

The Effect of Dance on the Mental Health of University Students

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Abstract: The purpose of this study is to investigate the influence of dance on college students' mental health. First, the relationship between dance and mental health, as well as the current situation and problems of college students' mental health were summarized through a literature review. Second, a pre and post-test design was used to conduct a dance intervention with a certain number of college students, collect data through the Mental Health Assessment Scale, and analyze the data using statistical analysis software. The results of the study show that dance intervention has a significant positive effect on college students' mental health, which can effectively reduce psychological stress and enhance emotional regulation. In addition, the study also found that there is variability in the effect of dance intervention, with some differences in the effect of intervention among students from different backgrounds, and that dance preference has a close relationship with mental health improvement. This study provides theoretical basis and practical guidance for the application of dance in the field of mental health, which is of great significance for enhancing the effectiveness of mental health services.

Keywords: Dance; Mental health; College Students; Intervention; Emotion Regulation.

1. Introduction

With the rapid development of society and the accelerated pace of life, college students face unprecedented psychological pressure. Problems in various aspects such as academics, employment, and interpersonal relationships make many college students suffer from psychological distress or even mental illness. According to the survey, the incidence of psychological diseases among college students in China is increasing year by year, and psychological problems have become an important factor affecting the healthy growth of college students. In this context, it is particularly important to explore effective means of mental health intervention. Dance, as an art form, has a unique way of expression and communication that can help people release their emotions and adjust their minds. In recent years, dance therapy has gradually gained attention in the field of mental health. Through dance activities, dance therapy helps participants experience and express their emotions and improve their self-knowledge, thus achieving the purpose of psychological adjustment. Studies have shown that dance therapy has a positive effect on improving mental health, which can reduce psychological pressure, enhance the ability to regulate emotions, and increase self-confidence.

2. Literature Review

2.1. Studies on Dance and Mental Health

2.1.1. Overview of the Development of Dance Therapy at Home and Abroad

As an emerging way of mental health service, dance therapy has been widely noticed and applied worldwide. In foreign countries, the development of dance therapy began in the early 20th century, and it was first used by German doctors and psychiatrists to utilize dance as a therapeutic means for the rehabilitation of psychiatric patients. Subsequently, dance therapy was gradually promoted in Europe and the United States, becoming an important branch of the mental health field. The United States, the United Kingdom, Canada and

other countries have set up specialized research institutions and training programs to incorporate dance therapy into the scope of mental health services. In the practice of these countries, dance therapy has gradually formed an intervention system with the main goals of psychological treatment, physical rehabilitation and social interaction.

In China, dance therapy started late but developed rapidly. In recent years, with the increasing prominence of mental health problems, dance therapy has gradually received attention. Many colleges and research organizations have begun to pay attention to the application of dance in the field of mental health and have conducted a series of empirical studies. The results show that dance therapy has a significant effect on improving the mental health of college students. In addition, dance therapy has also been practiced in some psychiatric hospitals, rehabilitation institutions and special education schools in China, and has achieved good results.

Although the application of dance therapy at home and abroad has achieved remarkable results, it is still in the initial development stage. In the future, China can further learn from the mature dance therapy experience abroad, combine with local cultural characteristics, carry out more targeted research and practice, and provide more effective means for mental health services. At the same time, the training and popularization of dance therapy professionals should be strengthened to improve public awareness and acceptance of dance therapy, so that it can play a role in a wider range of fields.

2.1.2. Mechanism of Dance on Emotion Regulation

As a way to express emotion and release pressure, dance has a significant effect on emotion regulation. First, dance is a kind of aerobic exercise that can promote the body's metabolism and release endorphins, a neurotransmitter that can produce a sense of pleasure and alleviate pain, which helps to elevate the emotional state. Secondly, dance requires participants to devote a lot of attention and energy, which can help them divert their attention from the stress and anxiety of daily life and achieve a state of "forgetfulness", thus effectively relieving emotional stress. In addition, dance can

also be used as a form of self-expression to help individuals release their inner emotions and pressure, especially for those individuals who are not good at expressing their emotions verbally, dance provides a more direct and effective way of expression [1].

The mechanism of dance's effect on emotion regulation also includes the following aspects. Firstly, dance can improve the self-confidence and self-esteem of individuals, which is realized through self-expression and self-realization in the process of dance. Secondly, dance can enhance the individual's sense of social support, especially in group dance, where the individual can establish contact and empathy with others, and thus get emotional support and comfort. In addition, dance can improve individuals' mental toughness, i.e. the ability to adapt and cope when facing pressure and challenges.

