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Embracing Joy: A Behavioural Paradigm Shift in Addressing Psychological Health Through Laughter Yoga Among Special Orphan Children of Delhi, India

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ABSTRACT

Background: Laughter yoga, a unique fusion of playful laughter exercises and deep breathing techniques, offers a holistic and innovative approach to mental health. This study examines the transformative impact of laughter yoga on stress, anxiety, and depression among special orphan children in Delhi who often experience significant emotional and psychological challenges.

Objectives: The primary objective of this study is to evaluate the effectiveness of laughter yoga in reducing stress in special orphan children. Additionally, the study aims to explore whether laughter yoga can induce a behavioural paradigm shift towards improved mental health and overall well-being in this vulnerable population.

Methods: We employed a two-group experimental design involving 30 having, 15 in each group (15 Boys, 15 girls), orphan special children aged 8-16 years, each with various disabilities, including visual, hearing, and locomotor impairments. These children participated in a structured laughter yoga program for three months, attending sessions five days a week. Assessments were conducted at five different time points: baseline (before starting the program), 3 weeks, 6 weeks, 9 weeks, and 12 weeks. We used the Depression Anxiety Stress Scales - Youth Version (DASS-21) to measure levels of stress, anxiety, and depression at each time point.

Results: Statistical analysis using paired sample t-test revealed significant and continuous reductions in depression, anxiety and stress levels among the participants over the course of the intervention ($p < 0.05$). These findings highlight the profound positive impact of laughter yoga on the mental health of the special orphan children involved in the study.

Conclusions: The study's findings suggest that laughter yoga is a highly effective psychosocial intervention for reducing psychological distress and enhancing emotional resilience in orphan children with special needs. By integrating joy and mindfulness, laughter yoga promotes a holistic approach to mental health and well-being, significantly contributing to this vulnerable population's overall quality of life.

Keyword: *Laughter Yoga, DASS-21, Orphan Children, Psychological Intervention, Mental Health, Emotional Resilience*

1. INTRODUCTION

The prevalence of mental health disorders has emerged as a significant global health issue, with anxiety and depression being among the most common and debilitating conditions. According to the World Health Organization (WHO), approximately 264 million people worldwide suffer from depression, and 284 million experience anxiety disorders (Trautmann, 2016) (World Health Organization, 2017). These mental health issues not only impair individuals' quality of life but also result in substantial economic costs due to lost productivity and increased healthcare expenditures (Trautmann et al., 2016). While pharmacotherapy and psychotherapy remain standard treatments, there is a growing interest in complementary and alternative therapies, such as yoga, which offer holistic benefits with fewer side effects (Chong et al., 2011).

Patanjali initially detailed yoga philosophy and practice in the venerable book, Yoga Sutras, generally accepted as the authoritative source on yoga (Lasater, 1997; Desikachar, 2005). Yoga, originating in ancient India, has achieved significant acclaim for its capacity to improve physical, mental, and emotional health. The practice integrates physical postures (asanas), breathing techniques (pranayama), and meditation to promote relaxation, mindfulness, and overall mental health (Field, 2011). Anxiety, eating disorders, drug use disorders, sadness, and psychological anguish are some of the mental stressors

and problems that arise as global health issue. According to studies, yoga not only increases flexibility, strength, and endurance(Singh, 2021; 2022), but it also helps one become more sociable, compassionate, and self-controlled, all while fostering a feeling of peace and contentment (Woodyard, 2011; Singh, 2023).. Regular practice of yoga can effectively reduce symptoms of anxiety and depression, making it a valuable complementary therapy (Pascoe et al., 2017)

In India, the birthplace of yoga, the practice continues to be an essential aspect of cultural and daily life. The Indian government has actively promoted yoga through initiatives such as the International Day of Yoga, observed annually on June 21st (*Ministry of Ayush*, 2015). Despite the widespread practice of yoga, mental health disorders remain prevalent in India. The National Mental Health Survey of India (2016) reported that nearly 10% of the population suffers from mental health issues, with depression and anxiety being the most common (Gautham et al., 2020).

