

Research Article

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Author for correspondence:

Ahmed A. Teleb

✉ mmahmod@kku.edu.sa

✉ King Khalid University, KSA.



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Dialectical Behavioral Therapy (DBT) Effectiveness in Enhancing Emotion Regulation Among University Students

Jubran Y. Mukhadi^{ID}, Ahmed A. Teleb^{ID}, Adel S. Abbady^{ID},
Ahmed S. Abdelmagid^{ID}

Abstract

Background/purpose. Emotion regulation (ER) is a crucial psychological process that enables individuals to manage and respond effectively to emotional experiences. Among university students, difficulties in ER are often linked to increased vulnerability to psychological distress. This study aimed to investigate gender differences in ER and to assess the effectiveness of a dialectical behavior therapy (DBT) intervention in enhancing ER among university students.

Materials/methods. A validated Arabic version of an established Emotion Regulation Questionnaire (ERQ) (developed by Gross & John, 2003) was employed, alongside the development and application of a DBT-based program. The study employed both a descriptive and quasi-experimental design, featuring a control group and an experimental group. Participants of an experimental sample were selected from a population of 515 students (252 males and 263 females) at King Khalid University.

Results. The study found no notable gender differences in emotion regulation. However, students who participated in the DBT-based intervention demonstrated significant improvements in their emotion regulation skills.

Conclusion. The findings support the effectiveness of DBT-based interventions in enhancing ER among university students. These results highlight the importance of integrating structured psychological programs into higher education settings to promote emotional well-being and resilience.

1. Introduction and Literature Review

Suffering is an inevitable aspect of human existence, as individuals are constantly exposed to various psychological, social, and environmental pressures. University students, in particular, are not exempt from these challenges; they encounter multiple stressors related to academic performance, social relationships, financial burdens, and personal responsibilities. These stressors often emerge simultaneously across different life domains—such as home, university, and broader society—and are frequently accompanied by fluctuating emotional experiences. The developmental stage to which many university students belong—late adolescence or early adulthood is particularly sensitive, marked by emotional instability, heightened sensitivity, and vulnerability to psychological fluctuations (Teleb et al., 2023). This developmental stage further intensifies the impact of negative life events and stressors, making effective emotional coping strategies essential.

One of the most critical psychological constructs associated with emotional stability and psychological well-being is emotion regulation (ER). The concept of ER gained prominence in psychological literature during the 1990s, primarily due to the foundational work of Gross, who introduced it from a social psychological perspective. Gross emphasized the role of ER in shaping individuals' responses to emotional experiences, highlighting its central function in modulating emotional processes (Brans et al., 2013). He later defined ER as the process by which individuals influence their emotions—how they experience and express them—often through strategies aimed at increasing, maintaining, or reducing the intensity of emotional responses (Gross, 2008). Similarly, Thompson (2011) described ER as a comprehensive system encompassing internal and external processes responsible for monitoring, evaluating, and adjusting emotional reactions to support goal-directed behavior.

Although considered relatively recent in formal psychological theory, the notion of ER has deep historical roots. Early research explored emotion-related processes through various conceptual frameworks, such as defense mechanisms in psychoanalysis (Freud, 1926/1959), stress and coping theory (Lazarus, 1966), attachment theory (Bowlby, 1969), and self-regulation models (Mischel, Shoda & Rodriguez, 1989). These perspectives laid the groundwork for contemporary ER models (Gross, 2008; Gross & Thompson, 2007). Gross and Thompson (2007) later synthesized these traditions into a comprehensive model of ER, proposing five temporally sequenced regulatory processes: situation selection, situation modification, attentional deployment, cognitive change, and response modulation. These processes represent a dynamic continuum, ranging from early-stage interventions (antecedent-focused) to later-stage modifications (response-focused), and have since become the dominant framework in ER research.

The relevance of ER extends beyond theoretical significance; numerous empirical studies have demonstrated its mediating role in the relationship among psychological variables. For instance, ER mediates associations between psychological well-being and depressive symptoms (Fergus & Bardeen, 2016), anxiety and alcohol use (Paulus et al., 2016), and stress and well-being (Extremera & Rey, 2015). It also plays a critical role in the dynamics of attachment, emotion, and behavior, as evidenced in research on intimate partner violence (Guzmán-González et al., 2016), sleep disturbances (Tavernier & Willoughby, 2015), and mindfulness (Pepping et al., 2013; 2015). These findings confirm that individuals with higher ER abilities demonstrate greater resilience and adaptability when facing emotional and interpersonal challenges.

From a developmental perspective, individuals aged 15 to 25 are particularly susceptible to emotional and behavioral dysregulation due to neurobiological and hormonal changes. This stage is characterized by frequent mood fluctuations and a high incidence of psychological disorders such as ADHD, anxiety disorders, depression, eating disorders, and personality disorders (Al-Hunaishel et al., 2018; Al-Modayfer & Alatiq, 2015; Alslman et al., 2017; Farshidfar et al., 2019; Mohammadi et al.,

2020; Mohammed, 2019; Seleem et al., 2019). Consequently, the early identification and treatment of emotional dysregulation within this population represent not only a clinical imperative but also a critical preventive and educational priority.

Regarding gender, differences in emotion regulation strategies have been widely explored in the literature. Some studies suggest that females are generally more emotionally expressive, while males tend to suppress their emotional responses. These patterns are often attributed to early gender socialization, whereby boys are conditioned to be rational, self-controlled, and emotionally reserved, whereas girls are encouraged to express vulnerability and affection (Eisenberg et al., 1998; Fabes & Martin, 1991). Nevertheless, other studies challenge this assumption, suggesting that gender differences in ER may be minimal or context dependent. Gross and John (2003) argued that differences in cognitive reappraisal (CR) are often insignificant, underscoring the need for individualized assessments rather than reliance on gender-based assumptions.

Given the complexity of ER and its implications for psychological and academic functioning, researchers have implemented a wide range of therapeutic interventions aimed at enhancing ER. These include Acceptance and Commitment Therapy (ACT) (Sharifi et al., 2024; Yuan et al., 2024), Schema Focused Therapy (SFT) (Byrne, 2025; Sobhani et al., 2023), while others used Mentalization-Based Treatment (MBT) (Midgley et al., 2023; Steinmair et al., 2021), Cognitive Behavioral Therapy (CBT) (Dickey et al., 2023; Garke et al., 2025), and Dialectical Behavior Therapy (DBT) (Evans, 2024; Heath et al., 2021; Khodabakhshi-Koolaee et al., 2024; McCall et al., 2025). Among these, DBT has emerged as one of the most effective approaches for individuals struggling with emotional dysregulation.

Building on cognitive-behavioral foundations, DBT was developed by Linehan (1993a, b), who integrated validation, acceptance, mindfulness, and dialectical strategies into a cohesive therapeutic model (Gunderson & Lins, 2009; Harley et al., 2016; Kaplan et al., 2016; Miller et al., 2016). DBT integrates cognitive-behavioral techniques to enhance emotional regulation and distress tolerance via individual therapy, skills training, phone coaching, and consultation meetings (Dimeff & Linehan, 2008; Swales & Heard, 2007). It is based on the assumption that individuals wish to avoid problematic behaviors but lack skills or face interfering reinforcements (Buerger et al., 2019). DBT addresses a wide range of emotional, behavioral, cognitive, and interpersonal difficulties by teaching clients specific skills in mindfulness, emotion regulation, distress tolerance, and interpersonal effectiveness. Its theoretical underpinnings have been validated across diverse populations and are particularly relevant in educational contexts, where young adults often face heightened emotional and academic pressures.

Considering the preceding discussion and the gaps identified in existing literature, the present study aims to examine the effectiveness of a dialectical behavior therapy (DBT) program in enhancing emotion regulation (ER) among university students. Accordingly, the study aims to address the following research questions:

- a. Are there statistically significant differences in emotion regulation between male and female university students?
- b. Does participation in a DBT-based intervention result in significant improvements in emotion regulation among students in the experimental group?
- c. To what extent are the effects of the DBT program on emotion regulation maintained during the follow-up period?

1.1. Research Objectives

The current study aims to:

1. Investigate gender differences in ER among university students.
2. Assess the effectiveness of DBT in enhancing ER within the experimental group.
3. Evaluate the sustainability of DBT's effects on ER during the follow-up period.

1.2. Research Significance

The current study derives its importance from the following considerations:

1. Significance of ER: A critical factor influencing psychological, social, and academic functioning. It is strongly linked to mental and physical health outcomes, performance, and a fundamental component of emotional intelligence (Brans et al., 2013; Hamilton et al., 2007).
2. Relevance of the Target Population: University students, particularly those in late adolescence, face substantial pressures, challenges, and emotional fluctuations, making them especially vulnerable to multiple stressors that impact academic performance and university adjustment.
3. Translation and Psychometric Validation: This study contributes by translating and validating the Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003) within the Saudi Arabian context, assessing its psychometric properties in terms of validity and reliability.
4. Raising Stakeholder Awareness: The research aims to raise awareness among university administrators, educators, media professionals, mental health counselors, and civil society organizations regarding effective strategies to enhance ER in university students, emphasizing both individual and societal benefits.
5. Potential for Broader Application: The findings of this study may support wider ER enhancement efforts across diverse populations, providing a foundation for future initiatives sponsored by governmental and non-governmental organizations.

