P-ISSN: 2146-9490 | E-ISSN: 2636-8765

Journal of Cognitive-Behavioral Psychotherapy and Research

Volume 15 Issue 2 Year 2026

jcbpr.org

Volume: 15 Issue: 2 Year: 2026

Journal of Cognitive-Behavioral Psychotherapy and Research

Editorial Board

Volume: 15 Issue: 2 Year: 2026

Journal of Cognitive-Behavioral Psychotherapy and Research

Editorial Board

Contact
Address: *İran Caddesi Karum İş Merkezi B Blok 4. Kat, No: 422 Kavaklıdere/Çankaya/Ankara, Türkiye*
E-mail: *bdpdernek@yandex.com* ***Web address:*** *www.jcbpr.org*

Yayın frekansı / Publication frequency: Üç ayda bir / Quarterly journal • Basım yeri / Printed at: Filmevi, Yüzyıl Matbaacılar Sitesi, No: 22, Bağcılar, İstanbul, Türkiye (+90 212 429 29 03) • Basım tarihi / Printing Date: Mayıs 2026 / May 2026

Editorial Board

Abstracting & Indexing
TUBITAK TR Index, PsycInfo, ScopeMed, Türk Psikiyatri Dizini, Türkiye Atif Dizini, Türk Medline, DOAJ, Embase, J-Gate, UlrichsWeb, Asos, CiteFactor, Journal TOCs, BASE, ASCI and Gale Cengage.

Publisher: *KARE Publishing;* ***Project Assistant:*** *Zehra Suğra TÜRKSAVAŞ;* ***Graphics, Design:*** *Neslihan ÇAKIR*
Address: *Göztepe Mahallesi, Fahrettin Kerim Gökay Caddesi, No: 200, Daire: 2, Göztepe, Kadıköy, İstanbul, Türkiye;* ***Phone:*** *+90 216 550 61 11;* ***Fax:*** *+90 216 550 61 12;* ***E-mail:*** *kare@karepb.com*

Volume: ***15*** *Issue:* ***2*** *Year:* ***2026***

Journal of Cognitive-Behavioral Psychotherapy and Research

BDPD
2010
BİLİŞSEL DAVRANIŞÇI PSİKOTERAPİLER DERNEĞİ

Volume: 15 Issue: 2 Year: 2026

Journal of Cognitive-Behavioral Psychotherapy and Research

Contents

Original Articles

Review

Case Report

Volume: 15 Issue: 2 Year: 2026

Journal of Cognitive-Behavioral Psychotherapy and Research

Dear Readers,

As we prepare this issue of the Journal of Cognitive Behavioral Psychotherapy and Research, we do so at a meaningful intersection of scientific productivity, professional community, and national remembrance. The papers included in this issue reflect the breadth of contemporary cognitive and behavioral psychotherapies: structural modeling of metacognitive beliefs in medical conditions, development and psychometric evaluation of brief clinical measures, prevention-oriented metacognitive therapy frameworks, case-based applications of cognitive behavioral therapy, and empirical studies examining emotion regulation and cognitive reappraisal. Together, these contributions demonstrate the continuing expansion of evidence-based psychotherapy research across clinical, methodological, and theoretical domains. The accepted manuscripts in this issue include original articles, review articles, and case reports addressing metacognitive beliefs, obsessive-compulsive symptoms, military mental health, separation anxiety disorder, emotion regulation, sociotropy-autonomy, psychological symptoms, situational factors, and reappraisal efficiency.

This issue also appears in the broader context of the 5th Cognitive Behavioral Psychotherapies Congress, to be held in Ankara between April 30 and May 3, 2026, under the theme "Cognitive Behavioral Therapy as an Umbrella Concept in Psychotherapy." The congress brings together national and international academics, trainers, therapists, and researchers working in the field of CBT and related evidence-based approaches, covering classical CBT, third-wave approaches, metacognitive therapy, transdiagnostic models, schema-focused approaches, trauma-focused interventions, digital CBT, and innovations in assessment. In this respect, the present issue can be read as a written reflection of the same intellectual climate that the congress seeks to cultivate: a plural, evidence-based, clinically grounded, and scientifically responsible understanding of psychotherapy. This issue is published on May 19, a day of national significance in Türkiye, which lends it a certain symbolic resonance around the themes of renewal and responsibility—values that are equally central to scientific life. Every carefully designed study, every psychometric validation, every clinical case report, and every theoretically informed review represents an investment in the future of mental health practice. Scientific publishing, like any enduring institution, depends on early-career researchers, trainees, clinicians, and young scholars who will carry evidence-based psychotherapy into its next phase.

Cognitive and behavioral psychotherapies are sustained by the same principles that give meaning to renewal: openness to learning, disciplined questioning, respect for evidence, and commitment to public benefit. The articles in this issue contribute to that mission by refining clinical assessment, strengthening theoretical models, testing mechanisms, and translating psychotherapy knowledge into practice. The congress, in turn, provides the living forum in which these ideas can be discussed, challenged, taught, and further developed.

As editors, we are pleased to present an issue that mirrors the diversity and vitality of the field. We hope that these publications will support clinicians in their practice, stimulate researchers in their future studies, and encourage young professionals to see themselves not only as consumers of scientific knowledge but also as its future producers. The future of evidence-based psychotherapy is sustained by rigorous inquiry, methodological discipline, and the open dissemination of knowledge across the wider professional community.

In this spirit, we thank the authors, reviewers, editorial team, and congress organizers whose efforts continue to strengthen the scientific and clinical foundations of cognitive behavioral psychotherapies.

Mehmet Hakan Türkçapar, MD, PhD
Editor-in-Chief

Bilişsel Davranışçı Psikoterapi ve Araştırmalar Dergisi
Journal of Cognitive-Behavioral Psychotherapy and Research
DOI: 10.14744/JCBPR.2026.43164
J Cogn Behav Psychother Res 2026;15(2):65–74

Relationship Between Coronary Artery Stenosis and Transdiagnostic Dysfunctional Metacognitive Beliefs: A Structural Equation Modeling Approach

İlker Güneysu,[1] Yücel Kanal[2]

[1]Department of Psychiatry, Tokat Gaziosmanpaşa University, Faculty of Medicine, Tokat, Türkiye
[2]Department of Cardiology, Sivas Cumhuriyet University, Faculty of Medicine, Sivas, Türkiye

ABSTRACT

Dysfunctional metacognitive beliefs are increasingly recognized as transdiagnostic processes associated with emotional distress; however, their relationship with objective cardiovascular phenotypes remains insufficiently explored. This study examined the associations among dysfunctional metacognitive beliefs, emotional distress, and coronary artery stenosis (CAS) within a biopsychosocial framework. In total, 159 patients scheduled for elective coronary angiography completed self-report measures of anxiety, depression, and metacognitive beliefs before the procedure. CAS was defined as ≥50% luminal narrowing in at least one major coronary vessel based on angiographic evaluation. In structural equation modeling analyses, dysfunctional metacognitive beliefs—particularly negative beliefs about worry and maladaptive thought-control strategies—were strongly associated with emotional distress and also showed a significant direct association with the presence of CAS, whereas emotional distress did not statistically mediate this relationship. Together, these findings suggest that threat-focused dysfunctional metacognitive beliefs may be associated with CAS beyond concurrent emotional symptom severity; however, the cross-sectional design prevents causal inferences. Incorporating metacognitive processes into psychocardiological models may contribute to a more refined understanding of cognitive vulnerability in coronary artery disease.

Keywords: Coronary artery disease, coronary artery stenosis, emotional distress, metacognitive beliefs, structural equation modeling.

ÖZ

Koroner Arter Darlığı ile Tanı Ötesi İşlevsiz Metabilişsel İnançlar Arasındaki İlişki: Yapısal Eşitlik Modeli Yaklaşımı

Üstbilişsel inançlar, duygusal sıkıntı ile ilişkili transdiyagnostik süreçler olarak giderek daha fazla önem kazanmakla birlikte, bu bilişsel süreçlerin nesnel kardiyovasküler göstergelerle ilişkisi sınırlı düzeyde incelendi. Bu çalışmada, biyopsikososyal bir çerçeve içerisinde üstbilişsel işlevsiz inançlar, duygusal sıkıntı ve koroner arter darlığı arasındaki ilişkiler değerlendirildi. Elektif koroner anjiyografi planlanan toplam 159 hasta, işlem öncesinde anksiyete, depresyon ve üstbilişsel inançları değerlendiren öz bildirim ölçeklerini doldurdu. Koroner arter darlığı, klinik anjiyografik değerlendirmeye dayalı olarak herhangi bir majör koroner damarda %50 ve üzeri lümen daralması varlığı şeklinde tanımlandı. Yapısal eşitlik modellemesi analizlerinde, özellikle endişeye ilişkin olumsuz üstbilişsel inançlar ve uyumsuz düşünce kontrol stratejileri olmak üzere üstbilişsel işlevsiz inançların, duygusal sıkıntı ile güçlü biçimde ilişkili olduğu ve aynı zamanda koroner arter darlığı varlığıyla doğrudan ilişkili bulunduğu görüldü. Buna karşılık, duygusal sıkıntının bu ilişkiyi istatistiksel olarak aracılık yoluyla açıklamadığı saptandı. Bu bulgular, tehdit odaklı üstbilişsel işlevsiz inançların, eş zamanlı duygusal belirti düzeylerinden bağımsız olarak koroner arter darlığı ile ilişkili olabileceğine işaret etmektedir; ancak çalışmanın kesitsel tasarımı nedeniyle nedensel çıkarımlar yapılamaz. Kardiyovasküler risk değerlendirmelerinde üstbilişsel süreçlerin dikkate alınması, koroner arter hastalığında bilişsel kırılganlığın daha bütüncül biçimde anlaşılmasına katkı sağlayabilir.

Anahtar Kelimeler: Koroner arter hastalığı, koroner arter darlığı, duygusal sıkıntı, üstbilişsel inançlar, yapısal eşitlik modellemesi.

Cite this article as:
Güneysu İ, Kanal Y. Relationship Between Coronary Artery Stenosis and Transdiagnostic Dysfunctional Metacognitive Beliefs: A Structural Equation Modeling Approach. J Cogn Behav Psychother Res 2026;15(2):65–74.

Address for correspondence:
İlker Güneysu.
Tokat Gaziosmanpaşa Üniversitesi, Tıp Fakültesi, Psikiyatri Anabilim Dalı, Tokat, Türkiye
Phone: +90 537 345 10 38
E-mail: ilkerguneysu@gmail.com

Submitted: 24.12.2025
Revised: 24.02.2026
Accepted: 26.02.2026
Available Online: 00.05.2026

JCBPR, Available online at http://www.jcbpr.org/

INTRODUCTION

Coronary artery disease (CAD) remains a major priority on the global health agenda as a complex disease burden shaped by biological, psychological, and social factors. Despite substantial reductions in age-standardized mortality rates, CAD continues to pose a significant public health challenge, with increasing absolute cases and deaths continiuing to rise—particularly in low- and middle-income countries. Between 1990 and 2019, the global incidence of cardiovascular diseases increased by 77% and mortality by 54%. While CAD-related mortality declined by more than 50% in high-income countries, the reduction remained below 15% in low- and middle-income regions, underscoring pronounced global health inequities (Li et al., 2023; Timmis et al., 2023). In Europe, the downward trend observed between 2000 and 2015 has recently plateaued, a pattern partly attributed to behavioral risk factors such as obesity and smoking (Sterpetti et al., 2024). In Türkiye, CAD mortality demonstrates both an upward trajectory and marked regional disparities, with environmental stressors and behavioral factors—including tobacco and alcohol use—playing a substantial role (Tutar et al., 2024; Yalim et al., 2022). Collectively, these findings underscore that CAD cannot be conceptualized solely as a biological condition but rather as a multidimensional disorder influenced by socioeconomic, environmental, and behavioral determinants.

Psychological determinants have gained increasing attention within this broader framework. The prevalence of depression among patients with CAD has been reported to range between 20% and 40%, whereas that of anxiety exceeds 50% (Jupe et al., 2023). Depression has been consistently associated with adverse cardiovascular outcomes, with mechanisms including inflammatory activation, autonomic dysregulation, and endothelial dysfunction (Xu et al., 2024). Several longitudinal studies have linked anxiety to cardiovascular prognosis, although the magnitude and specificity of these associations vary across populations and measurement approaches (Peter et al., 2020). From a biological perspective, emotional stress is associated with heightened sympathetic activation, hypothalamic–pituitary–adrenal (HPA) axis stimulation, and enhanced proinflammatory responses, providing plausible mechanistic pathways rather than definitive causal explanations (Henein et al., 2022). A meta-analysis by Song et al. (2020) demonstrated that depression significantly predicts adverse cardiac outcomes following percutaneous coronary intervention. These findings indicate that psychological distress should not be considered a secondary correlate of CAD but rather a clinically relevant factor in disease management. (Clarification of the Song et al., 2020 statement and conceptual linkage).

In this context, "mental stress" refers not only to subjective distress but also to sustained cognitive–emotional activation involving perseverative thinking, heightened threat appraisal, and self-focused attention. Experimental and observational studies indicate that such patterns are associated with impaired endothelial reactivity, reduced flow-mediated dilation, and prolonged sympathetic activation independent of overt psychiatric diagnoses (Henein et al., 2022; Li et al., 2025). These findings suggest a plausible pathway through which repetitive negative thinking influences vascular function. (Clarification of the term "mental stress" and its vascular mechanisms)

However, emotional distress may represent only the observable surface of deeper cognitive processes. In particular, dysfunctional metacognitive beliefs may shape how individuals interpret and respond to internal and external cardiac threat cues, potentially influencing both psychological and physiological stress regulation. Metacognitive beliefs have been identified as proximal cognitive processes underlying both the development of emotional symptoms and individuals' responses to health-related threats. According to Wells' metacognitive model, negative beliefs about worry—particularly the perception that worry is uncontrollable and dangerous—play a central role in the maintenance of anxiety and depression rather than the initiation of anxiety and depression (Capobianco et al., 2020). These beliefs shape stress appraisal and emotional reactivity and have been implicated in, rather than conclusively shown to determine, health-related risk behaviors and threat evaluations (Laferton et al., 2023; Nadeem et al., 2022).

While substantial evidence links metacognitive beliefs to emotional distress, few studies have examined their relevance in cardiac populations. However, accumulating data indicate that components of the CAS—particularly rumination and anxiety—are meaningfully associated with coronary heart disease (CHD).

Faija et al. (2020) validated the CAS-1R in 440 patients undergoing cardiac rehabilitation, demonstrating the applicability of CAS assessment in cardiac settings. In a cohort of 426 cardiac patients, Guan et al. (2021) found that brooding and intrusive rumination uniquely predicted anxiety and depression 24 months after acute coronary events or bypass surgery. Tunheim et al. (2022) reported that rumination showed the strongest association with depressive symptoms and negative affectivity in 1,042 CHD outpatients. Similarly, Solg and Yaseminejad (2018) identified rumination as a robust predictor of anxiety and depression in 130 patients with CHD. Collectively, these studies—encompassing nearly 1,800 cardiac patients—provide consistent evidence that these perseverative cognitive processes are highly relevant in cardiac populations. (Expansion of CAS-related literature in cardiac populations).

In the context of cardiovascular disease, emerging evidence suggests that dysfunctional metacognitive beliefs (DMB) are closely associated with psychological distress and that brief metacognitive interventions may improve psychological well-being (Gebhardt et al., 2022; Anderson et al., 2019). Nevertheless, theoretical models explaining how DMB appraisals might relate to objective coronary pathology indicators, such as coronary artery stenosis (CAS), remain insufficiently developed.

Although the existing literature robustly supports the association between metacognitive beliefs and psychological symptoms, substantial gaps persist regarding how these beliefs interact with coronary stenosis defined angiographically. While uncontrollability and danger beliefs are known to disrupt emotional regulation, mental stress exerts direct effects on vascular function and endothelial reactivity, independent of overt emotional symptom severity (Li et al., 2025). Integrative models that jointly examine metacognitive beliefs, emotional distress, and CAS remain scarce. (Clarification regarding independence from cardiovascular risk factors) Moreover, whether emotional distress serves as a potential intermediary mechanism rather than a definitive pathway linking cognitive processes to cardiovascular outcomes remains unclear. This gap highlights the need for studies that simultaneously examine metacognitive beliefs, emotional distress, and CAS within a unified analytical framework.

Accordingly, the present study aimed to examine, rather than establish causal pathways among, DMB, emotional distress, and CAS from a holistic perspective. Specifically, we hypothesized that (1) negative metacognitive beliefs would be significantly associated with emotional distress, (2) DMB components would be directly associated with, rather than predictive of, CAS, and (3) emotional distress would serve as a potential mediator, acknowledging the exploratory nature of this pathway.

METHODS

Study Design

This cross-sectional, analytical investigation aimed to examine the associative relationships between psychological and metacognitive characteristics in patients scheduled for elective coronary angiography. Given the cross-sectional design, all findings are interpreted in terms of statistical associations rather than causal effects.

Study Setting and Study Period

The study was conducted at the Cardiology Clinic of Tokat State Hospital between January 2, 2023, and December 1, 2023. Data were collected in a standard clinical setting after the decision for coronary angiography (CAG) had been made during outpatient cardiology evaluations but before the angiographic procedure itself, thereby minimizing the potential confounding effects of procedural outcomes on psychological assessments.

Participants

Inclusion Criteria

- Age ≥ 18 years,
- Scheduled for elective CAG by a cardiology specialist,
- Adequate cognitive capacity to independently complete self-report questionnaires,
- Provision of written informed consent.

Exclusion Criteria

- Acute coronary syndrome or emergency angiography requirement,
- Hemodynamic instability,
- Illiteracy,
- Incomplete questionnaire data,
- Inability to complete assessments due to severe neurological or psychiatric conditions that could compromise the validity of self-report measures.

