The University of Tehran Press

An Evolutionary Model for the Etiology of Obsessive-Compulsive Disorder: The Mediating Role of Emotional Awareness and Uncertainty Intolerance in the Relationship between Childhood Fears and Behavioral Brain Systems with Obsessive-Compulsive Disorder in Secondary School Students of Kouhdasht City

Masoomeh Azadbakht [1], Khodamorad Momeni[2*], Kamran Yazdanbakhsh[3]

1. Department of Psychology, Faculty of Social Sciences, Razi University, Kermanshah, Iran. Email: beautifulmind.1389@gmail.com

2. Corresponding Author, Department of Psychology, Faculty of Social Sciences, Razi University, Kermanshah, Iran. Email: an. kh.momeni@razi.ac.ir

3. Department of Psychology, Faculty of Social Sciences, Razi University, Kermanshah, Iran. Email: k.yazdanbakhsh@razi.ac.ir

Extended Abstract

Aim

Evolutionary psychology, a subfield of biological psychology, examines human thought and behavior through the lens of natural selection (Hayes et al., 2020). A key question for researchers in evolutionary theory is how natural selection permits the persistence of diseases and disorders. As a result, the existence of psychopathology presents a puzzling challenge for evolutionary psychologists (Crespi, 2020). Given the importance of evolutionary theory in the human sciences, particularly psychology, this study aims to examine obsessive-compulsive disorder (OCD), a common and debilitating condition in the field of psychopathology, from an evolutionary perspective.

Extensive research highlights the parallels between normal anxious, intrusive thoughts, harm-avoidance behaviors, and obsessive-compulsive disorder within an evolutionary framework (Horwath & Weissman, 2000; Crino et al., 2005; Feygin et al., 2006; Rajkumar, 2020; Bhikram et al., 2017). This study seeks to conduct an evolutionary etiological analysis of OCD by investigating the mediating roles of emotional awareness and intolerance of ambiguity in the relationship between childhood fears, behavioral-brain systems, and OCD symptoms among high school boys and girls in Kouhdasht City.

Methodology

This non-experimental study employs a multivariate correlation design to investigate relationships between various variables, including the presence of mediating factors. The analysis is based on a correlation matrix and utilizes structural equation modeling (SEM) to test structural relationships. The study's population consists of all 2nd-grade high school students during the 2022-2023 academic year. A multi-stage cluster sampling method was applied to select the sample. Ten schools were randomly chosen, from which specific classes were randomly selected, and questionnaires were distributed among the students. The minimum required sample size was 434, based on the number of subscales (n = 29). A total of 441 students (273 girls and 168 boys) participated in the analysis.

Inclusion criteria involved students in the 1st, 2nd, and 3rd grades who provided consent, while exclusion criteria included incomplete or non-responded questionnaires. The following instruments were used for data collection: FSSC-R (Scherer & Nakamura, 1968), EAQ-30 (Rieffe et al., 2007), BA/I SS (Carver & White, 1994), IUS (Buhr & Dugas, 2002), and OCI-R (Foa et al., 2002). Data were analyzed using SPSS 22 and Lisrel 8.85, and research hypotheses were tested. The proposed model was evaluated through structural equation modeling.

Findings

The data analysis revealed that the proposed model for OCD etiology was a good fit. Fit indices, such as the Incremental Fit Index (IFI = 0.97), Comparative Fit Index (CFI = 0.97), Normalized Fit Index (NFI = 0.96), and Root Mean Squared Error of Approximation (RMSEA = 0.075), indicated a well-fitting model. Additional fit indices, such as the Goodness of Fit Index (GFI = 0.94) and Adjusted Goodness of Fit Index (AGFI = 0.90), were also within desirable ranges.

Conclusion

The findings suggest that individuals with a highly active reticular activating system experience lower emotional awareness, which is associated with higher levels of OCD. These results are consistent with those of Balconi et al (2009). Additionally, individuals with severe childhood fears also display reduced emotional awareness, which correlates with elevated OCD levels, in line with the findings of Fink-Lamotte et al. (2020). Conversely, those with lower reticular activating system activity tend to have higher scores in ambiguity intolerance, which is likewise linked to increased OCD levels. This aligns with the studies by Gillett et al. (2018) and Hawes et al. (2021). Moreover, individuals with severe childhood fears score higher in ambiguity intolerance, which is similarly associated with higher OCD levels, echoing the findings of Reiss et al. (1986) and Deacon & Abramowitz (2006).

Given that existing descriptive-therapeutic approaches cannot fully explain or alleviate OCD symptoms, it appears crucial to explore newer perspectives, such as evolutionary psychology, to gain deeper insights into the disorder (Rajkumar, 2020). In recent years, significant efforts have been made to apply evolutionary theories to psychopathology, and there is a growing need to familiarize both researchers and the general public with the subject of evolution. We hope that the findings of this study will contribute to a better understanding of OCD pathology and offer valuable implications for developing and refining treatment protocols.

Keywords: Brain Behavioral Systems, Childhood Fears, Emotional Awareness, Intolerance of Uncertainty, Obsessive-Compulsive Disorder.

Ethical Considerations

The study involving human participants was reviewed and approved by the Ethics Committee of Razi University. All participants provided written informed consent prior to their participation in this study.

Acknowledgments

This article is based on a PhD thesis. The authors would like to extend their gratitude to the students and teachers of all high schools, as well as the Department of Education of Kouhdasht, for their support and cooperation.

Conflict of Interest

The authors did not receive support from any organization for the submitted work.

