v. 5, n. 12, 2025

International Journal of Health Science

Acceptance date: 25/02/2025

DISORDER OF EXCESSIVE EMPATHY AND CONCERN IN ADULT GIFTED PEOPLE

Fabiano de Abreu Agrela Rodrigues
Post-PhD in Neurosciences, esp. Genomics
Heráclito Research and Analysis Center (CPAH), Department of Neuroscience and Genomics, Brazil & Portugal
https://orcid.org/0000-0002-5487-5852

Flávio Henrique dos Santos Nascimento
Psychiatrist specializing in Neurosciences
Heráclito Research and Analysis Center (CPAH), Department of Neuroscience and Genomics, Brazil
https://orcid.org/0009-0007-3760-2936

Abstratc: The present study explores the complex neurobiological interactions between giftedness, excessive empathy and excessive worry in gifted adults. Giftedness is often associated with greater emotional sensitivity and hyperactivity in brain regions such as the amygdala, anterior cingulate cortex and insula, which intensifies empathy and contributes to excessive worry. This hyperactivity can lead to excitotoxicity, resulting in cellular and glial wear and tear, altering brain morphology and compromising neurological function. In addition, the ability of the gifted to recontrol these dysfunctions through neuroplasticity is discussed, highlighting the importance of emotional regulation strategies to mitigate the adverse effects of neuronal hyperexcitation.
Keywords: giftedness, empathy, excessive worry, neuroplasticity, excitotoxicity.

INTRODUCTION

Giftedness, often associated with exceptional intellectual abilities, can also bring unique emotional challenges. One of these challenges is over-empathy disorder, a condition in which a person feels overwhelmed by the emotions of others, leading to a constant state of worry and anxiety. This article will explore the relationship between giftedness, over-empathy and excessive worry in adults, seeking to understand the causes and implications of this condition. Neuroscience has advanced in understanding the neurobiological basis of these phenomena, revealing that hyperactivity in brain regions such as the amygdala, anterior cingulate cortex and insula is associated with both empathy and excessive worry. This study seeks to explore how these characteristics interact, leading to morphological changes in the brain and resulting in significant challenges for the well-being of the gifted. In addition, the ability of these individuals to recontrol these processes through neuroplasticity and the implications of this for therapeutic interventions are examined.

High intellectual ability, often linked to advanced cognitive abilities, is also accompanied by particular emotional difficulties, one of the most prominent being over-empathy disorder. This situation involves high emotional sensitivity, in which the gifted person develops a strong connection with other people's emotions, resulting in considerable mental strain. Research indicates that gifted adults are more vulnerable to emotional intensity, leading to high levels of worry that can result in anxiety disorders and other psychiatric conditions (Lewis et al., 1992).

Theories on giftedness suggest that high intelligence is linked to high emotional sensitivity, often referred to as "overexcitability". This overexcitability can be seen in several ways, including the emotional one, which is closely linked to the phenomenon of exaggerated empathy (Wirthwein & Rost, 2011). Gifted individuals, by virtue of their high mental capacity and empathy, often absorb the suffering of others more intensely, leading to constant worry that harms their mental health and well-being.

This extreme sensitivity can affect the way gifted adults see and perceive themselves, as they often interpret their emotional reactions as exaggerated or inappropriate, which can lead to feelings of social exclusion and loneliness. Studies show that this high level of worry, if not properly controlled, can increase the likelihood of psychological problems such as depression and anxiety, further damaging the quality of life of those affected (Rinn & Bishop, 2015).

EXCESS EMPATHY: A BLESSING AND A BURDEN

Empathy, defined as the ability to understand and share the feelings of others, is widely considered to be a positive quality. However, in gifted individuals, this ability can manifest itself in an exacerbated way, becoming a signi-

ficant burden. The heightened emotional sensitivity often observed in gifted people can result in sensory overload, where the boundaries between one's own emotions and those of others become blurred. This lack of emotional clarity can culminate in high levels of anxiety, chronic stress and, in more serious cases, depression.

As highlighted in the literature, emotional intensity or "overexcitability" is strongly associated with giftedness, particularly in the emotional and sensory dimensions. Individuals with this characteristic show an exacerbated response to emotional stimuli, which, although it can enrich their intersubjective experiences, often leads to mental and emotional overload (WIRTHWEIN; ROST, 2011). Furthermore, the difficulty in separating internal and external emotions can result in a persistent state of emotional vigilance, contributing to the development of anxiety disorders (LEWIS; KITANO; LYNCH, 1992).

