

# CREATIVITY AND ITS ASSOCIATION WITH MINDFULNESS, EMOTIONS REGULATION, AND PSYCHOLOGICAL WELL-BEING IN ADOLESCENTS

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**Purpose of the study:** This study aims to investigate the relationship of creativity to mindfulness, emotion regulation, and psychological well-being among adolescents.

**Methodology:** The cross-sectional and correlational study used purposive convenient sampling, and collected data from 600 adolescents aged 15 to 24. The data collection was conducted in colleges and universities using English as the medium of instruction. For this purpose, the scales used were the Kaufman Domains of Creativity scale ([Kaufman, 2012](#)), the Mindfulness Attention Awareness Scale ([Brown & Ryan, 2003](#)), the Emotion regulation questionnaire ([Gross & John, 2003](#)), and Ryff Psychological Wellbeing ([Ryff et al., 2007](#)). Data was analyzed using SPSS-26.

**Main Findings:** The study found that creativity is not related to any other variable. However, mindfulness is positively linked to emotion regulation and psychological well-being, and emotion regulation is positively linked to psychological well-being. There were significant gender differences in creativity and emotion regulation, with males scoring higher, but no significant gender differences in mindfulness and psychological well-being.

**Applications of the study:** This study on adolescents' creativity and its relationship with mindfulness, emotion regulation, and psychological well-being has applications in education, mental health interventions, parenting, youth development, policy, and further research. It can inform interventions, programs, and policies aimed at fostering creativity, promoting well-being, and supporting adolescent development.

**Novelty/Originality of the study:** This study investigates the relationship between creativity, mindfulness, emotional regulation, and psychological well-being in adolescents. It focuses on the inherent traits of mindfulness and explores the benefits of instant creativity, specifically divergent thinking. The study aims to understand how everyday creativity relates to mindfulness, emotional regulation, and well-being, with a focus on gender differences. The findings could contribute to promoting well-being and creativity in adolescents.

**Keywords:** Creativity, Mindfulness, Emotions Regulation, Psychological Well-being, Adolescents.

## INTRODUCTION

Creativity has been a topic of interest in various fields, including psychology, neuroscience, and education, among others. It has been defined as the ability to generate original and useful ideas or solutions to problems, and it has been associated with positive outcomes such as innovation, personal growth, and career success ([Mumford & Gustafson, 1988](#)). Creativity has been linked to different factors, including cognitive, environmental, and emotional factors, highlighting the importance of considering various factors in understanding creativity ([Ouyang, X., Liu, Z., & Gui, C. 2021](#)). The present study aims to explore the association between creativity, mindfulness, emotional regulation, and psychological well-being in adolescents, to provide a comprehensive understanding of the relationship between these variables. By examining these factors, this study aims to contribute to the existing literature on creativity and its associations with mental health, with potential implications for promoting well-being and creativity during adolescence.

One of the factors that have been linked to creativity is mindfulness, which is the state of being aware of one's thoughts, feelings, and sensations in the present moment ([Kabat-Zinn, 2003](#)). Mindfulness has been found to enhance creativity by reducing cognitive rigidity, promoting cognitive flexibility, and increasing divergent thinking, which are essential components of creative thinking ([Carson, 2014](#)). Research has found a positive association between mindfulness and creativity. For example, a study by [Greenberg, Reiner, & Meiran \(2012\)](#) found that mindfulness training enhanced creativity in a group of students. Another study by [Flook, Goldberg, Pinger, & Davidson \(2015\)](#) found that a mindfulness-based intervention improved creativity in a group of elementary school children. Recently, researchers have explored the relationship between mindfulness meditation and creativity and argue that mindfulness meditation can enhance creativity by increasing awareness, reducing stress, and promoting open-mindedness and curiosity. These findings suggest that mindfulness may be a useful tool for promoting creativity in adolescents.

Emotional regulation is another factor that has been linked to creativity. Emotional regulation refers to the ability to manage and modulate one's emotions in response to internal and external events ([Kabat-Zinn, 2003](#)). It is important for creativity because emotions can influence cognitive processes and can either facilitate or hinder creative thinking ([Akbari, Chermahini, & Hommel, 2012](#)). Studies have shown that individuals who have better emotional regulation skills are more likely to generate creative solutions to problems ([Butcher & Niece, 2005](#); [Grewal & Salovey, 2005](#)). Emotional regulation has also been found to be positively associated with creativity. For instance, a study by [Silvia, Beaty, Nusbaum, and](#)

[Eddington \(2014\)](#) found that individuals who had higher levels of emotional intelligence, which includes emotional regulation skills, were more likely to generate creative ideas. Similarly, a study found that individuals who had better emotion regulation skills were more likely to generate creative ideas in a brainstorming task. These findings suggest that emotional regulation skills may be important for promoting creativity in adolescents.

