

Comparison of the Effectiveness of Acceptance and Commitment Therapy and Positive Psychology on Reducing Rumination and Improving Interpersonal Relationships among Lower Secondary School Female Students

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ABSTRACT

Objective: This study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Positive Psychotherapy (PPT) in reducing rumination and enhancing interpersonal relationships among lower secondary school female students.

Methods and Materials: This applied study employed a quasi-experimental design with a pretest–posttest control group. The statistical population included all female lower secondary school students in District 11 of Tehran during the 2024–2025 academic year. Using random selection, 45 students with low scores in rumination and interpersonal functioning were assigned to two experimental groups and one control group. The first experimental group received eight weekly 90-minute ACT sessions based on Hayes et al. (2002), and the second experimental group received nine weekly 90-minute PPT sessions adapted from Rashid and Seligman (2013). The control group received no intervention during the study period. Data were collected using the Ruminative Response Scale (Nolen-Hoeksema & Morrow, 1991) and the Inventory of Interpersonal Problems (Barkham et al., 1994). Analyses were conducted using multivariate analysis of covariance (MANCOVA) in SPSS version 23.

Findings: Results revealed significant differences between the experimental and control groups on all rumination subscales, including depression ($F = 75.50, p < .0001, \eta^2 = .84$), brooding ($F = 20.30, p < .0001, \eta^2 = .59$), and expressiveness ($F = 42.14, p < .0001, \eta^2 = .75$). Significant improvements were also found in interpersonal relationship subscales, such as assertiveness and sociability ($F = 93.74, p < .0001, \eta^2 = .87$), openness ($F = 38.01, p < .0001, \eta^2 = .73$), and supportiveness ($F = 81.10, p < .0001, \eta^2 = .85$). No significant differences emerged between ACT and PPT in most outcomes.

Conclusion: Both ACT and PPT are effective interventions for reducing rumination and improving interpersonal functioning in adolescents, suggesting their suitability for school-based mental health promotion.

Keywords: Acceptance and Commitment Therapy (ACT), Positive Psychology, Rumination, Interpersonal Relationships, Students.

1. Introduction

The increasing complexity of modern work and educational settings has brought psychological well-being, stress regulation, and adaptive interpersonal functioning to the forefront of scientific inquiry. Within these contexts, the interplay between professional ethics, coping strategies, and job stress has become especially important, as these factors directly shape individuals' resilience, mental health, and performance (Mo'tamedi & Sajadian, 2024; Rezatelab, 2023). Work-related stress and psychological strain have been extensively documented as risk factors for impaired functioning among diverse populations, including healthcare professionals, teachers, and students (Johansen & Cadmus, 2020; Polizzi et al., 2020). They are associated with reduced engagement, lower productivity, interpersonal conflict, and the onset or exacerbation of mental health conditions such as anxiety, depression, and rumination (Li et al., 2024; Xiong et al., 2020; Zheng et al., 2021). These concerns were magnified during the COVID-19 pandemic, when unpredictable environmental stressors and ethical dilemmas placed additional psychological burden on individuals in both professional and academic domains (Khanal et al., 2022; Lim & Sok, 2024; Sperling, 2021; Yildirim & Bulut, 2022).

Rumination—a maladaptive pattern of repetitive and passive focus on distressing thoughts and emotions—has been recognized as a major contributor to anxiety, depression, and emotional exhaustion (Zhao, 2025). Persistent rumination impairs cognitive flexibility, deepens negative mood states, and hinders the ability to engage in effective problem solving or interpersonal interactions (Shari'at Panah & Fani, 2021). In adolescents, excessive rumination has been linked to increased vulnerability to academic and social maladjustment, including interpersonal conflicts and social withdrawal (Salehi et al., 2025; Vajargahi et al., 2025). Simultaneously, the quality of interpersonal relationships plays a critical protective role by fostering a sense of belonging and reducing the impact of chronic stress (Elbers & Haan, 2020; Soleiman Zadeh & Shakirdoluq, 2019). Supportive relationships buffer psychological distress, whereas interpersonal difficulties can reinforce maladaptive coping patterns and emotional dysregulation (Bagheri Sheykhangafshe & Esmaeilinasab, 2021; Dibaji Foroshani et al., 2021).

