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The relationship between maladaptive daydreaming and academic procrastination, depression, anxiety and stress levels in medical students

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ABSTRACT

Aims: Maladaptive daydreaming (MD) is a condition characterized by excessive and immersive daydreaming, often linked to psychological distress and behavioral difficulties. This research examines the correlation between MD, academic procrastination, and psychological distress among medical students.

Methods: A cross-sectional study was conducted with medical students who completed self-report questionnaires, including the MD scale (MDS-16), the Depression, Anxiety, and Stress Scale (DASS-21), and the Tuckman Procrastination Scale (TPS). Pearson correlation and multiple regression analyses were performed to assess associations between MD, academic procrastination, and psychological distress.

Results: The findings revealed a significant positive correlation between MD and academic procrastination ($r=.181$, $p<.05$). Additionally, MD was positively associated with depression ($r=.245$, $p<.001$), anxiety ($r=.222$, $p<.001$), and stress ($r=.216$, $p<.001$). However, MD did not show a significant direct association with academic performance ($\beta=-0.07$, $p=.28$).

Conclusion: While MD is strongly linked to academic procrastination and psychological distress, its direct impact on academic performance remains unclear. Future research should further explore the mechanisms underlying these associations and consider intervention strategies for individuals experiencing MD-related difficulties.

Keywords: Maladaptive daydreaming, academic procrastination, psychological distress, depression, anxiety

INTRODUCTION

Maladaptive daydreaming disorder (MD) is a relatively recently recognized condition in which the individual constructs intense and detailed imaginary situations.[1] These visions can often create a sense of detachment from real life, causing deep sensory and emotional reactions and leading to feelings of shame or embarrassment.[2] MD is generally used as a means of escape from reality and can become compulsive when excessive time is allocated to it, which in turn can negatively affect the daily functioning of the individual. Common symptoms of this disorder include prolonged and detailed daydreaming, inability to resist the urge to daydream, repetitive physical movements while daydreaming, and changes in facial expressions, whispering, or talking. Individuals often listen to music, watch videos, or carry out physical activities while undergoing MD, which may also cause the individual to postpone daily responsibilities.[3] A study of medical students identified that 70% had MD, which had a poor impact on their academic performance.[4]

Academic procrastination is when students delay academic responsibilities such as term papers, weekly assignments, or exam preparations.[5] Research shows that fear of failure, anxiety, low self-esteem, and certain personality traits lead to academic procrastination behavior.[6,7] Academic procrastination rates range from 46% to 95%, according to several studies.[8,9] Research carried out on students at a medical faculty indicated that 28.85% of the participants demonstrated high levels of academic procrastination behavior.[10] Such behaviors are associated with psychological problems such as loss of self-confidence and depression and can negatively affect the quality of life.[11] Individuals with high academic procrastination generally have lower academic achievement.[9,12] Additionally, procrastination behavior was reported to be related to psychological factors such as impulsivity and daydreaming.[13]

In light of these findings, MD can be considered to be widespread among medical students and may lead to various negative consequences. Likewise, academic procrastination can negatively affect the student's psychological state and academic performance. However, the relationship between MD and academic procrastination among medical students

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has not been systematically examined. Our study aimed to investigate the association among depression, anxiety, stress, MD, and academic procrastination, as well as their effects on the academic performance of medical students.

Previous research has suggested that individuals with high levels of MD often experience difficulty in maintaining attention and regulating their cognitive processes. These impairments may contribute to procrastinatory behavior, as daydreaming can serve as a means of cognitive avoidance and emotional escape from academic demands. Moreover, psychological distress such as anxiety, depression, and stress may both result from and contribute to MD, creating a potential bidirectional relationship. Accordingly, this study aims to investigate the interconnectedness of MD, academic procrastination, and emotional distress, and their collective impact on academic functioning. In line with the existing literature, the following hypotheses were put forward:

H1: MD is strongly associated with depression, anxiety, and stress.

H2: MD is strongly related to academic procrastination.

H3: Academic procrastination and grade point average are significantly negatively correlated.

H4: Grade point average and MD are significantly negatively correlated.