Sample Formation

A total of 177 patients were initially assessed. Twelve participants were excluded due to incomplete questionnaire responses, and six were excluded due to illiteracy. The final study sample consisted of 159 participants.

Power Analysis

The sample size adequacy was evaluated using an a priori power estimation conducted with G*Power 3.1. The analysis was based on the detection of a medium standardized effect size (β≈0.30) with 80% power at a 95% confidence level. Although G*Power does not directly estimate power for complex structural equation models (SEMs), the obtained sample size exceeds the commonly recommended minimum thresholds for SEM analyses with a limited number of latent variables and indicators. Accordingly, the final sample size of 159 participants was sufficient to support the planned SEM analyses.

Coronary Angiography and Stenosis Classification

Selective right and left coronary angiography was performed using the Judkins technique in all patients. Procedures were conducted by experienced interventional cardiologists who performed more than 75 procedures annually. Vascular access was obtained via radial or femoral approaches, as preferred

by the operator. The attending interventional cardiologists evaluated the angiographic findings in routine clinical practice.

Patients with ≥50% luminal narrowing in at least one major coronary artery were classified as the stenosis group, whereas those with <50% stenosis were classified as the non-stenosis group, consistent with widely used clinical and research definitions.

Data Collection Procedure

Data were collected through face-to-face interviews after the decision for coronary angiography and before the procedure. This timing was intentionally chosen to minimize the potential influence of procedural stress on psychological assessments.

The Following Data Were Collected:

Demographic variables: Age and sex.

Hospital Anxiety and Depression Scale (HADS): Used to assess anxiety and depressive symptoms.

Metacognition Questionnaire-30 (MCQ-30): Used to assess metacognitive beliefs.

All questionnaires were completed in full under standardized conditions and under the supervision of the researcher.

Missing Data Management

The proportion of missing data was below 5%. Little's MCAR test indicated that the missing data were completely random. Given the low proportion and random nature of missing information, we applied listwise deletion without substantial loss of statistical power.

Variables

Dependent variable: Coronary artery stenosis (CAS): 0=<50% stenosis; 1=≥50% stenosis.

Independent variables: Dysfunctional metacognitive beliefs (DMB): Negative beliefs about worry (NBW), need to control thoughts (NCT), and cognitive self-consciousness (CSC) subscales.

Emotional distress: HADS-Anxiety and HADS-Depression.

Covariates: Age and sex.

Bias Reduction

Scale administration order was standardized across all participants. To minimize observer effects, the assessments were conducted in a controlled, distraction-free environment. To prevent missing data and response errors, all forms were reviewed immediately after completion.

Measurement Instruments

Hospital Anxiety and Depression Scale

The HADS was developed by Zigmond and Snaith (1983) as a screening instrument specifically designed for individuals with medical conditions by excluding somatic symptom items. It consists of two subscales—anxiety (HADS-A) and depression (HADS-D)—each comprising seven items, yielding scores ranging from 0 to 21. For the HADS, we reported item-level mean scores (range 0–3) rather than subscale total scores to facilitate comparability across measures and interpretation of symptom intensity. (clarification regarding HADS scoring, we have specified that item-level mean scores (0–3) rather than subscale total scores (0–21) were reported to prevent misinterpretation of the scale range.)The Turkish version has been validated (Aydemir et al., 1997). In the present study, internal consistency was acceptable to good, with Cronbach's alpha values of 0.75 for HADS-A and 0.80 for HADS-D.

Metacognition Questionnaire-30

The MCQ-30 is a 30-item, four-point Likert-type scale that assesses DMB. Higher scores indicate more maladaptive metacognitive beliefs. The questionnaire comprises five subscales: PBW, NBW, cognitive confidence (CC), NCT, and CSC. Cronbach's alpha coefficients ranged from 0.74 to 0.86, indicating satisfactory internal consistency. Selected MCQ-30 subscales (NBW, NCT, and CSC) were specified as observed indicators of the latent DMB construct in the SEM analyses.

Statistical Analysis

All statistical analyses were conducted using IBM SPSS Statistics for Windows, Version 29.0, and the lavaan package (version 0.6-17) implemented in R. We assessed distributional assumptions using skewness, kurtosis, Shapiro–Wilk tests, histograms, and Q–Q plots. Although some normality tests were significant, the robustness of parametric procedures was supported by graphical inspections and sample size considerations.

Group comparisons were conducted using independent samples t-tests, with effect sizes reported as Cohen's d. Pearson correlation coefficients were calculated to examine the bivariate associations. Sex differences in CAS were evaluated using the chi-square test.

A structural equation model was constructed to examine the relationships among DMB, emotional distress, and CAS within an integrated framework. Given the binary nature of the CAS variable, the robust WLSMV estimator was employed, which is appropriate for categorical outcomes and provides reliable parameter estimates and fit indices.

The direct, indirect, and total effects were estimated. The model fit was evaluated using CFI, TLI, SRMR, and RMSEA.

Table 1. Comparison of psychological and metacognitive variables in patients with vs. without coronary artery stenosis

Variable	No CAS (n=80) M (SD)	CAS (n=79) M (SD)	t	df	p	Cohen's d
Age	58.68 (10.42)	61.30 (7.87)	-1.79	157	0.075	0.29
HADS- ANXIETY	1.21 (0.36)	1.33 (0.43)	-2.03	157	0.045	0.30
HADS- DEPRESSION	1.18 (0.36)	1.25 (0.34)	-1.51	157	0.133	0.19
PBW	2.12 (0.48)	2.23 (0.49)	-1.59	157	0.112	0.23
NBW	2.24 (0.61)	2.61 (0.56)	-3.88	157	<0.001	0.63
NCT	1.93 (0.54)	2.24 (0.42)	-4.19	157	<0.001	0.66
CSC	2.37 (0.52)	2.55 (0.39)	-2.45	157	0.016	0.38
CC	2.09 (0.70)	2.44 (0.61)	-3.39	157	0.001	0.52

M: Mean; SD: Standard deviation; CAS: No coronary artery stenosis; HADS: Hospital anxiety and depression scale; PBW: Positive beliefs about worry; NBW: Negative beliefs about worry; NCT: Need for control over thoughts; CSC: Cognitive self-consciousness; CC: Cognitive confidence.

Exceptionally high fit indices (CFI=1.000; TLI=1.035; RMSEA=0.000) were interpreted cautiously because they likely reflect the parsimonious model structure and limited number of indicators rather than a perfect model fit. Statistical significance was set at $p<0.05$.

Ethical Approval

The Clinical Research Ethics Committee of Tokat Gaziosmanpaşa University Faculty of Medicine reviewed and approved this study (Approval No: 22-KAEK-252; Meeting No: 2022/20; Decision Date: November 24, 2022). The study was ethically and scientifically appropriate in accordance with national regulations governing clinical research.

This study was conducted following the principles of the Declaration of Helsinki.

RESULTS

Descriptive Characteristics of Participants and Sex Differences in Patients with Coronary Artery Stenosis

A total of 159 patients were included in this study. Of these, 80 (50.3%) patients had no CAS, whereas 79 (49.7%) patients had stenosis. The prevalence of CAS was comparable between sexes. Among women, 42 (51.2%) had no stenosis, and 40 (48.8%) had stenosis; among men, 38 (49.4%) had no stenosis, and 39 (50.6%) had stenosis. The Pearson's chi-square test did not indicate a significant association between sex and stenosis status, $\chi^2(1)=0.055$, $p=0.814$; Fisher's exact test similarly yielded a non-significant result ($p=0.874$). Accordingly, sex was not retained as a differentiating factor for CAS in subsequent analyses.

Psychological and Metacognitive Differences Between Patients with and Without Coronary Artery Stenosis

Group differences in psychological and metacognitive variables were examined using independent samples t-tests (Table 1). Patients with CAS exhibited modestly higher HADS-Anxiety scores than those without stenosis ($t(157)=2.03$, $p=0.045$, Cohen's $d=0.30$). In contrast, the HADS-Depression scores did not significantly differ between the groups ($p=0.133$).

Patients with stenosis demonstrated a consistently more maladaptive metacognitive profile. NBW, NCT, and CSC were significantly higher in the stenosis group ($p<0.001$, $p<0.001$, and $p=0.016$, respectively). CC scores were significantly elevated in the stenosis group ($p=0.001$), indicating lower perceived CC. The observed effect sizes fell within the small-to-moderate range, suggesting that the detected differences, while statistically significant, reflect modest clinical magnitude.

Comparison of Psychological and Metacognitive Variables

Pearson Correlations Among the Study Variables

The Pearson correlation coefficients among the psychological and metacognitive variables are presented in Table 2. Anxiety and depression were strongly and positively correlated ($r=0.581$, $p<0.01$). Dysfunctional metacognitive belief components, including NBW, NCT, and CSC, showed moderate-to-strong positive correlations with anxiety and depression ($r\approx0.35–0.70$). This pattern supports the conceptualization of these variables as related but non-redundant components of a shared cognitive–emotional distress domain.

Measurement Model (Factor Structure)

Two latent variables were specified within the structural equation modeling framework. DMB were defined by NBW, NCT, and CSC indicators, whereas the HADS-Anxiety and HADS-Depression subscales represented emotional distress (DISTRESS).

Table 3 presents the factor loadings for the measurement model, with all loadings achieving statistical significance ($\beta=0.627–0.905$). The overall fit of the measurement model was very high, as indicated by the fit indices reported in Table

Table 2. Pearson correlations among the study variables

Variable	1	2	3	4	5	6	7
1. HADS-Anxiety	–						
2. HADS-Depression	0.581*	–					
3. NCT	0.531*	0.451*	–				
4. PBW	0.344*	0.317*	0.650*	–			
5. CC	0.518*	0.353*	0.619*	0.454*	–		
6. NBW	0.575*	0.482*	0.701*	0.535*	0.657*	–	
7. CSC	0.392*	0.285*	0.512*	0.492*	0.489*	0.616*	–

*: p<0.01. HADS: Hospital anxiety and depression scale; PBW: Positive beliefs about worry; NBW: Negative beliefs about worry; NCT: Need for control over thoughts; CSC: Cognitive self-consciousness; CC: Cognitive confidence.

Table 3. Measurement model factor loadings

Latent variable	Observed indicator	β	SE	z	p
DMB	NBW	0.905	—	—	<0.001
	NCT	0.825	0.073	10.02	<0.001
	CSC	0.627	0.062	8.52	<0.001
DISTRESS	HADS-Anxiety	0.845	—	—	<0.001
	HADS-Depression	0.688	0.111	7.26	<0.001

The standardized factor loadings (β) are presented. SE: Standard error; DMB: Dysfunctional metacognitive beliefs; DISTRESS: Emotional distress; HADS: Hospital anxiety and depression scale. NBW: Negative beliefs about worry; NCT: Need for control over thoughts; CSC: Cognitive self-consciousness.

Table 4. Indirect, direct, and total effects

Effect type	Path	B	SE	β	z	p
Indirect effect	DMB→DISTRESS→CAS	-0.272	0.287	-0.150	-0.95	0.344
Direct effect	DMB→CAS	1.035	0.329	0.574	3.15	0.002
Total effect	DMB→CAS	0.764	0.167	0.423	4.57	<0.001

Coronary artery stenosis (0=no stenosis, 1=stenosis). SE: Standard error; DMB: Dysfunctional metacognitive beliefs; CAS: No coronary artery stenosis.
Model Fit Indices $\chi^2(7)=1.11$, p=0.993; CFI=1.000; TLI=1.035; SRMR=0.021; RMSEA=0.000, 90% CI (0.000, 0.075), p=0.998.

Table 5. Results of the structural model

Dependent variable	Predictor	B	SE	β	z	p
DISTRESS	DMB	0.450	0.058	0.752	7.81	<0.001
CAS (0/1)	DISTRESS	-0.604	0.631	-0.200	-0.96	0.339
	DMB	1.035	0.329	0.574	3.15	0.002

Standardized (β) and unstandardized (B) coefficients are presented. Coronary artery stenosis (0=no stenosis, 1=stenosis). SE: Standard error; DMB: Dysfunctional metacognitive beliefs; CAS: No coronary artery stenosis.

4: $\chi^2(7)=1.11$, p=0.993; CFI=1.000; TLI=1.035; SRMR=0.021; RMSEA=0.000 (90% CI [0.000–0.075], p=0.998). Given the parsimonious structure of the model and the limited number of indicators per latent construct, these indices were interpreted with caution.

Results of the Structural Model

The relationships among DMB, emotional distress, and CAS were examined using structural path coefficients, which are presented in Table 5. DMB was strongly associated with

emotional distress (DMB→DISTRESS: β=0.752, p<0.001). Moreover, DMB remained significantly associated with coronary artery stenosis after accounting for emotional distress (DMB→CAS: β=0.574, p=0.002). Emotional distress was not significantly associated with coronary artery stenosis (DISTRESS→CAS: p=0.339). These findings indicate that concurrent emotional distress did not explain the association between DMB and CAS.

Direct, Indirect, and Total Effects

Table 4 presents the direct, indirect, and total effects, along with overall model fit indices. The indirect effect of DMB on CAS via emotional distress was not statistically significant (β=–0.150, p=0.344). In contrast, the direct effect of DMB on stenosis was significant (β=0.574, p=0.002), as was the total effect (β=0.423, p<0.001). Model fit indices—$\chi^2(7)=1.11$, p=0.993; CFI=1.000; TLI=1.035; SRMR=0.021; RMSEA=0.000—were again interpreted conservatively, as exceptionally high values may reflect model simplicity rather than a perfect model fit.

DISCUSSION

This study aimed to address a significant gap in the literature by examining how psychological and metacognitive processes are jointly associated with angiographically defined CAS within the broader context of CAD. Our findings demonstrate that DMB, operationalized through NBW, NCT, and CSC, were significantly associated with emotional distress and CAS. These findings suggest that CAD may not be fully understood solely in terms of biological alterations within the vascular system; rather, they point to a multilayered process in which cognitive appraisals, threat perception, and the regulation of internal experiences may play a contributory role. Although the contribution of psychological factors to cardiovascular risk has long been recognized, empirical studies focusing specifically on the role of metacognitive beliefs within this relationship remain limited. In this context, our results extend the existing literature by highlighting metacognition not only as a mechanism sustaining emotional symptoms but also as a cognitive domain potentially linked to objective markers of cardiovascular pathology.

The association of DMB with CAS independent of emotional distress suggests that cognitive threat-related processes may impose a more persistent stress burden on cardiovascular physiology. The results of the structural model indicated that emotional distress did not statistically mediate the relationship between DMB and CAS; instead, DMB was significantly associated directly with stenosis. In contrast to our third hypothesis, emotional distress did not function as a mediator within the structural model, indicating that concurrent affective symptom severity did not explain the association between DMB and stenosis. (The reviewer's request for clarification explicitly stated that emotional distress did not mediate the association between DMB and CAS, thereby preventing the overinterpretation of indirect effects.) This pattern should be interpreted as indicative of statistical independence rather than evidence of a causal pathway. This finding is consistent with previous studies demonstrating that metacognitive beliefs are strongly related to anxiety and depression (Capobianco et al., 2020; Anderson et al., 2019). Moreover, such beliefs have been shown to amplify perseverative thinking patterns, thereby being associated with biological stress responses such as hypothalamic–pituitary–adrenal (HPA) axis activation and cortisol dysregulation (Sladek et al., 2020). Parallel findings from cardiovascular research indicate that mental stress is associated with endothelial dysfunction, microvascular vasoconstriction, and heightened inflammatory activation (Henein et al., 2022; Peter et al., 2020). Taken together, these converging lines of evidence support the plausibility of an association between threat-focused metacognitive beliefs and coronary physiology, potentially mediated by chronic stress-related mechanisms.

While prior research has primarily emphasized emotional stress-related vascular reactivity, the broader literature indicates that the relationship between psychological symptoms and structural coronary pathology is more heterogeneous than initially assumed. Rozanski et al. (2011) reported minimal association between psychological risk factors and coronary artery calcium, and Whooley (2006) suggested that psychological distress may be more closely related to incident cardiovascular events than cumulative plaque burden. These findings indicate that psychological and cognitive processes, including vascular reactivity or stress-related physiological modulation, may influence cardiovascular outcomes through pathways other than progressive atherosclerosis. (Reviewer Comment: Emotional intensity does not linearly translate into cardiovascular risk).

Longitudinal evidence further highlights the heterogeneity of the association between emotional symptoms and cardiovascular outcomes. Peter et al. (2020) identified distinct anxiety and depression trajectories in a 15-year follow-up study of patients with stable CHD and demonstrated that persistently high or high-decreasing anxiety and stable high depression were associated with elevated cardiovascular risk, whereas increasing anxiety did not reach statistical significance after covariate adjustment. These findings suggest that emotional symptom intensity alone does not uniformly predict cardiovascular risk; however, chronicity and trajectory patterns are critical. (Reviewer Comment – Peter et al. 2020 research).

The independence of the association between DMB and coronary stenosis from emotional distress further suggests that metacognitive processes may represent a higher-order cognitive vulnerability domain, which is partially distinct from affective symptom severity. Emerging evidence indicates that metacognitive beliefs account for incremental variance in psychological symptom severity beyond that explained by traditional affect-focused measures (Kołodziejczyk et al., 2024; Capobianco et al., 2020). Furthermore, these beliefs predict treatment response, symptom trajectory, and long-term stress exposure more consistently than emotional symptoms alone (Nordahl et al., 2017; Salguero & Ramos-Cejudo, 2023). Our findings do not challenge the established links between depression, anxiety, and cardiovascular risk; rather, they suggest that DMB may constitute a more proximal cognitive context within which these emotional processes operate. The absence of a mediating effect of emotional distress implies that DMB may be related to cardiovascular risk through mechanisms not fully captured by transient mood states, potentially involving tonic sympathetic activation or low-grade inflammation. DMB may contribute to a sustained physiological stress milieu even in individuals without clinically elevated affective symptoms.

