

## Effect of positive psychology intervention on stress among tribal adolescents in Jawadhu Hills, India



Anthonymsamy Anbarasu, Mohanraj Bhuvanewari \*

Department of Social Sciences, School of Social Sciences and Languages, Vellore Institute of Technology, Vellore, India

### ARTICLE INFO

#### Article history:

Received 14 July 2023

Received in revised form

11 December 2023

Accepted 26 February 2024

#### Keywords:

Positive psychology intervention

Tribal adolescents

Stress reduction

Experimental design

Cultural tailoring

### ABSTRACT

The purpose of this study is to examine the impact of a positive psychology intervention on the stress levels of tribal adolescents living in the Jawadhu Hills area of India. Tribal communities often have distinct socio-economic and cultural barriers that lead to increased stress levels among adolescents. To address this issue, a positive psychology intervention was implemented that included the use of approaches designed to enhance emotional well-being and resilience. The research used an experimental pre-post control group design and a purposive sampling strategy to assess changes in stress levels using standardized stress measurement instruments. Results showed that the positive psychology intervention dramatically reduced stress levels among tribal youth in the experimental group compared to the control group, from 22.53 to 14.27. Several implications have been raised in light of these findings. First, it is important to emphasize the urgent need for increased awareness of mental health issues among tribal youth. In addition, the use of skilled professional counselors for adolescents significantly alleviates their emotional concerns. It is also essential to tailor interventions to the cultural milieu of the tribal community, taking into account their own needs, values, and traditions. In addition, it is important that local governments, NGOs, and educational institutions work together to implement and sustain positive psychology interventions in tribal schools. Therefore, this research contributes significantly to the understanding of how positive psychology interventions can successfully reduce stress among marginalized tribal youth.

© 2024 The Authors. Published by IASE. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

### 1. Introduction

Positive psychology emerged as a distinct field within psychology in the latter half of the 20th century, focusing on fostering human well-being rather than merely treating mental illness (Seligman and Csikszentmihalyi, 2000; Ryff, 2022). This subfield emphasizes the study of positive emotions, positive interpersonal relationships, and strengths that contribute to a fulfilling life. It highlights the importance of promoting happiness, resilience, and personal growth. This approach is particularly valuable in educational settings for adolescents, as it leverages their inherent strengths and focuses on building resilience, which is crucial during their transition through significant physical and

psychological changes (Waters, 2011; Raakhee and Aparna, 2011). During this vulnerable period, adolescents face numerous stresses, including cultural identity issues, discrimination, and socioeconomic challenges. Furthermore, the highly competitive nature of 21st-century schooling adds to their stress, making the promotion of positive psychological practices essential (Kumar and Akoijam, 2017).

The 2016 National Mental Health Survey revealed that 13.3% of adolescents in urban areas in India suffer from mental health issues, a rate that is significantly higher in rural areas (Murthy, 2017). In urban settings, at least one in five teenagers face substantial daily stress. However, there is a lack of research focusing specifically on the stress levels of tribal adolescents. Numerous factors, such as the school environment, parental expectations, peer influences, and neighborhood conditions, contribute to adolescent stress (Fisher et al., 2011; Mathew et al., 2015; Parikh et al., 2019; Roy et al., 2015).

Tribal adolescents, particularly those in the Jawadhu hills, face unique challenges and stressors,

\* Corresponding Author.

Email Address: [bhuvanewari.m@vit.ac.in](mailto:bhuvanewari.m@vit.ac.in) (M. Bhuvanewari)

<https://doi.org/10.21833/ijaas.2024.03.015>

Corresponding author's ORCID profile:

<https://orcid.org/0000-0002-4970-0820>

2313-626X/© 2024 The Authors. Published by IASE.

This is an open access article under the CC BY-NC-ND license

(<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

including those related to cultural identity and the tension between traditional values and modern influences. This population often experiences stress due to resource shortages in schools, leading to unequal educational opportunities (Krishnan and Sudharsan, 2020) and economic disparities that impose additional burdens (Umamaheswari and Jayasudha, 2020). Additionally, there is a notable stigma associated with mental health issues within tribal communities, which deters adolescents from seeking help.

Given these conditions, there is a significant gap in research on the stress levels among tribal adolescents and a lack of emphasis on positive psychology interventions in tribal schools. Our study aims to address these gaps by exploring the effects of positive psychology interventions such as meditation, muscle relaxation techniques, and mindfulness. These approaches could potentially alleviate stress and promote emotional well-being among tribal adolescents, highlighting the critical role of various stakeholders, including parents, teachers, and community members, in supporting the future leaders of these communities.

### 1.1. Stress

Stress is defined as the mental and physical response to external demands (Schafer, 1996). Folkman and Lazarus (1988) developed a significant theory of stress, suggesting that stress results from interactions involving an individual's perception and appraisal of events, their environment, and their available internal and external resources for handling such situations. They emphasized that how individuals perceive stressful events is often more crucial than the events themselves. For example, a student who views an exam as a chance to excel may experience less stress compared to one who sees it as a burden. This theory underscores the importance of perceptions and thought processes in managing stress levels. It provides a useful framework for understanding how tribal adolescents might perceive, react to, and manage stressors, helping to tailor positive psychology interventions aimed at improving stress appraisal, coping strategies, and emotional regulation, ultimately reducing stress and enhancing well-being among these adolescents.

### 1.2. Positive psychology

Positive psychology encompasses the study of positive experiences, personal strengths, and the institutions that promote these aspects. It focuses on enhancing the well-being and optimal functioning of individuals (Verma, 2022). Central to this field are elements such as hope, optimism, resilience, emotional competence, flourishing, and life satisfaction (Shek et al., 2023). Research in this domain includes multicomponent interventions aimed at improving mental health and reducing psychological issues like depression, anxiety, and stress among young people (Tejada-Gallardo et al.,

2020). Furthermore, longitudinal studies have shown that positive psychology can foster positive emotions and enhance stress-related well-being (Avey et al., 2011). Despite the availability of effective positive psychology programs in schools, such initiatives are notably absent in tribal schools in the Jawadhu Hills.

### 1.3. Tribal adolescents

Studies conducted in various parts of India reveal significant psychological stress among tribal populations. In Odisha, tribal undergraduate students experience considerable psychological stress, and postgraduate students are also prone to stress. In Kerala, tribal schoolchildren face a range of psychological, financial, family, and personal challenges. Similarly, indigenous students often encounter stress due to family issues, school environments, teacher interactions, and examinations. However, in the Jawadhu Hills of Tamil Nadu, there has been limited research specifically targeting the stress levels of Malayali tribal adolescents (Kumar and Kaur, 2013).

Stress can significantly impact the mental health, emotional state, and overall well-being of students, influencing their academic performance and behavior. It is crucial to develop strategies to manage stressful situations effectively. Additionally, exploring stress among tribal school students can illuminate their resilience and the strengths they utilize to navigate challenges. Understanding how these students cope with stress can provide insights into protective factors and strategies for building resilience.