METHODS

Ethics

The Faculty of Medicine Ethics Committee approved the study at Karamanoğlu Mehmetbey University (Date:19.12.2023, Decision No: 12-2023/03). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

Study Procedure

The current cross-sectional study was conducted on the School of Medicine students at Çanakkale Onsekiz Mart University and Karamanoğlu Mehmetbey University in the 2023-2024 academic term. The data were collected through Google Forms, the link of which was distributed to the students via the WhatsApp application. The initial stage of the form featured an informed consent document. Only those who approved the informed consent form completed the sociodemographic data form, MD scale (MDS-16), TPS, and Depression Anxiety Stress Scale (DASS-21) in the second stage. Participants who did not volunteer to participate in the study, those who had a psychiatric illness and were receiving treatment, and those who left the scales incomplete were excluded. The sample size was determined using a power analysis conducted with G*power software. Previous studies explored the relationship between MD and academic performance; however, findings vary in effect size and methods. Thus, a medium effect size (Cohen's d=0.5) was assumed for power analysis. An independent samples t-test power analysis was conducted using the following parameters: effect size (d)=0.5, alpha=0.05, power=0.80, and a two-tailed test. Based on these criteria, a minimum of 64 participants per group was required. To account for potential data loss and enhance statistical power, the total sample size was set at least 130 participants.

Data Collection Tools

Socio-demographic data form: The researchers prepared a form to obtain information on age, gender, marital status, grade level, average academic score, additional physical illnesses, smoking, alcohol and substance use, current psychiatric illnesses, place of residence, and family structure.

Maladaptive Daydreaming Scale (MDS-16): MDS-16, developed by Somer et al.[14], is the first scale to measure abnormal daydreaming. The MDS-16 is a self-report scale and consists of 16 items. The Cronbach's alpha value of the scale was determined to be 95. The participant completes the scale by marking one of ten possible points (from 0 to 100) under each question on the chart, representing the frequency of the experience (from 0% to 100%). The average of 16 questions is used to determine the scale score. Metin et al.[15] carried out a reliability and validation study for the Turkish version of the scale. Following the analyses, the reliability test of the scale yielded a Cronbach's alpha value of 0.89. The correlations between the items in the MDS scale in the item-total correlation analysis ranged from 0.45 to 0.70. Metin et al.[15] also reported that the convergent validity and content of the scale were both adequate. 'Maladaptive daydreamers' (MDers) were defined as those who scored 50 or higher on the MDS-16 scale, while 'NonMDers' were defined as everybody else.

Tuckman Academic Procrastination Scale (TPS): The TPS was developed by Tuckman[16] to determine the procrastination tendencies of university students and was adapted to the Turkish by Uzun Özer, Saçkes, and Tuckman.[17] An exploratory factor analysis was conducted with 236 students to evaluate the adaptation process to Turkish, followed by a confirmatory factor analysis involving 622 students. The participants rated their feelings on a 5-point Likert scale. Based on this analysis, the adapted scale comprised 14 items grouped under a single factor for college students. The confirmatory factor analysis indicated a good model fit based on the goodness of fit indices.

Furthermore, the scale indicated good reliability, with a Cronbach's alpha value of 0.90 and a test-retest reliability score of 0.80 based on assessments with 22 individuals. Notably, items 6, 10, 12, and 14 are scored reversely. Higher scores are thought to reflect a greater propensity for academic procrastination.

Depression Anxiety Stress Scale-21 (DASS-21): The DASS-21 was created by Lovibond and Lovibond[18] by shortening the DASS-42. The psychometric properties of the Turkish version of the DASS-21 scale were conducted by Sarıçam.[19] A score of 5 or above in depression, 4 or above in anxiety, and 8 or above in stress suggests that the individual is facing significant challenges in these areas. The scores are categorized as "normal," "mild," "moderate," "severe," or "extremely severe,".