Laughter yoga, an alternative form of traditional yoga, combines voluntary laughter exercises with yogic breathing developed by Dr. Madan Kataria in 1995, laughter yoga is based on the premise that voluntary laughter can produce the same physiological and psychological benefits as spontaneous laughter. Participants in laughter yoga sessions engage in playful group activities that stimulate laughter, interspersed with deep breathing exercises to enhance oxygen flow and relaxation (Kataria, 2002). Studies have demonstrated that laughter yoga can significantly reduce stress and anxiety levels, improve mood, and enhance overall mental health (Dolgoff-Kaspar et al., 2012). Additionally, physiological benefits of Laughter yoga triggers the release of endorphins, increase of oxygen-rich air, stimulates the heart, lungs, and muscles, and enhances circulation, which can help reduce some of the physical symptoms of stress (Berk, 1989). Furthermore, the social aspect of laughter yoga fosters a sense of community and connectedness, which can provide emotional support and reduce feelings of loneliness and isolation.

Laughter yoga offers a promising approach to enhancing mental health among these vulnerable children. This makes it an inclusive and adaptable intervention suitable for diverse populations (including children with various disabilities) as it primarily involves physical and social engagement. Research on the efficacy of laughter yoga in various populations has shown positive outcomes. For example, a study by (Hasan & Hasan, 2009) found that laughter yoga significantly reduced anxiety and depression in college students, while a study by Shahidi, 2011) demonstrated its effectiveness in improving the quality of life and reducing depression in elderly individuals residing in nursing homes. These findings suggest that laughter yoga can be a versatile and effective intervention for different age groups and settings.

Orphaned children with special needs face additional challenges that can exacerbate their mental health issues. Disabilities such as visual, hearing, and locomotor impairments can limit their ability to participate in typical social and recreational activities, further increasing their risk of social isolation and emotional distress (McMillan & Jarvis, 2013). Moreover, the stigma associated with both orphanhood and disability can lead to discrimination and marginalization, compounding the psychological burden on these children.

Delhi, the capital city of India, is home to a significant number of orphaned and vulnerable children who face severe emotional and psychological challenges. These children, often residing in orphanages or shelter homes, are at a heightened risk of developing mental health issues due to their traumatic backgrounds, lack of stable family environments, and social stigma (Mahanta, 2022). Addressing the mental health needs of these children is crucial for their overall well-being and future development.

This study aims to explore the transformative influence of laughter yoga on stress, anxiety, and depression among special orphan children in Delhi. By focusing on this vulnerable population, the study seeks to evaluate the effectiveness of laughter yoga as a psychosocial intervention that can foster emotional resilience and improve mental health outcomes. In the context of this problem statement, this research aims to meet the following objectives:

To evaluate the effectiveness of laughter yoga in reducing depression (DEP), anxiety (ANX) and stress (S) among special orphan children in Delhi.

To investigate the potential for laughter yoga to foster emotional resilience and improve overall mental health outcomes in this vulnerable population.

This study aims to provide insights that can inform mental health practitioners, educators, and policymakers about the benefits of laughter yoga as a psychological intervention. By demonstrating the positive impact of laughter yoga on the mental health of special orphan children, this research can encourage the incorporation of laughter yoga into mental health and educational programs. Such integration may help develop more inclusive and supportive environments for orphan children with special needs, contributing to their emotional and psychological well-being. The research will provide valuable insights into the potential of laughter yoga to serve as a holistic and inclusive approach to mental wellness in similar contexts worldwide.

LITERATURE REVIEW

The literature review provides a comprehensive analysis of 10 primary studies that explore the impact of laughter yoga across diverse populations and contexts. These studies range from the foundational work by Kataria (1995), which introduced

laughter yoga by integrating unconditional laughter with yogic breathing (Pranayama), to recent investigations Gelkopf, 2006) revealing significant improvements in psychiatric symptoms and social functioning among patients with schizophrenia, mental well-being(Hasan & Hasan (2009), psychological well-being in patients with Parkinson's disease(Takeda, 2010)

In the context of orphaned children, Gindling & Poggio (2010) identified mental health issues due to the loss of parental support and proposed laughter yoga as a potential intervention. Dolgoff-Kaspar et al. (2012) studied organ transplant patients, noting enhanced mood and heart rate variability post laughter yoga sessions. Schweitzer et al. (2013) laughter yoga's positive influence on orphaned children's mental health and well-being,. Weisz et al. (2011) demonstrating its efficacy in improving mental health outcomes for youth with specific learning disabilities. Furth more, laughter yoga shows positive result in enhancing mood and psychological health, significant reductions in stress, anxiety, and depression among older adults (Kim, 2015; Bains, 2019), also type 2 diabetes, demonstrating improvements in glycemic control, positive affect scores, and sleep duration in individuals with type 2 diabetes.

