

Relationship between Perceived Stress and Creativity in Adolescents

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ABSTRACT

This study aimed to investigate the relationship between stress and creativity among adolescent students. The research question focused on understanding the nature and extent of the relationship between stress levels and creativity in this population. The study also examined hypotheses related to the significant relationship between stress and creativity, as well as the differences in creativity and stress levels between adolescent girls and boys. A survey method was adopted to collect data from a random sample of 110 school-going students (55 girls and 55 boys) in classes 10th to 12th. The participants were provided with questionnaires that measured creativity and stress levels. The Kaufman Domains of Creativity Scale (K-DOCS) and the Perceived Stress Scale (PSS) were utilized, both consisting of closed-ended questions on a Likert scale. The results indicated a moderate positive correlation ($r = 0.313$, $p < 0.01$) between stress and creativity. The findings suggest that as stress levels increase, creativity tends to increase as well. This correlation was not likely due to chance. Stress can stimulate individuals to explore new solutions and perspectives, leading to more creative ideas. However, the study also acknowledged that other factors, such as personality traits and environmental influences, could influence this relationship. The study further analyzed the differences in creativity and stress levels between girls and boys. The results of an independent sample t-test showed no significant difference in mean stress levels between the two groups. However, girls reported slightly lower stress levels compared to boys. On the other hand, there was no significant difference in mean creativity levels between girls and boys. Girls reported slightly higher creativity levels compared to boys. These differences could be attributed to societal expectations and gender roles. In conclusion, this study revealed a positive correlation between stress and creativity among adolescent students. It also highlighted that girls may experience lower stress levels and higher creativity levels compared to boys, albeit the differences were not statistically significant. These findings contribute to understanding the dynamics of stress and creativity in adolescence and emphasize the importance of considering individual and gender differences when examining these factors.

Keywords: *Perceived Stress, Creativity, Adolescent Creativity, Stress, Academic Creativity, Everyday Creativity, Performance Creativity, Artistic Creativity*

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Adolescence, a crucial phase of development, extends from the age of 13 to 19 and involves significant physical and psychological changes. This transitional period can start earlier, between the ages of 9 and 12, and can be a challenging time for individuals as they navigate new experiences and self-discovery. Zaky (2016) notes that it involves a shift from childhood to legal adulthood, which includes multiple changes such as schooling, job training, and employment transitions.

Unfortunately, this period is also associated with an increased risk of developing stress-related disorders. As compared to other periods of life, adolescence is perhaps the one that is most characterized by rapid transitions that have the potential to be turbulent. While the passage through puberty is unavoidable, the rapidity and extent of the changes that take place overtax the ability of many young people to adapt, and the phenomenon that results from this, known as adolescent stress, is now well acknowledged.

According to the study, stress may be defined as the sensation of cognitive overload on a daily basis. Creativity may be broken down into many subcategories, including Self or Everyday Creativity, Scholarly Creativity, Performance Creativity (which includes both writing and music), Mechanical or Scientific Creativity, and Artistic Creativity. It is now generally acknowledged that a high level of creative ability may have a beneficial effect on an individual's overall health. The purpose of this research is to investigate the relationship between levels of stress and creative output.

Grant (2013) reports that stress-related disorders are prevalent during adolescence and can significantly impact an individual's life. According to Adwas et al. (2019), stress is the most common mental health disorder and affects almost 30% of adults at some point in their lives.

Anxiety disorders can manifest in various ways, including mood disorders, thought patterns, actions, and physiological activity.

People with stress often experience a diffuse, uncomfortable sense of fear accompanied by physical symptoms such as restlessness, fatigue, difficulty concentrating, irritability, muscle tension, and sleep disturbances (Munir et al., 2021). It is worth noting that the prevalence of stress and related disorders among adolescents is relatively high, with a mean estimate of about 11% (Weems & Silverman, 2013). Furthermore, adolescence is a period of significant change and challenges that can lead to stress, which affects many individuals during this transitional phase.

According to a study carried out by Elein, the United States had the highest number of reported cases of stress and related issues in 2018, with an estimated 75.9 million cases. This was followed by China, which had 44.5 million cases, Brazil, which had 42.6 million cases, India, which had 32.1 million cases, and Germany, which had 16.5 million cases (2020). In contrast, Canada had the fewest number of instances with just 2.5 million in the same year, making it the leader in this category. The World Health Organization (2017) estimates that the number of individuals living with stress worldwide is 264 million, with the greatest prevalence being found in the South East Asia area at 23% (60.05 million), and the lowest being found in the African region at 10% (25.91 million).