Giftedness, by amplifying empathic sensitivity, places the individual in a vulnerable position where empathy, instead of strengthening social connections, can paradoxically isolate the individual due to the overwhelming emotional impact. This reality underlines the need for specific emotional management strategies for this population, aimed at minimizing the negative effects of excessive empathy and promoting psychological well-being.

NEUROSCIENCE: THE LINK BETWEEN GIFTEDNESS AND EXCESSIVE EMPATHY

Giftedness is often linked to unusual neurological development, which can affect the brain's processing of emotional information. Neuroscience research indicates that gifted people have more intense brain activity in the regions responsible for empathy, such as the ventromedial prefrontal cortex and the insula, which may explain their greater emotional sensitivity towards others (Mrazik; Dombrowski, 2010). Advanced intelligence, by increasing understanding of the difficulties of the world and the feelings of others, can deepen the ability to put oneself in another's shoes, resulting in a considerable emotional charge (Dvash; Shamay-Tsoory, 2014).

From a neuroscience perspective, neurotransmitters such as serotonin (5-HT), dopamine and norepinephrine play important roles in regulating emotions and empathic ability. The release of oxytocin is linked to increased empathy and helping behavior, while changes in neurotransmitters such as glutamate and GABA can affect emotional states and empathetic reactions. The amygdala is essential for emotional processing and its high activity in gifted individuals can cause heightened empathic responses.

In addition, intensified activity in the anterior cingulate cortex and anterior insular cortex, areas related to emotional experience and empathy for pain, may be the reason why gifted people often feel these emotions more intensely and broadly (Banissy et al., 2012). These results support the notion that giftedness is not only limited to superior intelligence, but is also linked to greater emotional sensitivity, which can be both a blessing and a burden.

The parts of the brain related to empathy, such as the ventromedial prefrontal cortex, the insula, the amygdala and the anterior cingulate cortex, show greater activity in gifted people, indicating a greater sensitivity and ability to empathize. This increase in brain activity may be linked to an increase in the production and reuptake of certain neurotransmitters. Specifically, brain chemicals such as serotonin (5-HT), dopamine, oxytocin and norepinephrine play important roles in regulating empathy and emotional reactions. The modulation of mood and reward is directly influenced by the substances serotonin and dopamine, which also affect empathic and social reactions. Oxytocin, also known as the

"love hormone", is closely linked to empathy and pro-social behavior, facilitating social connection and emotional understanding. Norepinephrine, on the other hand, is associated with stress response and emotional vigilance, traits commonly amplified in gifted people due to their heightened emotional sensitivity. Thus, the intense activity of these areas of the brain in gifted individuals may indicate greater efficiency in the production and absorption of these neurotransmitters, which may result in more intense empathy.

EXCESS WORRY: A NATURAL CONSEQUENCE

Brain regions involved in empathy, such as the anterior cingulate cortex, anterior insula and amygdala, are also strongly associated with excessive worry, as observed in individuals with generalized anxiety disorder (GAD) and other conditions related to excessive worry. Elevated activity in these areas during empathic experience, which allows individuals to feel and share the emotions of others, can similarly be recruited during states of excessive worry, where there is constant rumination about negative or imagined future events. Neurotransmitters such as serotonin and dopamine, which play key roles in emotional regulation and empathy processing, are also involved in modulating anxiety and worry. For example, serotonin is associated with mood regulation and anxiety reduction, while dopamine, in addition to its role in reward and motivation, influences the response to stress and anxiety (Ressler; Nemeroff, 2000). The relationship between empathy and excessive worry may be explained by the shared activation of these brain regions and the involvement of similar neurotransmitters, suggesting that individuals with high empathic capacity may also be more likely to experience high levels of worry due to greater emotional sensitivity and reactivity to emotional stimuli.

Empathy, by allowing an individual to deeply perceive and understand the emotions of others, can generate intense concern about one's own self-image, especially in relation to how one's actions are perceived by others. This process involves constantly thinking about the need to act for the benefit of others, in an attempt to alleviate their discomfort or suffering. Highly empathetic individuals can feel a moral and emotional obligation to intervene in situations of adversity, which often translates into a desire to be seen as a compassionate and helpful person. This preoccupation with the perception of others and the internal pressure to act can lead to continuous rumination about the impact of their actions, resulting in anxiety and stress due to the need to meet the expectations they believe others have of them. In extreme cases, this can lead to self-sacrificing behavior, where personal well-being is neglected for the sake of others' comfort, further exacerbating the cycle of worry and emotional exhaustion.

