Applied Psychology Research 2024, 3(1), 504.
https://doi.org/10.59400/apr.v3i1.504

Article

Autocratic parenting of a humanoid robot: A QEEG-based case study

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CITATION

Ghalebin SSA, Atadokht A, Mousavi SM. (2024). Autocratic parenting of a humanoid robot: A QEEG-based case study. Applied Psychology Research. 3(1): 504.
https://doi.org/10.59400/apr.v3i1.504

ARTICLE INFO

Received: 19 January 2024
Accepted: 24 January 2024
Available online: 6 February 2024

Abstract: There are four parenting styles based on two indicators of parental affection (parental responsiveness) and parental control (parental strictness). When there is no balance between the love and strictness of the parents, the child sees various damages in different psychological, biological, and social dimensions. These injuries can be continuous and overshadow his whole life. This article is a comprehensive review of the life of a 21-year-old girl with an authoritarian parenting style, i.e., low affection and high strictness. The mother has grown up, and this way of interacting with her continues from the mother's side. Various results have shown that this girl, like her peers, has lost the ability to manage her life and basic human functions such as judgment, decision-making, planning, proper interpersonal communication, continuing education, and recognizing her interests and identity. It has become a robot that only obeys its mother and substitutes for the source of power to gain their satisfaction.

Keywords: autocratic; maladaptive schemas; parenting style; quantitative electroencephalography; robot

1. Introduction

Family is one of society's most important and fundamental institutions, and it plays a fundamental role in the life of an individual and society as a whole. The influence of the family on the all-round development of the child starts from the moment of birth. It is revealed with a special power and comprehensiveness and remains throughout life. The correct and appropriate relationship between parents and children is one of the most effective factors in their health and mental health. Research shows that among the various factors that are effective in the upbringing and healthy personality of children, there is the mutual influence of the child and the parents and the way the parents deal with the child (Pearson et al., 2009).

Every family uses a special method for the personal and social education of its children. These methods, which are called parenting methods, are affected by various factors, e.g., cultural, social, and economic factors, etc. (Shahsavari, 2012). Parenting methods mean relatively stable methods and patterns of parents to communicate with family members and provide the flow of influence (Bakhtavar and Bayova, 2015). Parenting methods are a set of behaviors that define parent-child interactions in a wide range of situations, and it is assumed that they create an effective interactive atmosphere. The type of behavior of parents in the form of diverse, normal, and natural behaviors that they use to control and socialize their children is called parenting style (Bakhtavar, 2020). Baumrind (1978) has presented the most famous family parenting styles. In his opinion, parenting styles fall into three categories: authoritarian, authoritarian, and permissive (Mandara, 2003). But in the following years, another category called neglectful parenting style was also presented. In this model, several researchers have planned four basic parenting methods based on two main indicators,

namely parental affection (parental responsiveness) and parental control (parental strictness) (Schaefer, 1959).

In authoritarian parenting, parents exercise high levels of control and low levels of responsiveness. They expect obedience from their children and often punish them to prevent disobedience. In permissive parenting, unlike strict parents, parents are very responsive, allow children a lot of autonomy, and do not require them to engage in developed behaviors. In neglectful parenting, parents are at a low level of responsiveness and strictness and are rejecting or permissive. In authoritative parenting, parents have a high level of control and responsiveness, and their children are social and effectively self-sufficient and show few behavioral problems.

Free-spirited parenting helps young people gain a stable sense of self-esteem (Tozandehjani et al., 2011). Parenting styles with extreme care and a low level of acceptance are negatively related to self-esteem. It seems that parenting styles have a role in people's self-confidence (Bandura, 2012). According to the studies conducted, parenting styles can affect children's mental health in later periods of life. Research has shown that problematic parenting children who experience a lot of stress during their childhood will be prone to depression during adolescence and negative cognitive problems (Oppenheimer et al., 2017). Recent research on borderline personality disorder suggests that neurobiological and psychosocial factors and genetic vulnerability may be responsible for the development of BPD. The psychosocial background includes childhood injuries, the mother's mental illness, authoritarian and neglectful parenting styles (Esmaeilpour et al., 2018), and dysfunctional parent-child relationships, all of which are effective factors in creating insecure attachment styles, or unorganized attachment styles in the infant. In the neurobiological field, changes in the hypothalamic-pituitary-adrenal axis, neurotransmission, the endogenous opioid system, and neuroplasticity play a prominent role, the development of which is also affected by childhood traumatic events. Brain imaging studies show differences in the limbic system (hippocampus, amygdala) and frontal cortex, which are also involved in stress response, cognition, memory function, and emotion regulation (Mezei et al., 2020).