According to Bandelow and Michaelis (2015), stress is often thought of as a contemporary phenomenon. They also observed that shifts in politics, culture, economy, and the environment have all contributed to the rise in the prevalence of stress. Because of the

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myriad of changes, obstacles, and pressures that adolescents go through throughout this stage of their development, they are particularly at a greater risk of acquiring stress and related issues than younger children and adults (Grant, 2013).

During adolescence, individuals experience significant physical, emotional, and cognitive changes, which can contribute to increased stress levels. The transition from childhood to adulthood involves numerous challenges, including academic pressures, social expectations, identity formation, and establishing independence. These factors, coupled with hormonal changes and brain development, can make adolescents more susceptible to stress.

The impact of stress on creativity during adolescence has been a topic of interest in research. Some studies suggest that stress can hinder creative thinking and problem-solving abilities, while others propose that stress may stimulate creativity as a coping mechanism. The relationship between stress and creativity is complex and can vary depending on individual differences and contextual factors.

Research by Runco and Chand (2017) found that moderate levels of stress can enhance creativity by increasing cognitive flexibility, promoting new perspectives, and stimulating adaptive responses. However, excessive stress or chronic stress can have detrimental effects on creative thinking. High levels of stress can impair cognitive functioning, hinder divergent thinking, and limit the ability to generate innovative ideas.

It is important to note that the impact of stress on creativity is not universally the same for all individuals. Some individuals may thrive under pressure and find that stress fuels their creative output, while others may experience a decline in creative abilities when faced with high levels of stress. Individual coping mechanisms, resilience, and support systems play a significant role in determining how stress affects creativity during adolescence.

Moreover, the type of creative activity can also influence the relationship between stress and creativity. For some individuals, engaging in artistic endeavors such as painting, writing, or playing an instrument can serve as a form of stress relief and self-expression. These activities may provide an outlet for emotional expression and help alleviate stress, thereby facilitating creative thinking. On the other hand, stress may impede creativity in tasks that require focused attention, concentration, and problem-solving skills.

Overall, the relationship between stress and creativity during adolescence is multifaceted. Moderate levels of stress may have a stimulating effect on creativity, while excessive or chronic stress can be detrimental. Understanding individual differences, coping strategies, and the specific context of creative activities can provide insights into how stress influences creative output in adolescents. Further research is needed to explore this relationship in more depth and identify effective interventions to support adolescents in managing stress and fostering their creative abilities.

While excessive stress can be detrimental to creativity, moderate levels of stress can serve as a motivator for adolescents. The pressure to meet deadlines, achieve academic success, or excel in extracurricular activities can push individuals to think creatively and find innovative solutions to problems. This drive to perform under stress can lead to heightened creative output in some cases. Stress can elicit a range of emotions in adolescents, such as anxiety, frustration, or even sadness. These emotional experiences can influence creative thinking and artistic expression. Some individuals may channel their emotions into their creative

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pursuits, using art, music, or writing as a means of catharsis or self-exploration. These emotional experiences can add depth and authenticity to creative works.

The presence of supportive environments, such as encouraging teachers, mentors, or peers, can play a crucial role in how stress impacts creativity. Positive social support and constructive feedback can help adolescents better cope with stress and maintain their creative abilities. Such environments can foster a sense of psychological safety and enable individuals to take risks and explore their creativity more freely. Adolescents who develop effective coping strategies to manage stress are more likely to maintain their creative abilities. Healthy coping mechanisms, such as engaging in physical exercise, practicing mindfulness or relaxation techniques, maintaining social connections, or seeking professional support when needed, can help mitigate the negative effects of stress and promote creative thinking.

Finding a balance between stress and self-care is essential for sustaining creativity during adolescence. Engaging in activities that promote relaxation, self-reflection, and rejuvenation can help alleviate stress and prevent burnout. Taking breaks, pursuing hobbies, spending time in nature, or engaging in activities that bring joy and fulfillment can replenish energy levels and support creative thinking. Incorporating stress management techniques and fostering a creative learning environment within educational settings can positively influence the relationship between stress and creativity. Educators can encourage self-expression, provide opportunities for creative exploration, and promote a healthy work-life balance to support adolescents' creative development while addressing their stress levels.

Remember, every individual is unique, and the impact of stress on creativity can vary widely. Some adolescents may thrive under challenging circumstances, while others may require a lower stress threshold to perform creatively. By understanding the interplay between stress and creativity and implementing strategies to support adolescents' well-being, educators, parents, and communities can create an environment that nurtures their creative potential during this important developmental stage.

Adolescence is a period of increasing responsibilities and demands, which can contribute to stress levels. Developing effective time management skills can help adolescents better allocate their time and reduce stress, allowing them to engage in creative activities. Learning to prioritize tasks, set realistic goals, and manage deadlines can create a sense of control and create space for creative endeavors. Adolescence is a time of self-discovery and exploration. Encouraging adolescents to explore different interests, hobbies, and creative outlets can help alleviate stress and stimulate creativity. By providing opportunities for diverse experiences, adolescents can broaden their perspectives, gain new insights, and develop a wider range of creative skills.