India has the world's largest tribal population, making up 8.2% of the country's total population as of the 2011 census (Bindhani, 2021). Tamil Nadu, located in India's Southern Zone, is one of the largest states and has a significant tribal population, especially in Tiruvannamalai district, which is one of the most backward districts in the state. The Jawadhu Hills in this district is home to 38,580 tribal individuals. Our research aims to assess the stress levels among tribal students in the Jawadhu Hills and evaluate the effectiveness of positive psychology interventions like mindfulness, breathing exercises, muscle relaxation techniques, and meditation in reducing their stress.

### 1.4. Theory and hypotheses

The central research question of the study is whether introducing a positive psychology intervention is an effective method for reducing stress among tribal adolescents. A review of the literature on educational stress among school adolescents highlights several major causes of stress, including peer pressure, family dynamics, struggles with academic demands, perceived lack of ability, and drug abuse, with the adolescent period being particularly vulnerable (Heissel et al., 2017). Research on "Gender Disparity and Academic Stress

among Teenage Students" found that female students are more affected by academic stress than male students, emphasizing the role of gender in educational stress (Gupta et al., 2011). Another study assessing stress levels among students in government higher secondary schools in Punjab, India, indicated that socio-economic status did not significantly influence stress levels in adolescents (Kumar and Kaur, 2013). Based on these findings, the hypothesis is formulated that adolescent students experience significant stress, setting the stage for investigating the impact of positive psychology interventions.

**H1:** Socio-demographic factors significantly influence the stress levels of tribal adolescents.

In research, it has been suggested that providing guidance and counseling to students can help identify stress and facilitate appropriate support and coping mechanisms (Akande et al., 2014). Another study indicated that students in English-medium schools experienced higher levels of academic stress compared to their counterparts in Gujarati-medium schools, who showed better adjustment overall (Chothani, 2014).

Further studies have explored how stress impacts adolescent physiology, emotions, and behaviors, linking stressful lifestyles to various mental symptoms and disorders (Sigfusdottir et al., 2017). Research methods such as the "snowball" technique have been used to select relevant articles from databases like Google Scholar and PubMed, finding that effective stress management skills are crucial for students (Pascoe et al., 2020). Additionally, studies have shown that psychological stressors can lead to major depression in adolescents (Piechaczek et al., 2020) and that interventions based on positive psychology can enhance mental health and reduce stress (Tejada-Gallardo et al., 2020).

Based on these findings, the hypothesis is proposed that positive psychology interventions can reduce stress among adolescent school students. This forms the basis of our second hypothesis in the study.

**H2:** Training in positive psychology will significantly reduce tribal adolescents' stress levels.

## 2. Methodology

This section of the study presents a comprehensive description of the research methodology, including several aspects such as the research type, design, population, sample, inclusion and exclusion criteria, as well as the data collection technique and instrument used.

### 2.1. Participants and procedure

The present study utilizes a quantitative methodology and employs an experimental pre-post control group design. It is a research methodology

used to examine the influence of an intervention or therapy on a group of participants. The participants were assigned to either the experimental or control groups. The study received approval from the institutional ethics board, with reference number VIT/IECH/XII/2022/04a. Prior to each participant's involvement in the research, informed consent was acquired from each of them. A thorough information sheet explaining the goals, methods, possible risks, and advantages of the research was given to participants. Participants were provided with sufficient time to inquire and were well educated about their entitlement to withdraw from the study without facing any negative repercussions. In the current study, it was acknowledged that adolescents constitute a susceptible age group owing to their developmental stage and probable limitations in granting autonomous informed consent. Thus, we sought parental or guardian approval in addition to the informed consent of the adolescents themselves. Additional measures were implemented to ensure that the material sent to adolescents was both suitable for their age group and comprehensible. Additionally, we maintained confidentiality to safeguard their privacy while doing our research and reporting utilizing anonymized data.

The target population comprises 438 tribal adolescents. An assessment was carried out among tribal school adolescents of Jawadhu Hills. The total adolescent population of four schools is 3302. Using Krejcie and Morgan's (1970) formula, the sample size is derived:

$$n = x^2 NP \frac{1 - P}{e^2(N - 1)} + x^2 P(1 - P)$$

$n$  = Sample Size  
 $x^2$  = Table value of chi square at 1 df = 3.841  
 $N$  = Population size = 3,302  
 $P$  = Population proportion = 0.5  
 $E$  = Margin of errors = 0.05

$$n = 3.841 * 3302 * 0.5 * \frac{1 - 0.5}{0.05 * 0.05 * 3301} + (3.841 * 0.5 * 0.5 * 3302)$$

$$= \frac{3170.7455}{8.2525} + 0.96025$$

$$= \frac{3170.7455}{9.21275}$$

$$= 344.16$$

$$= 344$$

Rounding off to 344  
 Assuming 10% drop out or incomplete data  
 thus the sample size is estimated to be = 344 + 34.4  
 = 378.4  
 = 378 (Total Sample)

The researcher initially planned to collect a sample of 378 adolescents but ended up with a larger sample of 438. All the participating schools were co-educational, with each school contributing between 90 and 100 adolescents to the sample, 40 percent of whom were girls. However, 28 adolescents expressed reluctance to participate due to time constraints, resulting in a final sample of 410 adolescents. These participants were selected using purposive sampling techniques, focusing on tribal

adolescent students aged 10 to 19 years. The study excluded non-tribal adolescents, those with disabilities, and students under 10 years of age.

## 2.2. Sample characteristics

Tribal adolescents from Jawadhu Hills represent a unique and often marginalized demographic group within the broader Indian population. Here's some information about their socio-demographic characteristics, educational background, and the specific challenges they face:

- **Socio-demographic characteristics:** Indigenous groups that make up the tribal communities of Jawadhu Hills include the Irula, Malayali, and Paniyan tribes, to name just a few. The Jawadhu Hills, situated in the northeastern portion of Tamil Nadu, is renowned for its undulating terrain and abundant forest cover. This area is distinguished by its secluded and mostly agrarian environment. Typically, tribal populations have a lower socioeconomic position, often depending on subsistence agriculture, livelihoods centered around forests, and wage work as primary sources of revenue. Frequently, individuals engage in the use of their indigenous languages and persist in adhering to established customs and cultural conventions. The region's cultural variety contributes to its overall richness. Their cultural diversity adds to the richness of the region.
- **Background information on education:** Adolescents from the Jawadhu Hills tribe have historically experienced significant barriers to school, which has resulted in low literacy rates in this group. The challenges of long distances to educational institutions, inadequate infrastructure, and mountainous topography have together posed obstacles to the attainment of high-quality education. A significant number of tribal teenagers discontinue their education prematurely as a result of several causes, such as socioeconomic disadvantages, familial obligations, early marriage, and the need to contribute to household finances.
- **Specific challenges:** The tribal communities residing in Jawadhu Hills often encounter socioeconomic deprivation and limited availability of healthcare and nutrition resources, leading to potential detrimental consequences on the well-being and growth of adolescents. Inadequate availability of healthcare facilities and limited access to health education might lead to elevated incidences of avoidable illnesses and maternal death. Tribal groups encounter social marginalization, discriminatory practices, and limited political participation due to the cultural disparities that exist between them and the general population. Many individuals from tribal groups, particularly adolescents, migrate to urban regions in search of improved opportunities. However, they often encounter instances of exploitation and discrimination within these metropolitan settings.