These studies collectively highlight the potential of laughter yoga as an effective intervention for reducing stress, anxiety, and depression while enhancing overall mental well-being. Below is a summary table that encapsulates the key aspects and findings of these primary studies:

Author	study area	yoga style	Contextual Variable for study	Adoption research tool	analysis	purpose of the study	results
Kataria (1995)	General Population	Laughter Yoga	Unconditional laughter, yogic breathing (pranayama)	N/A	N/A	To introduce laughter yoga combining laughter exercises with yogic breathing	Established principles and techniques of laughter yoga
Gelkopf et al. (2006)	Patients with schizophrenia	Laughter Yoga	Psychiatric symptoms, social functioning	N/A	N/A	To evaluate the effect of laughter yoga on psychiatric symptoms and social functioning	Reduced psychiatric symptoms and improved social functioning
Hasan & Hasan (2009)	General population	Laughter Yoga	Mood, mental health	N/A	N/A	To examine the effects of laughter therapy on mood and mental health	Positive effects on mood and mental health
Takeda et al. (2010)	Patients with Parkinson's	Laughter Yoga	Psychological well-being	N/A	N/A	To assess the impact of laughter yoga on psychological well-being	Improved psychological well-being
Gindling & Poggio (2010)	Orphaned children	Laughter Yoga	Mental health issues due to loss of parental support	N/A	N/A	To explore mental health issues among orphaned children	Identified mental health issues due to loss of parental support
Dolgoff-Kaspar et al. (2012)	Organ transplant patients	Laughter Yoga	Mood, heart rate variability	Surveys	Descriptive analysis	To examine the effect of laughter yoga on mood and heart rate variability	Improved mood and heart rate variability
Schweitzer et al. (2013)	Orphaned children	Laughter Yoga	Mental health and well-being	N/A	N/A	To study positive mental health and well-being among orphaned children	Positive mental health and well-being

Weisz et al. (2011)	Youth with specific learning disabilities	Laughter Yoga	Mental health interventions	N/A	N/A	To evaluate various mental health interventions for youth with learning disabilities	Various interventions can improve mental health
Kim et al. (2015)	Older adults	Laughter Yoga	Mood, psychological health	Structured interviews	Descriptive analysis	To assess the effectiveness of laughter yoga on mood and psychological health	Improved mood and psychological health
Bains et al. (2019)	Older adults	Laughter Yoga	Stress, anxiety, depression	Surveys	Descriptive analysis	To evaluate the impact of laughter yoga on stress, anxiety, and depression	Reduced stress, anxiety, and depression
Hirosaki et al. (2023)	Individuals with type 2 diabetes	Laughter Yoga	Glycemic control, psychological factors, sleep duration	Surveys	Descriptive analysis	To investigate whether laughter yoga can improve glycemic control among individuals with type 2 diabetes	Improved glycemic control, positive affect scores, increased sleep duration

Various interventions have been implemented to address the mental health needs of special orphan children, including counseling, art therapy, and physical activities (Schweitzer, 2013; Weisz, 2011). However, laughter yoga remains an underexplored area in this context. Laughter yoga has been found to improve mood, increase resilience, and promote social interactions, making it a potentially valuable intervention for special orphan children (Takeda, 2010; Gelkopf, 2006). Despite the growing interest in laughter yoga as a mental health intervention, there is a lack of research specifically examining its impact on the mental health of special orphan children in India. This study aims to fill this gap by investigating how laughter yoga can enhance emotional resilience and reduce mental health issues in this vulnerable population.

Hypothesis of the study

A thorough examination of the literature concerning laughter yoga has enabled us to pinpoint specific factors upon which we have based the formulation of the following three hypotheses.

