Physical Sports and Mental Health in Hearing-Impaired Youth

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Abstract: In order to investigate the effects of “body contact” the sports game intervention to improve the mental health of young auditory language disable ,in this experiment ,the auditory language disable students were randomly divided into 24levels of mental health which will be screened low into control group and experimental group ,and the experimental group in the 10 week of the “body contact” the sports game teaching intervention .The results showed that physical contact games played an important role in improving the mental health of auditory language disable adolescents, but there was still some difference between them and the national norm. Specifically, the scores of hostility, compulsion, symptoms, somatization and terror all decreased obviously, and the symptoms of paranoia, interpersonal relationship, anxiety and psychotic symptoms improved, but the effect on depressive factors was not significant.

Keywords: sports intervention; mental health; physical contact sports games; auditory language disable adolescents

1. Introduction

Youth is the hope of a nation, and their health status is directly related to the future physical condition of the citizens. With the improvement of modern living conditions, the intake of high-protein and high-calorie foods, the increase in study load, and the reduction in physical activity levels, the physical function and quality level of adolescents have shown a downward trend, and mental health issues have become prominent. Adolescents with hearing and speech impairments, as a special group, have more severe mental health problems due to their physical defects. The incidence of psychological abnormalities such as loneliness, inferiority, suspicion, extremism, anxiety, selfishness, and hostility is higher than in other adolescent groups, which has attracted the attention of schools, families, and society. Therefore, how to improve the mental health status of adolescents with auditory and language disabilities through effective means has become an urgent problem to be solved. Based on this, this study attempts to use "physical contact" sports games as an intervention method to observe its impact on the mental health level of adolescents with hearing and speech impairments, aiming to provide a reference for the selection of physical education teaching programs for special education groups.

2. Materials and Methods

2.1. Subjects of the Study

2.1.1. Inclusion Criteria for the Subjects

To ensure the authenticity and reliability of the research results, the following provisions are made for the selection criteria of the subjects:

(1) The subjects should be diagnosed with moderate or mild auditory and language disabilities (based on the hospital's diagnostic certificate). (2) The age range is 14 to 18 years old, with no gender restrictions. (3) They should have normal intelligence and the physical ability to complete the "physical contact" sports activities involved in this study.

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2.1.2. Rationale for the Selection of Subjects

For psychological health tests, subjects must have a certain life experience, which is a basic requirement for the authoritative psychological health test scale SCL-90 to choose subjects with an age no less than 12 years old. This study selects adolescents with auditory and language disabilities aged 14 to 18 as subjects, which meets the age requirements for the applicability of the SCL-90 scale; for adolescents with auditory and language disabilities, due to their physical particularities, their psychological health levels need further improvement and strengthening. Therefore, the subjects selected in this study all have psychological health levels lower than normal people, which is more conducive to observing the intervention effects.

2.1.3. Method for Selecting Subjects

With the assistance of teachers at the Lin fen Special Education School, 52 students with auditory and language disabilities were randomly selected from the school according to the screening criteria and subjected to the SCL-90 scale psychological health assessment. From these, 24 students with lower levels of psychological health were chosen, and they were then allocated to the control group and the experimental group by random drawing, with 12 subjects in each group, to ensure the balance of the subjects in each group.

2.2. Research Methods

2.2.1. Interview Method

The interview method was used to conduct interviews with the subjects' parents, school leaders, and homeroom teachers. The specific content of the interview included the physical health status of the subjects, psychological issues they face, daily life, and their usual participation in physical activities. Informed consent forms were signed with parents, homeroom teachers, and school leaders to make them aware of the purpose and significance of the "physical contact" sports game intervention, in order to gain their support.

2.2.2. Survey Method

A questionnaire on psychological health for students with hearing and speech impairments was developed to investigate the basic situation of the subjects and behaviors related to psychological health, such as study and life, in order to understand the psychological health issues that the subjects face.

2.2.3. Experimental Method

Subjects and Grouping: A random grouping method was used to assign 24 students with auditory and language disabilities to the experimental group and the control group, with 12 students in each group. There were no significant differences in the degree of auditory and language disabilities or the SCL-90 scale scores between the two groups ($P>0.05$).