The educational environment can itself be a source of chronic stress. Adolescents are increasingly confronted with academic competition, peer comparison, and shifting

cultural and ethical demands (Rahmanian et al., 2020; Rezatelab, 2023). Teachers and students alike face rising expectations for ethical conduct, adaptability, and emotional stability (Aghbaei & Azarafra, 2024; Alizadeh, 2019; Herzog, 2019). Failure to manage these pressures contributes to maladaptive psychological outcomes, including disengagement, conflict, and reduced academic success (Mohammadi Jabdaragh et al., 2022; Shabani Azadbani, 2021). Evidence from studies on workplace and academic conflict shows that unresolved tension and ethical dilemmas erode mental resilience and interpersonal competence (Jahaniyan & Esfandiari, 2020; Shabani Azadbani & Safari, 2021).

As psychological vulnerability among adolescents grows, interventions focusing on cognitive and emotional flexibility have become vital. Two prominent evidence-based approaches—Acceptance and Commitment Therapy (ACT) and Positive Psychotherapy (PPT)—have been shown to reduce psychological inflexibility, promote adaptive coping, and enhance well-being (Salehi et al., 2025; Vajargahi et al., 2025). ACT, grounded in psychological flexibility theory, helps individuals break free from maladaptive avoidance and control strategies, fostering acceptance of internal experiences and commitment to value-driven behavior (Mo'tamedi & Sajadian, 2024). By emphasizing acceptance and cognitive defusion, ACT reduces the rigid cycle of rumination and emotional entanglement that perpetuates stress (Polizzi et al., 2020). Recent research demonstrates ACT's efficacy in decreasing worry, academic procrastination, and self-regulatory deficits in adolescents and young adults (Salehi et al., 2025; Vajargahi et al., 2025).

In parallel, Positive Psychotherapy (PPT), rooted in the positive psychology movement, aims to cultivate strengths, gratitude, optimism, and positive interpersonal connections (Li et al., 2024; Lim & Sok, 2024). By shifting the focus from deficits and distress to resources and flourishing, PPT can counteract negative cognitive loops such as rumination and promote meaningful engagement with others (Polizzi et al., 2020). Emphasis on forgiveness, gratitude, savoring, and positive communication fosters resilience and stronger social bonds, which are crucial protective factors against stress-related dysfunction (Elbers & Haan, 2020; Rodriguez & Juricic, 2018). PPT has also been recognized as highly adaptable in educational settings, enhancing students' interpersonal competence and psychological well-being (Zaidabadi Nejad & Dadvar, 2022).

The relevance of these approaches is underscored by the COVID-19 era findings, which highlighted adolescents'

heightened psychological distress due to social isolation, uncertainty, and ethical conflicts in school and family systems (Bagheri Sheykhangafshe & Esmailinasab, 2021; Khanal et al., 2022; Sperling, 2021). Studies show that adolescents who cultivate resilience, mindfulness, and positive coping strategies are better able to regulate emotions and sustain interpersonal functioning (Li et al., 2024; Polizzi et al., 2020; Yildirim & Bulut, 2022). Conversely, persistent exposure to stress without adaptive frameworks can intensify negative self-concept, worry, and relational withdrawal (Rahmanian et al., 2020; Salari Manesh, 2020).

Professional ethics research, though primarily focused on adult workplaces, offers further conceptual grounding for adolescent interventions. Values clarification, a key ACT and PPT component, aligns with ethical orientation development and contributes to healthier social adaptation (Aghbaei & Azarafa, 2024; Alizadeh, 2019; Herzog, 2019). Conflict resolution and prosocial responsibility, emphasized in positive psychology frameworks, echo findings that ethical reasoning and interpersonal skills mitigate psychological distress and improve adaptive performance (Mohammadi Jabdaragh et al., 2022; Shabani Azadbani & Safari, 2021). Adolescents who internalize ethical and relational competencies show reduced susceptibility to maladaptive cognitive cycles, including rumination (Elbers & Haan, 2020; Rodriguez & Juricic, 2018).

Furthermore, cultural dynamics shape how interventions are conceptualized and delivered. Research in Iranian and cross-cultural contexts shows that ethical conflict, psychological stress, and coping patterns vary by social expectations and family-school interactions (Elbers & Haan, 2020; Johansen & Cadmus, 2020; Yildirim & Bulut, 2022). Tailoring ACT and PPT to cultural norms and adolescent developmental needs increases intervention effectiveness by addressing contextual stressors while fostering universally relevant resilience skills (Lim & Sok, 2024; Mo'tamedi & Sajadian, 2024).