IMPLICATIONS FOR GIFTED ADULTS

Over-empathy disorder and excessive worry can significantly impact the lives of gifted adults, as the constant emotional overload can negatively interfere with various aspects of daily life. The intensification of worries can make it difficult to establish healthy relationships, as these individuals can feel continually responsible for the emotional well-being of others, compromising their own needs and limits. In the professional environment, the difficulty in separating one's own emotions from those of others can hinder performance, leading to burnout and difficulty maintaining productivity. In addition, constant worry can divert attention from personal and professional goals, resulting in frustration and dissatisfaction. The chronic anxiety and stress associated with excessive empathy can,

DOI https://doi.org/10.22533/at.ed.1595122524027

in the long term, trigger a series of physical and mental health problems, including sleep disorders, gastrointestinal problems and an increased risk of cardiovascular disease.

COPING STRATEGIES

Although the challenges related to excessive empathy and worry are substantial, there are effective strategies to help gifted adults manage these conditions. Cognitive-behavioral therapy (CBT) is widely recommended for these cases, as it helps individuals identify and modify dysfunctional thought patterns that contribute to anxiety and excessive worry. CBT can also help establish healthier emotional boundaries and develop coping skills that allow for better management of intense emotions. In addition, practicing mindfulness and relaxation techniques, such as meditation and deep breathing, can be effective in reducing emotional reactivity and stress, promoting greater mental and physical balance. These approaches, when combined, can provide a significant improvement in the quality of life of gifted adults, helping them to better navigate the emotional complexities that accompany giftedness.

DISCUSSION

Neuroscience offers a deep understanding of the brain machinery in gifted individuals, revealing how high neural excitability and hyperactivity of certain brain regions can intensify behavioral traits such as empathy and excessive worry. In gifted individuals, there is evidence of greater production and reuptake of neurotransmitters such as serotonin, dopamine, and norepinephrine in regions associated with emotional processing, such as the anterior cingulate cortex, insula, and amygdala. This hyperactivity not only amplifies empathic capacity, allowing a deep connection with the emotional states of others, but also exacerbates the tendency to worry, since these same regions are activated during processes of rumination and anxiety.

The amygdala, in particular, plays a central role in detecting and responding to emotional stimuli, and is especially reactive in situations of perceived threat. In gifted people, hyperactivity of the amygdala can lead to a disproportionate emotional response, resulting in constant vigilance and a state of continuous alertness, which translates into excessive worry. This cycle of overexcitement can, over time, lead to dysfunction in other brain regions, such as the dorsolateral prefrontal cortex, which is crucial for emotional regulation and executive control. The constant overload of neurotransmitters in these areas can result in cellular and glial wear and tear, compromising the function of these cells and leading to a decrease in the production and reuptake of neurotransmitters, which can, in turn, alter brain morphology.

This process of wear and tear is known as "excitotoxicity", where the continuous hyperactivation of neurons leads to the accumulation of calcium ions inside the cells, causing damage to cell structures and eventually cell death. Glia, which perform support and nutrition functions for neurons, are also affected, resulting in a less efficient brain environment that is more prone to dysfunction. In gifted people, this excitotoxicity can shape the brain in such a way as to further exacerbate traits of empathy and concern, creating a feedback loop that exacerbates these characteristics.

As for the ability of the gifted to recontrol this process and force a homeostatic regulation, brain neuroplasticity offers some hope. Neuroplasticity refers to the brain's ability to reorganize itself, forming new synaptic connections in response to experiences and environmental stimuli. However, homeostatic recontrol is not an automatic process; it requires conscious effort and specific strategies to be effective. Techniques such as meditation,

DOI https://doi.org/10.22533/at.ed.1595122524027

mindfulness, and cognitive-behavioral therapy can help attenuate neural hyperactivity and promote a more balanced state. In addition, pharmacological interventions that modulate neurotransmitter levels may be necessary in more severe cases, to restore the chemical balance in the brain.

In summary, although neuroscience shows that gifted people have an increased potential for empathy and concern due to the hyperactivity of certain brain regions, this same hyperactivity can lead to dysfunction if not managed properly. The ability to recontrol these processes depends on both brain plasticity and the implementation of effective emotional regulation strategies, which can help mitigate the negative effects of neuronal overexcitation.

