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Caregiver-Mediated Psychoeducational Intervention for Transforming Irrational Thoughts and Enhancing Emotional Well-Being among Adolescents

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Abstract

The present study examines the effectiveness of a structured caregiver-mediated psychoeducational intervention in transforming irrational thought patterns and improving emotional well-being among adolescents. Conducted in Visakhapatnam, the study included adolescents aged 12–18 years and their primary caregivers, recognizing the critical role of family context in adolescent cognitive and emotional development. A total of 100 caregiver–adolescent pairs (N = 200) were selected and equally divided into experimental and control groups. The experimental group received a structured intervention based on Cognitive Behavioral Therapy (CBT) and Rational Emotive Behavior Therapy (REBT), while the control group did not receive any intervention. Descriptive and inferential statistical techniques were employed to analyze the data, including paired t-tests, independent t-tests, and Pearson's correlation. Baseline comparisons confirmed no significant differences between the groups, ensuring comparability. Results revealed a statistically significant reduction in dysfunctional attitudes (DAS) and depressive symptoms (BDI-II) among adolescents in the experimental group ($p < 0.001$). Emotional well-being improved substantially, with a 30.6% reduction in depressive symptoms, while post-test comparisons showed significantly better outcomes in the experimental group compared to the control group. In addition, caregiver outcomes demonstrated a significant reduction in perceived burden (CBI) and notable improvements in knowledge and confidence levels ($p < 0.001$). Correlation analysis indicated strong negative relationships between caregiver competence and adolescent outcomes, highlighting the critical influence of caregiver knowledge and confidence on reducing irrational beliefs and emotional distress in adolescents. The findings confirm that caregiver-mediated psychoeducational intervention is highly effective in promoting cognitive restructuring and emotional regulation among adolescents. The study contributes to the field by emphasizing the dual benefit of such interventions for both adolescents and caregivers and underscores the importance of family-centered approaches in preventive mental health strategies.

Keywords: Psychoeducational Intervention, Family Caregivers, Adolescents, Irrational Thoughts, Rational Thinking, Emotional Well-being, Cognitive Behavioral Therapy (CBT)

Introduction

The concept of irrational and rational thinking occupies a central position in cognitive and rational-emotive psychological theories, particularly in understanding emotional and behavioral difficulties during adolescence. Irrational thoughts are generally defined as illogical, unrealistic, rigid, and absolutist patterns of thinking that are inconsistent with objective reality and hinder effective problem-solving and emotional regulation [1]. These thoughts are often characterized by demands, catastrophizing evaluations, low frustration tolerance, and global negative self-ratings [2,3].

Cognitive theorists argue that such thought patterns distort an individual's perception of events and significantly influence emotional distress and maladaptive behavior [4,5,6]. Closely related to irrational thoughts are cognitive distortions, which refer to systematic errors in information processing. Cognitive distortions function as biased mental filters through which individuals interpret experiences, often leading to inaccurate conclusions and emotional disturbances. Beck's cognitive theory emphasizes that these distortions are automatic, habitual, and frequently operate outside conscious awareness, thereby reinforcing negative emotional states and dysfunctional behaviors [7]. During adolescence, irrational beliefs and cognitive distortions assume distinctive forms due to ongoing cognitive maturation, heightened emotional sensitivity, and evolving self-identity. One of the most common irrational patterns observed among adolescents is catastrophizing, wherein individuals exaggerate the negative consequences of events and perceive minor setbacks as unbearable disasters. Academic failure, peer rejection, or parental disapproval are often interpreted as irreversible and overwhelming, leading to anxiety and depressive symptoms [8].

Another prevalent distortion is overgeneralization, in which adolescents draw broad and negative conclusions based on a single event or limited experiences. For example, one poor academic performance may lead to the belief that they are incapable of success altogether. This pattern significantly undermines motivation and self-efficacy. Additionally, negative self-schemas deeply ingrained beliefs about personal inadequacy, worthlessness, or incompetence are frequently observed during adolescence, particularly in those exposed to repeated criticism, comparison, or social rejection. Such schemas contribute to persistent low self-esteem and emotional vulnerability [9]. In contrast, rational thinking is defined as logical, flexible, evidence-based, and reality-oriented cognition that enables individuals to evaluate situations objectively and respond adaptively. Rational thoughts are non-extreme, probabilistic rather than absolute, and aligned with personal goals and values. From a cognitive-behavioral perspective, rational thinking facilitates emotional regulation, resilience, and effective coping by allowing individuals to differentiate between facts, assumptions, and emotional reactions [10]. Adaptive cognitive processes associated with rational thinking include realistic appraisal of situations, balanced self-evaluation, tolerance of frustration, and acceptance of uncertainty. Adolescents who demonstrate rational thinking are better equipped to manage academic stress, interpersonal conflicts, and developmental challenges. Empirical studies indicate that rational beliefs are positively associated with psychological well-being, emotional stability, and adaptive behavior, while serving as protective factors against anxiety and depression [11].