Intervention Method: The experimental group received an intervention with "physical contact" sports games. The intervention lasted for 10 weeks (from March 7, 2016, to May 15, 2016), with five sessions per week (during the students' free time on Monday to Friday afternoons), each session lasting 40 minutes; "physical contact" sports games included activities such as "Stick the Ointment," "Three-Legged Race," "Net Crawling," "Drop the Handkerchief," and "Hula Hoop," among others; the exercise intensity was controlled to maintain the students' heart rate at around 100 beats per minute. The overall course structure was divided into a preparation part, a basic part, and a conclusion part. The control group engaged in free activities during this time. In addition to the "physical contact" sports game intervention, the experimental group's other learning and living behaviors were exactly the same as those of the control group.

Measurement Tools and Methods: The SCL-90 Symptom Self-Rating Scale was used to measure the psychological health indicators before and after the experiment for both the experimental group and the control group. The scale was administered by teachers from the Lin fen Special Education School, who explained the instructions using sign language and oral language, and the students filled it out themselves. Students who did not understand the questions were allowed to ask, and the teachers provided answers. It was required that the scale test questions be completed within a specified time. The indicators of psychological health level were scored from 1 to 5 according to the severity of the symptoms. After the

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scale was collected, the author personally checked for any missing or duplicate items, and the questionnaires were statistically processed to ensure the validity of each one.

Statistical Processing: The results are expressed as mean ± standard deviation. Paired t-tests were used for pre-post comparisons within groups, and unpaired t-tests were used for comparisons between groups, with $P<0.05$ considered to indicate a significant difference and $P<0.01$ indicating a highly significant difference.

Logical Analysis: The changes in various indicators of the SCL-90 Symptom Self-Rating Scale before and after the experiment for the subjects in the experimental and control groups were compared, as well as the differences between the experimental and control groups, to determine the effectiveness of the "physical contact" sports game intervention. The impact of the "physical contact" sports game intervention on the various indicators of the SCL-90 Symptom Self-Rating Scale was analyzed, and a conclusion was drawn.

3. Results and Analysis

3.1. Demographic Characteristics of the Subjects

This study adopted a combination of on-site questionnaire distribution and parent interviews to investigate the basic situation of the 24 subjects. The demographic characteristics of the subjects are as follows: All 24 subjects were aged between 14 and 18. Among them, there were 8 males and 16 females; 15 students were from rural areas, and 9 students were from urban or urban village areas; there were 6 cases of parental divorce, 3 single-parent families, and 14 only children; the subjects were basically self-sufficient in life and study and were all boarding students; 13 individuals participated in extracurricular sports activities at least once a week, with some students participating more than 3 times; the subjects exhibited varying degrees of psychological issues, mainly manifested in the following aspects: (1) disharmonious interpersonal relationships and communication barriers with classmates; (2) emotional instability, often feeling anxious and restless; (3) prone to impulsiveness and being ostracized by classmates; (4) frequently lying and vandalizing property, etc.

3.2. The Impact of "Physical Contact" Sports Games on the Psychological Health Level of Adolescents with Auditory and Language Disabilities

This study used the SCL-90 scale to measure the subjects in both the experimental group and the control group before and after the intervention experiment. The results of the measurements and statistical analysis can be seen in Table 1.

Table 1: SCL-90 Scale Measurement Results Before and After the Experiment

	Control Group (n=12)		Experimental Group (n=12)		National Norms
	Pre-Intervention	Post-Intervention	Pre-Intervention	Post-Intervention	
Somatization	1.52±0.31	1.72±0.46	1.82±0.60	1.35±0.30△	1.37±0.48
Obsession-compulsion	2.51±0.49	2.24±0.43	2.60±0.63	2.06+0.52△★	1.62±0.58
Interpersonal relationships	2.73±0.60	2.63±0.60	2.50±0.50	1.81±0.60△△★	1.65±0.61
Depression factor	2.42±0.65	2.43±0.79	2.31±0.59	1.98±1.26	1.50±0.59
Anxiety factor	2.39±0.59	2.53±0.61	2.10±0.43	1.48±0.39△△★	1.39±0.43
Hostility factor	2.37±0.73	2.50±0.99	2.52±0.94	1.62±0.57△★	1.46±0.55
Phobia factor	2.26±1.02	2.55±1.03	2.05±0.73	1.52±0.42△★	1.23±0.41
Paranoia factor	2.53±0.71	2.19±0.67	2.09±0.44	1.56+0.37△△★	1.43±0.57
Psychoticism	2.49±0.66	2.11±0.55	2.13±0.60	1.36±0.26△△★	1.29±0.42