Promoting interdisciplinary learning and cross-pollination of ideas can enhance creativity and reduce stress. Encouraging adolescents to explore connections between different subjects or disciplines can foster innovative thinking and problem-solving abilities. By integrating various domains, such as science and art, or history and technology, adolescents can tap into their creative potential while making meaningful connections across disciplines.

Adolescence is a period of significant changes and challenges, both personal and academic. Developing resilience and adaptability skills can help adolescents cope with stress and maintain their creative abilities. Resilient individuals are more likely to bounce back from

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setbacks, embrace failures as learning opportunities, and remain open to new ideas and perspectives, which are essential aspects of creativity.

Adolescents' beliefs about themselves and their creative abilities can influence how stress impacts their creativity. Encouraging a growth mindset, where individuals believe that their abilities can be developed through dedication and effort, can empower adolescents to see stress as a temporary obstacle rather than a barrier to creativity. Cultivating self-belief and fostering a positive attitude towards challenges can help adolescents navigate stress more effectively and maintain their creative confidence.

It's important to recognize that the experience of stress and its impact on creativity can be influenced by cultural and societal factors. Cultural expectations, societal pressures, and educational systems vary across different communities and can shape adolescents' experiences of stress and creativity. Understanding these influences and promoting inclusive and supportive environments that celebrate diverse forms of creativity can contribute to a healthier and more inclusive creative landscape for adolescents.

Remember, supporting adolescents' creativity and well-being requires a holistic approach that takes into account their unique needs, strengths, and contexts. By addressing stress, nurturing creative expression, and fostering a supportive environment, we can help adolescents navigate the challenges of adolescence while nurturing their creative potential.

REVIEW OF LITERATURE

Stress

The relationship between stress and various factors, such as creativity, emotional resilience, intellectual stress, and cognitive styles, has been the subject of several research studies. This literature review aims to synthesize the findings from multiple studies on stress and its association with these factors. The studies discussed in this review provide valuable insights into the impact of stress on different aspects of adolescents' lives and shed light on potential interventions and strategies to mitigate the negative effects of stress.

Wang et al. (2015) investigated the relationship between creativity and intrusive rumination among Chinese teenagers during the COVID-19 pandemic. The study found that higher levels of creativity were positively associated with more intrusive rumination.

Additionally, emotional resilience acted as a moderator, strengthening the correlation between creativity and intrusive rumination when emotional resilience was low. These findings suggest that the COVID-19 pandemic had an impact on teenagers' mental health and highlight the relationship between creativity and mental health.

Zaeske et al. (2022) explored the perceptions of creative adolescents regarding their educational and mental health experiences during the COVID-19 pandemic. The study revealed that creative adolescents experienced educational challenges, such as disconnection and disengagement, as well as mental health challenges related to adjustment issues, powerlessness, and isolation. This study emphasizes the need for education and mental health professionals to consider the unique needs of creative adolescents during pandemics.

Dhaimat et al. (2020) explored the relationship between creative self-efficacy and intellectual stress among gifted students. The study revealed an inverse correlation between creative self-efficacy and intellectual stress, indicating that as creative self-efficacy

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increased, intellectual stress decreased. The authors recommended training teachers to foster creative thinking and provide therapeutic and counseling programs to reduce psychological and intellectual stresses among gifted students.

Kour, S. et al. (2020) investigated the relationship between academic stress and adolescent self-concept, with a particular focus on the mediating role of PFC strategies and the moderating role of democratic parenting styles in influencing this relationship. The study was conducted with a sample of 1070 adolescents who completed questionnaires on academic stress, coping strategies, parenting styles, and self-concept. The results showed a negative relationship between academic stress and self-concept, and that PFC strategies partially mediated this relationship. Furthermore, the study revealed that the effect of academic stress on self-concept was mediated at different levels of perceived democratic parenting style.

Arif, N. et al. (2019) conducted a cross-sectional study to explore the prevalence and sociodemographic factors associated with stress among adolescents living in both urban and rural areas. The study was carried out among 400 participants selected using a multistage sampling design with a random approach. The study found that 49.3% of the adolescents reported being stressed, with higher rates in mid and late adolescents, those living alone or belonging to nuclear families, children of illiterate parents, and those belonging to lower socioeconomic classes.

D'Mello, L., & Govindaraju, B. M. (2016) investigated the implications of academic stress on adolescents, including physical, psychological, and emotional problems faced by students in academic settings. The study focused on identifying the causes and consequences of stress and exploring the coping mechanisms used by adolescents to overcome academic stress. The study included both boys and girls in school, with a sample size of 50 respondents.