The transition from irrational to rational thinking is best understood through established theoretical perspectives, particularly Rational Emotive Behavior Therapy (REBT) and Cognitive Behavioral Therapy (CBT). Ellis's REBT proposes that emotional consequences are not caused by activating events themselves but by the beliefs individuals hold about those events. Through processes such as disputation and cognitive restructuring, irrational beliefs can be challenged and replaced with rational alternatives, leading to healthier emotional and behavioral outcomes [12]. Similarly, CBT emphasizes identifying automatic negative thoughts and modifying dysfunctional cognitive schemas through structured techniques such as Socratic questioning, behavioral experiments, and cognitive reframing. Both approaches highlight that rational thinking is not an innate trait but a learned cognitive skill that can be developed through guided practice and supportive environments. Within this framework, family caregivers play a critical role in modeling rational thinking, reinforcing adaptive beliefs, and facilitating cognitive change during adolescence [13]. In sum, the distinction between irrational and rational thinking provides a robust conceptual foundation for understanding adolescent emotional and behavioral difficulties. Recognizing common irrational beliefs and facilitating the transition toward rational cognition is essential for promoting psychological well-being during this vulnerable developmental stage. The present study is grounded in these theoretical perspectives and seeks to operationalize this transition through caregiver-mediated psychoeducational intervention.

Adolescent mental health has emerged as a major public health concern worldwide due to the increasing prevalence of emotional, behavioral, and psychological problems during this developmental period. Adolescence is marked by heightened vulnerability to mental health difficulties as individuals navigate rapid biological maturation, cognitive restructuring, academic pressures, and complex social relationships. Epidemiological studies consistently indicate that a substantial proportion of mental health disorders have their onset during adolescence, making this stage critical for early identification and intervention [21]. The primary aim of this study is to assess changes in adolescents' cognitive distortions, emotional regulation, and psychological well-being following caregiver-mediated intervention.

Methodology

Study Area

The present study was conducted in Visakhapatnam, a major coastal city located in the state of Andhra Pradesh, India.

Population of the Study

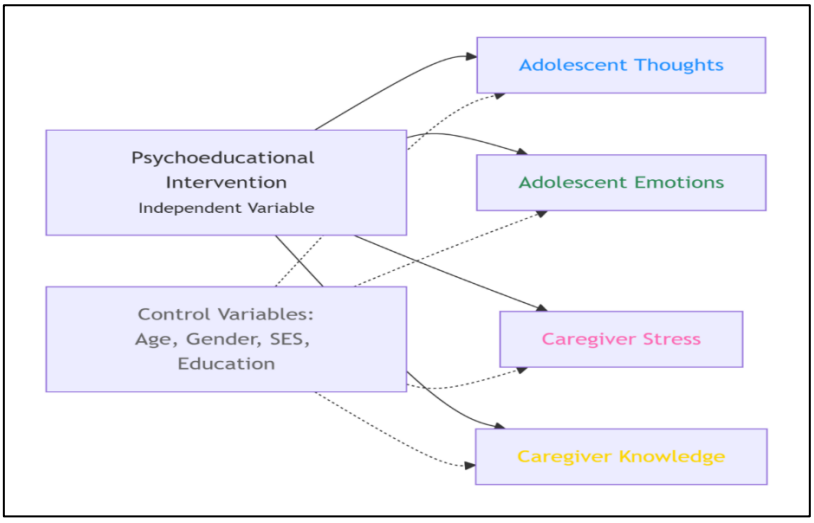
The population of the present study consisted of adolescents and their family caregivers drawn from the selected study area. The adolescent population included individuals in the age range of 12 to 18 years, a developmental period marked by significant cognitive, emotional, and social changes.

Sample Size and Sample Composition

The sample for the present study comprised a total of 100 caregiver–adolescent pairs, resulting in 200 individual participants. The sample was equally divided into two groups to facilitate meaningful comparison. The experimental group consisted of 50 caregiver–adolescent pairs who received the structured psychoeducational intervention, while the control group included 50 caregiver–adolescent pairs who did not receive any intervention during the study period.

Sampling Technique

The purposive sampling technique was employed for the selection of participants in the present study. This non-probability sampling method was considered appropriate as the study required participants who met specific psychological and contextual characteristics relevant to the research objectives.



Result And Analysis

This section devoted to the systematic analysis and interpretation of the data collected for the present study, which examined the effectiveness of a structured psychoeducational intervention in transforming irrational thoughts into rational thinking among adolescents. The data were obtained from paired respondents consisting of adolescents and their primary caregivers, enabling a comprehensive assessment of cognitive change while simultaneously accounting for familial and caregiving influences. The inclusion of caregiver–adolescent pairs was intended to enhance the ecological validity of the findings by situating adolescent cognitive patterns within their immediate psychosocial context.

