

Association of maladaptive daydreaming with behavioral addictions

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Abstract

Maladaptive daydreaming (MD) is a proposed syndrome characterized by extensive, immersive daydreaming. Case reports have suggested an association of MD with behavioral addictions such as excessive internet use, online gaming, and compulsive sexual behaviors. The aim of this study was to investigate maladaptive daydreaming and behavioral addiction symptoms among young adults. An online questionnaire was administered to 293 volunteer medical students. Participants were assessed by applying the 16-item Maladaptive Daydreaming Scale (MDS-16), Addictive Behavior Burden Form, and Adult Attention Deficit Hyperactivity Disorder Self-Report Scale (ASRS). Participants were divided into two groups: probable MD (MDers) and non-MDers, according to MDS-16. Age and gender did not significantly differ between the MD and non-MD groups. MDers had more severe symptoms associated with gaming addiction ($p = 0.03$; $U = 4941$), problematic social media use ($p = 0.01$; $U = 4680$), food addiction ($p = 0.01$; $U = 4965$), sex/pornography addiction ($p = 0.01$; $U = 4787$), and compulsive buying ($p = 0.03$; $U = 4874$) than non-MDers. Among the behavioral addiction dimensions assessed in the study, only gaming addiction was a significant statistical predictor of MD. These findings highlight a significant association between MD and behavioral addictions, particularly gaming addiction, in young adults. Furthermore, the findings of this study suggest a unique relationship between gaming addiction and MD.

Keywords: Maladaptive daydreaming, daydreaming, fantasy, addictive behavior, gaming disorder

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Introduction

Daydreaming is a common and normal mental activity [1]. Recent literature has explored the phenomenon of excessive, uncontrolled daydreaming that disrupts daily functioning [2]. Maladaptive daydreaming (MD), describes recurrent daydreaming activities characterized by a shift of attention to a rich inner world, to the neglect of social, occupational, and academic activities [3]. MD, currently under research, is not yet recognized as a formal disorder in the International Classification of Diseases (ICD) or Diagnostic and Statistical Manual of Mental Disorders (DSM) [4]. Limited research exists on the prevalence of MD, with a reported point prevalence of 2.5% in the Israeli population [5]. In addition to being a common condition, MD is thought to be associated with various mental disorders. MD has been reported to have a high comorbidity with attention deficit hyperactivity disorder (ADHD), anxiety disorder, depression, obsessive-compulsive and related disorders [6]. Moreover, recent studies have shown that MD doubles the risk of suicide [7]. This supports the need for MD to be addressed as an important public health problem and needs to be examined in more detail.

Despite its prevalence and potential negative consequences, MD may serve as a coping strategy for some individuals [8]. MD is experienced not only as a defense mechanism to distract attention from current stressors but also as a rewarding activity [2]. People talk about daydreaming as a relaxing, fun activity, that they prefer this behavior because their lives are boring, and that it would be sad for them if they did not have this activity [2]. Experiencing MD as pleasurable (positive reinforcement) or using it as a coping mechanism to avoid negative situations (negative reinforcement) can lead to the reinforcement of this behavior. Case reports suggest that individuals with MD may exhibit tolerance (increasing behavior to achieve desired effects) and withdrawal symptoms (restlessness when unable to daydream) [9]. It has also been reported that although MD may have desirable effects for individuals in the short term, it may negatively affect their lives in the long term [10]. Moreover, case reports have been reported

showing the association of MD with behavioral addictions such as excessive internet use, online gaming, and compulsive sexual behaviors [9,11]. Although all these findings support the idea that MD can be considered a behavioral addiction, there are not yet enough studies to provide conclusive evidence.

There is a strong association between ADHD and behavioral addiction [12]. It has been shown that up to 83.3% of those with behavioral addiction and 76.9% of those with MD may have ADHD comorbidity [13,14]. This high comorbidity suggests that different behavioral addictions, MD, and ADHD may be related to similar biopsychosocial etiologies.

