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The Role of Empathy in Antisocial Symptoms

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Abstract: Antisocial behavior refers to actions that violate social norms. Such a tendency is a result of multifaceted processes. Within an individual's development, genetic factors and environmental factors come into play. While research widely covered empathetic factors, family factors, and genetic factors in inducing antisocial behavior, few studies have reviewed and integrated these factors from a perspective of developmental psychopathology. This study, therefore, aims to explore how empathetic factors, family factors, and genetic factors influence the development of antisocial symptoms. This study argues that (1) sympathetic empathy plays an essential role during antisocial development and could relate to one's mentalizing process; (2) parenting style plays an important role in predicting future antisocial behavior; (3) and different oxytocin receptor single-nucleotide polymorphisms (SNPs) have varying effects on antisocial behavior. This review can contribute to the development of effective intervention programs for at-risk adolescents.

Keywords: antisocial, behavioral psychopathology, genetic factors, environmental factors

1. Introduction

Antisocial behavior has long been researched as actions that violate social norms and rules and are characterized by disrespect for others' rights and a lack of remorse for harm caused to others [1]. Children with antisocial behavior may exhibit symptoms such as aggressiveness. Antisocial behavior is a result of multifaceted processes (including genetic and environmental factors). Empathy has been extensively researched as a contributing factor to antisocial behavior. Empathy, with its multifaceted construct, is often researched in different aspects. Broadly speaking, empathy could be divided into affective and cognitive empathy. When an individual feels the emotion that another person is experiencing, this is defined as affective empathy. Whereas cognitive empathy is when an individual comprehends the emotions of others without being emotionally invested. Antisocial behavior can be a stable trait that persists into adulthood and may eventually develop into antisocial personality disorder. Therefore, it is crucial for further investigation to understand the risk and protective factors contributing to antisocial behavior in order to develop interventions. A developmental psychopathology method was utilized to integrate the studies since it can serve as a framework for understanding the developmental trajectory that might contribute to antisocial behavior [2]. A developmental psychopathological perspective can assist in identifying variables that lead to interference with normal development and, as a result, the development of antisocial behaviors [2].

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For a long time, most research has been discussing the hereditary vs environmental causes for the emergence of mental diseases. Antisocial behavior was shown to be affected by the interaction of genetic and environmental variables [3]. Cross-sectional and longitudinal research has been conducted, with the majority of the studies relying on self-reported questionnaires. Variables such as family functioning, parenting styles, impulsivity, social attention, mindfulness, and even alexithymia were studied for their role in the developmental trajectory of antisocial behavior. While most of them have been demonstrated to have an impact, they were addressed in further depth in this article. Nonetheless, few studies have been conducted on empathy, family functioning, and genetic variables in an equifinality and multifinality framework. This article seeks to bring together studies in these areas and investigate them as several causal pathways that led to antisocial behavior, as well as individual differences that led to various behavioral outcomes.

2. The Impact of Various Empathetic Factors on Antisocial Symptoms

This section first breaks down empathetic factors into three parts: cognitive empathy (or perspective-taking), affective empathy (emotional sharing), and sympathetic empathy (concern for others and disregard for others). Then, this section looks at the continuity of the three forms of empathy in different age groups. To begin with, a clarification of the empathetic factors is needed. This essay believes that sympathetic empathy is greatly different from cognitive empathy and affective empathy as sympathetic empathy requires more “active” behavior - such as desiring to help through action. Additionally, the neurological substrates of these three forms of empathy are distinctly different, suggesting that they should be separately analyzed with regard to antisocial symptoms [4].

The first study to be introduced is a study focusing on adolescents between the ages of 12 and 19 [5]. Brazil, Volk, and Dane investigated empathy in three types that impact the anti-/pro-social symptoms. The research found that in terms of prosocial behaviour, only sympathetic and cognitive empathy presents statistically significant with prosocial behaviour. Affective empathy, surprisingly, was not associated with prosocial symptoms. This finding might likely derive from the separation of affective empathy and sympathetic empathy. Affective empathy mainly focuses on the emotional sharing, even with the negative emotions. Without the motivation to support others (sympathetic empathy) and the understanding of how (cognitive empathy), it is likely that sharing negative emotions with others might deter one from prosocial behaviour. In contrast to prosocial symptoms, affective empathy and cognitive empathy do not present a significant correlation. Instead, sympathetic empathy is found to best predict future antisocial symptoms. Namely, the higher the sympathetic empathy one holds, the less likely one would implement aggressive behavior and psychopathic traits. Without the compassionate intentions of sympathetic empathy, merely having affective and cognitive empathy may not be enough to curb antisocial behavior.