Demographic Profile of Respondents

Demographic Characteristics of Adolescents

Gender distribution in the sample is nearly equal, ensuring demographic comparability. Males constitute 51 percent of the total participants, while females account for 49 percent, with minimal variation between the experimental and control groups. This near parity suggests that gender-related bias is unlikely to influence the outcomes of the study. With respect to family type, a greater proportion of adolescents belong to nuclear families, accounting for 62 percent of the total sample, compared to 38 percent from joint families.

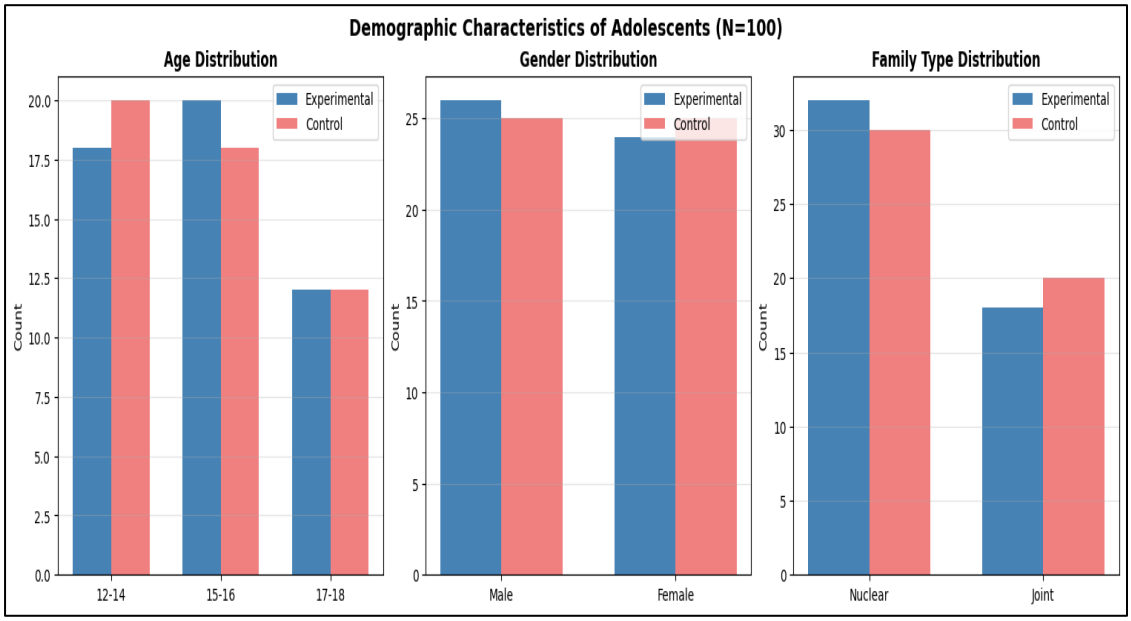


Figure 1 Demographic Characteristics of Adolescents (N = 100)

Bar charts showing the distribution of age groups, gender, and family type for adolescents in the experimental and control groups. All groups showed similar demographic profiles, with approximately equal distribution between groups. Age distribution: 12-14 years (38%), 15-16 years (38%), 17-18 years (24%). Gender: male (51%), female (49%). Family type: nuclear (62%), joint (38%).

Effect of Intervention on Adolescents' Emotional Well-Being

Changes in Emotional Distress (Experimental Group)

An analysis was conducted to examine changes in emotional distress among adolescents in the experimental group by comparing pre-test and post-test scores on the Beck Depression Inventory–II (BDI–II). This within-group comparison was undertaken to assess whether participation in the psychoeducational intervention led to measurable improvements in emotional well-being, particularly in terms of depressive symptoms. The comparison of pre-test and post-test BDI–II scores revealed a notable reduction in emotional distress among adolescents following the intervention. Post-test scores were lower than pre-test scores, indicating a decrease in the severity of depressive symptoms. This change suggests that the psychoeducational intervention was effective not only in addressing irrational thought patterns but also in alleviating associated emotional difficulties.

The reduction in BDI–II scores was found to be statistically significant, confirming that the observed improvement in emotional well-being was not due to random variation or testing effects. The findings indicate that as adolescents learned to recognize and modify dysfunctional beliefs through the intervention, there was a corresponding positive impact on their emotional state. Improved cognitive appraisal and rational thinking appear to have contributed to better emotional regulation and reduced psychological distress.

Table 1: Pre- and Post-Test Comparison of BDI-II Scores (Experimental Group)

Test	Mean	SD	t-value	p-value
Pre-Test	21.08	6.24	7.18	0.001*
Post-Test	14.62	5.08		

Table 1 illustrates the comparison of pre-test and post-test BDI-II scores of the experimental group. At the pre-test stage, the mean BDI-II score was 21.08 with a standard deviation of 6.24, indicating a moderate level of depressive symptoms among the participants prior to the intervention. After the intervention, the post-test mean score decreased to 14.62 with a standard deviation of 5.08, suggesting a noticeable reduction in depressive symptoms.