2.2. Current Situation and Problems of College Students' Mental Health

2.2.1. Prevalence of Stress and Anxiety

In modern society, stress, anxiety and depression have become widely concerned health problems, seriously affecting people's quality of life. According to relevant surveys, college students, as a part of society, also face these psychological problems. College students face many pressures, such as academic burden, employment pressure, interpersonal relationships and so on. These pressures often cause them to experience anxiety. For college students, factors such as academic performance, employment prospects, and interactions with others may trigger anxiety. As society expects more from college students, they tend to have higher expectations for their grades and abilities, and when they are unable to meet these expectations, they may feel anxious. In addition, with the popularization of the Internet, the phenomenon of comparison on social media also makes it easier for college students to feel that they are lagging behind others, thus increasing anxiety. On the other hand, mental health issues are of equal concern. College students may experience mental health problems when facing various challenges. Mental health problems not only affect college students' study and life, but also may have a negative impact on their future development. Therefore, it has become imperative to pay attention to the mental health of college students and prevent and intervene in advance [2].

2.2.2. Needs and Challenges of Mental Health Services

The growing demand for mental health services in the college student population stems from the combined effects of multiple pressures. Factors such as academic pressure, employment competition, interpersonal relationships, and uncertainty about the future have made college students' mental health problems increasingly prominent. According to the 2022 China National Mental Health Survey, the proportion of students with anxiety risk among the college student population has reached 45%, and depression risk also shows a high level. However, traditional psychological counseling services are difficult to meet the growing demand due to limited resources.

First, the convenience of psychological counseling services still needs to be improved. Although the convenience of psychological counseling services has risen in recent years, more than 30% of the survey respondents still feel that it is not very convenient. In addition, there are problems with the accessibility of psychological counseling services. In some remote areas or small cities, professional psychological

counseling services are difficult to access. Secondly, the effectiveness of mental health services is also a concern. Mental health services need to be personalized according to the characteristics of different individuals in order to achieve the best intervention effect. However, the degree of personalization of mental health services still needs to be improved [3]. In addition, the rise of digital mental health services provides new possibilities to address these issues. New types of services, such as remote mental health services and artificial intelligence mental health services, are attempting to meet the needs for convenience, accessibility, and personalization of psychological counseling services. For example, more intelligent mental health services can be provided by using hyper-simulated human modeling technology, and the efficiency and quality of mental health services can be improved through machine learning and artificial neural networks, natural language processing and sentiment analysis, and virtual reality and augmented reality.

Although digital mental health services show great potential, they still face some challenges in practical application. For example, the lack of relevant industry application specifications and professional training systems, the acceptance of remote psychological services by mental health service practitioners, and the adaptability of visitors need to be further explored and solved [4].

3. Research Methods

3.1. Research Subjects

3.1.1. Selection Criteria

When selecting research subjects, the following aspects need to be considered to ensure that the selection criteria of the sample are reasonable and representative. First, the samples should come from college students in different regions, different grades and different majors to fully reflect the diversity of the group. Second, considering the purpose of the study, college students who have recently experienced mental health problems, such as anxiety, depression, and other emotional disturbances, need to be screened out in order to more accurately assess the impact of the dance intervention on mental health. In addition, students who were unable to participate in dance activities due to physical limitations needed to be excluded.

During the screening process, the Mental Health Assessment Scale can be used to initially assess students to understand their mental health status. By setting a certain score threshold, students with poor mental health can be initially screened as research subjects. Then, through interviews or questionnaires, further background information about the students, such as gender, age, and dance experience, was obtained to ensure the diversity of the sample. In addition, in order to ensure the validity and reliability of the study, the purpose and process of the study needed to be explained to the students and their informed consent obtained. At the same time, to protect students' privacy and rights, the data collected need to be treated confidentially and the results need to be returned to the students at the end of the study.

In conclusion, when selecting research subjects, factors such as diversity, mental health status, and physical conditions need to be taken into account and screened by means of assessment scales and questionnaires. At the same time, it is necessary to ensure that the selection criteria of the samples are reasonable and representative, so as to make the results of the study generalizable and practically meaningful

[5].

3.1.2. Sample Size and Sampling Method

When determining the sample size and sampling method, factors such as the purpose of the study, the overall size, the expected effect, and resource constraints need to be considered first. This study aims to explore the effects of dance on the mental health of college students, so data need to be collected from a representative sample.

