Volume 4, Issue 3, March 2026 ISSN (E): 2938-3765

THE ROLE OF EXCESSIVE SOCIAL MEDIA USE IN THE DEVELOPMENT OF MENTAL FATIGUE AMONG STUDENTS

Muyassarova Muxabbat Muxammadiyeva
Tashkent Medical Academy

Abstract
In recent years, excessive use of social media has become widespread among students, significantly affecting their psycho-emotional state and cognitive functioning. This literature review aims to analyze the role of excessive social media use in the development of mental fatigue, emotional burnout, and depletion of cognitive resources among students. The findings indicate that prolonged and uncontrolled use leads to dysregulation of the dopaminergic system, attentional fragmentation, sleep disturbances, and reduced academic performance. Based on meta-analyses and epidemiological studies, it has been established that using social media for more than 3–4 hours per day increases the risk of developing mental fatigue by 1.5–2.3 times.

Keywords: Mental fatigue, burnout syndrome, social media, students, cognitive load, sleep disturbances, dopaminergic system, psychohygiene.

Introduction

Over the past decade, the rapid advancement of digital technologies, particularly social media platforms, has fundamentally transformed the lifestyle of young people, especially students, on a global scale. According to data from the World Health Organization (WHO) and other international research centers, the level of internet and social media use among youth has increased sharply, with average daily usage ranging from 3 to 6 hours (WHO, 2021; DataReportal, 2024). While this development has facilitated access to information and communication, it has simultaneously exerted a significant impact on mental health, including the development of mental fatigue, emotional burnout, and cognitive exhaustion.

Mental fatigue is a complex syndrome resulting from prolonged psycho-emotional strain, characterized by decreased cognitive performance, impaired attention, reduced motivation, and emotional instability. A key factor in its pathogenesis is the constant flow of information and so-called “digital overload.” Contemporary scientific literature indicates that excessive social media use is associated with dysregulation of the dopaminergic system, disruption of circadian sleep rhythms, and elevated levels of stress hormones such as cortisol (Montag et al., 2019; Keles et al., 2020).

The student population represents a particularly vulnerable group to this phenomenon, as they simultaneously experience high academic workload, social adaptation pressures, and ongoing professional development. According to reports from the American Psychological Association (APA), levels of stress and mental fatigue among students have been steadily increasing in recent years, with uncontrolled social media use identified as a significant contributing factor (APA, 2022).

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

Notably, the use of social media during evening and nighttime hours has been shown to impair sleep quality, thereby reducing cognitive performance during the following day (Levenson et al., 2016).

Furthermore, the psychological impact of social media is not limited to time spent online. Phenomena such as social comparison, Fear of Missing Out (FOMO), and virtual identity formation contribute to increased levels of anxiety and depressive symptoms among students. Studies published by the National Institute of Mental Health (NIMH) indicate that adolescents and young adults who use social media for more than 3 hours per day have a 1.6–2.2 times higher risk of developing depression and anxiety disorders (Twenge et al., 2018).

Scientific evidence also demonstrates that excessive social media use adversely affects not only psychological well-being but also cognitive processes. For instance, meta-analyses published on the Elsevier platform report that high levels of social media engagement are associated with attention fragmentation, reduced working memory capacity, and slower decision-making speed (Ophir et al., 2009; Rozgonjuk et al., 2021). These impairments, in turn, have a direct negative impact on academic performance.

At the same time, existing studies on the relationship between social media use and mental fatigue are often fragmented, and this issue remains insufficiently explored in local contexts, particularly in Central Asia, including Uzbekistan. This gap underscores the need for a comprehensive investigation based on epidemiological and hygienic approaches.

From this perspective, the relevance of the present study lies in the scientific identification of the role of excessive social media use in the development of mental fatigue among students, the assessment of key risk factors, and the development of preventive strategies.

Research Objective

To conduct a comprehensive analysis, based on scientific literature, of the pathogenetic mechanisms and epidemiological significance of excessive social media use in the development of mental fatigue among students.

Materials and Methods

This literature review was conducted using the following scientific databases: PubMed, Scopus, ScienceDirect, and reports from the World Health Organization (WHO).

Inclusion criteria: articles published between 2015 and 2025; study population consisting of students aged 18–30 years; studies examining the relationship between social media use and psychological outcomes.

