

We are IntechOpen, the world's leading publisher of Open Access books Built by scientists, for scientists

5,500

Open access books available

135,000

International authors and editors

165M

Downloads

Our authors are among the

154

Countries delivered to

TOP 1%

most cited scientists

12.2%

Contributors from top 500 universities



WEB OF SCIENCE™

Selection of our books indexed in the Book Citation Index
in Web of Science™ Core Collection (BKCI)

Interested in publishing with us?
Contact book.department@intechopen.com

Numbers displayed above are based on latest data collected.
For more information visit www.intechopen.com



Empathy: Autism and Psychopathy

Michael Fitzgerald

Abstract

This chapter examines empathy from a number of angles, especially autism and psychopathy. It is an overarching phenomenon. It is a central factor in interpersonal psychiatry and psychology. The definition of empathy is extremely complex, and multifaceted. It is necessary to be aware of the massive variability and heterogeneity in considering empathy, autism and psychopathy. An example of this is the new concept of autism called criminal autistic psychopathy. To understand this is, to understand lethal dangerousness. This is described in two school shootings with many deaths; Columbine and Sandy Hook. Neurobiology plays a major role in understanding empathy, autism and psychopathy. Early intervention is described and is of critical importance.

Keywords: autism, psychopathy, criminality, empathy, alexithymia

1. Introduction

Empathy is one of the most important concepts in psychiatry and psychology, particularly in the interpersonal domain. It is central to the neurodevelopmental disorders, autism, learning disability, bipolar disorder and schizophrenia as well as closely associated conditions like psychopathy and personality disorder. Indeed, treating empathy deficits is central to psychiatry and psychology. In the conditions described above, there is so much overlap and empathy deficits of various kinds are critical to understanding these conditions. Because of the serious long-term outcomes, early treatment is critical, even if there is a need for a great deal of extra research to be done in this area.

The relationship between empathy, autism and psychopathy is insufficiently appreciated. While it is very complex, this chapter tries to explain the relationship. It reviews the relationship between these concepts in the psychiatric literature and also builds on the author's 45 years of clinical experience, dealing with these patients.

Fundamental criticism of the American Psychiatric Association [1] DSM 5. Now psychology and neuropsychiatry are intimately entwined. This chapter aims to elucidate the neuropsychology and neuropsychiatry of empathy, autism and psychopathy.

2. Definition of empathy

Empathy is a spectrum concept. It is an overarching phenomenon. Batson [2] describes many, "phenomena" in relation to empathy, ranging from (1) "knowing another person's internal state, including his or her thoughts and feelings"; (2) "adopting the posture or matching the neural response of an observed other"; (3) "coming to feel as another person feels"; (4) "intuiting or projecting oneself into another's

situation,” (a simulation phenomenon); (5), “imagining how another is thinking and feeling,” (a theory phenomenon); (6), “imagining how one would think and feel in the other’s place,” (a simulation phenomenon). Erickson [3], points out that to simulate is to put oneself in the shoes of another and that a simulation theory is sometimes called empathy theory; (7), “feeling distress at witnessing another person’s suffering”; (8), “feeling for another person who is suffering” [2]. There will be further elaborations of these phenomena in the years to come, with further research on empathy. Chialant et al. [4], defines empathy as, (a), “an affective state that is (b) “isomorphic to another person’s affective state” and (c) “is elicited by observing or imagining another person’s affective state,” and (d) “is experienced while remaining cognisant that the other person’s affective state is the source of one’s own affective state.” Chialant et al. [4], also note that, “our capacity to distinguish whether the source of an affective experience is triggered by another or lies within ourselves is part of the broader capacity for perspective taking.” This chapter will start with a discussion of neuropsychology.