Studies demonstrating that illness perceptions predict cardiovascular outcomes (Lotfi-Tokaldany et al., 2022) further underscore the importance of cognitive appraisals in shaping clinical trajectories, with DMB potentially functioning as an overarching cognitive framework through which such appraisals are constructed. Within this theoretical context, the inclusion of only three MCQ-30 subscales—NBW, NCT, and cognitive self-consciousness—reflects a theoretically driven and conceptually parsimonious decision. These subscales represent the core components of DMB, as defined in Wells' model, and capture perceptions of cognitive threat, beliefs about uncontrollability, tendencies toward thought suppression, and heightened self-focused attention. Therefore, they may be regarded as particularly relevant indicators of metacognitive vulnerability in medical populations. Evidence that metacognitive interventions facilitate clinical improvement in cardiac rehabilitation settings (Wells et al., 2021; Wells et al., 2023) further supports the modifiable and clinically actionable nature of these threat-focused metacognitive processes.

Our results suggest that assessing metacognitive beliefs may provide incremental information in cardiovascular care. Previous research indicates that DMB strongly predicts psychological distress in patients with cardiac arrest and that incorporating metacognitive measures alongside standard screening tools may enhance the identification of patients at risk for sustained psychological burden (Capobianco et al., 2020; Anderson et al., 2019). Psychometric evidence supporting the applicability of the Metacognition Questionnaire in cardiac populations (Faija et al., 2020), together with its demonstrated explanatory value across other chronic illness groups (Kołodziejczyk et al., 2024), suggests that metacognitive assessment could be feasibly integrated into routine clinical practice. Moreover, findings indicating that structured psychological assessment within cardiac rehabilitation improves outcomes reinforce the potential relevance of targeting metacognitive processes as part of comprehensive cardiovascular care (Wells et al., 2021; Wrzeciono et al., 2024). Taken together, these observations support the consideration of DMB in relation to psychological well-being and broader physiological and clinical outcomes.

One of the primary strengths of this study lies in its integrative approach, which simultaneously examined psychological and metacognitive processes alongside CAS within a single structural model. Whereas much of the existing literature has focused predominantly on emotional distress, this study directly incorporated DMB into the analytical framework, thereby extending prior models of psychological risk in CVD. Data collection before coronary angiography reduced the potential confounding effects of procedure-related stress and allowed for a more stable assessment of psychological variables. Although exceptionally high model fit indices were observed, given the model's parsimonious structure and the limited number of indicators, these were interpreted conservatively.

Several limitations should be considered when interpreting these findings. First, CAS was assessed using visual estimation during clinically indicated angiography. Although a ≥50% luminal narrowing threshold is widely accepted as clinically meaningful (Anderson & Pepine, 2013), this approach may not fully capture microvascular dysfunction or borderline lesions. Second, the cross-sectional design precludes causal inferences regarding the directionality of the observed associations. Longitudinal and experimental studies are needed to clarify whether DMB precedes or is shaped by vascular pathology. Finally, the use of a clinically referred sample limits the generalizability of the findling to broader populations.

Although the current structural model is theoretically focused on cognitive and emotional constructs, it did not incorporate established cardiometabolic risk factors—including smoking, hypertension, diabetes, dyslipidemia, obesity, and medication adherence—were not incorporated into the structural model. These established determinants account for a substantial proportion of CAD burden and directly influence endothelial injury and atherosclerotic progression; however, their absence limits the ability to disentangle cognitive vulnerability from biological and behavioral confounding.

DMB may be indirectly associated with coronary stenosis through unmeasured lifestyle or metabolic pathways. The specificity and incremental explanatory value of DMB beyond conventional cardiovascular risk markers cannot be fully determined without adjustment for these variables. Accordingly, the present findings should be interpreted as exploratory and hypothesis-generating rather than as evidence of an independent cognitive pathway to structural coronary disease (Cardiovascular risk factors inclusion).

CONCLUSION

This study contributes to the field of cardiovascular psychology by demonstrating the association of DMB with CAS independent of emotional distress. The findings suggest that metacognitive beliefs shaping threat perception and stress regulation may be linked to cardiovascular physiology in ways that extend beyond emotional symptom burden. Incorporating metacognitive processes into cardiac assessment may enhance risk stratification and support more individualized intervention approaches. Longitudinal and mechanistic studies are required to elucidate causal pathways and determine whether targeting metacognitive beliefs can influence coronary outcomes. Overall, the present findings underscore the value of an integrative perspective on the interplay between cognitive processes and cardiovascular health.

However, the results should be interpreted cautiously given the absence of traditional cardiovascular risk factors in the model and the cross-sectional design. Longitudinal studies incorporating established cardiometabolic risk markers are required to clarify the temporal and incremental contribution of these factors to coronary disease risk.(CV risk absence, Cross-sectional caution, Longitudinal call).

Ethics Committee Approval: The Tokat Gaziosmanpaşa University Faculty of Medicine Clinical Research Ethics Committee granted approval for this study (date: 24.11.2022, number: 22-KAEK-252).

Informed Consent: Written informed consent was obtained from all participants prior to data collection.

Conflict of Interest: The authors declare that there is no conflict of interest.

Financial Disclosure: No funding was received for the preparation, writing, or publication of this study.

Use of AI for Writing Assistance: Not declared.

Author Contributions: Concept – İG, YK; Design – İG; Supervision – İG, YK; Fundings – İG, YK; Materials – YK; Data Collection and/or Processing – YK; Analysis and/or Interpretation – İG; Literature Review – İG; Writing – İG, YK; Critical Review – İG, YK.

Peer-review: Externally peer-reviewed.

REFERENCES

Anderson, R., Capobianco, L., Fisher, P., Reeves, D., Heal, C., & Faija, C. L. (2019). Testing relationships between metacognitive beliefs, anxiety and depression in cardiac and cancer patients: Are they transdiagnostic? *Journal of Psychosomatic Research, 124*, 109738. [CrossRef]

Anderson, R. D., & Pepine, C. J. (2013). Coronary angiography: Is it time to reassess? *Circulation, 127*(17), 1760–1762. [CrossRef]

Aydemir, O., Guvenir, T., Kuey, L., & Kultur, S. (1997). Validity and reliability of the Turkish version of the Hospital Anxiety and Depression Scale. *Türk Psikiyatri Dergisi, 8*, 280–287.

Capobianco, L., Faija, C., Husain, Z., & Wells, A. (2020). Metacognitive beliefs and their relationship with anxiety and depression in physical illnesses: A systematic review. *PLoS ONE, 15*(9), e0238457. [CrossRef]

Faija, C. L., Reeves, D., Heal, C., & Wells, A. (2020). Metacognition in cardiac patients with anxiety and depression: Psychometric performance of the Metacognitions Questionnaire 30 (MCQ-30). *Frontiers in Psychology, 11*, 1064. [CrossRef]

Guan, Y. Y., Phillips, L., Murphy, B., Crebbin, S., Le Grande, M., Worcester, M. U., & Jackson, A. (2021). Impact of rumination on severity and persistence of anxiety and depression in cardiac patients. *Heart and Mind, 5*(1), 9–16. [CrossRef]

Gebhardt, P., Caldarone, F., Westhoff-Bleck, M., Olsson, K. M., Hoeper, M. M., Park, D.-H., Stapel, B., Breitner, M. H., Werth, O., Heitland. I., & Kahl, K. G. (2022). Metacognitive short-term intervention in patients with mental disorders following cardiovascular events. *Frontiers in Psychiatry, 13*, 812807. [CrossRef]

Henein, M. Y., Vancheri, S., Longo, G., & Vancheri, F. (2022). The impact of mental stress on cardiovascular health—Part II. *Journal of Clinical Medicine, 11*(15), 4405. [CrossRef]

Jupe, T., Provi, K., Zenelaj, B., Myslimi, E., & Giannopoulos, I. (2023). Depression and anxiety in cardiac disease: Diagnosing and screening. *European Psychiatry, 66*(Suppl. 1), S775. [CrossRef]

Kołodziejczyk, A., Krawczyk, J., Tkaczyszyn-Mika, E., Gniewczyńska, J., Ziarko, M., & Zozulińska-Ziółkiewicz, D. (2024). The role of metacognition in the prediction of depressive and anxiety symptoms in chronically ill patients. *Journal of Clinical Medicine, 13*(5), 1306. [CrossRef]

Laferton, J. A. C., Bartsch, L. M., Möschinger, T., Baldelli, L., Frick, S., Breitenstein, C. J., Züger, R., Annen, H., Fischer, S. (2023). Effects of stress beliefs on the emotional and biological response to acute psychosocial stress in healthy men. *Psychoneuroendocrinology, 152*, 106091. [CrossRef]

Li, X., Ma, G., Chen, H., Zhang, L., He, J., & Liu, S. (2025). From heart to mind: Research advances in the link between coronary artery disease and mental stress. *Heart and Mind, 9*(4), 328–343. [CrossRef]

Li, Y., Cao, G. Y., Jing, W. Z., Liu, J., & Liu, M. (2023). Global trends and regional differences in incidence and mortality of cardiovascular disease, 1990–2019: Findings from the Global Burden of Disease Study 2019. *European Journal of Preventive Cardiology, 30*(3), 276–286. [CrossRef]

Lotfi-Tokaldany, M., Sadeghian, S., Mosavi, S. A., Omidi, N., Rahnemoun, Z., & Kazzazi, E. H. (2022). Association between cognitive representation of illness and the outcome of patients with premature coronary artery disease. *Journal of Psychosomatic Research, 162*, 111019. [CrossRef]

Nadeem, F., Malik, N. I., Atta, M., Ullah, I., Martinotti, G., & Pettorruso, M. (2022). Relationship between health anxiety and cyberchondria: Role of metacognitive beliefs. *Journal of Clinical Medicine, 11*(9), 2590. [CrossRef]

Nordahl, H., Nordahl, H. M., Hjemdal, O., & Wells, A. (2017). Cognitive and metacognitive predictors of symptom improvement following treatment for social anxiety disorder: A secondary analysis from a randomized controlled trial. *Clinical Psychology & Psychotherapy, 24*(6), 1221–1227. [CrossRef]

Peter, R. S., Meyer, M. L., Mons, U., Schöttker, B., Keller, F., Schmucker, R., Koenig, W., Brenner, H., & Rothenbacher, D. (2020). Long-term trajectories of anxiety and depression in patients with stable coronary heart disease and risk of subsequent cardiovascular events. *Depression and Anxiety, 37*(8), 784–792. [CrossRef]

Rozanski, A., Gransar, H., Kubzansky, L. D., Wong, N., Shaw, L., Miranda-Peats, R., Thomson, L. E., Hayes, S. W., Friedman, J. D., & Berman, D. S. (2011). Do psychological risk factors predict the presence of coronary atherosclerosis? *Psychosomatic Medicine, 73*(1), 7–15. [CrossRef]

Salguero, J. M., & Ramos-Cejudo, J. (2023). A multi-study examination of the relevance of metacognitive beliefs about uncontrollability in emotion regulation and clinical symptoms. *Journal of Affective Disorders, 340*, 812–819. [CrossRef]

Sladek, M. R., Doane, L. D., & Breitenstein, R. S. (2020). Daily rumination about stress, sleep, and diurnal cortisol activity. *Cognition and Emotion, 34*(2), 188–200. [CrossRef]

Solg, Z., & Yaseminejad, P. (2018). The role of cognitive emotion regulation strategies in depression, anxiety and stress of coronary heart disease patients. *Review of Biomedical Sciences, 23*(1), 8.

Song, X., Song, J., Shao, M., Gao, X., Ji, F., & Tian, H. (2020). Depression predicts the risk of adverse events after percutaneous coronary intervention: A meta-analysis. *Journal of Affective Disorders, 266*, 158–164. [CrossRef]

Sterpetti, A. V., Gabriele, R., Iannone, I., Sapienza, P., & Di Marzo, L. (2024). The role of education and information to prevent trends towards increase of cardiovascular mortality rates in Europe from 2015 to 2019. *Current Problems in Cardiology, 49*(3), 102415. [CrossRef]

Timmis, A., Kazakiewicz, D., Townsend, N., Huculeci, R., Aboyans, V., & Vardas, P. (2023). Global epidemiology of acute coronary syndromes. *Nature Reviews Cardiology, 20*, 778–788. [CrossRef]

Tunheim, K., Dammen, T., Baardstu, S., Moum, T., Munkhaugen, J., & Papageorgiou, C. (2022). Relationships between depression, anxiety, type D personality, and worry and rumination in patients with coronary heart disease. *Frontiers in Psychology, 13*, 929410. [CrossRef]

Tutar, M., Kocak, H. G., & Kocak, M. (2024). Geographical variations and predictors of coronary artery disease mortality in Turkiye: An environmental and behavioral analysis. *BMC Cardiovascular Disorders, 24*, 554. [CrossRef]

Wells, A., Heal, C., Reeves, D., & Capobianco, L. (2023). Prevalence of post-traumatic stress and tests of metacognition as a PTSD risk marker in patients with coronary heart disease and elevated HADS scores. *Frontiers in Psychiatry, 14*, 1198202. [CrossRef]

Wells, A., Reeves, D., Capobianco, L., Heal, C., Davies, L., & Heagerty, A. (2021). Improving the effectiveness of psychological interventions for depression and anxiety in cardiac rehabilitation: PATHWAY-A randomized controlled trial. *Circulation, 144*(1), 23–33. [CrossRef]

Whooley, M. A. (2006). Mind your heart. *Annals of Internal Medicine, 144*(11), 858–860. [CrossRef]

Wrzeciono, A., Mazurek, J., Cieślik, B., Kiper, P., Gajda, R., & Szczepańska-Gieracha, J. (2024). Psychologically enhanced cardiac rehabilitation for psychological and functional improvement in patients with cardiovascular disease: A systematic review and meta-analysis. *Physiotherapy, 125*, 101412. [CrossRef]

Xu, L., Zhai, X., Shi, D., & Zhang, Y. (2024). Depression and coronary heart disease: Mechanisms, interventions, and treatments. *Frontiers in Psychiatry, 15*, 1328048. [CrossRef]

Yalim, Z., Dogan, N., & Yalim, S. A. (2022). Mortality trends from ischemic heart disease in Turkey: 2009–2019. *Türk Kardiyoloji Derneği Arşivi, 50*(5), 348–355. [CrossRef]

Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica, 67*(6), 361–370. [CrossRef]

Bilişsel Davranışçı Psikoterapi ve Araştırmalar Dergisi
Journal of Cognitive-Behavioral Psychotherapy and Research
DOI: 10.14744/JCBPR.2026.29287
J Cogn Behav Psychother Res 2026;15(2):75–84

Development and Psychometric Properties of the Dimensional Obsessive-Compulsive Scale Short Form

Selim Fidan,[1] Kadir Özdel,[2] Türkan Aghakishiyeva[3]

[1]Department of Psychiatry, Mamak State Hospital, Ankara, Türkiye
[2]Department of Psychiatry, Ankara Etlik City Hospital, Ankara, Türkiye
[3]Department of Psychiatry, Private Clinic, Ankara, Türkiye

ABSTRACT

The Dimensional Obsessive-Compulsive Scale (DOCS) is a measurement tool that assesses the severity of different symptom clusters in patients with obsessive-compulsive disorder (OCD) in a dimensional manner. This study aims to examine the psychometric properties of the behavioral and emotional response subdimensions defined based on items 1 and 3 of the Turkish version of the DOCS and to contribute to a dimension-based assessment of OCD severity. The study included 100 consecutive patients who were admitted to a psychiatry outpatient clinic and were diagnosed with OCD according to the Diagnostic and Statistical Manual of Mental Disorders-5 diagnostic criteria, as well as 100 participants in the control group. The DOCS and the Obsessive-Compulsive Inventory–Revised (OCI-R) were administered to the participants. The construct validity of the behavioral response and emotional response subdimensions, created based on items 1 and 3 of the DOCS, was evaluated using confirmatory factor analysis; internal consistency was examined using Cronbach's alpha and McDonald's omega coefficients. Correlations between the total OCI-R score and the DOCS behavioral response and DOCS emotional response dimensions were calculated within the framework of convergent validity. Confirmatory factor analysis results indicated that the behavioral and emotional response subdimensions had acceptable construct validity. In the reliability analyses, Cronbach's α=0.781 and McDonald's ω=0.786 for the behavioral response and Cronbach's α=0.744 and McDonald's ω=0.748 for the emotional response were calculated, demonstrating acceptable internal consistency for both subdimensions. The total OCI-R score was highly and significantly correlated with the DOCS behavioral response and emotional response dimensions (r=0.882 and r=0.888, respectively; p<0.001).The findings indicate that the response-based restructuring of the items in the Turkish short form of the DOCS is psychometrically valid and reliable. Evaluating behavioral and emotional responses as separate subdimensions allows for a more detailed and clinically meaningful, dimension-based OCD severity assessment.

Keywords: Behavioral response, dimensional assessment, emotional response, OCD, psychometrics.

ÖZ

Boyutsal Obsesif Kompülsif Ölçeği Kısa Formu (BOKÖ-KF) Geliştirilmesi ve Psikometrik Özellikleri

Boyutsal obsesif kompülsif ölçeği (BOKÖ), obsesif kompülsif bozuklukta (OKB) farklı belirti kümelerine eşlik eden şiddeti boyutsal olarak değerlendiren bir ölçme aracıdır. Bu çalışmanın amacı, BOKÖ'nün Türkçe formunda yer alan birinci ve üçüncü maddeler temel alınarak tanımlanan davranış tepkisi ve duygu tepkisi alt boyutlarının psikometrik özelliklerini incelemek ve boyutsal temelli OKB şiddet değerlendirme-

Cite this article as:
Fidan S, Özdel K, Aghakishiyeva T. Development and Psychometric Properties of the Dimensional Obsessive-Compulsive Scale Short Form. J Cogn Behav Psychother Res 2026;15(2):75–84.