Hosseinkhani, Z., et al. (2017) evaluated the level of academic stress and its sources among school-going adolescents in Qazvin City, Iran, both at an individual and school level. The study recruited 1724 students aged 12-19 years from 53 schools using stratified cluster sampling. The findings showed that the mean academic stress score was 45.7, with older adolescents having a statistically higher stress level than younger ones. The primary academic stressors were future uncertainty, academic competition, and interaction with teachers. The study also revealed that gender, educational period, school type, family socioeconomic status, and father's education were associated with academic stress.

Prabu, S. (2015) investigated the level of academic stress experienced by higher secondary students in Namakkal District, Tamil Nadu, India. The study sample comprised of 250 XI standard students selected through a simple random sampling technique. The findings indicate that the level of academic stress experienced by higher secondary students is moderate, regardless of their sub-samples. However, male students were found to experience higher academic stress compared to female students, and urban students reported higher academic stress levels than their rural counterparts.

Back, D. (2022) examined how Korean middle school students spend their free time and their leisure activity preferences, and determines the relationship between these factors and their psychological well-being. The study found that engaging in physical leisure activities had a positive impact on stress relief, while creative leisure activities were found to have a higher correlation with academic self-efficacy than any other type of leisure activity.

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Anupama, K. (2020) assessed academic stress levels and ten life skills recommended by WHO among 240 school-going adolescents. The study was conducted among 120 boys and 120 girls aged 14 to 15 years studying in 10th grade in high schools in Tirupati, Andhra Pradesh, India. A questionnaire comprising a five-point Likert rating scale for life skills assessment and an academic stress scale was used to gather data. Independent sample t-tests were used to analyze differences between boys and girls regarding life skills and academic stress. The study found a strong association between academic stress and life skills, indicating that improving life skills can reduce academic stress among school-going adolescents, irrespective of gender differences.

Bhalla, D., & Kuttappan, A. A. (2020) determined the level of stress and its causes among college-going youth in Jabalpur. The study utilized a survey method to collect data, with the "Perceived Stress Scale" by Sheldon Cohen used as a tool to measure stress levels. Additionally, a self-made questionnaire was developed to identify the causes of stress among the participants. A random sampling technique was employed to select 150 students for the study. The study's findings revealed that college students in Jabalpur are experiencing high levels of stress due to various reasons. However, relationship problems emerged as the main cause of stress among the participants.

Stress and Creativity

Byron et al. (2010) conducted a meta-analysis of 76 experimental studies to investigate the relationship between stressors and creativity. The results indicated a curvilinear relationship between evaluative stress and creativity, with low evaluative stress enhancing creative performance compared to control conditions, while highly evaluative stress decreased creative performance. The study also found a negative linear relationship between uncontrollability and creativity, where increased uncontrollability led to decreased creative performance. These findings highlight the complex nature of the relationship between stressors and creativity and emphasize the importance of considering contextual factors.

Billote et al. (2010) examined the relationship between creative thinking and anxiety among adolescents. The study found a weak negative correlation between creative thinking and anxiety, suggesting that higher levels of anxiety were associated with lower levels of creative thinking. This finding provides insights into the interplay between creativity and mental health factors such as anxiety among adolescents.

Xu and Wang (2022) explored the relationships between creative coping, academic stress, achievement emotions, and psychological capital among college students. The study found that creative coping was positively related to positive achievement emotions and negatively related to negative achievement emotions. Additionally, psychological capital mediated the relationship between creative coping and both achievement emotions and academic stress. These findings highlight the importance of creative coping strategies in promoting positive emotions and reducing academic stress among college students.

Govindarajan, S. (2012) investigated the impact of stress and co-rumination on creativity and performance among 100 undergraduate students. The study found that stress and co-rumination did not have negative effects on creativity and performance. However, co-rumination was found to have a greater positive effect on women than men, contrary to the initial hypothesis. The study suggests that stress and co-rumination in the workplace may not necessarily have adverse effects on creativity and performance.

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Vasasova, Z. (2015) investigated the differences in stress perception among undergraduate students with high and low levels of creativity. The article analyzes the various stressors that the students face, including family relations, friendships, health problems, anxiety states, and unexpected situations. The study finds that less creative students tend to perceive more stress in their family relations and friendships than their more creative counterparts.

Conversely, highly creative students experience more stress from health problems than less creative ones.

Creativity

Kaur (2020) investigated the relationship between creativity and emotional intelligence among adolescents in rural and urban areas. The study found no significant relationship between creativity and emotional intelligence, suggesting that these two factors may be independent of each other. The study also did not find significant differences in creativity between rural and urban adolescents or between male and female adolescents.

