were found to be the best predictors of academic performance in adolescent girls.

### **Foreign Background**

Lettu, Kortsuja, and Partonen<sup>14</sup> (2019) examined the relationship between sleep quality and academic burnout in Finnish high school students. This study utilized structured interviews, the Academic burnout Scale, and the Epworth Sleepiness Scale in a sample of 555 students aged 15 to 20. According to the findings of this study, academic burnout is associated with low sleep quality leading to daytime sleepiness and excessive burnout.

Paginin et al. (2014) assessed the bidirectional relationship between academic burnout and sleep disorders among 127 medical students using the Maslach Burnout Inventory and the Pittsburgh Sleep Quality Index, concluding that academic burnout and sleep disorders have a bidirectional relationship.

Liu, Zhang, Wu, Yang, and Liang<sup>15</sup> (2021) conducted a longitudinal study titled "The Relationship between Sleep Problems and Academic burnout in Adolescents," evaluating 1226 middle school students over 6 months in 4 public schools in China. The results of this study indicate a bidirectional relationship between sleep problems and academic burnout. According to this research, students with sleep problems are more prone to academic burnout, and vice versa.

Churchill et al. (2016) in a review article titled "Sleep Deprivation, Learning Capacity, and Academic Performance" examined studies investigating the relationship between sleep, memory, and academic performance. The aim of this article was to investigate the effects of nighttime sleep deprivation on learning capacity and academic performance. The results strongly suggest that: (a) students at various educational levels (from school to university) experience chronic sleep deprivation or low sleep quality leading to daytime sleepiness. (b) The quality and quantity of sleep have a close relationship with students' learning capacity and academic performance. (c) Sleep deprivation often leads to a decline in learning in students. (d) Studies actively restricting sleep (reducing sleep quantity) or optimizing it show worsening and improvement in academic and cognitive performance in students, respectively.

Mori et al. (2009) investigated the relationship between sleepiness, sleep duration, sleep changes, and psychological functions such as anxiety symptoms, depression, and externalizing behaviors in adolescents. The sample of this study included 247 adolescent girls and boys, measuring sleep duration and sleep changes through actigraphy and sleepiness using a sleep questionnaire in this community. The results showed that sleepiness has a significant relationship with psychological performance and components of anxiety, depression, and externalizing behaviors.

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<sup>14</sup> Lehto, J.E., Kortesoja, L., Partonen, T.

<sup>15</sup> Liu, X., Zhang, L., Wu, G., Yang, R., & Liang, Y

Hysing, Harvey, Linenton, Skoland, and Sivertsen<sup>16</sup> (2016) in a study titled "Sleep and Academic Performance in Adolescents" examined the relationship between sleep patterns and academic performance in adolescents. The large sample of this study included 7798 Norwegian adolescents aged 16 to 19.

Based on the provided foreign background, it is evident that there is a well-established relationship between sleep quality and academic burnout among students. Studies by Lettu, Kortsuja, and Partonen (2019), Paginin et al. (2014), Liu et al. (2021), Churchill et al. (2016), Mori et al. (2009), and Hysing et al. (2016) have consistently shown that poor sleep quality, sleep disorders, and inadequate sleep duration can lead to increased academic burnout, reduced learning capacity, and lower academic performance.

### **Research Hypothesis**

There is a relationship between sleep quality and academic burnout in students.

### **Operational Definitions**

Sleep quality in this study refers to the score obtained by participants from the Pittsburgh Sleep Quality Index questionnaire (1989).

Academic burnout refers to the score obtained by participants from the Academic burnout Questionnaire by Salamzadeh et al. (2009).

### **Research Method**

This research is quantitative in nature, aimed at foundational objectives, and of correlational type. The population of the study includes high school students in Mashhad in the years 2021-2022. The sampling method is convenience sampling, and the total sample size will be 80 students based on Delavar (2020).

### **Tools**

Two standard tools will be used in this study for data collection: the Pittsburgh Sleep Quality Index questionnaire and the Academic burnout Questionnaire by Salamzadeh et al. (2009).