Despite growing evidence, few studies have directly compared ACT and PPT in adolescent populations, particularly regarding their impact on rumination and interpersonal relationships. While ACT targets psychological flexibility and acceptance to disrupt maladaptive thought cycles, PPT actively strengthens positive cognition and social connectedness, offering potentially complementary but distinct pathways to mental health improvement (Salehi et al., 2025; Vajargahi et al., 2025). Understanding their relative efficacy can guide educators, school psychologists, and mental health

practitioners in selecting contextually appropriate interventions that simultaneously address internalizing symptoms and relational well-being (Dibaji Foroshani et al., 2021; Rezatelab, 2023).

This study was designed to fill this gap by examining and comparing the effectiveness of Acceptance and Commitment Therapy and Positive Psychotherapy on reducing rumination and enhancing interpersonal relationships among adolescent female students.

2. Methods and Materials

2.1. Study Design and Participants

The present study was applied in purpose, quasi-experimental in design, and conducted in the form of a pretest–posttest plan with one control group and two experimental groups. The statistical population consisted of all female lower secondary school students majoring in mathematics in District 11 of Tehran during the 2024–2025 academic year. The research samples were selected through random sampling.

For implementation, three female lower secondary schools were randomly selected. Subsequently, the pretest was administered. Students who were willing to participate and met the inclusion criteria were considered: low scores on rumination and interpersonal problems variables, average academic performance (evaluated by the teacher), not taking medication affecting alertness, absence of chronic psychological disorders, not attending simultaneous psychological training sessions, and providing informed consent. The exclusion criteria included severe physical conditions, absence from three intervention sessions, non-cooperation with the researcher, failure to complete the main intervention assignments, and unwillingness to continue participation.

A total of 45 students with lower scores compared to their peers were selected and randomly assigned to two experimental groups and one control group. The first experimental group received Acceptance and Commitment Therapy (ACT) based on Hayes et al. (2002), while the second experimental group received Positive Psychology intervention derived from Positive Psychotherapy sessions by Rashid and Seligman (2013). The control group did not receive any training and, for ethical considerations, was placed on a waiting list to receive the intervention after the study.

2.2. Measures

Ruminative Response Scale (RRS) by Nolen-Hoeksema and Morrow (1991): This questionnaire, developed by Nolen-Hoeksema and Morrow in 1991, assesses responses to negative mood. It was translated into Persian by Bagheri-Nejad et al. in 2010. The RRS consists of 22 items and two subscales: ruminative responses and distraction responses. Scoring is based on a four-point Likert scale ranging from 1 (never) to 4 (almost always). Higher scores indicate greater rumination. Luminet (2004) reported Cronbach's alpha reliability of .92 and construct validity of .67. Additionally, Bagheri and colleagues (2010) reported Cronbach's alpha reliability of .90 for the total scale and .92 and .89 for its subscales. Convergent validity with the Metacognitive Beliefs Questionnaire was reported at .65 ($p < .001$), confirming high validity. In the present study, Cronbach's alpha was calculated as .79.

Inventory of Interpersonal Problems (IIP) by Barkham et al. (1994): This questionnaire was developed by Barkham et al. in 1994. It includes 32 items and six subscales: assertiveness and sociability, openness, consideration of others, aggression, supportiveness and participation, and dependency. Scoring is based on a five-point Likert scale ranging from 1 (not at all) to 5 (very much). The minimum score is 32 and the maximum is 160, with higher scores indicating greater interpersonal problems. Validity and reliability were confirmed in the study by Fateh et al. (2013), with the overall test reliability reported using the split-half method at .90. In the present study, Cronbach's alpha was .81.

2.3. Intervention

The Acceptance and Commitment Therapy (ACT) program was adapted from the therapeutic framework of Hayes et al. (2000, 2002) and delivered by the researcher in eight 90-minute sessions held weekly over eight consecutive weeks. The intervention began with building therapeutic rapport, introducing the structure of the sessions, and orienting participants to the ACT model. It proceeded to explore creative hopelessness by assessing the students' willingness to change and confronting the ineffectiveness of maladaptive control strategies. Sessions focused on teaching acceptance as distinct from failure, denial, or resistance, and introduced cognitive defusion techniques to reduce problematic language patterns and psychological entanglement with thoughts and emotions. Participants were guided to observe the "self as context," differentiate

themselves from their internal experiences, and use metaphors to increase self-awareness. Mindfulness exercises and value clarification were integrated to help students identify their core life values and strengthen psychological flexibility. The program concluded with developing value-based action plans, fostering willingness and commitment to act according to personal values, reviewing therapeutic progress, and conducting the posttest evaluation.