## 2.3. Instruments

The primary tool used for screening in the study was the "Depression, Anxiety, and Stress Scale (DASS-21)" by Lovibond and Lovibond (1995). This shorter version of the original scale uses 21 items, divided into three sections of seven items each, to measure levels of depression, anxiety, and stress. Each item is scored on a 4-point scale ranging from 0 (not applicable) to 3 (highly applicable), with the total score reflecting the severity of symptoms. The scales focus on specific symptoms such as despair, lack of interest, anxiety symptoms, and stress reactions. This scale was used both before and after the intervention, and its applicability to the target population was confirmed through a pilot study.

Out of 410 adolescents assessed, 250 met the criteria for further analysis with a cut-off score above 18 on a severity scale ranging from 0 (Normal) to 42 (Extremely severe). Using a simple random sampling technique known as the lottery method, each adolescent was assigned a number, and numbers were chosen randomly to select participants. From the 250 eligible participants, 60 were selected to be evenly divided into an experimental group and a control group, with each group comprising 30 adolescents. Fig. 1 illustrates the sampling procedure used in the study.

## 2.4. Reliability

The validation of the DASS-21 scale included the use of data analytic techniques, whereby Cronbach's alpha statistics were computed for both the overall scale and its three subscales in order to assess internal consistency. This analysis facilitates the determination of the interrelatedness of the items within the instrument, as well as the extent to which they together assess a common underlying construct. A lower value of Cronbach's alpha implies that the items on the instrument require more refinement, whereas a higher value signifies their greater reliability.

The internal consistency of the DASS-21 was shown to be quite high, as indicated by a Cronbach's alpha coefficient of 0.959 across all measures. The Cronbach's alpha coefficient for each of the three subscales, namely anxiety, depression, and stress, was determined to be 0.87. In addition to undergoing validation by a psychologist, the scale was also translated into a regional language.

## 2.5. Intervention

The content validation of the training component was conducted by three subject matter experts, including a psychologist, a medical and psychiatric specialist, and a wellbeing trainer. Experts were chosen based on their qualifications, including their educational background, publications, and professional experience in the particular field associated with the training material.

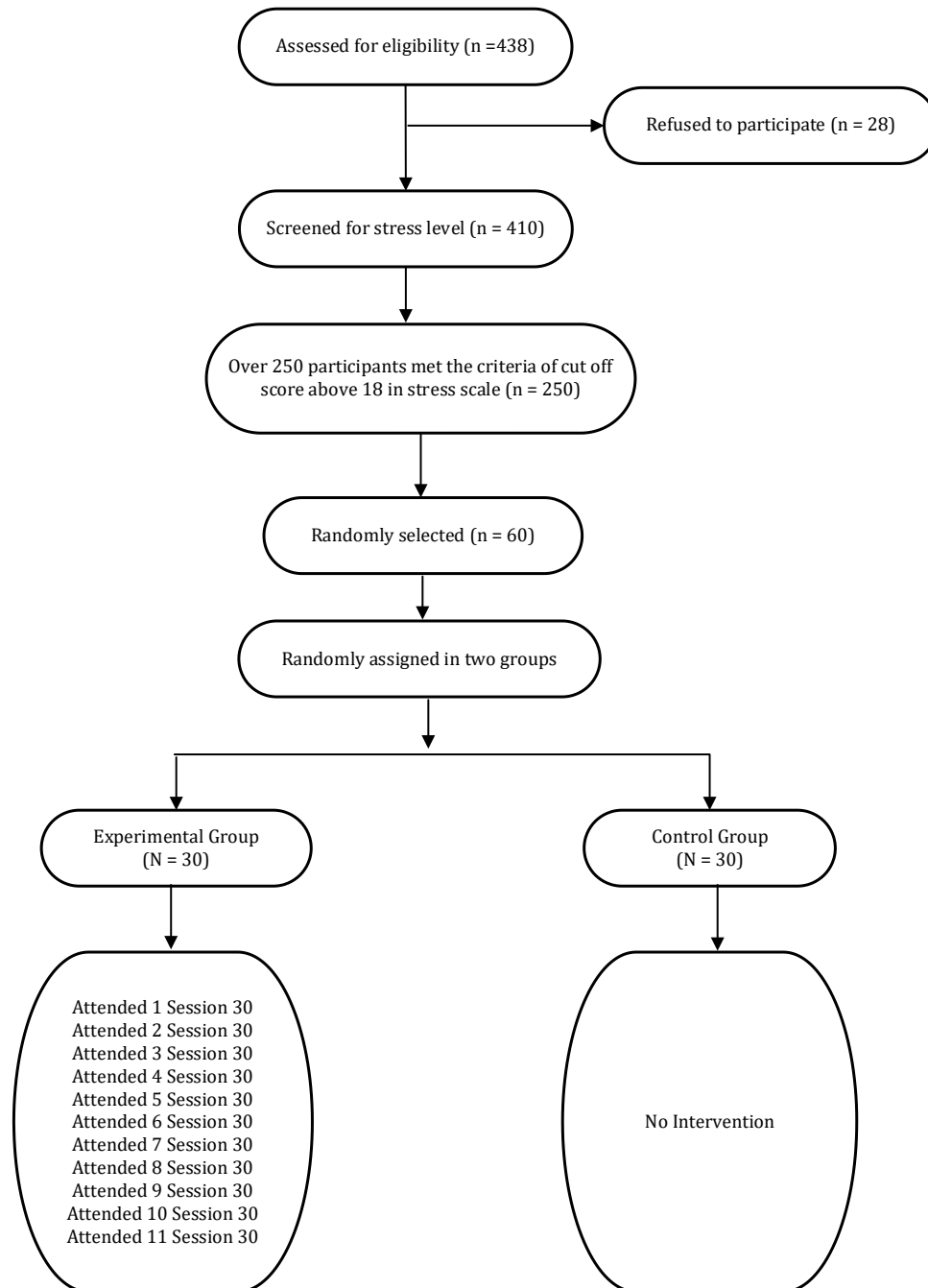


Fig. 1: Sampling procedure

We contacted possible specialists by using academic networks and professional organizations. The experts that were chosen were contacted and given an invitation to participate in the process of content evaluation. A defined set of criteria was created prior to the validation process to evaluate the suitability of training components. These criteria include relevance, correctness, clarity, completeness, alignment with objectives, and practicality. On a scale of 1 to 5, the experts evaluated each training's suitability for usage with tribal adolescents. The ideas and recommendations provided by specialists were integrated to enhance the quality of the material and tailored to align with the preferences of the adolescent audience.

The intervention was structured around sessions held in a classroom setting, each lasting 90 minutes and focusing on a specific topic related to positive

psychology. The sessions included exercises, activities, and discussions tailored to each topic. For instance, during a meditation session, proper meditation techniques and postures were demonstrated. The intervention utilized various educational tools such as presentation slides, handouts, and reading materials, and it was delivered through face-to-face interactions in a group setting.

