

MENTAL HEALTH PROBLEMS AMONG CAREGIVERS OF INDIVIDUALS WITH ADHD AND DEMENTIA: A QUANTITATIVE COMPARATIVE STUDY

Bisma Irfan ^{a*}, Fariha Gillani ^b, Hadeeqa Anmol ^c, Nadia Basit ^d, & Dr. Rabia Ahmed ^e

^a Psychologist, Scarsdale International School, Lahore, Pakistan. Email: bismairfan880@gmail.com. ORCID: <https://orcid.org/0009-0004-8096-6928>

^b Alumni, MS Clinical Psychology, Department of Humanities and Social Sciences, Gift University, Gujranwala, Pakistan. Email: farihagillani555@gmail.com

^c Consultant Clinical Psychologist, CMH, Lahore, Pakistan. Email: mindwellness117@gmail.com. ORCID: <https://orcid.org/0009-0001-9463-3225>

^d Registrar OB-GYN, Niazi Medical and Dental College, Lahore, Pakistan. Email: nadiahaider@yahoo.com

^e Paediatric Consultant, University of Child Health Sciences and Children Hospital, Lahore, Pakistan. Email: drabiaahmed@gmail.com

*Correspondence to: Ms. Bisma Irfan, Psychologist, Scarsdale International School, Lahore, Pakistan. Email: bismairfan880@gmail.com. ORCID: <https://orcid.org/0009-0004-8096-6928>

KEYWORDS:

ADHD, Dementia, Caregivers,
Depression, Anxiety, Stress

CITE THIS ARTICLE:

Irfan, B., Gillani, F., Anmol, H., Basit, N., & Ahmed, R. (2026). Mental health problems among caregivers of individuals with ADHD and dementia: a quantitative comparative study. Pakistan Journal of Positive Psychology, 3(8), 62-68.

ABSTRACT

The present study aimed to examine the associations among depression, anxiety, and stress and compare these psychological outcomes between caregivers of individuals with ADHD and dementia. A quantitative, comparative cross-sectional correlational design was employed. The sample consisted of 192 caregivers, including 95 caregivers of individuals with ADHD and 97 caregivers of individuals with dementia. Participants were recruited through purposive sampling. Depression, anxiety, and stress were assessed using the Depression, Anxiety, and Stress Scale-21 (DASS-21). Pearson correlation analysis and independent-samples *t* tests were used to examine associations among the study variables and differences between the caregiver groups. Among caregivers of individuals with ADHD, depression was positively associated with anxiety ($r = .21, p < .05$) and stress ($r = .25, p < .01$), while anxiety was strongly associated with stress ($r = .96, p < .001$). Similar positive associations were observed among caregivers of individuals with dementia, with depression associated with anxiety ($r = .24, p < .01$) and stress ($r = .26, p < .01$), and anxiety strongly associated with stress ($r = .98, p < .001$). However, no statistically significant differences were found between the two groups in depression ($p = .08$), anxiety ($p = .79$), or stress ($p = .72$). Depression, anxiety, and stress were positively associated in both caregiver groups. The findings suggest comparable levels of these psychological difficulties among caregivers of individuals with ADHD and dementia. Psychological support and caregiver-focused interventions may help address their emotional needs.

I. INTRODUCTION

A caregiver is an individual who provides care, assistance, and support to children, older adults, or individuals experiencing illness or disability. Caregivers may include parents, spouses, other family members, and professional care providers, such as nurses (Hermanns & Mastel-Smith, 2012). Although caregiving is an important responsibility, it may also be associated with psychological difficulties, including depression, anxiety, and stress, particularly when care recipients require continuous assistance (Pinquart & Sörensen, 2003). Research has