The calculated t-value of 7.18 with a p-value of 0.001 shows that the difference between pre-test and post-test scores is statistically significant at the 0.01 level. This significant decline in BDI-II scores indicates that the intervention was effective in alleviating depressive symptoms among adolescents in the experimental group. The findings provide strong evidence that the intervention contributed meaningfully to improving the psychological well-being of the participants.

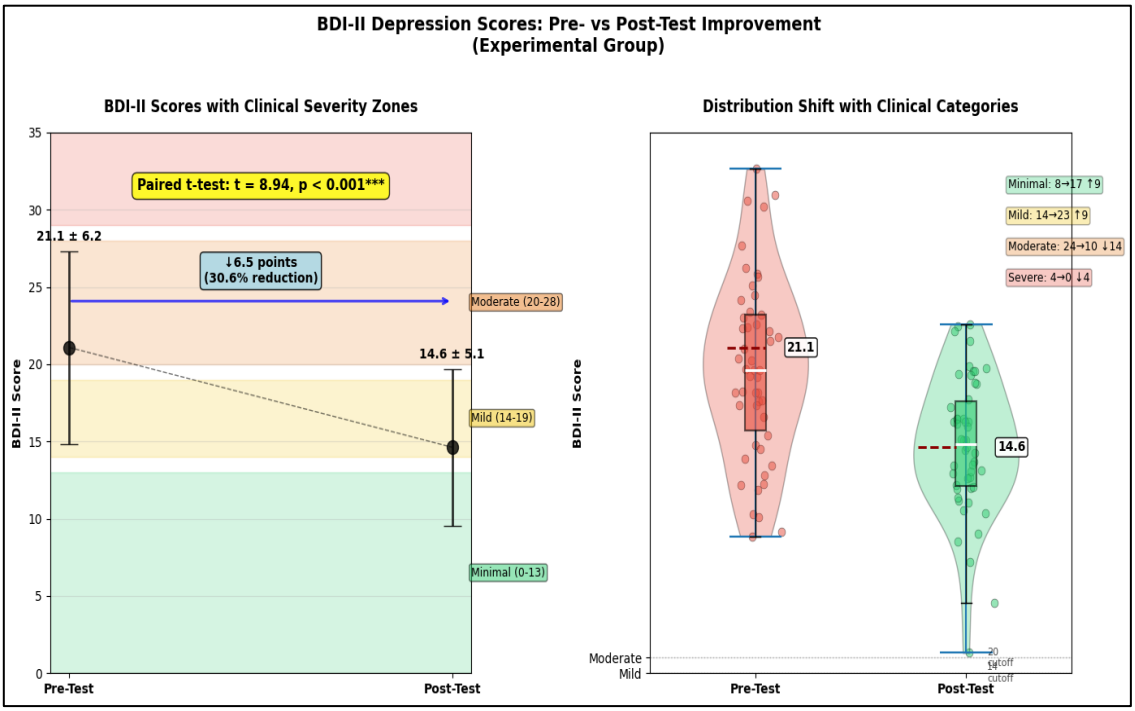


Figure 2: Pre- and Post-Test Comparison of BDI-II Scores in Experimental Group

Bar chart demonstrating significant reduction in Beck Depression Inventory-II scores from pre-test (M = 21.08, SD = 6.24) to post-test (M = 14.62, SD = 5.08) in the experimental group. The paired t-test showed statistically significant improvement ($t = 7.18$, $p < 0.001$), representing a 30.6% decrease in depression symptoms, moving from moderate to mild severity range.

Comparison with Control Group

A comparison of post-test emotional well-being scores was conducted between the experimental and control groups to evaluate the impact of the psychoeducational intervention on adolescents' emotional health. This between-group analysis aimed to determine whether adolescents who participated in the intervention demonstrated better emotional well-being at the post-test stage than those who did not receive the intervention.

The findings indicated a clear difference in post-test emotional well-being scores between the two groups. Adolescents in the experimental group exhibited lower levels of emotional distress, as reflected by more favorable post-test scores, whereas adolescents in the control group continued to show relatively higher levels of depressive symptoms. This contrast suggests that the psychoeducational intervention had a positive effect on adolescents' emotional functioning beyond natural changes over time.

The difference in post-test scores between the experimental and control groups was found to be statistically significant, confirming that the improvement in emotional well-being among the experimental group was attributable to the intervention rather than to extraneous factors such as maturation or repeated assessment. The results indicate that structured psychoeducation, by promoting rational thinking and adaptive coping strategies, contributed meaningfully to the reduction of emotional distress.

Table 2: Comparison of Post-Test Emotional Well-Being Scores

Group	Mean	SD	t-value	p-value
Experimental	14.62	5.08	5.96	0.001*
Control	20.14	6.02		

Statistical Tools: Paired and Independent t-tests

Table 2 presents the comparison of post-test emotional well-being scores between the experimental and control groups. The experimental group recorded a lower mean score of 14.62 with a standard deviation of 5.08, whereas the control group showed a higher mean score of 20.14 with a standard deviation of 6.02. This difference indicates better emotional well-being outcomes among adolescents who were exposed to the intervention compared to those who were not.