Parenting styles can affect brain structure and cognitive and emotional functions in childhood and adulthood. In fact, the developing brains of young children are very sensitive to the inputs of their social environment. Cultivating social experiences during this period leads to the acquisition of social and cognitive skills and emotional competencies. Their sensitivity to the social environment means that they are highly susceptible to these adverse childhood experiences. One of the sources of social adversity in early life can be caused by a harsh, inconsistent, insensitive, or hostile upbringing (Lomanowska et al., 2017). These cognitive and emotional effects can be both in the form of primary maladaptive schemas, i.e., from the psychological aspect such as the schema of abandonment, emotional deprivation, deficiency, and shame (Mącik, 2020), and can also be in the form of cognitive and emotional functions of the brain such as the observed problems with memory, attention, concentration, executive functions, mirror neuron function, and empathy (Ramezankhaniet al., 2020). Examining this procedure is very important because according to research conducted, adversity in early life affects maternal behavior in later life, and these effects may persist between generations. Children who grow up under parental neglect or abuse,

or in situations of extreme distress in their families, are at risk of developing unhealthy behaviors that affect their lives. When these children grow up, they are less willing to play the role of parents, and in unfavorable conditions with a lack of social support and/or intervention, they are more likely to adopt parenting behaviors that perpetuate the cycle of unfavorable parenting (Olsavsky et al., 2013). In addition, animal studies of early adverse experiences have shown effects on a number of neural systems involved in mothering, including changes in levels of oxytocin, estrogen, and corticosterone receptors, decreased neural activation in brain regions relevant to the maternal circuit, and altered patterns. It shows dopamine neurotransmission in response to nerve messages. In humans, direct evidence of changes in the neural substrates of mothering following early adversity is less, but a number of structural and functional changes have been reported in individuals with a history of early adverse experiences (Pearson et al., 2009).

According to what has been said so far, parenting styles can have irreparable effects on various aspects of a child until adulthood and throughout life. In this study, the effect of parenting style on the primary maladaptive schemas and brain function of a 21-year-old girl is investigated and analyzed.

2. Case description

Rose (pseudonym) is a 21-year-old Iranian girl who has no psychiatric history and no hospitalization. Rose had gone to the psychologist's clinic for academic counseling. During high school, she entered the experimental field at the insistence of her mother and her classmates, and with many problems and a low average, she was able to get her diploma. She did not get a good grade in the university entrance exam (according to the laws of Iran, after the age of 18 and getting a diploma, one must take an exam to enter the university, and if he gets a good grade, he will be accepted and enter the university and the field with the same level as his grade will become). She did not see in herself the ability to study again and chose a field that was engineering and had nothing to do with the experimental field. She continued for one semester before graduating and then withdrew from the field. Then she chose another field and studied for one semester and did not appear for the exams, and then she chose a third field and took a leave of absence due to frequent absences. In the meantime, he abandoned her internet business, which she earns from selling her art and handicrafts and was growing, saying that it was not worth continuing. Until this age, Rose did not have a constant close friend and her friends changed all the time. Rose says that she is interested in everything and at the same time she starts something, she cannot continue, or that thing loses its attractiveness, or she feels like a failure. Rose spoke without any emotion or excitement, and from time to time she fell into a fit while listening. After examining the different aspects of Rose's life, the only stable and continuous thing that was seen in her life from the beginning of her birth until now was Rose's mother's sudden interventions and decisions. Rose's mother had high control and low responsiveness and empathy, and even determined the place of university study, her close friends and her art, and travel time, regardless of Rose's personal schedule and interests. Rose had to listen to her mother's opinions without wanting them, and this caused her to have problems making decisions, judging and knowing herself and her

interests, and finding friends and emotional partners. Everything she said was like a human robot. She sould do it in the same way at a certain time and place, but due to suppressed feelings and emotions, she was not able to continue this situation.