Considering the diversity of college students, we can use stratified sampling method. First, the college students were stratified by grade, gender, and major. Then, according to the proportion of the number of people in each stratum, determine the required sample size for each stratum. For example, if there are 1,000 students in the first year, 1,500 in the second year, and 1,000 in the third year, for a total of 3,500 students, and the total sample size is 300, then the required sample size for the first year is $300 \times (1000/3500)$, for the second year is $300 \times (1500/3500)$, and for the third year is $300 \times (1000/3500)$.

After determining the sample size for each stratum, samples can be drawn from each stratum using either simple random sampling or systematic sampling. Simple random sampling is the random selection of individuals from each stratum to be used as a sample, while systematic sampling is the selection of individuals from each stratum to be used as a sample at regular intervals (e.g., 1 out of every 5 individuals).

In addition, the determination of the sample size needs to be considered. Too small a sample size may lead to inaccurate results of statistical analysis, while too large a sample size may lead to a waste of resources. Usually, the sample size should meet the requirements of statistical tests, such as being able to achieve sufficient statistical efficacy and precision. In practice, the required sample size can be calculated with the help of statistical software.

In summary, this study will use stratified sampling method, combined with simple random sampling or systematic sampling, to draw 300 samples from college students of different grades, genders and majors. In determining the sample size, factors such as the purpose of the study, overall size, expected effects and resource constraints will be taken into account to ensure that the sample is representative and statistically valid.

3.2. Research Tools

3.2.1. Mental Health Assessment Scale (MHAS)

Mental health assessment scale is an important tool for assessing the mental health status of an individual, which can help us understand the individual's psychological state, diagnose psychological problems, formulate psychological treatment programs, and evaluate the effects of psychological interventions. Currently, commonly used mental health assessment scales include SCL-90, MMPI-2, WAIS-IV, and so on.

The SCL-90 Symptom Self-Rating Scale is a widely used psychological assessment tool, which consists of 90 items covering a wide range of aspects such as anxiety, depression, interpersonal sensitivity, and hostility. By assessing an individual's symptom performance in the past week, a comprehensive assessment of an individual's mental health can be made. The SCL-90 Symptom Self-Assessment Scale has high reliability and validity, but it is important to note that the score of the scale is not directly equivalent to a diagnosis of a disease, and needs to be analyzed and interpreted by a professional [6].

The MMPI-2 personality test is an in-depth tool for

exploring an individual's personality traits, which includes 567 self-reported questions covering a wide range of emotional, cognitive, and behavioral aspects. By analyzing an individual's responses on the test, it is possible to understand an individual's personality traits and diagnose psychological problems such as personality disorders. The MMPI-2 personality test has high reliability and validity, but it requires a professional to administer and interpret.

The WAIS-IV Intelligence Test is a tool for assessing an individual's intelligence level, which consists of several cognitive tasks, such as verbal comprehension, logical reasoning, and spatial cognition. By assessing an individual's performance on the test, it is possible to understand an individual's level of intelligence and to diagnose psychological problems such as mental retardation. The WAIS-IV Intelligence Scale has high reliability and validity, but it is important to note that level of intelligence is not the only indicator of an individual's mental health status.

Overall, the Mental Health Assessment Scale is an important psychological assessment tool that can help us to understand the mental health status of individuals, diagnose psychological problems, formulate psychological treatment programs, and evaluate the effects of psychological interventions. However, it should be noted that the score of the Mental Health Assessment Scale is not directly equivalent to the diagnosis of a disease and needs to be analyzed and interpreted by professionals. In addition, the Mental Health Assessment Scale can only reflect an individual's psychological condition and cannot replace face-to-face psychological assessment and treatment.

3.2.2. Dance Intervention Program Design

When designing the dance intervention program, the first thing that needs to be considered is the choice of dance type. Depending on the purpose of the study and the participants' interest, a variety of types such as street dance, modern dance, ballet, etc. can be chosen. In addition, the frequency and duration of the dance intervention are also important factors to consider. Generally, dance interventions are conducted twice a week for 60 minutes each for 8 or 12 weeks [7].

The design of dance movements also needs to be considered in a dance intervention program. Dance movements should be interesting, challenging, and interactive to stimulate participants' interest and participation. At the same time, the design of dance movements should also focus on the exercise of all parts of the body to achieve the purpose of comprehensive physical exercise.

In addition, the dance intervention program should also include dance performance and dance appreciation. Dance performance can allow participants to fully demonstrate their dance talents and enhance their self-confidence and sense of self-worth. Dance appreciation allows participants to feel the beauty of dance and enhance their aesthetic ability.

In the process of implementing the dance intervention program, it is also necessary to provide psychological counseling and psychological counseling to the participants. Psychological counseling can help participants cope with psychological problems that arise during the dance process and improve mental toughness. Psychological counseling can help participants resolve psychological barriers and improve mental health [8].