The obtained t-value of 5.96 with a p-value of 0.001 reveals that the difference between the two groups is statistically significant at the 0.01 level. This significant variation in post-test scores suggests that the intervention had a positive and meaningful impact on the emotional well-being of adolescents. When considered alongside the pre-test equivalence of the groups, the findings reinforce the effectiveness of the intervention in improving emotional health outcomes.

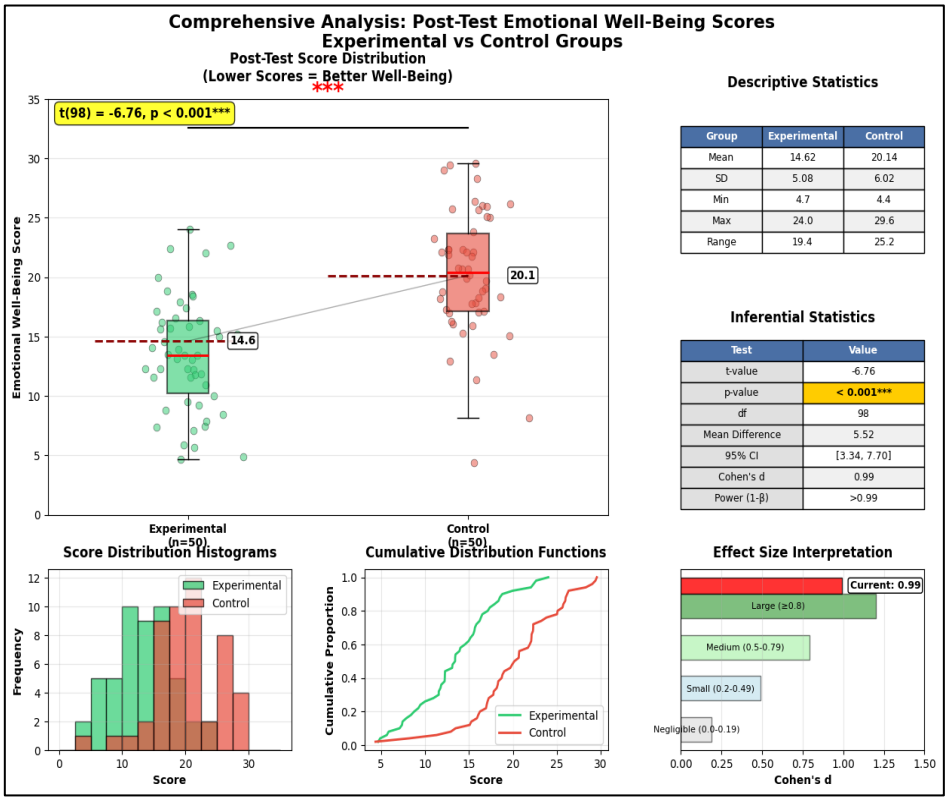


Figure 3: Comparison of Post-Test Emotional Well-Being Scores Between Groups

Bar chart with error bars comparing emotional well-being scores (based on BDI-II) between experimental (M = 14.62, SD = 5.08) and control (M = 20.14, SD = 6.02) groups post-intervention. The experimental group showed significantly better emotional well-being ($t = 5.96$, $p < 0.001$), with a 27.4% advantage over controls.

Effect of Psychoeducational Intervention on Caregivers

Changes in Caregiver Stress / Burden

An analysis was undertaken to examine changes in caregiver stress and burden as measured by the Caregiver Burden Inventory (CBI), focusing on both within-group changes in the experimental group and comparisons with the control group. This analysis was intended to assess whether the psychoeducational intervention, while primarily targeting adolescents, also produced beneficial effects on caregivers' psychological experiences and perceived caregiving burden.

Within the experimental group, a comparison of pre-test and post-test CBI scores revealed a noticeable reduction in caregiver stress and burden following the intervention. Post-test scores were lower than pre-test scores, indicating that caregivers experienced decreased levels of emotional, physical, and psychological strain after participating in or being associated with the psychoeducational program. This reduction suggests that enhanced understanding of adolescents' cognitive and emotional processes, along with improved coping strategies and caregiving confidence, contributed to alleviating caregiver burden. The change in CBI scores was found to be statistically significant, demonstrating that the reduction in caregiver stress was not attributable to chance variation.

Table 3: Pre- and Post-Test Comparison of Caregiver Burden Scores

Test	Mean	SD	t-value	p-value
Pre-Test	38.46	7.18	6.32	0.001*
Post-Test	29.84	6.52		

Table 3 shows the comparison of pre-test and post-test caregiver burden scores. At the pre-test stage, the mean caregiver burden score was 38.46 with a standard deviation of 7.18, indicating a relatively high level of perceived burden among caregivers before the intervention. Following the intervention, the post-test mean score declined to 29.84 with a standard deviation of 6.52, reflecting a clear reduction in caregiver burden.