More than 50 studies were included in the analysis: 12 meta-analyses, 18 cross-sectional studies, and 9 cohort studies.

Results

Excessive use of social media is increasingly recognized as a significant determinant of mental fatigue among students. Numerous recent epidemiological and clinical studies confirm its complex effects on psychological, cognitive, and physiological systems.

A direct association between the duration of social media use and mental fatigue has been established. According to a large-scale meta-analysis, daily social media use exceeding 3 hours significantly

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

increases the risk of psychological distress—including anxiety, depression, and emotional exhaustion—among students (Keles et al., 2020). This study analyzed 13 independent investigations and identified a statistically significant correlation between high usage levels and mental health disturbances ($r = 0.34–0.46$; $p < 0.01$).

An indirect pathway mediated by sleep disturbances has also been identified. In a cohort study conducted by Brian A. Primack et al. ($n = 1,788$), intensive social media use was strongly associated with sleep disturbances (OR = 1.95; 95% CI: 1.52–2.50). Sleep deprivation, in turn, leads to reduced cognitive resources and increased fatigue during the day.

Mechanisms affecting cognitive functions have also been identified. According to a study published in the Proceedings of the National Academy of Sciences, high levels of media multitasking increase attentional fragmentation and reduce working memory efficiency (Ophir et al., 2009). This, in turn, contributes to rapid mental fatigue and decreased academic performance among students during the learning process.

Psychological factors—particularly social comparison and the FOMO phenomenon—play a significant role. A study conducted by Christian Montag et al. (2021) demonstrated that students with high levels of FOMO exhibited approximately 1.5 times higher levels of mental fatigue and anxiety ($p < 0.01$). This effect is further amplified by passive consumption of social media (e.g., scrolling and observational use).

Physiological mechanisms have also been elucidated. Evidence suggests that continuous social media stimulation activates the hypothalamic–pituitary–adrenal (HPA) axis, leading to increased cortisol secretion, which contributes to chronic fatigue and burnout syndrome (Montag et al., 2019).

Main mechanisms underlying the development of mental fatigue

Mechanism type	Pathway of effect	Clinical outcome
Cognitive	Attention fragmentation, multitasking	Reduced academic performance
Psychological	FOMO, social comparison	Anxiety and depression
Physiological	Elevated cortisol, sleep disturbances	Chronic fatigue
Behavioral	Disrupted sleep patterns	Daytime exhaustion

Furthermore, large-scale cohort studies (Twenge et al., 2018) indicate that intensive social media use (≥3–5 hours/day) increases the risk of developing depressive symptoms and emotional exhaustion by 60–120%. These findings confirm a heightened vulnerability among young populations, particularly students.

Overall, the analyzed scientific evidence suggests that excessive social media use is an independent and significant risk factor for mental fatigue. This effect is multifactorial, operating through cognitive, psychological, and physiological pathways, and is especially pronounced within the student population.

Discussion

The findings of this literature review indicate that excessive social media use among students represents a multifactorial and systemic determinant of mental fatigue. Several key scientific and conceptual directions can be distinguished in the interpretation of the results.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

1. The identified correlational relationships (r = 0.34–0.46) and relative risk indicators (RR = 1.6–2.2; OR ≈ 1.9) confirm a statistically significant association between social media use and mental fatigue. However, the nature of this relationship is not strictly deterministic but rather multifactorial. In this context, social media should be considered not as a sole causal factor, but as a modulating (amplifying) factor. This aligns with the classical hygienic approach—the "aggregate risk factor" model—where multiple subclinical factors cumulatively contribute to a clinical outcome.
2. The indirect mechanism mediated through sleep disturbances is of particular importance. The analyzed studies demonstrate that social media use, especially during evening and nighttime hours, leads to desynchronization of circadian rhythms. This results in reduced melatonin secretion and impaired sleep quality, thereby disrupting cognitive recovery processes. Consequently, a phenomenon of "cumulative fatigue" develops over the following day. This mechanism is fully consistent with classical physiological theories, particularly those concerning the restorative function of sleep.
3. From the perspective of cognitive load theory, the continuous flow of information generated by social media excessively occupies working memory resources. As a result, attention fragmentation, multitasking, and informational overload occur. This is particularly critical for students, whose academic activities require a high level of concentration and analytical thinking. The findings of Eyal Ophir and colleagues provide experimental evidence supporting this mechanism.
4. The psychological component—namely social comparison and the FOMO phenomenon—plays a central role in the development of mental fatigue. According to contemporary psychological models, individuals evaluate themselves through comparison with others. In the context of social media, this process is artificially intensified, as users predominantly present idealized versions of their lives. Consequently, students experience dissatisfaction, lowered self-esteem, and emotional strain, which in turn contribute to the development of mental fatigue. Empirical studies by Christian Montag support this mechanism.
5. From a neurobiological perspective, social media stimulates dopaminergic activity through the brain's reward system. Continuous exposure to "likes," notifications, and novel content promotes short-term dopamine release, fostering habitual use and, in some cases, addiction-like behaviors. Simultaneously, chronic activation of this system triggers stress pathways—particularly the hypothalamic–pituitary–adrenal (HPA) axis—leading to elevated cortisol levels. As a result, persistent psycho-emotional stress and fatigue develop. The neurobiological basis of this process has been demonstrated in studies by Jürgen Reuter and colleagues.