The main aim of this study was to investigate the relationship between MD and behavioral addictions. In addition, it was aimed at evaluating the predictive effect of ADHD symptoms and different behavioral addiction symptoms on MD.

The study proposed the following hypotheses:

- Maladaptive daydreamers (MDers) demonstrate a greater burden of behavioral addiction as evaluated through self-report measures compared to non-MDers.
- Maladaptive daydreamers (MDers) exhibit higher levels of ADHD symptoms compared to non-MDers.
- Behavioral addiction and ADHD symptom severity predict maladaptive daydreaming severity.

Materials and Methods

Uşak University Medical Ethics Committee approved the study for Clinical Studies (280-12). The research was planned as a cross-sectional survey with analytical components to assess associations between variables. Students from Uşak University Faculty of Medicine who gave informed consent to participate in the study and completed the online questionnaire were included in the study. Online surveys using Google Forms were delivered to students via phone messages. Of the students invited to the study, 41% completed it. All participants who completed the online questionnaire were included in the study and no exclusion criteria were used. The study was conducted between

15th January and 26th February 2024.

Instruments

Sociodemographic and Clinical Characteristics Information Form

Clinical information such as age, gender, marital status, academic year, history of mental disorders and physical illness, information about the treatments they were using, and history of mental disorders in their family history were recorded. It was used to record the sociodemographic and clinical characteristics of the patients participating in the study in a detailed and systematic manner.

The Maladaptive Daydreaming Scale (MDS-16)

It is a Likert-type self-report scale used to measure the severity of MD [15]. It consists of 16 items, and each item is scored between 0 and 100 points. Higher scores on the scale are associated with more severe MD. The Turkish validity and reliability study was conducted [16]. The study found strong internal consistency for the total score, with a *Cronbach's alpha* of 0.89. It has been reported that scores of 50 and above on the scale can distinguish individuals with MD from normal controls [6]. MDS-16 was used in this study to measure the severity of maladaptive daydreaming and a cut-off value of 50 was used to divide the participants into two groups: probable MDers (MDS-16 total score \geq 50) and non-MDers (MDS-16 total score $<$ 50).

Burden of Behavioral Addiction Form

The Burden of Behavioral Addiction Form is an 11-point Likert-type scale that was developed to screen for symptoms that people may exhibit in compulsive buying, problematic social media use, and food, gambling, gaming, or sex/pornography addiction [17]. It consists of questions that evaluate six basic biopsychosocial areas for each behavioral addiction: "excessive focus on the problematic behavior or craving, changes in mood or feelings of relief, tolerance, withdrawal effects, social or occupational impairment, and relapse" [18]. Each question is scored between 0 and 10 points, and the total scores that can be received for each behavioral addiction dimension range from 0 to 60. Higher scores on the scale are connected with an

increased probability of behavioral addiction and a greater impact of symptoms on the person's life within the addiction criteria. The scale score reveals strong internal consistency for the total score, with a *Cronbach's alpha* of 0.942. *Cronbach's alpha* coefficients for the whole group were between 0.89 and 0.93 (gambling: 0.933; problematic social media use: 0.921; gaming addiction: 0.931; sex/pornography addiction: 0.910; food addiction: 0.894; compulsive buying: 0.915).

Adult ADHD Self-Report Scale (ASRS)

ASRS is a five-point Likert-type self-report scale developed to screen for ADHD in adults [19]. It has two subscales: 'attention deficit' and 'hyperactivity/impulsivity'. Each item is scored between 0 and 4, with total scores ranging from 0 to 64. Higher scores on the scale are associated with more severe ADHD symptoms. The Turkish validity and reliability of the scale were assessed, revealing strong internal consistency for the total score with a *Cronbach's alpha* of 0.88 [20].