The Positive Psychotherapy (PPT) program was based on the intervention model of Rashid and Seligman (2013) and implemented by the researcher in nine 90-minute sessions conducted weekly over nine consecutive weeks. The program began with orientation and rapport-building, introducing the principles and goals of positive psychotherapy, and conducting the pretest. Early sessions emphasized identifying and enhancing signature strengths and cultivating positive emotions using the Values in Action (VIA) strengths framework, followed by exercises to deepen engagement and meaning. Participants practiced forgiveness and explored their personal legacy through reflective writing about how they wished to be remembered. Gratitude exercises were introduced, encouraging participants to recall meaningful experiences and write gratitude letters to individuals they had not fully appreciated before. Later sessions addressed building positive relationships and teaching active-constructive responding to strengthen interpersonal bonds. The final session focused on savoring—developing awareness and intentional prolonging of positive experiences while managing barriers such as hurried enjoyment. The program concluded with integration of learned skills, feedback sharing, and administration of the posttest.

2.4. Data Analysis

For data analysis, descriptive statistics (mean and standard deviation) and inferential statistics (multivariate analysis of covariance [MANCOVA]) were used with SPSS version 23. The questionnaires and interventions employed in this study are presented above.

3. Findings and Results

The demographic findings of the present study showed that, in the Acceptance and Commitment Therapy (ACT) group, 46.7% of the participants were 15 years old and in 10th grade, 26.7% were 16 years old and in 11th grade, and 26.7% were 17 years old and in 12th grade. In the Positive Psychology group, 26.7% were 15 years old and in 10th

grade, 53.3% were 16 years old and in 11th grade, and 20% were 17 years old and in 12th grade. In the control group, 46% were 15 years old and in 10th grade, 26.7% were 16

years old and in 11th grade, and 26.7% were 17 years old and in 12th grade. The means and standard deviations of the research variables are presented in Table 1.

Table 1

Means and Standard Deviations of Research Variables

Variable	Stage	ACT Group M (SD)	Positive Psychology M (SD)	Control Group M (SD)
Rumination	Pre-test	72.93 (2.76)	72.66 (2.66)	77.00 (4.37)
	Post-test	47.13 (7.09)	43.60 (8.03)	76.13 (3.50)
Interpersonal Relationships	Pre-test	125.26 (3.47)	131.86 (6.35)	139.13 (4.70)
	Post-test	78.73 (7.24)	78.66 (6.89)	180.137 (7.01)

First, the four main assumptions were tested. The Kolmogorov–Smirnov z statistic indicated that for none of the groups at any stage of testing were the results significant, suggesting that the data were normally distributed ($p > .05$). Levene’s test showed that the homogeneity of variances at both measurement times across all groups was met ($p > .05$),

confirming this statistical assumption. Box’s M test for the equality of covariance matrices was also non-significant, indicating that this assumption was satisfied. The results of the multivariate analysis of covariance (MANCOVA) for the dependent variables by group are presented below.

Table 2

Summary of MANCOVA Results for Rumination Subscales Scores in Experimental and Control Groups

Variable	SS	df	MS	F	p	η^2
Depression	2625.82	3	875.27	75.50	< .0001	.84
Brooding	376.91	3	125.63	20.30	< .0001	.59
Expressiveness	389.03	3	129.67	42.14	< .0001	.75

The results in Table 2 show that, after controlling for pre-test scores, the differences in mean post-test scores among the three groups on all three rumination subscales were statistically significant. The effect size (η^2) indicated that 84% of the variance in depression, 59% of the variance in brooding, and 75% of the variance in expressiveness at post-test could be attributed to the independent variables (ACT

and Positive Psychology interventions), indicating strong intervention effects. To examine pairwise mean differences between the experimental and control groups and to determine the relative effectiveness of the two interventions on the rumination subscales, the Bonferroni post-hoc test was used. The results are presented in Table 3.