1.3. Research Terminology

1.3.1. Emotion Regulation

ER is conceptualized as the ability to confront and manage emotions healthily and clearly (O'Neill, 2015). It is viewed as a dynamic process where individuals are influenced by their emotions and respond to them (Gross, 1998b). It is a mechanism for managing emotional states while they are active (Cabral et al., 2012), and it may occur either consciously or unconsciously as emotions unfold over time (Gross, 1998b). In the current study, ER is operationally defined as the score obtained by an individual on the Arabic version of Emotion Regulation Questionnaire (A-ERQ) used in this study.

1.3.2. Dialectical Behavioral Therapy (DBT) Program

DBT is a psychotherapeutic approach based on dialectical principles, aiming to create a balance between acceptance and the desire for change. It emphasizes the contradictions inherent in an individual's life and seeks to reconcile them to foster positive personal transformation. The therapy integrates cognitive-behavioral techniques, relaxation strategies, supportive skill development, and enhanced self-awareness and cognitive modification (Linehan, 1993a-b). In the current study, DBT is operationally defined as a Linehan-based psychotherapy consisting of 19 therapeutic sessions utilizing techniques such as mindfulness training, dialectical strategy (e.g., resolving contradictions), exposure exercises, metaphorical interventions, and relaxation and meditation practices, all designed to enhance ER among university students.

1.4. Research Limitations

The current study is delimited by the following parameters:

- a. Subject: The Effectiveness of a DBT Program In Enhancing ER.
- b. Sample: University Students.
- c. Location: College of Education, King Khalid University (KKU), Saudi Arabia.
- d. Timeframe: First Academic Semester of 2024.
- e. Research Tools:
 - Arabic version of Emotion Regulation Questionnaire (A-ERQ) (Gross & John, 2003).
 - A DBT-based therapeutic program.

1.5. Research Hypotheses

- a. No statistically significant differences exist between mean scores of male and female university students in ER.
- b. Statistically significant differences exist between experimental group's pre-test and post-test ranks on the A-ERQ, favoring the post-test.
- c. No statistically significant differences exist between experimental group's post-test and follow-up test ranks on the A-ERQ (conducted one and a half months after program implementation).

2. Methods

2.1. Methodology

This study employed a combined descriptive and quasi-experimental research design to achieve its objectives. The descriptive method was utilized to assess potential gender-based differences in emotion regulation (ER) among university students. Meanwhile, the quasi-experimental method was adopted to evaluate the effectiveness of a therapeutic intervention program based on DBT in enhancing ER.

Specifically, the quasi-experimental design followed a pretest–posttest control group format with a follow-up phase, wherein the DBT-based program functioned as the independent variable, and the participants' levels of emotion regulation served as the dependent variable.

2.2. Participants

The study involved two distinct samples drawn from undergraduate students in the Department of Psychology at King Khalid University (KKU):

- a. Initial sample. The initial sample consisted of 158 students (77 males, 81 females), aged between 18 and 21 years. This sample was primarily used to confirm the psychometric validity of the assessment instrument and to determine the cut-off score for identifying low levels of emotion regulation (ER).
- b. Main sample. The main experimental sample consisted of 22 male students, aged between 18.75 and 23.47 years ($M = 20.63$, $SD = 1.57$), selected from a broader pool of 515 students (252 males, 263 females) who were not part of the initial sample. Participants were eligible for inclusion if they obtained a total score of ≤ 40 on the A-ERQ, indicating low levels of ER (i.e., ≤ 14 in CR and ≤ 24 in ES).

The selected participants were randomly assigned to either the experimental group ($n = 11$) or the control group ($n = 11$). The two groups were matched in terms of age and baseline ER scores. Table 1 presents the results of the matching analysis, confirming group equivalence prior to the intervention.

Table 1. Differences between Experimental and Control Groups' Scores in ER and Age.

<i>Variable</i>	<i>Group</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sum of Ranks</i>	<i>Mann-Whitney U</i>	<i>Z vale</i>	<i>Sig.</i>
CR	Exp.	11	14.05	154.5	32.5	-1.871	.061
	Con.	11	8.95	98.5			
ES	Exp.	11	9.68	106.5	40.5	-1.328	.184
	Con.	11	13.32	146.5			
Age	Exp.	11	11.32	124.5	58.5	-.131	.895
	Con.	11	11.68	128.5			

Note: CR = Cognitive Reappraisal, ES = Expressive Suppression, Exp. = experimental group, Con. = control group.

The results in Table 1 indicate no statistically significant differences between the mean ranks of the experimental and control groups on ER (including both CR and ES), as well as age. This finding confirms the homogeneity of the two groups prior to the intervention.

2.3. Instruments

2.3.1. Emotion Regulation Questionnaire (ERQ)

2.3.1.1. Description and Psychometric Properties of the Original Version:

Gross and John (2003) developed the ERQ to measure the processes and strategies individuals use to regulate and manage their emotions. The ERQ is a self-report tool consisting of 10 items designed to assess an individual's tendency to employ ER strategies. It includes two dimensions: Cognitive Reappraisal (CR) (6 items: 1, 3, 5, 7, 8, 10), and Expressive Suppression (ES) (4 items: 2, 4, 6, 9). Responses to the questionnaire are recorded on a 7-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (7).

Gross and John ensured the psychometric validity of the ERQ. The test-retest reliability coefficient was reported as .70. For the subscales, the internal consistency coefficient for CR were 0.79 for CR and 0.73 for ES. Additionally, the correlation between the two dimensions was -.01, indicating that CR and ES are independent constructs. Exploratory factor analysis results confirmed the factorial validity of the questionnaire.

The ERQ has gained widespread recognition in psychology and has been translated into several languages, including German (Abler & Kessler, 2009), Italian (Balzarotti et al., 2010), Australian English (Gullone & Taffe, 2012), and Swedish (Enebrink et al., 2013). Furthermore, several studies (e.g., Melka et al., 2011; Moore et al., 2008) have validated the factorial structure and psychometric properties of the original questionnaire, demonstrating its utility in research with both children and adolescents.

2.3.1.2. Procedures for Translating and Validating the ERQ in the Arab Context:

The questionnaire items were translated from English into Arabic. Subsequently, three English language experts reviewed both the Arabic and English versions to ensure semantic equivalence between them. An Arabic language expert then evaluated the translated version to ensure its linguistic clarity and appropriateness, verifying that the items conveyed clear and understandable meanings for respondents. Following this, the questionnaire was reviewed by five specialists in mental health and educational psychology to assess its cultural suitability for use in the Arab context. The data collected throughout these steps were utilized to examine the psychometric properties of the Arabic version, including internal consistency, validity, and reliability, as outlined below.

a. Internal Consistency:

The internal consistency of the A-ERQ was assessed by calculating the correlation coefficients between the scores of each item and the total score of the corresponding subscale. The correlation coefficients ranged from .539 to .736, all of which were statistically significant ($p < .01$). Table 2 presents these correlation coefficients.

Table 2. Item-Subscale Correlations of A-ERQ

	<i>Items</i>	<i>item-subscale correlations</i>
<i>CR</i>	1	.707**
	3	.700**
	5	.628**
	7	.539**
	8	.711**
	10	.691**
<i>ES</i>	2	.727**
	4	.675**
	6	.686**
	9	.736**

Note: CR = Cognitive Reappraisal, ES = Expressive Suppression, ** $p < .01$.

b. Factorial Validity (Construct Validity):

Validity was verified using Confirmatory Factor Analysis (CFA) through Amos23 software via Maximum likelihood method, statistics in all questionnaires' items loading significantly on two latent factors ($p < .01$). Item loadings on the CR ranged between .555 and .696, while loadings on the ES ranged between .448 and .544. Statistics in Table 3 and Figure 1 demonstrate the A-ERQ's validity, indicating that CFA provided strong evidence for construct validity and A-ERQ's correspondence with the original ERQ. CFA results also showed ideal fit indices; the Chi-square(χ^2) value = .088 with (2) degrees of freedom (df) ($p = .957$, statistically non-significant), the Root Mean Square Error of Approximation (RMSEA) = .000, the Goodness-of-Fit Index (GFI) = 1.000, the Adjusted Goodness-of-Fit Index (AGFI) = .999, and the Comparative Fit Index (CFI) = 1.000. Table 3 and Figure 1 illustrate the path diagram for A-ERQ's CFA model.

Table 3. Statistical Saturation of A-ERQ Statements with the Latent Factors.