Psychological well-being is also an essential factor that can impact creativity. Psychological well-being refers to the overall sense of happiness, satisfaction, and fulfillment in life ([Bentea, 2019](#)). Studies have found that individuals with high levels of psychological well-being are more likely to engage in creative activities and generate original ideas ([Androshchuk, Balakhtar, Balakhtar, & Oleshko, 2020](#); [Puig, Lee, Goodwin & Sherrard, 2006](#)). Moreover, creativity has been linked to psychological well-being, suggesting a bidirectional relationship between these factors ([Tan, Chuah, Lee & Tan, 2021](#)). Furthermore, psychological well-being has been linked to creativity. For example, a study by Simonton (1999) found that individuals who were more satisfied with their lives were more likely to produce creative work. Another study by [Fredrickson \(2001\)](#) found that positive emotions, which are a component of psychological well-being, broaden an individual's thought-action repertoire and promote creative thinking. These findings suggest that promoting psychological well-being may be important for promoting creativity in adolescents.

The current study seeks to investigate the relationship between creativity, mindfulness, emotional regulation, and psychological well-being in adolescents. While previous research has explored the link between mindfulness and creativity, it has mostly been in a general context, overlooking the potential benefits of instant creativity, such as divergent thinking. Moreover, previous studies have mostly focused on mindfulness as an induced manipulation or intervention, rather than an inherent trait. Therefore, this study aims to address these gaps in the literature and explore the relationship between mindfulness and creativity as inherent traits, rather than manipulated factors. Adolescence is a crucial stage in human development, marked by significant changes and challenges. The attitude of adolescents towards authoritative persons appears to be complex and requires in-depth investigation. Understanding the dynamics of their behavior is crucial since adolescents' "style of life" and deviance from social standards may put them in danger ([Zafar, Nabeel, & Khalily, 2013](#)). It is also a time of significant psychological development, where emotional regulation and well-being play an essential role. Hence, the study targets adolescents as its population of interest, with a focus on both male and female participants. The study aims to explore how everyday creativity, as a form of divergent thinking, is related to mindfulness, emotion regulation, and psychological well-being in adolescents. The findings could shed light on the potential benefits of everyday creativity as a valuable asset for fostering psychological well-being. Furthermore, the study will examine whether there are gender differences in the relationship between creativity, mindfulness, emotion regulation, and psychological well-being. Understanding the association between creativity, mindfulness, emotional regulation, and psychological well-being in adolescents is crucial for promoting well-being and creativity during this critical developmental stage. The present study aims to contribute to this area of research by exploring the relationship between these factors in adolescents, with potential implications for promoting creativity and well-being in this population.

### Objectives

- To analyze the relationship between creativity, mindfulness, and emotion regulation among students.
- To investigate gender differences in study variables

### Hypotheses

- There will be a positive relationship between high creativity, mindfulness, and emotional regulation.
- There will be a positive relationship between high creativity and psychological well-being.
- There will be a positive relationship between mindfulness, emotion regulation, and psychological well-being.
- There will be gender differences in creativity, mindfulness, emotion regulations, and psychological well-being among adolescents.

### METHODOLOGY

#### *Participants*

The sample of the present study comprised of adolescents ( $N=600$ ) both male and female with an age range from 15 to 24 years of age (WHO; State Adolescent Health Resource Center (SAHRC) March 2013.). Data was collected through a purposive convenient sampling technique from different colleges and universities students using English as a medium of instruction. Adolescents from ages 15 to 24 were included. Both of the gender males and females took part in the study. Adolescents whose parents were divorced or those who were separated from their parents and those who have known psychiatric problems were excluded from the study.

#### **Measures/ instruments**

The Instruments included in the present study were as follows;

#### *Creativity*

The Kaufman Domains of Creativity Scale (K-DOCS)" [Kaufman, J. C. \(2012\).](#), is a self-report, domain-specific measure assessing creativity in 5 domains: every day, Scholarly, Performance, Science, and the Arts. Kaufman provided initial evidence for the K-DOCS' factor structure, Coefficient alphas and coefficients of congruence are generally strong Self/Everyday,  $r = .80$ ; Scholarly,  $r = .76$ ; Performance,  $r = .86$ ; Mechanical/Scientific,  $r = .78$ , and Artistic,  $r = .81$ . This instrument is a 50-item self-reported questionnaire. The items fall under the following 5 domains: Self/Everyday Creativity, Scholarly, Creativity, Performance Creativity (encompassing writing and music), Mechanical/Scientific Creativity, and Artistic Creativity. Participants rated themselves on a 5-point Likert scale, with 1 being much less creative and 5 being much more creative. All items scoring should be randomized.