References

Balconi, M., Brambilla, E., & Falbo, L. (2009). BIS/BAS, cortical oscillations and coherence in response to emotional cues. *Brain Research Bulletin*, *80*(3), 151-157. https://doi.org/10.1016/j.brainresbull.2009.07.001

Bhikram, T., Abi-Jaoude, E., & Sandor, P. (2017). OCD: obsessive–compulsive… disgust? The role of disgust in obsessive–compulsive disorder. *Journal of Psychiatry and Neuroscience*, *42*(5), 300-306. https://doi.org/10.1503/jpn.160079

Buher, K., & Dugas, M. J. (2002). The intolerance of uncertainty scale: Psychometric properties of the English version. *Behaviour Research and Therapy*, *40*(8), 931-945. https://doi.org/10.1016/S0005-7967(01)00092-4

Carver, C. S., & White, T. L. (1994). Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: the BIS/BAS scales. *Journal of Personality and Social Psychology*, *67*(2), 319. https://doi.org/10.1037/0022-3514.67.2.319

Crespi, B. J. (2020). Evolutionary and genetic insights for clinical psychology. *Clinical Psychology Review*, *78*, 101857. https://doi.org/10.1016/j.cpr.2020.101857

Crino, R., Slade, T., & Andrews, G. (2005). The changing prevalence and severity of obsessive-compulsive disorder criteria from DSM-III to DSM-IV. *American Journal of Psychiatry*, *162*(5), 876-882. https://doi.org/10.1176/appi.ajp.162.5.876

Deacon, B., & Abramowitz, J. (2006). Anxiety sensitivity and its dimensions across the anxiety disorders. *Journal of Anxiety Disorders*, *20*(7), 837-857. https://doi.org/10.1016/j.janxdis.2006.01.003

Feygin, D. L., Swain, J. E., & Leckman, J. F. (2006). The normalcy of neurosis: Evolutionary origins of obsessive–compulsive disorder and related behaviors. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, *30*(5), 854-864. https://doi.org/10.1016/j.pnpbp.2006.01.009

Fink-Lamotte, J., Widmann, A., Fader, J., & Exner, C. (2020). Interpretation bias and contamination-based obsessive-compulsive symptoms influence emotional intensity related to disgust and fear. *PloS One*, *15*(4), e023236. https://doi.org/10.1371/journal.pone.0232362

Foa, E. B., Huppert, J. D., Leiberg, S., Langner, R., Kichic, R., Hajcak, G., & Salkovskis, P. M. (2002). The Obsessive-Compulsive Inventory: development and validation of a short version. *Psychological Assessment*, *14*(4), 485–496. https://doi.org/10.1037/1040-3590.14.4.485

Gillett, C. B., Bilek, E. L., Hanna, G. L., & Fitzgerald, K. D. (2018). Intolerance of uncertainty in youth with obsessive-compulsive disorder and generalized anxiety disorder: A transdiagnostic construct with implications for phenomenology and treatment. *Clinical Psychology Review*, *60*(1), 100-108. https://doi.org/10.1016/j.cpr.2018.01.007

Hawes, M. T., Farrell, M. R., Cannone, J. L., Finsaas, M. C., Olino, T. M., & Klein, D. N. (2021). Early childhood temperament predicts intolerance of uncertainty in adolescence. *Journal of Anxiety Disorders*, *80*, 102390. https://doi.org/10.1016/j.janxdis.2021.102390

Hayes, S. C., Hofmann, S. G., & Wilson, D. S. (2020). Clinical psychology is an applied evolutionary science. *Clinical Psychology Review*, *81*, 101892. https://doi.org/10.1016/j.cpr.2020.101892

Horwath, E., & Weissman, M. M. (2000). The epidemiology and cross-national presentation of obsessive-compulsive disorder. *Psychiatric Clinics of North America*, *23*(3), 493-507. https://doi.org/10.1016/s0193-953x(05)70176-3

Rajkumar, R. P. (2020). Contamination and infection: what the coronavirus pandemic could reveal about the evolutionary origins of obsessive-compulsive disorder. *Psychiatry Research*, *289*, 113062. https://doi.org/10.1016%2Fj.psychres.2020.113062

Reiss, S., Peterson, R. A., Gursky, D. M., & McNally, R. J. (1986). Anxiety sensitivity, anxiety frequency and the prediction of fearfulness. *Behaviour Research and Therapy*, *24*(1), 1-8. https://doi.org/10.1016/0005-7967(86)90143-9

Rieffe, C., Terwogt, M. M., Petrides, K. V., Cowan, R., Miers, A. C., & Tolland, A. (2007). Psychometric properties of the Emotion Awareness Questionnaire for children. *Personality and Individual Differences*, *43*(1), 95-105. https://doi.org/10.1016/j.paid.2006.11.015

Scherer, M. W., & Nakamura, C. Y. (1968). A fear survey schedule for children (FSS-FC): a factor analytic comparison with manifest anxiety (CMAS). *Behaviour Research and Therapy*, *6*(2), 173-182. https://doi.org/10.1016/0005-7967(68)90004-1

Cite this article: Azadbakht, M., Momeni, Kh., & Yazdanbakhsh, K. (2024). An Evolutionary Model for the Etiology of Obsessive-Compulsive Disorder: The Mediating Role of Emotional Awareness and Uncertainty Intolerance in the Relationship between Childhood Fears and Behavioral Brain Systems with Obsessive-Compulsive Disorder in Secondary School Students of Kouhdasht City. *Journal of Applied Psychological Research*, *15*(3), 205-228. doi: 10.22059/japr.2023.351150.644447.

Publisher: University of Tehran Press

DOI: https://doi.org/10.22059/japr.2023.351150.644447