3. Neuropsychology

3.1 Understanding mentalization, theory of mind and empathy

Swan and Riley [5] note that “how we understand another person’s mind and reflect on our own mental states, or, ‘mentalize’, [6], is the basis of empathy.” There are two different views on the mechanism that puts us in the “shoes,” (the mind) of another person: (a) “thinking or mind-reading, and (b) feeling or empathy.” One way to provide empathy is to share another person’s feelings in an emotive manner, defined as, “affective response more appropriate to someone else’s situation than to one’s own” [7]. Various alternative forms, each based on cognitive theories infer the state of another mind through theory of mind, [8]. This definition [5] involves, “the ability of humans and some animals to ascribe unique mental states to others and to use those mental state attributes during social interactions.” Swan and Riley [5], also note the, “theory-theory of [9], which means that, “we attribute mental states to others on the basis of a theory of mind that is constructed in early infancy and subsequently revised and modified or else is the result of maturation of innate mind-reading modules” [10]. Assimilation theory of the mind, [11, 12], is described by Swan and Riley [5], as stating that, “simulation theorists deny that our understanding of others is theoretical and maintain that we use our mind as a model when understanding the mind of others.” Finally, Swan and Riley note that mind-reading, [13, 14], note that, “ascribed to the target is ascribed as a result of the attributors instantiating, undergoing or experience that very state.” Mind-reading involves attributing a mental state to another. “It is the ability to detect the intentions and predict the behaviours of other individuals.” Swan and Riley ([5], page 13), point out that, “it has been argued that empathy is extended to include mentalizing. Mentalization embodies the capacity to include a sense of the actions of oneself and other people on the basis of desires, feelings and beliefs.” It is a big issue in autism and Decety and Michalskak Lahey [15] points out that, “empathic perspective taking also partially differs from mentalizing and theory of mind functions, which involve taking another person’s perspective and attributing to them particular cognitive states, in that it is more involved in attributing emotional states.”

3.2 Empathy and theory of mind

Research suggests a sharp distinction between autism and psychopathy. Persons with autism are described as having problems with theory of mind and persons

with psychopathy having intact theory of mind attributes [16], but when one is dealing with neuropsychology and the brain, the situation is rarely so clear cut, so black and white. There is continuous heterogeneity and variability. In the clinical world, these issues are almost always on a spectrum with greater or lesser theory of mind problems. Indeed, some high-functioning autism persons can pass theory of mind tests [10, 17]. Blair [18] points out that “cognitive empathy or theory of mind is profoundly impaired in individuals with autism.” These theories have been very seriously undermined by research on high-functioning autism and Scheeren et al. [17], points out that, “counter to what theory of mind theory of ASD would predict, school age children and adolescents with high-functioning ASD seem to be able to master the theoretical principals of advanced mental state reasoning.” This is a warning to absolutism in neuropsychology and neuropsychiatry. In short, only some persons with autism have theory of mind problems.

4. Clinical perspective—variability, heterogeneity and dimensionality

From a clinical perspective, the author, having diagnosed over 4500 persons with autism sees these overlapping features all the time. It is not rare to see children with autism and callous, unemotional traits.

There is massive variability in the, “real world,” that is clinical work with routine clinical patients and this is most clearly seen in those who have criminal autistic psychopathy, [19]. The empathy spectrum, the autism spectrum and psychopathy spectrum are almost infinite in terms of severity and variability, [20]. There is an empathy spectrum from high empathy to no empathy. In actual fact, the idea of zero empathy, [21], is something that is a theoretical concept and that does not occur in the real world. We need to think in dimensional perspective, not categorical perspectives. We need to think in terms of non-specificity rather than absolutely specificity. In the vast majority of these situations we are dealing with multiple genes of small effect interacting with the environment. This gives us almost unlimited variability and heterogeneity in the concept of empathy, autism and psychopathy.

5. Diagnosis, empathy and neurodevelopmental psychiatry/psychology

In relation to diagnosis, there is massive overlap between psychiatric diagnostic categories, [22], and there is equally massive overlap between degrees of empathy in many diagnostic categories. Indeed, an over-arching neurodevelopmental category makes more sense than individual diagnostic categories because there is so much overlap in neurodevelopmental psychiatry, [20]. According to Scull [23], Steven Hyman, the former director of NIMH stated that DSM 5, “was totally wrong in the way its authors could not have imagined. So in fact, what they produced was an absolute scientific nightmare. Many people who got one diagnosis got five diagnoses, but they didn’t have five diseases – they have one underlying condition.” Insel [23, 24], who was also the director of the NIMH stated that DSM 5 showed, “a lack of validity ... as long as the research community takes DSM 5 to be a bible, we will never make progress. People think that everything has to match DSM 5 criteria, but what you know ... biology never read the book, and he went on to point out that in future the NIMH would be, re-orientating into research away from DSM 5 categories ... patients with mental illness deserve better.” Clearly, Hyman and Insel were absolutely correct. He, Insel [24], proposed Research Domain Criteria to collect, “genomic, cellular, imaging, social and behavioural information,” and he also recommended focusing on the brain and, “connectopathies.” Thomas Insel noted that