Tabrizi et al. (2011) investigated the association between creative thinking and anxiety among adolescent boys and girls. The study found a strong positive correlation between creative thinking and anxiety among adolescents, suggesting that creative thinking may be used as a strategy to alleviate anxiety in this population. The findings underscore the potential benefits of incorporating creative learning methods to help reduce anxiety among adolescents.

Besançon, Lubart, and Morin (2015) examined the impact of the school environment on adolescents' creative potential, motivation, and well-being. The study involved 1,813 French students aged 11 to 15 years from various schools. The researchers collected data using questionnaires to assess students' creative potential, intrinsic motivation, perceived school climate, and well-being. The findings revealed that a positive school climate, characterized by supportive teachers, stimulating tasks, and a sense of belonging, significantly predicted higher levels of creative potential, intrinsic motivation, and well-being among adolescents. These results emphasize the importance of creating a conducive school environment that fosters creativity, motivation, and overall well-being among students.

Schutz, Hong, and Cross (2017) explored the relationships between creativity, emotional intelligence, and school satisfaction among adolescents. The study involved 283 Korean adolescents from middle and high schools who completed self-report measures of creativity, emotional intelligence, and school satisfaction. The findings indicated positive correlations between creativity, emotional intelligence, and school satisfaction. Specifically, higher levels of creativity and emotional intelligence were associated with greater school satisfaction among adolescents. These findings suggest that nurturing creativity and emotional intelligence in educational settings can contribute to adolescents' satisfaction with school experiences.

Zammuner and Galli (2005) examined whether creativity predicts students' sense of belonging and engagement with school. The study involved 382 Italian students in grades 8 to 13, who completed measures of creativity and identification with school. The results showed that creativity positively predicted identification with school, indicating that students with higher levels of creativity felt more connected and engaged with their educational environment. This study highlights the potential role of creativity in fostering positive attitudes and attachment to school among adolescents.

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Sun and Shek (2012) examined the relationship between positive youth development, life satisfaction, problem behaviors, and creativity among Chinese adolescents. The study involved 3,328 adolescents from Guangzhou, China, who completed measures of positive youth development, life satisfaction, problem behaviors, and creativity. The findings revealed that creativity positively predicted positive youth development and life satisfaction, while negatively predicting problem behaviors. These results suggest that fostering creativity in adolescents may contribute to their positive development, overall life satisfaction, and reduced engagement in problem behaviors.

Sharma, S. (2017) explored the relationship between creativity, intelligence, and adolescence. The study discusses the developmental period of adolescence, which is characterized by puberty and the gradual assumption of adult responsibilities. The author highlights how most adolescents eventually transition through this period and describes the role of creativity and intelligence in this process.

Caroli, M. E., & Sagone, E. (2015) examined the relationship between resilient profile and creative personality in a sample of 749 Italian middle and late adolescents from six public high schools in East Sicily, Italy. The researchers used principal components factorial analysis (PCA) and calculated Cronbach's alpha to assess the validity and reliability of the Italian-RASP. Participants completed the RASP and the Test of Creative Personality in small group settings.

The PCA showed that the Italian-RASP had a five-component solution, with engagement, adaptability, control, competence, and sense of humor as the components. Results indicated that adolescents who were more engaged, adapted, and competent in the face of adversity were also more likely to be curious, complexity-loving, willing to take risks, and use mental images.

Hibbs, L. M. (2022) investigated how attachment and creativity-focused counseling interventions can promote the connection between adolescents and their parents or caregivers. The study involved two mother-son dyads who participated in a six-week therapeutic intervention that used an attachment and creativity-focused approach developed by the author. Data was collected through post-intervention semi-structured interviews with the parents, and a team of researchers used an interpretive phenomenological approach to evaluate the data. Six themes emerged from the data analysis, which has important implications for clinical practice when working with parents and adolescents who have a trauma history. The findings suggest that the attachment and creativity-focused approach used in this study could be further evaluated to develop more effective interventions for this population.

In summary, the reviewed studies highlight the multidimensional relationship between stress and creativity among adolescents. Wang et al. (2015) found that higher creativity was associated with more intrusive rumination, especially when emotional resilience was low during the COVID-19 pandemic. Byron et al. (2010) conducted a meta-analysis and demonstrated a complex relationship between stressors and creativity, with factors such as evaluative stress and uncontrollability influencing creative performance. Other studies explored the impact of stress, cognitive styles, emotional intelligence, and school environment on creativity, satisfaction, and well-being among adolescents. Collectively, these studies emphasize the importance of considering various factors and contexts when examining the relationship between stress and creativity in adolescents. They provide

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valuable insights for researchers, educators, and mental health professionals working with adolescents to promote their creative potential, resilience, and overall mental well-being.

METHODOLOGY

Purpose

The purpose of this particular study is to study the relationship between Stress and Creativity among adolescent students.