	<i>Items</i>	<i>Saturation with latent factor</i>	<i>Standard error</i>	<i>Z values & sig.</i>	<i>R²</i>
CR	1	.556	.691	6.740**	.309
	3	.696	.515	8.843**	.485
	5	.583	.660	7.135**	.340
	7	.555	.692	6.732**	.308
	8	.595	.646	7.307**	.354
	10	.696	.516	8.837**	.484
ES	2	.544	.704	5.148**	.296
	4	.448	.799	4.346**	.201
	6	.537	.712	5.097**	.288
	9	.521	.728	4.976**	.272

Note: CR = Cognitive Reappraisal, ES = Expressive Suppression, ** = $p < .01$ when whereas the calculated “Z” values $\geq$ the tabulated “Z” value (2.59).

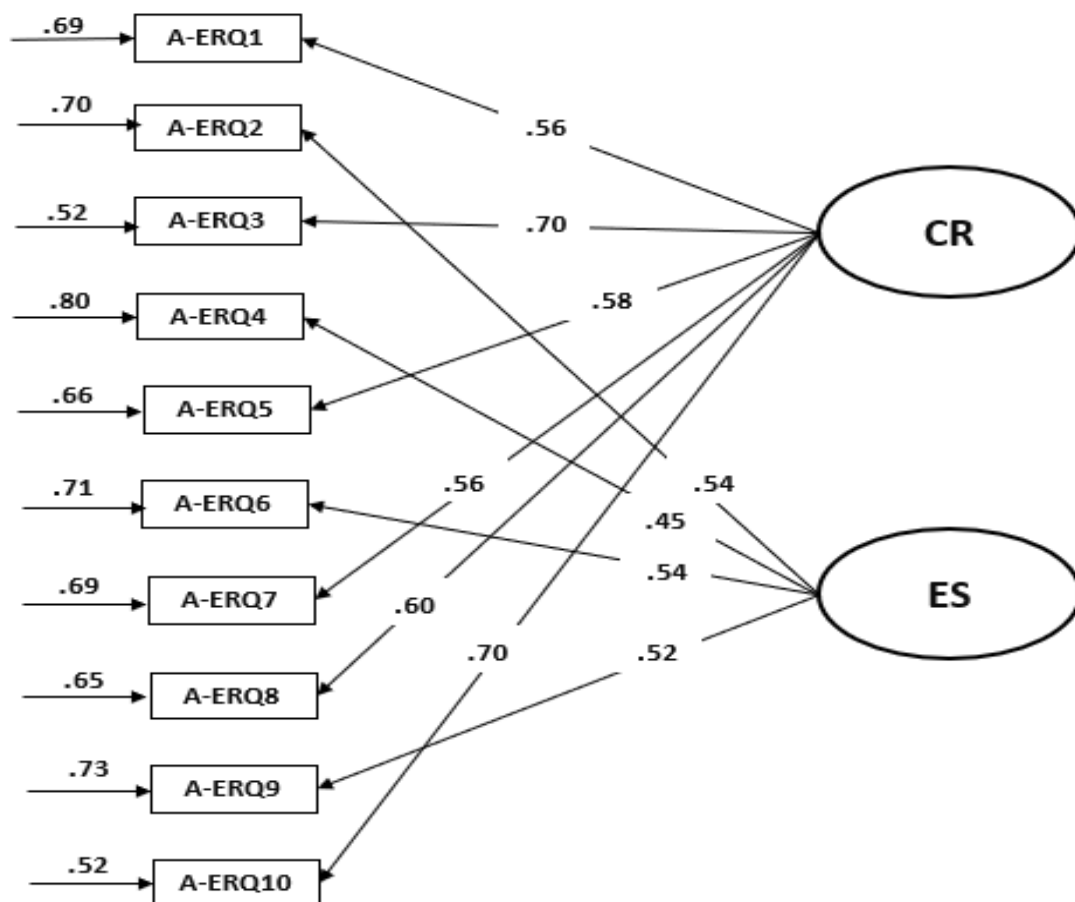


Figure 1. The Schematic Path of the CFA Model for the A-ERQ, Where CR = Cognitive Reappraisal, ES = Expressive Suppression).

c. Reliability of the A-ERQ:

To verify the reliability of the questionnaire, two methods were employed: Cronbach's alpha and split-half reliability. The subscales of the A-ERQ demonstrated a satisfactory level of internal consistency. As shown in Table 4, Cronbach's alpha coefficients were .851 for CR and .815 for ES. Similarly, Spearman-Brown split-half reliability coefficients for CR were .889 for CR and .797 for ES. These values fall within acceptable ranges, indicating high reliability for both subdimensions of the A-ERQ.

Table 4. Cronbach's Alpha, and Spearman-Brown Coefficient of A-ERQ.

	α	S-C
CR	.851	.889
ES	.815	.797

Note: CR = Cognitive Reappraisal, ES = Expressive Suppression, α = Cronbach's alpha, S-C = Spearman-Brown Coefficient, and ** $p < .01$.

Overall, the results indicate that the A-ERQ exhibits strong psychometric properties, including internal consistency, robust factorial validity, and acceptable reliability.

2.3.2. DBT Program for Enhancing ER Among University Students.

The therapeutic program implemented in the current study was designed based on the core principles of DBT. DBT is a psychotherapeutic approach initially developed to assist individuals in modifying maladaptive behavioral patterns such as self-injury, suicidal ideation, and substance use. It aims to enhance emotional and cognitive regulation by helping individuals identify triggers that activate emotional responses and dysregulated states (Linehan, 2015; Neacsiu et al., 2010).

The DBT-based program adopted in this study draws on dialectical philosophy, which emphasizes achieving a balance between acceptance and change. This perspective encourages the reconciliation of internal contradictions to foster personal growth and behavioral transformation (Linehan, 1993a, 1993b; Linehan et al., 2015; Rathu & Miller, 2014). DBT facilitates the identification and modification of ineffective coping mechanisms by promoting awareness of the sequence of events, thoughts, emotions, and behaviors that contribute to maladaptive outcomes (Rizvi et al., 2013).

Furthermore, DBT is grounded in the assumption that individuals generally strive to manage their challenges but may lack the requisite skills or be influenced by environmental reinforcements—positive or negative—that impair their adaptive functioning (Long & Witterholt, 2013).

The therapeutic program consisted of 19 sessions, conducted three times per week. Each session lasted approximately 45 to 60 minutes. A follow-up assessment of ER was conducted one and a half months after the conclusion of the intervention. The intervention incorporated a range of DBT-specific techniques, including structured discussions, guided dialogue, mindfulness exercises, the use of metaphors, exposure-based tasks, dialectical resolution of contradictions, relaxation strategies, problem-solving techniques, self-talk training, and telephone coaching. In addition, supportive behavioral and cognitive-behavioral methods were employed, such as didactic instruction, role-playing, modeling, reinforcement, performance feedback, self-monitoring, cognitive restructuring, explanation, Socratic questioning, brainstorming, active listening, summarizing, and homework assignments.

Table 5 presents a detailed overview of the session structure, including session topics, techniques used, and the specific therapeutic methods applied.

Table 5. DBT Program Sessions, Topics, Techniques, and Methods Used.

<i>Session No.</i>	<i>Session Topic</i>	<i>Techniques and Methods used</i>
1	Introduction of the experimental group and agreement on the main session guidelines	Lecture – Discussion and Dialogue – Fun and Humor
2-3	Emotion Regulation: Its concept, foundations, influencing factors, negative consequences of its deficiency, and different approaches to its treatment.	Lecture – Discussion and Dialogue – Cognitive Restructuring – Modeling – Self-Monitoring – Problem-Solving – Reinforcement – Feedback – Homework
4	Dialectical Behavior Therapy: (Its philosophy, goals, importance, skills, and techniques) as a therapeutic method for enhancing emotion regulation.	Lecture – Discussion and Dialogue – Explanation – Questioning – Modeling – Cognitive Restructuring – Self-Monitoring – Reinforcement – Feedback – Problem-Solving – Exposure – Metaphors – Resolving Contradictions – Homework
5-9	Mindfulness Skills Training: Includes training on: Wise Mind Skills, Walking the Middle Path Skills, What Skills, How Skills, Relaxation Skills, and Meditation Skills.	Lecture – Discussion and Dialogue – Cognitive Restructuring – Role-Playing – Reinforcement – Meditation Training – Feedback – Exposure – Homework
10-11	Stress Tolerance Skills Training: Includes training on: Distraction Skills, Self-Soothing Skills, and Improving the Moment Skills.	Lecture – Discussion and Dialogue – Cognitive Restructuring – Role-Playing – Exposure – Metaphors – Self-Monitoring – Problem-Solving – Feedback – Homework
12	Reality Acceptance Skills Training: Includes training on: Smiling, Radical Acceptance, and Cognitive Shifting Skills.	Lecture – Discussion and Dialogue – Explanation – Questioning – Modeling – Cognitive Restructuring – Self-Monitoring – Reinforcement – Feedback – Problem-Solving – Exposure – Metaphors – Homework
13-15	Emotion Regulation Skills Training: Includes training on: Understanding Emotions, Reducing Emotional Sensitivity, and Changing Unwanted Emotions.	Lecture – Discussion and Dialogue – Cognitive Restructuring – Self-Monitoring – Reinforcement – Feedback – Homework
16-18	Interpersonal Effectiveness Skills Training: Includes training on: Setting Goals and Priorities, Maintaining Relationships and Reducing Conflict, Getting What You Want or Saying No, Maintaining Self-Respect, Relationship Building Skills and Ways to End Relationships, and Skills for Finding and Making People Like You.	Lecture – Discussion and Dialogue – Explanation – Questioning – Modeling – Cognitive Restructuring – Self-Monitoring – Reinforcement – Feedback – Problem-Solving – Exposure – Metaphors – Resolving Contradictions – Homework
19	Evaluation and Session Closure	Lecture – Discussion and Dialogue – Fun and Humor