Address for correspondence:
Selim Fidan.
Mamak Devlet Hastanesi, Psikiyatri Klinigi, Ankara, Türkiye
Phone: +90 534 865 22 02
E-mail:
selimm.fidan@gmail.com

Submitted: 12.02.2026
Revised: 03.03.2026
Accepted: 08.03.2026
Available Online: 00.05.2026

JCBPR, Available online at
http://www.jcbpr.org/

sine katkı sağlamaktır. Çalışmaya, psikiyatri polikliniğine ardışık olarak başvuran ve DSM-5 tanı ölçütlerine göre OKB tanısı alan 100 hasta ve 100 kontrol grubu dâhil edildi. Katılımcılara BOKÖ ile birlikte obsesif kompülsif ölçek revize edilmiş (OKÖ-R) uygulandı. BOKÖ'nün birinci ve üçüncü maddeleri temel alınarak oluşturulan davranış tepkisi ve duygu tepkisi alt boyutlarının yapı geçerliliği doğrulayıcı faktör analiziyle değerlendirildi; iç tutarlılık Cronbach alfa ve McDonald omega katsayıları kullanılarak incelendi. Benzer ölçek korelasyonları kapsamında, ölçeğin OKE-R toplam puanı ile BOKÖ davranış tepkisi ve BOKÖ duygu tepkisi boyutları arasındaki korelasyonlar hesaplandı. Doğrulayıcı faktör analizi sonuçları, davranış tepkisi ve duygu tepkisi alt boyutlarının kabul edilebilir düzeyde yapı geçerliliğine sahip olduğunu gösterdi. Güvenilirlik analizlerinde davranış tepkisi için Cronbach α=0,781 ve McDonald ω=0,786; duygu tepkisi için Cronbach α=0,744 ve McDonald ω=0,748 olarak hesaplandı ve her iki alt boyut için de kabul edilebilir iç tutarlılık değerleri elde edildi. Benzer ölçek korelasyonları ise OKE-R toplam puanı, BOKÖ'nün davranış tepkisi ve duygu tepkisi boyutlarıyla yüksek ve anlamlı düzeyde korelasyon gösterdi (sırasıyla r=0,882 ve r=0,888; p<0,001). Elde edilen bulgular, BOKÖ-KF Türkçe formunda yer alan maddelerin tepki temelli yeniden yapılandırılmasının psikometrik açıdan geçerli ve güvenilir olduğunu göstermektedir. Davranışsal ve duygusal tepkilerin ayrı alt boyutlar halinde değerlendirilmesi, boyutsal temelli OKB şiddetinin daha ayrıntılı ve klinik olarak anlamlı biçimde ölçülmesine olanak sağlamaktadır.

Anahtar Kelimeler: Davranışsal tepki, boyutsal değerlendirme, duygusal tepki, obsesif kompülsif bozukluk, psikometri.

INTRODUCTION

Obsessive-compulsive disorder (OCD) is a disorder characterized by obsessions and compulsions that often follow a chronic course with exacerbations and lead to significant impairment in an individual's social, occupational, academic, and overall functioning (Sadock, Sadock, & Ruiz, 2000). Obsessions are ego-dystonic, intrusive thoughts, images, or impulses that produce feelings of anxiety and distress. Compulsions are defined as repetitive behaviors or mental acts that arise in response to obsessions and are perceived as necessary to be performed (American Psychiatric Association, 2013).

OCD is a psychiatric disorder that occurs in approximately 1% of the general population, with symptoms typically beginning in young adulthood (Mahjani et al., 2020). Clinically, OCD is a heterogeneous disorder with respect to symptom manifestation, due to the presence of different obsessions and compulsions (Abramowitz et al., 2010).

Important attempts have been made to effectively measure the dimensional structure of OCD. Among these are the Dimensional version of the widely used Yale–Brown OC Scale and the Dimensional OC Scale (Abramowitz et al., 2010; Rosario-Campos et al., 2006).

The DOCS is a contemporary measurement tool that assesses obsessive-compulsive symptom domains at a dimensional level; however, some items within the scale's structure have a multilayered measurement potential, encompassing not only symptom content but also behavioral and emotional response components. Item 1 provides direct information about the behavioral response to the obsessive stimulus and the amount of time allocated to this behavior, whereas Item 3 reflects the individual's tendency to avoid the obsessive experience and the accompanying level of emotional distress. Theoretical rationale suggests that these items may capture a broader repertoire of functional responses beyond the classical content-focused structure of the DOCS; however, this potential has not yet been psychometrically investigated. In addition, the scale assesses each of the four dimensions with five items (i.e., time spent on mental preoccupation and compulsions, avoidance, level of anxiety in the absence of compulsions, social functioning, and overimportance given to thoughts). This means that the scale consists of 20 items. Previous studies have shown that the length of the scale can increase respondent burden and that short forms may provide advantages in clinical use (Rolstad et al., 2011). In large-scale meta-analytic studies, brief screening tools can maintain diagnostic accuracy (Levis et al., 2020).

Whether behavioral and emotional responses can be measured through single-item indicators constitutes an important area of research in the development of brief screening tools. From a cognitive-behavioral perspective, obsessions are not inherently pathological. Obsessions and compulsions are associated with obsessions becoming more emotionally charged (Veale & Roberts, 2014). Compulsive activities are considered central to the pathology because they create a burden and prevent the testing of obsessive beliefs. Based on these considerations, we propose that the time spent on behavioral and mental activities and the negative emotions generated by obsessions in the absence of compulsions may serve as valid and sufficient indicators for OCD assessment.

Accordingly, this study aims to develop a shorter and more practical measurement tool that assesses emotional and behavioral responses across all dimensions, based on items 1 and 3 of the DOCS. Previous research has found that all items of the DOCS are adequate for measuring OCD severity (Uğurlu et al., 2024). In this study, we aimed to evaluate the properties of a measurement tool that was developed using only items that reflect emotional and behavioral responses.

METHODS

Participants and Procedure

Ethical approval was obtained from the Ethics Committee of Dışkapı Yıldırım Beyazıt Training and Research Hospital (Decision No. 98/04, dated October 19, 2020). Written informed consent was obtained from all participants, and the study was conducted in accordance with the Declaration of Helsinki. During the data collection phase, the sociodemographic information form, the Structured Clinical Interview for DSM-5 Axis I Disorders (SCID-5-CV), the Dimensional Obsessive-Compulsive Scale, and the Obsessive-Compulsive Inventory–Revised (OCI-R) were administered to patients with OCD. The study included 100 patients diagnosed with OCD who met the inclusion criteria and presented to the psychiatry outpatient clinic of Dışkapı Yıldırım Beyazıt Training and Research Hospital between November 19, 2020, and November 1, 2021, as well as 100 individuals in the control group. Patients with OCD included in the study were selected from consecutive individuals presenting to the psychiatry outpatient clinic, whereas the control group was selected from healthy volunteers using a convenience sampling method. All participants were informed in detail, and written informed consent was obtained. The researcher administered the Structured Clinical Interview for DSM-5 (SCID-5-CV) (Elbir et al., 2019) to patients referred from the outpatient clinics, and the diagnosis of OCD was confirmed. Comorbid diagnoses that could be present were also assessed. Inclusion criteria were as follows: diagnosed of OCD according to DSM-5 based on clinical interviews, was older than 18 years and younger than 65 years, was literate, and had the capacity to provide informed consent. Exclusion criteria were as follows: presence of a primary neurological disorder or intellectual disability; diagnosis of bipolar disorder (manic, depressive, mixed episode, or hypomania), substance use disorder, or psychotic disorder according to DSM-5 criteria; and presence of a cognitive mental disorder (dementia, delirium).

Measurements

Sociodemographic Data Form: A sociodemographic information form was used to obtain information about the participants, such as age, gender, occupation, place of residence, marital status, and psychiatric disorder diagnosis.

Structured Clinical Interview for DSM-5 Axis I Disorders (SCID-5-CV): The SCID-5-CV is a semi-structured interview guide developed to establish DSM-5 psychiatric diagnoses (First, 2014). It can be administered to individuals aged 18 years and older without severe cognitive impairment, severe psychotic symptoms, or psychomotor agitation. If the clinician deems it necessary, corrections can be made based on additional information, and the interview can be conducted over multiple sessions. The Turkish validity and reliability study of the SCID-5-CV was conducted by Elbir et al. (2019).

Dimensional Obsessive-Compulsive Scale (DOCS): Developed by Abramowitz et al. in 2010, the DOCS is a 20-item scale that evaluates obsessions and compulsions across four symptom dimensions (Abramowitz et al., 2010). The four symptom dimensions are contamination, responsibility for harm and mistakes, symmetry/ordering, and unacceptable thoughts. Each item has five response options scored between 0 and 4. The scale includes avoidance behavior and measures the severity of each symptom dimension. The Turkish validity and reliability adaptation of the scale was conducted by Şafak and colleagues (Şafak et al. 2018).

Obsessive-Compulsive Inventory–Revised (OCI-R): The OCI-R, developed by Foa et al., is a measure that assesses the severity and dimensions of obsessive-compulsive symptoms (Foa et al., 2002). Items are rated on a five-point Likert scale ranging from 0 (not at all) to 4 (extremely). The scale consists of 18 items and includes six subdimensions: washing, checking, ordering, obsessing, hoarding, and neutralizing. A Turkish validity and reliability adaptation was conducted. The internal consistency coefficients were reported as 0.89 for the total scale, 0.62 for washing, 0.78 for checking, 0.74 for ordering, 0.76 for obsessing, 0.69 for hoarding, and 0.55 for neutralizing (Yorulmaz et al., 2015). In this study, the severity of OCD symptoms was evaluated using the OCI-R, which was originally developed based on the DSM-IV diagnostic criteria. Hoarding symptoms were removed from the OCD diagnostic cluster in DSM-5 and classified as a separate disorder. Accordingly, the hoarding dimension was excluded from the analyses in the present study to ensure compatibility with the DSM-5 classification, and the total OCI-R score was calculated excluding the hoarding items. This approach ensures that the measurement more accurately reflects the OCD construct as defined by the DSM-5. This calculation method was referred to as "OCI-R (DSM-5 compatible)."

Statistical Analysis

In addition to the DOCS structure validated in the literature, a revised structure was examined in the present study, and reliability and validity analyses were conducted accordingly. Within this framework, the items under the four existing DOCS subdimensions were reorganized to define two composite

Table 1. Frequencies and percentages of the sociodemographic characteristics of participants

Variables	Variable levels	Group 1 (OCD)		Group 2 (Control)	
		f	%	f	%
Gender	Female	61	61.0	48	48.0
	Male	39	39.0	52	52.0
Age	18–23	19	19.0	20	20.0
	24–27	14	14.0	20	20.0
	28–31	17	17.0	30	30.0
	32–35	13	13.0	6	6.0
	36–42	16	16.0	6	6.0
	43 and above	21	21.0	18	18.0
Marital status	Single	42	42.0	56	56.0
	Married	51	51.0	40	40.0
	Divorced	7	7.0	4	4.0
Education level	Primary school	–	–	–	–
	Middle school	20	20.0	4	4.0
	High school	39	39.0	35	35.0
	University	41	41.0	61	61.0
Total		100	100	100	100

OCD: Obsessive-compulsive disorder.

subdimensions. The subdimension created by summing the first items across the four domains was labeled Behavioral Response, whereas the subdimension created by summing the third items was labeled Emotional Response. Construct validity was evaluated using confirmatory factor analysis (CFA), and reliability was assessed using Cronbach's alpha and McDonald's omega coefficients. Based on the obtained reliability and validity evidence, the behavioral and emotional response subdimensions provided reliable and valid measurements. Before CFA, the assumptions required for consistent parameter estimation, including outlier analysis, multivariate normality, multicollinearity, and linear relationships among variables, were examined. Examination of the data indicated the absence of outliers. Multivariate normality was evaluated using multivariate skewness (Zs), kurtosis (Zk), chi-square statistics, and relative multivariate kurtosis (RMK) values. The results indicated that the measurement tools did not exhibit a multivariate normal distribution (Behavioral Response: Zs=13.65, p=0.000; Zk=7.23, p=0.000; χ^2=238.56, p=0.000; RMK=1.576; Emotional Response: Zs=9.36, p=0.000; Zk=4.28, p=0.000; χ^2=105.99, p=0.000; RMK=1.238). Because multivariate normality assumptions were violated, robust maximum likelihood (MLR) estimation was employed in the CFA analyses. CFA analyses were performed using LISREL (version 8.8). When MLR estimation is used, the Satorra–Bentler scaled chi-square (S–B χ^2) statistic is recommended instead of the conventional χ^2 value (Brown, 2015); therefore, robust fit indices were reported. Pairwise correlations between items were examined, and no correlations greater than 0.80 were observed, indicating the absence of multicollinearity and supporting linear relationships among variables. A sample size of approximately 200 is considered sufficient for non-complex models (Bentler & Bonett, 1980; Brown, 2015); therefore, the sample size was deemed adequate. Overall, all the assumptions required for the CFA were satisfied. Model fit was evaluated using multiple goodness-of-fit indices, including χ^2/df, CFI, GFI, AGFI, NFI, NNFI (TLI), RMSEA, and SRMR. In accordance with established guidelines (Browne & Cudeck, 1992; Kline, 2011), χ^2/df values below 3 indicate an acceptable fit; CFI, NFI, and NNFI values ≥0.90 were considered acceptable and ≥0.95 indicative of a good fit; RMSEA and SRMR values ≤0.08 indicated acceptable fit and ≤0.05 indicated excellent fit. No post hoc model modifications were performed based on modification indices, and the hypothesized model was retained as originally specified. In addition to the primary analyses, further statistical procedures were conducted to comprehensively evaluate the scale's psychometric properties. Test–retest reliability analyses were performed using measurements obtained at a two-week interval to assess temporal stability. Criterion-related validity was examined through correlation analyses between

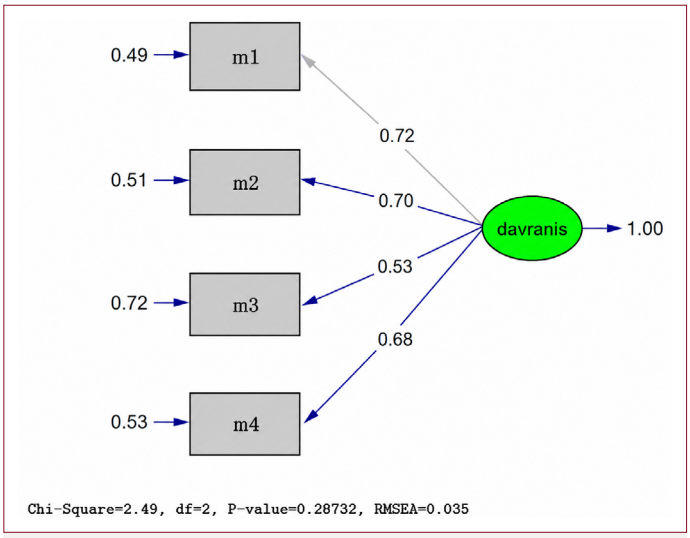

Figure 1. The measurement model defined for the factor structure of the behavioral response subdimension (standardized solutions).

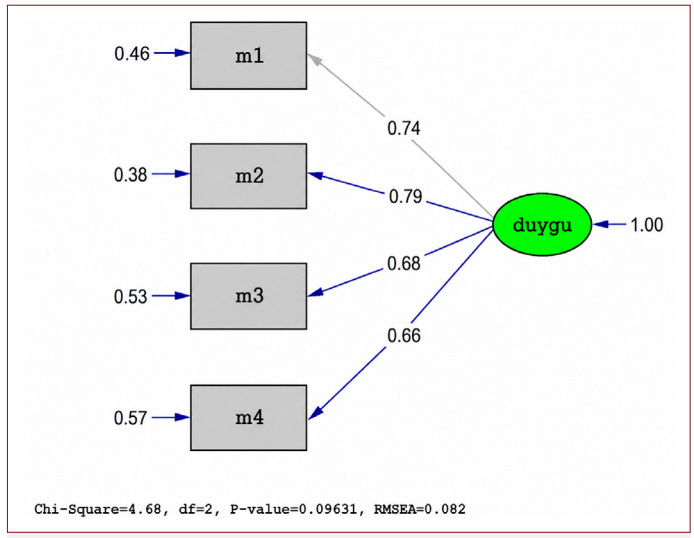

Figure 2. A measurement model defined for the emotional response subdimension's factor structure (standardized solutions).

the DOCS-SF subdimensions and the subdimensions of the Obsessive-Compulsive Inventory–Revised (OCI-R). Receiver operating characteristic (ROC) curve analyses were conducted to determine the discriminative ability and optimal cut-off scores of the short form, and the corresponding sensitivity and specificity values were calculated. Furthermore, to control for potential confounding effects in group comparisons, analyses of covariance (ANCOVA) was performed using education duration included as a covariate.

RESULTS

Demographic Data

The mean age of the OCD group included in the study was 33.10±10.07, whereas the mean age of the control group was 31.59±10.47. In our study, 61% (n=61) of the patients with OCD were female and 39% (n=39) were male; in the control group, 48% (n=48) were female and 52% (n=52) were male. Approximately 60% of the OCD group and 50% of the control group were female.

When educational levels were examined, it was observed that most participants in both the OCD and control groups were university graduates, whereas the number of middle school graduates was very low. A statistically significant difference was observed between the two groups (p=0.001). The educational duration of both groups was compared using a non-parametric test, and a statistically significant difference was also detected. The mean duration of education was 12.78±3.02 years in the OCD group and 14.28±2.29 years in the control group (Table 1).

Factor Structure, Content Validity, and Convergent Validity

When Figure 1 is examined, it can be seen that the factor loadings of the items in the measurement tool (λ=0.53–0.72) and the error variance values (ε=0.49–.72) are within acceptable ranges. Factor loadings of 0.30 or higher indicate that the items are appropriate for measuring the latent construct, and error variances below.90 indicate an acceptable amount of measurement error for assessing the latent construct (Kline, 2011).