#### **Mindful Attention Awareness Scale (MAAS)**

Mindful Attention Awareness Scale (MAAS; [Brown & Ryan, 2003](#)) The MAAS is a 15-item, 6-point Likert-type scale (6 = rarely seldom; 1 = almost always) designed to measure the extent to which individuals pay attention during several tasks or, in contrast, behave on "autopilot," without paying enough attention to them. The MAAS does not require familiarity with meditation. Examples of items are "I find it difficult to stay focused on what's happening in the present," "I tend not to notice feelings of physical tension or discomfort until they grab my attention," "I find myself preoccupied with the future or the past," "I find myself doing things without paying attention." Higher scores indicate a greater mindfulness level. MAAS has shown good psychometric properties (Cronbach's alpha of .89) and a one-factor structure.

#### **Emotion Regulation Questionnaire (ERQ)**

Developed by [Gross & John \(2003\)](#), the emotion regulation scale is a 10-item measure designed to assess emotion reappraisal and emotion suppression. Emotion reappraisal consists of a 6-item sub-scale and emotion suppression consists of a 4-item sub-scale. After reading the instructions, participants respond to all 10-items on a 7-point Likert-type response scale (1=Strongly disagree, 7=Strongly agree). For emotion reappraisal, a higher score indicates a greater ability to engage in reappraisal with a possible range of 6 to 42. Within this sample, the internal consistency as assessed by Cronbach's alpha indicates an acceptable level of internal consistency at  $\alpha = .81$  for emotion reappraisal and  $\alpha = .82$  for emotion suppression.

#### **Ryff's Psychological Well-Being Scales (PWB)**

Developed by psychologist Carol D. Ryff, the 42-item Psychological Well-being (PWB) Scale measures six aspects of well-being and happiness: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance ([Ryff et al., 2007](#); adapted from [Ryff, 1989](#)). Respondents rate how strongly they agree or disagree with 42 statements using a 7-point scale (1 = strongly agree; 7 = strongly disagree).

Researchers later reverse-code 21 items so that higher scores indicate greater well-being, and then calculate separate subscale scores by summing all items within each subscale.

#### **Procedure**

Permission was taken from the head of the college and school for data collection and from staff members. Informed consent in written form will be obtained from the administration, class teachers, and the respondents. Participants were instructed regarding the nature, objectives, and importance of the research. The researcher handled the queries of the participants before, during, and after the form completion. In the end, participants were thanked for their valuable contribution to the study. For data collection, the sample will be screened out on the basis of creativity and then it was divided into two groups High creative and Low creative, and then it was tested on other measures.

#### **FINDINGS / RESULTS**

The study aimed to examine the effect of academic self-concept on academic achievement, and the moderating role of a perceived sense of humor and collective self-esteem on academic achievement. Statistical methods used for the analysis of study variables include alpha reliability, Pearson correlation, independent sample t-test performed to check gender differences, and ANOVA to check the difference in socio-economic status.

**Table 1:** Pearson correlation of study variables among students (N = 600)

Variables	1	2	3	4
CR	-	.26**	.16**	.94*
MF	-	-	.31**	.23**
ER	-	-	-	.40**
PW	-	-	-	-

Note. \*\* $p < .01$ , CR = Creativity, MF = Mindfulness, ER= Emotion Regulation, PW= Psychological Well-being

The table suggests that CR is not correlated with any other variable in the table, while MF is positively and significantly correlated to ER with a correlation coefficient of .31\*\*, and a positive correlation to PW with a correlation coefficient of .23\*\*. Similarly, ER is positively and significantly correlated with PW with a correlation coefficient of .40\*\*. Furthermore, PW is not correlated with any other variable in the table.