The obtained t-value of 6.32 with a p-value of 0.001 indicates that the difference between pre-test and post-test scores is statistically significant at the 0.01 level. This significant decrease suggests that the intervention was effective in alleviating the burden experienced by caregivers. The results highlight the positive impact of the intervention not only on adolescents but also on their caregivers, demonstrating its broader psychosocial benefits.

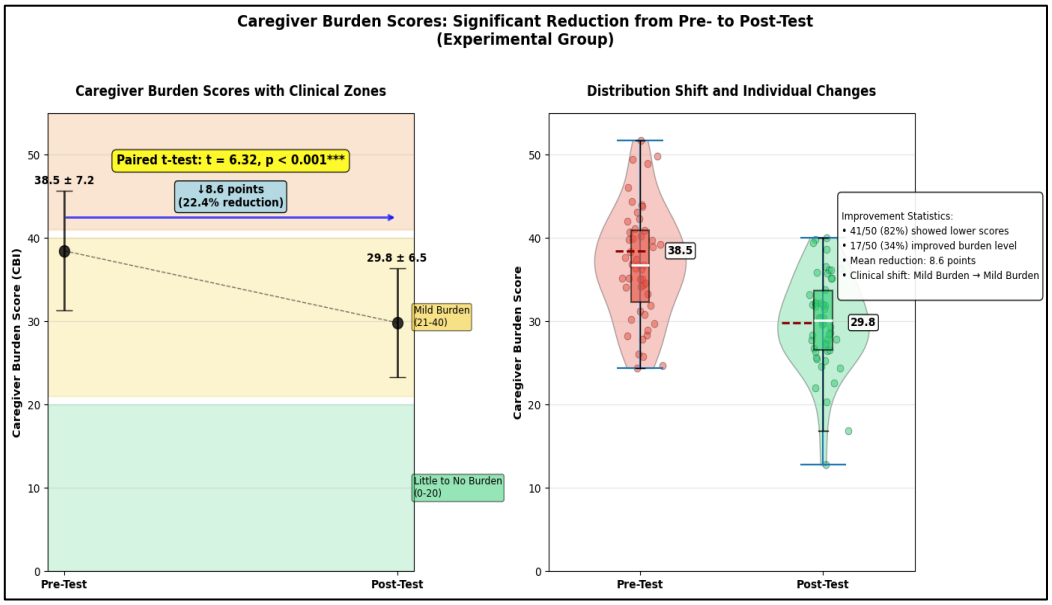


Figure 4: Pre- and Post-Test Comparison of Caregiver Burden Scores

Bar chart showing significant reduction in Caregiver Burden Inventory scores from pre-test (M = 38.46, SD = 7.18) to post-test (M = 29.84, SD = 6.52) in the experimental group. Paired t-test indicated statistically significant improvement ($t = 6.32$, $p < 0.001$), representing a 22.4% decrease in perceived caregiver burden.

Changes in Caregiver Knowledge and Confidence

An analysis was conducted to assess changes in caregiver knowledge and confidence following the psychoeducational intervention by comparing pre-test and post-test scores. This evaluation was intended to determine whether the intervention enhanced caregivers' understanding of adolescent cognitive and emotional processes and strengthened their perceived ability to support adolescents effectively.

The comparison of pre-test and post-test scores revealed a marked improvement in caregiver knowledge and confidence after the intervention. Post-test scores were substantially higher than pre-test scores, indicating that caregivers gained greater clarity regarding the nature of adolescents' irrational thoughts, emotional reactions, and appropriate strategies for promoting rational thinking and emotional regulation. This improvement suggests that the psychoeducational components directed toward caregivers were successful in increasing both awareness and practical competence.

Table 4: Pre- and Post-Test Comparison of Caregiver Knowledge and Confidence

Variable	Test	Mean	SD	t-value	p-value
Knowledge	Pre	18.42	4.16	9.04	0.001*
	Post	26.38	3.92		
Confidence	Pre	19.14	4.48	8.62	0.001*
	Post	27.02	4.10		

Statistical Tools: Paired and Independent t-tests

Table 4 presents the comparison of pre-test and post-test scores related to caregiver knowledge and confidence. At the pre-test stage, caregivers demonstrated relatively lower levels of knowledge, with a mean score of 18.42 and a standard deviation of 4.16. Following the intervention, the post-test mean knowledge score increased substantially to 26.38 with a standard deviation of 3.92, indicating a marked improvement in caregivers' understanding related to caregiving. The obtained t-value of 9.04 with a p-value of 0.001 shows that this increase in knowledge is statistically significant at the 0.01 level.