Statistical Analysis

The data was analyzed using SPSS v27 software (IBM Corp, Armonk, NY, USA). The Kolmogorov-Smirnov test indicated that the study data was not normally distributed. Based on

the MDS-16 scale score, students scoring 50 or above were classified as MD'ers, while the rest were classified as non-MD'ers. The chi-squared test was employed to compare categorical data, whereas the Mann-Whitney U test was utilized to examine continuous variables. The relationship between academic achievement (GPA) and scores on the DASS-21, MDS-16, and TPS scales was evaluated using the Spearman correlation test. Additionally, the characteristics predicting academic performance (GPA) were examined using linear regression analysis. All analyses were deemed significant at the p<0.05 level.

RESULTS

The demographic attributes and scale scores of 201 participants (42.8% male, 57.2% female) are shown in **Table 1**. The mean age of the participants was 20.63±2.30 years, and the mean scores of the DASS-21 depression, anxiety, and stress subscales were calculated as 8.29±5.19, 7.25±4.29, and 8.66±4.30, respectively. The mean MDS-16 score was 54.11±26.97, and the mean TPS score was 40.83±8.85.

Table 1. Sociodemographic and descriptive characteristics of the participants

Variable	n (%) or mean±SD
Gender	
Male	86 (42.8%)
Female	115 (57.2%)
Income level	
Low	35 (17.4%)
Medium	151 (75.1%)
High	15 (7.5%)
Living arrangement	
With family	25 (12.4%)
Student housing	47 (23.4%)
Student dormitory	105 (52.2%)
Alone	24 (11.9%)
Parents' marital status	
One parent deceased	5 (2.5%)
Living separately	3 (1.5%)
Living together	187 (93.0%)
Divorced	6 (3.0%)
Current psychiatric disorder	
Yes	17 (8.5%)
No	184 (91.5%)
Age	20.63±2.30
DASS-21 D	8.29±5.19
DASS-21 A	7.25±4.29
DASS-21 S	8.66±4.30
MDS-16	54.11±26.97
TPS	40.83±8.85

DASS-D: Depression subscale of the Depression Anxiety Stress Scale, DASS-A: Anxiety subscale of the Depression Anxiety Stress Scale, DASS-S: Stress subscale of the Depression Anxiety Stress Scale, TPS: Tuckman Procrastination Scale, MDS-16: Maladaptive Daydreaming Scale

Table 2 presents the relationships between the DASS-21, MDS-16, and TPS measures. Scores from the MDS-16 showed a positive relationship with the DASS-21 depression (r=0.245, p<0.01), Anxiety (r=0.222, p<0.01), and stress (r=0.216, p<0.01) subscales. Additionally, TPS showed significant positive correlations with the DASS-21 depression (r=0.486, p<0.01), anxiety (r=0.422, p<0.01), and stress (r=0.353, p<0.01) subscales. In addition, scores from the TPS and the MDS-16 showed a weak but significant correlation (r=0.181, p<0.05), while TPS and GPA had a negative correlation (r=-0.216, p<0.01).

Table 2. Correlations between DASS-21, MDS-16, TPS scales and GPA

Variable	1	2	3	4	5	6
1. DASS-21 D	--					
2. DASS-21 A	.667**	--				
3. DASS-21 S	.672**	.708**	--			
4. MDS-16	.245**	.222**	.216**	--		
5. TPS	.486**	.422**	.353**	.181*	--	
6. GPA	-.103	-.081	-.015	.157	-.216**	--

**: Correlation is significant at the 0.01 level (2-tailed). *: Correlation is significant at the 0.05 level (2-tailed). DASS-D: Depression subscale of the Depression Anxiety Stress Scale, DASS-A: Anxiety subscale of the Depression Anxiety Stress Scale, DASS-S: Stress subscale of the Depression Anxiety Stress Scale, TPS: Tuckman Procrastination Scale, GPA: Grade point average

A comparison of the DASS-21, GPA, and TPS scores between the MD'ers and non-MD'ers is shown in **Table 3**. Participants identified as maladaptive daydreamers had higher DASS-21 scores compared to non-daydreamers. Thus, the depression subscale score was 9.34±5.13 vs 7.19±5.05 (U=3766, p=0.002), anxiety was 8.16±4.39 vs 6.30±3.97 (U=3844, p=0.003) and stress was 9.22±4.32 vs 8.51±4.76 (U=4077, p=0.018) for MD'ers versus non-MD'ers, respectively. No significant difference was found in GPA between maladaptive daydreamers and non-daydreamers (2.93±0.42 vs. 2.84±0.53, U=2685, p=0.319). MD'ers scored significantly higher on the TPS than non-MD'ers (41.93±9.43 vs. 39.66±8.09, U=4176, p=0.034).

