



The University of Tehran Press

The Comparison of Mind Wandering and Cognitive Distortions in Adults with Attention-Deficit Hyperactivity Disorder with and Without Pornography

Sahar Nasrollahi Valojerdi¹ , Abass Abolghasemi^{2*} , Reza Soltani Shal³ 

1. Department of Psychology, Faculty of Literature and Human Sciences, University of Guilan, Rasht, Iran. Email: sepidens71@yahoo.com
2. Corresponding Author, Department of Psychology, Faculty of Literature and Human Sciences, University of Guilan, Rasht, Iran. Email: abolghasemi1344@guilan.ac.ir
3. Department of Psychology, Faculty of Literature and Human Sciences, University of Guilan, Rasht, Iran. Email: reza.soltanishal@guilan.ac.ir

Extended Abstract

Aim

Attention-Deficit Hyperactivity Disorder (ADHD) is a prevalent disorder associated with significant impairment and distress across the lifespan (Barkley & Benton, 2014). Despite considerable advancements in understanding its psychopathology, ADHD diagnosis remains based on behavioral symptoms of inattention, impulsivity, and hyperactivity. Furthermore, ADHD is among the most common comorbid conditions in individuals experiencing hypersexuality (Niazof et al., 2019). Exploring the relationship between ADHD symptoms and pornography use can enhance our understanding of problematic pornography use and hypersexuality. This is especially important because pornography exacerbates the distress experienced by individuals with ADHD. Recent research has highlighted the role of cognitive factors in the etiology of ADHD and its related problems, including hypersexuality (Strohmeier et al., 2016; Özparlak & Karakaya., 2022). Mind-wandering, a relatively young construct in psychological theory, is often characterized as a mental state where thoughts are task-unrelated or stimulus-independent. Cognitive distortions, on the other hand, refer to thought patterns that lead individuals to misinterpret or perceive reality inaccurately.

This study aimed to compare mind-wandering and cognitive distortions among college students with ADHD, both with and without pornography use.

Methodology

This research employed a descriptive, comparative, causal design and was practical in its purpose. The statistical population comprised college students in Tehran in 2021, including those with ADHD symptoms (with and without pornography use), students with pornography use but without ADHD symptoms, and neurotypical students. The population consisted of 2,432 students (1,449 women and 983 men).

The sample included 500 adults divided into four groups of 125 individuals based on cutoff scores:

- ADHD with pornography use
- ADHD without pornography use
- Non-ADHD with pornography use
- Neurotypical (control) group

instruments included:

1. *Adult ADHD Self-Report Scale (ASRS)* (Adler et al., 2006): This 18-item questionnaire assesses two dimensions—attention deficit (items 1–9) and hyperactivity (items 10–18). Cronbach's alpha for this study was 0.93.
2. *Problematic Pornography Use Scale (PPUS-P)* (Kor et al., 2014): This tool assesses four dimensions—psychological and social problems, strong desire to use, inability to control use, and use to escape negative emotions. Cronbach's alpha was 0.96 in this study.
3. *Mind Wandering Deliberate and Spontaneous Scales (MWS)*: (Carriere & Seli, 2013): This scale measures intentional (items 1–4) and unintentional (items 5–8) mind-wandering. Cronbach's alpha was 0.87 in this study.
4. *Cognitive Distortions Scale (CDS)* (Abdulahzadeh & Salar, 2010): This tool measures ten cognitive distortions, including all-or-none thinking, exaggerated generalization, mental filtering, discounting the positive, jumping to conclusions, magnification/minimization, emotional reasoning, should-be-better, labeling, and personalization. Cronbach's alpha was 0.81 in this study.

Data were analyzed using univariate and multivariate analysis of variance (MANOVA) and Hochberg post hoc tests in SPSS 24.

Findings

The findings revealed that ADHD symptoms significantly contribute to the severity of hypersexuality. A significant difference was observed among the four groups ($p < 0.05$).

- Mind-Wandering:
 - The ADHD with pornography group reported higher levels of mind-wandering than the ADHD without pornography group.
 - Non-ADHD individuals with pornography use also demonstrated higher mind-wandering compared to the control group.
- Cognitive Distortions:
 - The ADHD with pornography and ADHD without pornography groups scored lower on distortions such as jumping to conclusions, discounting the positive, filtering, emotional reasoning, global labeling, and personalization.
 - Non-ADHD individuals with pornography use also scored lower on cognitive distortions compared to the control group.

