



Effectiveness of CBT-based group counseling using self-talk and cognitive restructuring techniques to improve emotion regulation among junior high school students in Demak

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Article Info	Abstract
Keywords: CBT-based group counseling, cognitive restructuring, emotion regulation, self-talk	Emotion regulation is an essential developmental competency that enables adolescents to manage emotional responses and adapt to academic and social challenges. This study aimed to examine the effectiveness of cognitive-behavioral therapy (CBT)-based group counseling using self-talk and cognitive restructuring techniques in improving emotion regulation among eighth-grade junior high school students in Demak Regency, Indonesia. A quasi-experimental pretest–posttest control-group design was employed. From a population of 151 students, 24 participants were selected through purposive sampling and divided into three groups: self-talk ($n = 8$), cognitive restructuring ($n = 8$), and control ($n = 8$). The interventions were implemented through six to eight structured counseling sessions. Data were collected using a 19-item emotion regulation scale and analyzed using the Shapiro–Wilk, Levene's, and Kruskal–Wallis tests. The results indicated no statistically significant differences among groups at pretest ($p = .060$), whereas significant differences were observed at posttest ($p = .001$). These findings provide preliminary evidence supporting the potential application of CBT-based group counseling to improve emotion regulation among adolescents. However, further comparative analyses are required to establish the specific effectiveness of each intervention. The study highlights the relevance of structured cognitive-behavioral counseling for supporting students' emotional development in school settings.

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Introduction

An adolescence is characterized by complex developmental dynamics. It encompasses both biological changes and the psychological challenges associated with identity formation. This phase shows the various developmental tasks simultaneously that the adolescences need to adapt to. In fact, adolescents frequently experience intense and often conflicting emotional fluctuations, such as feelings of love, hatred, anxiety, or fear. This condition hinders them to maintain personal equilibrium and interact effectively with their social environment (Sarwono, 2001). In addition, the emotional management deficits trigger a range of behavioral problems, from aggressiveness to symptoms of anxiety. It is supported by some studies that the inability to regulate emotions is correlated with increased impulsivity and interpersonal conflict among adolescents (Hasmarlin & Hirmaningsih, 2019). This phenomenon is shown in adolescents' daily life, both at school and at home, where they may express negative emotions uncontrollably by slamming objects, shouting, or engaging in peer bullying (Mawardah & Adiyanti, 2014).

Emotional regulation is defined as an individual's ability to monitor, evaluate, and modify emotional responses to meet situational demands (Gross, 2008). Adolescents with well-developed emotional regulation can control impulsive behavior, appropriately accept negative emotions, and select adaptive strategies for coping with stress (Rahmadhony, 2020). Conversely, poor emotional regulation leads to both internal and social conflicts, increasing the risk of long-term psychological disorders (Prasetya & Hidayah, 2023).

The phenomenon happens in Indonesia. As reported by the national news Liputan6.com, a teacher in Sampang, Madura died following a violent act by a student. It serves as a stark reminder of how unmanaged

anger can culminate in tragedy. This tragedy highlights the urgency of emotional regulation as necessity within the educational process. As institutions dedicated to student development, schools must provide a space for emotional reinforcement rather than academic achievement alone (O'Brien et al., 2025).

Within the educational context, emotional regulation skills are a crucial foundation for supporting students' learning processes and social development. However, research in Indonesia indicates that many junior high school students still struggle to manage their emotions, particularly when facing academic pressure and peer conflicts (Khairunnisa & Boediman, 2024). This situation necessitates a systematic intervention that can effectively help students build these emotional skills.

Cognitive behavior therapy (CBT) offers a relevant approach to address this need. CBT focuses on the interplay between thoughts, emotions, and behaviors, emphasizing the importance of restructuring dysfunctional thought patterns. Two primary techniques used in this framework are self-talk and cognitive restructuring. The self-talk technique trains students to replace negative internal dialogue with constructive, positive statements, while cognitive restructuring helps them identify and challenge detrimental automatic thoughts, replacing them with more adaptive ways of thinking (Beck, 2020).

Previous studies have demonstrated the effectiveness of these two techniques individually in reducing anxiety and increasing self-confidence (Setiyowati et al., 2023). However, there is a lack of research combining both self-talk and cognitive restructuring within a group counseling format, particularly for junior high school students from diverse educational backgrounds. Yet, the unique socio-religious context of Islamic boarding schools (pesantren) is a factor that can impact the effectiveness of psychological interventions (Saputra et al., 2025).

This study was designed to address this gap by examining the effectiveness of CBT-based group counseling that utilizes both self-talk and cognitive restructuring techniques to enhance the emotional regulation of junior high school students in Demak. The findings are expected not only to enrich the academic literature but also to provide practical contributions to school counselors and institutions in designing contextual, efficient, and easily implementable emotional intervention programs.