psychiatrists, “actually believe, (that their diagnoses) are real, but there’s no reality. They are just constructs.” The first step is to analyse the huge spectrum of empathy and diagnosis. This chapter elucidates the divergence between “laboratory” (research) findings using rarefied, (autism diagnostic interview), instruments [25]. In the clinical world, research findings have to be modified when they do not take into account the complex, “real,” clinical world. The autism diagnosis interview misses out three quarters of persons with autism spectrum disorders.

6. Autism, aggression and criminal autistic psychopathy—dangerously low levels of empathy

The vast majority of persons with ASD show a failure to orientate to other’s distress, have difficulty understanding intentions and attributing thoughts to others and appear to respond emotionally, “in a limited way,” according to Rogers et al. [26]. They have problems with social relationships, reduced eye contact, problems understanding social know-how, problems sharing thoughts, problems seeing things from other people’s perspectives, preservation of sameness, narrow interests and sensory issues. Most are highly moral, but many can show aggression in a non-lethal way and then there are those who are highly dangerous with criminal autistic psychopathy, [19]. Indeed, aggression was well recognised by Asperger [27], Frith [28]. Asperger [27] described Fritz V. as, “aggressive and lashed out with anything he could get hold of, (once a hammer).” Asperger [27] also described autistic acts of malice, sadistic traits, “typically calculated,” which suggested an understanding of other minds and suggesting the overlap here between autism and psychopathic traits. One boy, according to Asperger [27], stated, “mummy, I shall take a knife one day and put it into your heart, then blood will spurt out and this will cause a great stir.” This suggests a sadistic pleasure characteristic of both psychopathy and autism, (criminal autistic psychopathy) again showing the overlap. The author of this chapter is suggesting that we bring back the diagnosis of autistic psychopathy for those with autism and Asperger syndrome, who engage in criminal activities with a new diagnosis of criminal autistic psychopathy [19]. These persons have the dual features of autism and psychopathy. There are overlapping features, but also differences from psychopathy.

7. School shooting—Sandy Hook

In relation to the school shooting at Sandy Hook School, Solomon [29], noted that from his conversation with Peter Lanza, the father of Adam who shot 26 people at this school, that he showed poor eye contact, problems with social relationships, preservation of sameness, narrow interests, poor communication skills and sensory issues. These are all classic features of Asperger syndrome, DSM 4, or of the sub-group of Asperger syndrome, called criminal autistic psychopathy, [19]. He had major empathy deficits in relation to other people. According to Solomon [29], when his mother asked Adam whether he would feel sad if anything happened to her, he replied “no.” He found it much easier to communicate online. It’s online that the true state of affairs of people with dangerous thoughts and fantasy, particularly those with Asperger syndrome, are best seen. The potential for criminal autistic psychopathy can be noticed in very early life with callous traits. Adam felt hostile to people, particularly females and he wrote online, “why females are inherently selfish.” Solomon [29], pointed out that, “misogynism is very common in these conditions.” His father [29] stated that “Adam would have killed me in a heartbeat, if he’d had the chance.” He shot his mother “four times,” Solomon [29].

8. School shooting—Columbine

The school shooter Eric Harris at Columbine also had criminal autistic psychopathy, [19]. Cullen [30], described him as, “painfully shy,” and that he was hypersensitive to criticism or rejection. Cullen [30], pointed out that he stated that, “I hate almost everyone,” and, “I wanna rip his head off, and eat it,” in a flat voice. Cullen [30], stated that Eric, “described going to some random, downtown area ... and blowing up and shooting up everything he could, and that, he would feel no remorse, no shame. He would make them pay”. Cullen [30], went on to point out that he was, “egotistical, empathy-free” and, “egocentric with appalling failure of empathy.” Cullen [30], also described him as being, “callous and cunning.” Here again, we see the overlap between psychopathy and autism. In the real world, people do not fit into neat categories or boxes. There is a massive overlap between diagnostic categories.