Table 1. Descriptive indices of research variables by groups

Group		without ADHD without pornography		without ADHD with pornography		with ADHD without pornography		with ADHD with pornography	
		standard deviation	mean	standard deviation	mean	standard deviation	mean	standard deviation	mean
mind	intentional	34/5	22/11	97/5	64/16	89/4	64/13	64/5	55/17
wandering	Unintentional	52/4	80/8	35/5	90/20	09/5	66/15	82/4	41/20
cognitive	total	53/8	02/20	51/8	54/37	23/8	30/29	09/8	96/37
distortion	total	71/10	32/81	54/14	97/55	34/10	11/66	21/12	13/58

Conclusion

Research on the causes of mind-wandering has clarified its relationship with attention-deficit/hyperactivity disorder (ADHD) and behavioral addictions. For instance, mind-wandering is closely and positively associated with social anxiety (Figueiredo et al., 2020), and individuals with social anxiety disorder often exhibit high rates of ADHD (Koyuncu et al., 2015). Furthermore, there is a positive correlation between social anxiety and mind-wandering (Figueiredo et al., 2020).

Consequently, increased mind-wandering in university students with ADHD may be attributed to social anxiety. On the other hand, individuals with anxiety often face challenges in forming appropriate interpersonal relationships in real-world settings. To mitigate their anxiety, they may turn to the internet or prefer viewing pornography over establishing real-life relationships. This behavior can lead to problematic internet use.

Regarding cognitive distortions, findings revealed differences in specific distortions—such as mental filtering, discounting the positive, jumping to conclusions, emotional reasoning, labeling, and personalization—between groups with ADHD who engage in pornography and those who do not. These groups scored lower on these distortions compared to their peers. Additionally, individuals without ADHD but who use pornography also exhibited significant differences from normative groups in all assessed distortions, scoring lower overall. These results suggest that in addition to ADHD, pornography use is linked to cognitive distortions, aligning with prior studies (Romo et al., 2016; Molavi et al., 2016) but diverging from others that reported a weaker relationship (Brunalt et al., 2020; Serin et al., 2020).

According to Davis's cognitive-behavioral model (2001), maladaptive cognitions such as “self-focused rumination,” “self-doubt,” “low self-efficacy,” and “negative self-assessment” contribute to abnormal and excessive internet use as a means of compensating for failures. Individuals with ADHD, already vulnerable to persistent distress and deficits related to their condition, are at an increased risk of experiencing hopelessness and repeated failures. This cycle may exacerbate cognitive distortions and lead to problematic internet use. Over time, such experiences can result in interpersonal difficulties, loneliness, and diminished occupational performance. Some individuals may resort to pornography, alcohol, or drugs as a form of self-medication to alleviate these negative experiences (Reid, Harper, & Anderson, 2009).

The findings of the present study have implications for interventions targeting adults with ADHD. Addressing influential comorbid variables alongside ADHD can enhance the mechanisms of psychotherapeutic intervention, leading to greater efficacy with deeper and more rapid results. Furthermore, transdiagnostic approaches that focus on identifying and intervening in foundational and shared variables across psychological disorders can pave the way for more profound treatments. These approaches can potentially prevent individuals from developing a wide range of psychological disorders and interpersonal problems. This study was based on self-report tools and cutoff scores, suggesting that incorporating psychiatric and clinical psychological diagnoses instead of questionnaires could enhance the external validity of the findings. Future research should be conducted in various universities, across different cities, and among diverse age groups, including longitudinal studies. Additionally, alternative assessment tools such as clinical interviews or practical tests are recommended for measuring variables.

Keywords: Attention Deficit Hyperactivity Disorder, Cognitive Distortions, Mind Wandering, Pornography.

Ethical Considerations

Participants were provided with detailed explanations about the study's purpose and significance via an introductory video and first-page instructions. Informed consent was obtained, and confidentiality of all data was ensured. Ethical guidelines were adhered to in using scientific sources. This study has been approved by the Biomedical Ethics Committee of the University of Guilan, with the ethics code IR.GUILAN.REC.1400.047.

Appreciation and Acknowledgments

The authors of this article express their heartfelt gratitude to all the participants and universities who contributed to the distribution and completion of the questionnaire. This article is based on a master's thesis conducted at Gilan University. No financial support was received for this study.

Conflict of Interest

The authors declare no conflict of interest related to this article.

