Analysis of risk factors for suicide among adolescent students and measures for prevention and control

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Abstract: Objective, To analyze the causes and risk factors associated with suicide among adolescent students, as well as early preventive and control measures. Methods: A total of 100 adolescent students who had suicidal ideation, suicidal plans, or even attempted suicide—collected at the Affiliated Brain Hospital of Guangzhou Medical University from October 2014 to June 2016—were randomly selected as the observation group. During the same period, 100 healthy adolescent volunteers were selected as the control group. Face-to-face interviews and questionnaire surveys were conducted among both groups. The scores for suicide risk factors (including personality traits, coping styles, adverse life events, and adverse family environments) were statistically compared; the prevalence of risk behaviors (depression, high academic pressure, poor academic performance, and malicious bullying) was also compared. The study explored social prevention and intervention measures aimed at reducing the occurrence of suicidal behaviors. Results: In the control group, the scores on the Self-Rating Anxiety Scale (SAS), the Self-Rating Depression Scale (SDS), the Coping Style Questionnaire (CSQ), the Adolescent Life Events Scale (ASLEC), and the Family Environment Scale (FES) were all significantly better than those in the observation group, and the differences were statistically significant ($P < 0.05$). The prevalence of risk behaviors such as depression, high academic pressure, poor academic performance, and malicious bullying was significantly higher in the observation group than in the control group, and the differences were statistically significant ($P < 0.05$). Conclusion: There are numerous risk factors for suicide among adolescent students, primarily involving personality traits, coping styles, adverse life events, and adverse family environments. Targeted preventive and control measures should be implemented to reduce the incidence of suicidal behaviors.

Keywords: adolescent students, suicide, risk factors, prevention and control measures

1. Introduction

Suicide among adolescent students is a complex sociopath logical phenomenon closely related to psychology, sociology, biology, and clinical medicine [1]. Adolescent students are relatively young and are at a critical stage of psychological and physiological development. When they encounter misfortune or setbacks, they often lack the ability and experience to resolve such problems, which can lead to tragic suicides [2]. This study conducts a statistical analysis of the incidence of suicide among adolescent students, the associated risk factors, and early preventive and control measures, and presents the findings as follows.

2. Materials and methods

2.1. General information

2.1.1. Selection of participants in the observation group and basic characteristics

A total of 100 adolescent students who exhibited suicidal thoughts, suicidal plans, or even attempted suicide and whose cases were collected by our hospital between October 2014 and April 2016 were randomly selected as subjects in the observation group. Among them, there were 49 males and 51 females, aged 13–24 years, with a mean age of (17.18±1.09) years. Inclusion criteria: inpatients and outpatients at

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the Affiliated Brain Hospital of Guangzhou Medical University; adolescent students who had called the Guangzhou Psychological Crisis Intervention Hotline and exhibited suicidal thoughts, suicidal plans, or even had attempted suicide.

2.1.2. Selection of the control group and inclusion criteria

Concurrently, 100 healthy adolescent volunteers were selected as the control group: 50 males and 50 females, aged 12–23 years, with a mean age of (16.72±2.47) years. Inclusion criteria were as follows: no suicidal-related plans or behaviors; full understanding of the study; high compliance and willingness to actively cooperate.

2.1.3. Comparability of baseline characteristics between the two groups

A comparison of general demographic characteristics—such as gender, age, level of education, and marital status—between the two patient groups showed no statistically significant differences ($P > 0.05$), indicating that the groups were comparable.

2.2. Methods

Screening will first be conducted among inpatients and outpatients: questionnaires will be distributed to patients who exhibit suicidal tendencies or related behaviors. In addition, adolescents and students who call the Guangzhou Psychological Crisis Intervention Hotline (020-81899120) and who demonstrate some level of suicidal ideation, suicidal tendencies, or even suicidal behavior will receive comprehensive education and be referred to our hospital for professional treatment; staff members will also distribute questionnaires to these individuals. All participants in the questionnaire survey must complete the form under the accompaniment and guidance of staff members. Once the survey is completed, professional staff will organize the questionnaire data (entering the data and establishing a database) and conduct the relevant statistical analyses. Finally, the findings of the analysis will be disseminated to provide the necessary scientific basis for formulating policies aimed at preventing suicide among adolescent students.

2.3. Prevention and control measures

2.3.1. Strengthen education and outreach on values related to life

Through specialized life education activities, adolescent students can develop a correct understanding of the meaning and value of life. These activities promote respect for and care for life and encourage students to respond appropriately to misfortunes and setbacks in life [3]. They gradually help adolescents cultivate a positive attitude toward life and maintain a strong sense of life awareness, thereby reducing, subjectively speaking, the incidence of suicide.

2.3.2. Strengthening mental health counseling for adolescent students

Attention should be paid to and emphasis placed on the mental health education and development of young students, with the aim of fostering in them a healthy psychological state and a well-rounded personality. Efforts should be made to establish and strengthen mental health counseling services in schools and within society, helping young people overcome or escape the burdens of various psychological disorders and guiding them to consistently maintain a positive, healthy, and upward-looking psychological state [4].