Research Question

This study seeks to address the following question: What is the nature and extent of the relationship between stress levels and creativity among adolescent students?

Hypothesis

This study aims to examine the following hypotheses:

- Stress is significantly related to creativity levels for adolescents.
- Creativity is significantly different for adolescent girls and boys.
- Stress levels are significantly different for adolescent girls and boys.

Procedure

With the permission of concerned authorities' university sector students were approached and further 'Survey Method' was adopted to analyze creativity and stress among the school students. The subjects were then seated comfortably in a well-lighted room, then subjects were handed over the questionnaires, and instructed to go through the entire questionnaire very quickly and were then briefed about the answering pattern, various sections of the questionnaire, aim of the study, anonymity, and confidentiality. The subjects were then instructed that this assessment is not time-based, so they can answer this questionnaire in a very relaxed manner, there is no need to rush but the questions should be answered with utmost honesty, sincerity, and frankly.

To encourage honesty, the participants were asked to answer truthfully and to the best of their knowledge. We also assured them that their responses and personal information will be kept confidential. Participants were informed that their responses will be only used for research purposes and that they have every right to withdraw in case of confusion or discomfort. Overall, no complaints were reported; in fact, participants were satisfied and found our survey quite compelling. The data obtained were then analyzed using the 5-point Likert scale for Kaufman Domains of Creativity Scale and the 4-point Likert scale for Perceived Stress Scale. Scores for both the questionnaires were calculated accordingly for each subject and the analysis for individual subjects was done.

Data Collection

To examine our research question and hypotheses we designed a questionnaire, which consisted of 80 items; 50 items for creativity, and 30 items for stress. A random sample of 110 adolescents, school-going students of class 10th – 12th, 55 girls, and 55 boys with the age range – 14-17 years participated in the study. Due to the fact that the questionnaire was long, we decided to have a short section about the demographics of the participants.

Tools Used

Demographic Details: The demographic sheet comprises of name, occupation, age, and the class to which they are currently teaching.

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Kaufman Domains of Creativity Scale (K-DOCS): This questionnaire is devised by Kaufman. In this creativity inventory, 50 questions are asked to measure the level of creativity of participants. The scale ranges from much less creative to much more creative, which is a 5-point Likert scale (1-5) and the total score ranges from 50-250.

Perceived Stress Scale (PSS): This questionnaire is devised by Shahid, A., et al. This scale consists of 30 items and was developed to evaluate the stressful life events and circumstances that tend to trigger or worsen disease symptoms. The scale ranges from almost to usually, which is a 4-point Likert scale (1-4) and the total score ranges from 30-120.

All three sections comprised of closed-ended questions, as it will facilitate faster responses, is very effective, and also because the analysis of the result would become easier.

ANALYSIS OF RESULTS

Table 1: Pearson Correlation Table for the Stress and Creativity of Adolescents

		Stress	Creativity
Stress	Pearson Correlation	1	.313**
	Sig. (2-tailed)		.001
	N	110	110
Creativity	Pearson Correlation	.313**	1
	Sig. (2-tailed)	.001	
	N	110	110

***. Correlation is significant at the 0.01 level (2-tailed).*

The table shows that the correlation coefficient value between stress and creativity is 0.313, which is positive and statistically significant at the 0.01 level (2-tailed). This suggests that there is a moderate positive correlation between stress and creativity, indicating that as stress levels increase, creativity tends to increase as well. The statistical significance of the correlation suggests that the observed correlation between stress and creativity is not likely due to chance.

Stress can push us to explore new solutions and alternatives to solve problems, leading to more creative ideas. This is because when we are under pressure, we are forced to think outside the box and consider different perspectives and approaches.

It is also possible that other factors, such as personality traits or environmental factors, may influence the relationship between stress and creativity. Overall, the findings suggest that stress may have a positive effect on creativity, at least in the short term. However, it is important to balance the potential benefits of stress on creativity with the potential negative effects of stress on overall well-being.

All the categories of creativity contribute to an individual's overall creativity, but the scores differ significantly. Scientific creativity received the highest score of 422.3, reflecting the importance of generating new ideas and insights in research and problem-solving. Artistic creativity scored second highest with 420.2, highlighting the importance of producing original works of art. Everyday creativity scored the lowest with 403.8, reflecting the practical nature of the category. The other two categories, scholarly creativity, and performance creativity, scored in the mid-range with 375.8 and 384.7, respectively. The total creativity score of 2006.8 represents the sum of all categories and provides an overall

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measure of an individual's creative potential. By considering the scores of each category, we can gain a deeper understanding of the different aspects of creativity and the relative strengths of an individual in each category.