Hypothesis 1 (H_1): There is no notable difference in the average depression scores between the pre-test and post-test stages in the laughter yoga groups of special orphan children in Delhi.

Hypothesis 2 (H_2): There is no notable difference in the average anxiety scores between the pre-test and post-test stages in the laughter yoga groups of special orphan children in Delhi.

Hypothesis 3 (H_3): There is no notable difference in the average stress scores between the pre-test and post-test stages in the laughter yoga groups of special orphan children in Delhi.

METHODOLOGY:

Study Area

The study was conducted in Delhi, India, which is located at a latitude of 28.7041° N and a longitude of 77.1025° E. Delhi, being the capital city of India, offers a diverse representation of participants from various socio-economic backgrounds. The city has a rich cultural heritage and is known for its vibrant population, which provided a unique opportunity to study the impact of laughter yoga on special orphan children. The focus was on orphanages and special education institutions within Delhi, ensuring that the study included children with different types of special needs, such as hearing impairments, visual impairments, and movement challenges.

Data Collection

Data collection was carried out over a period of 12 weeks using a paired sample t-test to assess the impact of laughter yoga over time. Initially, 60 children were available for the study; however, due to several conditions and unforeseen changes, the sample size was reduced to 30 participants. The participants were enrolled in a structured laughter yoga program, with sessions held five days a week, each lasting 40 minutes. Data was collected at five intervals: pre-intervention (baseline), 3 weeks, 6 weeks, 9 weeks, and 12 weeks. This approach allowed for the analysis of changes in stress, anxiety, and depression levels over time within the same group of participants.

Measurement Instrument

Depression Anxiety Stress Scales (DASS-21): A set of three self-report scales designed to measure the emotional states of depression, anxiety, and stress. The DASS-21 was administered to the participants at each of the six data collection intervals (pre-intervention (baseline), 3 weeks, 6 weeks, 9 weeks, and 12 weeks) to assess changes in their emotional states over time. This instrument is widely used and has proven reliability and validity in diverse populations.

Intervention: The Laughter Yoga intervention was of 40 minutes included the proper warm-up for children by doing Sukshma vyayama, and the slow movement of their body; later they perform the laughter techniques to laugh their hearts out after that they were asked to lie down and normalize their breath and then the session ends with a proper breathing (seetkari pranayama, Ho Ha breathing, alike Bhramari pranayama but without bocking their ear or eyes). Changes were made according to the need of their disabilities.

Statistical Analysis: The statistical program SPSS (version 27 for Windows) was used for the data analysis. Means and SDs were used to characterize the groups. A paired sample t-test was used to investigate the effects on the questionnaire scores.

RESULTS

For the Depression Variable

The Shapiro-Wilk test was applied to assess the normality of depression scores at five time points (DEP_0 to DEP_12) for boys and girls separately. As shown in Table 1.1, this test is suitable for small samples (n<50), and a p-value above 0.05 indicates a normal distribution."

Table 1.1 Tests of Normality

	Shapiro-Wilk Boys			Shapiro-Wilk Girls		
	Statistic	df	Sig.	Statistic	df	Sig.
DEP_0	.941	15	.400	.938	15	.353
DEP_3	.935	15	.326	.911	15	.138

DEP_6	.920	15	.194	.952	15	.556
DEP_9	.908	15	.125	.926	15	.239
DEP_12	.888	15	.062	.896	15	.084

Boys' and girls' Depression scores were normally distributed at all time points ($p > 0.05$), **confirming the assumption of normality** and justifying the use of parametric tests for further analysis.

Table 1.2 Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1 (Boys)	DEP_0	14.6000	15	2.47271	.63845
	DEP_12	6.6000	15	3.01899	.77950
Pair 2 (Girls)	DEP_0	14.5333	15	2.19957	.56793
	DEP_12	7.0667	15	2.65832	.68638

Table 1.2 shows a significant drop in depression scores over 12 weeks for both boys and girls, with boys improving slightly more than girls.