Statistical Analysis

The data was analyzed using the Jamovi software version 2.3.28. The normal distribution was assessed with the *Shapiro -Wilk* test, the *Kolmogorov -Smirnov* test, and histograms. Descriptive statistics were expressed as median, interquartile range, mean, and standard deviation values for continuous variables and percentages for categorical variables. The *Mann-Whitney U* test was used for comparing the medians of non-normally distributed continuous variables and the Student's *t*-test for comparing the means of normally distributed continuous variables between the two groups. The χ^2 test was used to compare the observed frequencies in each category between the groups. The correlation coefficients for the relationships between the variables were examined using the Spearman test. The statistical significance level was set at 5% ($p < 0.05$) in this study.

When the groups (MDers and non-MDers) were supposed to be distributed at a rate of 1/5 based on the findings of previous studies [21], it was found that 250 participants should be included to achieve a modest effect size ($d = 0.5$) with 90% power and 5% type-1 error.

Results

Of the 721 students who received the online survey, 293 (41%) completed it. Participants were divided into two groups according to their score on the MDS-16 scale: MDers (n = 50; 17%) and non-MDers (n=243; 83%). The sociodemographic characteristics of the participants are shown in Table 1. The frequency of mental disorders and methylphenidate use were found to be higher in the MDers. No difference was found between the groups in terms of age, gender, marital status, and educational status (Table 1).

The behavioral addiction and ADHD scale scores in the study groups are shown in Table 2. The MDers had significantly higher scores in terms of compulsive buying, problematic social media use, food addiction, gaming addiction, and sex/

pornography addiction severity than the non-MDers. There was no difference between the groups in terms of gambling addiction severity. The MDers had significantly higher ASRS scale scores than the non-MDers ($p<0.001$).

Positive correlations were found between the scores obtained from the MDS-16 total scores and compulsive buying, problematic social media use, food addiction, gaming addiction, and sex/pornography addiction severity and ASRS total scores. Correlations are shown in Table 3.

Multiple regression analysis was applied to predict the scores obtained from the MDS-16. In the model, age, gender, compulsive buying, problematic social media use, food addiction, gaming addiction, sex/pornography addiction, gambling addiction, and ASRS total score were

Table 1. Sociodemographic and clinical characteristics of the study groups.

	Total (n= 293)	non-MDers (n= 243)	MDers (n= 50)	Statistics	p
Age					
Mean (SD)	21.7 (2.25)	21.7 (2.32)	21.4 (1.93)	0.858	0.391 ^b
Median (IQR)	22.0 (3.0)	22.0 (3.0)	22.0 (3.0)	5640	0.421 ^c
Sex				0.315	0.575 ^a
Female	186 (63.48%)	156 (64.2%)	30 (60%)		
Male	107 (36.51%)	87 (35.8%)	20 (40%)		
Marital status				0.834	0.659 ^a
Single	289 (98.63%)	239 (98.4%)	50 (100%)		
Married	2 (0.7%)	2 (0.8%)	0 (0%)		
Divorced	2 (0.7%)	2 (0.8%)	0 (0%)		
Academic year				8.78	0.118 ^a
1 st year	58 (19.80%)	48 (19.8%)	10 (20%)		
2 nd year	29 (9.90%)	25 (10.3%)	4 (8%)		
3 rd year	63 (21.50%)	47 (19.3%)	16 (32%)		
4 th year	35 (11.95%)	26 (10.7%)	9 (18%)		
5 th year	58 (19.80%)	52 (21.4%)	6 (12%)		
6 th year	50 (17.06%)	45 (18.5%)	5 (10%)		
Mental disorders	51 (17.41%)	35 (14.4%)	16 (32%)	8.93	0.003^a
Psychiatric treatment					
Antidepressant	42 (14.33%)	32 (13.2%)	10 (20%)	1.58	0.209 ^a
Antipsychotic	1 (0.00%)	1 (0.4%)	0 (0%)	0.206	0.650 ^a
Anxiolytic	0 (0.00%)	0 (0%)	0 (0%)		
Mood stabilizer	0 (0.00%)	0 (0%)	0 (0%)		
Stimulants	7 (0.02%)	3 (1%)	4 (8%)	8.14	0.004^a
Physical disease	34 (11.60%)	29 (11.9%)	5 (10%)	0.151	0.697 ^a
Cigarette use	87 (29.69%)	68 (28.0%)	19 (38%)	1.99	0.158 ^a
Alcohol use	126 (43.00%)	103 (42.4%)	23 (46%)	0.221	0.638 ^a
Family history of mental disorders	34 (11.60%)	25 (10.3%)	9 (18%)	2.40	0.121 ^a