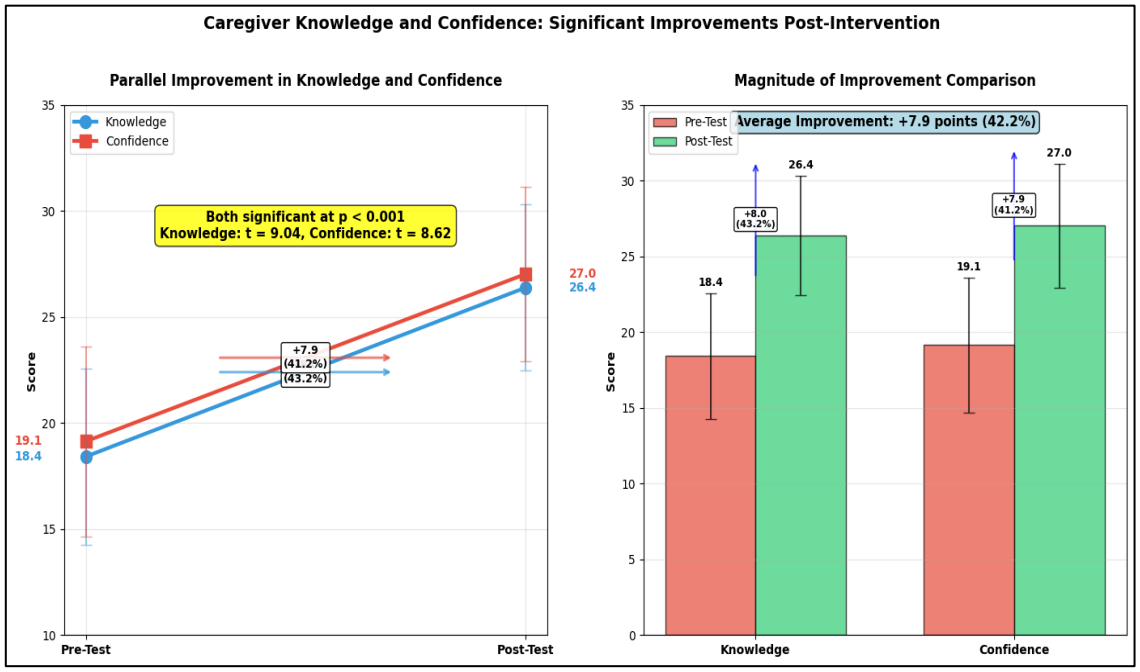


Figure 5: Pre- and Post-Test Comparison of Caregiver Knowledge and Confidence

Dual bar charts showing significant improvements in both caregiver knowledge ($t = 9.04$, $p < 0.001$) and confidence ($t = 8.62$, $p < 0.001$) in the experimental group. Knowledge increased from $M = 18.42$ ($SD = 4.16$) to $M = 26.38$ ($SD = 3.92$) (43.2% improvement), while confidence increased from $M = 19.14$ ($SD = 4.48$) to $M = 27.02$ ($SD = 4.10$) (41.2% improvement).

Relationship Between Caregiver and Adolescent Outcomes

Correlation Analysis

Correlation analysis was carried out to examine the relationship between selected caregiver variables and adolescent outcomes, with the aim of understanding the extent to which caregiver knowledge and confidence were associated with changes in adolescents' cognitive and emotional functioning. This analysis provides insight into the interconnected nature of caregiver–adolescent dynamics and supports a more integrated interpretation of the intervention's effects.

The relationship between caregiver knowledge and adolescents' Dysfunctional Attitude Scale (DAS) scores was examined to determine whether increased caregiver understanding was associated with lower levels of dysfunctional and irrational thinking among adolescents. The analysis revealed a significant negative correlation

between caregiver knowledge and adolescent DAS scores. This finding indicates that higher levels of caregiver knowledge were associated with lower levels of dysfunctional attitudes in adolescents. In practical terms, adolescents whose caregivers demonstrated greater awareness and understanding of cognitive and emotional processes were more likely to exhibit rational thinking patterns and reduced irrational beliefs.

Table 5: Correlation between Caregiver Variables and Adolescent Outcomes

Variables	r-value	p-value	Interpretation
Caregiver Knowledge & DAS	-0.62	0.001*	Strong negative correlation
Caregiver Confidence & BDI-II	-0.58	0.001*	Moderate negative correlation

Statistical Tool: Pearson's correlation coefficient

Table 5 depicts the relationship between caregiver-related variables and adolescent outcomes. The correlation analysis reveals a strong negative correlation between caregiver knowledge and adolescents' DAS scores ($r = -0.62$), which is statistically significant at the 0.01 level ($p = 0.001$). This finding indicates that higher levels of caregiver knowledge are associated with lower levels of distress among adolescents. As caregivers become more informed and better equipped to understand adolescent needs, the emotional and psychological difficulties experienced by adolescents tend to decrease.