2.3.3. Improving the home environment

Enhancing intimacy among family members and improving the family environment are essential. The family is a haven of love; every family member should care for, support, and understand one another, and live together in harmony [5]. Efforts should be made to strengthen the bonds among family members, reduce psychological imbalance and feelings of loneliness and isolation, and thereby fundamentally lower or eliminate suicidal thoughts, or even suicidal behaviors, among adolescent students.

2.4. Observation indicators

Statistically compare the scores of the two groups on suicide risk factors (including personality traits, coping strategies, adverse life events, and adverse family environments), as well as the prevalence rates of

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related risk behaviors (depression, high academic pressure, poor academic performance, and malicious bullying). Explore social prevention and intervention measures to reduce the occurrence of suicidal behaviors.

Anxiety score: 50–59 points: mild anxiety; 60–69 points: moderate anxiety;>70 points: severe anxiety. Depression score: 50–59 points: mild depression; 60–70 points: moderate depression;>70 points: severe depression. Coping style score (Coping Style Questionnaire, CSQ) scoring criteria: total score is 62 points; the lower the score, the more adaptive the coping style. Adolescent Life Events Scale (ASLEC) scoring criteria: rated on a 5-point scale, where 1 indicates no impact at all and 5 indicates severe impact. Family Environment Scale (FES) score: scored on a percentage scale; the higher the score, the better the family environment.

2.5. Statistical methods

Data were processed using SPSS version 22.0. For quantitative data on suicide risk factors among adolescent students (including personality traits, coping styles, adverse life events, and adverse family environments), the data were expressed as $\overline{x}\pm s$, and the t-test was used; for the proportions of suicide-related risk behaviors among adolescent students (depression, high academic pressure, poor academic performance, and malicious bullying), the data were expressed as percentages, and the χ^2 test was used. A P value <0.05 was considered statistically significant.

3. Results

3.1. Comparison of suicidal risk factor scores between two adolescent groups

In the control group, the scores on the Self-Rating Anxiety Scale (SAS), the Self-Rating Depression Scale (SDS), the CSQ, the ASLEC, and the FES were all significantly lower than those in the observation group; the differences were statistically significant (P <0.05), as shown in Table 1.

Table 1: Comparison of scores for the investigation of suicide risk factors among adolescent students in the two groups (n=100, $\overline{x}\pm s$, points)

Group	SAS	SDS	CSQ	ASLEC	FES
Control group	40.21±2.36a	41.09±2.37a	14.28±2.10a	1.02±0.06a	91.36±2.17a
Observation group	77.07±2.65	69.43±2.49	58.19±1.26	4.56±0.16	52.27±1.45

3.2. Comparison of suicide-related risk factors between the two groups of adolescent students

In the observation group, the proportions of students experiencing depression, experiencing high academic pressure, having poor academic performance, and engaging in malicious bullying were significantly higher than those in the control group; the differences were statistically significant (P <0.05), as shown in Table 2.

Table 2: Comparison of suicide-related risk factors between the two groups of adolescent students [n = 100, n (%)]

Group	Depression	Heavy study pressure	Poor grades	Malicious bullying
Control group	2 (2.00)	11(11.00)	8(8.00)	1(1.00)
Observation group	42 (42.00) b	47 (47.00) b	78 (78.00) b	18 (18.00) b

4. Discussion

Suicide is a subjective, conscious act of ending one's own life and is one of the leading causes of human death. In China, approximately 287,000 people die by suicide each year; the suicide rate is about 23 per 100,000, accounting for 3.6% of all deaths and ranking fifth among all causes of death. Among these cases, suicide among adolescent students has attracted particular attention from all sectors of society [6]. Adolescent students are at an important stage of growth and development; their physical and

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psychological development is not yet fully mature. When they encounter risk factors such as negative personality traits, maladaptive coping strategies, adverse life events, and a dysfunctional family environment, they may lack the ability to solve problems and the cognitive capacity to do so, which can lead to suicidal behavior.

The results of this study show that, in the control group, the scores on the SAS, SDS, CSQ, ASLEC, and FES (Family Environment Scale) were all significantly higher than those in the observation group, and the differences were statistically significant ($P < 0.05$). This indicates that suicidal behavior among adolescent students is closely related to factors such as their individual personality traits, their coping strategies when facing challenges, adverse life events, parental parenting styles, and the family environment within the household; any one of these risk factors can increase the risk of suicide among adolescent students. In the observation group, the proportions of students experiencing depression, experiencing high academic pressure, achieving poor academic performance, and engaging in malicious bullying were significantly higher than those in the control group, and the differences were statistically significant ($P < 0.05$). This suggests that suicidal behavior among adolescent students is also associated with their level of psychological depression, the degree of academic pressure they face, and exposure to external threats and bullying; these factors should receive adequate attention.

5. Conclusion

In summary, there are numerous high-risk factors associated with suicide among adolescent students. Negative personality traits, maladaptive coping strategies, adverse life events, and a dysfunctional family environment can all contribute to tragic suicide outcomes. Therefore, considering the psychological and physiological characteristics of adolescent students, effective preventive and control measures should be proactively implemented to reduce the occurrence of suicide incidents at the source.

6. References

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