highlighted the burden experienced by caregivers of individuals with Attention-Deficit/Hyperactivity Disorder (ADHD), particularly as children transition into adolescence and adulthood (Cadman et al., 2012). ADHD is a neurodevelopmental disorder characterized by persistent patterns of inattention and/or hyperactivity and impulsivity that can interfere with daily functioning (Drechsler et al., 2020; Salehpour & Gonzalez-Lima, 2026). These symptoms may create challenges for caregivers in managing behavioural difficulties, educational demands, and everyday activities. Similarly, dementia is a clinical syndrome characterized by a decline in cognitive functioning, including memory, thinking, and the ability to perform daily activities independently (Gustafson, 1996). Individuals with dementia may experience difficulties remembering recent events, recognizing familiar people, and carrying out routine tasks, which can increase their dependence on caregivers. The growing global burden of dementia has highlighted the need to understand its consequences for individuals and their families (Shah et al., 2016). Recent research has also identified caregiving burden, depression, and anxiety as important concerns among family caregivers of individuals with dementia (Abdelhalim et al., 2024). Furthermore, caregivers' perceptions of the disease and their relationships with care recipients may influence their caregiving experiences and sense of empowerment (Lv et al., 2025). Research examining mental health outcomes has also highlighted the importance of understanding psychological distress and its associations with other psychological difficulties (Shahid et al., 2025, 2026). Evidence concerning both ADHD and dementia therefore highlights the importance of examining depression, anxiety, and stress among caregivers to better understand their psychological needs and inform appropriate support interventions.

Studies have demonstrated significant associations between caregiving for individuals with ADHD or dementia and psychological difficulties. For instance, a recent study of parents of children with ADHD reported significant relationships among depression, anxiety, and stress. The findings also indicated that mothers scored higher than fathers on the study variables (Tareen et al., 2025). Similarly, a study of caregivers of individuals with dementia reported that 32% of caregivers had depression, and those who spent more hours caring for patients reported higher levels of depression (Covinsky et al., 2003). Furthermore, studies have reported higher levels of anxiety and depression among caregivers of individuals with dementia, with these symptoms being associated with the severity of patients' dementia (Abdelhalim et al., 2024; Gilhooly et al., 2016; Lou et al., 2015). Caregiving for individuals with ADHD and dementia can create substantial psychological demands and may increase caregivers' vulnerability to depression, anxiety, and stress. Recent evidence indicates that parenting stress, child inattention, and affiliate stigma are associated with poorer psychological well-being among caregivers of children with ADHD (2023). Similarly, dementia caregivers experience depression and anxiety in association with caregiving burden and daily stressors (Puga et al., 2023; Abdelhalim et al., 2024). The Stress Process Model provides a theoretical framework for understanding these outcomes by proposing that caregiving stressors can generate psychological distress, while coping and social resources may influence their effects. Although previous research has examined psychological distress and mental health outcomes in other populations (Shahid et al., 2025, 2026), limited research has directly compared mental health outcomes between caregivers of individuals with ADHD and dementia in Pakistan. Therefore, the present study aims to examine the relationships among depression, anxiety, and stress and compare these psychological outcomes across the two caregiver groups.

Hypotheses

- H1: Depression, anxiety, and stress are significantly positively correlated among caregivers of individuals with ADHD and among caregivers of individuals with dementia.
- H2: There are significant differences in depression, anxiety, and stress between caregivers of individuals with ADHD and caregivers of individuals with dementia.

II. METHOD

The present study employed a comparative cross-sectional correlational research design to examine and compare depression, anxiety, and stress among caregivers of individuals diagnosed with Attention-Deficit/Hyperactivity Disorder (ADHD) and dementia in Pakistan.

Participants

Participants were eligible for inclusion if they were 18 years of age or older, were the primary or regular caregiver of an individual with a confirmed diagnosis of ADHD or dementia, had been providing care for at least six months, and were residing in Pakistan at the time of data collection. A purposive sampling technique was used to recruit caregivers of individuals diagnosed with attention-deficit/hyperactivity disorder (ADHD) and dementia from relevant clinical settings and caregiver networks in Pakistan. A total of 244 caregivers were approached for participation, of whom 192 completed the questionnaires and were included in the final sample, yielding a response rate of 78.69%. The participants were divided into two groups: caregivers of individuals diagnosed with ADHD and caregivers of individuals diagnosed with dementia. The final sample consisted of 95 (49.5%) caregivers of individuals with ADHD and 97 (50.5%) caregivers of individuals with dementia. The participants' ages ranged from 18 to 60 years, with a mean age of 30.61 years ($SD = 10.56$). Regarding gender, 77 (40.1%) participants were male and 115 (59.9%) were female. In terms of marital status, 97 (50.5%) participants were unmarried, whereas 95 (49.5%) were married. Regarding educational attainment, 21 (10.9%) participants had completed matriculation, 27 (14.1%) had intermediate education, 24 (12.5%) held a two-year bachelor's degree, 58 (30.2%) held a four-year bachelor's degree, and 62 (32.3%) had an MS/MPhil degree. Regarding their relationship with the care recipients, 18 (9.4%) participants were mothers, 10 (5.2%) were fathers, 16 (8.3%) were husbands, 38 (19.8%) were wives, 39 (20.3%) were sons, 30 (15.6%) were daughters, 14 (7.3%) were brothers, and 15 (7.8%) were sisters. Additionally, 7 (3.6%) participants were domestic helpers or household servants, while 5 (2.6%) were paid professional caregivers or nurses. Regarding residence, 104 (54.2%) participants were from Lahore, and 88 (45.8%) were from Gujranwala.