**Table 2:** Mean, standard deviation, and t-values for male and female students on Creativity, Mindfulness, Emotion regulation, and Psychological Well-being (N = 600)

Variables	Male(n=328)		Female(n=270)		t(596)	P	95% CI		Cohen's d
	MD	SD	MD	SD			LL	UL	
CR	153.2	17.8	148.7	15.4	3.24	.001	1.7	7.1	0.27
MF	51.4	7.6	50.9	8.0	.81	.41	.7	1.7	0.06
ER	41.8	8.1	40.3	7.1	2.3	.01	.24	2.7	0.19
PW	147.6	21.1	147.4	20.1	.11	.91	3.1	3.5	0.00

Note. \*\*p < .01, CR = Creativity, MF = Mindfulness, ER= Emotion Regulation, PW= Psychological Well-being

Table 2 shows mean, standard deviation, and t-values for male and female students on Creativity, Mindfulness, Emotion regulation, and Psychological Well-being. The results show significant gender differences in creativity and Emotional regulation. The results showed that males scored (M= 153.2, p<0.001) higher on creativity as compared to female students (M= 148.7, p<0.001), While male students also scored higher on Emotion Regulation (M= 41.8, p<0.01) as their female counterparts (M= 40.3, p<0.01). Also, non-significant differences in mindfulness and psychological well-being, which means no gender differences, existed in mindfulness and psychological well-being.

## DISCUSSION / ANALYSIS

The study of creativity and its association with mindfulness, emotional regulation, and psychological well-being in adolescents is a fascinating area of research that has the potential to shed light on the complex interplay between these psychological constructs. The scale used for measuring Creativity was The Kaufman Domains of Creativity Scale (K-DOCS) (Kaufman, 2012), the Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003), for emotion regulation was the Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), while psychological well-being was measure using Ryff's Psychological Well-Being Scales (PWB; Ryff, 1989). Statistical methods used for the analysis of study variables include alpha reliability, Pearson correlation, independent sample t-test performed to check gender differences, and ANOVA to check the difference in socio-economic status.

The study results suggested that creativity is not correlated with any other study variables rejecting our first and second hypotheses i.e., there will be a positive relationship between high creativity, mindfulness, and emotional regulation; there will be a positive relationship between high creativity and psychological well-being. While, mindfulness is positively and significantly correlated to emotion regulation, and positive correlation to psychological well-being, which proves our hypothesis 3 states a positive relationship between mindfulness to emotion regulation and psychological well-being. Similarly, emotion regulation is positively and significantly correlated with psychological well-being. Furthermore, psychological well-being is not correlated with any other variable in the table.

There is a growing body of research exploring the relationship between creativity and mindfulness and emotion regulation that are contradictory to our findings. Some studies have found a positive correlation between mindfulness and creativity. For instance, a study conducted by Colzato et al. (2012) found that a brief mindfulness meditation intervention improved divergent thinking, which is a critical aspect of creativity. Other research has found that emotion regulation can enhance creativity. For instance, a study by De Dreu et al. (2012) found that inducing positive affect through mood induction techniques improved creative performance on a cognitive task. However, there is also evidence suggesting that the relationship between creativity, and mindfulness, and emotion regulation may be more complex. For example, a study by Baas et al. (2014) found that while mindfulness was positively correlated with creativity in tasks that required a lower degree of cognitive control, it was negatively correlated with creativity in tasks that required a higher degree of cognitive control.

Similarly, a study by Zhang and Baas (2019) found that the relationship between emotion regulation and creativity was moderated by the specific emotion regulation strategy used. They found that using cognitive reappraisal, which involves reinterpreting the meaning of a situation to change one's emotional response, was positively associated with creativity while using expressive suppression, which involves inhibiting the expression of emotions, was negatively associated with creativity. These findings suggest that the relationship between creativity and mindfulness and emotion regulation is complex and may depend on various factors such as the specific aspects of mindfulness and emotion regulation being examined, the type of creativity being assessed, and the context in which creativity is being measured. The reason behind these findings is that creativity is a multifaceted construct that can be influenced by a range of factors, including cognitive and affective processes. Mindfulness and emotion regulation are two psychological constructs that have been shown to influence cognitive and affective processes, which in turn can affect creative performance. However, the relationship between creativity and these constructs can be complex and context-dependent, as different types of creativity may require different levels of cognitive control, emotional intensity, and cognitive flexibility.



Our findings also revealed significant gender differences in creativity and Emotional regulation, which means that males scored higher on creativity and emotion regulation as compared to female students. Previous research on gender differences in creativity and emotional regulation has yielded mixed results, with some studies showing gender differences and others not finding significant differences between males and females. In terms of creativity, some studies have found that males score higher than females on certain measures of creativity, such as divergent thinking tasks (Jauk et al., 2013). However, other studies have found no significant gender differences in creativity (Kim, 2017). It is important to note that creativity is a complex construct that can be difficult to measure, and different measures of creativity may yield different results.