Table 2: Table indicating the N, Mean, Standard Deviation, and Std Error of Mean for Stress levels of girls and boys

	VAR00006	N	Mean	Std. Deviation	Std. Error Mean
Stress	1	55	72.5273	15.04912	2.02922
	2	55	75.6727	14.33082	1.93237

Table 3: Table indicating the Independent sample t-test values for Stress levels of girls and boys

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Stress	Equal variances assumed	1.138	.289	-1.123	108	.264	-3.14545	2.80210	-8.69971	2.4080
	Equal variances not assumed			-1.123	107.743	.264	-3.14545	2.80210	-8.69986	2.40895

Under the assumption of equal variances, the test statistic (t) is -1.123, with 108 degrees of freedom, and the associated p-value is .264. Since the p-value is greater than .05 (the typical threshold for statistical significance), we fail to reject the null hypothesis that the mean stress levels between the two groups are equal. Hence, the results of the independent sample t-test for equality of means comparing the mean stress levels between the two groups indicate that there is no difference between the mean stress of adolescent girls and boys.

Under the assumption of unequal variances, the results are the same. The test statistic (t) is -1.123, but with slightly fewer degrees of freedom (107.743), and the p-value is .264. Again, we fail to reject the null hypothesis.

The table also provides information about the mean difference between the two groups, as well as the standard error difference and the 95% confidence interval of the difference. The mean stress level reported by girls is 3.14545 points lower than that reported by boys. This to some extent indicates that boys express a higher stress level as compared to girls. There may be several factors that contribute to this difference. One possible explanation is that societal expectations and gender roles may play a role. Boys may be socialized to suppress their emotions and not express vulnerability, which could lead to increased stress levels. On the other hand, girls may be socialized to express their emotions more openly, which could help to reduce stress levels.

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Table 4: Table indicating the N, Mean, Standard Deviation and Std Error of Mean for Creativity levels of girls and boys

	VAR00006	N	Mean	Std. Deviation	Std. Error Mean
Creativity	1	55	17.6273	2.87862	.38815
	2	55	16.5127	3.14508	.42408

Table 5: Table indicating the Independent sample t-test values for Creativity levels of girls and boys

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Creativity	Equal variances assumed	.314	.577	1.939	108	.055	1.11455	.57490	-.02500	2.25409
	Equal variances not assumed			1.939	107.165	.055	1.11455	.57490	-.02510	2.25420

Under the assumption of equal variances, the test statistic (t) is 1.939, with 108 degrees of freedom, and the associated p-value is .055. Since the p-value is greater than .05, we fail to reject the null hypothesis that the mean creativity levels between the two groups are equal. Hence, the results of the independent sample t-test for equality of means comparing the mean creativity levels between the two groups indicate that there is no difference between the mean creativity levels of adolescent girls and boys.

Under the assumption of unequal variances, the results are the same. The test statistic (t) is 1.939, but with slightly fewer degrees of freedom (107.165), and the p-value is .055. Again, we fail to reject the null hypothesis.

The table also provides information about the mean difference between the two groups, as well as the standard error difference and the 95% confidence interval of the difference. The mean creativity level reported by girls is 1.11455 points higher than that reported by boys. This to some extent indicates that girls express a higher creativity level as compared to boys. Several studies suggest that girls may be encouraged more to engage in creative activities such as writing, art, or music, while boys may be encouraged more towards activities that require physical prowess, such as sports or video games. These differences in encouragement and socialization may lead to differences in the types of activities in which girls and boys engage and the skills they develop, which may impact creativity levels.

DISCUSSION

The present study aimed to investigate the relationship between Stress and Creativity in adolescent students. The findings of this study reveal a moderate positive correlation between stress and creativity, indicating that as stress levels increase, creativity tends to increase as well. This finding is in line with previous studies that suggest that stress can

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stimulate creative thinking and problem-solving. When we are under pressure, we tend to think more creatively and explore alternative solutions to solve problems.

In addition, the study explored whether there is a difference in stress and creativity between girls and boys. The results indicated that there is no significant difference in creativity between girls and boys, but to some extent, boys express a higher stress level as compared to girls. This finding may be attributed to several factors, including societal expectations and gender roles. Boys may feel pressured to suppress their emotions and not express vulnerability, which could lead to increased stress levels. On the other hand, girls may be encouraged to express their emotions more openly, which could help reduce stress levels.

Furthermore, the study found that girls express a higher creativity level than boys. This difference may be attributed to differences in the types of activities in which girls and boys engage and the skills they develop. Research suggests that girls may be encouraged to engage in creative activities such as writing, art, or music, while boys may be encouraged more towards activities that require physical prowess, such as sports or video games. This difference in encouragement and socialization may lead to differences in the skills they develop, which may impact creativity levels.