Measure

Depression, anxiety, and stress were assessed using the Depression, Anxiety, and Stress Scale-21 (DASS-21), developed by Lovibond and Lovibond (1995). The instrument consists of 21 items divided into three subscales, with seven items assessing each dimension. Participants respond to each item on a four-point Likert scale ranging from 0 (Did not apply to me at all) to 3 (Applied to me very much, or most of the time). In the present study, Cronbach's alpha coefficients were .59 for stress, .53 for depression, and .54 for anxiety. These values indicate relatively low internal consistency, suggesting that the items within each subscale may not have measured their respective constructs consistently in the present sample. This may be attributable to cultural and linguistic differences, variations in participants' interpretation of the items, or sample-specific characteristics within the Pakistani population.

Procedure

The study was conducted in accordance with the ethical guidelines of the APA 7th edition. Before data collection, permission was obtained from the relevant institutions. Subsequently, participants were approached in Lahore and Gujranwala, as these locations were accessible to the authors in person. Participants were first provided with an informed consent form that clearly explained voluntary participation, the right to withdraw, confidentiality, and anonymity. After signing the consent form, participants were provided with the demographic questionnaire and study instruments for data collection. Once the data were collected, they were entered into IBM SPSS Statistics Version 27 for statistical analysis.

III. RESULTS

Table I: Correlational Analysis between Study Variables among Caregivers of Individuals with ADHD (n =95)

Variables	1	2	3
1. Depression	--	.21*	.25**
2. Anxiety		--	.96***
3. Stress			

* $p < .05$, ** $p < .01$, *** $p < .001$

The table above shows significant positive associations among depression, anxiety, and stress among caregivers of individuals with ADHD. Depression was positively associated with anxiety ($r = .21$, $p < .05$) and stress ($r = .25$, $p < .01$). Furthermore, anxiety showed a very strong positive association with stress ($r = .96$, $p < .001$).

Table II: Correlational Analysis between Study Variables among Caregivers of Individuals with Dementia (n =97)

Variables	1	2	3
1. Depression	--	.24**	.26**
2. Anxiety		--	.98***
3. Stress			

** $p < .01$, *** $p < .001$

The table above shows significant positive associations among depression, anxiety, and stress among caregivers of individuals with dementia. Depression was positively associated with anxiety ($r = .24$, $p < .01$) and stress ($r = .26$, $p < .01$). Furthermore, anxiety showed a very strong positive association with stress ($r = .98$, $p < .001$).

Table III: Mean Differences among Caregivers of Individuals with ADHD and Dementia (N = 192)

Variables	COIW ADHD (n = 95)	COIW Dementia (N = 97)			
	<i>M (SD)</i>	<i>M(SD)</i>	<i>t</i>	<i>P</i>	<i>Cohen's d</i>
1. Depression	9.90 (4.30)	10.94 (4)	-1.74	.08	0.25
2. Anxiety	10.35 (3.82)	10.50 (4.09)	-.25	.79	0.03
3. Stress	10.32 (4.23)	10.53 (4.13)	-.34	.72	0.05

An independent-samples t test showed no significant differences between caregivers of individuals with ADHD and caregivers of individuals with dementia in depression, $t = -1.74$, $p = .08$, anxiety, $t = -0.25$, $p = .79$, or stress, $t = -0.34$, $p = .72$. Caregivers of individuals with dementia reported slightly higher mean scores for depression ($M = 10.94$, $SD = 4.00$), anxiety ($M = 10.50$, $SD = 4.09$), and stress ($M = 10.53$, $SD = 4.13$) than caregivers of individuals with ADHD ($M = 9.90$, $SD = 4.30$; $M = 10.35$, $SD = 3.82$; and $M = 10.32$, $SD = 4.23$, respectively). The effect sizes were small for depression ($d = 0.25$), anxiety ($d = 0.03$), and stress ($d = 0.05$). These findings suggest that the two caregiver groups had comparable levels of depression, anxiety, and stress.