When Figure 2 is examined, it can be seen that the factor loadings of the items in the measurement tool (λ=0.66–0.79) and the error variance values (ε=0.38–0.57) are within acceptable ranges. Factor loadings of 0.30 or higher indicate that the items are appropriate for measuring the latent construct, and error variances below 0.90 indicate an acceptable amount of measurement error for assessing the latent construct (Kline, 2011).

Reliability Analysis

When Table 2 is examined, it can be seen that the reliability values obtained from the measurement instruments are greater than 0.70, indicating acceptable reliability (Salvucci et al., 1997). In conclusion, the behavioral response and emotional response subdimensions provide reliable and valid measurements.

Correlations Between the Behavioral and Emotional Response Dimensions and OCI-R

When Table 3 is examined, a high and significant relationship between the behavioral and emotional response dimensions (r=0.900, p<0.001). Both dimensions showed high and

Table 2. Estimated reliability values for the measurement instrument in the present and original studies

Subdimensions	Cronbach α	McDonald ω
Behavioral response	0.781	0.786
Emotional response	0.744	0.748

statistically significant correlations with the OCI-R DSM-5 compatible total scores (r=0.866–0.888, all p<0.001). The very high correlation between the DSM-IV and DSM-5 compatible total scores of the OCI-R (r=0.992, p<0.001) indicates that the core construct measured by the scale was largely preserved despite the exclusion of the hoarding dimension. Correlations between the DOCS-SF and OCI-R subdimensions (obsessing, washing, hoarding, ordering, checking, and neutralizing) were examined and presented. The behavioral response subdimension demonstrated strong positive correlations with OCI-R obsessing (r=0.783), washing (r=0.734), ordering (r=0.705), checking (r=0.718), and neutralizing (r=0.702), whereas a comparatively weaker association was observed with hoarding (r=0.410). Similarly, the emotional response subdimension showed strong correlations with obsessing (r=0.797), washing (r=0.726), ordering (r=0.736), checking (r=0.711), and neutralizing (r=0.697), and a lower correlation with hoarding (r=0.416).

Additional analyses, including ANCOVA to control for potential confounding variables, ROC analyses to evaluate discriminative ability, and test–retest analyses to assess temporal stability, were conducted to further support the psychometric properties of the scale.

ANCOVA analyses were conducted for all subdimensions, with duration of education included as a covariate. After controlling for education duration, the differences between individuals with OCD and healthy controls remained statistically significant across all subdimensions: cleaning (F(1.197)=116.29, p<0.001), responsibility (F(1.197)=147.66, p<0.001), intrusive thoughts (F(1.197)=115.38, p<0.001), and symmetry (F(1.197)=45.52, p<0.001). These findings demonstrate that the observed group differences are not attributable to differences in duration of education.

ROC curve analyses were conducted to evaluate the ability of the subdimensions to discriminate individuals with OCD from healthy controls. The area under the curve (AUC) for the behavioral response subdimension was 0.962 (95% CI=0.940–0.983, p<0.001), indicating excellent diagnostic accuracy. The optimal cut-off score was 2.50, yielding a sensitivity of 0.86 and a specificity of 0.90. The AUC for the emotional response subdimension was 0.937 (95% CI=0.907.967, p<0.001), reflecting excellent discriminative power. The optimal cut-off score was 4.50, with a sensitivity of 0.75 and a specificity of 0.91. These

Table 3. Correlations of the behavioral and emotional response dimensions with the OCI-R DSM-IV and DSM-5 compatible scores

	Behavioral response	Emotional response	OCI-R (DSM-IV compatible)	OCI-R (DSM-5 compatible)
Behavioral response				
Pearson correlation	1	0.900**	0.866**	0.882**
Sig. (2-tailed)		0.000	0.000	0.000
N	200	200	200	200
Emotional response				
Pearson correlation	0.900**	1	0.872**	0.888**
Sig. (2-tailed)	0.000		0.000	0.000
N	200	200	200	200
OCI-R (DSM-IV compatible)				
Pearson correlation	0.866**	0.872**	1	0.992**
Sig. (2-tailed)	0.000	0.000		0.000
N	200	200	200	200
OCI-R (DSM-5 compatible)				
Pearson correlation	0.882**	0.888**	0.992**	1
Sig. (2-tailed)	0.000	0.000	0.000	
N	200	200	200	200

N=200. The Pearson correlation coefficients are presented in Table 1. The total score of the OCI-R (DSM-5 compatible) was calculated by excluding the hoarding subdimension, in line with the removal of hoarding disorder from the OCD diagnostic cluster in DSM-5.** p<0.01 (two-tailed).

findings demonstrate that both subdimensions of the short form possess strong diagnostic accuracy and may be clinically useful in differentiating individuals with OCD from healthy controls.

In addition to clarifying the clinical rationale for distinguishing behavioral and emotional responses, we have incorporated test–retest reliability findings. A subsample of participants (n=31) completed the DOCS-SF again after a 2-week interval. The behavioral response subdimension demonstrated excellent temporal stability (r=0.908, p<0.001), and the emotional response subdimension showed strong stability (r=0.741, p<0.001). These findings further support the reliability of the short form over time.

DISCUSSION

To the best of our knowledge, this study is the first to examine the "Behavioral Response" and "Emotional Response" subdimensions derived from items 1 and 3 of the DOCS, in addition to the original structure of the scale, which was built on four symptom dimensions. The DOCS is a robust measurement tool that classifies OCD symptoms according to content domains and uses a dimensional approach to evaluate the severity of these contents. However, in the original DOCS format, individuals' behavioral and emotional responses to obsessions and compulsions are represented by single items and are not addressed as separate constructs. Therefore, this study aimed to expand the scope of the DOCS and contribute to the systematic assessment of reactive processes beyond symptom content.

The discriminant validity between the behavioral and emotional response dimensions was examined using the heterotrait–monotrait (HTMT=1.15) ratio. The results indicated a high association between the two dimensions, reflecting their close relationship. However, this finding is theoretically consistent with the nature of obsessive-compulsive symptomatology, in which emotional distress and behavioral responses are inherently intertwined. Similar patterns have been reported in established OCD measures. For instance, studies on the Yale–Brown Obsessive-Compulsive Scale (Y-BOCS) have demonstrated strong correlations between obsession and compulsion severity scores, yet the two-factor structure has been retained due to theoretical and clinical considerations (Goodman et al., 1989). Importantly, the CFA in this study supported the two-factor model with acceptable fit indices. The two-factor structure was preserved based on statistical findings and theoretical rationale, given the distinct clinical implications of behavioral and emotional responses in assessment and treatment planning.

The results of the CFA revealed that both the behavioral and emotional response subdimensions functioned consistently with the existing structure of the DOCS and demonstrated good model fit. The presence of significant and acceptable factor loadings supports the strong capacity of these two items to represent reactive dimensions that already exist within the DOCS. The internal consistency values obtained for both the behavioral response and emotional response subscales indicate that the scale is highly reliable. Cronbach's alpha=0.781 and McDonald's omega=0.786 obtained for the behavioral response subdimension demonstrate that the subscale items are highly consistent in measuring the same construct.

Similarly, Cronbach's alpha=0.744 and omega=0.748 were obtained for the emotional response subdimension, indicating that emotional distress and emotional reactions were strongly represented as a homogeneous factor. These findings are consistent with previous studies demonstrating that components of behavioral avoidance and emotional distress are distinctive and consistent parts of OCD symptomatology (Abramowitz et al., 2010; Obsessive-Compulsive Cognitions Working Group [OCCWG], 1997, 2005). The high alpha and omega values observed in the behavioral response subscale indicate that avoidance, checking, and compulsive behaviors observed in OCD share similar functional characteristics and can be consistently evaluated within the scale. This result supports the assumption in cognitive models that the behavioral components of OCD operate through a common functional mechanism (Rachman, 1998). The similarly strong coefficients obtained for the emotional response subscale are consistent with the literature indicating that OCD's core emotional components are threat perception, anxiety, guilt, and intense emotional distress. The high homogeneity of the items in this subscale demonstrates that the emotional response represents an independent and clinically interpretable dimension. Within this framework, the findings of the study indicate that both the behavioral and emotional subdimensions of the scale are highly consistent and that the constructs they measure are well-differentiated psychometrically. Moreover, the strength of the omega coefficients supports that these subscales can be reliably used in clinical research and provide sensitive measurement in the evaluation of OCD symptom dimensions. This finding suggests that OCD involves a complex emotion–behavior interaction system that cannot be reduced solely to obsessions and compulsions. The contribution of emotional distress, threat perception, and avoidance tendencies to symptomatology is consistent with cognitive and metacognitive models. These results are also in line with the literature emphasizing that the components of "behavioral avoidance" and "emotional distress" are integral parts of OCD symptomatology, as highlighted in the initial studies in which the DOCS was developed (Abramowitz et al., 2009). Therefore, the findings of this study demonstrate that reactive patterns can also be measured independently, consistent with the theoretical foundations of the scale. Previous research has shown that response patterns related

to emotional distress and avoidance represent related yet separable components of OCD phenomenology, emphasizing that content-based dimensions cannot fully explain symptom severity (Ekici & Özdel, 2023). Consistent with these findings, the present study indicates that the emotional and behavioral responses derived from the DOCS can be reliably assessed as independent subdimensions. These results suggest that response-based processes, such as emotional distress and behavioral avoidance, play a central role in OCD and highlight the importance of evaluating not only symptom severity but also how symptoms are experienced in clinical assessments.

The study by Uğurlu and colleagues (2024) demonstrated the psychometric strength and clinical discriminative validity of the DOCS through its total score and original subdimensions, with a particular focus on determining cut-off points. In contrast to this holistic approach, this study focuses on the item-level structure of the DOCS and examines the behavioral and emotional responses accompanying OC symptoms as separate subdimensions based on items 1 and 3 of the scale. The acceptable validity and reliability indicators observed for the behavioral and emotional response subdimensions suggest that the DOCS can measure overall severity also differentiate the response domains through which this severity is experienced. This approach allows the scale to address not only the question of "how severe" but also "through which responses the severity is experienced."

This study differentiates the behavioral and emotional components of dimension-based OCD severity and deepens the scale's psychometric interpretability. The DOCS appears to be a multidimensional measurement tool that can be used for screening and diagnostic purposes as well as for detailed phenomenological and research-oriented assessments (Uğurlu et al., 2024).

Blakey et al. (2016) reported that experiential avoidance is strongly associated with obsessive content and that difficulties in regulating emotional responses predict both clinical and subclinical OCD symptoms. This study provides important evidence supporting the "emotional response–symptom severity" link observed in our findings.

Overall, this study demonstrates that behavioral and emotional responses should be evaluated together to achieve a more comprehensive understanding of OCD symptoms. The structure of the DOCS, which differentiates between Emotional Response and Behavioral Response dimensions, enables the individualization of emotion regulation processes and avoidance behaviors in both clinical assessment and treatment planning. The findings support the importance of targeting emotion tolerance, cognitive reappraisal, metacognitive awareness, and avoidance cycles, particularly in CBT- and MCT-based interventions.

Limitations

Several limitations should be considered when interpreting this study's findings. First, the sample's gender distribution was not fully balanced, which may limit the generalizability of the results across sexes. Second, the relatively restricted age and educational range of participants may constrain the applicability of the findings to broader populations. Additionally, the OCD sample was clinically heterogeneous in terms of illness duration, treatment status, and potential comorbid conditions, which may have influenced symptom presentation and response patterns. Nevertheless, the study also demonstrated important strengths. In particular, the inclusion of test–retest analyses provided evidence of temporal stability, with the behavioral response subdimension showing excellent reliability and the emotional response subdimension demonstrating strong stability over a 2-week interval. These findings support the robustness of the DOCS-SF and indicate that the scale yields consistent measurements over time, enhancing its suitability for repeated assessments and clinical follow-up evaluations.

CONCLUSION

In conclusion, this study provides evidence supporting the reliability and validity of the DOCS-SF by demonstrating a coherent factorial structure, strong internal consistency, satisfactory temporal stability, and excellent discriminative ability between individuals with OCD and healthy controls. The distinction between behavioral and emotional responses offers clinically meaningful information that may contribute to more individualized assessment and treatment planning. The DOCS-SF appears to be a practical tool for both research and clinical settings, particularly in contexts requiring rapid assessment or repeated measurement, given its brevity and strong psychometric performance. Future research should further examine the scale across diverse populations, longitudinal designs, and treatment outcome studies to better understand its sensitivity to change and long-term clinical applicability.

Ethics Committee Approval: The study was approved by the Dışkapı Yıldırım Beyazıt Training and Research Hospital Ethics Committee (Decision No: 98/04; Date: 19.11.2020).

Informed Consent: Informed consent was obtained from all individual participants included in the study.

Conflict of Interest: The authors declare that there is no conflict of interest.

Financial Disclosure: No funding was received for the preparation, writing, or publication of this study.

Use of AI for Writing Assistance: No artificial intelligence (AI)-assisted technologies were used in the design, data collection, analysis, or writing of this manuscript.

Authorship Contributions: Concept – SF, KÖ, TA; Design – SF, KÖ, TA; Supervision – SF, KÖ, TA; Fundings – SF, KÖ, TA; Materials – SF, KÖ, TA; Data Collection and/or Processing – SF, KÖ, TA; Analysis and/or Interpretation – SF, KÖ, TA; Literature Review – SF, KÖ, TA; Writing – SF, KÖ, TA; Critical Review – SF, KÖ, TA.

Peer-review: Externally peer-reviewed.

REFERENCES

Abramowitz, J. S., Deacon, B. J., Olatunji, B. O., Wheaton, M. G., Berman, N. C., Losardo, D., … Adams, T. (2010). Assessment of obsessive-compulsive symptom dimensions: Development and evaluation of the Dimensional Obsessive-Compulsive Scale. *Psychological Assessment, 22*(1), 180. [CrossRef]

Abramowitz, J. S., Lackey, G. R., & Wheaton, M. G. (2009). Obsessive-compulsive symptoms: The contribution of obsessional beliefs and experiential avoidance. *Journal of Anxiety Disorders, 23*(2), 160–166. [CrossRef]

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Publishing. [CrossRef]

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*(3), 588. [CrossRef]

Blakey, S. M., Jacoby, R. J., Reuman, L., & Abramowitz, J. S. (2016). The relative contributions of experiential avoidance and distress tolerance to OC symptoms. *Behavioural and Cognitive Psychotherapy, 44*(4), 460–471. [CrossRef]

Brown, T. A. (2015). *Confirmatory factor analysis for applied research* (2nd ed.). Guilford Press.

Browne, M. W., & Cudeck, R. (1992). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*(2), 230–258. [CrossRef]

Ekici, E., & Ozdel, K. (2023). Measuring Disgust Proneness Using the Disgust Propensity and Sensitivity Scale-Revised: Psychometric properties with factorial invariance in obsessive-compulsive disorder and non-clinical samples. *Psychiatry and Behavioral Sciences, 13*(1), 39. [CrossRef]

Elbir, M., Alp Topbaş, Ö., Bayad, S., Kocabaş, T., Topak, O. Z., Çetin, Ş., … Aydemir, Ö. (2019). DSM-5 bozuklukları için yapılandırılmış klinik görüşmenin klinisyen versiyonunun Türkçeye uyarlanması ve güvenilirlik çalışması. *Türk Psikiyatri Dergisi, 30*(1), 51–56. [Article in Turkish]

First, M. B. (2014). Structured clinical interview for the DSM (SCID). *The Encyclopedia of Clinical Psychology*, 1–6. [CrossRef]

Foa, E. B., Huppert, J. D., Leiberg, S., Langner, R., Kichic, R., Hajcak, G., & Salkovskis, P. M. (2002). The Obsessive-Compulsive Inventory: Development and validation of a short version. *Psychological Assessment, 14*(4), 485. [CrossRef]

Goodman, W. K., Price, L. H., Rasmussen, S. A., Mazure, C., Delgado, P. L., Heninger, G. R., & Charney, D. S. (1989). The Yale-Brown Obsessive Compulsive Scale: II. Validity. *Archives of General Psychiatry, 46*(11), 1012–1016. [CrossRef]

Kline, R. B. (2011). *Principles and practice of structural equation modeling* (3rd ed.). Guilford Press.

Levis, B., Sun, Y., He, C., Wu, Y., Krishnan, A., Bhandari, P. M., … Depression Screening Data (DEPRESSD) PHQ Collaboration. (2020). Accuracy of the PHQ-2 alone and in combination with the PHQ-9 for screening to detect major depression: Systematic review and meta-analysis. *JAMA, 323*(22), 2290–2300. [CrossRef]

Mahjani, B., Hultman, C. M., Sandin, S., et al. (2020). Epidemiology and genetics of obsessive-compulsive disorder and chronic tic disorders in Sweden (EGOS). *Social Psychiatry and Psychiatric Epidemiology, 55*(11), 1383–1393. [CrossRef]

Obsessive Compulsive Cognitions Working Group. (1997). Cognitive assessment of obsessive-compulsive disorder. *Behaviour Research and Therapy, 35*(7), 667–681. [CrossRef]

Obsessive Compulsive Cognitions Working Group. (2005). Psychometric validation of the obsessive belief questionnaire and interpretation of intrusions inventory-Part 2: Factor analyses and testing of a brief version. *Behaviour Research and Therapy, 43*(11), 1527–1542. [CrossRef]

Rachman, S. (1998). A cognitive theory of obsessions: Elaborations. *Behaviour Research and Therapy, 36*(4), 385–401. [CrossRef]

Rolstad, S., Adler, J., & Rydén, A. (2011). Response burden and questionnaire length: Is shorter better? A review and meta-analysis. *Value in Health, 14*(8), 1101–1108. [CrossRef]

Rosario-Campos, M. C., Miguel, E. C., Quatrano, S., Chacon, P., Ferrao, Y., Findley, D., … Leckman, J. F. (2006). The Dimensional Yale-Brown Obsessive-Compulsive Scale (DY-BOCS): An instrument for assessing obsessive-compulsive symptom dimensions. *Molecular Psychiatry, 11*(5), 495-504. [CrossRef]

Sadock, B. J., Sadock, V. A., & Ruiz, P. (2000). *Comprehensive Textbook of Psychiatry* (Vol. 1). Lippincott Williams & Wilkins.