Table 3

Bonferroni Pairwise Comparison of Groups for Rumination Subscales

Component	Group 1	Group 2	Mean Diff.	SE	p
Depression	ACT	Positive Psych.	-2.10	1.41	.43
	ACT	Control	-17.32	1.41	< .0001
	Positive Psych.	Control	-15.22	1.17	< .0001
Brooding	ACT	Positive Psych.	-0.21	1.03	1.00
	ACT	Control	-5.90	1.07	< .0001
	Positive Psych.	Control	-5.68	0.85	< .0001
Expressiveness	ACT	Positive Psych.	-1.08	0.72	.43
	ACT	Control	-6.52	0.75	< .0001
	Positive Psych.	Control	-5.43	0.60	< .0001

The results of Table 3 indicate that in the post-test phase, there were significant differences between the control group

and both experimental groups (ACT and Positive Psychology) in all rumination subscales ($p < .05$). However,

no significant differences were found between the two experimental groups ($p > .05$).

Table 4

Summary of MANCOVA Results for Interpersonal Relationship Subscales in Experimental and Control Groups

Variable	SS	df	MS	F	p	η^2
Assertiveness & Sociability	1954.68	3	651.56	93.74	< .0001	.87
Openness	424.27	3	141.42	38.01	< .0001	.73
Consideration of Others	189.29	3	63.09	9.27	< .0001	.40
Aggression	554.73	3	184.91	25.46	< .0001	.65
Supportiveness	1728.97	3	576.32	81.10	< .0001	.85
Participation & Dependency	459.43	3	153.14	42.60	< .0001	.75

The results of Table 4 show that, after controlling for the pretest scores, the differences in mean posttest scores on the interpersonal relationship subscales among the experimental groups were statistically significant. The eta-squared (effect size) indicates that 87% of the variance in assertiveness and sociability, 73% of the variance in openness, 40% of the variance in consideration of others, 65% of the variance in aggression, 85% of the variance in supportiveness, and 75% of the variance in participation among students at the posttest

stage were accounted for by the independent variables (Acceptance and Commitment Therapy and Positive Psychology interventions), demonstrating the effectiveness of the interventions. To examine the pairwise mean differences between the experimental and control groups and to determine the relative effectiveness of the two interventions on the interpersonal relationship subscales, the Bonferroni post-hoc test was used. The results are presented in the table below.

Table 5

Bonferroni Pairwise Comparison of Groups for Interpersonal Relationship Subscales

Component	Group 1	Group 2	Mean Diff.	SE	p
Assertiveness & Sociability	ACT	Positive Psych.	-2.91	1.33	1.06
	ACT	Control	-13.87	1.61	< .0001
	Positive Psych.	Control	-10.96	1.17	< .0001
Openness	ACT	Positive Psych.	-1.43	0.97	.45
	ACT	Control	-5.97	1.18	< .0001
	Positive Psych.	Control	-4.54	0.85	< .0001
Consideration of Others	ACT	Positive Psych.	-1.44	1.32	.84
	ACT	Control	-0.78	1.59	.90
	Positive Psych.	Control	-2.23	1.15	.81
Aggression	ACT	Positive Psych.	-2.41	1.36	.25
	ACT	Control	-7.47	1.65	< .0001
	Positive Psych.	Control	-5.05	1.19	< .0001
Supportiveness	ACT	Positive Psych.	-3.41	1.35	.06
	ACT	Control	-14.69	1.63	< .0001
	Positive Psych.	Control	-11.28	1.18	< .0001
Participation	ACT	Positive Psych.	0.42	0.96	1.00
	ACT	Control	-3.74	1.16	.007
	Positive Psych.	Control	-4.17	0.84	< .0001

The results of the Bonferroni post-hoc test in Table 5 indicate that, at the posttest stage, there were statistically significant differences between the control group and both experimental groups (Acceptance and Commitment Therapy and Positive Psychology) in all interpersonal relationship subscales except for the “consideration of others” subscale

($p < .05$). However, no significant differences were found between the two experimental groups ($p > .05$).

4. Discussion and Conclusion

The present study aimed to compare the effectiveness of Acceptance and Commitment Therapy (ACT) and Positive

Psychotherapy (PPT) on reducing rumination and improving interpersonal relationships among adolescent female students. The findings demonstrated that both interventions significantly decreased all dimensions of rumination, including depression, brooding, and expressiveness, while simultaneously enhancing various aspects of interpersonal relationships, such as assertiveness and sociability, openness, aggression control, supportiveness, and participation. Importantly, while both ACT and PPT outperformed the control group, no significant differences emerged between the two experimental interventions across most subscales. These results suggest that despite their conceptual differences, ACT and PPT may be similarly powerful frameworks for addressing cognitive and interpersonal difficulties in adolescents.

