

Research on the Comprehensive Trend of Mental Health Education for Adolescents in the AI Era

Xinyu Li¹, Yiyi Tang²

¹Changchun Technical University Of Automobile;

²High School Attached to Northeast Normal University

ABSTRACT

With the advent of the artificial intelligence (AI) era, mental health education for adolescents faces new opportunities and challenges. This paper explores the comprehensive trend of adolescent mental health education against the backdrop of the AI era. It analyzes the current application status of AI technology in adolescent mental health education, expounds on the specific manifestations of the comprehensive trend—including diversified educational subjects, enriched educational content, diversified educational methods, and integrated educational resources—and proposes corresponding countermeasures and suggestions for potential issues arising from this trend. The aim is to provide references for improving the level of adolescent mental health education and promoting their psychological well-being.

KEYWORDS

Artificial intelligence; Adolescents; Mental Health Education; Comprehensive Trend

1 Introduction

Adolescence is a critical stage of individual physical and mental development, and mental health is of vital significance for adolescents' growth and future development. However, in today's society, adolescents face multiple challenges such as academic pressure, social confusion, and family expectations, with mental health problems becoming increasingly prominent. Relevant studies show that the detection rate of mental health issues among Chinese adolescents is on the rise, with psychological problems such as anxiety, depression, and low self-esteem being relatively common in this population.

Meanwhile, AI technology is developing at an unprecedented pace and gradually penetrating into various fields, bringing new changes and development directions to adolescent mental health education. The arrival of the AI era has given rise to a comprehensive trend in adolescent mental health education, which integrates multi-faceted resources and forces to more comprehensively and effectively promote adolescent mental health. In-depth research on this trend is of great practical significance for optimizing the adolescent mental health education system and improving educational quality.

2 Current Application of AI Technology in Adolescent Mental Health Education

2.1 Psychological Assessment and Early Warning

AI technology enables accurate assessment of adolescents' mental health status through big data analysis and machine learning algorithms. For example, some intelligent psychological assessment systems can collect behavioral data from multiple aspects of adolescents' lives, including online study duration, social media interaction frequency, and sleep quality. These data are analyzed through complex algorithm models to determine adolescents' psychological states and issue timely warnings. When the system detects abnormal emotional fluctuations or behavioral changes in adolescents, it can quickly notify parents, teachers, or professional mental health workers for timely intervention.

2.2 Personalized Psychological Counseling

With the help of AI's natural language processing technology, intelligent chatbots can provide 24/7 personalized psychological counseling services for adolescents. These chatbots can simulate the dialogue style of professional counselors, engage in in-depth conversations with adolescents to understand their inner troubles, and provide targeted advice and psychological support based on pre-set algorithms and knowledge bases. For instance, when an adolescent complains about excessive academic pressure, the chatbot can offer personalized time management strategies and stress reduction methods based on their learning situation and psychological characteristics to help alleviate anxiety.

2.3 Development of Mental Health Education Resources

AI technology also plays a significant role in developing mental health education resources. Immersive mental health education scenarios can be created through virtual reality (VR) and augmented reality (AR) technologies, allowing adolescents to experience and learn mental health knowledge firsthand. For example, VR-based mental health education courses can simulate social scenarios to help adolescents improve their social skills and overcome social phobia; AR technology can be used to create popular science animations on mental health, delivering knowledge in a vivid and engaging manner to enhance adolescents' learning interest and participation.

3 Specific Manifestations of the Comprehensive Trend in Adolescent Mental Health Education

3.1 Diversification of Educational Subjects

In the AI era, the subjects of adolescent mental health education are no longer limited to traditional school teachers and professional counselors. Parents, community workers, and AI technology itself have all become important educational subjects. Through smart devices, parents can real-time monitor their children's mental states, participate in their mental health education, and collaborate with school teachers to formulate educational plans, creating a good situation of home-school co-education. Communities also use AI technology to carry out mental health promotion activities, provide psychological counseling services for adolescents, and foster a healthy community psychological environment. As a new type of educational subject, AI provides personalized and intelligent educational support through intelligent tutoring systems and psychological assessment software, making up for the time and space limitations of traditional educational subjects.

3.2 Enrichment of Educational Content

The integration of AI technology has significantly enriched the content of adolescent mental health education. In addition to traditional mental health knowledge such as emotion management, interpersonal relationship skills, and self-awareness, new content related to AI has been added. For example, adolescents are guided to correctly understand and use AI technology to avoid cognitive decline and social isolation caused by over-reliance on AI; they are also taught digital literacy and cybersecurity awareness in the AI era to prevent harm from online bad information and safeguard their mental health. Meanwhile, combined with the characteristics of AI technology, a series of mental health education courses based on VR, AR, and other technologies have been developed, making the educational content more vivid and intuitive and enhancing adolescents' learning experience.

3.3 Diversification of Educational Methods

The AI era has brought diversified educational methods to adolescent mental health education. On one hand, traditional methods such as classroom teaching, psychological counseling, and group counseling have been revitalized through integration with AI technology. For example, teachers can use smart teaching devices to display rich teaching resources and explain mental health knowledge through animations and videos to improve teaching effectiveness; counselors can use AI-assisted tools during consultations to more accurately assess clients' mental states and develop personalized treatment plans. On the other hand, emerging educational methods have emerged, such as gamified mental health education apps that integrate mental health knowledge into fun games, allowing adolescents to learn and master mental health skills imperceptibly; AI-based online mental training programs that provide customized psychological training plans according to individual differences to help improve adolescents' psychological adjustment capabilities.

