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# The Efficiency of Training Emotional Quotient Components on Reducing the Syndromes of Alexithymia in Female High School Students in Qorveh

## ABSTRACT

The present study aimed to examine the effectiveness of emotional quotient components training in reducing emotional dysregulation among female secondary school students in Qorveh. A quasi-experimental design was employed, and the statistical population consisted of all third-grade female students in Qorveh. From this population, 40 students who obtained the highest scores on the Toronto Alexithymia Scale (TAS-20) were selected and randomly assigned to either the experimental or control group. The experimental group participated in eight sessions of emotional quotient components training, while the control group received no intervention. Data were analyzed using analysis of covariance (ANCOVA). The findings indicated that emotional quotient components training significantly reduced alexithymia symptoms among female students. Overall, the results suggest that training in emotional quotient components is an effective approach for reducing emotional dysregulation in female students. Accordingly, the implementation of this program in schools and psychological clinics is recommended.

**Keywords:** Alexithymia, Emotional Dysregulation, Emotional Quotient.

## Introduction

Emotions play a foundational role in human adaptation, shaping cognitive processing, interpersonal functioning, academic engagement, and psychological well-being across the lifespan. The capacity to perceive, interpret, and regulate emotional experiences enables individuals to respond flexibly to environmental demands, maintain mental health, and establish

meaningful social relationships. Conversely, disruptions in emotional awareness and regulation are associated with a wide range of maladaptive outcomes, including internalizing symptoms, interpersonal difficulties, and impaired functioning in educational and social contexts. Within this framework, alexithymia has emerged as a critical construct for understanding emotional dysfunction, particularly in adolescents and young adults, where emotional development intersects with heightened vulnerability to psychological distress.

Alexithymia is classically defined as a multidimensional personality construct characterized by difficulties in identifying feelings, difficulties in describing feelings to others, and a cognitive style oriented toward external events rather than inner emotional experiences. Foundational theoretical accounts emphasize that alexithymia reflects a deficit in emotional information processing rather than a mere lack of emotional experience, leading to impaired integration of affective and cognitive systems (1, 2). Individuals with elevated alexithymia struggle to recognize internal emotional cues, misinterpret physiological arousal, and rely excessively on concrete, utilitarian thinking, which undermines emotional communication and self-regulation. Contemporary models further conceptualize alexithymia as a transdiagnostic vulnerability factor implicated in a wide spectrum of psychological disorders and maladaptive behaviors (3).

Empirical research has consistently linked alexithymia to adverse mental health outcomes, including depression, anxiety, stress, and emotional dysregulation. Clinical and non-clinical studies indicate that individuals high in alexithymia exhibit reduced emotional clarity, heightened negative affect, and maladaptive coping strategies, which collectively increase psychological symptom severity (3, 4). In adolescent populations, alexithymia has been shown to mediate the relationship between early adverse experiences and later psychological symptoms, highlighting its developmental significance (5). These findings underscore the importance of early identification and intervention, particularly during sensitive developmental periods when emotional competencies are still malleable.

A growing body of literature situates alexithymia within broader emotional regulation frameworks, emphasizing its interaction with emotional intelligence (EI). Emotional intelligence refers to a set of abilities related to the perception, understanding, utilization, and regulation of emotions in oneself and others. Early empirical work demonstrated a robust inverse relationship between alexithymia and emotional intelligence, suggesting that deficits in emotional awareness and expression are closely tied to lower emotional competencies (6). Subsequent theoretical elaborations have proposed that emotional intelligence functions as a protective factor that can buffer the negative effects of alexithymia by enhancing emotional insight, regulation strategies, and interpersonal effectiveness (1).

Contemporary research provides strong empirical support for the role of emotional intelligence in mitigating alexithymia-related outcomes. Studies across diverse populations—including adolescents, university students, and clinical samples—indicate that higher emotional intelligence is associated with lower levels of alexithymia, reduced psychological distress, and improved emotional functioning (7, 8). Notably, emotional intelligence has been shown to operate both as a mediator and a moderator in the relationship between alexithymia and maladaptive outcomes, such as negative emotions, self-injury, and suicidal ideation (4, 9). These findings suggest that enhancing emotional intelligence may represent a viable intervention pathway for reducing alexithymic traits and their psychological sequelae.