2.4. Statistical Analyses

Data was analyzed using SPSS and AMOS software. A combination of descriptive and inferential statistical techniques was employed, as follows:

- CFA was conducted using AMOS to verify the construct validity of the A-ERQ.
- Internal consistency of the A-ERQ was assessed through Cronbach's alpha coefficient and the split-half method to ensure measurement reliability.

To test the study hypotheses, the following statistical analyses were used:

- Independent samples t-test was conducted to examine gender-based differences in ER levels (Hypothesis 1).
- The Wilcoxon test was applied to compare pre-test and post-test scores, and post-test and follow-up scores within the experimental group to determine the sustainability of the program's effect over time (Hypotheses 2 and 3).
- Mann-Whitney test was employed to assess the impact of the DBT-based program on ER in the experimental group compared to the control group (Hypothesis 2).

3. Results

3.1. Results of the First Hypothesis

To test the first hypothesis, which states: "No statistically significant differences exist between mean scores of male and female university students in ER", an independent samples t-test was conducted to examine potential differences between the mean scores of male and female students on the A-ERQ. The analysis was performed after confirming the normality of score distributions.

Table 6. Differences between Male and Female University Students on A-ERQ.

Variable	Male (n=252)		Female (n=263)		T-values	Sig.
	M	SD	M	SD		
CR	30.43	5.69	30.96	4.99	-1.116	.265
ES	19.57	5.77	18.97	4.33	1.333	.183

Note: CR = Cognitive Reappraisal, ES = Expressive Suppression, M = mean, SD = Stander deviation.

As shown in Table 6, the differences in mean scores between male and female students on both CR and ES subscales were not statistically significant ($p > .05$). Therefore, the null hypothesis is retained, and it can be concluded that there is no statistically significant gender-based differences in emotion regulation among university students.

3.2. Results of the Second Hypothesis

To test the second hypothesis, which states that: "Statistically significant differences exist between experimental group's pre-test and post-test ranks on the A-ERQ, favoring the post-test", the Wilcoxon signed-rank test was applied to examine differences in the experimental group's scores before and after the implementation of the therapeutic program. Table 7 presents the Wilcoxon test results comparing pre-test and post-test scores of the experimental group.

Table 7. Differences between Pre-Test and Post-Test Scores of the Experimental Group on the A-ERQ.

<i>Variable</i>	<i>Ranks</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sum of Ranks</i>	<i>Z value</i>	<i>Sig.</i>
CR	<i>Negative Ranks</i>	1	1.50	1.50	-2.654	.008
	<i>Positive Ranks</i>	9	5.94	53.50		
	<i>Ties</i>	1				
ES	<i>Negative Ranks</i>	0	.00	.00	-2.946	.003
	<i>Positive Ranks</i>	11	6.00	66.00		
	<i>Ties</i>	0				

Note: CR = Cognitive Reappraisal, A-ERQ = Arabic version of Emotion Regulation Questionnaire.

As shown in Table 7, all Z-values were statistically significant at the level of ($p < .01$), indicating significant improvements in both CR and ES post-intervention. These results support the effectiveness of the therapeutic program in enhancing emotion regulation skills among the experimental group.

To further confirm that these improvements are attributable to the intervention rather than external variables, two additional comparisons were conducted:

3.2.1. Comparison of Experimental and Control Groups in the Post-Test

To verify the specific impact of the therapeutic program, a Mann–Whitney U test was used to compare the post-test scores between the experimental and control groups. The results are shown in Table 8.

Table 8. Differences Between Experimental and Control Groups on the A-ERQ.

<i>Variable</i>	<i>Group</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sum of Ranks</i>	<i>Mann-Whitney U</i>	<i>Z vale</i>	<i>Sig.</i>
CR	<i>Exp.</i>	11	15.86	174.50	12.5	-3.162	.002
	<i>Con.</i>	11	7.14	78.50			
ES	<i>Exp.</i>	11	15.95	175.50	11.5	-3.247	.001
	<i>Con.</i>	11	7.05	77.50			

Note: CR = Cognitive Reappraisal, ES = Expressive Suppression, Exp. = experimental group, Con. = control group.

As shown in Table 8, all Z-values were statistically significant at the level of ($p < .01$), which indicates statistically significant differences between experimental and control groups in ER (CR and ES), in favor of the experimental group during the post-test, affirming the program's effectiveness in enhancing emotion regulation compared to the control group.

3.2.2. Comparison of Pre-Test and Post-Test Scores in the Control Group

To rule out spontaneous improvements unrelated to the intervention, the Wilcoxon test was conducted on the control group's pre- and post-test scores. Results are presented in Table 9.

Table 9. Differences between Pre-Test and Post-Test Scores in the Control Group on the A-ERQ.

<i>Variable</i>	<i>Ranks</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sum of Ranks</i>	<i>Z value</i>	<i>Sig.</i>
CR	<i>Negative Ranks</i>	3	3.33	10	-.108	.914
	<i>Positive Ranks</i>	3	3.67	11		
	<i>Ties</i>	5				
ES	<i>Negative Ranks</i>	4	2.5	10	-1.857	.063
	<i>Positive Ranks</i>	0	0	0		
	<i>Ties</i>	7				

Note: CR = Cognitive Reappraisal, ES = Expressive Suppression.

The results reveal no statistically significant differences ($p > .05$) between pre- and post-test scores in the control group. This suggests the absence of spontaneous improvement in emotion regulation and reinforces the conclusion that observed gains in the experimental group are attributable to the therapeutic intervention.

Collectively, these findings confirm the second hypothesis and strongly support the effectiveness of the DBT-based therapeutic program in improving emotion regulation (both cognitive reappraisal and expressive suppression) among university students.

3.3. Results of the Third Hypothesis

To test the third hypothesis, which stated: "No statistically significant differences exist between experimental group's post-test and follow-up test ranks on the A-ERQ (conducted one and a half months after program implementation)," the Wilcoxon Signed-Rank Test was employed to compare post-test and follow-up scores of the experimental group on the A-ERQ. Table 10. Differences Between Post-Test and Follow-Up Scores for the Experimental Group on the A-ERQ

Table 10. Differences between Post-Test and Follow-Up Scores for the Experimental Group on A-ERQ.

<i>Variable</i>	<i>Ranks</i>	<i>N</i>	<i>Mean Rank</i>	<i>Sum of Ranks</i>	<i>Z value</i>	<i>Sig.</i>
CR	<i>Negative Ranks</i>	3	4.50	13.50	-1.095	.274
	<i>Positive Ranks</i>	6	5.25	31.50		
	<i>Ties</i>	2				
ES	<i>Negative Ranks</i>	4	4.75	19.00	-.426	.670
	<i>Positive Ranks</i>	5	5.20	26.00		
	<i>Ties</i>	2				

Note: CR = Cognitive Reappraisal, ES = Expressive Suppression.

As shown in Table 10, the Z values for both CR and ES were not statistically significant ($p > .05$). These findings indicate that there were no significant differences between the post-test and follow-up scores of the experimental group, suggesting that the improvement in emotional regulation (CR and ES) was maintained over time. Thus, the third hypothesis is supported, affirming the sustained effectiveness of the therapeutic program.

4. Discussion

4.1. Discussion the Result of the First Hypothesis

The results related to the first hypothesis, which examined gender-based differences in ER among university students, revealed no statistically significant differences between male and female participants in the total score of the Arabic version of the Emotion Regulation Questionnaire (A-ERQ), nor in its two sub-dimensions: CR and ES. These findings, as presented in Table 6, are consistent with the results reported by Goodall (2015), who similarly found no gender-based differences in ER.

This result aligns with the theoretical perspective presented by Lin (2012), who argued that observed differences in ER across genders may be better understood in terms of sociocultural roles and gender stereotypes, rather than inherent psychological or biological traits. From this standpoint, individuals are not only socialized into recognizing what emotions are, but also into learning the appropriate degree and manner of expressing those emotions. Thus, the expression of emotions becomes largely shaped by social, cultural, and situational factors.