3.4 Integration of Educational Resources

Under the comprehensive trend, mental health education resources for adolescents have been comprehensively integrated. Mental health education resources from schools, families, communities, and all sectors of society have achieved interconnection through AI technology. For example, a unified mental health education resource platform can be established, where schools can upload high-quality courses and teaching cases, parents can access mental health education knowledge and expert advice, communities can publish mental health activity information, and professional psychological counseling institutions can provide online consultation services. At the same time, AI technology can intelligently filter and recommend these resources, providing adolescents with the most suitable educational resources based on their individual needs, improving resource utilization efficiency, and achieving optimal allocation of educational resources.

4 Challenges Facing Adolescent Mental Health Education under the Comprehensive Trend

4.1 Data Security and Privacy Protection Issues

The use of AI technology in adolescent mental health education involves the collection, storage, and analysis of large amounts of personal data, including sensitive information such as academic performance, behavioral habits, and psychological states. However, there are still many hidden dangers in data security and privacy protection. On one hand, some AI mental health education product and service providers may leak adolescent data due to technical vulnerabilities or poor management, posing potential risks to adolescents. On the other hand, some institutions may collect and use adolescent data without authorization or in non-standard ways, violating the privacy rights of adolescents and their parents.

4.2 Limitations of AI Technology

Despite its many advantages in adolescent mental health education, AI technology has certain limitations. First, AI systems cannot fully understand the complexity and subtlety of human emotions, and may fail to provide the emotional support and humanistic care that adolescents truly need during emotional exchanges. Second, the algorithm models of AI technology may have biases, leading to inaccurate psychological assessment and intervention results. For example, some algorithms may be affected by data bias and misjudge adolescents in specific groups, thereby influencing the effectiveness of mental health education. Additionally, the application of AI technology is constrained by factors such as network environment and device performance, and may not fully function in areas with poor network conditions or outdated equipment.

4.3 Difficulties in Coordination Among Educational Subjects

The comprehensive trend of adolescent mental health education requires close collaboration among multiple educational subjects, including schools, families, communities, and AI technology. However, in practice, coordination among these subjects is challenging. Poor communication and inconsistent educational concepts between schools and families may make it difficult to form an effective educational partnership. When participating in adolescent mental health education, communities may lack professional mental health education personnel and resources, making it difficult to cooperate well with schools and families. At the same time, there are also integration challenges between AI technology and traditional educational subjects, such as how to organically integrate AI technology into the existing mental health education system and achieve collaborative work with teachers, parents, and other educational subjects, which remains an urgent problem to be solved.

5 Countermeasures and Suggestions for the Comprehensive Trend

5.1 Strengthen Data Security and Privacy Protection

Governments should formulate strict laws and regulations on data security and privacy protection, clearly defining the norms and standards for data collection, use, and storage in the field of adolescent mental health education, and severely punishing violations. AI mental health education product and service providers should strengthen technological research and development and management, adopt advanced data encryption technology, access control technology, etc., to ensure the secure storage and transmission of adolescent data. At the same time, before collecting adolescent data, explicit authorization from the adolescents themselves and their parents must be obtained, and they must be fully informed of the data's purpose and protection measures. In addition, a data security supervision mechanism should be established to strengthen oversight of data usage, regularly assess and inspect data security, and promptly identify and resolve potential data security issues.

5.2 Optimize the Application of AI Technology

Train and validate algorithms with large amounts of real-world data to reduce the impact of data bias on results. At the same time, pay attention to the integration of AI technology with humanistic care. When designing intelligent psychological counseling systems, fully consider adolescents' emotional needs and introduce technologies such as emotional computing to enable AI systems to better understand and respond to adolescents' emotional expressions and provide them with more 贴心 (caring) support. In addition, develop AI mental health education products and services with strong adaptability to address issues such as network environment and device performance, providing multiple access methods and device compatibility to ensure normal operation under different network conditions and devices.

5.3 Strengthen Collaborative Cooperation Among Educational Subjects

Establish and improve a multi-subject collaborative mechanism involving schools, families, communities, and AI technology. Schools should play a leading role, strengthen communication and cooperation with parents, regularly organize parent training activities, and improve parents' awareness and capabilities in mental health education to enable them to better cooperate with schools in carrying out mental health education. Schools should also establish close partnerships with communities, make full use of community resources, and jointly carry out mental health education activities to create a good community psychological environment for adolescents. At the same time, schools should actively explore integration models of AI technology with traditional mental health education and strengthen teacher training to enable teachers to skillfully use AI tools to assist in teaching and counseling. Governments should play a coordinating role, build platforms for communication among multiple subjects, promote information sharing and resource integration among educational subjects, and form a good atmosphere where the whole society pays attention to and participates in adolescent mental health education.

6 Conclusion

The arrival of the AI era has brought a comprehensive development trend to adolescent mental health education, which provides new opportunities and approaches for improving the level of adolescent mental health education through the diversification of educational subjects, enrichment of educational content, diversification of educational methods, and integration of educational resources. However, challenges such as data security and privacy protection, limitations of AI technology, and difficulties in coordination among educational subjects also arise in this process. By strengthening data security and privacy protection, optimizing the application of AI technology, and enhancing collaborative cooperation among educational subjects, these challenges can be effectively addressed, the advantages of the comprehensive trend can be fully leveraged, and adolescent mental health can be better promoted, laying a solid foundation for cultivating physically and mentally healthy, all-round developed adolescents in the new era. In future research and practice, continuous exploration and innovation will be needed to further improve the adolescent mental health education system and adapt to the development needs of the AI era.

About the Author

Xinyu Li was born in Changchun, Jilin, in August 1994. She is currently a psychology lecturer at Changchun Technical University Of Automobile, with her main research field being mental health education, and she particularly focuses on the development and education of students; Yiyi Tang was born in Changchun, Jilin, in March 2009. She is currently a student at High School Attached to Northeast Normal University.

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