Şafak, Y., Say Öcal, D., Özdel, K., Kuru, E., & Örsel, S. (2018). Obsesif Kompülsif Bozuklukta Boyutsal Yaklaşım: Boyutsal Obsesif Kompülsif Bozukluk Ölçeği Türkçe'nin Psikometrik Özellikleri. *Türk Psikiyatri Dergisi, 29*(2), 122–130. [Article in Turkish]

Salvucci, S., Walter, E., Conley, V., Fink, S., & Saba, M. (1997). *Measurement error studies at the National Center for Education Statistics*. Washington, DC: National Center for Education Statistics.

Uğurlu, M., Özyurt, A. A., Deveci, N., Uğurlu, G. K., Şahin, E. K., Kamış, G. Z., & Çayköylü, A. (2024). Determining the cut-off scores for the Maudsley Obsessional Compulsive Inventory and the Dimensional Obsessive Compulsive Scale and reviewing their psychometric properties: Which is more appropriate for the evaluation of obsessive-compulsive disorder? *Psychiatry and Behavioral Sciences, 14*(1), 11. [CrossRef]

Veale, D., & Roberts, A. (2014). Obsessive-compulsive disorder. *BMJ, 348*, g2183. [CrossRef]

Yorulmaz, O., Inozu, M., Clark, D. A., & Radomsky, A. S. (2015). Psychometric properties of the Obsessive-Compulsive Inventory-Revised in a Turkish analogue sample. *Psychological Reports, 117*(3), 781–793. [CrossRef]

Bilişsel Davranışçı Psikoterapi ve Araştırmalar Dergisi
Journal of Cognitive-Behavioral Psychotherapy and Research
DOI: 10.14744/JCBPR.2026.14706
J Cogn Behav Psychother Res 2026;15(2):85–95

The Mediating Role of Difficulties in Emotion Regulation in the Relationship Between Sociotropy, Autonomy, and Psychological Symptoms

Tuğçe Yakar,[1] Umut Çıvgın[2]

[1]Department of Neurology, Bursa City Hospital, Bursa, Türkiye
[2]Department of Psychology, Bursa Technical University, Bursa, Türkiye

ABSTRACT

Sociotropy/autonomy are personality constructs within cognitive theory that reflect maladaptive tendencies and are commonly associated with depressive symptoms. Although the relationship between personality traits and psychological symptoms has been widely studied, increasing attention has focused on variables such as difficulties in emotion regulation (DIER) that may shape this association. This study examined whether DIER indirectly influences the relationship between sociotropy/autonomy and psychological symptoms. The sample consisted of 341 individuals without a psychiatric diagnosis. The results indicated significant positive associations among the main variables. Mediation analyses showed that DIER significantly mediated the relationship between sociotropy and psychological symptoms, whereas in the relationship between autonomy and psychological sypmtoms had no mediating effect. These findings suggest that sociotropy and autonomy may play differential roles in emotion regulation processes. The unique pattern observed for autonomy may reflect broader sociocultural dynamics, underscoring the need for further research to test the robustness of the model across different populations and methodological approaches.

Keywords: Autonomy, difficulties in emotion regulation, psychological symptoms, sociotropy.

ÖZ

Sosyotropi, Otonomi ve Psikolojik Belirtiler Arasındaki İlişkide Duygu Düzenleme Güçlüğünün Aracılık Rolü

Sosyotropi ve otonomi, bilişsel kuram içinde yer alan, uyumsuz eğilimleri yansıtan ve sıklıkla depresif belirtilerle ilişkilendirilen kişilik yapılarıdır. Kişilik özellikleri ile psikolojik belirtiler arasındaki ilişki geniş ölçüde incelenmiş olmakla birlikte, son yıllarda bu ilişkiyi şekillendirebilecek değişkenlere -özellikle duygu düzenleme güçlüklerine (DDG)- yönelik ilgi arttı. Bu çalışmada, duygu düzenleme güçlüklerinin sosyotropi/otonomi ile psikolojik belirtiler arasındaki ilişkiyi dolaylı olarak etkileyip etkilemediği incelendi. Araştırmanın örneklemini herhangi bir psikiyatrik tanısı bulunmayan 341 birey oluşturdu. Bulgular, temel değişkenler arasında anlamlı ve pozitif ilişkiler olduğunu gösterdi. Aracılık analizleri, duygu düzenleme güçlüklerinin sosyotropi ile psikolojik belirtiler arasındaki ilişkide anlamlı bir aracılık rolü üstlendiğini; ancak otonomi için böyle bir aracılık etkisinin bulunmadığını ortaya koydu. Bu bulgular, sosyotropi ve otonominin duygu düzenleme süreçlerinde farklı rollere sahip olabileceğini düşündürmektedir. Çalışma, kişilik özellikleri ile psikolojik belirtiler arasındaki ilişkiyi açıklayan mekanizmaları ortaya koyarak literatüre katkı sağlamaktadır. Otonomi için gözlenen özgün örüntü, daha geniş sosyokültürel dinamikleri yansıtıyor olabilir ve bu durum, modelin farklı örneklemler ve yöntemsel yaklaşımlar üzerinden sağlamlığının test edilmesi için daha fazla araştırmaya ihtiyaç olduğunu vurgulamaktadır.

Anahtar Kelimeler: Otonomi, duygu düzenleme güçlüğü, psikolojik belirti, sosyotropi.

Cite this article as:
Yakar T, Çıvgın U. The Mediating Role of Difficulties in Emotion Regulation in the Relationship Between Sociotropy, Autonomy, and Psychological Symptoms. J Cogn Behav Psychother Res 2026;15(2):85–95.

Address for correspondence:
Umut Çıvgın.
Bursa Teknik Üniversitesi,
Psikoloji Anabilim Dalı,
Bursa, Türkiye
Phone: +90 554 403 71 09
E-mail: umutcivgin@gmail.com
umut.civgin@btu.edu.tr

Submitted: 11.03.2026
Revised: 22.04.2026
Accepted: 06.05.2026
Available Online: 00.05.2026

JCBPR, Available online at
http://www.jcbpr.org/

INTRODUCTION

There have been numerous perspectives on the definition and classification of personality throughout history. Although early descriptions of personality date back to the Before Christ era, the concept became more objective and measurable with the contributions of Hippocrates (Farmer et al., 2002; Thomas & Segal, 2006). Common themes across these varying definitions include relatively stable internal processes (e.g., emotions and cognitions) and consistent patterns of behavior (Burger, 2006).

Cognitive theory, which began to gain prominence in the late 1900s, also addressed personality as a key area of inquiry (Ellis, 1994). The emphasis on how personality traits and behavioral differences arise from variations in information-processing mechanisms reflects a distinct cognitive approach to understanding personality (Ellis, 1994). Beck's conceptualization similarly adopts a cognitive framework, highlighting that cognitive distortions and biases in information processing can shape and influence personality (Beck et al., 1979). Building on this framework, Beck's personality classification highlights two core dimensions: sociotropy and autonomy (Beck et al., 1979). Early research identified these traits in individuals with depression (Stein et al., 2007). Although these personality dimensions are conceptualized as reflecting the more vulnerable or maladaptive aspects of personality, their negative content is characterized by themes such as interpersonal dependency and success intolerance (Beck, 1983).

Sociotropy refers to an individual's tendency to seek positive interpersonal relationships and the value placed on relational needs, such as love, emotional closeness, and approval. Individuals with high sociotropy have a strong need for the affection and validation of others (Beck, 1983). This personality trait is characterized by cognitive and behavioral patterns in which an individual's thoughts and actions are shaped by the desire to attain personal satisfaction through approval from others, as well as by tendencies toward dependent and passive interpersonal behaviors (Beck, 1983). Autonomy is a concept associated with personal independence, success, and the importance placed on individuality (Sato & McCann, 1998). Individuals with high autonomy are goal-oriented, controlled, and reserved in interpersonal relationships. Setting a goal, achieving it, and managing their environment and work are satisfying for these individuals (Beck, 1983). Existing literature provides various frameworks to explain the mechanism by which autonomy relates to psychological symptomatology (Fresco et al., 2001; Hayaki et al., 2003; Mendelson et al., 2002; Marfoli et al., 2021; Yıldız, 2022). According to Self-Determination Theory (SDT) (Deci & Ryan, 2012), optimal human functioning relies on the satisfaction of three fundamental psychological needs: autonomy, competence, and relatedness. A critical synthesis can be drawn between SDT and Beck's cognitive theory of personality, specifically regarding the dimension of relatedness. In Beck's framework, highly autonomous individuals—characterized by a rigid pursuit of independence and achievement—may perceive the need for relatedness as a form of "dependency" or "weakness." Consequently, they might interpret social reliance as a personal deficiency. Given that the modern world is a complex web of social interdependencies, these strong autonomous personality traits may inadvertently create vulnerability to psychological symptoms by obstructing the fulfillment of the essential need for relatedness.

A literature review indicates that research examining depression, anxiety, and stress within the sociotropy–autonomy framework is relatively common. Higher sociotropy and autonomy levels have been associated with increased psychological symptoms (Fresco et al., 2001; Punhani & Sharma, 2025). These personality traits are also considered in clinical practice and used therapeutically in psychological treatment. These traits have been linked to key CBT-related constructs, such as ruminative thought processes (Martinez et al., 2020), psychological flexibility (Dağlı et al., 2025), and emotion regulation or difficulties in emotion regulation (Liu et al., 2024; Aldao & Nolen-Hoeksema, 2012). Emotion regulation has become a widely investigated variable, particularly in relation to mood states. The current literature consistently links emotion dysregulation with pathological personality traits (Pollock et al., 2016; Messina et al., 2026). However, there is growing scientific interest in the role of emotion regulation within non-pathological personality dimensions—such as sociotropy and autonomy—which may serve as underlying mechanisms for psychological distress.

Emotion regulation is defined as the set of processes involved in monitoring, modifying, and influencing emotional responses, including their duration, intensity, and frequency. These processes may operate either consciously or unconsciously (Gross, 1998). Over the years, research has demonstrated that individuals differ in the strategies they use to regulate their emotions, and some individuals experience difficulties in effectively managing their emotional responses (Cole, 2014). Consequently, a distinct construct—difficulty in emotion regulation—has emerged in the literature. This term refers to individuals' struggles to modulate their emotions and thoughts when the emotional coping process is disrupted (Cole et al., 1994). A sustained inability to manage negative affect may amplify these emotions over time, ultimately contributing to emotional numbing (Napolitano et al., 2011). Furthermore, various psychological symptoms may emerge when individuals are unable to cope effectively with their emotions. Depressive

symptoms, anxiety, and difficulties in stress management are among the psychological outcomes most commonly associated with this inability (Hofmann et al., 2012; Daros et al., 2021). The relationship between personality traits and emotion regulation has also been a focus of increasing attention in the literature, with emotion regulation skills appearing to function as a personality-related variable (Katar et al., 2023; Pollock et al., 2016). Moreover, empirical evidence suggests that difficulty in emotion regulation mediate the association between personality traits and psychological symptoms (Abdi & Pak, 2019; Zarei et al., 2018). Although emotion regulation has been widely examined—particularly in relation to other pathological personality traits—the associations between sociotropy, autonomy, and difficulty in emotion regulation remain relatively underexplored. Considering that sociotropy and autonomy are central constructs within CBT, investigating their relationship with emotional processes and their influence on psychological symptoms through the framework of difficulty in emotion regulation may enrich the literature by clarifying the links between these concepts within theoretical models and therapeutic practice. In line with this rationale, the following hypotheses were tested:

H1. A statistically significant relationship was expected among participants' levels of sociotropy, autonomy, difficulty in emotion regulation, and psychological symptoms.

H2. Difficulty in emotion regulation was expected to mediate the relationship between participants' sociotropy scores and their psychological symptom levels.

H3. Difficulty in emotion regulation was expected to mediate the relationship between participants' autonomy scores and their psychological symptom levels.

METHOD

Participants

In the present study, participants were recruited through the snowball method, a form of non-probability sampling. This approach was considered the most appropriate for the study (Golzar et al., 2022), as it enables researchers to access participants easily, quickly, and cost-effectively. The required sample size was determined using the G*Power program (Faul et al., 2007), based on the study's hypotheses. For the regression analyses, the a priori power analysis indicated that a sample size of 200 would provide 95% statistical power to detect a high-order effect at a significance level of α=0.05.

The inclusion criteria for the study were residing in Türkiye, being 18 years of age or older, being literate in Turkish, not having a comorbid psychiatric or neurological diagnosis, and providing voluntary informed consent. Based on these criteria, the final sample consisted of 341 participants. Data were collected through two modalities: 199 participants were recruited online via Google Forms, and 151 participants were reached through face-to-face administration across various regions of Türkiye. Nine participants were excluded from the study because their data did not meet the inclusion criteria.

Table 1. Demographic characteristics of the participants

Variables	Category	n	%
Gender	Female	275	78.6
	Male	74	21.1
Marital status	Married	82	23.4
	Single	262	74.9
	Divorced	6	1.7
Educational status	Primary School	4	1.1
	Middle School	2	0.6
	High School	68	19.4
	Undergraduate/Graduate	247	70.6
Residence	Village	15	4.3
	District	59	16.9
	City	109	31.1
	Metropolitan Area	167	47.7

Examination of the participants' characteristics showed that their ages ranged from 18 to 71 years (M=26.99, SD=9.81). Of the total sample, 275 participants were identified as female and 74 as male. Regarding marital status, 82 (23.4%) participants were married, 262 (74.9%) were single, and 6 (1.7%) were divorced. A total of 143 participants were actively employed, while 198 (56.6%) were unemployed or students. The monthly income levels ranged from 0 TL to 100,000 TL (0€ to nearly 2,000€) (M=16,063, SD=7.86). Additional sociodemographic information can be found in Table 1.

Materials

To assess the sociodemographic characteristics of the participants, a sociodemographic information form was developed by the researchers and included in the questionnaire battery alongside the following scales.

Sociotropy–Autonomy Scale

The Sociotropy–Autonomy Scale was developed by Beck et al. in 1983 to assess the two personality dimensions that confer vulnerability to depression. Sociotropy is characterized by a strong emphasis on interpersonal relationships, whereas autonomy reflects a focus on personal achievement and independence. The scale consists of 60 items, with 30 items

for each subscale, and contains no reverse-scored items. It is a self-report measure rated on a 5-point Likert scale. Higher scores on each subscale indicate a greater prominence of that personality characteristic. The Turkish adaptation of the scale was conducted by Şahin, Ulusoy, and Şahin (1993). In their validation study, Cronbach's alpha coefficients were reported as α=0.70 for the Sociotropy subscale and α=0.81 for the Autonomy subscale, demonstrating that the scale possesses adequate reliability and validity. Cronbach's alpha coefficients were calculated as α=0.86 for the total scale, α=0.88 for the sociotropy subscale, and α=0.85 for the autonomy subscale.

Difficulties in Emotion Regulation Scale–Short Form (DERS-SF)

The Difficulties in Emotion Regulation Scale was originally developed by Gratz and Roemer (2004) to assess individuals' difficulties in regulating their emotions. The original version consists of 36 items and includes six subscales. In 2016, Bjureberg et al. (2016) revised the measure and introduced the 16-item short form (DERS-SF). The Turkish adaptation of the short form was conducted by Yiğit and Guzey-Yiğit (2017). The scale is a 5-point Likert-type measure with total scores ranging from 16 to 80. Higher scores indicate greater difficulty in emotion regulation. In the Turkish validation study, Cronbach's alpha coefficients were reported as α=0.92 for the total scale, α=0.84 for the Clarity subscale, α=0.84 for the Goals subscale, α=0.87 for the Impulse subscale, α=0.87 for the Strategies subscale, and α=0.78 for the Non-Acceptance subscale (Yiğit & Guzey-Yiğit, 2017). In this study, only the total score was used, treating emotion regulation difficulty as a single-dimensional construct. Cronbach's alpha coefficients calculated for the current sample were α=0.93 for the total scale, α=0.85 for Clarity, α=0.81 for Goals, α=0.87 for Impulse, α=0.86 for Strategies, and α=0.82 for Non-Acceptance.

Depression Anxiety Stress Scales–21 (DASS-21)

The DASS-21 is a self-report instrument designed to assess levels of depression, anxiety, and stress. The original 42-item scale was shortened by Henry and Crawford (2005) to develop the 21-item version. The DASS-21 consists of 21 items, with 7 items allocated to each subscale: depression, anxiety, and stress. Higher scores indicate higher levels of psychological symptoms. Items 3, 5, 10, 13, 16, 17, and 21 are grouped for the Depression subscale; items 2, 4, 7, 9, 15, 19, and 20 for the Anxiety subscale; and items 1, 6, 8, 11, 12, 14, and 18 for the Stress subscale. The Turkish adaptation and validation of the scale were conducted by Sarıçam (2018). In the Turkish study, Cronbach's alpha coefficients were reported as α=0.87 for the Depression subscale, α=0.85 for the Anxiety subscale, and α=0.81 for the Stress subscale, demonstrating that the scale has acceptable psychometric properties. The subscales were not analyzed separately; instead, all items were summed to produce a total score reflecting overall psychological symptom severity. This scoring approach has also been adopted in previous research (Osman et al., 2012; Singh et al., 2022; Soria-Reyes et al., 2024), and the same rationale was applied here. For the current sample, Cronbach's alpha coefficients were calculated as α=0.93 for the total scale, α=0.86 for the Depression subscale, α=0.83 for the Anxiety subscale, and α=0.84 for the Stress subscale.