Within this context, it is often noted that females tend to be more expressive emotionally, whereas males are more likely to suppress emotional expressions. This tendency can be attributed to differential socialization processes, wherein males receive consistent messages—from parents, teachers, and peers—that discourage open displays of emotion, particularly those associated with vulnerability (Eisenberg et al., 1998). As such, males are often socialized to exhibit traits like rationality, autonomy, and emotional restraint, while females are encouraged to be emotionally expressive, sensitive, and nurturing (Fabes & Martin, 1991).

However, the current findings are not entirely in agreement with all previous studies. For instance, Lin (2012) reported statistically significant differences favoring males in CR, while females scored higher in ES. These differences were interpreted in light of sociocultural and contextual constraints, suggesting that cultural norms may provide males with greater latitude in expressing and managing emotions, whereas females might face more restrictions and social expectations that lead to heightened emotional suppression.

Similarly, Lin (2012) noted that males scored higher on ES, while females reported lower levels, which he attributed to a complex interplay of societal expectations, emotional experiences, and individual tendencies. Supporting this, Gross and John (2003) indicated that ES tends to be more prevalent among males, which they explained in terms of greater fear, emotional distancing, and discomfort with affective closeness. Nonetheless, they also pointed out that gender differences in CR are generally small or non-significant, a position that aligns with the findings of the present study.

To interpret these findings more deeply, the current results may be understood in light of the process model of emotion regulation developed by Gross and Thompson (2007) and Gross (2002). This model identifies five sequential stages in the regulation of emotions:

1. Situation selection, such as avoiding a potentially upsetting situation (e.g., choosing to stay home instead of attending an event where a conflict might arise);
2. Situation modification, where individuals adjust external conditions to regulate emotions (e.g., turning off a disturbing TV program);
3. Attentional deployment, by redirecting focus (e.g., looking away from a distressing scene);
4. Cognitive reappraisal, where the individual changes the interpretation of an event to alter its emotional impact (e.g., attributing failure in a football match to external factors rather than personal shortcomings);

5. Response modulation, where outward emotional expressions are suppressed or modified to suit social norms (e.g., a student hiding emotional reactions in the classroom).

It is likely that both male and female students in the current sample have developed comparable capabilities in applying these regulatory strategies, given their developmental stage (late adolescence/early adulthood), which is typically associated with increased emotional awareness and control. From a componential perspective of ER, the study sample may have attained:

- A more refined experiential component, enabling better identification and understanding of internal emotional states;
- A more mature behavioral component, reflected in the ability to respond to emotional situations with greater composure and appropriateness.
- An enhanced physiological component, such as improved regulation of autonomic responses (e.g., heart rate, blood pressure, muscular tension) (Gross & John, 2003).

In addition, the widespread use of social media platforms may have played a pivotal role in minimizing traditional gender differences in emotional expression. These platforms offer equal opportunities for emotional disclosure, allowing both males and females to express their feelings, opinions, and emotional experiences freely and publicly. As such, digital environments may serve as equalizing spaces for emotional communication.

Moreover, contemporary parenting styles and evolving socialization patterns have become more supportive of emotional development for both genders. Modern family environments are increasingly characterized by emotional acceptance, empathy, and responsiveness, encouraging children—regardless of gender—to express emotions openly and constructively. These cultural and familial changes may further explain the convergence in ER patterns between male and female university students observed in this study.

In conclusion, the absence of significant gender differences in ER among university students appears to be shaped by a combination of developmental maturity, socio-cultural evolution, digital engagement, and contemporary parenting, all of which contribute to more balanced emotional competencies across genders.

4.2. Discussion the Results of the Second and Third Hypotheses

The findings of the current study demonstrate that the application of the DBT program to the experimental group was effective in enhancing ER. This outcome aligns with a growing body of international research confirming the efficacy of DBT in improving ER among university students (Heath et al., 2021; McCall et al., 2025; Evans, 2024).

This effectiveness can be understood through the core components of DBT skills training, which equip participants with improved control over their emotional and behavioral responses. For example, mindfulness skills heighten self-awareness, enhance attentional focus, reduce distress, and increase the capacity to experience positive emotions. In parallel, distress tolerance and acceptance skills empower participants to face reality as it is, fostering resilience in challenging circumstances. Furthermore, interpersonal effectiveness skills support the development and maintenance of healthy peer and family relationships, while promoting self-respect. The middle-path skills (walking the middle path) teach conflict reduction strategies by emphasizing validation, behavioral change, dialectical thinking, and effective action (Linehan, 1993a-b; Linehan et al., 2015; Rathus & Miller, 2014).

From a conceptual standpoint, DBT instructs participants to modify extreme or maladaptive thoughts and emotions and reduce the negative behaviors resulting from these emotional states

(Rathus & Miller, 2014; Swales & Heard, 2007). The training thus targets both cognitive and behavioral dysregulation, fostering balanced emotional responses.

The positive impact of the DBT program on ER can be further dissected by examining the specific skill sets taught:

1. **Mindfulness Skills as a Foundation:** Mindfulness serves as the cornerstone of DBT, addressing issues of self-regulation and cognitive dysregulation. Without mindful awareness, individuals are vulnerable to poor ER and impulsive reactions. Developing mindfulness facilitates deliberate, thoughtful responses to life's challenges (Linehan, 2015; Linehan et al., 2015; Linehan, 1993a-b).

2. **Effective Interpersonal Skills:** These include communication skills such as assertiveness, maintaining relationships, and preserving self-respect. Participants learn to challenge maladaptive beliefs about relationships and overcome barriers to applying newly acquired interpersonal strategies (Linehan, 2015; Linehan, 1993a-b).

3. **Self-Regulation Skills:** These enable individuals to identify and differentiate emotions, reduce exposure to negative affect, avoid mood-dependent behaviors, and increase positive experiences. Particularly, participants are trained to "act opposite" to urges stemming from intense emotions, fostering adaptive coping (Linehan, 2015; Rathus & Miller, 2014).

4. **Distress Tolerance Skills:** These address behavioral dysregulation by teaching participants to endure emotional pain during crisis situations, especially where immediate solutions are unavailable. Skills such as radical acceptance promote acknowledgment of unavoidable stress and facilitate self-soothing and emotional regulation (Linehan, 2015; Linehan et al., 2015; Rathus & Miller, 2014).

The researchers attribute the program's success to several key factors:

- **Comprehensive Cognitive Foundations:** The sessions introduced participants to the theoretical underpinnings of ER, its influencing factors, and the consequences of dysregulation. Detailed explanations of DBT's objectives, skills, and techniques facilitated cognitive restructuring, enabling participants to replace maladaptive thoughts with constructive alternatives.

- **Interactive Skill Development:** The program integrated diverse activities and homework assignments designed to consolidate skills including distress tolerance, mindfulness, effective interpersonal communication, relaxation, and problem-solving, with mindfulness emphasized as a core component.

- **Group Dynamics and Social Learning:** The interactive group format encouraged discussion and collaborative exercises, fostering the development of social skills vital for harmonious interpersonal relationships and promoting unconditional acceptance of others.

The program thus provided participants not only with strategies for managing stress and interpersonal challenges but also with the tools to generalize these skills to broader life contexts. Over time, these competencies are likely internalized as habitual responses, contributing to enduring improvements in ER and adaptive functioning.

5. Conclusion

This study examined the effectiveness of DBT in enhancing ER among university students. The results revealed that the DBT program significantly improved ER skills in the experimental group compared to the control group, highlighting the potential of DBT as a promising intervention for mitigating challenges related to emotion dysregulation in young adults.

The emphasis on a structured, evidence-based therapeutic approach such as DBT underscores its critical relevance for promoting both academic success and psychological well-being among

students. Nonetheless, the study's limited sample size and focus on a single demographic group necessitate caution when generalizing these findings.

Future research is recommended to involve more diverse populations across various cultural and educational contexts to further validate the efficacy of DBT interventions. This will enhance understanding of the adaptability and generalizability of DBT across different settings.

Overall, this study contributes to the expanding literature on emotion regulation and its integral relationship with mental health, particularly within university environments. It also offers practical implications for mental health professionals and educational institutions, advocating for the integration of DBT-based programs within psychological support services to foster healthier emotional adjustment and improved academic outcomes for students.