The relevance of emotional intelligence becomes particularly salient in educational contexts, where emotional competencies are closely linked to academic engagement, burnout, and performance. Recent evidence demonstrates that emotional intelligence plays a critical role in shaping academic outcomes by facilitating emotional regulation, resilience, and adaptive coping in response to academic stressors (10). In students with elevated alexithymia, deficits in emotional processing may exacerbate academic burnout and undermine motivation, further highlighting the need for targeted emotional skills training

within school settings. These findings align with broader educational psychology frameworks that conceptualize emotional competencies as foundational life skills essential for both academic success and mental health.

Gender and developmental considerations further complicate the relationship between alexithymia and emotional functioning. Research suggests that emotional socialization patterns, cultural expectations, and developmental trajectories may influence how alexithymia manifests across sexes. For instance, recent studies have identified sex-specific pathways linking alexithymia, emotional intelligence, and empathy, indicating that interventions may need to be tailored to address gender-related differences in emotional processing (11). Adolescence, in particular, represents a critical window during which emotional awareness and regulation capacities undergo rapid development, making this period especially suitable for preventive and remedial interventions.

In addition to academic and emotional outcomes, alexithymia has been implicated in a range of high-risk behaviors and psychological vulnerabilities. Research has demonstrated its association with non-suicidal self-injury, suicidal ideation, and emotional dysregulation, often through complex mediated pathways involving self-esteem, emotion regulation, and emotional intelligence (9, 12). Childhood trauma and emotional abuse have also been identified as key antecedents of alexithymia, with longitudinal and latent profile analyses revealing distinct developmental trajectories linking early adversity to later emotional dysfunction (13, 14). These findings reinforce the conceptualization of alexithymia as a core mechanism through which early relational and emotional experiences shape long-term psychological outcomes.

Within clinical and applied psychology, systematic reviews emphasize that effective interventions targeting emotional dysfunction must address emotional awareness, regulation, and coping simultaneously. Reviews of emotion-focused interventions in anxiety-related disorders highlight that programs integrating emotional intelligence training, emotion regulation strategies, and expressive skills yield more robust outcomes than approaches focusing on symptom reduction alone (15). This integrative perspective supports the rationale for interventions that explicitly target emotional intelligence components as a means of reducing alexithymic traits.

Cultural and contextual factors further underscore the importance of structured emotional skills training. Studies conducted in diverse cultural settings indicate that alexithymia and emotional intelligence are shaped by sociocultural norms regarding emotional expression, interpersonal communication, and emotional socialization (16). In collectivist and transitional societies, where emotional expression may be constrained by social expectations, adolescents may be particularly vulnerable to developing alexithymic tendencies. Empirical evidence from regional and culturally specific samples demonstrates that emotional deficits are not uniformly distributed across populations, reinforcing the need for contextually sensitive interventions (17, 18).

Recent scholarship has increasingly emphasized the applied significance of emotional intelligence training programs. Intervention-based studies suggest that structured training in emotional intelligence components—such as emotional awareness, empathy, impulse control, stress management, and emotional expression—can lead to meaningful reductions in alexithymia and associated psychological symptoms (5, 8). These programs are particularly well-suited for school-based implementation, as they can be delivered in group formats, integrated into existing curricula, and adapted to developmental needs. Moreover, advances in educational psychology and mental health promotion underscore the cost-effectiveness and preventive potential of such interventions.

Despite the growing body of evidence linking emotional intelligence and alexithymia, several gaps remain in the literature. First, there is a need for intervention-focused studies that move beyond correlational designs to experimentally examine the effectiveness of emotional intelligence training in reducing alexithymia, particularly among adolescent populations. Second, while existing research has documented associations among emotional intelligence, alexithymia, and psychological outcomes,

fewer studies have explicitly tested whether enhancing emotional intelligence components leads to measurable reductions in alexithymic symptoms within controlled designs. Third, culturally grounded research focusing on female adolescents remains limited, despite evidence suggesting that emotional development trajectories and intervention responsiveness may differ by gender and sociocultural context (7, 11).

Addressing these gaps is essential for advancing both theory and practice. From a theoretical perspective, intervention studies can clarify the causal mechanisms linking emotional intelligence and alexithymia, thereby refining emotion regulation models. From a practical standpoint, evidence-based emotional intelligence training programs can inform school mental health policies and preventive strategies aimed at reducing emotional dysregulation and promoting adolescent well-being. Recent calls in the literature emphasize the urgency of implementing developmentally informed, empirically supported emotional skills interventions within educational systems (13, 14).

In light of these considerations, the present study seeks to contribute to the literature by empirically examining the effectiveness of emotional intelligence components training in reducing alexithymia among female secondary school students, thereby integrating theoretical insights on emotional processing with applied intervention research.