**The Pittsburgh Sleep Quality Index questionnaire (1989)** was designed by Buysse and colleagues to measure the sleep quality of adolescents and adults. This questionnaire consists of 18 items and 7 subscales that measure self-rated sleep quality, sleep onset latency, sleep duration, sleep efficiency (ratio of actual sleep time to time spent in bed), sleep disturbances, use of sleep medication, and daytime dysfunction (resulting from sleepiness). Each question is scored from 0 to 3, with a score of 3 indicating the maximum negative on the Likert scale. The total score of this questionnaire

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<sup>16</sup> Hysing, M., Harvey, A. G., Linton, S. J., Askeland, K. G., & Sivertsen, B.

ranges from 0 to 21, and based on previous studies, a total score of 6 or higher indicates poor sleep quality (Bajrini et al., 2010 cited in Pahlavan and Ahi, 2019). The reliability of this scale has been calculated at 80%, and its validity, re-evaluated through a retest, has been reported between 63% to 93% (Aghajani, Karra, & Anla, 1996).

**The Academic burnout Questionnaire by Salamzadeh and colleagues (2009)** is a scale designed to measure academic burnout in students. It has been validated in Iran by Abdollahpour and colleagues (2016) and Badri Gorgori and colleagues (2012). This questionnaire consists of 9 items that measure 3 components: school burnout (4 items), pessimism towards the meaning of school (3 items), and feeling of inadequacy at school (2 items). The scoring in this questionnaire ranges from 1 (completely disagree) to 6 (completely agree) based on the Likert scale (My et al., 2020).

### **Data Analysis Method**

Descriptive statistical methods such as mean and standard deviation, as well as inferential statistics such as Pearson correlation coefficient, will be used for data analysis in this study.

### **References**

- Heidari, A., Ehteshamzadeh, P., & Moraeshi, M. (2010). The relationship between insomnia severity, sleep quality, sleepiness, and mental health disorders with academic performance in girls. Women and Culture, 1(4), 65-76.*
- Saif, A. (2015). Modern Educational Psychology: Learning and Teaching Psychology, Tehran: Doran Publishing.*
- Delavar, A. (2020). Research Methods in Psychology and Educational Sciences, 53rd Edition, Tehran: Vira Publishing.*
- Abdollahpour, M., Dartaj, F., Ahadi, H. (2016). Psychometric analysis of the Academic Fatigue Questionnaire in students. Educational Measurement Journal, 6(24), 23-41.*
- Pahlavan, A., & Ahi, Gh. (2019). The effectiveness of positive psychotherapy interventions on death anxiety and sleep quality in women with multiple sclerosis. Clinical Psychology and Counseling Research (Educational and Psychological Studies), 9(2), 28-42.*
- Badri Gorgori, R., Mosaabadi, J., Palangi, M., & Fathi, R. (2012). Factor structure of the Academic Fatigue Questionnaire using confirmatory factor analysis in high school students. Educational Measurement, 3(7), 163-180.*

Lin S.H., Huang Y.C. (2014). Life stress and academic burnout. *Active Learning in Higher Education*, 15(1):77-90. <https://doi.org/10.1177/1469787413514651>

Zhang, Y., Gan, Y., & Cham, H. (2007). Perfectionism, academic burnout and engagement among Chinese college students: A structural equation modeling analysis. *Personality and Individual Differences*, 43(6), 1529–1540. <https://doi.org/10.1016/j.paid.2007.04.010>

Salmela-Aro, K., Savolainen, H., & Holopainen, L. (2009). Depressive symptoms and school burnout during adolescence: Evidence from two cross-lagged longitudinal studies. *Journal of Youth and Adolescence*, 38(10), 1316–1327. <https://doi.org/10.1007/s10964-008-9334-3>

Schaufeli, W. B., Martínez, I. M., Marques Pinto, A., Salanova, M., & Bakker, A. B. (2002). Burnout and engagement in university students: A cross-national study. *Journal of Cross-Cultural Psychology*, 33(5), 464–481. <https://doi.org/10.1177/0022022102033005003>

Louca, M., & Short, M. A. (2014). The effect of one night's sleep deprivation on adolescent neurobehavioral performance. *Sleep: Journal of Sleep and Sleep Disorders Research*, 37(11), 1799–1807. <https://doi.org/10.5665/sleep.4174>

Hasler, G., Buysse, D. J., Gamma, A., Ajdacic, V., Eich, D., Rössler, W., & Angst, J. (2005). Excessive Daytime Sleepiness in Young Adults: A 20-Year Prospective Community Study. *The Journal of Clinical Psychiatry*, 66(4), 521–529. <https://doi.org/10.4088/JCP.v66n0416>

Brown, F.C., Buboltz Jr., W.C., & Soper, B. (2006). Development and Evaluation of the Sleep Treatment and Education Program for Students (STEPS). *Journal of American College Health*, 54, 231 - 237.