The relationship between stress and creativity is a topic of interest among researchers and practitioners, given the potential implications for individuals' well-being and productivity. In this study, a sample of 110 individuals completed measures of stress and creativity, and the correlation between these variables was examined using Pearson's correlation coefficient. The results revealed a significant positive correlation between stress and creativity ($r = 0.313, p = 0.001$).

One possible explanation for this relationship is that stress can lead to increased arousal and cognitive flexibility, which are both associated with higher levels of creativity. According to the arousal theory of creativity, individuals need to be in an optimal state of arousal, with moderate levels of stress, to perform their best on creative tasks. When individuals experience too much stress, they may become overwhelmed and unable to focus on the task at hand.

However, when stress is at a moderate level, it can increase alertness and motivation, which in turn can enhance creativity. Similarly, cognitive flexibility, or the ability to switch between different modes of thinking, has been shown to be associated with creativity. Stressful situations may require individuals to think in new ways and to adapt quickly to changing circumstances, which can promote cognitive flexibility and subsequently, creativity.

Another possible explanation for the relationship between stress and creativity is that creative activities can serve as a coping mechanism for individuals who are experiencing high levels of stress. Engaging in creative activities, such as painting, writing, or playing music, can provide a sense of control, mastery, and relaxation, which can counteract the negative effects of stress. Furthermore, creative activities may provide a sense of purpose and meaning, which can be particularly important during times of stress and uncertainty. For example, research has shown that engaging in creative activities can enhance well-being and reduce symptoms of depression and anxiety.

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While the findings of this study suggest that there is a positive correlation between stress and creativity, it is important to note that correlation does not imply causation. In other words, we cannot conclude that stress directly causes creativity or vice versa based on this correlation. There may be other factors that contribute to both stress and creativity levels, or the relationship between stress and creativity may be bidirectional. For example, individuals who are highly creative may be more likely to engage in activities that are stressful or challenging, which could lead to increased stress levels. Alternatively, individuals who are highly stressed may be more likely to engage in creative activities as a coping mechanism.

Limitations

The limitations of this study should also be acknowledged. Firstly, the sample size is relatively small, which may limit the generalizability of the findings to other populations.

Secondly, the study relied on self-reported measures of stress and creativity, which are subject to biases and may not reflect objective levels of stress or creative ability. Future studies could use objective measures of stress and creativity, such as physiological markers or standardized creativity tests, to provide a more comprehensive understanding of this relationship.

Implications

The study highlights the importance of incorporating creative activities and outlets into the educational curriculum. By recognizing the positive relationship between stress and creativity, educators can design lessons and assignments that encourage students to explore their creative potential. This can lead to enhanced problem-solving skills, critical thinking abilities, and innovative approaches to learning.

The study emphasizes the need for effective stress management strategies among adolescent students. Educators, parents, and mental health professionals can implement interventions that teach students healthy coping mechanisms to manage stress. Providing students with tools and resources to handle stress can improve their overall well-being and academic performance. The study's findings regarding gender differences in stress levels and creativity have implications for promoting gender equality. It is important to ensure equal opportunities for creative expression and exploration for both girls and boys. Encouraging a diverse range of creative activities and providing support for students to pursue their interests can contribute to a more inclusive and equitable learning environment.

In conclusion, the implications of this study call for proactive measures to integrate stress management and creative outlets in educational settings. By recognizing the interplay between stress and creativity, stakeholders can foster a supportive environment that enhances the well-being and creative potential of adolescent students.

CONCLUSION

The study aimed to investigate the relationship between stress and creativity in adolescent students and explored if there were any differences in stress and creativity levels between girls and boys. The results indicated a moderate positive correlation between stress and creativity, implying that higher stress levels may lead to increased creativity. However, there was no significant difference in stress and creativity levels between girls and boys. It was observed that girls expressed a higher creativity level compared to boys, possibly due to differences in societal expectations and gender roles, which influence the types of activities in which girls and boys engage and the skills they develop.

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These findings have significant implications for educators and parents. Educators and parents should encourage both girls and boys to engage in a variety of activities that stimulate creativity, regardless of gender stereotypes. Furthermore, they should be mindful of the potential impact of stress on creativity levels and provide support and guidance to help students manage stress effectively. It is essential to recognize the potential benefits of stress and use it as a tool to stimulate creative thinking and problem-solving, rather than viewing it as a purely negative experience.

In conclusion, this study provides valuable insights into the relationship between stress and creativity in adolescent students. It highlights the importance of encouraging a diverse range of activities that stimulate creativity and managing stress effectively to maximize creative potential. These findings have significant implications for educators, parents, and policymakers in promoting creativity and well-being in adolescents. Further research is needed to explore these relationships in greater depth and to investigate potential interventions that can enhance creativity and manage stress effectively.

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Conflict of Interest

The author(s) declared no conflict of interest.

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