The effectiveness of the intervention was assessed through self-reported measures, the completion rates of assignments, and attendance records. Each participant's progress was tracked individually.

The control group initially did not receive any intervention, while the experimental group engaged in a series of positive psychology interventions (PPIs). These interventions are therapeutic

strategies designed to enhance well-being and foster positive emotions, aiming to increase life satisfaction and happiness. The intervention comprised eleven weekly sessions, each 90 minutes long, covering topics including the basics of meditation, stress recognition, and management, breathing exercises, mental health awareness, the influence of positive thinking, progressive muscle relaxation techniques, life skills enhancement such as decision-making and problem-solving, mindfulness techniques,

management of risk-taking behaviors, and methods to improve self-efficacy and resilience.

After the intervention, which lasted 11 weeks, the adolescents in the experimental group were reassessed using the DASS-21 scale to evaluate changes in stress, anxiety, and depression, while the control group was reassessed without having participated in the intervention. Details of the intervention components and their outcomes are summarized in Table 1.

**Table 1: Details of positive psychology intervention**

Details of positive psychology intervention		
Session and theme	Objectives	Activities involved
Session I: Foundation of meditation	<ul style="list-style-type: none"> <li>- Facilitate the adolescents in learning the importance of meditation and its impact on well-being and mental health</li> <li>- Teach the participants about meditation posture</li> </ul>	<ul style="list-style-type: none"> <li>- Illustrating the meditation posture: The leg, chest, abdomen, and hands</li> <li>- Asking the participants to regulate their body, breath, and mind to "know thyself"</li> <li>- practicing the method of self-observation, which explains truth in its two ways, inside and on the outside</li> <li>- Encouraging one to develop aloofness on the way to all that one comes across in exterior circumstances</li> <li>- Mini-talk on the concept of distress, signs, and indications of stress</li> </ul>
Session II: Understanding and identifying one's own stress	<ul style="list-style-type: none"> <li>- Help the participants understand and identify their own stressors. Demonstrating the stress-relieving exercise</li> </ul>	<ul style="list-style-type: none"> <li>- keeping stress diary, Singing competition</li> <li>- Breathing exercise</li> <li>- sharing on stress and educational presentation</li> <li>- Lecture on No Pain, No Gain.</li> </ul>
Session III: Responding to stress	<ul style="list-style-type: none"> <li>- Describe the notion of No Pain, No Gain</li> <li>- Cultivating optimistic thinking amongst partakers</li> </ul>	<ul style="list-style-type: none"> <li>- Meditation</li> <li>- Muscle relaxation techniques</li> <li>- Mindfulness techniques</li> <li>- Different ways of Coping</li> <li>- Craftwork</li> </ul>
Session IV: Teaching breathing exercise	<ul style="list-style-type: none"> <li>- Explain to the participants about the importance of breathing exercise</li> <li>- Demonstrate participants breathing exercise</li> </ul>	<ul style="list-style-type: none"> <li>-Mini talk on breathing exercises and benefits of holistic health</li> <li>- Body posture</li> <li>-Abdominal breathing technique</li> <li>-Meditation</li> </ul>
Session V: Enhancing mental health and well-Being	<ul style="list-style-type: none"> <li>- Teach participants to strengthen their mental health and well-being for holistic growth</li> </ul>	<ul style="list-style-type: none"> <li>-Mini discussion on emotional, psychological, and social well-being</li> <li>- Building self-esteem</li> <li>- Affirmation talk</li> <li>- Mindfulness</li> <li>- Believe in yourself</li> <li>- Power to solve problems</li> <li>- Break the worry Habit</li> <li>- Expect the best and get it</li> </ul>
Session VI: Build up the power of positive thinking	<ul style="list-style-type: none"> <li>- Enable the participants to master their power of positive thinking</li> </ul>	<ul style="list-style-type: none"> <li>-Mini talk on the concept of muscle relaxation technique</li> <li>- Eyes and Cheeks</li> <li>- Shoulders</li> <li>- Chest and stomach</li> <li>- Right, left hand and forearm</li> </ul>
Session VII: Teaching Muscle relaxation techniques	<ul style="list-style-type: none"> <li>- Develop interest in learning progressive muscle relaxation exercises, and thereby participants will feel the calmness</li> </ul>	<ul style="list-style-type: none"> <li>- Breathing exercise</li> </ul>
Session VIII: To strengthen life skills such as problem-solving and decision-making	<ul style="list-style-type: none"> <li>- Teach participants ways to improve their life skills</li> </ul>	<ul style="list-style-type: none"> <li>-Talk about the significance of decision-making and problem-solving</li> <li>- Storytelling</li> <li>- Case history sharing</li> </ul>
Session IX: Teaching mindfulness techniques	<ul style="list-style-type: none"> <li>- Participants will learn to be in the present and relish every moment of life</li> </ul>	<ul style="list-style-type: none"> <li>-Preparation of the participants to do mindfulness</li> <li>- Mindfulness meditation</li> <li>- Mindfulness walk</li> <li>- Body scan</li> <li>- Five senses</li> </ul>
Session X: Session managing risk-taking behavior	<ul style="list-style-type: none"> <li>- Enable the participants to understand the negative effect of risk-taking behavior</li> </ul>	<ul style="list-style-type: none"> <li>-Mini talk on the concept of risk-taking behavior</li> <li>- Meditation</li> <li>- Case sharing</li> <li>- Drawing</li> </ul>
Session XI: Upgrade self-efficacy and resilience behavior	<ul style="list-style-type: none"> <li>- Participants will identify their own capacity and produce the desired effect</li> </ul>	<ul style="list-style-type: none"> <li>- Elucidate participants' power of self-efficacy and resilience</li> <li>- Group discussions on the themes covered in each session</li> <li>- Storytelling and case sharing and mindfulness</li> </ul>

### 3. Results

Data was examined using SPSS version 25, and the findings are presented. Table 2 displays the demographic characteristics of the participants in both the control and experimental groups.

Table 2 indicates that 51.7% of participants were boys and 48.3% were girls. In terms of age, 91.7% were between 13–15 years, and 8.3% were aged 16–19. All participants, 100%, were from 9th to 11th

grade. Additionally, 61.7% of the adolescents came from nuclear families, and 38.3% from joint families. Regarding family income, 83.3% had an annual income between Rs. 10,000 and 50,000. About 70% of families had savings, while 30% did not. Of all adolescents, 100% lived in their own homes, with 57% living in concrete houses and 17% in huts. About 80% of families had debts, whereas 20% had none. All respondents were from scheduled tribes, with 95% practicing Hinduism and 5% Christianity.

The study also examined how demographic factors like housing type and parental debt affected adolescents' stress levels. It was found that these factors had a significant influence. According to the results presented in Table 3, an ANOVA test showed that housing type significantly impacted stress levels

among tribal adolescents, with a calculated F-value of 2.964 and a p-value of less than 0.027. This led to the acceptance of the alternative hypothesis and rejection of the null hypothesis, confirming that housing type, particularly living in huts, significantly influences stress levels.