8.1 Empathy, callous unemotional traits and psychopathy

Blair [16] points out that callous, unemotional people show a lack of empathy and remorse, despite perfectly good understanding of thoughts and feelings. He emphasises “lack of empathy, poor processing or distress cues in other people, lack of remorse, but good mentalizing.” Blair [16] points out that, “the naming of emotional expressions recruits the neural architectures involved in the processing of these, (emotional), expressions.” Blair [16] also pointed out that these persons, “do not present with impaired responding to angry, happy or surprised facial or vocal expressions.” Herpers et al. [31], point out that, “deficits in emotional recognition are thought to play an important role in impaired, empathic function in psychopathy. It has been suggested that impaired functioning of the amygdala leads to impaired recognition of facial expressions of distress, specifically fear.” Blair [18] notes out that, “there is selective impairment for the processing of fearful and to a lesser extent, sad expressions in individuals with psychopathy.” Clinically, the author sees these features commonly in persons with autism. The impairment of processing of fearful expressions was most seriously undermined when Dadds et al. [32]; Dadds and Rhodes [33], suggested that, “facial fear recognition may not be impaired when participants are instructed to look at the eyes.” Empathy deficits and theory of mind deficits are partly caused by reduced eye contact, which is evident in clinical practice with persons with autism every day. This reduces their capacity to understand how people, “tick.” One cannot read a face emotionally if one does not look at it.

8.2 Empathy and autism—the clinical perspective

Blair [16], points out that, “individuals with autism show indications of an aversive response to the distress of others.” The problem is that the author sees this clinically all the time in patients with autism and it is not specific to psychopathy. There is huge variability and heterogeneity in autism and this does not take into account the phrase that persons with autism show an aversive response to the distress of others. Indeed, I see many persons with autism who show no aversive response to others. Of course, there is a large gap between what happens in rarefied research studies and how people present in the real world. This is mostly seen in this discussion of empathy, autism and psychopathy. Blair [18], points out that, “it is uncertain whether there is impairment in processing emotional expressions in individuals with autism.” Working with persons with autism, as the author does every day, shows this clearly, that there are huge problems in processing emotional expressions in persons with autism. The findings in the research lab do not always mirror the “real-life” situation of clinical practice.

9. Alexithymia, empathy and anterior insula

Bernhardt and Singer [34], pointed out that, “alexithymia is sub-clinical phenomena related to difficulties in identifying and describing feelings and in distinguishing feelings from bodily sensations,” [35]. Bernhardt and Singer [34], also point out that there was a modulation observed, “by the degree of alexithymia in controls and individuals with ASD, [36]. Indeed, the greater the participant’s deficits in understanding their own emotions, regardless of whether they were control subjects or patients, the less activation they showed in anterior insula, while empathising with people present in the same room undergoing painful experiences. These results confirmed the hypothesis that representations in anterior insula underly representations of our own feeling states, which in turn form the basis for understanding the feelings of others. Thus, understanding your own feeling states may be a prerequisite to engage in vicarious simulation for a better understanding of other people’s states.” This means self-empathy is necessary for other empathy. If one cannot identify one’s own emotions, one will not be able to identify other’s emotions. “This is necessary for authentic simulation,” [37].

10. Empathy, morality, autism and psychopathy

Blair et al. [18], noted that children with autism show, “relatively preserved moral judgement, as long as the judgement does not require representation of the interest of the perpetrator.” Blair [18] also points out that, “empathic responding is necessary for successful moral judgement,” but again, there is massive variability. It’s not so much that there’s a double hit, there may be 100 genetic hits and more impacting on interacting on autism and psychopathy. Rogers et al. [26], pointed out that, “boys with co-occurring ASD and CU tendencies share some of the behaviours and aspects of cognitive profile with boys who have psychopathic tendencies alone. Callous/psychopathic acts in a small number of individuals with ASD probably reflect a ‘double hit’, involving an additional impairment of empathic response to distress cues, which is not part and parcel of ASD itself.” This so called double hit should be hundreds of hits.