This study resonates with a longitudinal twin study that examines a lack of empathy in toddlerhood (aged between 14 to 36 months) and antisocial behavior in adulthood [6]. Soo et al. found that sympathetic empathy is an indicator of antisocial behavior in the later stage of life. The research further divided sympathetic empathy into concern for others and disregard for others and highlighted that disregard for others is more linked with a higher degree of ASPD. Concern for others refers to empathizing with others’ distress, such as providing help. Whereas disregard for others refers to proactively and negatively responding to others’ distress, such as through anger or insults. In other words, a person’s response mechanism to a negative environment (e.g., others’ distress) is a significantly different influencing factor for antisocial symptoms.

The two studies imply that sympathetic empathy has a greater influence on the development of ASPD symptoms. Sympathetic empathy could be continuously observed in different age groups: toddlerhood, adolescence, and adulthood. This essay, thus, argues that sympathetic empathy is an essential component in the equifinality aspects of developing antisocial symptoms. Furthermore, this

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essay also put forth the question that whether sympathetic empathy could be a part of the mentalizing process as it involves several steps: (1) identification of others' emotions, (2) defining how other's emotion must relate to oneself, and (3) coping strategy of this certain emotion. Under an antisocial context, the emotion that one faces is often negative. Therefore, it is potential that sympathetic empathy relates to how one deals with his or her own negative emotion. A study by YAVUZ et al. showed that ASPD symptoms have significant group differences in terms of exhibiting avoidance-based coping behaviors under emotional stressors [7]. For instance, the ASPD group showed higher experiential avoidance (the inflexibility of accepting unwanted experiences) and fantasizing attitude, which are both an avoidance of one's current emotions. ASPD patients experience higher levels of anger than the control group. To regulate their emotions, they implement avoidance-based coping strategies, such as rejecting the emotion of anger, and telling themselves that "I have to get rid of anger". In other words, it is unclear whether dysfunctional emotion processing is directly related to sympathetic empathy. Further studies could be implemented to investigate the relationship.

Finally, reflecting on the nature of empathetic factors, it is still debatable whether empathy leads to behavioural outcome. In most of the case, empathy might act as a behavioural motivation and the behvaioural outcome is likely to be mediated by other factors, such as genetic or environmental. Therefore, in the context of examining the relationship between empathy and antisocial symptoms, it is essential to identify the limitations of the association and if possible, integrate other factors to study. Additionally, empathy could be both automatic and controlled [4].While empathy could be a reaction that is automatically activated, it could also be reflected upon and controlled through cognitive effort such as suppression. For instance, a person might have empathy, but chooses to use it to manipulate victims. In this context, it seems like a more important to ask is: "how does one use its empathy?".

3. Relevant Environmental Factors

Other environmental variables, such as family and friends, were explored in addition to antisocial behavior and empathy in order to reveal any protective and risk factors. According to a study conducted by Alvarez-Garca et al., both parenting style (affection and communication, as well as behavior control) and antisocial friendship are significantly associated with empathy and have a direct influence on antisocial behavior [1]. Meanwhile, empathy is strongly associated with antisocial behaviors. Both parenting approaches were shown to be protective factors, protecting children from antisocial friendships and low empathy. However, this study utilized questionnaires that are mostly developed by the authors and contained only 4 items, the validity and reliability of these items and results remained in controversy.

Further study by Marzilli et al. used pre-existing questionnaires to investigate the relationship between antisocial personality problems (symptoms of antisocial personality disorder), empathy, and family functioning [8] in adults. This study measured family functioning quality utilizing the Family Assessment Device questionnaire which analyzed family functioning with six dimensions: problem-solving (the ability of the family to resolve problems), communication (direct and clear communication between family members), roles (how responsibilities are distributed), affective responsiveness (the ability of members to respond with appropriate emotions in different situations), affective involvement (how members show interest in each other), and behavioral control (the norms for dealing with emergent situations) with adequate internal consistency. It was found that empathic concern and parental behavioral control had a predictive effect on antisocial personality problems. High levels of antisocial personality problems were associated with low levels of empathic concern and parental behavioral control. Additionally, parental behavioral control had a direct and indirect effect on antisocial problems via empathetic concern. The use of online convenience sampling to acquire data for the study was a disadvantage since it failed to collect representative samples. As a result, the findings cannot be generalized to the larger population.

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These studies not only offered strong evidence for the notion that low empathy is related to high levels of antisocial behavior, but they also shed light on the role of parental behavioral control in predicting empathy and antisocial behavior. Both studies indicated that parental behavioral control had a direct influence on antisocial behavior and an indirect impact on antisocial behavior via the impact on empathy. The behavior control questionnaire in the Alvarez-Garca et al. study comprised four items focusing on authoritarian parenting [1]. Whereas Marzilli et al. had a slightly different aspect on parental behavior control, it examined if the family had standards or norms that governed one's behaviors and responses to emergency circumstances [8]. Although both aspects of parental behavior control suggested an association between antisocial behavior and empathy, a further investigation should consider integrating both aspects to confirm the finding. Furthermore, because the studies were cross-sectional, it is hard to make any conclusions regarding causal relationships between variables; longitudinal research is required to confirm the findings.