**Table 2:** Distribution of research participants according to the socio-demographic characteristics (n=60)

Demographic characteristics	Demographic variables	Frequency	Percentage	Mean	SD
Gender	Male	31	51.7%	1.48	.504
	Female	29	48.3%		
Age	13-15	55	91.7%	2.08	.279
	16-19	5	8.7%		
Standard of the respondent	9 <sup>th</sup> – 11 <sup>th</sup> class	60	100%	2.00	.000
Type of family	Nuclear family	37	61.7%	1.38	.490
	Joint family	23	38.3%		
Monthly income of the family	1000 – 5000	51	85.0%	1.17	.418
	5001 – 10001	8	13.3%		
	1001 and above	1	1.7%		
Annual income of the family	10000 – 50000	50	83.3%	1.22	.524
	50001 – 100000	7	11.7%		
	100001 and above	3	5%		
Family saving	Yes	42	70%	1.30	.462
	No	18	30%		
Type of saving	Bank saving	11	18.3%	1.92	1.183
	Land/property	10	25.9%		
	Cow/coat	28	36.6%		
House	No saving	11	18.3%	1.00	.000
	Own house	60	100%		
	Rented house	0	0		
Type of house	Concrete/government house	34	57%	1.33	.752
	Thatched house	16	27%		
	Hut house	10	17%		
Family debt	Family has debt	48	80%	1.20	.403
	Family does not have debt	12	20%		
Community	Schedule tribe	60	100%	1.00	.000
Religion	Hindu	57	95%	1.05	.220
	Christian	3	5%		

**Table 3:** Influence of type of house on stress level

	Sum of squares	df	Mean Square	F	Sig.
Between groups	5.911	4	1.478	2.964	.027
Within groups	27.422	55	.499		
Total	33.333	59			

Table 4 illustrates the effect of parental debt on the stress levels of adolescent tribal students. According to the data presented in Table 4, there is a significant difference among the variables (F = 2.670,

$p \leq .042$ ). Therefore, it is conclusively proven that parental debt significantly impacts the stress levels of tribal students.

**Table 4:** Debt of parents influence on stress level

	Sum of squares	df	Mean square	F	Sig.
Between groups	1.561	4	.390	2.670	.042
Within groups	8.039	55	.146		
Total	9.600	59			

Table 5 presents the descriptive statistics for the control group of tribal students before and after an intervention. The mean stress level for the control group of tribal adolescents before the intervention (Pre-Test) was higher (M=23.9, SD=3.6) compared to after the intervention (Post-Test) (M=23.6, SD=3.67). Table 5 indicates that the mean scores for stress

levels in the control group's pre-test and post-test were very similar. Given that the control group did not receive any intervention, there was no significant difference in stress levels between the pre-test (23.9) and post-test (23.6). Consequently, the stress levels remained consistent from the pre-test to the post-test.

**Table 5:** Descriptive statistics of the controlled group of tribal adolescent

	N	Mean	Std. deviation	Std. error mean
Control group - Stress level - Pre-test of tribal adolescents	30	23.9	3.6	0.66
Control group - Stress level - Post-test of tribal adolescents	30	23.6	3.67	0.67

Table 6 presents the correlation and t-test results for paired samples of the control group of tribal

students, measured before and after an intervention. A t-test for paired samples showed that the

difference was not statistically significant, with a t-value of 0.87 and a p-value of 0.389. This p-value exceeds the predefined significance level of 0.05. Consequently, the null hypothesis is retained, indicating that the t-test results are not significant

for the given data. This suggests that the pre-intervention and post-intervention samples are from the same population. Figs. 2 and 3 depict the stress levels of the tribal adolescent students in the control group before and after the intervention.

**Table 6:** Correlation and t-test for paired samples of the controlled group of tribal adolescent

	N	Correlation	p	t	df	p (2-tailed)
Control group-stress level-pre-test and post-test of tribal adolescents	30	0.87	<.001	0.87	29	.389

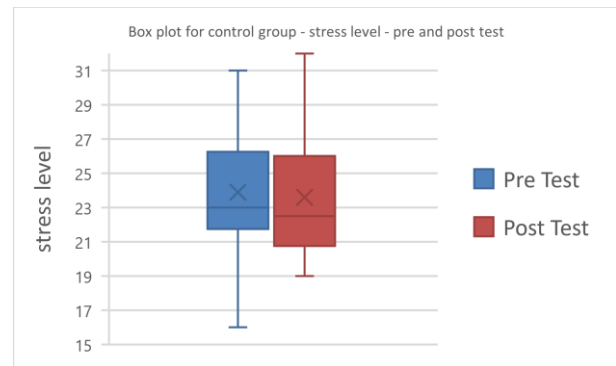
Fig. 2 shows a box plot, and Fig. 3 shows a line chart that indicates the mean stress levels of students. It is observed that there is no difference in the stress levels of students between the pre-test and post-test, suggesting that without intervention techniques, the stress levels among tribal adolescents in the Jawadu Hills did not decrease.

Table 7 provides descriptive statistics for the experimental group of tribal adolescents before and after the intervention. The pre-test stress levels for the experimental group were higher (M=22.53, SD=5.37) compared to the post-test (M=14.27, SD=3.55). Table 7 demonstrates a significant reduction in stress levels from the pre-test (22.53) to the post-test (14.27) among the experimental group, indicating effective training and implementation. The participants actively engaged with the intervention, leading to substantial improvements in their stress levels.

Table 8 shows the correlation and results of a t-test for paired samples from the experimental group before and after the intervention. The t-test for paired samples indicated a statistically significant difference,  $t(29)=8$ ,  $p<.001$ , with a p-value of less than .001, well below the significance threshold of 0.05. Therefore, the t-test result is significant for the

current data, and the null hypothesis is rejected, suggesting that the pre- and post-intervention samples are from different populations. Fig. 4 illustrates the variation in stress levels for the experimental group of tribal adolescents before and after the intervention.

Fig. 4 highlights that the intervention significantly reduced the stress levels of participants in the experimental group among the tribal adolescents.