3. Assessment

According to the evaluations done through clinical interviews and Millon's clinical multiaxial inventory-IV test (MCMI-IV), Rose was depressed, had hidden anxiety, and suffered from obsessive-compulsive and avoidant personality disorder. In the following, for a deeper investigation of his psychological dimensions, her primary incompatible schemas were evaluated, which are shown in **Figure 1**.

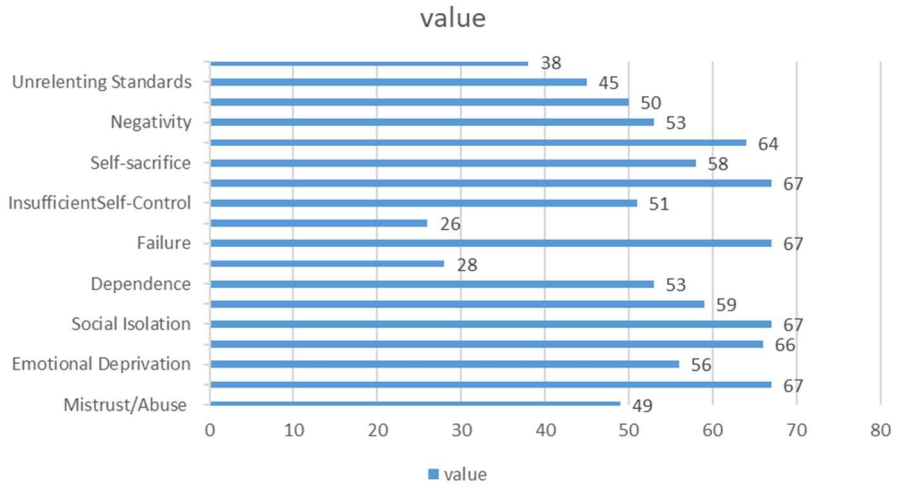

Figure 1. Primary incompatible schemas.

In the brain map below (**Figure 2**), there is a summary of Rose's brain function.

This assessment was done with Young's Incongruent Schemas Test, a long version with 232 questions and 18 factors. In this test, scores between 40–60 mean the existence of a schema, and anything above 60 means the high intensity of that schema. As can be seen, except for the three schemas of vulnerability to injury or illness, entanglement, and punishment, all schemas scored above 40, which is psychologically significant. The schemas of abandonment, social isolation, failure and shame, failure, entanglement, subjugation, and seeking approval are at the top. The root of these schemas often tells about the existence of cold, heartless, controlling, and strict parents, which makes the child feel abandoned and alone in a hostile world from the very beginning, and because of the parent's lack of attention, she has internalized this issue. She blames the problem on herself and feels ashamed of her own shortcomings and lack of attractiveness and inadequacy, and the only way she finds to improve is through pure obedience to the superior force, i.e., her parents, so that by obeying them, she feels worthy. She slows down and hides his inabilities and in this way, she gradually acquires the power of judgment decision, and choice throughout her life and from a source outside the brain. Rose's mother controls her and she has become a robot whose control key is her mother's hand. In this way, she feels like a failure compared to her peers, because they have achieved their desires, which may be her own dormant desire in Rose's subconscious, but she is obliged to live to fulfill the desires of another,

her mother, and Rose's existence and her dreams. They have no meaning. The effects of this process can be clearly seen in her brain map, showing how Rose's brain gradually loses its abilities compared to her peers.