Perfectionism, often observed in gifted individuals, is closely related to exacerbated empathy and excessive worry. This trait can be explained by hyperactivity in brain regions such as the dorsolateral prefrontal cortex, which is responsible for executive control and decision-making, and the anterior cingulate cortex, which is involved in monitoring error and conflict. When combined with a high empathic capacity, perfectionism can lead to a constant preoccupation with the impact of one's actions on others, resulting in an incessant search for unattainable standards of performance, both personal and social. The amygdala, which regulates emotional responses, can also contribute to perpetuating this cycle by intensifying emotional reactions to perceptions of failure or disapproval. Thus, perfectionism manifests itself not only as a desire to achieve high standards, but also as a response to the perceived emotional demands of others, exacerbated by the interaction between these brain regions.

Concrete Examples of Excessive Empathy and Worry in Gifted People

**Maria, a psychologist with exceptional cognitive skills, faces a constant challenge in her clinical practice. Her high level of empathy makes her connect deeply with her patients' emotions, to the point of internalizing their pain and sadness. After each session, Maria continues to ruminate on her patients' difficulties, which leads her to a state of emotional exhaustion. This difficulty in detaching herself from the suffering of others compromises her capacity for emotional recovery and prevents her from establishing healthy boundaries between her professional and personal life. As a result, Maria begins to experience signs of burnout, a common condition among professionals who are unable to manage the emotional overload resulting from their intense empathy.

**John, the activist who fights for all causes: John is a gifted young man who feels a deep social responsibility. His empathy is not limited to specific causes; he feels the pain of all injustices and, as a result, engages in various fronts of activism, from human rights to environmental issues. This need to fight for multiple causes, fueled by his intense concern for the well-being of others, causes John to neglect his own health and well-being. He spends sleepless nights planning campaigns, organizing protests and engaging in endless debates, all to the detriment of his personal life and physical health. Over time, John begins to realize that, despite his efforts, he is exhausting himself and failing to achieve the impact he so desires, which leads him to an identity crisis and a questioning of his worth.

Ana, the mother who worries excessively about her children: Ana, a gifted mother, lives in a constant state of hypervigilance about her children. Her mind, exceptionally analytical, anticipates every possible scenario, from minor domestic accidents to more serious dangers such as illness and violence. This incessant worry, which many might consider a

form of maternal zeal, actually traps Ana in a cycle of paralyzing anxiety. She becomes hyper-protective, limiting her children's activities to avoid any risk, which ends up affecting their natural development and Ana's own ability to enjoy the simple and joyful moments of motherhood. This excessive worry compromises both her mental health and the family dynamic, leading her to feel constantly exhausted and guilty.

PRACTICAL IMPLICATIONS AND COPING STRATEGIES

The impact of over-empathy and over-concern in the lives of the gifted can be profound, resulting in social isolation, emotional exhaustion, difficulties in relationships and a range of physical and mental health problems. However, there are practical and effective strategies to help these individuals deal with such challenges and find a balance in their lives:

- **Therapy:** Cognitive-behavioral therapy (CBT) is a powerful approach to helping gifted people recognize and modify thought patterns that fuel anxiety and excessive worry. Through CBT, individuals can develop coping skills that allow them to establish healthy emotional boundaries, thus avoiding emotional exhaustion. Maria, for example, could benefit from CBT techniques to learn how to emotionally dissociate from her patients' suffering after sessions, preserving her own mental health.
- **Mindfulness and relaxation techniques:** The regular practice of mindfulness and other relaxation techniques, such as meditation and deep breathing, can be an effective tool for reducing anxiety and stress. These practices teach gifted people to stay in the present moment, which is particularly useful for those who, like Ana, tend to anticipate future dangers. By focusing on the present, they can reduce rumination and enjoy everyday experiences more fully.
- **Support groups:** Participating in support groups with other gifted people can provide a safe space to share common experiences and challenges. These groups allow individuals like João to connect with others who understand the complexities of his condition, exchanging coping strategies and offering mutual support. This support network can be key to reducing feelings of isolation and strengthening emotional resilience.
- **Assertive communication:** Learning to communicate your needs and set limits in a clear and respectful way is crucial to avoid emotional overload. For gifted people who often feel compelled to meet the expectations of others, practicing assertive communication can help maintain a healthy balance between empathy and self-care. John, for example, could benefit from learning to say "no" to new projects when he is already overwhelmed, thus preserving his mental health and his ability to continue contributing effectively.
- **Seek professional help:** When excessive empathy and worry start to significantly affect quality of life, it is essential to seek professional help. Psychologists or therapists who specialize in working with the gifted can offer personalized interventions that address the specific needs of these individuals, helping them to manage their emotions and avoid burnout. By seeking professional help, Ana could learn to balance her natural concern with techniques that allow her to fully enjoy the experience of motherhood without being consumed by anxiety
- **Importance of Being Part of High-IQ Societies:** Being part of high-IQ societies, projects and discussion groups can be extremely beneficial for gifted

DOI https://doi.org/10.22533/at.ed.1595122524027

individuals. These societies offer an environment where individuals with exceptional cognitive abilities can connect with peers who share similar challenges and experiences. Participating in these communities allows for the exchange of ideas, collaboration on intellectually stimulating projects and mutual support on emotional and social issues unique to this group. In addition, high-IQ societies often host events and discussions that can help mitigate the feeling of isolation that many gifted people experience, offering a valuable support network that can contribute to mental and emotional well-being.