A key explanation for the observed reduction in rumination among participants lies in the core mechanisms of ACT. This therapeutic approach cultivates psychological flexibility by helping individuals accept unwanted internal experiences rather than suppress or control them, thereby disrupting the repetitive and maladaptive cycle of worry and negative self-focus (Mo'tamedi & Sajadian, 2024). Prior research has shown that acceptance and cognitive defusion—ACT's fundamental processes—effectively decrease perseverative thinking and emotional entanglement (Polizzi et al., 2020). The current findings are consistent with recent Iranian studies reporting ACT's success in reducing worry, academic procrastination, and self-regulatory failure in adolescents (Salehi et al., 2025; Vajargahi et al., 2025). This convergence of evidence underscores ACT's role in reframing negative mental loops into adaptive psychological functioning and offering adolescents a flexible response repertoire to internal stressors.

Similarly, the effectiveness of PPT in reducing rumination is likely associated with its strengths-based approach. By emphasizing gratitude, forgiveness, and savoring, PPT encourages adolescents to shift cognitive resources from negative, repetitive thought cycles toward constructive and positive mental content (Li et al., 2024; Lim & Sok, 2024). This cognitive redirection has been identified as a crucial resilience factor during challenging circumstances, such as the COVID-19 pandemic, when persistent uncertainty and ethical conflicts were found to amplify distress and maladaptive cognitive patterns (Khanal et al., 2022; Sperling, 2021). Prior studies highlight that positive affect and strengths cultivation reduce vulnerability to depressive rumination and broaden attentional scope, which in turn fosters psychological adaptability (Elbers &

Haan, 2020; Polizzi et al., 2020). The current results strengthen the argument that targeting cognitive focus through positive emotional and relational exercises is a viable strategy for adolescents struggling with repetitive negative thinking.

Beyond rumination, both interventions improved interpersonal relationships across multiple domains, confirming the reciprocal relationship between cognitive-emotional regulation and social functioning. ACT's conceptualization of the "self as context" and its emphasis on values clarification may help adolescents disentangle from socially paralyzing self-judgment and instead approach peers with authenticity and psychological openness (Mo'tamedi & Sajadian, 2024; Polizzi et al., 2020). These outcomes resonate with research linking acceptance-based interventions to enhanced empathy, reduced interpersonal avoidance, and better conflict navigation (Rezatelab, 2023; Shabani Azadbani, 2021). Similarly, PPT's explicit focus on positive relational behaviors—active-constructive responding, gratitude letters, and forgiveness training—appears to have increased participants' prosocial engagement and relational satisfaction (Elbers & Haan, 2020; Rodriguez & Juricic, 2018). These findings echo previous studies showing that cultivating positive interpersonal resources can buffer against stress, strengthen resilience, and facilitate better adaptation within peer networks (Johansen & Cadmus, 2020; Yildirim & Bulut, 2022).

The improvement observed in assertiveness and sociability may be particularly important within adolescence, a developmental stage marked by heightened sensitivity to peer evaluation and social belonging (Soleiman Zadeh & Shakirdoluq, 2019). By encouraging values-driven action (ACT) and reinforcing prosocial interaction patterns (PPT), both interventions appear to provide a safe platform for adolescents to develop healthier self-expression and more reciprocal relationships. Moreover, aggression reduction and increases in supportiveness and participation highlight how structured psychological interventions can mitigate the interpersonal costs of chronic stress and rumination. This aligns with prior evidence linking unresolved psychological stress with increased interpersonal conflict and reduced collaborative capacity (Dibaji Foroshani et al., 2021; Jahaniyan & Esfandiari, 2020; Rahmanian et al., 2020).

The convergence of ACT and PPT outcomes in this study also offers theoretical insights. Both models, though derived from different paradigms, converge on processes critical to

adolescent mental health: increasing present-moment awareness, reframing internal experiences, and strengthening relational meaning. While ACT traditionally targets experiential avoidance and cognitive fusion (Mo'tamedi & Sajadian, 2024), and PPT emphasizes positive affect and growth (Li et al., 2024; Lim & Sok, 2024), both ultimately promote resilience—a construct shown to mediate the effects of stress on engagement and well-being (Li et al., 2024; Polizzi et al., 2020). Their shared capacity to enhance psychological flexibility and prosocial engagement likely explains why their effects were comparable across outcomes in this research.