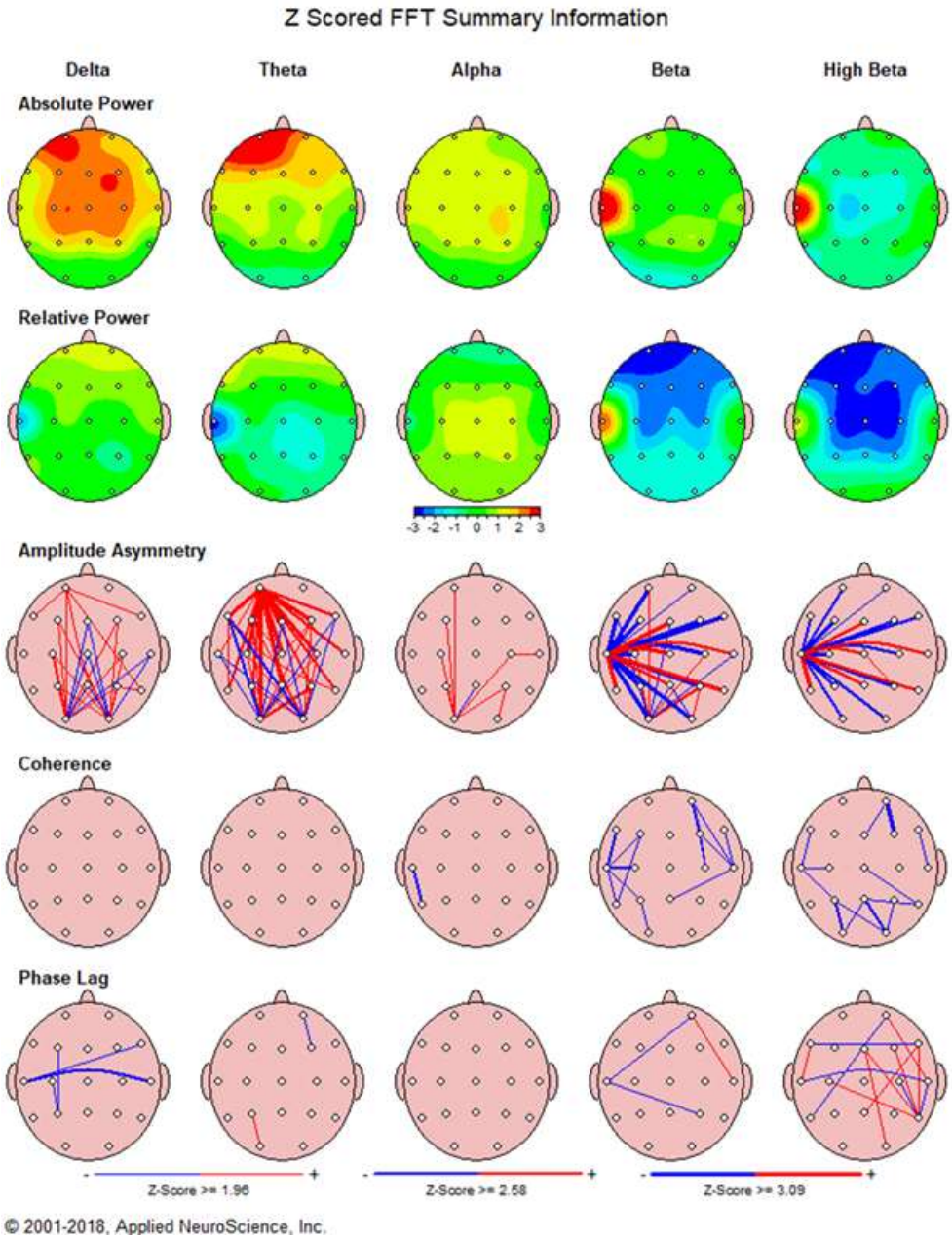

Figure 2. Brain map.

As you can see:

Linked ears: The linked ears power spectral analyses were deviant from normal with excessive power in bilateral frontal regions, especially in the left frontal region over a wide frequency range, excessive power was present in bilateral temporal regions, especially in the left temporal region over a wide frequency range; and excessive power was also present in bilateral parietal regions, especially in the right parietal region at 3 Hz and 19 Hz.