As for emotional regulation, some research has shown that females may be more proficient in regulating their emotions than males (Gross & John, 2003). However, other studies have found no significant gender differences in emotional regulation (Nolen-Hoeksema & Aldao, 2011). It is also important to consider the potential reasons for any observed gender differences in creativity and emotional regulation. One possible explanation is societal and cultural factors that influence the development of these traits. For example, traditional gender roles may limit opportunities for girls and women to engage in creative pursuits or to develop their emotional regulation skills (Eagly & Wood, 2012). Additionally, societal expectations regarding masculinity and femininity may influence how males and females express their emotions (Gross & John, 2003). It is also possible that biological factors may play a role in any observed gender differences. For example, some research has suggested that hormonal differences between males and females may influence emotional regulation (Nater et al., 2006). In conclusion, while there may be some evidence to suggest gender differences in creativity and emotional regulation, it is important to approach these findings with caution and to consider the complex interplay of societal, cultural, and biological factors that may influence the development and expression of these traits.

Also, non-significant differences in mindfulness and psychological well-being, which means no gender differences existed in mindfulness and psychological well-being. Several studies have investigated gender differences in mindfulness and psychological well-being. One meta-analysis conducted by Khoury et al. (2015) included 124 studies and found that women had slightly higher levels of mindfulness than men. However, the effect size was small and may not have practical significance. Another meta-analysis by Schutte and Malouff (2014) also found no significant gender differences in mindfulness. In terms of mindfulness, the small differences observed in some studies may be due to gender socialization and cultural norms around the emotional expression. For example, women may be socialized to be more attuned to their emotions and have greater emotional intelligence, which could lead to higher levels of mindfulness. However, these gender differences may be small and may not be consistently observed across different cultures or populations. Additionally, the measures used to assess mindfulness may differ across studies, which could also contribute to variability in findings.

In terms of psychological well-being, some studies have found gender differences, while others have not. For example, a study by Diener et al. (2018) found that women reported higher levels of life satisfaction than men, but there were no significant gender differences in positive affect, negative affect, or overall psychological well-being. Another study by Huang and Alessandri (2017) found no significant gender differences in overall psychological well-being, but women reported higher levels of emotional well-being and men reported higher levels of psychological and social well-being. The reasons due to such differences may be attributed to the differences in life circumstances, such as work and family roles, social support, and life stressors. For example, women may face greater caregiving responsibilities and experience more work-family conflict, which could impact their overall well-being. However, other studies have found no significant gender differences in psychological well-being after controlling for these factors.

## CONCLUSION

In conclusion, this study provides valuable insights into the potential benefits of mindfulness and emotion regulation practices for adolescent well-being. While creativity did not show a significant correlation with other variables, mindfulness was found to have a positive association with both emotion regulation and psychological well-being. The study also highlights gender differences in creativity and emotion regulation, with males scoring higher than females. These findings can inform interventions and programs that aim to promote the well-being of adolescents, emphasizing the importance of mindfulness and emotion regulation practices. Further research is needed to explore the potential role of creativity in adolescent well-being and its relationship with other variables.

## LIMITATION AND STUDY FORWARD

The present study is not free from limitations. The study may have had a sample only chosen from one province of Pakistan, which can limit the generalizability of the findings to the larger population of adolescents. Also, the study relied on self-report measures to assess mindfulness, emotion regulation, psychological well-being, and creativity. Self-report measures are susceptible to social desirability bias, meaning that participants may have responded in a way they believed to be socially acceptable, leading to inaccurate results. Additionally, the study utilized a cross-sectional design, which means that the researchers measured all variables at a single point in time. This design can limit the ability to draw causal conclusions about the relationships between the variables. Furthermore, the study only examined the relationship between mindfulness, emotion regulation, psychological well-being, and creativity. It is possible that other factors, such as social support or environmental factors, may also play a role in adolescent well-being. Lastly, the study may not have had a diverse sample, which can limit the generalizability of the findings to more diverse populations. This can also affect the

ability to conclude gender differences in creativity and emotion regulation if the sample was not diverse enough to capture these differences.

## CONFLICT OF INTEREST AND ETHICAL STANDARDS

There is no conflict of interest in this research. Participants' welfare was ensured throughout the study, and they were given an informed consent form before participating. The study ensured confidentiality and anonymity by not collecting personal information and using numerical codes for participant identification.

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## AUTHOR'S CONTRIBUTION

Both authors 1 and 2 developed the presented idea. developed the theory and performed the computations, verified the analytical methods. 2 encouraged to investigate and supervised the findings of this work. Both authors discussed the results and contributed to the final manuscript.

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