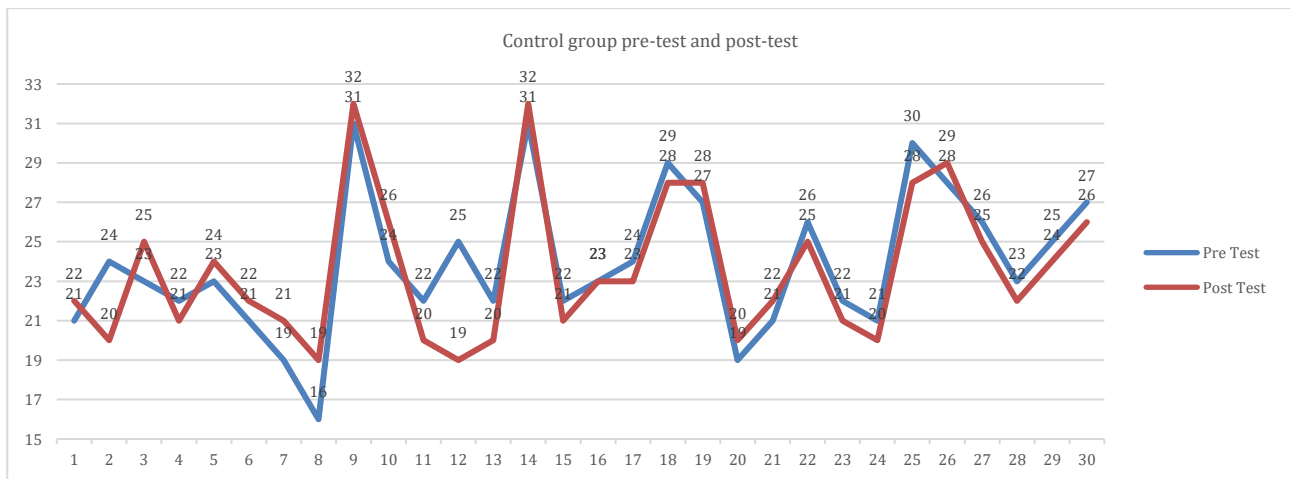
**Fig. 2:** Box plot

**Table 7:** Descriptive statistics of the experimental group of tribal adolescent

	N	Mean	Std. deviation	Std. error mean
Experimental group-stress level-pre test of tribal adolescents	30	22.53	5.37	0.98
Experimental group-stress level-post test of tribal adolescents	30	14.27	3.55	0.65

**Table 8:** Correlation and t-test for paired samples of the experimental group of tribal adolescent

	N	Correlation	p	t	df	p (2-tailed)
Experimental group-stress level-pre test and post Test of tribal adolescents	30	0.25	.188	8	29	<.001



**Fig. 3:** Line chart



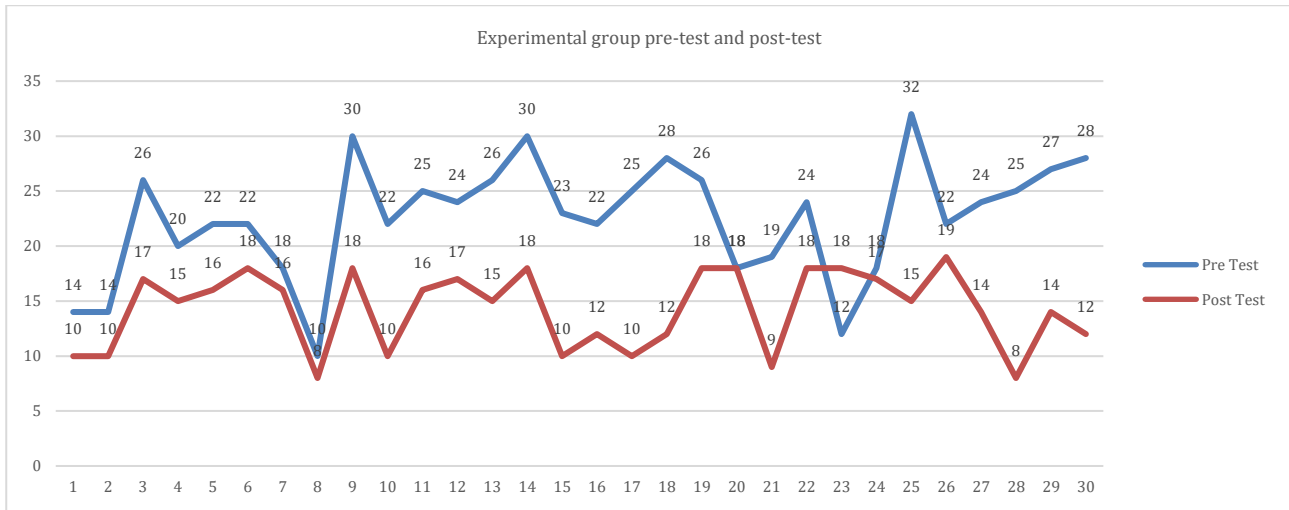


Fig. 4: Line chart

#### 4. Discussion

The current study investigated the effectiveness of positive psychology interventions in helping tribal school adolescents manage and reduce their stress. The findings revealed a lack of mental health awareness among tribal adolescents, aligning with previous research (Rajeshwar and Ramchandram, 2019). The study demonstrated that positive psychology interventions significantly reduced stress levels among participants.

Similar to the findings by Sharma and Kumar (2022), the study observed that meditation exercises helped maintain focus on a single item, diverting attention from stress-inducing issues and thus alleviating stress. Additionally, the study confirmed the benefits of breathing exercises, such as diaphragmatic breathing (Kumar et al., 2022), in managing stress and reducing negative emotions. This supports earlier findings that mindfulness techniques significantly reduce stress symptoms (Grossman et al., 2004; Miller et al., 1995; Schreiner and Malcolm, 2008). Nehra et al. (2012) also noted that mindfulness enhances awareness, improves coping skills, and promotes pleasant emotions and contentment.

The study further found that physical intervention techniques like progressive muscle relaxation significantly lowered stress levels, corroborating research by Nair and Meera (2014), who reported that these techniques improve self-control and reduce aggressive behavior in adolescents. Casman and Nurhaeni (2018) also found that stress reduction benefits in children and adolescents using muscle relaxation techniques.

Moreover, the impact of positive thinking on stress reduction was evaluated, supporting research that identifies positive thinking as a vital psychological strategy for coping and improving school adjustment in adolescents (Chui and Chan, 2020; Naseem and Khalid, 2010; Ong et al., 2006; Rastogi et al., 2017). Resilience was another factor that aided stress management, with students high in resilience quickly acquiring coping skills and viewing stressful situations as learning opportunities (Wilks,

2008). Self-efficacy was also found to alleviate stress and enhance academic performance (Arslan, 2017; Zajacova et al., 2005).

The findings underscored the influence of demographic factors such as debt and housing arrangements on stress levels. However, participants in the control group who did not receive interventions showed no significant change in stress levels, highlighting the necessity of implementing interventions. This study provides empirical support for incorporating positive psychology into educational settings for adolescent members of tribal communities, potentially reducing their stress levels. This emphasizes the importance of introducing stress-reduction techniques like mindfulness, breathing exercises, progressive muscle relaxation, and resilience-building in educational settings for adolescents, offering evidence that integrating positive psychology can enrich holistic health among tribal adolescents.

#### 5. Recommendation

Based on the findings of this study, we propose several recommendations. First, we recommend that the Ministry of Tribal Affairs appoint qualified professional counselors in all tribal schools to help students express their concerns and address their emotional issues. Second, we urge that the Tribal Welfare Department prioritize psychological, wellness, and mental health support in tribal schools. It is also important to emphasize co-curricular and extracurricular activities, as the quality of education significantly impacts all students.

Additionally, we suggest that tribal schools incorporate mindfulness meditation, deep breathing techniques, and progressive muscle relaxation practices to enhance the well-being of the students. These practices are known to reduce stress and improve the mental health and overall calmness of students.