Surface Laplacian**:** The Laplacian power spectral analyses were deviant from

normal with excessive power in bilateral frontal regions, especially in the left frontal region over a wide frequency range, excessive power was present in the left temporal region over a wide frequency range and excessive power was also present in the right parietal region at 9 Hz and 18–19 Hz.

Connectivity analysis: Electroencephalogram (EEG) amplitude asymmetry, EEG coherence, and phase deviated from normal, especially in frontal, temporal, parietal, and occipital relationships. There was high coherence in the frontal and occipital regions, indicating reduced functional differentiation. There was decreased coherence in the frontal, temporal, parietal, and occipital regions, indicating decreased functional connectivity. Both conditions are often associated with reduced speed and efficiency of information processing.

This brain map is similar to the brain map of people who have a history of moderate concussion trauma and epilepsy, despite the fact that according to the research done by Rose, she has never had a history of head trauma and has not been diagnosed with epilepsy. Rose's overall brain function index was 3.57, which is a very weak value **(Figure 3)**.

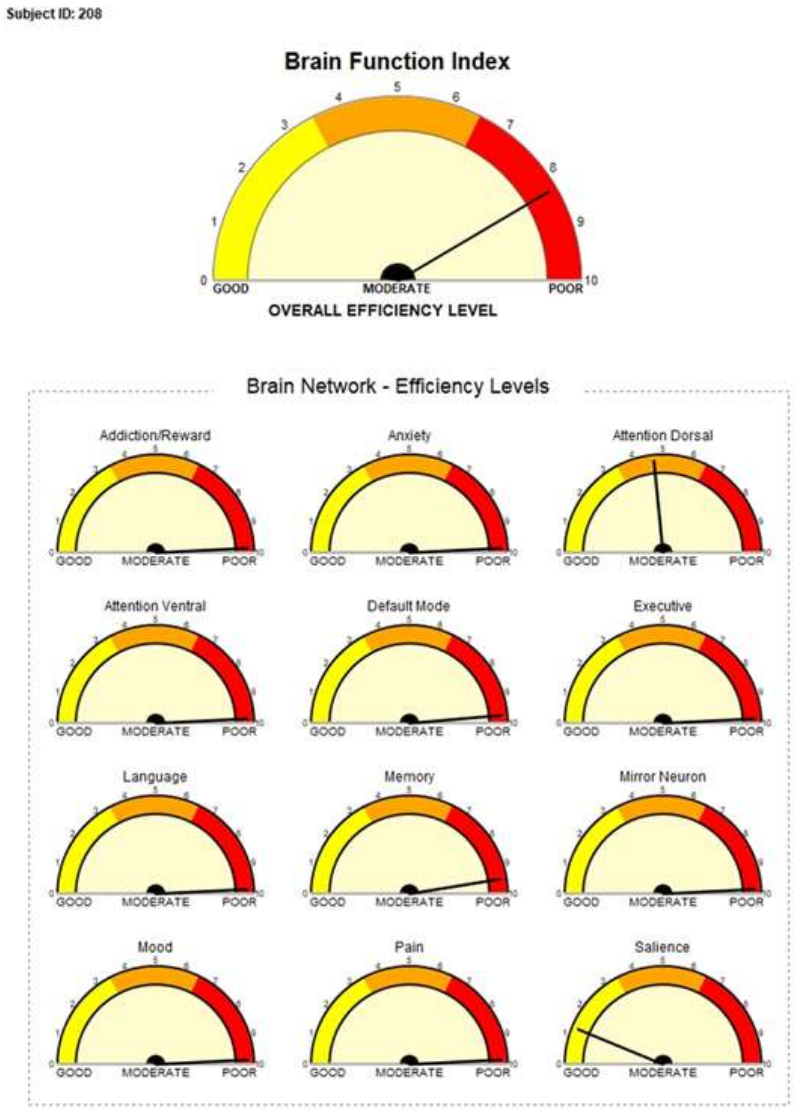

Figure 3. Brain function index and brain network-efficiency levels.