Table 3. Comparison of DASS-21, GPA and TPS scores between non-MD'ers and MD'ers

Variable	Non MD'ers (mean±SD)	MD'ers (mean±SD)	U	p
DASS-21 depression	7.19±5.05	9.34±5.13	3766	0.002
DASS-21 anxiety	6.30±3.97	8.16±4.39	3844	0.003
DASS-21 stress	8.51±4.76	9.22±4.32	4077	0.018
GPA	2.84±0.53	2.93±0.42	2685	0.319
TPS	39.66±8.09	41.93±9.43	4176	0.034

MD: Maladaptive daydreaming, SD: Standart deviation, DASS-D: Depression subscale of the Depression Anxiety Stress Scale, DASS-A: Anxiety subscale of the Depression Anxiety Stress Scale, DASS-S: Stress subscale of the Depression Anxiety Stress Scale, TPS: Tuckman Procrastination Scale, GPA: Grade point average

After adjusting for sociodemographic variables, a regression analysis was used to investigate the predictive effects of MD, academic procrastination, and psychological distress (DASS subscales: depression, anxiety, and stress) on the GPA. Academic procrastination was found to be a significant negative predictor of GPA (β=-0.016, p=0.026), suggesting a link between higher levels of procrastination and lower academic achievement. GPA was not significantly predicted by psychological distress characteristics such as stress (β=0.022, p=0.268), anxiety (β=0.009, p=0.673), depression (β=-0.005, p=0.747), or MD (β=0.003, p=0.102) (**Table 4**).

Table 4. Regression analysis for GPA prediction

Predictor	Estimate	SE	t	p
Intercept	2.57	1.02	2.52	0.016
DASS-D	-0.005	0.01	-0.33	0.747
DASS-A	0.009	0.02	0.43	0.673
DASS-S	0.022	0.02	1.12	0.268
MDS-16	0.003	0.002	1.67	0.102
TPS	-0.016	0.007	-2.30	0.026

The model was adjusted for sociodemographic variables, GPA: Grade point average, SE: Standard error, DASS-D: Depression subscale of the Depression Anxiety Stress Scale, DASS-A: Anxiety subscale of the Depression Anxiety Stress Scale, DASS-S: Stress subscale of the Depression Anxiety Stress Scale, MDS-16: Maladaptive Daydreaming Scale, TPS: Tuckman Procrastination Scale

DISCUSSION

This study explored the association between academic procrastination, anxiety, depression, stress, and MD among medical students. The findings showed a positive correlation between academic procrastination and stress, depression, and MD, while academic achievement and procrastination were negatively correlated. Furthermore, a sizable portion of the participants displayed symptoms of MD; moreover, these students also reported higher levels of anxiety, stress, and depression. However, the GPA did not show any difference between the two groups.

Very little research has been reported to date on MD among medical students. The incidence of MD among medical students in Saudi Arabia was reported to be 70%; the exact incidence was 34.3% in Sudan and 18.4% in Basra.[4,20,21] The high variability in the incidence can be attributed to cultural variations, socioeconomic circumstances, and differing cut-off points on the MDS scale used to detect MD.

We observed no direct association between MD and academic performance (represented by the GPA), contradicting our initial hypotheses. The current data in the literature is insufficient to establish any firm conclusion on this relationship. For example, Alenizi et al.[4] reported that students who engaged in MD had worse GPAs. Akhtar et al.[22] demonstrated a link between academic achievement and MD. However, in the study by Akhtar et al.[22], academic performance was measured using a more subjective question, such as "whether they perceived the effects of MD on their exam scores" rather than an objective criterion such as GPA. This difference in methodology may account for the inconsistency in results. We consider the evaluation of academic performance with the GPA to be more objective and, therefore, more representative of the correlation between MD and academic performance. Moreover, cultural context, institutional expectations, and individual coping capacities (i.e. last-minute effort or selective academic focus) likely play a role in shaping both daydreaming behaviors and academic outcomes.