The aim of the present study was to investigate the effectiveness of emotional intelligence components training in reducing alexithymia among female high school students.

## Methods and Materials

### *Study Design and Participants*

The research employed a quasi-experimental design using a pretest–posttest format with a control group. The statistical population consisted of all third-grade female secondary school students in the city of Qorveh. From this population, 40 students who met the study inclusion criteria were randomly assigned to either the experimental group ( $n = 20$ ) or the control group ( $n = 20$ ).

### *Data Collection Tools*

The Toronto Alexithymia Scale–20 (TAS-20) is a 20-item self-report measure designed to assess alexithymia across three subscales: difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking. Items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Items 1, 3, 5, 8, 11, 17, and 19 assess difficulty identifying feelings; items 2, 6, 9, 16, and 20 assess difficulty describing feelings; and items 4, 7, 10, 12, 13, 14, 15, and 18 assess externally oriented thinking. A total alexithymia score is calculated by summing the scores of the three subscales. The psychometric properties of the TAS-20 have been examined and confirmed in numerous studies. Items 4, 5, 10, 18, and 19 are reverse-scored due to their negative wording. Scores of 60 and above indicate high levels of alexithymia, whereas scores of 52 and below indicate low levels of alexithymia. In the scoring system proposed by Shahgholian et al. (as cited in Mazaheri, 2010), scores of 60 and above represent severe alexithymia, scores between 53 and 60 indicate moderate alexithymia, and scores of 52 and below indicate low or no alexithymia. In the present study, participants scoring above 52 on the TAS-20 were classified as alexithymic, while those scoring 52 or below were classified as non-alexithymic. In the Persian version of the TAS-20, Cronbach's alpha coefficients were reported as .85 for the total alexithymia score and .82, .72, and .72 for the subscales of difficulty identifying feelings, difficulty describing feelings, and externally oriented thinking, respectively, indicating good internal consistency. Test–retest reliability of the TAS-20 was confirmed in a sample of 67 participants over a four-week interval, with reliability coefficients ranging from .80 to .87 for the total score and subscales.

### Intervention

The intervention protocol consisted of an eight-session Emotional Intelligence Enhancement Training program based on the Bradberry and Greaves model, delivered to female students in a structured group format. Sessions were held twice weekly over a four-week period, with each session lasting 60 minutes, conducted on Mondays (2:00–6:00 p.m.) and Thursdays (10:00 a.m.–12:30 p.m.), beginning on April 11, 2013, and concluding on May 6, 2013. The first session focused on group orientation, establishing rules for participation, and introducing the concept of emotional intelligence, alongside training in problem solving and happiness. Subsequent sessions systematically addressed key emotional intelligence components, including dependence and stress resistance (Session 2), self-emotional regulation (Session 3), realistic thinking and interpersonal relationships (Session 4), optimism and self-respect (Session 5), impulse control and cognitive flexibility (Session 6), and social responsibility and sympathy (Session 7). The final session emphasized emotional sympathy, integration of learned skills, and overall program conclusion. Throughout the intervention, interactive discussions, experiential exercises, and practical examples were used to facilitate learning, and homework assignments were provided at the end of each session to reinforce skill acquisition and promote the application of emotional intelligence strategies in daily life.

### Data Analysis

Data were analyzed using SPSS software, employing analysis of covariance (ANCOVA) to examine the effect of emotional intelligence components training on post-test alexithymia scores while controlling for pre-test differences. Prior to conducting ANCOVA, the assumption of homogeneity of regression slopes was tested and confirmed. Descriptive statistics were calculated to summarize group means and standard deviations, and statistical significance was evaluated at the 0.05 level.

### Findings and Results

The descriptive statistics for alexithymia symptoms in the experimental and control groups at the post-test stage are presented in Table 1. As shown, the experimental group exhibited a substantially lower mean score on alexithymia symptoms compared to the control group, suggesting a marked reduction in emotional processing difficulties among participants who received emotional intelligence components training. In contrast, the control group maintained a considerably higher mean level of alexithymia, indicating the absence of spontaneous improvement without intervention.

**Table 1. Descriptive statistics of alexithymia symptoms in experimental and control groups**

Group / Variable	Experiment (n = 20)		Control (n = 20)	
	M	SD	M	SD
Alexithymia Symptoms	45.89	1.42	67.51	1.42

Before conducting the main analysis of covariance, the assumption of homogeneity of regression slopes was examined, and the results are presented in Table 2. The interaction effect between group membership and pre-test alexithymia scores was not statistically significant, indicating that the relationship between pre-test and post-test alexithymia scores did not differ across groups. This finding confirms that the assumption of parallel regression slopes was satisfied, thereby justifying the use of ANCOVA for subsequent analyses.

