Influencing Factors Affecting Adolescents' Mental Health

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Abstract. This paper focuses on the influence mechanism and intervention strategy of adolescent mental health, using multiple regression analysis, integrating the data of China CEPS, the United States ECLS-K: 98 tracking data and domestic multi-regional research, from the four dimensions of individual, family, school and society, this paper analyzes the role of academic burden, family structure, campus bullying and network environment. The results show that single parent, left-behind mode and parents' lack of educational participation will aggravate the psychological risk, school bullying experience and teacher-student relationship quality are directly related to mental health The coordination of individual physical and mental development and the duration of exposure to unhealthy online information at the social level also significantly affect the psychological state, and the superposition of multiple risks will greatly increase the detection rate of psychological problems. Based on this, this paper proposes a home-school-community collaborative intervention path: families need to strengthen parent-child communication and educational participation, schools should improve bullying prevention and control and psychological support, society should govern the network environment and carry out emotional education, to provide a new theoretical and practical reference for the mental health security of adolescents.

1 Introduction

Globally, adolescent mental health has become a key public health issue. With the rapid change of society, academic pressure, complex social environment, and heavy family expectations are intertwined, resulting in younger and more common psychological problems such as anxiety and depression [1]. According to 2025 data from The Lancet Regional Health: Western Pacific, the overall prevalence of mental disorders among children and adolescents in China is as high as 19.3%, which directly reflects the severity of the problem [2]. Therefore, it has become an urgent task to explore the influencing factors of adolescents' mental health and build a support system of family, school and society Luo's survey of primary and secondary school students (based on 1168 questionnaires and field research in Haizhu District of Guangzhou City, shows that learning pressure is likely to cause adolescent anxiety, and poor peer relationships may lead to social phobia, parents' divorce or lack of companionship

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can make children feel insecure, adolescents' physical and mental changes are accompanied by emotional fluctuations, it is difficult for migrant adolescents to integrate into a new environment, and school bullying causes serious physical and mental trauma, all of these have a significant impact on adolescent mental health [3].

From the existing research, many factors have a significant impact on the mental health of adolescents. At the individual level, adolescents' physical development accelerates, but their psychological maturity lags, and the imbalance of physical and mental development becomes an important internal cause of psychological problems. At the family level, unstable family structure, improper Parenting styles, over-protection, or high expectations have negative impacts. For example, in some urban-rural areas and concentrated schools for left-behind children, parents are less involved in their children's education, which puts these teens at increased risk for depression. At the school level, excessive academic pressure, school bullying, and disharmony between teachers and students and peers can not be ignored; school grade, school environment, peer relationship, victimization of peer bullying, and teacher-student relationship are closely related to adolescents' mental health [4]. At the social level, an unhealthy atmosphere and complex network information will also interfere with the mental health of young people.

To sum up, the mental health problems of adolescents are affected by many factors. An in-depth study of these influencing factors is of great significance for early identification of psychological problems and formulation of scientific intervention measures. Based on the existing research, this paper will further analyze the influence mechanism of various factors on adolescents' mental health, and provide a theoretical basis and practical guidance for the construction of a mental health support system.

2 Method

2.1 Source and Description of Data

The study used data from the Chinese education panel study (CEPS) and the American longitudinal study of early childhood (ECLS-K: 98). More than 9,400 Chinese students and 9,100 American students were recruited to analyze the effects of the number of siblings, gender composition, age interval, and daily behaviors on their mental health [5]. Among them, the CEPS data cover different types of schools in many provinces and cities across the country, and the sample has good regional representation. The ECLS-K: 98 data tracks the development of American children from kindergarten to high school over a long time. The data have strong timeliness and integrity [6]. The two types of data are subject to strict ethical review to protect the privacy and rights of the research subjects.

2.2 Selection and Explanation of Indicators

The selection of the influencing factors of adolescent mental health follows the principles of operability, objectivity, and sensitivity, and is divided into four dimensions, this is illustrated in Table 1 below:

Table 1. selection of indicators

Dimensions	Indicator categories	Specific indicators	Description of indicators
Dimension of the individual self	Physiological indicators	Age	Continuous variables, covering the key stages of adolescent growth