Although the relationship between MD and academic performance is currently unknown, based on the findings mentioned earlier, we propose that a correlation between academic procrastination and MD does exist, i.e., MD increases academic procrastination, which may have a detrimental effect on academic achievement. This finding supports previous research suggesting that procrastination is associated with external distraction and the ability to control one's internal thoughts.[23] Earlier studies also indicate the presence of a link between procrastination and inadequate control over attention.[24] However, our findings suggest that this association may be more closely tied to the individual's ability to govern cognitive processes than environmental cues. The use of MD to avoid stressful situations and responsibilities suggests that scholastic procrastination could be a similar escape mechanism.[25] Excessive daydreaming can lead to poor time management and result in academic procrastination.

Academic procrastination has been linked to a decline in academic performance in prior studies.[26,27] Thus, upon realizing the intensity of the medical school curriculum, medical students may procrastinate more, especially with challenging tasks.[28] Individuals who procrastinate on their tasks have more difficulty sustaining attention, have higher distractibility, and increased reaction time variability.[29] The emergence of time management problems with increased academic procrastination and distraction may lead to worse academic performance. In addition, academic procrastination may lead to examination anxiety, which can negatively affect academic success.[6]

Previous studies have reported that MD often accompanies various psychopathologies, such as depressive disorders, anxiety disorders, and obsessive-compulsive and dissociative disorders.[30,31] Supporting these findings, we observed that the levels of anxiety, stress, and depression were higher in MD'ers. In light of our findings and the existing literature, the presence of a reciprocal relationship between MD and negative emotions can be suggested. For example, MD may be used as an emotional regulation strategy by generating positive emotions and avoiding negative emotions, distressing memories, and feelings of loneliness.[32] In addition, MD'ers tend to be more anxious and sensitive in their interpersonal relationships and tend to direct the focus of their difficulties more on themselves.[32] MD is an escape from the responsibilities and anxieties of the individual's daily life.[33] However, excessive involvement of such daydreams in daily life may lead the individual to ignore their problems, resulting in psychological conditions such as isolation and depression. Excessive use of MD to alleviate depression and anxiety can, therefore, lead to a vicious cycle.

Limitations

Although the current study produced essential data, it is crucial to recognize several limitations when interpreting these findings. Firstly, it's essential to remember that the study's cross-sectional design prevents assessing causal relationships between the variables. Furthermore, using self-report questionnaires for data collection raises the possibility of bias because of participant interpretations. Furthermore, the current study accounted for stress, anxiety, and depression, while additional variables that may be linked to MD, including personality characteristics, attention deficit hyperactivity disorder, and childhood trauma were not considered. Finally, the study's limited sample size restricts the broad applicability of the results.

CONCLUSION

As a result, our findings indicate that MD is linked not only to academic procrastination but also to depression, anxiety, and stress. This highlights the importance of considering internal cognitive processes, such as MD, when addressing procrastination behaviors that can negatively affect the academic functioning of medical students.

By systematically examining MD in a high-stress population like medical students, the present research addresses a largely understudied area. Incorporating both psychological distress and behavioral outcomes such as academic procrastination, it offers a comprehensive perspective that is often lacking in the existing literature. Moreover, the use of objective performance data (GPA) enhances the methodological rigor and fills a critical gap in prior research.

These findings can inform future longitudinal studies with larger samples and provide a valuable foundation for developing targeted intervention strategies aimed at reducing the academic and psychological burden of MD.

ETHICAL DECLARATIONS

Ethics Committee Approval

Approval was obtained from the Faculty of Medicine Ethics Committee approved the study at Karamanoğlu Mehmetbey University (Date: 19.12.2023, Decision No: 12-2023/03).

Informed Consent

All patients signed and free and informed consent form.