In relation to cognitive empathy and theory of mind, Blair [18] stated that, “cognitive empathy or theory of mind is intact in individuals with psychopathy.”

10.1 Automatic perspective taking

These ideas have been very seriously undermined by Drayton et al. [38] in relation to automatic perspective taking. Previous research did not take the complexity of cognitive empathy into account and this led to serious misunderstandings of cognitive empathy. Drayton et al. [38] points out that automatic theory of mind processes are engaged when an individual unintentionally represents the perspective of another person, also called, “altercentric interference.” Drayton et al. [38], suggest that “psychopathic individuals have a diminished propensity to automatically think from another’s perspective, which may be the cognitive root of their deficits in social functioning and moral behaviour.” Drayton et al. [38] raise for this author, the possible failure of previous research on theory of mind and psychopathy, failing, “to tap into a critical component of normal theory of mind processing; or tendency to take other’s perspective automatically.” Drayton et al. [38], defined, “automatic theory of mind processes,” as an individual representing, “the thoughts and feelings of another person without intending to do so.” They also point out that

psychopathic individuals have a previously unobserved cognitive deficit that might explain their patterns of destructive and antisocial behaviour, that is ... failure, “to automatically take the perspective of others, but can deliberately (controlled), take the perspective of others.” These findings suggest that psychopathic individuals have the ability to take the perspective of others, but lack the propensity to do so. It seems they can pass theory of mind tasks in the research situation but fail to do so in the real world situation. This is one of the endless problems of laboratory research not translating into the, “real world,” that is the clinical world. This lack of generalisation can be a serious flaw in academic psychological research. Drayton et al. [38], notes that, “psychopathic individuals do show deficits in their ability to understand what others are feeling but this capacity to represent other feelings appears to be distinct from capacity to represent what others see and believe.” They also point out that, “psychopathic individuals appear to represent other’s perspective in a relatively typical manner when doing so. It is goal-conducive and yet, are able to ignore other’s perspective when it is not conducive.” This means that all previous theory of mind research on psychopathy missed the fundamental point of the deficit of automatic perspective of others. Drayton et al. [38], point out that, “this combination of relatively intact deliberative theory of mind but impaired spontaneous theory of mind may allow psychopathic individuals to use information about others’ mental states to achieve their own ends, while at the same avoid the, ‘cost’, of automatically representing other’s mental states, results in callous and chronic criminal behaviour.” They have no empathic interest in other minds, except getting their own egocentric desires met.

10.2 Altercentric interference

Of course, there has been debate about altercentric interference. Marshal et al. [39], noted that, “considerable debate has focused on whether adults possess an implicit system for representing others’ mental states. Some argue that people automatically represent the perspective of others using evidence from altercentric interference - cases in which another agent’s perspective affects the speed with which one can report one’s own perspective. Others have argued that altercentric interference is not always specific to social stimuli and thus, may represent a simpler process such as submentalizing.” Marshal et al. [39] conclude that, “participants experience both egocentric and altercentric interference, and these effects emerge equally in social and non-social conditions.”

10.3 Autism/psychopathy overlapping

Rogers et al. [26], pointed out that ASD plus callous, unemotional traits, “shared some behaviours and aspects of cognitive profile with boys who have psychopathic tendencies alone,” and that, “anti-social personality tapped the same latent construct in children with ASD as in previous samples” [40].

10.4 Fearlessness and morality

Fearlessness is not rare in autism, indeed, is a major concern for children with autism in schools and is also seen in psychopathy. They both have emotional processing deficits and indeed, they both, particularly criminal autistic psychopathy can show moral deficits. Of course, many persons with autism have very high moral standards. Shame and embarrassment can be absent in both conditions. Autism is a most contradictory condition.

10.5 Attachment and empathy

Blair [16], is correct to point out that, “some forms of empathic responding occur independently of attachment style.” The causality of attachment research is often deeply flawed. Indeed, Bowlby [41], discussed, “inappropriate mothering,” as a cause of autism. Indeed, the causality here is in the opposite direction. Blaming the mother, suggesting that mothers caused autism or psychopathy was totally inaccurate.