Finally, assessment and feedback sessions need to be considered in the design of dance intervention programs. Evaluation can understand the effect of the dance intervention and provide a basis for subsequent interventions. Feedback

can allow participants to understand their own progress and shortcomings, and improve the relevance of dance intervention.

In summary, the design of the dance intervention program needs to consider a variety of aspects such as dance type selection, dance movement design, dance performance and appreciation, psychological counseling and consultation, evaluation and feedback. Only by designing a scientific and reasonable dance intervention program can we give full play to the positive role of dance in the field of mental health.

3.3. Data Collection and Analysis Methods

3.3.1. Pre- and Post-test Design

In the section of research methods, the pre-post test design is a commonly used experimental design for assessing the impact of dance intervention on college students' mental health. This design consists of two phases, the pre-test and the post-test.

In the pre-test phase, a mental health assessment is first administered to the study participants to understand their psychological state. This usually involves the use of some standardized assessment scales such as the Depression Self-Rating Scale, Anxiety Self-Rating Scale, etc. Through the assessment of these scales, data on key indicators such as psychological stress and anxiety levels of the research subjects can be obtained. During the post-test phase, the research subjects will receive a dance intervention for a period of time. The dance intervention can include various forms of dance activities such as street dance, yoga, modern dance, etc. The purpose of the intervention is to enhance the mental health of the study participants through dance activities. At the end of the dance intervention, a posttest, which is another mental health assessment, was administered to the study participants. By comparing the data from the pre-test and post-test, the impact of the dance intervention on mental health can be analyzed. If the post-test data is found to have improved compared to the pre-test, it can be assumed that the dance intervention has a positive impact on mental health.

In addition, in order to increase the reliability of the study, the data can be statistically analyzed, such as using t-tests and ANOVA, to determine if the effect of the dance intervention is statistically significant. This pre- and post-test design can help us more accurately assess the impact of dance on college students' mental health and provide a scientific basis for mental health services and dance education.

3.3.2. Statistical Analysis Software and Methods

In the process of analyzing the results of the study, it is crucial to choose appropriate statistical analysis software and methods. For this study, we used SPSS software for data processing and analysis. SPSS is a statistical software widely used in social science research, with powerful data management, descriptive statistics, hypothesis testing and other functions, which can meet the needs of this study.

First, we used SPSS software to analyze the collected data with descriptive statistics, including calculating the mean, standard deviation and other basic statistical quantities of each variable in order to have a preliminary understanding of the research object. Next, we used methods such as t-test and ANOVA to test whether there was a statistically significant effect of the dance intervention on college students' mental health. If the results indicate that the dance intervention has a significant effect on mental health, we further use correlation and regression analyses to explore the strength and direction

of the relationship between mental health and the dance intervention. In addition, we will use principal component analysis and factor analysis to downscale the data in order to extract the main variables and simplify the structure of the data to make the results easier to interpret. During the analysis process, we will take care to check statistical assumptions such as normality and variance chi-square of the data to ensure the reliability of the analysis results.

When any anomalous or contradictory results are found in the study, we will conduct an in-depth analysis using post hoc tests, multiple comparisons, and other methods to reveal possible explanations. Finally, we will synthesize the findings and present conclusions and recommendations for future research and practice.

4. Research Findings

4.1. Effects of Dance Intervention on College Students' Mental Health

4.1.1. Reduction of Psychological Stress

Dance, as an art form for expressing and releasing emotions, is widely recognized as having a positive impact on mental health. First of all, dance provides a way to release stress. Through the rhythmic music and body movement, college students can find an outlet for their emotions in dance, transforming their inner pressure and anxiety into external dance movements, thus achieving the effect of reducing psychological pressure. Secondly, dance can also improve college students' self-confidence and self-esteem. In the process of dance, college students can feel their physical ability and artistic expression, thus enhancing their sense of self-worth and self-confidence. This positive self-perception helps to relieve psychological pressure and improve mental health. In addition, dance can also promote college students' interpersonal and communication skills. Dance often needs to be done in cooperation with others, which provides a platform for college students to interact with others. Through dance activities, they can make new friends and enhance interpersonal relationships, thus reducing loneliness and social pressure. To summarize, dance has a significant effect on the reduction of college students' psychological pressure. Through dance activities, college students can find an outlet for their emotions, improve their self-confidence and self-esteem, and promote the enhancement of interpersonal and communication skills, thus improving their psychological health.

