

Big Data and the Transformation of Psychological Prevention Models for Juvenile Delinquency

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ABSTRACT

This article examines the pivotal role of big data in transforming psychological prevention models for juvenile delinquency. With the rapid advancement of information technology, big data offers a new lens through which to understand the criminal psychology of minors. Through the systematic collection and analysis of relevant data, it becomes possible to more accurately identify the psychological traits and potential risk factors associated with juvenile delinquency. The application of big data has facilitated a shift from traditional, experience-based approaches to more scientific, data-driven precision prevention. This transformation not only enhances the effectiveness and specificity of intervention efforts but also provides stronger support for the healthy development of adolescents. In summary, big data presents both new opportunities and challenges for psychological prevention and holds significant promise for improving overall prevention outcomes.

KEYWORDS

Big Data, Juvenile Delinquency, Psychological Prevention, Data Driven

INTRODUCTION

In contemporary society, big data technology is transforming the way we live with unprecedented speed and depth (Fan, 2021). It has a profound impact not only on economic development and policymaking but also on individual mental health and personal growth (Alimardani et al., 2023). In particular, its emergence and widespread application have introduced new perspectives and tools in the psychological prevention of juvenile delinquency (Mateo-Fernandez & Osa-Subtil, 2024). Due to limitations in age, experience, and cognitive development, adolescents often struggle to fully assess the consequences of their actions (Oatley, 2022). As such, preventing the formation of criminal tendencies among minors is essential for supporting their healthy development and maintaining social harmony and stability. However, traditional prevention models largely rely on personal experience and subjective judgment, lacking the scientific rigor and precision that big data approaches can offer (Liu et al., 2023).

This study explores the application of big data technology to better understand adolescents' psychological states and behavioral patterns. By analyzing data such as social networks, online activities, and academic performance, potential psychological issues or criminal tendencies can be identified early, enabling the delivery of personalized psychological counseling and intervention strategies. Multiple data collection methods—including questionnaires, interviews, psychological

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assessments, and online behavior analysis—were employed to gather information on adolescents' social behavior, mental health, criminal records, and internet activity from various sources (Aazami et al., 2023).

Subsequently, multidimensional analyses were conducted using big data techniques such as machine learning and data mining. A risk assessment and warning system was developed based on K-means clustering, multiple linear regression, and decision tree modeling (Kolesnikov, 2022). Analysis of data from 500 adolescents led to the identification of four distinct groups, each with unique characteristics, and revealed significant associations between factors such as family background, mental health, school environment, and delinquent behavior. Notably, after implementing personalized psychological interventions for groups exhibiting high-risk emotional issues and functional impairments, improvements were observed in emotional well-being and reductions in criminal tendencies. The findings suggest that big data technology enhances the scientific rigor and precision of youth crime prevention strategies, supporting the development of more effective prevention mechanisms, reducing delinquency rates, and fostering social stability. Additionally, by establishing a real-time alert system, inappropriate speech and behavior on social media can be promptly monitored, enabling early intervention and further minimizing the risk of juvenile crime.

The innovation of this study lies in its pioneering application of big data technology to the psychological prevention of juvenile delinquency. By integrating data from diverse sources and applying advanced analytical techniques, the study enables a deeper understanding and prediction of adolescents' psychological states and behavioral patterns. Moreover, the personalized interventions developed from data analysis not only enhance the precision and effectiveness of prevention efforts but also offer empirical support for relevant policy development. This methodological advancement opens new directions for future youth crime prevention initiatives.

LITERATURE REVIEW

The prevention of juvenile delinquency is a critical issue that requires effective models and interventions. Schools have been identified as key sites for implementing prevention strategies (Elliott et al., 2020). Welsh et al. (2010) proposed a programmatic approach to social prevention in educational institutions, emphasizing the importance of early intervention to deter illegal behavior in minors (Welsh et al., 2010). Understanding the psychological characteristics of juvenile delinquency groups is essential for implementing effective strategies. Mentoring programs and adult role models are considered essential components of delinquency prevention. Community interventions also play a significant role in preventing youth problems, requiring more than just individual psychological approaches (Minocher & Randall, 2020). The intersection between mental health and the juvenile justice system is crucial, with home-based service delivery models helping to reduce barriers to intervention (Ahmadi, 2020). The sequential intercept model offers a framework for understanding and addressing the needs of youth involved in the juvenile justice system (Brooks & Greenberg, 2021). It is important to acknowledge that the causes of juvenile delinquency are complex, involving a combination of psychological and social factors that interact to influence behavior. Research indicates that declines in youth incarceration do not necessarily lead to increases in youth crime, underscoring the need for effective prevention strategies (Imran, 2024). The Office of Juvenile Justice and Delinquency Prevention plays a central role in promoting delinquency prevention programs and interventions. In conclusion, preventing juvenile delinquency requires a multifaceted approach that incorporates psychological insights, social interventions, and the role of schools and mentoring programs. By understanding the contributing factors and applying evidence-based strategies, it is possible to reduce juvenile delinquency and promote positive youth development (Baranyi et al., 2021).

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