6. Recommendations

Based on the findings of the present study, the following recommendations are proposed:

1. Integrate psychological counseling services within university curricula to prioritize the development of students' emotion regulation skills, recognizing its critical role in personal development, prevention of psychological issues, and therapeutic benefits for both students and the wider society.
2. Organize seminars and educational workshops aimed at university students to introduce and disseminate DBT concepts, principles, techniques, and practical skills applicable in academic and professional contexts.
3. Raise awareness about emotion regulation by conducting educational lectures that highlight its importance, the adverse consequences of emotion dysregulation, and the range of available treatment approaches.
4. Encourage comparative research that evaluates the effectiveness of DBT against other therapeutic modalities in enhancing emotion regulation, thereby informing best practices in psychological interventions.
5. Explore the impact of social determinants such as socioeconomic status and educational background on individuals' emotion regulation capabilities to understand contextual influences.
6. Expand research efforts to diverse educational environments, including both rural and urban universities, to assess the generalizability and applicability of DBT interventions across different settings.

Declarations

Author Contributions. The authors conducted this research following accepted scientific principles. They reviewed and approved the final version of the manuscript.

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Author's Note. Correspondence on this paper should be addressed to mmahmod@kku.edu.sa

References

- Abler, B., & Kessler, H. (2009). Emotion Regulation Questionnaire: Eine Deutsche Version des ERQ Von Gross & John [Emotion Regulation Questionnaire – A German Version of Gross & John's ERQ]. *Diagnostica* 55(3), 3144–3152. <https://doi.org/10.1026/0012-1924.55.3.144>
- Abubakar, A., Alonso-Arbiol, I., van de Vijver, F. J., Murugami, M., Mazrui, L., & Arasa, J. (2013). Attachment and psychological well-being among adolescents with and without disabilities in Kenya: the mediating role of identity formation. *Journal of Adolescence*. 36(5), 849-357. <https://doi.org/10.1016/j.adolescence.2013.05.006>
- Al-Hunaishel, M. A., Almalki, M. A., Almainan, S. S., Alqahtani, T. A., Alsaadi, Z. S., Aldosari, B. M., & Al-Shehri, S. H. (2018). The association between attention deficit hyperactivity disorder and Legg–Calvé–Perthes disease in tertiary hospital-Riyadh City, Saudi Arabia. *Journal of Musculoskeletal Surgery and Research*, 2(4), 156. https://doi.org/10.4103/jmsr.jmsr_39_18
- Al-Modayfer, O., & Alatiq, Y. (2015). A Pilot Study on the Prevalence of Psychiatric Disorders among Saudi Children and Adolescents: A Sample from a Selected Community in Riyadh City. *The Arab Journal of Psychiatry*, 44(2151), 1-10. <https://doi.org/10.12816/0014485>
- Alslman, E. T., Baker, N. A., & Dalky, H. (2017). Mood and anxiety disorders among adolescent students in Jordan. *Eastern Mediterranean Health Journal*, 23(9), 604-610. <https://doi.org/10.26719/2017.23.9.604>
- Balzarotti, S., John, O. P., & Gross, J. J. (2010). An Italian Adaptation of the Emotion Regulation Questionnaire. *European Journal of Psychological Assessment*, 26(1), 161–167. <https://doi.org/10.1027/1015-5759/a000009>
- Brans, K., Koval, P., Verduyn, P., Lim, Y., & Kuppens, P. (2013). The Regulation of Negative and Positive Affect in Daily Life. *Emotion*, 13(5), 926-939. <https://psycnet.apa.org/doi/10.1037/a0032400>
- Buerger, A., Fischer-Waldschmidt, G., Hammerle, F., Auer, K. V., Parzer, P., & Kaess, M. (2019). Differential change of borderline personality disorder traits during dialectical behavior therapy for adolescents. *Journal of personality disorders*, 33(1), 119-134. https://doi.org/10.1521/pedi_2018_32_334
- Byrne, G. (2025). The Widening Therapeutic Scope of Schema Focused Therapy (SFT): Potential in Addressing Adolescent and Parenting Difficulties: A Theoretical and Narrative Review. *Clinical Social Work Journal*, 1-11. <https://doi.org/10.1007/s10615-024-00982-7>
- Cabral, J., Matos, P. M., Beyers, W., & Soenens, B. (2012). Attachment, emotion regulation and coping in Portuguese emerging adults: A test of a mediation hypothesis. *The Spanish Journal of Psychology*, 15(3), 1000-1012. https://doi.org/10.5209/rev_SJOP.2012.v15.n3.39391
- Chung, K., & Choi, E. (2014). Attachment styles and mother's well-being among mothers of preschool children in Korea: The mediating role of marital satisfaction. *Personality and Individual Differences*, 69, 135-139. <https://doi.org/10.1016/j.paid.2014.05.027>
- Dastjerdi, R., Mohammadi, M. R., Alavi, S., Ahmadi, A., & Farshidfar, Z. (2019). The prevalence of psychiatric disorders among children and adolescents in Southern Khorasan Province, Iran. *Modern Care Journal*, 16(2). <https://doi.org/10.5812/modernc.90937>
- Davis, D. M., & Hayes, J. A. (2011). What are the benefits of mindfulness? a practice review of psychotherapy-related research. *Psychotherapy*, 48(2), 198–208. <https://doi.org/10.1037/a0022062>

- De Castella, K., Goldin, P., Jazaieri, H., Ziv, M., Dweck, C., & Gross, J. (2013). Beliefs About Emotion: Links to Emotion Regulation, Well-Being, and Psychological Distress. *Basic and Applied Social Psychology*, 35, 497–505. <https://doi.org/10.1080/01973533.2013.840632>
- Dickey, L., Pegg, S., Cárdenas, E. F., Green, H., Dao, A., Waxmonsky, J., ... & Kujawa, A. (2023). Neural predictors of improvement with cognitive behavioral therapy for adolescents with depression: An examination of reward responsiveness and emotion regulation. *Research on Child and Adolescent Psychopathology*, 51(8), 1069-1082. <https://doi.org/10.1007/s10802-023-01054-z>
- Dimeff, L. A., & Linehan, M. M. (2008). Dialectical behavior therapy for substance abusers. *Addiction science & clinical practice*, 4(2), 39-47. <https://doi.org/10.1151/ascp084239>
- Eisenberg, N., Cumberland, A., & Spinrad, T. L. (1998). Parent socialization of emotion. *Psychology Inquiry*, 9, 241–273. https://doi.org/10.1207/s15327965pli0904_1
- Enebrink, P., Björnsdotter, A., & Ghaderi, A. (2013). The Emotion Regulation Questionnaire: Psychometric Properties and Norms for Swedish Parents of Children Aged 10-13 Years. *Europe's Journal of Psychology*, 9(2), 289-303. <https://doi.org/10.5964/ejop.v9i2.535>
- Evans, J. J. (2024). *Paws & breathe: A dialectical behavior therapy informed emotion regulation skills group utilizing animal assisted counseling* (Doctoral dissertation, Texas A&M University-Corpus Christi).
- Extremiera, N., & Rey, L. (2015). The moderator role of emotion regulation ability in the link between stress and well-being. *Front Psychol*, 6, 1632. <https://doi.org/10.3389/fpsyg.2015.01632>
- Fabes, R. A., & Martin, C. L. (1991). Gender and age stereotypes of emotionality. *Personality and Social Psychology Bulletin*, 17(5), 532-540. <https://doi.org/10.1177/0146167291175008>
- Fergus, T. A., & Bardeen, J. R. (2016). Negative mood regulation expectancies moderate the association between happiness emotion goals and depressive symptoms. *Personality and Individual Differences*, 100, 23-27. <https://doi.org/10.1016/j.paid.2015.08.010>
- Garke, M. Å., Hentati Isacson, N., Kolbeinsson, Ö., Hesser, H., & Månsson, K. N. (2025). Improvements in emotion regulation during cognitive behavior therapy predict subsequent social anxiety reductions. *Cognitive Behaviour Therapy*, 54(1), 78-95. <https://doi.org/10.1080/16506073.2024.2373784>
- Germer, C. K., Siegel, R. D., & Fulton, P. R. (2005). *Mindfulness and psychotherapy*. 1st ed. New York: Guilford Press.
- Gillanders, S., Wild, M., Deighan, C., & Gillanders, D. (2008). Emotion Regulation, Affect, Psychosocial Functioning, and Well-being in Hemodialysis Patients. *American Journal of Kidney Diseases*, 51(4), 651-662 <https://doi.org/10.1053/j.ajkd.2007.12.023>
- Goodall, K. (2015). Individual differences in the regulation of positive emotion: The role of attachment and self esteem. *Personality and Individual Differences*, 74, 208-213. <https://doi.org/10.1016/j.paid.2014.10.033>
- Gross, J. J., & John, O. P. (2003). Individual Differences in Two Emotion Regulation Processes: Implications for Affect, Relationships, and Well-Being. *Journal of Personality and Social Psychology*, 85(2), 348-362. <https://psycnet.apa.org/doi/10.1037/0022-3514.85.2.348>
- Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–24). New York: The Guilford Press.