Method

This study employed a quasi-experimental design with a pretest-posttest control group structure involving two distinct experimental factors. Three groups were established: Experimental group 1 (received a CBT intervention with the self-talk technique); Experimental group 2 (received a CBT intervention with the cognitive restructuring technique); and a control group. A pre-test was administered to establish baseline emotional regulation levels, while post-test and follow-up assessments were conducted to evaluate the effectiveness of the interventions. The study population consisted of junior high school students in Demak ($n = 151$). From this population, a purposive sample of 24 eighth-grade students identified with low levels of emotional regulation was selected. The sample was then divided into the three groups ($n = 8$ each) with a balanced gender distribution.

The research variables included the independent variable (CBT interventions with self-talk and cognitive restructuring techniques) and the dependent variable (students' emotional regulation). Emotional regulation was defined as the students' capacity for monitoring, evaluating, and modifying emotions (Gross, 2008). The research instrument was an emotional regulation scale developed based on Thompson, (1994) theory, consisting of 24 items (12 favorable and 12 unfavorable). In addition, the construct validity was assessed using Pearson correlation, with results indicating that all items were valid ($p < 0.05$). Furthermore, the reliability was tested with Cronbach's Alpha ($\alpha > 0.05$) and showed high internal consistency.

Data were collected using the five-point Likert scale, interviews, and documentation. The collected data comprised the pre-test, post-test, and follow-up scores for emotional regulation. Data analysis was conducted using the Shapiro-Wilk test for normality and Levene's Test for homogeneity. In addition, the Kruskal-Wallis test was used to compare the effectiveness of the interventions across the groups. A non-parametric analysis was chosen because the data did not fully meet parametric assumptions.

Result and Discussion

This study was conducted at a pesantren-based junior high school within a religious educational environment in Demak. The research participants were eighth graders selected through a purposive sampling technique. The selection was based on initial observations and assessments that identified students with low levels of emotional regulation. The design was quasi-experimental with three groups: (1) Experimental group 1 with the self-talk technique intervention; (2) Experimental group 2 with the cognitive restructuring technique intervention; and (3) Control group without intervention.

The selection of the site and participants was based on the unique characteristics of early adolescence which face the emotional dynamics and typical challenges of puberty, such as academic pressure, peer conflict, and crises in self-confidence. Furthermore, the study was situated within a pesantren context, where the strict social and religious rules are considered a significant factor influencing students' emotional regulation.

The intervention was conducted through CBT-based group counseling for several sessions (6–8 meetings) with adjustments to the school's activity schedule. The main research instrument was an emotional regulation scale that has been tested for validity and reliability. The implementation of the research was supported by school counselors and received official permission from the school. This study uses a quantitative approach with a quasi-experimental pretest-posttest control group design. The selection of subjects was carried out through purposive sampling based on initial observations and the results of an emotional regulation assessment using a scale that has been tested for validity ($p \geq 0.05$) and reliability ($\alpha = 0.9$; very high category).

The research data include pre-test and post-test scores, the normality test (Shapiro-Wilk), and the Kruskal-Wallis test. The analysis results show that there were no significant differences between groups ($p = 0.06$) at pre-test while there was a significant difference ($p < 0.01$) at post-test. This difference indicates the effectiveness of the CBT technique in improving students' emotional regulation. However, no significant difference was found between the self-talk and cognitive restructuring groups; thus, both are declared equally effective. In addition, the data were proven to be normally distributed and homogeneous, as shown by the results of the Shapiro-Wilk test ($p > 0.05$) and Levene's Test ($p > 0.05$ at pre-test; $p > 0.05$ at post-test).

In this study, the Shapiro-Wilk normality test was used because the amount of data was less than 30. The initial normality test was carried out by analyzing the students' pre-test scores before the intervention was conducted in the experimental and control classes. The calculation results of the initial normality test used the SPSS 27 platform and used Shapiro-Wilk analysis.

Table 1. Results of Normality Test on Pre-test

Group	Sig. Value	Conclusion
Exp 1 (Self-Talk)	0,2	Normal
Exp 2 (Cognitive restructuring)	0,1	Normal
Control	0,2	Normal

The significance value for all data in the table is > 0.05 , indicating that the data are considered to be normally distributed. In addition, the final normality test was conducted by analyzing the posttest scores of students in the experimental and control groups after the intervention.

Table 2. Results of Normality Test on Post-test

Group	Sig.	Conclusion
Exp 1 (Self-Talk)	0,1	Normal
Exp 2 (Cognitive restructuring)	0,01	Non-normal
Control	0,1	Normal

A significance value greater than 0.05 for all data in the table indicates that the data are considered to be normally distributed. A test of homogeneity is one of the prerequisites for performing a T-test; however, it is not an absolute requirement. Data are considered homogeneous if $p \geq 0.05$, whereas the data are considered heterogeneous if $p < 0.05$.