Referee Evaluation Process

External peer-reviewed.

Conflict of Interest Statement

The authors claimed no conflict of interest.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

REFERENCES

1. Bigelsen J, Schupak C. Compulsive fantasy: proposed evidence of an under-reported syndrome through a systematic study of 90 self-identified non-normative fantasizers. *Conscious Cogn.* 2011;20(4):1634-1648. doi:10.1016/j.concog.2011.08.013
2. Somer E, Somer L, Jopp DS. Parallel lives: a phenomenological study of the lived experience of maladaptive daydreaming. *J Trauma Dissoc.* 2016;17(5):561-576. doi:10.1080/15299732.2016.1160463
3. Bigelsen J, Lehrfeld JM, Jopp DS, Somer E. Maladaptive daydreaming: evidence for an under-researched mental health disorder. *Conscious Cogn.* 2016;42:254-266. doi:10.1016/j.concog.2016.03.017
4. Alenizi MM, Alenazi SD, Almushir S, et al. Impact of maladaptive daydreaming on grade point average (GPA) and the association between maladaptive daydreaming and generalized anxiety disorder (GAD). *Cureus.* 2020;12(10):e10776. doi:10.7759/cureus.10776
5. Schouwenburg HC. Academic procrastination. In: Procrastination and Task Avoidance. 1995.
6. Rezaei-Gazki P, Ilaghi M, Masoumian N. The triangle of anxiety, perfectionism, and academic procrastination: exploring the correlates in medical and dental students. *BMC Med Educ.* 2024;24(1):1-7. doi:10.1186/s12909-024-05145-3
7. Bäulke L, Daumiller M, Dresel M. How conscientiousness and neuroticism affect academic procrastination: mediated by motivational regulation? *Z Entwicklungspsychol Padagog Psychol.* 2019;51(4):216-227. doi:10.1026/0049-8637/a000225
8. Özer BU, Demir A, Ferrari JR. Exploring academic procrastination among Turkish students: possible gender differences in prevalence and reasons. *J Soc Psychol.* 2009;149(2):241-257. doi:10.3200/SOCP.149.2.241-257
9. Hayat AA, Jahanian M, Bazrafcan L, Shokrpour N. Prevalence of academic procrastination among medical students and its relationship with their academic achievement. *Shiraz E-Med J.* 2020;21(7):1-7. doi:10.5812/semj.96049
10. Hayat AA, Kojuri J, Amini M. Academic procrastination of medical students: the role of internet addiction. *J Adv Med Educ Prof.* 2020;8(2):83-88. doi:10.30476/JAMP.2020.85000.1159
11. Rabin LA, Fogel J, Nutter-Upham KE. Academic procrastination in college students: the role of self-reported executive function. *J Clin Exp Neuropsychol.* 2011;33(3):344-357. doi:10.1080/13803395.2010.518597
12. Kljajic K, Gaudreau P. Does it matter if students procrastinate more in some courses than in others? A multilevel perspective on procrastination and academic achievement. *Learn Instr.* 2022;12:786249. doi:10.3389/fpsyg.2021.786249
13. Rebetez MML, Rochat L, Barsics C, Van der Linden M. Procrastination as a self-regulation failure: the role of impulsivity and intrusive thoughts. *Psychol Rep.* 2018;121(1):26-41. doi:10.1177/0033294117720695
14. Somer E, Lehrfeld J, Bigelsen J, Jopp DS. Development and validation of the maladaptive daydreaming scale (MDS). *Conscious Cogn.* 2016;39:77-91. doi:10.1016/j.concog.2015.12.001
15. Metin S, Gocmen B, Metin B. Turkish validity and reliability study of maladaptive daydreaming scale. *Psychiatry Behav Sci.* 2022;12(1):1-5. doi:10.5455/PBS.20210907111754
16. Tuckman BW. The development and concurrent validity of the procrastination scale. *Educ Psychol Meas.* 1991;51(2):473-480. doi:10.1177/00131644915120
17. Özer BU, Saçkes M, Tuckman BW. Psychometric properties of the Tuckman procrastination scale in a Turkish sample. *Psychol Rep.* 2013;113(3):874-884. doi:10.2466/03.20.PR0.113x28z7
18. Lovibond PF, Lovibond SH. The structure of negative emotional states: comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behav Res Ther.* 1995;33(3):335-343. doi:10.1016/0005-7967(94)00075-u
19. Sariçam H. The psychometric properties of Turkish version of depression anxiety stress scale-21 (DASS-21) in health control and clinical samples. *JCBPR.* 2018;7(1):19-30. doi:10.5455/JCBPR.274847
20. Bashir MMI. Prevalence of maladaptive daydreaming among medical students at the University of Khartoum, Sudan, in 2020–2021. *Middle East Curr Psychiatry.* 2021;28(1):41.
21. HKammad ZA, Ali Hussain M. Prevalence of proneness to maladaptive daydreaming syndrome in Basra medical students. *Int J Early Child Spec Educ.* 2021;20(1):2009-2013. doi:10.17051/ilkonline.2021.01.219
22. Akhtar A, Shamim H, Khokhar MM, Rehman G. Academic performance and suicidal ideation in young maladaptive daydreamers: a cross-sectional descriptive study. *J Pak Med Assoc.* 2025;75(1):52-55. doi:10.47391/JPMA.11316
23. Kam JWY, Handy TC. The neurocognitive consequences of the wandering mind: a mechanistic account of sensory-motor decoupling. *Front Psychol.* 2013;4:725. doi:10.3389/fpsyg.2013.00725
24. Steel P, Svartdal F, Thundiyil T, Brothen T. Examining procrastination across multiple goal stages: a longitudinal study of temporal motivation theory. *Front Psychol.* 2018;9:327. doi:10.3389/fpsyg.2018.00327
25. Nowacki A, Pyszkowska A. It is all about discomfort avoidance: maladaptive daydreaming, frustration intolerance, and coping strategies–a network analysis. *Curr Psychol.* 2024;43(34):27447-27455. doi:10.1007/s12144-024-06382-x
26. Goda Y, Yamada M, Kato H, Matsuda T, Saito Y, Miyagawa H. Procrastination and other learning behavioral types in e-learning and their relationship with learning outcomes. *Learn Individ Differ.* 2015;37:72-80. doi:10.1016/j.lindif.2014.11.001