- Gross, J. J. (1998a). Antecedent- and response- focused Emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology*, 74, 224–237. <https://doi.org/10.1037//0022-3514.74.1.224>
- Gross, J. J. (1998b). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, 2(3), 271-299. <https://doi.org/10.1037/1089-2680.2.3.271>
- Gross, J. J. (2002). Emotion regulation: affective, cognitive, and social consequences. *Psychophysiology*, 39(3), 281-291. <https://doi.org/10.1017/S0048577201393198>
- Gross, J. J. (2008). Emotion Regulation. In: *Handbook of Emotions*, M. Lewis, J. M. Haviland-Jones & L. F. Barrett (Eds.), 3rd edition, pp. 497-512. *The Guilford Press: London*.
- Gullone, E., & Taffe, J. (2012). The Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA): A psychometric evaluation. *Psychological Assessment*, 24(2), 409-417. <https://psycnet.apa.org/doi/10.1037/a0025777>
- Gunderson, J. G., & Lins, P. S. (2009). *Borderline personality disorder: A clinical guide*. USA: American Psychiatric Pub.
- Guzmán-González, M., Lafontaine, M. F., & Levesque, C. (2016). Romantic Attachment and Physical Intimate Partner Violence Perpetration in a Chilean Sample: The Mediating Role of Emotion Regulation Difficulties, *Violence and Victims*, 31(5), 854-868. <https://doi.org/10.1891/0886-6708.VV-D-14-00114>
- Hamilton, N. A., Karoly, P., Gallagher, M., Stevens, N., Karlson, C., & McCurdy, D. (2007). The Assessment of Emotion Regulation in Cognitive Context: The Emotion Amplification and Reduction Scales. *Cognitive Therapy and Research*, 33, 255-263. <https://doi.org/10.1007/s10608-007-9163-9>
- Harley, R., Eisner, L., Prairie, E., & Jacobo, M. (2016). Treatment of Borderline Personality Disorder. In: T.J. Petersen et al. (eds.), *The Massachusetts General Hospital Handbook of Cognitive Behavioral Therapy*, (227-242). New York: Springer Science+Business Media. https://doi.org/10.1007/978-1-4939-2605-3_17
- Heath, N., Midkiff, M. F., Gerhart, J., & Turow, R. G. (2021). Group-based DBT skills training modules are linked to independent and additive improvements in emotion regulation in a heterogeneous outpatient sample. *Psychotherapy Research*, 31(8), 1001-1011. <https://doi.org/10.1080/10503307.2021.1878306>
- Jones, J. D., Brett, B. E., Ehrlich, K. B., Lejuez, C. W., & Cassidy, J. (2014). Maternal attachment style and responses to adolescents' negative emotions: The mediating role of maternal emotion regulation. *Parenting: Science and Practice*, 14, 235-257. <https://doi.org/10.1080/15295192.2014.972760>
- Kafetsios, K., Athanasiadou, M., & Dimou, N. (2014). Leaders' and subordinates' attachment orientations, emotion regulation capabilities and affect at work: A multilevel analysis. *The Leadership Quarterly*, 25(3), 512–527. <https://doi.org/10.1016/j.leaqua.2013.11.010>
- Kaplan, C., Tarlow, N., Stewart, J. G., Aguirre, B., Galen, G., & Auerbach, R. P. (2016). Borderline personality disorder in youth: The prospective impact of child abuse on non-suicidal self-injury and suicidality. *Comprehensive psychiatry*, 71, 86-94. <https://doi.org/10.1016/j.comppsy.2016.08.016>

- Khodabakhshi-Koolaee, A., Falsafinejad, M. R., Zoljalali, T., & Ghazizadeh, C. (2024). Dialectical behavior therapy: Effect on emotion regulation and death anxiety in older female adults. *OMEGA-journal of Death and Dying*, 88(3), 1218-1231. <https://doi.org/10.1177/00302228211065960>
- Koerner, K., & Dimeff, L. A. (2007). Overview of dialectical behavior therapy. In: L. A. Dimeff, & K. Koerner (eds.), *Dialectical Behavior Therapy in Clinical Practice*, (1-18), New York: Guilford Press.
- Koole, S. (2009). The Psychology of Emotion Regulation: An Integrative Review. *Cognition & Emotion*, 23(1), 4–41. <https://doi.org/10.1080/02699930802619031>
- Kullik, A., & Petermann, F. (2013). Attachment to parents and peers as a risk factor for adolescent depressive disorders: The mediating role of emotion regulation. *Child Psychiatry and Human Development*, 44, 537-548. <https://doi.org/10.1007/s10578-012-0347-5>
- Larsen, R. J. (2000). Toward a Science of Mood Regulation. *Psychological Inquiry*. 11, 129–141. https://doi.org/10.1207/S15327965PLI1103_01
- Lin, Y. C. (2012). *The effect of college students' adult attachment styles and gender role identity on emotion regulation in intimate relationships* (Doctoral dissertation, Indiana University).
- Linehan, M. (2015). *DBT skills training manual*, 2nd edition. New York: The Guilford Press.
- Linehan, M. M. (1993a). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford Press.
- Linehan, M. M. (1993b). *Skills training manual for treating borderline personality disorder*. New York: Guilford Press.
- Linehan, M. M., Korslund, K. E., Harned, M. S., Gallop, R. J., Lungu, A., Neacsiu, A. D., ... & Murray-Gregory, A. M. (2015). Dialectical behavior therapy for high suicide risk in individuals with borderline personality disorder: a randomized clinical trial and component analysis. *JAMA psychiatry*, 72(5), 475-482. <https://doi.org/10.1001/jamapsychiatry.2014.3039>
- Long, B., & Witterholt, S. (2013). An overview of dialectical behavior therapy. *Psychiatric Annals*, 43(4), 152-157. <https://doi.org/10.3928/00485713-20130403-04>
- Malik, S., Wells, A., & Wittkowski, A. (2015). Emotion Regulation as A Mediator in The Relationship Between Attachment and Depressive Symptomatology: A Systematic Review. *Journal of Affective Disorders*, 172, 428-444. <https://doi.org/10.1016/j.jad.2014.10.007>
- McCall, M. H., Boyd, C. T., Kerr, N. D., Daniel, S. S., & Sutfin, E. L. (2025). Dialectical Behavior Therapy Skills Training as a Brief Intervention for Cigarette Smoking by Patients with Cancer: A Scoping Review and Narrative Synthesis of Related Literature. *Psycho-Oncology*, 34(1), e70074. <https://doi.org/10.1002/pon.70074>
- Melka, S. E., Lancaster, S. L., Bryant, A. R., & Rodriguez, B. F. (2011). Confirmatory Factor and Measurement Invariance Analyses of the Emotion Regulation Questionnaire. *Journal of Clinical Psychology*, 67(12), 1283–1293. <https://doi.org/10.1002/jclp.20836>
- Midgley, N., Mortimer, R., Carter, M., Casey, P., Coffman, L., Edbrooke-Childs, J., ... & McFarquhar, T. (2023). Emotion regulation in children (ERiC): A protocol for a randomised clinical trial to evaluate the clinical and cost effectiveness of Mentalization Based Treatment (MBT) vs Treatment as Usual for school-age children with mixed emotional and behavioural difficulties. *Plos one*, 18(8), e0289503. <https://doi.org/10.1371/journal.pone.0289503>