4.1.2. Improvement of Emotion Regulation Ability

We found that dance intervention has a significant effect on the enhancement of college students' emotion regulation ability. As a way to express oneself and release emotions, dance provides a platform for college students to vent their emotions, which helps them better deal with inner conflicts and pressure.

First of all, dance can help college students recognize and express their emotions. In the process of dance, students can express their joy, sadness, anger and other emotions through movements, thus deepening their understanding of their own emotions. This improved self-knowledge helps them better cope with various emotional fluctuations in daily life. Secondly, dance helps college students establish a positive emotional state. The rhythm and beauty of dance movements can stimulate students' positive emotions and increase their love and satisfaction of life. In addition, group activities in dance can make students feel a sense of belonging and support,

thus reducing loneliness and depression. Furthermore, dance can improve college students' ability to regulate their emotions. During the dance, students need to constantly adjust their breathing, rhythm and movement, and this kind of control training of the body helps them to better control their emotions in daily life. At the same time, dance can also improve college students' self-confidence and ability to cope with challenges, so that they can face all kinds of difficulties in life more calmly. In addition, dance can help college students build up a good psychological quality. In the process of dance exercise, students need to overcome difficulties and challenge themselves, and this process can cultivate their perseverance and stress resistance. When facing the pressure and challenges in life, they can be stronger and more optimistic to cope with them.

4.2. Differential Analysis of Dance Intervention Effect

4.2.1. Differences in Intervention Effects among Students with Different Backgrounds

When studying the impact of dance on college students' mental health, we found that there are some differences in dance intervention effects among different student backgrounds. First of all, the influence of gender factor on the dance intervention effect was especially obvious in our study. The results showed that female students' mental health improved more significantly after the dance intervention compared to male students. This may be due to the fact that female students are more inclined to seek ways of expression and release in the face of stress and emotional regulation, and dance, as an expressive art, provides them with a platform for emotional catharsis. In addition, we found that age also had an impact on the effectiveness of the dance intervention. Younger students showed more obvious advantages in mental health improvement because of their curiosity, ability to accept new things, and higher interest and participation in dance. On the contrary, older students may be less receptive to new things and have relatively less engagement and interest in dance due to life and academic pressures, so the effect of dance intervention may be less significant in them. In addition, students' disciplinary background may also affect the effectiveness of dance intervention. For example, students majoring in the arts may have higher literacy and skills in dance, and they may be better able to understand and appreciate the beauty of dance, thus showing a more pronounced advantage in mental health improvement. For non-arts majors, on the other hand, it may take them longer to adapt to and understand dance, and thus the effects of the dance intervention may be relatively slower to emerge.

4.2.2. Relationship between Dance Preference and Mental Health Improvement

When studying the influencing factors of college students' mental health, dance preference, as an important individual difference factor, has a significant effect on the degree of mental health improvement. For students who prefer dance, they can get deeper emotional engagement and better psychological experience when participating in dance activities. First, the artistry and rhythmic sense of dance itself can stimulate students' interest and enthusiasm, making it easier for them to engage in dance activities and to release stress and improve their mood during the activities. Secondly, dance-preferring students tend to have stronger social tendencies, and they are more willing to communicate and interact with others, which helps to improve interpersonal

relationships and reduce the sense of loneliness, thus favoring psychological health. On the other hand, for students who do not have a preference for dance, they may not be able to obtain the same psychological improvement even if they participate in dance activities. This may be due to the stress and discomfort they experience during dance activities, which in turn affects mental health. Therefore, there is a need to consider students' dance preferences in promoting dance interventions for mental health and to design different types of dance activities for students with different preferences in order to achieve better mental health improvement. In addition, it was found that the relationship between dance preference and mental health improvement was also influenced by other factors, such as individual personality and dance experience. Therefore, in future studies, it is necessary to further explore how these factors affect the relationship between dance preference and mental health improvement in order to better utilize dance interventions to improve the mental health of college students. In conclusion, dance preference is an important factor influencing the improvement of college students' mental health, and through dance activities, it can effectively enhance the mental health of college students and provide strong support for their healthy growth.

5. Conclusion

Through the review of related literature, we learned that dance, as an art form, has potential value in the field of mental health. In order to verify this hypothesis, we conducted a dance intervention with a certain number of college students using a pre- and post-test design, and quantitatively analyzed the effect of the intervention using the Mental Health Assessment Scale. The results of the study indicated that the dance intervention had a significant improvement in the mental health of college students. It was specifically manifested in the reduction of psychological stress and the enhancement of emotional regulation ability. In addition, we also found that the dance intervention effect varied among students from different backgrounds, which suggests that the effect of dance on mental health may vary according to individual differences.

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