MDers: Maladaptive Daydreamers, SD: Standard Deviation, IQR: Interquartile Range. Significant p values are marked in bold.

^a χ^2 test for comparisons between the study groups.

^b Student's t -test for comparisons between the study groups.

^c *Mann-Whitney U* for the comparisons between the study groups.

Table 2. Comparison of Behavioral Addiction and Attention Deficit Hyperactivity Disorder Symptom Severity between the study groups.

	Total (n= 293)	non-MDers (n= 243)	MDers (n= 50)	Statistics	p	Effect Size
MDS-16						
Mean (SD)	31.4 (18.4)	25.4 (13.2)	60.8 (10.1)	-17.9 ^a	<0.001	-2.78
Median (IQR)	29.4 (25.0)	24.4 (20.6)	57.5 (11.3)	0.00 ^b	<0.001	1.00
ASRS						
Mean (SD)	30.5 (13.5)	28.037 (12.30)	42.48 (12.87)	-7.50 ^a	<0.001	-1.165
Median (IQR)	30 (18.0)	28.00 (17.0)	41.00 (13.8)	24.92 ^b	<0.001	0.5899
BBAF						
Gambling addiction						
Mean (SD)	0.997 (4.84)	0.786 (4.31)	2.02 (6,81)	-1.65 ^a	0.101	
Median (IQR)	0.00 (0.00)	0.00 (0.00)	0.00 (0,00)	5845 ^b	0.449	
Social media use						
Mean (SD)	17.3 (15.7)	15.96 (14.81)	23.60 (18.15)	-3.19 ^a	0.002	-0.496
Median (IQR)	12 (23.0)	11.00 (20.05)	19.50 (33.5)	4680 ^b	0.011	0.2297
Gaming addiction						
Mean (SD)	7.45 (12.0)	6.543 (11.07)	11.86 (15.02)	-2.90 ^a	0.004	-0.450
Median (IQR)	2 (9.0)	1.00 (8.00)	5.00 (21.0)	4941 ^b	0.030	0.1867
Compulsive buying						
Mean (SD)	9.34 (11.6)	8.506 (10.87)	13.38 (14.30)	-2.72 ^a	0.007	-0.423
Median (IQR)	5 (13.0)	4.00 (11.5)	9.50 (19.5)	4874 ^b	0.026	0.1978
Food addiction						
Mean (SD)	14.3 (13.4)	13.198 (12.63)	19.38 (15.63)	-3.02 ^a	0.003	-0.469
Median (IQR)	11 (19.0)	10,00 (17.0)	17.00 (22.5)	4965 ^b	0.011	0.2272
Sex/pornography						
Mean (SD)	6.34 (10.5)	5.305 (9.00)	11.36 (15.06)	-3.80 ^a	<0.001	-0.589
Median (IQR)	1 (9.0)	1.00 (6.00)	5.50 (16.3)	4787 ^b	0.014	0.2121

MDS-16: The Maladaptive Daydreaming Scale, ASRS: Adult Attention Deficit Hyperactivity Disorder Self-Report Scale, BBAF: Burden of Behavioral Addiction Form, SD: Standard Deviation, IQR: Interquartile Range. Significant p values are marked in bold.