The image below shows the cognitive functions of Rose's brain, scored from 0–10. As can be seen, she scored very low in most indicators and has poor brain function. Her brain is not rewarded because she does not know herself or her interests, and like a robot, she only follows orders and has no motivation. She has a low mood and high anxiety. Her high anxiety has caused her back attention to be better than ventral attention and to pay more attention to place than to the meaning of conversations and situations because she has learned to look outside herself and seek acceptance. She could not judge and do the things that were told to her because she does not see the ability to judge in herself and this is how her brain was trained. As can be seen, her executive is very weak and she lacks the ability to perform executive functions such as planning, organizing, decision-making, problem-solving, and impulse control because Rose has been externally planned and organized throughout her life. She has never been tested and has made no mistake in this matter, and this part of her brain function is collapsing. She also had problems with verbal processing language learning and memory, while she was in the normal range with a score of 98 on the Wechsler IQ test and the interview. The activity of Rose's mirror neurons was very weak despite the fact that she had good eye contact and the characteristics of autism and schizophrenia patients were not recognized in her. She was very fond of socializing and having close friends, but she always failed in this regard. She was not able to imitate her peers and he could not understand their performance because she was always prevented from doing so according to herself, she could not be intimate with anyone and establish an emotional connection and do things together or react. She was emotionally suppressed and ridiculed by her family and mother, and it can be said that the weakness of mirror neurons and the presence of emotional inhibition schema in Rose are related, Rose had learned to always wear a mask to hide her feelings and look. It was the same with her problems in the meetings.

In short, the result of Rose's brain map is as follows:

Quantitative electroencephalography (QEEG) analyses deviated from normal and showed irregularities in bilateral frontal lobes, especially in the left frontal lobe, bilateral temporal lobes, especially in the left temporal lobe, and bilateral parietal lobes, especially in the right parietal lobe. LORETA showed abnormalities in the left middle temporal gyrus, left superior temporal gyrus, and right anterior cingulate. The frontal lobes are involved in executive function, abstract thinking, expressive language, sequential planning, mood control, and social skills. The temporal lobes are involved in auditory information processing, short-term memory, receptive language on the left side, and face recognition on the right side. The parietal lobes are involved in visual-spatial information processing, short-term memory, executive attention, receptive language on the left side, and control of empathy and awareness of emotional expression in others (e.g., prosody) on the right side. The anterior cingulate gyrus is involved in voluntary motor control, automatic regulation, reward anticipation, error detection, attention, empathy, decision-making, and impulse control. These structures deviated from the normal electrical patterns and sub-optimal performance of normal people, as seen in Rose.

4. Discussion and conclusion

In this article, an attempt was made to show how the parenting style, primary care, and the family's approach can overshadow a person's life from childhood to adulthood. In this article, which was in the form of a case study, we examined the different dimensions of a young girl's life with a controlling mother who did not adequately respond to her needs and maintained this approach until the girl's adulthood, using different tools. This girl, with the fake name of Rose, was mentally ill and had a depressed mood, anxiety, and obsessive-compulsive personality. Psychologically, Rose had many incompatible schemas about herself and others, and she had severe low self-esteem and was completely dependent and obeyed others, especially her mother, without thinking and judging in order to receive positive attention and brain ability. He did not have proper executive functions and could not judge, make decisions, do her work without the interference of others, or establish a proper relationship with others, she had become a dumb and robot-like human being who only obeys others, especially the power of her mother. She did it so as not to lose her mental security, and she felt very empty. This article has tried to show from different psychological, biological, and social dimensions how the parenting style can change a person's life, and if it is inappropriate, it can take away human life from her and turn her into a soldier and a robot. Whoever does not have any authority, and this issue can harm that person and others because, as discussed earlier, these people continue the wrong cycle and raise problematic children.

Ethics statement: The participant has given her informed consent for the publication of the results. A pseudonym has been used to protect the patient's privacy.