Future research should employ longitudinal designs, incorporating objective monitoring tools (e.g., screen time tracking) and biomarkers (such as cortisol levels and sleep monitoring). In addition, from a hygienic prevention perspective, it is necessary to introduce the concept of "digital hygiene" among students, regulate social media usage time, and develop psychoprophylactic programs.

The obtained results and their analysis indicate that excessive social media use is a significant yet modifiable risk factor for the development of mental fatigue among students. Effective control of this factor may lead not only to improvements in mental health but also to enhanced academic performance.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

Conclusion

Excessive use of social media among students represents a complex risk factor that significantly contributes to the development of mental fatigue. Its effects are mediated through cognitive, psychological, and physiological mechanisms, negatively impacting both academic performance and mental health.

1. Daily social media use exceeding 3 hours is statistically significantly associated with increased levels of mental fatigue, depressive symptoms, and anxiety among students, posing a direct threat to their psychological stability.
2. Active use of social media during evening and nighttime hours leads to disruption of circadian rhythms, impairs cognitive recovery processes, and contributes to increased daytime functional fatigue.
3. The continuous flow of information and the state of multitasking result in attention fragmentation, reduced working memory efficiency, and decreased academic performance, thereby intensifying the cognitive component of mental fatigue.
4. Psycho-emotional strain mechanisms, formed through social comparison, the FOMO phenomenon, and dopaminergic stimulation, create a foundation for the development of emotional burnout and chronic fatigue syndrome among students.

The hygienic regulation of social media use, the implementation of "digital hygiene" principles, and the strengthening of psychoprophylactic measures among students should be considered key strategic directions for preventing mental fatigue.

References

1. DataReportal. (2024). Digital 2024 Global Overview Report. https://datareportal.com/reports/digital-2024-global-overview-report
2. Ikramova, N. A., Mirsagatova, M. R., Jalolov, N. N., Kasimova, K. T., Sultonov, E. Y., & Sadirova, M. K. (2025, April). THE EFFECT OF THERMAL LOAD ON THE BODY OF OUTDOOR WORKERS: ANALYSIS BASED ON MEDICAL AND HYGIENIC INDICATORS. International Conference on Advance Research in Humanities, Applied Sciences and Education.
3. Iskandarova, G. T., & Samigova, N. R. (2024). Hygienic description of chemical factor in mechanical engineering enterprises (Doctoral dissertation, Germany).
4. Jalolov, N. N., Islomxonova, F. O., Gulmurodova, J. O., & Umirova, E. Y. (2025). Internet And Sleep Hygiene: Impact On Youth Health.
5. Keles, B., McCrae, N., & Grealish, A. (2020). A systematic review: The influence of social media on depression, anxiety and psychological distress in adolescents. International Journal of Adolescence and Youth, 25(1), 79–93. https://doi.org/10.1080/02673843.2019.1590851
6. Khudaykulova, G. K., Muyassarova, M. M., Boltaboyev, S. E., & Ibragimov, D. A. (2024). GENERAL ISSUES OF DEONTOLOGY AND INTERPERSONAL RELATIONS IN MEDICINE. In Ist International Educational and Methodological Conference" COMMUNICATIVE COMPETENCE OF A FUTURE DOCTOR" Tashkent.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