^a Student’s t-test for comparisons between the study groups.

^b Mann-Whitney U for the comparisons between the study groups.

Table 3. Correlation analysis of the Scores of Maladaptive Daydreaming, Attention Deficit Hyperactivity Disorder, and Behavioral Addiction Scales.

		1	2	3	4	5	6	7
1.MDS-16	r							
	p							
2. BBAF, gambling addiction	r	0.063						
	p	0.285						
3. BBAF, social media use	r	0.260	0.096					
	p	<0.001	0.101					
4. BBAF, gaming addiction	r	0.242	0.219	0.367				
	p	<0.001	<0.001	<0.001				
5. BBAF, compulsive buying	r	0.264	-0.049	0.578	0.189			
	p	<0.001	0.404	<0.001	0.001			
6. BBAF, food addiction	r	0.270	0.021	0.609	0.334	0.570		
	p	<0.001	0.716	<0.001	<0.001	<0.001		
7. BBAF, sex/ pornography	r	0.258	0.217	0.378	0.446	0.128	0.364	
	p	<0.001	<0.001	<0.001	<0.001	0.029	<0.001	
8.ASRS	r	0.554	0.080	0.346	0.208	0.284	0.366	0.300
	p	<0.001	0.172	<0.001	<0.001	<0.001	<0.001	<0.001

MDS-16: The Maladaptive Daydreaming Scale, ASRS: Adult Attention Deficit Hyperactivity Disorder Self-Report Scale, BBAF: Burden of Behavioral Addiction Form. Significant p values are marked in bold. r: Spearman correlation coefficient

determined as independent variables, and the total score obtained from the MDS-16 was determined as the dependent variable. The regression model was found to be significant ($p < 0.001$). The independent variables explained 34% of the variance ($R^2 = 0.347$). The effect of gaming addiction ($p = 0.035$) and the ASRS total score ($p < 0.001$) on the MDS-16 total score was statistically significant, and both were positive predictors of the MDS-16 total score. A summary of the model is shown in **Table 4**.

Discussion

In this study, MDers were found in 17% of the students. In studies conducted with university students, MDers rates have been reported to vary between 5.5 and 34% [5,22]. Although these findings indicate that symptoms associated with maladaptive daydreaming are common among university students, the prevalence varies across different studies. These different rates may have been caused by reasons such as the fact that the studies were conducted in different cultures and different languages and non-response bias. In order to calculate the prevalence of MDers in Türkiye, field studies with clinical interviews are needed. Nevertheless, the findings related to MD symptom severity and prevalence rates found in this survey study will guide future comprehensive epidemiologic studies.

MD has been reported to have many common features with behavioral addictions [9]. Case reports have been reported showing the association of MD with behavioral addictions such as excessive internet use, online gaming, and compulsive sexual behaviors.[9,11]

However, not enough studies have been conducted on this topic in the literature. This study showed that MDers scored higher on the compulsive buying, problematic social media use, food addiction, gaming addiction, and sex/pornography addiction scales than non-MDers. Among the behavioral addictions assessed in this study, only the difference between gambling addiction and MD severity was not statistically significant. The fact that the severity of gambling addiction among the participants included in the study was lower than other behavioral addictions may have led to a lack of statistically significant change between the groups. In order to evaluate the relationship between gambling addiction and MD, further studies with samples including individuals at higher risk for gambling addiction are needed.

In this study, it was found that the rate of mental disorders was higher in MDers. Similarly, a strong relationship between MDers and mental symptoms has been reported in the literature [6]. In the literature, it has been reported that the most common mental disorder associated with MD is ADHD [6]. While ADHD was found in 76.9% of those with MD, it was reported that 20.5% of those diagnosed with ADHD had MD [6,13]. Although these are two conditions with high comorbidity, MD has been reported to have unique clinical features different from ADHD [13]. In this study, consistent with the literature, it was shown that ADHD and MD scores were positively correlated, and the MDers scored higher on ADHD scale scores than the non-MDers.