27. Wäschle K, Allgaier A, Lachner A, Fink S, Nückles M. Procrastination and self-efficacy: tracing vicious and virtuous circles in self-regulated learning. *Learn Instr.* 2014;29(1):103-114. doi:10.1016/j.learninstruc.2013.09.005
28. Blunt AK, Pychyl TA. Task aversiveness and procrastination: a multi-dimensional approach to task aversiveness across stages of personal projects. *Pers Individ Dif.* 2000;28(1):153-167. doi:10.1016/S0191-8869(99)00091-4
29. Wiwatowska E, Pietruch M, Katafoni P, Michałowski JM. "I can't focus now, I will study tomorrow"-the link between academic procrastination and resistance to distraction. *Learn Individ Differ.* 2023;107:102364. doi:10.1016/j.lindif.2023.102364
30. Somer E. Maladaptive daydreaming: ontological analysis, treatment rationale. *Front Psychother Tra Dissoc*. 2018;1(2):1-22. doi:10.XXXX/ftpd.2017.0006
31. Soffer-Dudek N, Somer E. Trapped in a daydream: daily elevations in maladaptive daydreaming are associated with daily psychopathological symptoms. *Front Psychiatry.* 2018;9:194. doi:10.3389/fpsyt.2018.00194
32. Sándor A, Bugán A, Nagy A, Bogdán LS, Molnár J. Attachment characteristics and emotion regulation difficulties among maladaptive and normal daydreamers. *Curr Psychol.* 2023;42(2):1617-1634. doi:10.1007/s12144-021-02223-3
33. Somer E, Somer L, Halpern N. Representations of maladaptive daydreaming and the self: a qualitative analysis of drawings. *Arts Psychother.* 2019;63:102-110. doi:10.1016/j.aip.2018.12.004