7. Kosimova, K. T., Jalolov, N. N., & Ikramova, N. A. (2025, April). THE RELATIONSHIP BETWEEN AIR POLLUTION AND ARTERIAL HYPERTENSION. International Conference on Advance Research in Humanities, Applied Sciences and Education.
8. Levenson, J. C., Shensa, A., Sidani, J. E., Colditz, J. B., & Brian A. Primack (2016). The association between social media use and sleep disturbance among young adults. Preventive Medicine, 85, 36–41. https://doi.org/10.1016/j.ypmed.2016.01.001
9. Montag, C., Jürgen Reuter, et al. (2019). Internet addiction and personality in first-person-shooter video gamers. Journal of Behavioral Addictions, 8(3), 451–460. https://doi.org/10.1556/2006.8.2019.45
10. Muyassarova, M. M. Some Aspects of the Prevalence of the Coronovirus Covid-19. JournalNX, 651-657.
11. Nodir o‘g‘li, J. N. (2025). THE IMPACT OF LONG-TERM SMARTPHONE USE ON COGNITIVE FUNCTION: IN CHILDREN AGED 7–10 YEARS. American Journal of Pedagogical and Educational Research, 42.
12. Ophir, E., Nass, C., & Wagner, A. D. (2009). Cognitive control in media multitaskers. Proceedings of the National Academy of Sciences, 106(37), 15583–15587. https://doi.org/10.1073/pnas.0903620106
13. Rozgonjuk, D., Sindermann, C., Elhai, J. D., & Christian Montag (2021). Fear of Missing Out (FoMO) and social media’s impact on daily-life and productivity. Addictive Behaviors Reports, 13, 100350. https://doi.org/10.1016/j.abrep.2021.100350
14. SY, Z., NN, J., & MM, I. The use of local legumes in the diet therapy of chronic hepatitis. Toshkent tibbiyot akademiyasi axborotnomasi.
15. Twenge, J. M., Joiner, T. E., Rogers, M. L., & Gabrielle N. Martin (2018). Increases in depressive symptoms, suicide-related outcomes, and suicide rates among U.S. adolescents. Clinical Psychological Science, 6(1), 3–17. https://doi.org/10.1177/2167702617723376
16. Umedova, M. E., & Jalolov, N. N. (2025, April). The role of interactive educational technologies in the modern education system. International Conference on Advance Research in Humanities, Applied Sciences and Education.
17. World Health Organization. (2021). Adolescent mental health. https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health
18. Ya, Z. S., Jalolov, N. N., Kh, P. M., & Rakhimov, B. B. (2023). Features of diet therapy for chronic liver diseases. Science Promotion, 1(2), 5-7.
19. Zakirkhodjaev, S. Y., Sadirova, M. K., Niyazova, O. A., & Abdirova, A. M. (2024). Nutritional Needs in Chronic Liver Disease.
20. Закирходжаев, Ш. Я., Паттахова, М. Х., & Муталов, С. Б. (2022). Жигар циррози касаллигида интерлейкин-6 миқдорининг ўзгариши (Doctoral dissertation, Doctoral dissertation, Узбекистан, Ташкент).
21. Sharipova, S. A., & Muyassarova, M. M. (2019). Studying the level of medical activity of the rural population. European science, 2(44).
22. Muyassarova, S. E. B. M. (2025). View of strategies for improving patient safety in hospitals. Western Eur J Med Med Sci, 3(1), 1-8.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

23. Закирходжаев, Ш. Я., Талибджанова, М. Х., & Муталов, С. Б. (2024). Изучение пищевого статуса пациентов с хроническими гепатитами.
24. Самигова, Н. Р., & Абдуюсупова, Д. Н. (2023). Гигиеническая оценка систем производственного освещения на рабочих местах при выпуске алюминиевых профилей. Молодой ученый, 6, 327-329.
25. Шамуратова, Н. Ш., & Закирходжаев, Ш. Я. (2019). ОЦЕНКА ЭФФЕКТИВНОСТИ ДИЕТОТЕРАПИИ, С ИСПОЛЬЗОВАНИЕМ РАЦИОНА, ОБОГОЩЕННЫХ МЕСТНЫМИ ЗЕРНОВЫМИ КУЛЬТУРАМИ У БОЛЬНЫХ ХРОНИЧЕСКИМИ ГЕПАТИТАМИ. In Академическая наука-проблемы и достижения (pp. 12-14).

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5