4. The Contribution of Genetics to This Relationship

Genetics was found to explain 40-60% of the variance in antisocial behavior, indicating the importance of genetics in the development of antisocial behavior [9]. Early research has discovered that oxytocin plays a role in empathy. Oxytocin is a peptide that acts as a neurotransmitter and hormone with broad target areas that includes the hippocampus, amygdala, hypothalamus, and a portion of the spinal cord that governs the autonomic nervous system, particularly the parasympathetic branch. A growing body of data suggests that oxytocin influences empathy and modulates interpersonal aggression. However, whether more oxytocin leads to increased empathy is still debated. Nevertheless, the polymorphism in oxytocin receptors has been found related to empathy and antisocial behavioral expression. The research used genotyping to explore the impact of eight chosen single-nucleotide polymorphisms (SNPs) in oxytocin receptor influence on antisocial behavior [10]. Antisocial behavior was measured by two self-reported questionnaires, assessing aggression history and delinquency. Two SNPs were found significantly associated with different aspects of antisocial behavior. One was correlated with an increased frequency of antisocial behavior, specifically overt aggression among boys. While the other was found to have a strong association with the aggression history, but no association with self-reported delinquency. The paper suggests that these two oxytocin receptor polymorphisms may impact antisocial behavior in teenage boys independently.

Non-shared environmental factors, on the other hand, account for 30 per cent of the variance [9]. The environment that siblings in a family do not share, such as peer affiliation, is referred to as a non-shared environmental factor. Since both genetic and environmental factors contribute to development, gene-environment interactions were studied. An investigation on the association between oxytocin receptor polymorphisms and deviant peer affiliation in antisocial behavior was conducted [11]. The three aspects of antisocial behavior examined in this study were reactive aggression, delinquency, and proactive aggression. It revealed that oxytocin receptor polymorphism has no direct effect on any antisocial behavior. However, there was a strong gene-environment interaction between deviant peer affiliation and oxytocin receptor polymorphisms in delinquency and proactive aggression [11]. The results imply that oxytocin receptor polymorphism has no direct influence on antisocial behavior, but it would interact with deviant peer affiliation to impact antisocial behavior. Unlike the previous finding, the effect of oxytocin receptor polymorphism was not significant; this difference was interpreted as individual differences in antisocial behavior. It should be noted, however, that only five SNPs were explored in this study, which did not cover the whole oxytocin receptor gene. Furthermore, because this study did not analyze the same SNPs location as the previous paper, the results cannot be compared. Nonetheless, research into the role of genetics in antisocial behavior is a developing

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field with many controversial findings; more work is needed to confirm the involvement of specific SNPs in antisocial behavior so that it can be used as a biomarker for the development of treatments.

5. Conclusions

This study looked at the equifinality and multifinality impact of sympathetic empathy, parenting style, and oxytocin receptor polymorphism on antisocial symptoms. The first argument is that sympathetic empathy performs as a predictor for the development of antisocial symptoms. Opposed to cognitive empathy, which only requires understanding others' emotions, and affective empathy, which focuses on feeling others' emotions, sympathetic empathy included an "active" action of responding to others' negative emotions. This review, therefore, argues that how an individual interacts with negative emotions could be an equifinality pathway toward antisocial symptoms. However, such an argument needs further evidence from studies that specifically investigate sympathetic empathy as an emotion-processing function. In addition to this limitation, the studies included in this section could be prone to methodologies' downside. For instance, several researchers studied empathy through and only through self-report. This measurement is hypothetical and could be biased by one's judgment of oneself.

By discussing three studies on family factors and antisocial symptoms, this review proposed a second argument that parental behavioral control has a strong impact on antisocial behavior both directly and indirectly through its effect on empathy. One limitation is that the studies included in this section have adopted very different questionnaires and methods across time and population. As a result, it is difficult to analyze and compare their dependability, because there are a lot of confounding variables existed. More study is needed to develop a more comprehensive universal questionnaire that puts associated factors together. For example, in the preceding articles, parenting control (authoritarian parenting) and parental behavior control should be discussed together because they all assessed parenting but in distinct ways. Researchers should continuously update and categorize factors that have been shown to have a significant influence on antisocial behavior into a questionnaire. The questionnaire might then be used to help identify the high-risk population so that appropriate treatments can be delivered. Finally, this study argued that oxytocin receptor polymorphism and gene-environment interactions could contribute to the development of antisocial behavior. Limitations lie in the controversial findings of different studies using different methodologies. Further research is required to establish the connection between the oxytocin receptor and antisocial behavior.

Authors Contribution

All of the authors contributed equally and were listed alphabetically.

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