IV.DISCUSSION

The present study examined the associations among depression, anxiety, and stress and compared these psychological difficulties between caregivers of individuals with Attention-Deficit/Hyperactivity Disorder (ADHD) and dementia in Pakistan. The findings revealed significant positive associations among the three variables in both groups. However, no statistically significant differences were observed between caregivers of individuals with ADHD and dementia in depression, anxiety, or stress. These findings suggest that caregivers of individuals with different conditions may experience comparable psychological difficulties, although their daily caregiving responsibilities and sources of stress may differ. Among caregivers of individuals with ADHD, depression was positively associated with anxiety ($r = .21$, $p < .05$) and stress ($r = .25$, $p < .01$). Anxiety also showed a very strong positive association with stress ($r = .96$, $p < .001$). These findings suggest that caregivers experiencing greater depressive symptoms may also experience increased anxiety and stress. Caring for children with ADHD can involve managing inattention, impulsivity, hyperactivity, academic difficulties, and behavioural challenges. These responsibilities may become particularly demanding when caregivers have limited access to professional guidance or support. Research has identified parenting stress and psychological distress as important concerns among parents of children with ADHD, highlighting the emotional demands associated with managing children's symptoms and everyday functioning (Theule et al., 2013). In Pakistan, these difficulties may be compounded by cultural expectations that parents maintain children's behavioural discipline and academic performance. Caregivers may experience pressure from extended family members, teachers, and society when children's behaviour is misunderstood as inadequate parenting rather than a manifestation of ADHD.

Similarly, among caregivers of individuals with dementia, depression was positively associated with anxiety ($r = .24$, $p < .01$) and stress ($r = .26$, $p < .01$). Anxiety was also very strongly associated with stress ($r = .98$, $p < .001$). These findings are consistent with previous research identifying psychological distress as an important concern among dementia caregivers. Caring for individuals with dementia may involve managing memory impairment, behavioural changes, reduced independence, and increasing needs for supervision. Such responsibilities can

disrupt caregivers' sleep, employment, social relationships, and personal activities. Gilhooly et al. (2016) highlighted the importance of understanding the factors contributing to caregiver burden and psychological outcomes in dementia care. Moreover, the gradual progression of dementia may create uncertainty and emotional strain as caregivers adjust to changes in the abilities and relationships of the individuals receiving care. The cultural context of Pakistan may help explain the psychological experiences of caregivers in both groups. Family caregiving is strongly influenced by expectations of familial responsibility, respect for elders, and religious values. Although these values can provide meaning and emotional support, they may also create pressure when caregiving responsibilities are demanding or shared unequally among family members. Balouch et al. (2021) identified the importance of family duty, religious beliefs, stigma, and limited awareness in the experiences of dementia caregivers in Pakistan. Similarly, Ali and Bokharey (2016) described emotional difficulties, worry, anger, and self-neglect among informal dementia caregivers in the Pakistani sociocultural context. These findings suggest that cultural expectations may encourage family members to continue caregiving even when they experience considerable psychological strain. However, cultural and religious values should not be viewed solely as sources of burden because they may also promote resilience, family cohesion, and a sense of purpose.