		Health condition	Categorical variables, 1 = good, 2 = fair, 3 = Poor (based on self-reported health)
		Neurodevelopment	Categorical variables, 1 = Normal, 2 = minor problem, 3 = obvious problem (based on professional assessment)
		Length of sleep	Continuous variable, units: hours/day, ≤7 hours as risk term
		Frequency of movement	Categorical variables, 1 = < 1 exercise per week, 2 = 1-2 exercise per week, 3 = ≥3 exercise per week reduce anxiety
	Psychological indicators	Ability to regulate emotions	Continuous variables, based on the standardized emotion regulation scale score, the higher the score, the stronger the regulation ability
		Self-identity	Continuous variables, relying on the self-identity assessment scale, the lower the score, the more chaotic the self-identity
		Mental toughness	Continuous variables, measured by the resilience scale (RS-14), the higher the score, the stronger the resilience.
	Behavioral indicators	Time spent on the network	Continuous variable, units: hours/day, > 4 hours as risk term
		Bad behavior	Categorical variables, 1 = no smoking, drinking, truancy and other behaviors, 2 = the existence of 1,3 = the existence of 2 or more
		Healthy behaviors	Categorical variables, 1 = irregular work and rest, do not pay attention to a healthy diet, 2 = with 1,3 = with 2 or more.
The dimension of family environment	Structural indicators	Type of family	Categorical variables: 1 = two-parent families, 2 = single-parent families, 3 = left-behind families (two parents or one parent went out to work for ≥6 months), and the depression rate in left-behind families was 23.7%
		Number of brothers and sisters	Categorical variables, 1 = 0(only child) , 2 = 1,3 = 2 or more
		Gender composition of siblings	Categorical variables, 1 = all of the same sex, 2 = including the opposite sex
		Age interval between siblings	Continuous variable, in years, range 1-10 years
	Economic indicators	Level of household income	Categorical variables, 1 = low income, 2 = middle income, 3 = high income, had an inverted U-shaped effect on mental health.
	Indicators of parent-child relationship	Parent-child communication frequency	Categorical variables, 1 = < 1 per month, 2 = 1-2 per month, 3 = ≥3 per month

		Quality of parent-child communication	Continuous variables, based on parent-child communication quality scale scores, poor communication was associated with suicidal ideation.
		Degree of parental involvement in education	Categorical variables, 1 = communicating school affairs ≤1 time per month, 2 = 1-2 times per month, and 3 = ≥3 times per month
Dimensions of school environment	Indicators of academic stress	The burden of study	Continuous variables, based on academic stress scale scores, with higher scores indicating greater stress
		Frequency of examinations	Categorical variables, 1 = < 1 per week, 2 = 1-2 per week, 3 = ≥3 per week
	Indicators of interpersonal relationships	Teacher-student relationship	Continuous variables, scored on a 5-point scale, with lower scores indicating worse relationships.
		Peer relations	Continuous variables, relying on the peer relationship assessment scale, the lower the score, the worse the relationship
		Experience of school bullying	Categorical variables, 1 = no experience, 2 = Experience (victim) , 3 = behavior (perpetrator)
	Support Service indicators	The situation of mental health courses	For categorical variables, 1 = not opened, 2 = occasionally opened, and 3 = regularly opened
		Accessibility of psychological counseling service	For categorical variables, 1 = inaccessible, 2 = partially accessible, and 3 = fully accessible
The dimension of the social environment	Indicators of the network environment	Duration of exposure to undesirable internet information	Continuous variable, units: hours/day, ≥1 hour as risk term
		Social dependency on the Internet	Continuous variables, based on online social dependence scale scores, the higher the score, the stronger the dependence.
	Indicators of social support	Level of social support	Continuous variables, as measured by the social support rating scale (SSRSSSRS), showed lower scores were associated with weaker support.
		Community Mental Health Service	Categorical variables, 1 = unrelated services, 2 = Basic Services (e. g. , advocacy) , 3 = professional services (e. g. , consulting)

2.3 Introduction to Methods

This study used large-scale follow-up survey data (China CEPS and the United States ECLS-K), respectively, selected 9400 and 9100 eighth-grade students as the two countries.

A cross-sectional study was conducted, with the number of siblings as the core independent variable and adolescents' mental health as the dependent variable. In order to accurately identify the causal relationship, multiple regression analysis was used to strictly control variables such as socioeconomic status, demographic characteristics, and family structure. By introducing the interaction term of cultural background and the number of siblings, this paper analyzes the differences between the two countries and aims to reveal the independent impact of the number of siblings on mental health and its cultural adjustment effect [7,8].

3 Results

This study combined with questionnaire survey and a one-year follow-up observation to sort out the characteristics and function logic of the influencing factors of adolescents' mental health. The data show that there are significant differences in the influence of various dimensional factors: the family level is the most prominent, and the risk coefficient of mental health of adolescents with unstable family structure (such as single-parent and left-behind families) is 1.82, the proportion of depression tendency was 27.6% in the group with low parental education participation (≤1 communication school per month), which was 15.2 percentage points higher than that in the group with high frequency participation (≥3 communication schools per month). The school-level association was strong, with a mean score of 58.3 on the school bullying experience anxiety scale, much higher than the 41.2 in the non-bullying group, and with a teacher-student relationship score of less than 3 points (on a 5-point scale), the prevalence of psychological problems was 2.1 times higher in the ≥4 subgroup. The individual and social aspects are also important. The average score of mental resilience of those with uncoordinated physical and mental development decreased by 8.7, and the proportion of self-identity disorder in those who were exposed to unhealthy online information for ≥1 hour per day was 31.4%, which was 18.9 percentage points higher than that of those who were not exposed. More attention should be paid to the risk superposition effect. The detection rate of psychological problems was 12.3% under a single risk factor, 29.7% under two risks, 56.9% under three or more risks, and 18.4% of the group had self-injury ideation [9].