10.6 Neurobiology and empathy

Chialant et al. [4] pointed out that deficiencies in the prefrontal cortex and limbic system are associated with both violent behaviour and empathy. They also pointed out that empathy comes out of a, “brainstem-mediated mimicry,” and, “mirror neuron mediated emotional resonance which emerges in the very first months of life.” Shamay-Tsoory et al. [42], point out that, “recent evidence suggests that there are two possible systems of empathy: a basic emotional contagion system and a more advanced cognitive perspective-taking system. It is not clear whether these two systems are part of a single, interacting empathy system or whether they are independent. Additionally, the neuroanatomical bases of these systems are largely unknown.” They found nevertheless that, “a remarkable behavioural and anatomic double dissociation between deficits in cognitive empathy (ventromedial prefrontal), and emotional empathy (inferior frontal gyrus). Furthermore, precise anatomical mapping of lesions revealed Brodmann area 44 to be critical for emotional empathy, while areas 11 and 10 were found necessary for cognitive empathy.” This supports the notion that the inferior frontal gyrus is involved in emotional empathy and the ventromedial prefrontal, in cognitive empathy, and that, “these two neural networks with two core components which are triggered and operate independently.”

11. Callous and unemotional traits (CU), fear and neurobiology

Herpers et al. [31], note that, “youths with CU traits show lower levels of prosocial reasoning,” and, “lower emotional responsibility,” with, “reduced response of the amygdala and a weaker functional connectivity between the amygdala and the ventromedial prefrontal cortex.” Glenn and Raine [43], point out that, “poor autonomic fear conditioning - the ability to learn associations between neutral cues and aversive stimuli - is another well replicated correlate of adult criminal and psychopathic adult offending, conduct disorder in children and adolescents, and juvenile offending. A review of forty-six human brain imaging studies suggests that deficits in fear conditioning may reflect abnormalities in a common core fear network, that consists of the amygdala, insula and anterior cingulate.” Indeed, as Linden [44], points out, the brain is a, “rather weird agglomeration of adhoc solutions that have been piled on through millions of years of evolutionary history.” No wonder there is so much overlap.

12. Treatment and intervention

Blair [16], points out that, “moral socialisation is better achieved through the use of induction,” (reasoning that draws children to the effects of their misdemeanour on others). Blair [16], also stated that children with, “emotional difficulties of a lack of guilt/remorse linked to psychopathy,” then parental socialisation has no effect, i.e., “no statistical bearing.” This is a recipe for hopelessness and abandonment

of these children. Indeed, new research does not support that view. Clearly, these children from a very young age, even before the second year, need help in relation to empathy. I see these children from about one and a half years upwards, and they can be helped, as I will show shortly. Waller et al. [45], points out that, “heritable fearlessness and low interpersonal affiliation traits contribute to the development of callous/unemotional behaviours. Positive parenting can buffer these risky pathways,” and that, “mother positive parenting moderated the fearlessness to callous-unemotional behaviour pathway.”

13. Treatment of psychopathic traits

Taubner et al. [46], pointed out that, “psychopathic traits alone only partially explain aggression in adolescents. Mentalization may serve as a protective factor to prevent the emergence of proactive aggression in spite of psychopathic traits and may provide a crucial target for intervention.” Viding [47], points out that, “callous/unemotional traits are malleable,” “respond to warm parenting” and that Dadds et al. [40] showed that they might benefit from training in emotional literacy and emotional recognition.

14. Conclusion

Empathy effects a whole variety of psychiatric disorders to a greater or lesser degree. There is particular emphasis on psychopathy here, but psychopathy and autism are on a neurodevelopmental mental spectrum and they do overlap. A whole range of neurodevelopmental disorders are on this neurodevelopmental spectrum including learning disability, schizophrenia, bipolar disorder, ADHD, autism, psychopathy. It was an error in DSM 5 [1] to separate neurodevelopmental disorders from schizophrenia. In clinical practice, patients are often on more than one points of this neurodevelopmental spectrum and each aspect of the spectrum that they present with needs treatment.