Table 4. Multiple regression analyses of variables predicting maladaptive daydreaming.

Variables	β	SE	t	p
Intercept	16.2617	9.0933	1.7883	0.075
Age	-0.4017	0.4043	-0.9935	0.321
Sex	-0.1442	2.2970	-0.0628	0.950
BBAF, gaming addiction	-0.3337	0.2031	-1.6431	0.101
BBAF, social media use	-0.0172	0.0839	-0.2053	0.838
BBAF, gaming addiction	0.2051	0.0969	2.1161	0.035
BBAF, compulsive buying	0.1529	0.1022	1.4953	0.136
BBAF, food addiction	-0.0478	0.0919	-0.5203	0.603
BBAF, sex/ pornography	0.0919	0.1135	0.8094	0.419
ASRS	0.7118	0.0744	9.5628	<0.001

$R^2 = 0.347$; $f = 16.7$; $p < 0.001$

ASRS: Adult Attention Deficit Hyperactivity Disorder, BBAF: Burden of Behavioral Addiction Form, β : Standardized coefficient, SE: Standard Error. Significant p values are marked in bold.

In this study, the findings obtained from multiple regression analysis, in which age, gender, ADHD symptom severity, and different behavioral addictions were included as independent variables, indicate that there is a unique relationship between MD and game addiction. Unlike other behavioral addictions, daydreaming plays a major role in computer game addiction. Players spend time in a fantasy world during the game, distancing themselves from real life. Moreover, people with gaming addiction are known to continue fantasizing about the game when they are not playing or when they should be focusing on another activity [23,24]. The relationship between gaming and daydreaming has been known for a long time. It has been noted that gaming and fantasy are two highly interrelated psychological processes and that, in some cases, one can stand as an analog for the other [25]. It has been argued that gaming and fantasy are intertwined in the first years of life, that in early childhood gaming becomes a social activity with rules and differentiates itself from fantasy, and that with adolescence gaming decreases and fantasy activities begin to replace gaming [25]. The conceptual similarity of gaming and daydreaming suggests that there may be common factors that also lead to the excesses of these two behaviors. Further studies on the etiopathogenesis of gaming addiction and MD are needed.

This study has several limitations. This study was a single-center study conducted with young adults. Multicenter studies with samples other than the young age group will enable generalization of the results found in this study. Moreover, the cross-sectional nature of the study prevents establishing a cause-and-effect relationship. Longitudinal studies evaluating the relationship between behavioral addictions, MD, and ADHD with larger samples are needed. Approximately half of the students invited to participate in the study responded to the survey, which may have contributed to the non-response bias. However, the response rates were similar to the average response rate found in online survey studies (36–44%) [26,27]. Finally, symptoms were screened with self-report scales. Further studies using clinical interviews will allow the

exclusion of additional diagnoses and a more reliable comparison of mental symptoms.

Conclusion

The main aim of this study is to examine the relationship between MD and other behavioral addictions. In this study, MD was shown to be associated with behavioral addictions such as compulsive buying, problematic social media use, food addiction, gaming addiction, and sex/pornography addiction. Furthermore, the findings of this study suggest that MD and gaming addiction may have a unique relationship that is different from other behavioral addictions. This relationship between behavioral addictions and MD may help to provide a better understanding of the MD's underlying mechanisms. Furthermore, addiction treatments may be a potential intervention avenue for individuals struggling with MD.

There was a positive relationship between ADHD and MD symptom severity. However, it is important to highlight that the study's findings do not imply causation. Further research is needed to determine the causal link between ADHD and MD.

Moving forward, further research is warranted to investigate the underlying mechanisms of the association between MD and gaming addiction, explore the effectiveness of interventions targeting multiple behavioral addictions in individuals with MD, and examine the temporal relationship between these conditions.

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Conflict of interest

The author reports no conflict of interest in this work.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author.