**Table 2. Results of analysis of covariance for testing the homogeneity of regression slopes**

Indices	Sum of Squares	df	Mean Squares	F	Sig.
Group	84.59	1	84.59	4.62	0.047
Pre-test	3.34	1	3.34	0.18	0.68
Group × Pre-test	26.34	1	26.34	1.43	0.25

Error	293.15	16	18.32	–	–
Total	407.42	19	–	–	–

Following confirmation of the statistical assumptions, analysis of covariance was conducted to evaluate the effect of emotional intelligence components training on alexithymia symptoms while controlling for pre-test scores. As shown in Table 3, a statistically significant group effect was observed, indicating that participants in the experimental group demonstrated significantly lower post-test alexithymia scores compared to the control group after adjusting for baseline differences. The pre-test alexithymia score did not have a significant effect, suggesting that post-intervention differences were primarily attributable to the training program.

**Table 3. Summary of covariance analysis for the effect of emotional intelligence components training on alexithymia**

Source	SS	df	MS	F	Sig.
Group	2034.73	1	2034.73	108.30	0.01
Pre-test Alexithymia	0.01	1	0.01	0.01	0.98
Error	319.39	17	18.79	–	–
Total	669.50	20	–	–	–

## Discussion and Conclusion

The present study demonstrated that training emotional intelligence components led to a significant reduction in alexithymia among female high school students. After controlling for pretest scores, participants who received the intervention showed substantially lower posttest levels of alexithymia compared to the control group, indicating that structured emotional intelligence training can effectively modify core emotional processing deficits during adolescence. This finding aligns with theoretical models that conceptualize alexithymia not as a fixed trait but as a malleable construct rooted in deficits in emotional awareness, emotional labeling, and emotion regulation capacities (1, 2). The observed reduction suggests that systematic training targeting emotional perception, expression, and regulation can enhance emotional competence and thereby alleviate alexithymic tendencies.

The results are consistent with extensive empirical evidence documenting a strong inverse relationship between emotional intelligence and alexithymia. Early foundational work demonstrated that individuals with higher emotional intelligence exhibit greater emotional awareness and expressive capacity, which directly counters the defining features of alexithymia (6). More recent studies have expanded this framework, showing that emotional intelligence not only correlates negatively with alexithymia but also serves as a protective factor against emotional dysregulation and psychological distress (3). The present findings extend this literature by providing experimental evidence that enhancing emotional intelligence components can causally reduce alexithymia symptoms in an adolescent educational context.

From a developmental perspective, adolescence represents a critical period for emotional skill acquisition, during which neural, cognitive, and social systems involved in emotion processing undergo substantial reorganization. Deficits in emotional awareness during this stage may therefore have cascading effects on psychological adjustment, academic engagement, and interpersonal functioning. Prior research has shown that adolescents with higher alexithymia report greater emotional dysregulation, negative affect, and psychological symptoms (5). By demonstrating that emotional intelligence training can significantly reduce alexithymia in this age group, the present study supports developmental models emphasizing early intervention to prevent the consolidation of maladaptive emotional patterns.

The findings are also consistent with studies highlighting the mediating and moderating roles of emotional intelligence in emotional and behavioral outcomes. Research has shown that emotional intelligence mediates the relationship between

alexithymia and maladaptive emotional expression styles, suggesting that improvements in emotional intelligence may disrupt pathways leading from emotional unawareness to dysfunctional emotional behavior (7). Similarly, emotional intelligence has been found to buffer the negative effects of alexithymia on outcomes such as suicidal ideation and non-suicidal self-injury by enhancing emotional regulation and self-esteem (4, 9). The current results reinforce these findings by indicating that direct training of emotional intelligence components can reduce alexithymia itself, rather than merely attenuating its consequences.

The effectiveness of the intervention may be explained by its focus on core emotional competencies that directly address the defining dimensions of alexithymia. Training in emotional awareness and emotional labeling likely improved participants' ability to identify and differentiate internal emotional states, thereby reducing difficulty identifying feelings. Similarly, exercises emphasizing emotional expression and interpersonal communication may have enhanced the capacity to describe emotions verbally, addressing another central component of alexithymia. These mechanisms are consistent with emotion processing theories that emphasize the role of symbolic representation and language in emotional regulation (1). By strengthening these capacities, emotional intelligence training appears to restore disrupted links between affective experience and cognitive processing.