Lastly, we recommend the initiation of a life skills development program among tribal adolescents to support their holistic growth and prepare them for a better future. These steps will not only address

immediate mental health needs but also contribute to the long-term development and well-being of tribal students.

## 6. Limitations and suggestions for future research

The scope of this study was confined to tribal high school students residing in Jawadhu Hills and did not include tribal students from other districts in Tamil Nadu. The sample size was limited to a small number of teenagers, which restricts the ability to generalize the findings to a broader population. This limitation stems from the study's specific focus on a particular demographic or cultural group. While several interventions based on positive psychology showed immediate effectiveness, their long-term benefits are less evident.

Future research should aim to validate the findings of this study with larger and more diverse sample sizes. Expanding the research to include individuals from various age groups or culturally diverse backgrounds could enhance understanding of the effectiveness of interventions. Additionally, it is crucial to conduct longitudinal studies to assess the long-term effects of positive psychology interventions on youth well-being. This methodology will help determine whether the benefits are sustained over time.

Moreover, comparative studies that assess and contrast different therapeutic approaches or strategies could provide critical insights, aiding practitioners in choosing the most effective interventions for specific groups of adolescents. Integrating both qualitative and quantitative research methods could also shed light on the mechanisms behind the observed effects, thus offering valuable guidance for the development of interventions.

## 7. Conclusion

The results of this study suggest that the implementation of positive psychology interventions can significantly reduce stress levels among tribal adolescents in Jawadhu Hills. The interventions, which included mindfulness practices, breathing exercises, meditation techniques, muscle relaxation methods, and resilience training, led to a substantial decrease in stress among these adolescents. Participants who engaged in these activities reported improved emotional well-being, better coping mechanisms, and increased resilience, all of which positively affect mental health.

The findings underscore the importance of raising awareness about mental health issues among tribal adolescents. They also highlight the need for interventions to be customized to the specific values, needs, and traditions of the tribal communities. Furthermore, the study calls for a collaborative approach involving government bodies, non-governmental organizations (NGOs), and educational

institutions to effectively implement and sustain positive psychology programs in tribal schools.

It is crucial for policymakers to allocate financial resources to support mental health initiatives in rural and remote areas, focusing on integrating positive psychology interventions. To achieve this, appropriate training for teachers, counselors, and community leaders may be necessary.

Given the outcomes of this study, it is imperative that stakeholders at all levels take decisive actions to address the mental health challenges faced by tribal adolescents. This involves prioritizing the mental well-being of indigenous communities by allocating resources to develop and implement services and initiatives specifically designed for their unique circumstances. Continuous evaluation and further research are essential to improve the effectiveness of these interventions and tailor them to meet the specific needs of indigenous adolescents.

## Compliance with ethical standards

## Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## References

- Akande JA, Olowonirejuaro AO, and Okwara-Kalu CE (2014). A study of level and sources of stress among secondary school students. *IOSR Journal of Research and Method in Education*, 4(5): 32-36. <https://doi.org/10.9790/7388-04513236>
- Arslan N (2017). Investigating the relationship between educational stress and emotional self-efficacy. *Universal Journal of Educational Research*, 5(10): 1736-1740. <https://doi.org/10.13189/ujer.2017.051010>
- Avey JB, Wernsing TS, and Mhatre KH (2011). A longitudinal analysis of positive psychological constructs and emotions on stress, anxiety, and well-being. *Journal of Leadership and Organizational Studies*, 18(2): 216-228. <https://doi.org/10.1177/1548051810397368>
- Bindhani BK (2021). Status and problems of educational scenario among the tribals in Koraput district, Odisha. *The Oriental Anthropologist*, 21(1): 158-163. <https://doi.org/10.1177/0972558X21990627>
- Casman C and Nurhaeni N (2018). Best effect of progressive muscle relaxation (PMR) on children: A systematic review. In the 1<sup>st</sup> International Conference of Indonesian National Nurses Association, Science and Technology Publication, China: 12-17. <https://doi.org/10.5220/0008199200120017>
- Chothani KB (2014). A study of academic stress and adjustment among Gujarati and English medium school students. *The International Journal of Indian Psychology*, 2(1): 87-93. <https://doi.org/10.25215/0201.032>
- Chui RC and Chan CK (2020). Positive thinking, school adjustment and psychological well-being among Chinese college students. *The Open Psychology Journal*, 13: 151-159. <https://doi.org/10.2174/1874350102013010151>
- Fisher J, de Mello MC, Izutsu T, Vijayakumar L, Belfer M, and Omigbodun O (2011). Adolescent mental health in resource-constrained settings: A review of the evidence of the nature, prevalence and determinants of common mental health problems and their management in primary health care. *The International Journal of Social Psychiatry*, 57(1Suppl): 9-116.