Procedure

Ethical approval for the study was obtained from the Bursa Technical University Ethics Committee for Science, Engineering, and Social Sciences Research (Approval No. E-69707128-050.02.04-131800). Informed consent was obtained from all participants prior to data collection. The questionnaires were administered in a counterbalanced order. Data were collected through online and face-to-face methods. This approach was adopted to reach individuals across diverse age groups and educational levels. In the countries where the data were collected, younger participants were generally more receptive to digital data collection methods than middle-aged and older adults. Therefore, face-to-face data collection was also performed. Data collection was conducted between December 2023 and October 2024. The collected data will be stored in both digital and hard-copy formats by the researchers for a period of 5 years, after which they will be securely destroyed. Data analyses were performed using IBM SPSS Statistics (Version 22) and the PROCESS macro (Hayes, 2013).

Data Analysis

This study employed a cross-sectional research design to examine the relationships among the variables. The dataset was screened and prepared for analysis prior to data analysis, and the assumptions underlying the planned statistical analyses were examined. No missing data were identified during the data screening. Additionally, the data were assessed for outliers, and no outlier values were detected. Following data preparation, descriptive statistics, including means, standard deviations, skewness, and kurtosis values, were calculated to assess the assumption of normality. These indices indicate that the data were normally distributed. Pearson correlation analyses were conducted to examine the relationships among the variables in testing the study hypotheses. Multiple regression analyses were performed to identify variables predicting psychological symptom levels. Finally, the mediating role of difficulties in emotion regulation in the relationship between sociotropy and autonomy and psychological symptom levels was examined using Hayes' (2013) PROCESS macro (Model 4).

Table 2. Results of the correlation analysis for the variables

Variables	1	2	3	4	Mean	SD
1. Levels of psychological symptoms	1	0.410**	0.161**	0.656**	23.8	5.64
2. Sociotropy		1	0.038	0.517**	59.6	16.4
3. Autonomy			1	0.121*	78.9	13.9
4. Difficulties in emotion regulation				1	21.3	12.6

*: p<0.05; **: p<0.001; SD: Standard deviation.

RESULTS

The analyses examined the relationships between psychological symptom levels and sociotropy, autonomy, and emotional regulation difficulties. The first aim of the present study was to identify the associations among these variables, whereas the second aim was to test the mediating role of difficulties in emotion regulation. Given that two data collection methods (online and face-to-face) were employed, it is important to examine whether the mode of data collection influenced the results to ensure the validity and accuracy of the findings. Accordingly, control analyses were conducted to examine whether the data collection method influenced the study variables. Independent sample t-tests were performed for this purpose. The data collected through face-to-face and online methods were coded as distinct groups for analysis. An independent sample t-test was conducted, with the primary measures of the study treated as dependent variables. The results indicated no statistically significant differences between the groups across any of the variables: sociotropy $t(337)=-0.002$, $p>0.05$, autonomy $t(344)=1.13$, $p>0.05$, psychological distress $t(341)=-0.643$, $p>0.05$, and emotion dysregulation $t(337)=1.02$, $p>0.05$. These findings suggest that the data collection mode did not systematically bias the scores of the participants. Subsequent analyses were conducted using the combined dataset based on these findings.

First, the relationships among the variables were examined using Pearson correlation analysis. The results indicated that psychological symptom levels were positively and significantly correlated with sociotropy ($r=0.41$, $p<0.01$), autonomy ($r=0.16$, $p<0.05$), and difficulties in emotion regulation ($r=0.65$, $p<0.01$). Sociotropy was not significantly associated with autonomy ($r=0.03$, $p>0.05$); however, it was positively and significantly correlated with emotion regulation difficulties ($r=0.51$, $p<0.01$). Autonomy was also positively and significantly correlated with emotion regulation difficulties ($r=0.12$, $p<0.05$) (Table 2).

The mediating role of difficulties in emotion regulation was examined using two separate models. The first model tested whether difficulties in emotion regulation mediated the relationship between sociotropy and psychological symptom levels, whereas the second model tested the mediating role of difficulties in emotion regulation in the relationship between autonomy and psychological symptom levels. Both models were tested using the PROCESS macro Model 4 (Hayes, 2013).

In the first mediation analysis, sociotropy was entered as the independent variable (X), psychological symptom level as the dependent variable (Y), and difficulties in emotion regulation as the mediating variable (M). The results indicated that sociotropy significantly predicted difficulties in emotion regulation ($b=0.39$, $p<0.001$, 95% CI [0.32, 0.46]). In turn, difficulties in emotion regulation significantly predicted psychological symptom levels ($b=0.52$, $p<0.001$, 95% CI [0.44, 0.61]). When the mediating variable was included in the model, both the direct effect of sociotropy on psychological symptom levels ($b=0.06$, $p=0.04$, 95% CI [0.00, 0.13]) and the indirect effect through difficulties in emotion regulation ($b=0.20$, 95% CI [0.15, 0.26]) were found to be significant. These findings indicate that difficulties in emotion regulation mediate the relationship between sociotropy and psychological symptom levels (Fig. 1).

The second model examined the mediating role of difficulties in emotion regulation in the relationship between autonomy and psychological symptom levels. In PROCESS Model 4, autonomy was specified as the independent variable (X), the total score of the Depression Anxiety Stress Scale as the dependent variable (Y), and the total score of the Difficulties in Emotion Regulation Scale as the mediating variable (M). The results indicated that autonomy did not significantly predict difficulties in emotion regulation ($b=0.07$, $p=0.16$, 95% CI [−0.02, 0.16]). However, difficulties in emotion regulation significantly predicted psychological symptom levels ($b=0.57$, $p<0.001$, 95% CI [0.49, 0.63]). The direct effect of autonomy on psychological symptom levels was also significant ($b=0.10$, $p<0.01$, 95% CI [0.03, 0.16]). The indirect effect was not significant, indicating that difficulties in emotion regulation did not mediate the relationship between autonomy and psychological symptom levels (Fig. 2).

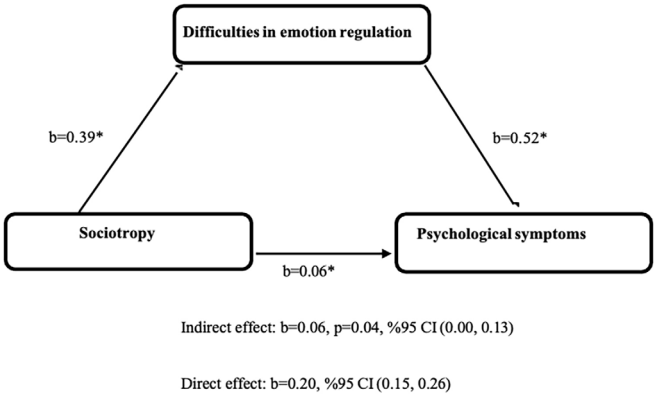

Figure 1. Mediating role of difficulties in emotion regulation between sociotropy and psychological symptom levels.

*: p<0.05.

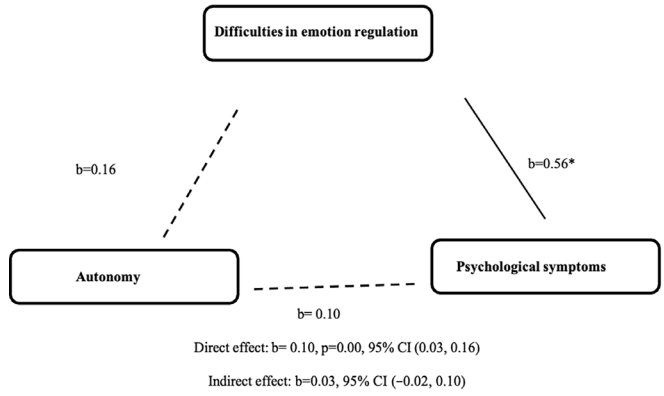

Figure 2. Mediating role of difficulties in emotion regulation between autonomy and psychological symptom levels.

*: p<0.05.

DISCUSSION

This study specifically examines the relationship between sociotropy and personality traits of autonomy, as conceptualized within the framework of cognitive theory, and psychological symptom levels. Although this relationship has been extensively investigated in the literature (Pandey & Sarnallı-Sarkar, 2025; Martinez et al., 2020), the current study aims to contribute to the existing body of research by elucidating the role of difficulties in emotion regulation in the association between sociotropy and personality traits and psychological symptoms, which constitutes the primary objective of the study.

The correlation analyses revealed positive and significant associations between sociotropy and personality traits, psychological symptom levels, and difficulties in emotion regulation. These personality constructs—sociotropy and autonomy—have been conceptualized as vulnerability-related traits characterized by relatively maladaptive features (Beck et al., 1983). Accordingly, such maladaptive personality characteristics may adversely affect the psychological functioning of individuals (Yüce & Polat, 2025).

The findings of this study agree with those of previous research in this regard. In contemporary literature, difficulties in emotion regulation are conceptualized as a supra-theoretical construct. Moreover, research on personality traits indicates that personality characteristics influence the emotional processes of individuals (John & Gross, 2004). Negative emotions exert significant cognitive influences that may activate maladaptive thought patterns and contribute to the emergence and maintenance of various psychological symptoms (Abramowitz & Berenbaum, 2007; De Vuyst et al., 2019; Watson & Sinha, 2008).

From a cognitive–behavioral perspective, difficulties in identifying, understanding, and regulating emotional experiences may intensify these maladaptive cognitive processes, thereby increasing psychological distress. In line with this theoretical framework, the present study found positive associations between sociotropy and autonomy personality traits and difficulties in emotion regulation, suggesting that vulnerability-related personality characteristics may predispose individuals to emotion regulation impairments. Individuals with elevated sociotropy may exhibit heightened sensitivity to interpersonal stressors, whereas those with elevated autonomy may experience increased distress when personal standards or control are threatened. Ineffective emotion regulation may amplify emotional reactivity in both cases. Furthermore, the observed positive relationship between difficulties in emotion regulation and psychological symptom levels supports existing evidence indicating that impaired emotion regulation functions as a key transdiagnostic mechanism underlying psychological psychopathology (Lincoln et al., 2022). Taken together, these findings highlight emotion regulation as a potential explanatory mechanism linking personality vulnerabilities to psychological symptoms and underscore its clinical relevance as a central target in psychological interventions.

Individuals who are able to effectively regulate their emotions tend to report lower levels of psychological symptoms, suggesting higher psychological functioning and better overall adjustment (Ford et al., 2018; Watson & Sinha, 2008). In contrast, difficulties in emotion regulation are associated with increased psychological distress and symptom severity (Bradley et al., 2011). In this regard, difficulties in emotion regulation may be conceptualized as a

central mechanism linking sociotropy traits to psychological symptoms. From a clinical perspective, focusing on emotion regulation processes may yield significant benefits for clinicians and clients. Although addressing personality traits within therapeutic formulations can pose challenges due to their relatively stable and pervasive nature (Jones, 2011), reframing clinical formulations through the lens of emotion regulation may enhance therapeutic flexibility and effectiveness. Such an approach may facilitate the therapeutic gains of clients and broaden the intervention strategies of clinicians. To empirically support this conceptualization, it is essential to examine the interrelations among personality traits, difficulties in emotion regulation, and psychological symptoms. The primary aim of the present study was to clarify these relationships and test the role of difficulties in emotion regulation within this framework.

The findings of this study indicate that personality traits exert differential effects on the relationship between emotion regulation and psychological symptoms. Specifically, difficulties in emotion regulation mediate the relationship between sociotropy and psychological symptom levels, whereas no mediating effect of emotion regulation was observed in the relationship between autonomy and psychological symptoms. Considering the defining characteristics of sociotropy—such as a heightened need for approval from others and an increased emphasis on interpersonal relationships (Beck et al., 1983)—individuals with elevated sociotropy may be particularly vulnerable to emotion regulation difficulties in interpersonal contexts, which in turn may contribute to increased psychological distress. Accordingly, individuals with elevated levels of these personality traits may rely on others to meet many of their emotional and psychological needs. Empirical evidence further suggests that individuals with higher sociotropy experience greater difficulties in regulating their emotions (Crow et al., 2014). In individuals characterized by high sociotropy, the inability to obtain interpersonal validation for their emotional experiences may further intensify the severity of psychological symptoms (Akdemir, 2023). In this context, emotion regulation emerges as a particularly salient mechanism in the association between personality traits and psychological symptoms. The present study contributes to the literature by elucidating the mechanism through which difficulties in emotion regulation operate in these relationships (Fig. 1, 2).

Another model tested in the present study examined the mediating role of difficulties in emotion regulation in the relationship between autonomy and psychological symptom levels; however, this model was not supported. Although the personality trait of autonomy significantly predicted psychological symptom levels, it did not predict difficulties in emotion regulation; therefore, no mediating effect was observed. This finding is noteworthy because autonomy is characterized by an emphasis on independence, personal achievement, and control (Beck et al., 1983; Clark et al., 1992). Another point of discussion concerns the conceptualization of autonomy. In the second model, no significant relationship was found between autonomy and emotion dysregulation. According to SDT (Deci & Ryan, 2012), autonomy is a fundamental psychological need alongside competence and relatedness. However, within the framework of Beck's Cognitive Theory (Beck et al., 1983), autonomy reflects a rigid, often maladaptive, need for independence. The current findings suggest that participants may struggle to reconcile independence with relatedness. Accordingly, an inability to connect with one's emotions may further impair emotion regulation processes. Future research integrating the variables of SDT into the current model would be instrumental in validating and strengthening these conclusions.

The results of the present study also suggest that higher levels of autonomy may be associated with greater difficulties in emotion regulation; however, this association was not statistically significant. Accordingly, it may be inferred that additional variables (cognitive flexibility, ruminations, etc.) may influence this relationship, particularly with respect to the initial path of the tested model (autonomy & difficulties in emotion regulation). Individuals with high levels of this specific type of autonomy might perceive interpersonal connection as a sign of weakness or a threat to their self-reliance. Consequently, such a negative appraisal of social bonds may increase the association of autonomy with greater emotion dysregulation. Another point of discussion regarding this finding may involve the demographic characteristics of the participants. The participants of the current study were predominantly Turkish women. In Turkey, particularly among women, autonomous traits may be less developed. This is often associated with child-rearing practices, economic inequalities, and violence against women (Aktaş, 2013). Consequently, rather than the expected mediating role of emotion dysregulation, the relationship in this study might actually be linked to factors such as social isolation and loneliness. Future research could specifically consider this distinction when comparing empirical findings.

Variables that are theoretically linked to personality traits and emotion regulation—such as psychological resilience (Orakçı, 2021; Dağlı et al., 2025), ruminative thinking style (Martinez et al., 2020), and maladaptive schemas (Otani et al., 2018)—may represent important mechanisms underlying this association. Future research examining these variables as potential mediators or moderators may further clarify the complex relationship between autonomy and emotion regulation.

From a clinical practice perspective, evaluating models that include autonomy may yield important implications. Individuals characterized by elevated autonomy may exhibit limited awareness of or engagement with both their own emotions and those of others (Otani et al., 2014). In such cases, directly targeting emotion regulation as a primary therapeutic goal may not always be realistic or immediately feasible. Systematic assessment and incorporation of autonomous personality traits into case formulations may enhance clinical utility and allow for more tailored intervention strategies, particularly among individuals presenting with subthreshold mood symptoms. Such an approach may increase potential therapeutic gains for clients and broaden the conceptual and intervention frameworks of clinicians.

Another important contribution of this study is its focus on the relationships between sociotropy/autonomy and emotion regulation in a nonclinical sample. Although previous research has extensively examined the association between sociotropy/autonomy and difficulties in emotion regulation in individuals with psychiatric diagnoses (Cassin & von Ranson, 2005; Martinez et al., 2020), the role of emotion regulation in the relationship between personality traits and psychological symptom levels in individuals without a formal diagnosis has received limited attention. In this study, participants reported relatively low levels of psychological symptoms; nevertheless, the findings underscore the significance of emotion regulation even within a nonclinical population. These results suggest that emotion regulation difficulties may function as an important vulnerability factor across the continuum of psychological functioning, extending beyond clinically diagnosed groups (or subthreshold groups).

CONCLUSION

In conclusion, the findings of the present study indicate that difficulties in emotion regulation mediate the relationship between the sociotropic personality trait and psychological symptom levels in a nonclinical sample, whereas no mediating effect was observed when autonomy was specified as the independent variable. This differential pattern represents a noteworthy consideration for cognitive formulations in personality research and clinical assessment. Evaluating these findings across diverse populations and research contexts may help refine theoretical models and enhance the applicability of personality-based formulations in clinical and field settings.

Although the findings of this study yield meaningful conclusions, they should be interpreted in light of several limitations related to the characteristics of the participant sample. Specifically, the majority of the participants were women, and the sample was limited to individuals residing in Türkiye, which may restrict the generalizability of the results. Therefore, the proposed model should be replicated in more diverse and demographically balanced samples to enhance external validity. The total DASS-21 score was used in this study instead of its individual subscales. While using the total score is a psychometrically valid approach for assessing overall distress, it is a limitation of the current study, as it does not allow for a more nuanced analysis of depression, anxiety, and stress as independent constructs. Furthermore, the study employed a cross-sectional design, which precludes causal inferences regarding the observed relationships among variables. To strengthen the validity of the proposed model, future research would benefit from employing experimental and longitudinal designs, thereby allowing for a more robust examination of temporal and causal relationships among variables. In addition, clinical case studies may provide more nuanced insights into the underlying mechanisms, particularly when qualitative analyses are used (Chamberlain et al., 2004). Qualitative evaluations focusing on the role of autonomy-related personality traits in emotion regulation processes may be particularly informative. Furthermore, future studies should examine additional variables—such as psychological flexibility, ruminative thinking patterns, and other relevant personality traits—that may contribute to cognitive formulations within the personality traits–difficulties in emotion regulation–psychological symptom level framework using alternative or extended model structures.

Ethics Committee Approval: The Bursa Technical University Ethics Committee for Science, Engineering, and Social Sciences Research granted approval for this study (date: 16.11.2023, number: E-69707128-050.02.04-131800).

Informed Consent: Informed consent was obtained from all participants prior to data collection.