The comparative findings showed no statistically significant differences between caregivers of individuals with ADHD and dementia in depression ($t = -1.74$, $p = .08$), anxiety ($t = -0.25$, $p = .79$), or stress ($t = -0.34$, $p = .72$). Although caregivers of individuals with dementia reported slightly higher mean scores across all three variables, the differences were small. This finding is consistent with the possibility that caregivers of individuals with different conditions may experience overlapping psychological demands, despite differences in the nature of their caregiving responsibilities. In the Pakistani context, limited access to respite services, financial constraints, insufficient caregiver education, and expectations of family-based care may contribute to these shared difficulties. Research conducted in Pakistan has similarly highlighted the emotional and practical burden experienced by dementia caregivers and the importance of social support (Qadir et al., 2013). Nevertheless, the present findings do not establish that cultural factors caused the observed similarities, as these factors were not directly measured. The findings also have practical implications for psychological services in Pakistan. Healthcare professionals should consider the mental health needs of caregivers alongside those of the individuals receiving care. Psychoeducation, caregiver support groups, stress-management training, and culturally appropriate psychological interventions may help caregivers manage emotional difficulties. Evidence from a systematic review and network meta-analysis suggests that interventions such as psychoeducation, cognitive behavioural therapy, and mindfulness-based approaches may improve psychological outcomes among dementia caregivers (Sun et al., 2022). Similar support could be adapted for caregivers of children with ADHD, with attention to behavioral management and collaboration between families, schools, and mental health professionals.

V. CONCLUSION

The present study examined the relationships among depression, anxiety, and stress and compared these mental health problems between caregivers of individuals with ADHD and dementia. The findings revealed significant positive associations among the study variables in both groups, indicating that higher levels of depression were associated with higher levels of anxiety and stress. Anxiety was also strongly and positively associated with stress in both caregiver groups. These findings highlight the interconnected nature of psychological distress among individuals providing regular care to people with ADHD and dementia. The comparative analysis revealed no statistically significant differences between the two groups in depression, anxiety, or stress. Although caregivers of individuals with dementia reported slightly higher mean scores across all three variables, the differences were small and statistically nonsignificant. These results suggest that psychological difficulties may be relevant to caregivers of individuals with both conditions, rather than being limited to one caregiver group. The findings emphasize the importance of recognizing caregivers' psychological needs and providing accessible mental health support, psychoeducation, stress-management strategies, and appropriate psychological interventions. Healthcare professionals may consider assessing caregivers' emotional well-being alongside the care needs of individuals with ADHD and dementia. However, the cross-sectional design and purposive sampling limit causal interpretations and the generalizability of the findings. Future research should examine additional factors, including caregiving burden, duration of caregiving, social support, and the severity of the care recipient's symptoms, to better understand the factors associated with caregivers' mental health.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Funding

The author received no funding from any organizations.

VI. REFERENCES

- Ahmed, O., Walsh, E. I., Dawel, A., Alateeq, K., Oyarce, D. A. E., & Cherbuin, N. (2024). Social media use, mental health and sleep: A systematic review with meta-analyses. *Journal of affective disorders*, 367, 701-712.
- Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive behaviors*, 64, 287-293.
- Asad, M., Magableh, I. K., Ta'Amnha, M., Mahrouq, M. H., & Asif, M. U. (2025). Mediating role of social media adoption between the impact of entrepreneurial orientation and perceived benefits of social media on performance of Jordanian entrepreneurial firms. *Cogent Business & Management*, 12(1), 2592424.
- Bharucha, J. (2018). Exploring education-related use of social media: business students perspectives in a changing India. *Education+ Training*, 60(2), 198-212.
- Chang, C. W., Huang, R. Y., Strong, C., Lin, Y. C., Tsai, M. C., Chen, I. H., ... & Griffiths, M. D. (2022). Reciprocal relationships between problematic social media use, problematic gaming, and psychological distress among university students: A 9-month longitudinal study. *Frontiers in public health*, 10, 858482.
- Chen, Z., Wu, Y., Ma, H., Niu, G., & Wang, W. (2023). The effect of social networking site use on depression in graduate students: The mediating role of negative social comparison and moderating role of implicit personality theories. *Behavioral Sciences*, 13(5), 412.
- Cui, J., Wang, Y., Liu, D., & Yang, H. (2023). Depression and stress are associated with latent profiles of problematic social media use among college students. *Frontiers in psychiatry*, 14, 1306152.
- Griffiths, M. D., Kuss, D. J., & Demetrovics, Z. (2014). Social networking addiction: An overview of preliminary findings. *Behavioral addictions*, 119-141.
- Hu, N., Xiao, X., & Soh, K. L. (2025). Association between problematic social media use and psychological distress among college students: a cross-sectional study in China exploring the mediating role of eating disorders. *BMJ open*, 15(5), e092863.
- Imtiaz, U., & Elbedour, H. (2025). Cybersecurity risk management in the digital era: The strategic value of ethical hacking. *Spectrum of Engineering Sciences*, 1076-1086.
- Imtiaz, U., Amin, F., & Khan, A. (2026). Crash2Compromise: CrashGuard-FS for security-aware Linux file updates. *Multidisciplinary Research in Computing Information Systems*, 6(2), 294-310.
- Jiang, Y. (2021). Problematic social media usage and anxiety among university students during the COVID-19 pandemic: The mediating role of psychological capital and the moderating role of academic burnout. *Frontiers in psychology*, 12, 612007.
- Kardefelt-Winther, D. (2014). A conceptual and methodological critique of internet addiction research: Towards a model of compensatory internet use. *Computers in human behavior*, 31, 351-354.
- 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.
- Khan, P., Shahid, M. S., & Majid, H. A. (2024). Mediating role of online social connectedness in smartphone addiction and online relationship among young adults. *Gomal University Journal of Research*, 40(3), 327-336.
- Kumar, R., Yousif, A. O., & Humaida, M. I. (2025). Investigation of the relationship between university students' nomophobia and psychological distress: A cross-sectional study. *International Journal of Medical Sciences*, 22(12), 3154–3161. <https://doi.org/10.7150/ijms.112738>
- Lopes, L. S., Valentini, J. P., Monteiro, T. H., Costacurta, M. C. D. F., Soares, L. O. N., Telfar-Barnard, L., & Nunes, P. V. (2022). Problematic social media use and its relationship with depression or anxiety: A systematic review. *Cyberpsychology, Behavior, and Social Networking*, 25(11), 691-702.

- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour research and therapy*, 33(3), 335-343.
- Masaeli, N., & Farhadi, H. (2021). Prevalence of Internet-based addictive behaviors during COVID-19 pandemic: A systematic review. *Journal of addictive diseases*, 39(4), 468-488.
- Mateen, M., & Agha, S. A. (2023). Social media usage and depressive symptoms in university students: a correlation study. *Clinical and Counselling Psychology Review*, 5(1), 1-16.
- Shahid, M. S., Abid, S., Anmol, H., Ain, S. F. U., & Saleem, Z. E. H. (2025). Addictive behaviours and mental health outcomes: A quantitative comparative study. *Regional Lens*, 4(3), 144-154.
- Shahid, M. S., Bashir, S., & Fatima, S. (2024). Social media addiction and aggression in Pakistani young adults: Social connectedness as a moderator. *Journal of Professional & Applied Psychology*, 5(3), 424-433.
- Shahid, M. S., Naeem, S., & Naeem, A. (2026). Problematic Social Media Use and Psychological Distress: The Mediating Role of Upward Social Comparison. *Qlantic Journal of Social Sciences and Humanities*, 7(1), 293-299.
- Shahid, M. S., Yousaf, R., & Munir, H. (2024). Social media addiction, depression and aggression in young adults. *Journal of Professional & Applied Psychology*, 5(2), 276-285.
- Shannon, H., Bush, K., Villeneuve, P. J., Hellemans, K. G., & Guimond, S. (2022). Problematic social media use in adolescents and young adults: Systematic review and meta-analysis. *JMIR mental health*, 9(4), e33450.
- Verduyn, P., Gugushvili, N., Massar, K., Täht, K., & Kross, E. (2020). Social comparison on social networking sites. *Current opinion in psychology*, 36, 32-37.
- Wong, H. Y., Mo, H. Y., Potenza, M. N., Chan, M. N. M., Lau, W. M., Chui, T. K., Pakpour, A. H., & Lin, C. Y. (2020). Relationships between severity of Internet gaming disorder, severity of problematic social media use, sleep quality and psychological distress. *International Journal of Environmental Research and Public Health*, 17(6), 1879.
- Zachos, G., Paraskevopoulou-Kollia, E. A., & Anagnostopoulos, I. (2018). Social media use in higher education: A review. *Education Sciences*, 8(4), 194.
- Zubair, U., Khan, M. K., & Albashari, M. (2023). Link between excessive social media use and psychiatric disorders. *Annals of medicine and surgery*, 85(4), 875.