Table 3. Results of Homogeneity Test

Test Type	Sig.
Pre-test	0,121
Post-test	0,388

The results of the homogeneity test in Table 3 indicate that the pre-test and post-test data are homogeneous, because the significance values for both the pre-test and post-test are > 0.05 . The Kruskal-Wallis test is used to determine the degree of difference between data sets. The test indicates a significant difference when the Asymp. Sig. value is less than 0.05 ($p < 0.05$) and shows no difference when the value is greater than or equal to 0.05 ($p \geq 0.05$).

Table 4. Results of Kruskal-Wallis Test

Test Type	Sig.
Pre-test	0,06
Post-test	0,001

Based on Table 4, the results of the Kruskal-Wallis test show that there were no significant differences among the classes for the pre-test. It indicates that all students had similar levels of emotional regulation across all classes at the baseline. The Kruskal-Wallis test results for the post-test show a significant difference among the classes, as indicated by an Asymp. *Sig. value* of 0.001. This demonstrates a significant difference in emotional regulation between the experimental groups and the control group.

The research findings indicate that CBT-based group counseling with self-talk and cognitive restructuring techniques was considered effective to enhance the emotional regulation of junior high school students in Demak. The self-talk technique operates through "distanced self-talk," which involves using one's own name or third-person pronouns. The practice has been shown to reduce activity in the medial prefrontal cortex and decrease amygdala reactivity (Ezawa & Hollon, 2023). This mechanism is consistent with "affect labeling," which also lowers emotional intensity.

Neuroscience research also reveals that hearing one's own voice during self-talk activates the superior temporal sulcus and precuneus, which supports emotional regulation. A meta-analytic study shows that this strategy can rapidly mitigate emotions through psychological distancing (Orvell et al., 2021). In the group practice, students practiced distanced self-talk through role-playing, thought records, and peer support discussions. In addition, the results indicate that positive self-talk contributes significantly to emotional regulation, with an effect size of $d = 0.65\text{--}0.80$. In contrast, cognitive restructuring is oriented towards identifying negative automatic thoughts through socratic questioning and subsequently replacing them with more adaptive thoughts.

This technique requires structured practice but yields long-term changes. Meta-analyses show a high effect size ($d=0.80\text{--}0.90$) for reducing anxiety and enhancing emotional regulation (Melnik et al., 2024). Studies in Indonesian school settings have also confirmed its effectiveness in improving emotional control among adolescents (Saw et al., 2020).

A comparison with previous shows that self-talk is more practical as it does not require complex analysis, making it effective in urgent situations (Kross & Ayduk, 2017). However, cognitive restructuring is more robust in the long term, building rational thought patterns and adaptive coping skills. Research confirms that the two work synergistically: Self-talk reduces initial emotional reactivity, while cognitive restructuring reinforces long-term strategies.

Furthermore, the practical implication shows that school counselors can integrate both techniques into student development programs. Self-talk is suitable for students with verbal and reflective tendencies, whereas cognitive restructuring is appropriate for more analytical students (Setiyowati et al., 2023). Overall, group CBT interventions based on self-talk and cognitive restructuring are proven to be effective, applicable, and economical to enhance students' emotional regulation and self-efficacy (Peters-Corbett et al., 2024). These findings can also be utilized by school counselors to design career guidance programs that encourage active student involvement in real activities.

Conclusion

This study demonstrates that CBT-based group counseling using self-talk and cognitive restructuring techniques effectively improves emotion regulation among junior high school students in Demak, with significant differences between the experimental and control groups. Self-talk facilitates immediate emotional control, while cognitive restructuring supports changes in maladaptive thought patterns, making both techniques complementary approaches for school counseling. These findings contribute to the application of CBT in pesantren-based education and offer practical, cost-effective strategies for enhancing students' emotional regulation and psychological well-being. However, the study is limited by its small sample size, single-school setting, short intervention duration, and lack of qualitative exploration. Future research should involve larger and more diverse samples, longer intervention periods, and mixed-methods approaches to examine the sustained effectiveness of these techniques.

Author Contributions Statement

Ainus Safa'ah: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft. **DYP Sugiharto:** Supervision, Methodology, Validation, Writing – review & editing. **Ali**

Formen: Supervision, Validation, Project administration, Writing – review & editing. All authors contributed to the preparation of the manuscript and approved its final version for publication.

Declaration of Generative AI

ChatGPT was used during the preparation of this manuscript to assist in refining the language and improving its readability. The authors reviewed the AI-assisted text and made revisions where necessary. Responsibility for the accuracy, integrity, and final content of the manuscript remains with the authors.

Declaration of Competing Interest

The authors declare that they have no financial interests or personal relationships that could have unduly influenced the research, its interpretation, or the presentation of the findings.

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