Eaton, D. K., McKnight-Eily, L. R., Lowry, R., Perry, G. S., Presley-Cantrell, L., & Croft, J. B. (2010). Prevalence of insufficient, borderline, and optimal hours of sleep among high school students—United States, 2007. *Journal of Adolescent Health*, 46(4), 399–401. <https://doi.org/10.1016/j.jadohealth.2009.10.011>

Jansson, M., & Lindblom, K. (2010). Is There a Bidirectional Link Between Insomnia and Burnout? A Prospective Study in the Swedish Workforce. *International Journal of Behavioral Medicine*, 17, 306-313.

Liu, X., Zhang, L., Wu, G., Yang, R., & Liang, Y. (2021). The longitudinal relationship between sleep problems and school burnout in adolescents: A cross-lagged panel

analysis. *Journal of Adolescence*, 88, 14–

24. <https://doi.org/10.1016/j.adolescence.2021.02.001>

Pagnin, D., de Queiroz, V., Carvalho, Y. T. M. S., Dutra, A. S. S., Amaral, M. B., & Queiroz, T. T. (2014). The relation between burnout and sleep disorders in medical students. *Academic Psychiatry*, 38(4), 438–444.

Romanzini, L. P., Dos Santos, A. Á., & Nunes, M. L. (2017). Characteristics of sleep in socially vulnerable adolescents. *European journal of pediatric neurology*, 21(4), 627–634. <https://doi.org/10.1016/j.ejpn.2016.12.013>

Lehto, J. E., Kortesoja, L., & Partonen, T. (2019). School burnout and sleep in Finnish secondary school students. *Sleep Science*, 12(1), 10.

May, R.W., Bauer, K.N., Seibert, G.S., Jaurequi, M.E., & Fincham, F.D. (2020). School burnout is related to sleep quality and perseverative cognition regulation at bedtime in young adults. *Learning and Individual Differences*, 78, 101821.

Bootzin R. R., Stevens S. J. (2005). Adolescents, substance abuse, and the treatment of insomnia and daytime sleepiness. *Clinical psychology Review*, 25:629-644.

<https://doi.org/10.1016/j.cpr.2005.04.007>

Curcio, G., Ferrara, M., & De Gennaro, L. (2006). Sleep loss, learning capacity and academic performance. *Sleep Medicine Reviews*, 10(5):323-37.

<https://doi.org/10.1016/j.smrv.2005.11.001>

Moore, M., Kirchner, H. L., Drotar, D., Johnson, N., Rosen, C., Ancoli, S., & Redline, S. (2009). Relationships among Sleepiness, Sleep Time, and Psychological Functioning in Adolescents. *Journal of Pediatric Psychology* 2009 34(10):1175-1183.

<https://doi.org/10.1093/jpepsy/jsp039>

Hysing, M., Harvey, A. G., Linton, S. J., Askeland, K. G., & Sivertsen, B. (2016). Sleep and academic performance in later adolescence: Results from a large population-based study. *Journal of sleep research*, 25(3), 318-324. <https://doi.org/10.1111/jsr.12373>

Rodrigues, R. N. D., Viegas, C. A. A., Abreu e Silva, A. A. A., & Tavares, P. (2002). Daytime sleepiness and academic performance in medical students. *Arquivos de Neuro-Psiquiatria*, 60(1), 6–11. <https://doi.org/10.1590/S0004-282X2002000100002>

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied psychology*, 86(3),

499. <https://doi.org/10.1037/0021-9010.86.3.499>

Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology*, 81(2), 123–133. <https://doi.org/10.1037/0021-9010.81.2.123>

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual review of psychology*, 52(1), 397-422.

Maslach, C., & Jackson, S. E. (1984). Burnout in organizational setting. 133-153.

Hays, R. D., Martin, S. A., Sesti, A. M., & Spritzer, K. L. (2005). Psychometric properties of the medical outcomes study sleep measure. *Sleep medicine*, 6(1), 41-44.

Louca, M., & Short, M. A. (2014). The effect of one night's sleep deprivation on adolescent neurobehavioral performance. *Sleep*, 37(11), 1799-1807.

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. *Psychiatric Res*, 28 (2). 193-213.

Agargun, M.Y., Kara, H., Anlar, Ö. (1996). Validity and reliability of the Pittsburgh Sleep Quality Index in Turkish sample. *Turk J Psychiat*, 7, 107–15.