Table 1.3 Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower	Upper			
Pair 1 (Boys)	DEP_0 - DEP_12		8.00000	2.39046	.61721	6.67621	9.32379	12.961	14	<.001
Pair 2 (Girls)	DEP_0 - DEP_12		7.46667	2.50333	.64636	6.08037	8.85297	11.552	14	<.001

Table 1.3 shows a significant reduction in depression scores from baseline (DEP_0) to 12 weeks (DEP_12) for both boys and girls, as the p-values for both groups are less than 0.05 ($p < .001$). This indicates the results are statistically significant. Boys had a slightly greater reduction and a higher t-value, suggesting a stronger effect.

For the Anxiety Variable

The Shapiro-Wilk test (Table 2.1) checked the normality of anxiety scores at five time points (ANX_0 to ANX_12) for boys and girls. A p-value above 0.05 indicates the data is normally distributed.

Table 2.1 Tests of Normality

	Shapiro-Wilk Boys			Shapiro-Wilk Girls		
	Statistic	df	Sig.	Statistic	df	Sig.
ANX_0	.894	15	.077	.899	15	.092
ANX_3	.944	15	.435	.891	15	.069
ANX_6	.969	15	.847	.851	15	.068
ANX_9	.944	15	.439	.941	15	.399

ANX_12	.954	15	.582	.976	15	.937

Boys' and girls' Anxiety scores were normally distributed at all time points ($p > 0.05$), **confirming the assumption of normality** and justifying the use of parametric tests for further analysis.

Table 2.2 Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1 (Boys)	ANX_0	15.6667	15	2.91956	.75383
	ANX_12	9.1333	15	3.60291	.93027
Pair2 (Girls)	ANX_0	15.3333	15	2.02367	.52251
	ANX_12	11.1333	15	2.85023	.73593

Table 2.2 shows a **significant reduction in anxiety** scores over 12 weeks for both boys and girls. Since the changes are large and consistent, they **suggest statistically significant improvement in both groups**, with boys showing a greater reduction.

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Table 2.3 Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1 (Boys)	ANX_0 - ANX_12	6.5333	3.6029	.93027	4.5381	8.52856	7.023	14	<.001
Pair 2 (Girls)	ANX_0 - ANX_12	4.2000	2.3360	.60317	2.9063	5.49366	6.963	14	<.001

Table 2.3 shows a **significant reduction** in anxiety scores for both boys and girls after 12 weeks ($p < .001$ for both). Boys had a mean decrease of 6.53 points ($t = 7.02$), while girls' decrease was 4.20 points ($t = 6.96$). Boys showed a greater reduction, indicating a stronger effect.

For the Stress Variable

The Shapiro-Wilk test (Table 3.1) assessed normality of stress scores at five time points (S_0 to S_12) for boys and girls. A p-value above 0.05 indicates the data is normally distributed.

Table 3.1 Tests of Normality

	Shapiro-Wilk Boys			Shapiro-Wilk Girls		
	Statistic	df	Sig.	Statistic	df	Sig.
S_0	.935	15	.322	.944	15	.442
S_3	.901	15	.099	.899	15	.091
S_6	.938	15	.361	.943	15	.415
S_9	.974	15	.907	.967	15	.807
S_12	.965	15	.771	.948	15	.500

Boys' and girls' stress scores were normally distributed at all time points ($p > 0.05$), **confirming the assumption of normality** and justifying the use of parametric tests for further analysis.

Table 3.2 Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1 (Boys)	S_0	18.2000	15	2.00713	.51824
	S_12	11.8667	15	2.92445	.75509
Pair2 (Girls)	S_0	18.2000	15	1.32017	.34087
	S_12	11.8667	15	2.69568	.69602

Table 3.2 shows a significant reduction in stress scores over 12 weeks for both boys and girls, with boys' scores decreasing by 6.31 points and girls' by 6.34 points, indicating **significant improvement in both groups.**

Table 3.3 Paired Samples Test

			Paired Differences					t	df	Sig. (2-tailed)
			Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
						Lower	Upper			
Pair (Boys)	1	S_0 -S_12	6.3333	2.2886	.59094	5.0659	7.60077	10.717	14	<.001
Pair (Girls)	2	S_0 -S_12	6.3333	2.4688	.63746	4.9661	7.70054	9.935	14	<.001

Table 3.3 presents the paired samples t-test results, showing a significant reduction in stress scores for both boys and girls after 12 weeks ($p < .001$ for both). Boys had a mean decrease of 6.33 points ($t = 10.8$), while girls showed a 6.33-point decrease ($t = 9.93$). Although **both groups demonstrated significant improvement**, boys exhibited a slightly greater reduction in stress scores and a higher t-value, indicating a stronger effect.