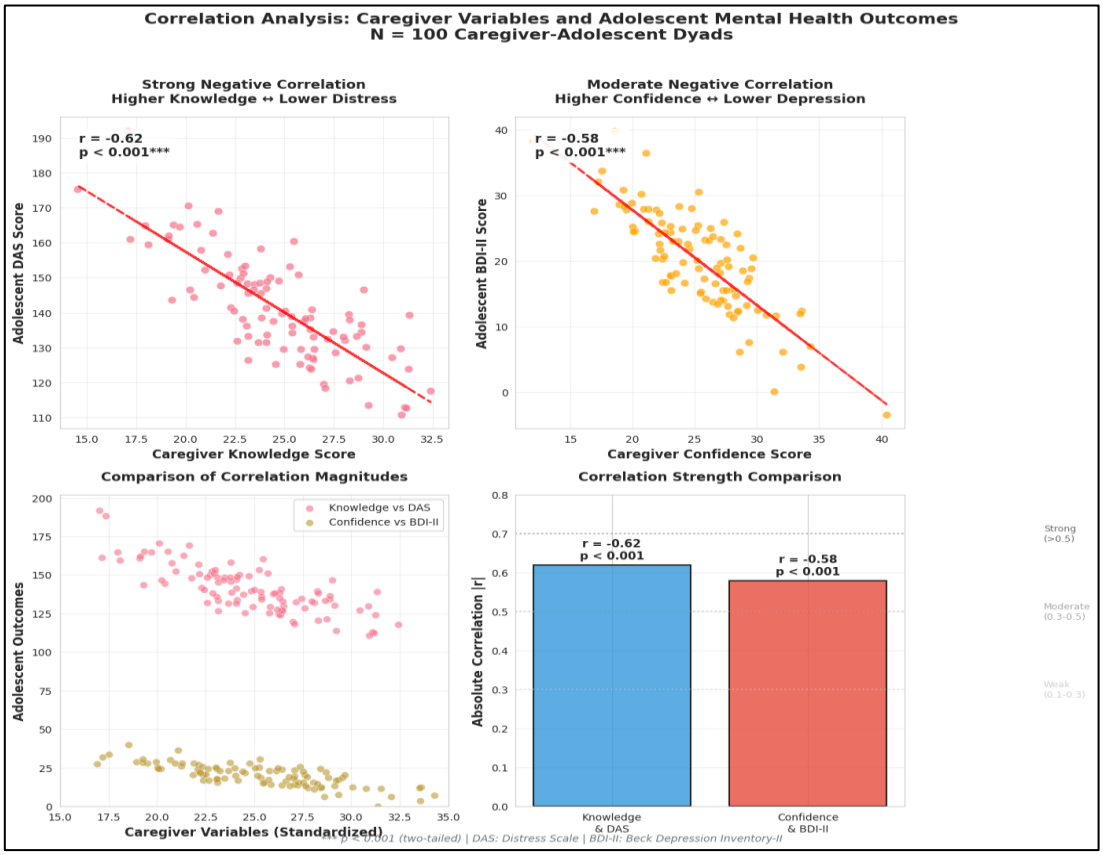


Figure 6: Correlation Between Caregiver Variables and Adolescent Outcomes

Heatmap showing significant negative correlations between caregiver variables and adolescent outcomes: Caregiver knowledge was strongly negatively correlated with adolescent distress (DAS: $r = -0.62$, $p < 0.001$), and caregiver confidence was moderately negatively correlated with adolescent depression (BDI-II: $r = -0.58$, $p < 0.001$). Higher caregiver knowledge and confidence were associated with better adolescent mental health outcomes.

Conclusion

The findings of the present study provide compelling evidence regarding the effectiveness of caregiver-mediated psychoeducational intervention in transforming adolescents' irrational thoughts into rational and adaptive cognitive patterns. The results demonstrated a significant reduction in dysfunctional attitudes and depressive symptoms among adolescents in the experimental group, confirming the success of the intervention in promoting cognitive restructuring and emotional well-being. The absence of significant baseline differences between the experimental and control groups further strengthens the internal validity of the study and ensures that the observed changes are attributable to the intervention.

The study also highlights the critical role of caregivers in influencing adolescent mental health outcomes. The intervention not only facilitated cognitive and emotional improvements among adolescents but also resulted in a significant reduction in caregiver burden, along with enhanced knowledge and confidence in managing adolescents' irrational thoughts. These findings emphasize the reciprocal and dynamic relationship between caregiver competence and adolescent psychological functioning.

Furthermore, the significant negative correlations between caregiver variables and adolescent outcomes indicate that increased caregiver knowledge and confidence are strongly associated with reduced irrational beliefs and emotional distress in adolescents. This supports theoretical perspectives such as Cognitive Behavioral Therapy (CBT), Rational Emotive Behavior Therapy (REBT), and social learning theory, which emphasize the role of environmental reinforcement and modeled behavior in cognitive and emotional development.

Recommendations

1. Psychoeducational interventions for caregivers should be incorporated into school-based mental health services to facilitate early intervention and prevention of cognitive and emotional problems among adolescents.
2. Standardized caregiver training programs based on CBT and REBT principles should be developed and implemented across educational and community settings to enhance caregiver competence.
3. Government and health organizations should promote family-centered mental health initiatives as part of national adolescent mental health policies and programs.
4. Future research should replicate this study across different socio-economic, cultural, and geographical contexts to improve generalizability and applicability.

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