References

- Singer J. Daydreaming: An introduction to the experimental study of inner experience. : Crown Publishing Group/Random House. 1966.
- Somer E, Somer L, Jopp DS. Childhood antecedents and maintaining factors in maladaptive daydreaming. *J Nerv Ment Dis.* 2016;204(6):471-8. doi: [10.1097/NMD.0000000000000507](https://doi.org/10.1097/NMD.0000000000000507).
- Somer E. Maladaptive daydreaming: a qualitative inquiry. *journal of contemporary psychotherapy.* 2002;32:197-212. doi: [10.1023/A:1020597026919](https://doi.org/10.1023/A:1020597026919).
- Thorburn C. 'Maladaptive daydreaming': An introduction to a new condition. *Eur Psychiatry* 2022;65:178-9. doi: [10.1192/j.eurpsy.2022.473](https://doi.org/10.1192/j.eurpsy.2022.473).
- Soffer-Dudek N, Theodor-Katz N. Maladaptive daydreaming: epidemiological data on a newly identified syndrome. *Front Psychiatry.* 2022;13:871041. doi: [10.3389/fpsy.2022.871041](https://doi.org/10.3389/fpsy.2022.871041).
- Somer E, Soffer-Dudek N, Ross CA. The comorbidity of daydreaming disorder (Maladaptive daydreaming). *J Nerv Ment Dis.* 2017;205(7):525-30. doi: [10.1097/NMD.0000000000000685](https://doi.org/10.1097/NMD.0000000000000685).
- Soffer-Dudek N, Oh H. Maladaptive daydreaming: A shortened assessment measure and its mental health correlates in a large United States sample. *Compr Psychiatry.* 2024;129:152441. doi: [10.1016/j.comppsy.2023.152441](https://doi.org/10.1016/j.comppsy.2023.152441).
- Greene T, West M, Somer E. Maladaptive daydreaming and emotional regulation difficulties: A network analysis. *Psychiatry Res.* 2020;285:112799. doi: [10.1016/j.psychres.2020.112799](https://doi.org/10.1016/j.psychres.2020.112799).
- Pietkiewicz IJ, Necki S, Banbura A, Tomalski R. Maladaptive daydreaming as a new form of behavioral addiction. *J Behav Addict.* 2018;7(3):838-43. doi: [10.1556/2006.7.2018.95](https://doi.org/10.1556/2006.7.2018.95).
- Abu-Rayya HM, Somer E, Knane H. Maladaptive daydreaming is associated with intensified psychosocial problems experienced by female survivors of childhood sexual abuse. *Violence Against Women.* 2020;26(8):825-37. doi: [10.1177/1077801219845532](https://doi.org/10.1177/1077801219845532).
- Sharma P, Mahapatra A. Phenomenological analysis of maladaptive daydreaming associated with internet gaming addiction: a case report. *Gen Psychiatr.* 2021;34(2):e100419. doi: [10.1136/gpsych-2020-100419](https://doi.org/10.1136/gpsych-2020-100419).
- Romo L, Ladner J, Kotbagi G, Morvan Y, Saleh D, Tavolacci MP, et al. Attention-deficit hyperactivity disorder and addictions (substance and behavioral): Prevalence and characteristics in a multicenter study in France. *J Behav Addict.* 2018;7(3):743-51. doi: [10.1556/2006.7.2018.58](https://doi.org/10.1556/2006.7.2018.58).
- Theodor-Katz N, Somer E, Hesseg RM, Soffer-Dudek N. Could immersive daydreaming underlie a deficit in attention? The prevalence and characteristics of maladaptive daydreaming in individuals with attention-deficit/hyperactivity disorder. *J Clin Psychol.* 2022;78(11):2309-28. doi: [10.1002/jclp.23355](https://doi.org/10.1002/jclp.23355).
- Karaca S, Saleh A, Canan F, Potenza M. Comorbidity between behavioral addictions and attention deficit/hyperactivity disorder: a systematic review. *Int J Ment Health Addiction.* 2017;15:701-24. doi: [10.1007/s11469-016-9660-8](https://doi.org/10.1007/s11469-016-9660-8).
- 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](https://doi.org/10.1016/j.concog.2015.12.001).
- Metin S, Gocmen B, Metin B. Turkish validity and reliability study of maladaptive daydreaming scale. *Psyc Behavir Sci.* 2022;12(1):1-6. doi: [10.5455/PBS.20210907111754](https://doi.org/10.5455/PBS.20210907111754).
- Ünüböl H, Hızlı Sayar G. Türkiye bağımlılık risk profili ve ruh sağlığı haritası proje sonuç raporu (TURBAHAR) [in Turkish]: Üsküdar Üniversitesi Yayınları; 2019.
- Akpınar Aslan E, Batmaz S, Çelikbaş Z, Kılınçel O, Hızlı Sayar G, Ünüböl H. Prevalence of risk for substance-related and behavioral addictions among university students in Turkey. *ADDICTA: The Turkish Journal on Addictions.* 2021;8(1):35-44. doi: [10.5152/ADDICTA.2021.21023](https://doi.org/10.5152/ADDICTA.2021.21023).
- Kessler RC, Adler L, Ames M, Demler O, Faraone S, Hiripi E, et al. The World Health Organization Adult ADHD Self-Report Scale (ASRS): a short screening scale for use in the general population. *Psychol Med.* 2005;35(2):245-56. doi: [10.1017/s0033291704002892](https://doi.org/10.1017/s0033291704002892).
- Dogan S, Oncu B, Varol-Saracoglu G, Kucukgoncu S. Validity and reliability of the Turkish version of the Adult ADHD Self-Report Scale (ASRS-v1.1). *Anadolu Psikiyatri Dergisi* 2009;10(2):77-87.
- Musetti A, Franceschini C, Pingani L, Freda MF, Saita E, Vegni E, et al. Maladaptive daydreaming in