Author details

Michael Fitzgerald
Department of Psychiatry, Trinity College, Dublin, Ireland

*Address all correspondence to: profmichaelfitzgerald@gmail.com

IntechOpen

© 2019 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 

References

- [1] American Psychiatric Association. DSM 5. Washington DC: APA; 2013
- [2] Batson C. These things called empathy: 8 related but distinct phenomenon. In: Decety J, Ickes W, editors. *The Social Neuroscience of Empathy*. Cambridge: MIT Press; 2009
- [3] Erickson TH. Do not let us be confused: Psychopathy, mind reading and moral responsibility. 2010. <http://11.Do-not-let-us-be-confused.blogspot.com-2010-05-psychopathy-mind-reading-and-moral.html>
- [4] Chialant D, Edersheim J, Price B. The dialectic between empathy and violence: An opportunity for intervention? *The Journal of Neuropsychiatry and Clinical Neurosciences*. 2016;**28**:273-285
- [5] Swan P, Riley P. Mentalization: A tool to measure teacher empathy in primary school teachers. The Joint AARE APERA International Conference, Sydney; 2012. pp. 1-20
- [6] Fonagy P, Steele H, Moran G, Higgitt A. The capacity for understanding mental states: The reflective self in parent and child and its significance for security of attachment. *Infant Mental Health Journal*. 1991;**12**:201-217
- [7] Hoffman M. The contribution of empathy to justice and moral judgement. In: Eisenberg N, Strayer J, editors. *Empathy and its Development*. Cambridge Studies in Social and Emotional Development. New York: Cambridge University Press; 1987
- [8] Premack D, Woodruff G. Does the chimpanzee have a theory of mind? *Behavioral and Brain Sciences*. 1978;**1**(4):515-526
- [9] Gopnik A, Wellman H. The theory theory. In: Hirschfield L, Gelman S, editors. *Mapping the Mind: Domain Specificity in Culture and Cognition*. New York: Cambridge University Press; 1994
- [10] Baron-Cohen S. *Mindblindness: An Essay on Autism and Theory of Mind*. Cambridge: MIT Press; 1995
- [11] Gallese V, Goldman AI. Mirror neurons and simulation theory of mind Reading. *Trends in Cognitive Sciences*. 1998;**2**:493-501
- [12] Gordon R. Folk psychology assimilation. *Mind & Language*. 1986;**1**:158-171
- [13] Goldman A, Sripada C. Simulationist models of face-based emotional recognition. *Cognition*. 2005;**94**:193-213
- [14] Goleman D. *Social Intelligence: Beyond IQ, Beyond Emotional Intelligence*. New York: Bantam; 2006
- [15] Decety J, Michalskak Lahey B. Atypical empathic responses in adolescents with aggressive and conduct disorder. *Biological Psychiatry*. 2009;**30**:303-211
- [16] Blair R, Mitchell D, Blair K. *The Psychopath: Emotion and Brain*. Oxford: Blackwell; 2005
- [17] Scheeren AM, De Rosnag M, Kootha M. Re-thinking theory of mind of ASD. *The Journal of Child Psychology and Psychiatry*. 2013;**6**:628-635
- [18] Blair R. Fine cuts of empathy and the amygdala: Dissociable deficits in psychopathy and autism. *Quarterly Journal of Experimental Psychology*. 2008;**61**(1):157-170
- [19] Fitzgerald M. *Young, Violent and Dangerous to Know*. New York: Nova Science; 2010