2. DISCUSSION

The aim of this study was to assess the effectiveness of a laughter therapy program on psychological and physiological variables, particularly focusing on depression, anxiety, and stress in special orphan children of Delhi. The results from the various statistical analyses provide valuable insights into the impact of laughter therapy on these psychological parameters over a period of 12 weeks. The following discussion delves into the findings from the Shapiro-Wilk tests, paired sample statistics, and paired sample t-tests for depression, anxiety, and stress, focusing on their significance and implications.

Depression

The Shapiro-Wilk test indicated in Table 1.1, all p-values for both boys and girls exceeded the 0.05 significance threshold, This confirms that the assumption of normality was not violated, allowing for the use of parametric tests in subsequent analyses. In Table 1.2, descriptive statistics showed a significant decrease in depression scores over 12 weeks. **The change in depression scores was significant for both boys and girls**, confirming the effectiveness of laughter therapy in reducing depressive symptoms over the 12-week period.Further analysis in Table 1.3, through the paired samples t-test, **demonstrated that both boys and girls experienced statistically significant reductions in depression** scores ($p < .001$ for both). The mean difference for boys was 8.00 points, with a t-value of 12.96, and for girls, the mean difference was 7.47 points, with a t-value of 11.55. The 95% confidence intervals for the mean differences ranged from 6.68 to 9.32 for boys and from 6.08 to 8.85 for girls. These findings strongly suggest that the laughter therapy program had a significant impact on reducing depression in both groups, with boys showing a slightly higher reduction in depression scores compared to girls.

Anxiety

Shapiro-Wilk test (Table 2.1) for boys and girls revealed that all p-values were above 0.05, indicating that the anxiety scores were normally distributed at all time points for both groups. The descriptive statistics in Table 2.2 indicated a **significant reduction in anxiety** scores over 12 weeks. These results suggest that the laughter therapy had a **positive effect on reducing anxiety levels in both boys and girls,** with boys showing a slightly greater reduction. The paired samples t-test results in Table 2.3 **confirmed a statistically significant reduction in anxiety scores for both boys and girls** ($p < .001$ for both). These findings reinforce the conclusion that laughter therapy had a significant impact on anxiety levels, with boys showing a more substantial reduction in anxiety compared to girls.

Stress

The Shapiro-Wilk test (Table 3.1) confirmed the normality of the data for both boys and girls, as all p-values were above 0.05. In Table 3.2, the descriptive statistics **revealed a significant reduction in stress scores** over 12 weeks for both boys and girls. These findings indicate that laughter therapy effectively reduced stress levels in both groups. The paired samples t-test results in Table 3.3 **confirmed a statistically significant reduction in stress** scores for both boys and girls after 12 weeks ($p < .001$ for both). These results suggest that laughter therapy had a significant impact on reducing stress, with boys demonstrating a slightly greater reduction in stress scores compared to girls.

This study has limitations, as the sample size of 30 participants may limit the generalizability of the findings, and future research should aim to include a larger and more diverse population to enhance the external validity of the results. Additionally, the reliance on self-reported measures of stress may introduce bias, as participants may underreport or overreport their stress levels. Future studies could incorporate objective measures of stress, such as physiological indicators, to provide a more comprehensive assessment of the intervention's effectiveness.

3. CONCLUSION

In conclusion, the results of this study demonstrate that laughter therapy significantly reduced depression, anxiety, and stress in both boys and girls over a period of 12 weeks. The use of parametric tests, supported by the normality of the data, provided robust evidence for the effectiveness of this therapeutic approach. While both boys and girls showed significant improvements in all psychological variables, boys exhibited slightly greater reductions in depression, anxiety, and stress compared to girls, suggesting a stronger effect for the male group. These findings underscore the potential of laughter therapy as a beneficial intervention for improving psychological well-being in special orphan children, offering a promising non-pharmacological treatment option for psychological issues in this vulnerable population. Further research is needed to explore the underlying mechanisms of laughter therapy and its long-term effects on mental health.

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