References

- Abdulahzadeh, H., & Salar, M. (2009). *Preliminary standardization of cognitive distortions questionnaire*. Tehran: Azmoun Yar Pouya Company. (In Persian)
- Adler, L. A., Spencer, T., Faraone, S. V., Kessler, R. C., Howes, M. J., Biederman, J., & Secnik, K. (2006). Validity of pilot adult ADHD self-report scale (ASRS) to rate adult ADHD symptoms. *Annals of Clinical Psychiatry, 18*(3), 145-148. <https://doi.org/10.3109/10401230600801077>
- Barkley, R., & Benton, K. (2014). *Taking charge of ADHD* (3rd Ed.). Translated by: Sh. Amiri & M. Kakai. Tehran: Ibn-e Sina. (In Persian)
- Brunault, P., Mathieu, S., Faussat, C., Barrault, S., & Varescon, I. (2020). Impulsivity facets and cognitive distortions associated with problem gambling: Differences between ADHD and non-ADHD gamblers. *European Review of Applied Psychology, 70*(4), 100559. <https://doi.org/10.1016/j.erap.2020.100559>
- Carriere, J., & Seli, P. (2013). Wandering in both mind and body: Individual differences in mind wandering and inattention predict fidgeting. *Canadian Journal of Experimental Psychology, 67*(1), 19-31. <https://doi.org/10.1080/0092623X.2017.1321601>
- Davis, R. A. (2001). A cognitive-behavioral model of pathological Internet use. *Computers in Human Behavior, 17*(2), 187 - 195. [https://doi.org/10.1016/S0747-5632\(00\)00041-8](https://doi.org/10.1016/S0747-5632(00)00041-8)
- Figueiredo, T., Lima, G., Erthal, P., Martins, R., Corção, P., Leonel, M., ... & Mattos, P. (2020). Mind-wandering, depression, anxiety and ADHD: Disentangling the relationship. *Psychiatry Research, 285*(1), 112798. <https://doi.org/10.1016/j.psychres.2020.112798>
- Koyuncu, A., Ertekin, E., Yüksel, Ç., Aslantaş Ertekin, B., Çelebi, F., Binbay, Z., & Tükel, R. (2015). Predominantly inattentive type of ADHD is associated with social anxiety disorder. *Journal of Attention Disorders, 19*(10), 856-864. <https://doi.org/10.1177/1087054714533193>
- Molavi, P., Mikaeili, N., Nadrmoammadi, M., Ghaffari, S., & Molaei, B. (2016). The role of cognitive distortions in prediction of depression and anxiety symptoms among adolescents with ADHD. 7-9 December 2016, *The 5th Congress of Basic and Clinical Neurosciences*, Tehran, Iran. (In Persian)
- Niazof, D., Weizman, A., & Weinstein, A. (2019). The contribution of ADHD and attachment difficulties to online pornography use among students. *Comprehensive Psychiatry, 93*, 56-60. <https://doi.org/10.1016/j.comppsy.2019.07.002>
- Özparlak, A., & Karakaya, D. (2022). The associations of cognitive distortions with internet addiction and internet activities in adolescents: A cross-sectional study. *Journal of Child and Adolescent Psychiatric Nursing, 43*(5), 422-427. <https://doi.org/10.1111/jcap.12385>
- Reid, R. C., Harper, J. M., & Anderson, E. H. (2009). Coping strategies used by hypersexual patients to defend against the painful effects of shame. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 16*(2), 125-138. <https://doi.org/10.1002/cpp.609>
- Romo, L., Legauffre, C., Guilleux, A., Valleur, M., Magalon, D., Fatséas, M., ... & Challet-Bouju, G. (2016). Cognitive distortions and ADHD in pathological gambling: A national longitudinal case-control cohort study. *Journal of Behavioral Addictions, 5*(4), 649-657. <https://doi.org/10.1556/2006.5.2016.070>
- Serine, A. D., Rosenfield, B., DiTomasso, R. A., Collins, J. M., Rostain, A. L., & Ramsay, J. R. (2020). The relationship between cognitive distortions and adult Attention-Deficit/Hyperactivity Disorder after accounting for comorbidities and personality traits. *Cognitive Therapy and Research, 44*(5), 967-976. <https://doi.org/10.1007/s10608-020-10115-2>

Strohmeier, C. W., Rosenfield, B., DiTomasso, R. A., & Ramsay, J. R. (2016). Assessment of the relationship between self-reported cognitive distortions and adult ADHD, anxiety, depression, and hopelessness. *Psychiatry Research, 238*, 153-158. <https://doi.org/10.1016/j.psychres.2016.02.034>

Cite this article: Nasrollahi Valojerdi, S., Abolghasemi, A., & Soltani Shal, R. (2024). The Comparison of Mind Wandering and Cognitive Distortions in Adults with Attention-Deficit Hyperactivity Disorder with and Without Pornography. *Journal of Applied Psychological Research, 15*(4), 91-108. doi: 10.22059/japr.2022.350563.644431.



Publisher: University of Tehran Press

© The Author(s).

DOI: <https://doi.org/10.22059/japr.2022.350563.644431>