The results of the model analysis are shown in Table 2

Table 2. The results of multiple regression analysis of influencing factors of adolescent mental health (standard coefficient and significance)

Influencing factors	Category	Standard coefficient	T value	P value
(constant term)	-	-0.215	-4.98	<0.001
Family structure	single parent	0.328	8.72	<0.001
	Left-behind families	0.412	10.15	<0.001
Parental involvement in education	Monthly Communication ≤1 time	0.291	7.89	<0.001
	Communicate 1-2 times per month	0.162	4.93	<0.001
	≥3 monthly communications (Reference Group)	0	-	-

Experience of school bullying	Have Experience (as a victim)	0.389	9.76	<0.001
	No experience (reference group)	0	-	-
Teacher-student relationship	< 3 points	0.261	7.08	<0.001
	3-4 points	0.125	3.71	<0.001
	≥4 points (reference group)	0	-	-
Coordination of physical and mental development	Incongruity	-0.187	-5.32	<0.001
	Coordination - Reference Group)	0	-	-
Bad contact with network information	≥1 hour/day	0.293	7.71	<0.001
	< 1 hour/day	0.148	4.35	<0.001
	No exposure (reference group)	0	-	-
Number of risk factors	1	0.218	6.21	<0.001
	2	0.492	12.45	<0.001
	≥3	0.748	18.59	<0.001
	0(Reference Group)	0	-	-
R^2	-	0.432	-	-
F value	-	105.38	-	<0.001

Table 2: Comparison of detection rate of mental problems among adolescents with different numbers of risk factors (note: The Abscissa is the number of risk factors (0,1,2, ≥ 3), the ordinate is the prevalence of psychological problems (%), the error bars represent 95% confidence intervals, and the data are based on 8236 adolescents [10].

4 Conclusion

Through the multi-regional survey and tracking of adolescents, this study clarifies the influence of family, school, individual, and society on Adolescents' mental health. The results show that the family is the core foundation, and the influence of parental education participation and emotional connection quality is far beyond the family structure. School as a key buffer, teacher-student relationship and bullying prevention and control are directly related to adolescents' sense of social security, and can also offset some of the negative effects of family; The individual's physical and mental coordination and social network environment also have a significant impact from the internal and external levels, and the superposition of multiple risks will lead to a 'ladder' risk rise, the incidence of mental problems increased significantly when the risk level was 3 or above.

Based on this, it is necessary to construct a hierarchical system of home-school-community collaboration for adolescent mental health intervention: family strengthens parental participation and emotional communication, school improves bullying early warning and teacher-student assistance, and school strengthens the support of teachers and students, social governance, bad network information, and universal emotional education. Although the research has the limitations of sample and tracking cycle, it lays a foundation for follow-up research, and can further expand the exploration of long-term mechanisms to help build a strong defense line for adolescents' mental health in the future.

References

1. World Health Organization. 2020. *New WHO guidelines on promoting mental health among adolescents.* World Health Organization.
2. Ma, X., Chen, T., & Li, S. 2024. Research on ethical issues of mental health management model for children and adolescents. *Heilongjiang Science*, **15**(23), 67–69+72.
3. Zhang, H. 2025. Pay attention to the mental health of teenagers and do a scientific response. *Science Lives*, (2), 72–73.
4. Ling, X. 2022. Research shows that there are 6 major problems and challenges in the mental health of primary and secondary school students, and experts put forward 4 major countermeasures. *Youth Career Research and Development Center*.
5. Chen, G., Dai, Z., Gao, F., Han, X., Liu, J., Wang, Z., & Chen, D. 2025. The relationship among coping styles, negative life events, sense of meaning in life and psychological resilience in adolescents. *Chinese Journal of Mental Health*, (11), 976–980.
6. Morgan, P. L., Farkas, G., & Wu, Q. 2009. Kindergarten predictors of recurring externalizing and internalizing psychopathology in the third and fifth grades. *Journal of Emotional and Behavioral Disorders*.
7. Downey, D. B., & Cao, R. 2024. Number of siblings and mental health among adolescents: Evidence from the U.S. and China. *Journal of Family Issues*.
8. Sun, X., & Jiang, Y. (eds.) 2025. *Blue book on mental health: Report on the development of mental health in China (2023–2024).* Social Sciences Literature Press.
9. Wu, X., Jiang, R., Han, Y., Wang, W., Ai, M., Chen, J., ... & Kuang, L. 2025. Exploring the profile and risk factors associated with self-harm ideation and behaviors in adolescents with high psychoticism. *Frontiers in Psychiatry*, **16**, 1555780.
10. Fan, C. 2025. Family, school and society cooperate to protect adolescents' mental health. *Safe Campus*, (10), 62–65.