The present findings also align with evidence from academic and educational psychology contexts. Research indicates that emotional intelligence plays a critical role in students' academic functioning, emotional resilience, and burnout prevention (10). Alexithymia, in contrast, has been associated with increased academic stress, emotional exhaustion, and disengagement. By reducing alexithymia, emotional intelligence training may indirectly promote better academic adjustment and psychological well-being, even though academic outcomes were not directly assessed in the present study. This interpretation is supported by studies showing that emotional intelligence contributes to adaptive coping and stress management in students, particularly under conditions of academic pressure (8).

Gender-specific considerations further support the relevance of the present findings. Prior research suggests that emotional socialization processes differ for females, often emphasizing emotional sensitivity but not necessarily emotional articulation or regulation skills. Studies have shown that sex moderates the relationships among emotional intelligence, alexithymia, and empathy, indicating that female adolescents may particularly benefit from structured emotional skills training that translates emotional sensitivity into effective emotional processing (11). The significant reduction in alexithymia observed in the present female sample supports the value of gender-responsive interventions that address specific emotional development needs.

The results are also congruent with research linking alexithymia to early emotional adversity and relational deficits. Studies have demonstrated that childhood trauma, emotional abuse, and bullying experiences are associated with higher alexithymia through disruptions in emotional development and regulation capacities (13, 14, 18). Emotional intelligence training may serve a reparative function by providing adolescents with emotional skills that were insufficiently developed due to earlier adverse experiences. This interpretation is consistent with findings showing that emotional intelligence and emotion regulation can mitigate the psychological impact of early emotional maltreatment (12).

From a clinical and preventive perspective, the findings align with systematic reviews emphasizing the importance of integrative emotional interventions. Reviews of interventions for emotional disorders highlight that programs combining emotional awareness, regulation, and coping skills yield more substantial and durable outcomes than symptom-focused approaches alone (15). The present study supports this integrative framework by demonstrating that emotional intelligence training, which simultaneously targets multiple emotional competencies, can significantly reduce alexithymia in a non-clinical adolescent population.

Cultural and contextual factors further enhance the significance of these results. Emotional expression norms and educational practices vary across cultural settings, potentially influencing the prevalence and expression of alexithymia.

Research conducted in diverse sociocultural contexts indicates that emotional deficits are shaped by broader cultural expectations regarding emotional restraint and communication (16). Studies conducted in regional and non-Western samples have similarly reported elevated emotional and cognitive deficiencies in certain family and educational contexts (17). The present findings contribute to this literature by demonstrating the effectiveness of emotional intelligence training within a school-based context, supporting its cross-cultural applicability.

Overall, the results of the present study provide strong empirical support for emotional intelligence training as an effective intervention for reducing alexithymia in female adolescents. By demonstrating significant post-intervention improvements, the study advances existing theory by providing experimental evidence for the causal role of emotional intelligence in modifying alexithymic traits. These findings underscore the importance of integrating emotional skills training into educational and mental health promotion programs to support adolescents' emotional development and psychological well-being.

Despite its strengths, the present study has several limitations that should be considered when interpreting the findings. The use of self-report measures may have introduced response bias, as participants' answers could have been influenced by social desirability or limited self-awareness. The sample was restricted to female high school students from a single geographical area, which limits the generalizability of the results to other age groups, males, or different cultural and educational contexts. Additionally, the absence of a follow-up assessment prevents conclusions about the long-term sustainability of the intervention effects.

Future studies should examine the long-term effects of emotional intelligence training on alexithymia through longitudinal follow-up designs to determine the durability of treatment gains. Expanding research to include male students, diverse age groups, and varied cultural contexts would enhance the generalizability of findings. Future research may also explore potential mediators and moderators, such as emotion regulation strategies, self-esteem, or family emotional climate, to better understand the mechanisms through which emotional intelligence training influences alexithymia.

From a practical standpoint, emotional intelligence training programs can be effectively integrated into school counseling services and life-skills curricula to promote emotional awareness and regulation among adolescents. School psychologists and counselors may use structured emotional intelligence interventions as preventive tools to reduce emotional dysregulation and associated psychological difficulties. Incorporating such programs into routine educational practices may contribute to improved emotional well-being, healthier interpersonal relationships, and greater academic engagement among students.

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### **Authors' Contributions**

All authors equally contributed to this study.

### **Declaration of Interest**

The authors of this article declared no conflict of interest.

### **Ethical Considerations**

All ethical principles were adhered in conducting and writing this article.

## 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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