Author contributions: Conceptualization, SSAG and AA; methodology, AA; software, SSAG; validation, SSAG, AA and SMM; formal analysis, SSAG, AA and SMM; investigation, SSAG, AA and SMM; resources, SSAG; data curation, SSAG; writing—original draft preparation, SSAG; writing—review and editing, SSAG; visualization, SSAG and AA; supervision, AA; project administration, SSAG and AA; funding acquisition, AA. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

References

Mohammad, B., & Rana, B. (2015). Effects of intra-family parameters: Educative style and academic knowledge of parents and their economic conditions on teenagers personality and behavior. Educational Research and Reviews, 10(23), 2887–2896. https://doi.org/10.5897/err2015.2348

Bakhtavar M. (2020). The relationship between parenting styles and parental demographic components with their children personality types. Journal of Psychological Science, 19(86), 159–169.

Bandura, A. (2012). Cultivate Self-efficacy for Personal and Organizational Effectiveness. Handbook of Principles of Organizational Behavior, 179–200. Portico. https://doi.org/10.1002/9781119206422.ch10

Baumrind D. (1978). Early socialization and adolescent competence. In: Dragastin SE, Elder GH. Ed. Adolescence in the life cycle: psychological change and social context. Wiley.

Esmaeilpour, F., hashemi, T., & Badri, R. (2018). The role of perceived parenting styles and borderline personality disorder in cyberbullying: mediate empathy. Shenakht Journal of Psychology and Psychiatry, 5(2), 81–92.

https://doi.org/10.29252/shenakht.5.2.81

Lomanowska, A. M., Boivin, M., Hertzman, C., et al. (2017). Parenting begets parenting: A neurobiological perspective on early adversity and the transmission of parenting styles across generations. Neuroscience, 342, 120–139. https://doi.org/10.1016/j.neuroscience.2015.09.029

Mandara J. (2003). The typological approach in child and family psychology: A review of theory, methods, and research. Clinical Child and Family Psychology Review, 6, 129–146.

Mezei J., Juhasz A., Kilencz T., & Vizin G. (2020). Borderline personality disorder in the light of developmental psychopathology (Hungarian). Neuropsychopharmacol. Hung, 22, 102–111.

Mącik, D. (2020). Temperament, parenting styles and the intensity of early maladaptive schemas: assessment of correlations in a non-clinical adult group. Behavioural and Cognitive Psychotherapy, 49(2), 218–232. https://doi.org/10.1017/s1352465820000831

Olsavsky, A. K., Telzer, E. H., Shapiro, M., et al. (2013). Indiscriminate Amygdala Response to Mothers and Strangers After Early Maternal Deprivation. Biological Psychiatry, 74(11), 853–860. https://doi.org/10.1016/j.biopsych.2013.05.025

Oppenheimer, C. W., Hankin, B. L., & Young, J. (2017). Effect of Parenting and Peer Stressors on Cognitive Vulnerability and Risk for Depression among Youth. Journal of Abnormal Child Psychology, 46(3), 597–612. https://doi.org/10.1007/s10802-017-0315-4

Pearson, N., Atkin, A. J., Biddle, S. J., et al. (2009). Parenting styles, family structure and adolescent dietary behaviour. Public Health Nutrition, 13(8), 1245–1253. https://doi.org/10.1017/s1368980009992217

Ramezankhani F., Sadeghi M., & Goodarzi K. (2020). Comparing the Effectiveness of Teaching Mirror Neuron Strategies and Brain Executive Function on the Function of the Frontal Lobe of Boys with Conduct Disorder. International Journal of Behavioral Sciences, 16(2), 155–161.

Schaefer, E. S. (1959). A circumplex model for maternal behavior. The Journal of Abnormal and Social Psychology, 59(2), 226–235. https://doi.org/10.1037/h0041114

Shahsavari M. (2012). A general overview on parenting styles and its effective factors. Australian Journal of Basic and Applied Sciences, 6(8), 139–142.

Tozandehjani H., Tavakolizadeh J., & Lagzian Z. (2011). The effect of parenting styles on self-efficacy and mental health of students. Internal Medicine Today, 17(2), 56–64.