- <https://doi.org/10.1177/0020764010397628>  
**PMid:21480578**
- Folkman S and Lazarus RS (1988). An analysis of coping in a middle-aged community sample. *Kango Kenkyu. The Japanese Journal of Nursing Research*, 21(4): 337-359.
- Grossman P, Niemann L, Schmidt S, and Walach H (2004). Mindfulness-based stress reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research*, 57(1): 35-43.  
[https://doi.org/10.1016/S0022-3999\(03\)00573-7](https://doi.org/10.1016/S0022-3999(03)00573-7)  
**PMid:15256293**
- Gupta R, Sharma S, and Gupta M (2011). A study of gender difference on the measure of academic stress in adolescent students. *VSRD International Journal of Technical and Non-Technical Research*, 2(10): 525-534.
- Heissel JA, Levy DJ, and Adam EK (2017). Stress, sleep, and performance on standardized tests: Understudied pathways to the achievement gap. *AERA Open*: 3(3).  
<https://doi.org/10.1177/2332858417713488>
- Krejcie RV and Morgan DW (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30(3): 607-610.  
<https://doi.org/10.1177/001316447003000308>
- Krishnan BS and Sudharsan S (2020). A situation analysis of higher secondary tribal residential schools in Tiruvannamalai district, Tamil Nadu, India. *Asian Social Work Journal*, 5(2): 25-31. <https://doi.org/10.47405/aswj.v5i2.135>
- Kumar KS and Akoijam BS (2017). Depression, anxiety and stress among higher secondary school students of Imphal, Manipur. *Indian Journal of Community Medicine: Official publication of Indian Association of Preventive and Social Medicine*, 42(2): 94-96.  
[https://doi.org/10.4103/ijcm.IJCM\\_266\\_15](https://doi.org/10.4103/ijcm.IJCM_266_15)  
**PMid:28553025 PMCID:PMC5427869**
- Kumar N and Kaur G (2013). Stress management of senior secondary school students in relation to socio-economic status. *Educationia Confab*, 2(1): 20-26.
- Kumar R, Sahu DPK, Zafar S, Agarwal K, Kumar N, and Sharma C (2022). Role of yoga and deep breathing exercises on stress management among young adults. *International Journal of Special Education*, 37: 3.
- Lovibond SH and Lovibond PF (1995). *Manual for the depression anxiety stress scales*. Psychology Foundation, Sydney, Australia. <https://doi.org/10.1037/t01004-000>
- Mathew N, Khakha DC, Qureshi A, Sagar R, and Khakha CC (2015). Stress and coping among adolescents in selected schools in the capital city of India. *The Indian Journal of Pediatrics*, 82: 809-816.  
<https://doi.org/10.1007/s12098-015-1710-x>  
**PMid:25689960**
- Miller JJ, Fletcher K, and Kabat-Zinn J (1995). Three-year follow-up and clinical implications of a mindfulness meditation-based stress reduction intervention in the treatment of anxiety disorders. *General Hospital Psychiatry*, 17(3): 192-200.  
[https://doi.org/10.1016/0163-8343\(95\)00025-M](https://doi.org/10.1016/0163-8343(95)00025-M)  
**PMid:7649463**
- Murthy RS (2017). National mental health survey of India 2015–2016. *Indian Journal of Psychiatry*, 59(1): 21-26.  
[https://doi.org/10.4103/psychiatry.IndianJPsychiatry\\_102\\_17](https://doi.org/10.4103/psychiatry.IndianJPsychiatry_102_17) **PMid:28529357 PMCID:PMC5419008**
- Nair PP and Meera KP (2014). Effectiveness of progressive muscle relaxation in reducing academic stress of secondary schools students of Kerala. *IOSR Journal of Humanities and Social Science*, 19(8): 29-32.  
<https://doi.org/10.9790/0837-19812932>
- Naseem Z and Khalid R (2010). Positive thinking in coping with stress and health outcomes: Literature review. *Journal of Research and Reflections in Education*, 4(1): 42-61.
- Nehra DK, Nehra S, and Dogra R (2012). *Positive psychological functioning with mindfulness based stress reduction (MBSR) program*. Biopsychosocial Issues in Positive Health. Global Vision Publishing House, Delhi, India.
- Ong AD, Bergeman CS, Bisconti TL, and Wallace KA (2006). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal of Personality and Social Psychology*, 91(4): 730-749.  
<https://doi.org/10.1037/0022-3514.91.4.730>  
**PMid:17014296**
- Parikh R, Sapru M, Krishna M, Cuijpers P, Patel V, and Michelson D (2019). "It is like a mind attack": Stress and coping among urban school-going adolescents in India. *BMC Psychology*, 7: 31.  
<https://doi.org/10.1186/s40359-019-0306-z>  
**PMid:31138306 PMCID:PMC6540371**
- Pascoe MC, Hetrick SE, and Parker AG (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, 25(1): 104-112. <https://doi.org/10.1080/02673843.2019.1596823>
- Piechaczek CE, Pehl V, Feldmann L, Haberstroh S, Allgaier AK, Freisleder FJ, and Greimel E (2020). Psychosocial stressors and protective factors for major depression in youth: Evidence from a case-control study. *Child and Adolescent Psychiatry and Mental Health*, 14: 6.  
<https://doi.org/10.1186/s13034-020-0312-1>  
**PMid:32055255 PMCID:PMC7007652**
- Raakhee AS and Aparna N (2011). A study on the prevalence of anxiety disorders among higher secondary students. *Education Sciences and Psychology*, 1(18): 33-37.
- Rajeshwar G and Ramchandram V (2019). Positive psychology to overcome stress and improve mental health. *International Journal of Scientific and Engineering Research*, 10(12): 353-362.
- Rastogi R, Chaturvedi DK, Arora N, Trivedi P, and Singh P (2017). Role and efficacy of positive thinking on stress management and creative problem solving for adolescents. *International Journal of Computational Intelligence and Bioinformatics Biochemistry Engineering*, 2(2): 1-27.
- Roy K, Kamath V, and Kamath A (2015). Determinants of adolescent stress: A narrative review. *European Journal of Psychology and Educational Studies*, 2(2): 48-56.  
<https://doi.org/10.4103/2395-2555.170719>
- Ryff CD (2022). Positive psychology: Looking back and looking forward. *Frontiers in Psychology*, 13: 840062.  
<https://doi.org/10.3389/fpsyg.2022.840062>  
**PMid:35369156 PMCID:PMC8967995**
- Schafer W (1996). *Stress management for wellness*. Harcourt Brace College Publishers, San Diego, USA.
- Schreiner I and Malcolm JP (2008). The benefits of mindfulness meditation: Changes in emotional states of depression, anxiety, and stress. *Behaviour Change*, 25(3): 156-168.  
<https://doi.org/10.1375/behc.25.3.156>
- Seligman MEP and Csikszentmihalyi M (2000). Positive psychology: An introduction. *American Psychologist*, 55(1): 5–14.  
<https://doi.org/10.1037//0003-066X.55.1.5>  
**PMid:11392865**
- Sharma S and Kumar H (2022). Role of yoga and meditation to reduce stress among adolescents: A review of literature. In: Gaikwad LA and Premachandran P (Eds.), *Advances in literature, social science, commerce and management*: 144-150. Volume 3, Bhumi Publishing, Kolhapur, India.
- Shek DT, Chai WY, Wong T, and Zhou K (2023). Stress and depressive symptoms in university students in Hong Kong under the pandemic: Moderating effect of positive psychological attributes. *Frontiers in Psychology*, 14: 1071938.

<https://doi.org/10.3389/fpsyg.2023.1071938>  
**PMid:36777221 PMCID:PMC9908995**

Sigfusdottir ID, Kristjansson AL, Thorlindsson T, and Allegrante JP (2017). Stress and adolescent well-being: The need for an interdisciplinary framework. *Health Promotion International*, 32(6): 1081-1090.  
<https://doi.org/10.1093/heapro/daw038>  
**PMid:27153917 PMCID:PMC5914452**

Tejada-Gallardo C, Blasco-Belled A, Torrelles-Nadal C, and Alsinet C (2020). Effects of school-based multicomponent positive psychology interventions on well-being and distress in adolescents: A systematic review and meta-analysis. *Journal of Youth and Adolescence*, 49(10): 1943-1960.  
<https://doi.org/10.1007/s10964-020-01289-9>  
**PMid:32683592**

Umamaheswari K and Jayasudha M (2020). A study on socio economic problems of Malayali Tribes in Jawadhu Hills. *Journal of Emerging Technologies and Innovative Research*, 7(10): 2168-2174.

Verma R (2022). Positive psychology in schools with focus on adolescent well-being. *Journal of Psychological Science and Research*, 2(3): 1-6.  
<https://doi.org/10.53902/JPSRR.2022.02.000535>

Waters L (2011). A review of school-based positive psychology interventions. *The Australian Educational and Developmental Psychologist*, 28(2): 75-90.  
<https://doi.org/10.1375/aedp.28.2.75>

Wilks SE (2008). Resilience amid academic stress: The moderating impact of social support among social work students. *Advances in Social Work*, 9(2): 106-125.  
<https://doi.org/10.18060/51>

Zajacova A, Lynch SM, and Espenshade TJ (2005). Self-efficacy, stress, and academic success in college. *Research in Higher Education*, 46: 677-706.  
<https://doi.org/10.1007/s11162-004-4139-z>