- an adult Italian population during the COVID-19 lockdown. *Front Psychol.* 2021;12:631979. doi: [10.3389/fpsyg.2021.631979](https://doi.org/10.3389/fpsyg.2021.631979).
22. MMI B. Prevalence of maladaptive daydreaming among medical students at the University of Khartoum, Sudan, in 2020–2021. *Middle East Curr Psychiatry.* 2021;28(1):41. doi: [10.1186/s43045-021-00122-8](https://doi.org/10.1186/s43045-021-00122-8)
 23. Mohammad S, Jan RA, Alsaedi SL. Symptoms, mechanisms, and treatments of video game addiction. *Cureus.* 2023;15(3):e36957. doi: [10.7759/cureus.36957](https://doi.org/10.7759/cureus.36957).
 24. Young K. Understanding online gaming addiction and treatment issues for adolescents. *American J Fam Ther.* 2009;37(5):355-72. doi: [10.1080/01926180902942191](https://doi.org/10.1080/01926180902942191).
 25. Klinger E. Development of imaginative behavior: Implications of play for a theory of fantasy. *Psychol Bull.* 1969;72(4):277-98. doi: [10.1037/h0028065](https://doi.org/10.1037/h0028065).
 26. Ali F, Ciftci O, Nanu L, Cobanoglu C, Ryu K. Response rates in hospitality research: an overview of current practice and suggestions for future research. *Cornell Hosp Quart.* 2021;62(1):105-20. doi: [10.1177/1938965520943094](https://doi.org/10.1177/1938965520943094).
 27. Wu M-J, Zhao K, Fils-Aime F. Response rates of online surveys in published research: A meta-analysis. *Comp Hum Behav Rep.* 2022;7:100206. doi: [10.1016/j.chbr.2022.100206](https://doi.org/10.1016/j.chbr.2022.100206).