- Miller, A. L., Carnesale, M. T., & Courtney, E. A. (2016). Dialectical Behavior Therapy, In: C. Sharp & J. L. Tackett (eds.), *Handbook of Borderline Personality Disorder in Children and Adolescents*, (385-401), New York: Springer Science+Business Media. https://doi.org/10.1007/978-1-4939-0591-1_24
- Mohammadi, M. R., Salehi, M., Khaleghi, A., Hooshyari, Z., Mostafavi, S. A., Ahmadi, N., & Amanat, M. (2020). Social anxiety disorder among children and adolescents: A nationwide survey of prevalence, socio-demographic characteristics, risk factors and co-morbidities. *Journal of Affective Disorders*, 263, 450-457. <https://doi.org/10.1016/j.jad.2019.12.015>
- Mohammed, A. H. (2019). Saudi Arabian Pre-Service Special Education Teachers Knowledge of Attention-Deficit/Hyperactivity Disorder (ADHD). *Global Journal of Health Science*, 11(3), 32-43. <https://doi.org/10.5539/gjhs.v11n3p32>
- Moore, S. A., Zoellner, L. A., & Mollenholt, N. (2008). Are Expressive Suppression and Cognitive Reappraisal Associated with Stress-Related Symptoms? *Behaviour Research and Therapy*, 46(9), 993–1000. <https://doi.org/10.1016/j.brat.2008.05.001>
- Moriya, J., & Takahashi, Y. (2013). Depression and interpersonal stress: The mediating role of emotion regulation. *Motivation and Emotion*, 37(3), 600-608. <https://doi.org/10.1007/s11031-012-9323-4>
- Neacsiu, A. D., Rizvi, S. L., & Linehan, M. M. (2010). Dialectical behavior therapy skills use as a mediator and the outcome of treatment for borderline personality disorder. *Behaviour research and therapy*, 48(9), 832-839. <https://doi.org/10.1016/j.brat.2010.05.017>
- O'Neill, J. J. (2015). *A Correlational Study Examining the Relationship between Attachment Styles and Emotion Regulation in Adult Inpatient Marijuana Users*. (Doctoral dissertation, Grand Canyon University).
- Oshri, A., Sutton, T. E., Clay-Warner, J., & Miller, J. D. (2015). Child maltreatment types and risk behaviors: Associations with attachment style and emotion regulation dimensions. *Personality and Individual Differences*, 73, 127–133. <https://doi.org/10.1016/j.paid.2014.09.015>
- Panfile, T. M., & Laible, D. J. (2012). Attachment Security and Child's Empathy: The Mediating Role of Emotion Regulation. *Merrill-Palmer Quarterly*, 58(1), 1-12. <https://doi.org/10.1353/mpq.2012.0003>
- Parkinson, B., & Totterdell, P. (1999). Classifying Affect Regulation Strategies. *Cognition & Emotion*, 13(3), 277–303. <https://doi.org/10.1080/026999399379285>
- Paulus, D. J., Vujanovic, A. A., & Wardle, M. C. (2016). Anxiety Sensitivity and Alcohol Use Among Acute-Care Psychiatric Inpatients: The Mediating Role of Emotion Regulation Difficulties. *Cognitive Therapy and Research*, 40, 813–823. <https://doi.org/10.1007/s10608-016-9792-y>
- Peh, C., Kua, E., & Mahendran, R. (2016). Hope, emotion regulation, and psychosocial well-being in patients newly diagnosed with cancer. *Support Care in Cancer*, 24, 1955-1962. <https://doi.org/10.1007/s00520-015-2989-x>
- Pepping, C. A., Davis, P. J., & O'Donovan, A. (2015). Corrigendum to "Individual differences in attachment and dispositional mindfulness: The mediating role of emotion regulation". *Personality and Individual Differences*, 74, 303. <https://doi.org/10.1016/j.paid.2014.11.001>
- Rathu, J. H., & Miller, A. L. (2014). *DBT Skills Manual for Adolescents*. New York: The Guilford Press.

- Rizvi, S. L., Steffel, L. M., & Carson-Wong, A. (2013). An overview of dialectical behavior therapy for professional psychologists. *Professional Psychology: Research and Practice*, 44(2), 73-80. <https://psycnet.apa.org/doi/10.1037/a0029808>
- Seleem, M. A., Amer, R. A., Romeh, A. H., & Hamoda, H. M. (2019). Demographic and clinical characteristics of children seeking psychiatric services in the Nile Delta region: an observational retrospective study. *International journal of mental health systems*, 13, 1-11. <https://doi.org/10.1186/s13033-019-0323-6>
- Sharifi, M., Kakabraee, K., & Afshariniya, K. (2024). The Effectiveness of Acceptance and Commitment Therapy on Cognitive Emotion Regulation in People with Physical and Motor Disabilities. *The Scientific Journal of Rehabilitation Medicine*, 13(1), 94-105. <http://doi.org/10.32598/SJRM.13.1.6>
- Sobhani, Z., Hosseini, S. V., Honarparvaran, N., Khazraei, H., Amini, M., & Hedayati, A. (2023). The effectiveness of an online video-based group schema therapy in improvement of the cognitive emotion regulation strategies in women who have undergone bariatric surgery. *BMC surgery*, 23(1), 98. <https://doi.org/10.1186/s12893-023-02010-w>
- Steinmair, D., Horn, R., Richter, F., Wong, G., & Löffler-Stastka, H. (2021). Mind reading improvements in mentalization-based therapy training. *Bulletin of the Menninger Clinic*, 85(1), 59-82. <https://doi.org/10.1521/bumc.2021.85.1.59>
- Stratton, N., Mendoza Alvarez, M., Labrish, C., Barnhart, R., & McMMain, S. (2020). Predictors of dropout from a 20-week dialectical behavior therapy group for suicidal behaviors and borderline personality disorder. *Journal of personality disorders*, 34(2), 216-230. https://doi.org/10.1521/pedi_2018_32_391
- Swales, M. A., & Heard, H. L. (2007). The therapy relationship in dialectical behaviour therapy. In *The Therapeutic relationship in the cognitive behavioral psychotherapies* (pp. 185-204). Routledge.
- Tavernier, R., & Willoughby, T. J. (2015). A Longitudinal Examination of the Bidirectional Association Between Sleep Problems and Social Ties at University: The Mediating Role of Emotion Regulation. *Journal of Youth and Adolescence*, 44, 317–330. <https://doi.org/10.1007/s10964-014-0107-x>
- Teleb, A. A., Abdelmagid, A. S., & Ibrahim, A. M. (2023). The Relative Contribution to Impulsive Behavior and Difficulties in Emotion Regulation in Predicting Symptoms of Borderline Personality Disorder among University Students. *Information Sciences Letters*, 12(6), 2387-2400. <https://doi.org/10.18576/isl%2F120615>
- Thayer, R. E., Newman, J. R., & McClain, T. M. (1994). Self-regulation of Mood: Strategies for Changing A Bad Mood, Raising Energy, and Reducing Tension. *Journal of Personality and Social Psychology*, 67(5), 910–925. <http://doi.org/10.1037/0022-3514.67.5.910>
- Thompson, R. S. (2011). Emotion and Emotion Regulation: Two Sides of the Developing Coin. *Emotion Review*, 3(1), 53-61. <https://doi.org/10.1177/1754073910380969>
- Wetterborg, D., Dehlbom, P., Långström, N., Andersson, G., Fruzzetti, A. E., & Enebrink, P. (2020). Dialectical behavior therapy for men with borderline personality disorder and antisocial behavior: A clinical trial. *Journal of Personality Disorders*, 34(1), 22-39. https://doi.org/10.1521/pedi_2018_32_379
- Yuan, J., Zheng, M., Liu, D., & Wang, L. (2024). Effect of acceptance and commitment therapy on emotion regulation in adolescent patients with nonsuicidal self-injury. *Alpha psychiatry*, 25(1), 47-53. <https://doi.org/10.5152/alphapsychiatry.2024.231324>

- Zdrenka, M., Yogeewaran, K., Stronge, S., & Sibley, C. (2015). Ethnic and national attachment as predictors of wellbeing among New Zealand Europeans, Māori, Asians, and Pacific Nations peoples. *International Journal of Intercultural Relations*, 49, 114–120. <https://doi.org/10.1016/j.ijintrel.2015.07.003>
- Zhang, X., Chen, X., Ran, G., & Ma, Y. (2016). Adult children's support and self-esteem as mediators in the relationship between attachment and subjective well-being in older adults. *Personality and Individual Differences*, 97, 229–233. <https://doi.org/10.1016/j.paid.2016.03.062>
- Zimmer-Gembeck, M. J., & Ducat, W. (2010). Positive and negative romantic relationship quality: Age, familiarity, attachment and well-being as correlates of couple agreement and projection. *Journal of Adolescence*, 33(6), 879–890. <https://doi.org/10.1016/j.adolescence.2010.07.008>

About the Contributor(s)

Jubran Y. Mukhadi, is an assistant professor of psychological counseling, Department of Psychology, College of Education at King Khalid University Kku, Abha, KSA. He contributed to directing the research project, ensuring coherence across all study components and adherence to the research plan, formulating the research design, selecting standardized tools (e.g., ERQ, DBT program), establishing research hypotheses, writing the draft key sections of the manuscript (introduction, discussion, conclusion).

Email: Jmukhazi@kku.edu.sa

Ahmed Ali Teleb, is a full professor of mental health and psychological counseling, Department of Psychology, College of Education at Kku, Abha, KSA. He translated the tool, designed the methodology, participated in interpreting the discussion, ensured academic rigor suitable for publication in a high-impact Scopus-indexed journal, and managing the submission process, address reviewers' comments, and ensure compliance with journal publication standards.

Email: mmahmod@kku.edu.sa

ORCID: <https://orcid.org/0009-0002-2942-5726>

Adel S. Abbady, is a full professor of mental health and psychological counseling, Department of Psychology, College of Education at Kku, Abha, KSA. He contributed to monitoring the fidelity of the intervention delivery and collecting participant feedback to evaluate their experience and engagement, and contributing to writing the methodology section, with a focus on detailing the intervention procedures and data collection processes.

Email: adahmed@kku.edu.sa

ORCID: <https://orcid.org/0000-0002-4154-5707>

Ahmed S. Abdelmagid, is a full professor of Educational Technology, Department of Educational Technology, College of Education, Kku, KSA. He contributed assisting in statistical analysis, and tasks that are distributed across research phases (design, implementation, analysis, writing) to meet project deadlines.

Email: abdelmagid@kku.edu.sa

ORCID: <https://orcid.org/0000-0002-3897-8632>

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