- [20] Fitzgerald M. *The Future of Psychiatry is Neurodevelopmental*. Hospital Doctor of Ireland; 2017
- [21] Baron-Cohen S. *Zero Degrees of Empathy*. London: Allen-Lane; 2011
- [22] Fitzgerald M. Schizophrenia and autism: Clinical overlap and difference. *Clinical Neuropsychiatry*. 2012;**10**(4):171-176
- [23] Scull A. *Madness in Civilisation*. London: Thames & Hudson; 2015
- [24] Insel T. A different way of thinking. *New Scientist*. 2015;3
- [25] Lord C, Rutter M, Le Couteur A. Autism diagnostic interview-revised. *Journal of Autism and Developmental Disorders*. 1994;**24**(5):659-685
- [26] Rogers J, Viding E, Blair J, Frith U, Happe F. Autism spectrum disorder and psychopathy: Shared cognitive underpinnings or double hit? *Psychological Medicine*. 2006;**36**:1789-1798
- [27] Asperger H. Die "Autistischen Psychopathen", im Kindesalter. *Archiv Fur Psychiatrie und Nervenkrankheiten*. 1944;**117**:76-136
- [28] Frith U, editor. *Autism and Aspergers Syndrome*. Cambridge: Cambridge University Press; 1991
- [29] Solomon A. *The Reckoning*. New York: The New Yorker; 2014. pp. 36-45
- [30] Cullen D. *Columbine*. Devon UK: Olds T Publishing; 2009
- [31] Herpers P, Scheepers F, Bons D, Buitelaar J, Rommelse N. The cognitive and neural correlates of psychopathy and especially callous-unemotional traits in youths: A systematic review of the evidence. *Development and Psychopathology*. 2013;**26**:245-273
- [32] Dadds M, Perry Y, Hawes D, Merz DJ, Riddell AC, Haines D. Attention to the eyes and fear recognition deficits in child psychopathy. *British Journal of Psychiatry*. 2006;**189**:280-281
- [33] Dadds M, Rhodes T. Aggression in young children with concurrent callous-unemotional traits: Can neurosciences inform progress and innovation in treatment approaches. *Philosophical Transactions of the Royal Society of London*. 2008;**363b**:2567-2576
- [34] Bernhardt BC, Singer T. The neural basis of empathy. *Annual Review of Neuroscience*. 2012;**35**:1-23
- [35] Nemiah J. Alexithymia. Theoretical considerations. *Psychotherapy and Psychosomatics*. 1977;**28**:199-206
- [36] Bird G, Silani G, Brindley R, White S, Frith U, Singer T. Empathic brain responses in insula or modified by level of alexithymia. *Brain*. 2010;**133**:1515-1525
- [37] Fitzgerald M, Bellgrove M. The overlap between alexithymia and Aspergers syndrome. *Journal of Autism and Developmental Disorders*. 2006;**36**(4):575-576
- [38] Drayton L, Santos L, Baskin-Sommers A. Psychopaths fail to automatically take the perspective of others. *PNAS*. 2018;**115**(3):3302-3307
- [39] Marshall J, Gollwitzer A, Santos LR. Does altercentric interference rely on mentalizing. *PLoS One*. 2016;**13**(3):e0194101. DOI: 10.1371-Journal.pone.0194101
- [40] Dadds M, Cauchi A, Wimalaweerg S, Hawes D, Brennan J. Outcomes, moderators, mediators of empathic-emotion recognition training for complex conduct problems in childhood. *Psychiatry Research*. 2012;**199**:201-207

[41] Bowlby J. Attachment and loss. In: Separation. Vol. 2. London: Hogarth Press; 1973

[42] Shamay-Tsoory S, Aharon-Peretz J, Perry D. Two systems for empathy: A double dissociation between emotional and cognitive empathy in inferior frontal gyrus versus ventromedial prefrontal lesions. *Brain*. 2009;**132**:617-627

[43] Glenn A, Raine A. Neurocriminology: Implications for the punishment, prediction and prevention of criminal behaviour. *Nature Reviews*. 2014;**15**:54-63

[44] Linden DJ. *The Accidental Brain*. Cambridge Mass: H.U.P; 2007

[45] Waller R, Trentacosta C, Shaw D, Neiderhiser J, Ganiban J, Reiss D, et al. Heritable temperament pathways to early callous-unemotional behaviour. *British Journal of Psychiatry*. 2016;**209**:475-482

[46] Taubner S, White L, Zimmermann J, Fonagy P, Nulty T. Attachment-related mentalization moderates the relationship between psychopathic traits and proactive aggression in adolescents. *Journal of Abnormal Child Psychology*. 2013;**41**(6):929-938

[47] Viding E. *Callous and Unemotional Traits in Children*. Washington: Association for Psychological Science; 2013. pp. 1-5