Another important contextual factor relates to cultural adaptability. Previous research has highlighted that interventions rooted in values and positive cultural narratives are more impactful among adolescents in collectivist contexts where interpersonal harmony and ethical orientation are highly valued (Aghbaei & Azarafra, 2024; Alizadeh, 2019; Herzog, 2019). By aligning therapeutic content with culturally relevant themes—such as prosocial responsibility and meaningful contribution—both ACT and PPT may have become more acceptable and resonant for the students. This echoes findings that cultural tailoring enhances the relevance of coping and resilience frameworks (Johansen & Cadmus, 2020; Yildirim & Bulut, 2022).

From an applied perspective, the results also integrate well with organizational and educational psychology literature, which links ethical development and conflict management to reduced stress and stronger peer relationships (Mohammadi Jabdaragh et al., 2022; Rezatelab, 2023; Shabani Azadbani & Safari, 2021). Skills such as acceptance, forgiveness, and gratitude promoted through ACT and PPT mirror ethical competencies that support adaptive functioning in school systems. These findings suggest that targeted psychological training can complement broader educational initiatives aimed at fostering resilience and moral reasoning among youth (Elbers & Haan, 2020; Rodriguez & Juricic, 2018).

The reduction of aggression observed aligns with evidence showing that poorly managed stress and rumination predict reactive and maladaptive interpersonal responses (Bagheri Sheykhangafshe & Esmailinasab, 2021; Rahmanian et al., 2020). Interventions that disrupt rumination cycles and teach emotion regulation therefore may serve as protective factors against peer conflict and relational breakdown. Enhancing supportiveness and participation is also consistent with the notion that fostering

positive emotions and group belonging increases collaborative capacity and reduces alienation (Polizzi et al., 2020; Sperling, 2021).

Finally, this research contributes to the growing body of post-pandemic mental health scholarship. COVID-19 created unprecedented stressors, and adolescents, in particular, experienced psychological strain linked to social isolation and ethical uncertainty (Bagheri Sheykhangafshe & Esmailinasab, 2021; Khanal et al., 2022; Sperling, 2021). Interventions like ACT and PPT may serve as accessible, culturally adaptable responses to emerging post-pandemic needs by equipping students with coping flexibility and social resilience (Li et al., 2024; Lim & Sok, 2024).

5. Limitations & Suggestions

Despite its promising findings, the present study is not without limitations. The relatively small sample size (45 students) limits the generalizability of results to larger or more diverse populations. Participants were exclusively female and drawn from a specific educational district, which may not represent the broader adolescent population across different cultural, socioeconomic, or educational backgrounds. The quasi-experimental design, while practical in school settings, lacks the full control of randomized clinical trials and may be subject to selection bias or uncontrolled confounding variables. Self-report measures were used to assess rumination and interpersonal relationships, which can introduce response biases, including social desirability and self-perception errors. Moreover, the follow-up period was not long enough to evaluate the long-term stability of intervention effects; it is unclear whether the gains in rumination reduction and interpersonal functioning would persist beyond the immediate post-intervention period.

Future studies should seek to replicate and extend these findings with larger, more diverse samples, including both male and female adolescents from different cultural and socioeconomic contexts. Longitudinal designs are needed to examine the durability of ACT and PPT effects over time and their potential to prevent recurrence of rumination and interpersonal conflict. It would also be valuable to explore hybrid intervention models that integrate ACT's acceptance and defusion strategies with PPT's positive emotion and relational focus to determine if combined approaches could yield stronger or longer-lasting outcomes. Experimental designs with active control conditions could better isolate the unique mechanisms of each therapy. Additionally,

incorporating multi-informant assessments, such as teacher or parent reports and objective behavioral observations, would strengthen the validity of outcome measures.

Practitioners working in school and community mental health settings can use both ACT and PPT as effective frameworks to support adolescents struggling with repetitive negative thinking and relational difficulties. Integrating these interventions into school-based mental health programs may help reduce stress-related cognitive rigidity and promote healthier peer interactions. ACT techniques can assist students in managing internal distress and aligning behavior with personal and ethical values, while PPT strategies can cultivate gratitude, forgiveness, and positive social bonds. Educators and school psychologists can adapt these approaches to culturally relevant narratives and developmentally appropriate exercises, making them engaging and relatable for adolescents. Collaboration between mental health professionals and educators is essential to embed resilience training and interpersonal skill development within broader educational curricula, thereby fostering supportive, psychologically safe learning environments.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed to this article.

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