- **Importance of Participating in Projects Involving Gifted People:** Getting involved in projects that bring together gifted people can provide a deep sense of purpose and fulfillment. These projects, often focused on complex challenges or technological and scientific innovations, offer gifted people the opportunity to apply their exceptional abilities in a meaningful way. Working alongside other equally talented individuals not only stimulates intellectual growth, but also strengthens motivation and engagement. In addition, these projects promote the building of a community where gifted people can feel understood and valued, reducing the sense of alienation that often accompanies their experiences in less challenging environments.
- **Importance of Counseling to Drive Optimal Habits:** Specialized counseling for the gifted is crucial to help these individuals develop habits that maximize their potential while maintaining a healthy balance in their lives. Competent counseling can provide personalized guidance on time management, setting priorities, and developing routines that promote physical and mental well-being. For gifted individuals who are often faced with the challenge of managing multiple interests and responsibilities, a coach can help structure their activities efficiently, avoiding burnout and promoting sustainable productivity. In addition, counseling can offer emotional support, helping to develop strategies for dealing with the internal pressure of achieving high standards and maintaining a balanced perspective on their achievements and challenges.

These coping strategies are fundamental in helping gifted people to live in a balanced and healthy way, allowing them to use their exceptional abilities in a positive way, without compromising their emotional and physical well-being.

FINAL CONSIDERATIONS

Neuroscientific evidence points to an intrinsic relationship between giftedness and the intensification of traits such as empathy and excessive worry, mediated by the hyperactivity of critical brain regions. While this process can enrich the emotional and social lives of the gifted, it also makes them vulnerable to neurological dysfunctions that can compromise their health and quality of life. Understanding these interactions is crucial to developing effective intervention strategies that can mitigate the adverse effects of neuronal overexcitation. Interventions that promote neuroplasticity, such as cognitive-behavioral therapy and the practice of mindfulness, show promise in helping these individuals achieve emotional and mental balance, preserving their well-being and enhancing their exceptional abilities.

DOI https://doi.org/10.22533/at.ed.1595122524027

REFERENCES

BANISSY, M.; KANAI, R.; WALSH, V.; REES, G. Inter-individual differences in empathy are reflected in human brain structure. Neuroimage, v. 62, p. 2034-2039, 2012.

DVASH, J.; SHAMAY-TSOORY, S. Theory of Mind and Empathy as Multidimensional Constructs: Neurological Foundations. Topics in Language Disorders, v. 34, p. 282-295, 2014.

LEWIS, R. B.; KITANO, M. K.; LYNCH, E. W. Psychological intensities in gifted adults. Roeper Review, v. 15, n. 1, p. 25-31, 1992.

MRAZIK, M.; DOMBROWSKI, S. C. The Neurobiological Foundations of Giftedness. Roeper Review, v. 32, p. 224-234, 2010.

RESSLER, K.; NEMEROFF, C. Role of serotonergic and noradrenergic systems in the pathophysiology of depression and anxiety disorders. Depression and Anxiety, v. 12, p. 2-19, 2000.

SCHIENLE, A.; EBNER, F.; SCHÄFER, A. Localized gray matter volume abnormalities in generalized anxiety disorder. European Archives of Psychiatry and Clinical Neuroscience, v. 261, p. 303-307, 2011.

SCHULTE-RÜTHER, M.; GREIMEL, E.; PIEFE, M.; KAMP-BECKER, I.; REMSCHMIDT, H.; FINK, G.; HERPERTZ-DAHLMANN, B.; KONRAD, K. Age-dependent changes in the neural substrates of empathy in autism spectrum disorder. Social cognitive and affective neuroscience, v. 9, n. 8, p. 1118-1126, 2014.

WIRTHWEIN, L.; ROST, D. H. Focussing on overexcitabilities: Studies with intellectually gifted and academically talented adults. Personality and Individual Differences, v. 51, n. 3, p. 337-342, 2011.