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Other	2.09±0.60	1.98±0.66	2.23±0.56	1.44±0.36△△★	

Note: ① The national norm data are derived from Cheng Zaohua, Yuan Guozhen, and Yang Bixiu. "The Development and Psychometric Testing of a Mental Health Scale for Children and Adolescents" (Chinese Mental Health Journal, Issue 1, 2006); ② The symbol "△" indicates a comparison with pre-intervention with P<0.05, and "△△" indicates a comparison with pre-intervention with P<0.01; ③ The symbol "★" indicates a comparison with the control group with P<0.05, and "★★" indicates a comparison with the control group with P<0.01.

Table 1 indicates that before the experiment, the measurement data of all SCL-90 scale indicators for both the control group and the experimental group were higher than the national norms, suggesting that subjects in both groups had varying degrees of psychological health issues, which is in line with the selection criteria for subjects in this study. There were no significant differences between the control group and the experimental group in the measurement data of all SCL-90 scale indicators (P>0.05), indicating that the subjects in the control group and the experimental group come from the same population. Comparison of the SCL-90 scale measurement results before and after the experiment in the experimental group found that the scores of somatization, obsession-compulsion, phobia, and hostility factors significantly decreased after the experiment (P<0.05); the scores of interpersonal relationships, anxiety, paranoia, psychosis, and other five factors decreased more markedly (P<0.01), while the score of the depression factor changed little (P>0.05). Compared with the control group, the experimental group's scores on the SCL-90 scale for obsession-compulsion, interpersonal relationships, anxiety, hostility, phobia, paranoia, and psychosis were all significantly lower than those of the control group (P<0.05), but the scores of somatization and depression factors on the SCL-90 scale were not significantly different from those of the control group (P>0.05). At the same time, there were no significant changes in the measurement results of all factors of the SCL-90 scale before and after the experiment in the experimental group (P>0.05), indicating that "physical contact" sports games have an improving effect on most indicators of the SCL-90 scale for adolescents with auditory and language disabilities. In addition, compared with the national norms, the indicators of all factors of the SCL-90 scale after the intervention in the experimental group have been very close to the national norm data, but have not yet reached the national norm level, indicating that although the "physical contact" sports game intervention has a significant improving effect on the psychological health status of students with auditory and language disabilities, it has not yet reached the ideal "healthy level."

4. Discussion

"Physical contact" sports games have clear objectives, strict rules, are easy to understand, and convenient to learn. In the process of participation, students enhance their social adaptability and willingness to integrate into the group by thinking from others' perspectives and sharing weal and woe with their classmates. For instance, in the "Fishing" game, each member takes on different roles, simulating the scene of fishermen catching fish with limited conditions. During the simulation, students understand that encouragement is a potent remedy for the human spirit. It can inspire people and not fear the pain brought about by temporary setbacks, also realizing the importance of cohesion and the greatness of team spirit.

"Physical contact" sports games are characterized by strong interactivity and educational significance. Through group interaction, students can experience and perceive for themselves. This game atmosphere can improve students' interpersonal anxiety and self-anxiety caused by communication barriers; it can enhance the enthusiasm of adolescents with auditory and language disabilities for life and learning. Simple yet fun game sections can attract people's attention and encourage students to actively participate, allowing them to fully relax, which is conducive to the individual's emotional self-regulation.

Incorporating some competitive elements in the game allows students to perceive moderate pressure, which helps them adapt to the collective atmosphere. Games like "Drop the Handkerchief" and "Musical Chairs" are examples. The continuity of the game can subtly influence students, and the long-term nature of the game helps reduce the frequency of negative emotions. In summary, these effects of "physical contact" sports games may be the reason why they can improve the psychological health level of students with auditory and language disabilities.

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5. Conclusion

"Physical contact" sports games have a significant promotional effect on improving the psychological health level of adolescents with auditory and language disabilities. The specific manifestations are: the scores in hostility, obsession-compulsion, somatization, and phobia of adolescents with auditory and language disabilities have all significantly decreased; the improvements in paranoia, interpersonal relationships, anxiety, and psychosis are even better, but the impact on the depression factor is not significant.

Although the "physical contact" sports game intervention has an improving effect on many indicators of the psychological health level of adolescents with auditory and language disabilities, there is still some distance compared with the national norms.

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