Conflict of Interest: The authors declare that there is no conflict of interest.

Financial Disclosure: No funding was received for the preparation, writing, or publication of this study.

Use of AI for Writing Assistance: Not declared.

Acknowledgments: This article is derived from a thesis study conducted by the first author under the supervision of the second author.

Author Contributions: Concept – UÇ, TY; Design – UÇ, TY; Supervision – UÇ, TY; Fundings – UÇ, TY; Materials – UÇ, TY; Data Collection and/or Processing – TY; Analysis and/or Interpretation – UÇ, TY; Literature Review – UÇ, TY; Writing – UÇ, TY; Critical Review – UÇ, TY.

Peer-review: Externally peer-reviewed.

REFERENCES

Abdi, R., & Pak, R. (2019). The mediating role of emotion dysregulation as a transdiagnostic factor in the relationship between pathological personality dimensions and emotional disorders symptoms severity. *Personality and Individual Differences, 142*, 282–287. [CrossRef]

Abramowitz, A., & Berenbaum, H. (2007). Emotional triggers and their relation to impulsive and compulsive psychopathology. *Personality and Individual Differences, 43*(6), 1356–1365. [CrossRef]

Akdemir, S. (2023). *Sosyotropik kişilik özelliği ile depresyon arasındaki ilişkide reddedilme duyarlılığının aracı rolü* [Yüksek lisans tezi]. İstanbul Aydın Üniversitesi.

Aktaş, G. (2013). Feminist söylemler bağlamında kadın kimliği: Erkek egemen bir toplumda kadın olmak. *Hacettepe Üniversitesi Edebiyat Fakültesi Dergisi, 30*(1), 53–72.

Aldao, A., & Nolen-Hoeksema, S. (2012). When are adaptive strategies most predictive of psychopathology? *Journal of Abnormal Psychology, 121*(1), 276–281. [CrossRef]

Beck, A. T. (1983). Cognitive therapy of depression: New perspectives. In P. J. Clayton & J. E. Barrett (Eds.), *Treatment of depression: Old controversies and new approaches* (pp. 265–284). Raven Press.

Beck, A. T., Epstein, N., & Harrison, R. (1983). Cognitions, attitudes, and personality dimensions in depression. *British Journal of Cognitive Psychotherapy, 1*(1), 1–16.

Beck, A. T., Rush, J. A., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. Guilford Press.

Bjureberg, J., Ljótsson, B., Tull, M. T., Hedman, E., Sahlin, H., Lundh, L. G., ... Gratz, K. L. (2016). Development and validation of a brief version of the Difficulties in Emotion Regulation Scale: The DERS-16. *Journal of Psychopathology and Behavioral Assessment, 38*(2), 284–296. [CrossRef]

Bradley, B., DeFife, J. A., Guarnaccia, C., Phifer, J., Fani, N., Ressler, K. J., & Westen, D. (2011). Emotion dysregulation and negative affect: Association with psychiatric symptoms. *The Journal of Clinical Psychiatry, 72*(5), 685–691. [CrossRef]

Burger, J. M. (2006). *Kişilik* (İ. D. Erguvan Sarıoğlu, Çev.). Kaknüs Yayınları.

Cassin, S. E., & von Ranson, K. M. (2005). Personality and eating disorders: A decade in review. *Clinical Psychology Review, 25*(7), 895–916. [CrossRef]

Chamberlain, K., Camic, P., & Yardley, L. (2004). Qualitative analysis of experience: Grounded theory and case studies. In D. F. Marks & L. Yardley (Eds.), *Research methods for clinical and health psychology* (pp. 69–89). SAGE. [CrossRef]

Clark, D. A., Beck, A. T., & Brown, G. K. (1992). Sociotropy, autonomy, and life event perceptions in dysphoric and nondysphoric individuals. *Cognitive Therapy and Research, 16*(6), 635–652. [CrossRef]

Cole, P. M. (2014). Moving ahead in the study of the development of emotion regulation. *International Journal of Behavioral Development, 38*(2), 203–207. [CrossRef]

Cole, P. M., Michel, M. K., & Teti, L. O. (1994). The development of emotion regulation and dysregulation: A clinical perspective. *Monographs of the Society for Research in Child Development, 59*(2–3), 73–100. [CrossRef]

Crow, T., Cross, D., Powers, A., & Bradley, B. (2014). Emotion dysregulation as a mediator between childhood emotional abuse and current depression in a low-income African-American sample. *Child Abuse & Neglect, 38*(10), 1590–1598. [CrossRef]

Dağlı, D. A., Arabacı, L. B., Cengisiz, C., & Arslan, Z. (2025). Investigation of the relationship between psychological flexibility levels and sociotropy-autonomy personality traits and decision-making styles of individuals with substance use disorder. *Medicine, 104*(13), e41916. [CrossRef]

Daros, A. R., Haefner, S. A., Asadi, S., Kazi, S., Rodak, T., & Quilty, L. C. (2021). A meta-analysis of emotional regulation outcomes in psychological interventions for youth with depression and anxiety. *Nature Human Behaviour, 5*(10), 1443–1457. [CrossRef]

De Vuyst, H. J., Dejonckheere, E., Van der Gucht, K., & Kuppens, P. (2019). Does repeatedly reporting positive or negative emotions in daily life have an impact on the level of emotional experiences and depressive symptoms over time? *PLOS ONE, 14*(6), e0219121. [CrossRef]

Deci, E. L., & Ryan, R. M. (2012). Self-determination theory. In *Handbook of theories of social psychology* (Vol. 1, pp. 416–436). [CrossRef]

Ellis, A. (1994). *Reason and emotion in psychotherapy: A comprehensive method of treating human disturbances* (Rev. and updated ed.). Birch Lane Press.

Farmer, T. J. (2002). The experience of major depression: Adolescents' perspectives. *Journal of Youth and Adolescence, 31*(5), 417–424.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191. [CrossRef]

Ford, B. Q., Lwi, S. J., Gentzler, A. L., Hankin, B., & Mauss, I. B. (2018). The cost of believing emotions are uncontrollable: Youths' beliefs about emotion predict emotion regulation and depressive symptoms. *Journal of Experimental Psychology: General, 147*(8), 1170–1190. [CrossRef]

Fresco, D. M., Sampson, W. S., Craighead, L. W., & Koons, A. N. (2001). The relationship of sociotropy and autonomy to symptoms of depression and anxiety. *Journal of Cognitive Psychotherapy, 15*(1), 17–31. [CrossRef]

Golzar, J., Noor, S., & Tajik, O. (2022). Convenience sampling. *International Journal of Education & Language Studies, 1*(2), 72–77.

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the Difficulties in Emotion Regulation Scale. *Journal of Psychopathology and Behavioral Assessment, 26*(1), 41–54. [CrossRef]

Gross, J. J. (1998). Antecedent- and response-focused emotion regulation: Divergent consequences for experience, expression, and physiology. *Journal of Personality and Social Psychology, 74*(1), 224–237. [CrossRef]

Hayaki, J., Friedman, M. A., Whisman, M. A., Delinsky, S. S., & Brownell, K. D. (2003). Sociotropy and bulimic symptoms in clinical and nonclinical samples. *International Journal of Eating Disorders, 34*(1), 172–176. [CrossRef]

Hayes, A. F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. The Guilford Press.

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44*(Pt 2), 227–239. [CrossRef]

Hofmann, S. G., Sawyer, A. T., Fang, A., & Asnaani, A. (2012). Emotion dysregulation model of mood and anxiety disorders. *Depression and Anxiety, 29*(5), 409–416. [CrossRef]

John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development. *Journal of Personality, 72*(6), 1301–1333. [CrossRef]

Jones, L. (2011). Case formulation for individuals with personality disorder. In P. Sturmey & M. McMurran (Eds.), *Forensic case formulation* (pp. 257–279). Wiley-Blackwell. [CrossRef]

Katar, K. S., Örsel, S., & Gündoğmuş, A. G. (2023). Investigation of the role of personality traits and emotion regulation on personality functioning in patients with depression/anxiety disorder. *Personality and Mental Health, 17*(3), 232–245. [CrossRef]

Lincoln, T. M., Schulze, L., & Renneberg, B. (2022). The role of emotion regulation in the characterization, development and treatment of psychopathology. *Nature Reviews Psychology, 1*(5), 272–286. [CrossRef]

Liu, S., Arterberry, B. J., Wei, M., Tittler, M. V., Wang, C., Klesel, B., & Tsai, P. C. (2024). Exploration and cross-validation for the latent profiles of emotion regulation difficulties among college students. *Motivation and Emotion, 48*(4), 652–672. [CrossRef]

Marfoli, A., Viglia, F., Di Consiglio, M., Merola, S., Sdoia, S., & Couyoumdjian, A. (2021). Anaclitic-sociotropic and introjective-autonomic personality dimensions and depressive symptoms: A systematic review. *Annals of General Psychiatry, 20*(1), 53. [CrossRef]

Martínez, R., Senra, C., Fernández-Rey, J., & Merino, H. (2020). Sociotropy, autonomy and emotional symptoms in patients with major depression or generalized anxiety: The mediating role of rumination and immature defenses. *International Journal of Environmental Research and Public Health, 17*(16), 5716. [CrossRef]

Mendelson, T., Robins, C. J., & Johnson, C. S. (2002). Relations of sociotropy and autonomy to developmental experiences among psychiatric patients. *Cognitive Therapy and Research, 26*(2), 189–198. [CrossRef]

Messina, I., Spataro, P., Gagliardini, G., Rossi, T., & Grecucci, A. (2026). Attachment orientations and borderline personality features: The mediating role of difficulties in interpersonal emotion regulation. *Borderline Personality Disorder and Emotion Dysregulation, 13*(1), 4. [CrossRef]

Napolitano, L. A., Leahy, R. L., & Petermann, F. (2011). *Emotion regulation in psychotherapy*. The Guilford Press.

Orakcı, Ş. (2021). Exploring the relationships between cognitive flexibility, learner autonomy, and reflective thinking. *Thinking Skills and Creativity, 41*, Article 100838. [CrossRef]

Osman, A., Wong, J. L., Bagge, C. L., Freedenthal, S., Gutierrez, P. M., & Lozano, G. (2012). The Depression Anxiety Stress Scales-21 (DASS-21): Further examination of dimensions, scale reliability, and correlates. *Journal of Clinical Psychology, 68*(12), 1322–1338. [CrossRef]

Otani, K., Suzuki, A., Matsumoto, Y., & Shirata, T. (2018). Marked differences in core beliefs about self and others, between sociotropy and autonomy: Personality vulnerabilities in the cognitive model of depression. *Neuropsychiatric Disease and Treatment, 14*, 863–866. [CrossRef]

Otani, K., Suzuki, A., Matsumoto, Y., Sadahiro, R., Enokido, M., Kuwahata, F., & Takahashi, N. (2014). Distinctive correlations of sociotropy and autonomy with working models of the self and other. *Comprehensive Psychiatry, 55*(7), 1643–1646. [CrossRef]

Pandey, A., & Sarkar, S. (2025). Overprotective parenting and its impact on young adults' sense of individuality and independence. *International Journal of Applied Social Science, 12*(5–6), 352–357.

Pollock, N. C., McCabe, G. A., Southard, A. C., & Zeigler-Hill, V. (2016). Pathological personality traits and emotion regulation difficulties. *Personality and Individual Differences, 95*, 168–177. [CrossRef]

Punhani, C., & Sharma, S. (2025). Relationship between sociotropy, autonomy and appearance anxiety among emerging adults. *International Journal of Indian Psychology, 13*(1).

Sarıçam, H. (2018). The psychometric properties of Turkish version of Depression Anxiety Stress Scale-21 (DASS-21) in health control and clinical samples. *Journal of Cognitive Behavioral Psychotherapies and Research, 7*(1), 19–30. [CrossRef]

Sato, T., & McCann, D. (1998). Individual differences in relatedness and individuality: An exploration of two constructs. *Personality and Individual Differences, 24*(6), 847–859. [CrossRef]

Singh, S., Parija, P. P., Verma, R., Kumar, P., & Chadda, R. K. (2022). Assessment of psychological distress pattern & its correlates among people receiving COVID-19 vaccination during the COVID-19 pandemic: A cross-sectional study. *The Indian Journal of Medical Research, 156*(4–5), 674–680. [CrossRef]

Soria-Reyes, L. M., Alarcón, R., Cerezo, M. V., & Blanca, M. J. (2024). Psychometric properties of the Depression Anxiety Stress Scales (DASS-21) in women with breast cancer. *Scientific Reports, 14*(1), 20473. [CrossRef]

Stein, M. B., Simmons, A. N., Feinstein, J. S., & Paulus, M. P. (2007). Increased amygdala and insula activation during emotion processing in anxiety-prone subjects. *The American Journal of Psychiatry, 164*(2), 318–327. [CrossRef]

Şahin, N. H., Ulusoy, M., & Şahin, N. (1993). Exploring the sociotropy-autonomy dimensions in a sample of Turkish psychiatric inpatients. *Journal of Clinical Psychology, 49*(6), 751–763. [CrossRef]

Thomas, J. C., & Segal, D. L. (Eds.). (2006). *Comprehensive handbook of personality and psychopathology*. Wiley.

Watson, D. C., & Sinha, B. (2008). Emotion regulation, coping, and psychological symptoms. *International Journal of Stress Management, 15*(3), 222–234. [CrossRef]

Yıldız, S. (2022). *Investigation of the effects of sociotropy-autonomy personality traits and emotional schemas on somatization in emerging adults* [Master's thesis]. Fatih Sultan Mehmet Vakıf University.

Yiğit, İ., & Güzey-Yiğit, M. (2017). Psychometric properties of Turkish version of Difficulties in Emotion Regulation Scale-Brief Form (DERS-16). *Current Psychology*. Advance online publication. [CrossRef]

Yüce, Z. C., & Polat, S. (2025). The relationship between sociotropic autonomic personality characteristics and trait anger and anger expression styles in adolescents: A descriptive/relational study. *TOGÜ Sağlık Bilimleri Dergisi,* 5(3), 301–316. [CrossRef]

Zarei, M., Momeni, F., & Mohammadkhani, P. (2018). The mediating role of cognitive flexibility, shame and emotion dysregulation between neuroticism and depression. *Iranian Rehabilitation Journal, 16*(1), 61–68. [CrossRef]

Bilişsel Davranışçı Psikoterapi ve Araştırmalar Dergisi
Journal of Cognitive-Behavioral Psychotherapy and Research
DOI: 10.14744/JCBPR.2026.60341
J Cogn Behav Psychother Res 2026;15(2):96–107

Examining the Influence of Situational Factors on Reappraisal Efficiency in Adults: An Exploratory Study

Meryem Söğüt Kahramanlar,[1] Burcu Uysal,[1] Ayşe Altan Atalay[2]

[1]Department of Psychology, İbn Haldun University, İstanbul, Türkiye
[2]Department of Psychology, Özyeğin University, İstanbul, Türkiye

ABSTRACT

Cognitive reappraisal is an adaptive emotion regulation strategy that involves altering the underlying appraisals that produce negative emotions. However, gaps remain in identifying its subtypes within a coherent theoretical model and in understanding how their association with negative emotional intensity varies by context. To address these issues, the reAppraisal model recently introduced two mechanisms: reconstrual and repurposing. This study examined how specific appraisal dimensions predict sadness and anxiety and how reconstrual and repurposing relate to these emotions under low and high perceived control. A total of 120 individuals (109 women) aged 18–30 (M=23.98) were asked to recall sadness- and anxiety-related events and reported changes in their thinking from the time of the event to the present. Participants rated eight different emotions, appraisal dimensions, and perceived control. Regression analyses revealed that sadness and anxiety were associated with different appraisal dimensions. Repurposing was used more frequently for sadness and reconstrual for anxiety. analysis of variance (ANOVA) revealed that reappraisal users reported lower distress than non-users ($F [2, 92]=13.825$, $p<0.001$, $\eta^2=0.23$). However, no significant interactions were found between perceived control and reappraisal type ($p>0.05$). This study improves our understanding of theory-based reappraisal strategies and suggests that their associations with emotional experience may vary across situational contexts.

Keywords: Appraisal, cognitive reappraisal, emotion regulation, situational factors

ÖZ

Yetişkinlerde Yeniden Yapılandırmanın Etkililiğini Belirleyen Durumsal Faktörler: Keşfedici Bir Çalışma

Bilişsel yeniden yapılandırma, olumsuz duyguların ortaya çıkmasına yol açan temel bilişsel değerlendirmelerin değiştirilmesini içeren, uyumlu bir duygu düzenleme (DD) stratejisi olarak kabul edilmektedir. Ancak, bu stratejinin alt türlerinin bütüncül bir kuramsal model içinde tanımlanmasına ve etkililiklerinin bağlama göre nasıl değiştiğinin anlaşılmasına ilişkin önemli boşluklar bulunmaktadır. Bu sorunları ele almak amacıyla geliştirilen reAppraisal modeli iki temel mekanizma önermiştir: Yeniden yapılandırma (reconstrual) ve yeniden amaçlandırma (repurposing). Bu çalışmada, belirli bilişsel değerlendirme boyutlarının üzüntü ve kaygıyı nasıl yordadığı ve yeniden yapılandırma ile yeniden amaçlandırmanın, algılanan kontrol düzeyine bağlı olarak bu duygularla nasıl ilişkilendiği incelendi. Yaşları 18 ile 30 arasında değişen (M=23.98) 120 katılımcıdan (109'u kadın), üzüntü ve kaygı ile ilişkili geçmiş anılarını yazmaları ve olayın yaşandığı zamandan günümüze kadar düşüncelerinde meydana gelen değişimleri raporlamaları istendi. Katılımcılar sekiz farklı duyguyu, bilişsel değerlendirme boyutlarını ve algılanan kontrol düzeylerini derecelendirdi. Regresyon analizleri, üzüntü ve kaygının farklı bilişsel değerlendirme boyutlarıyla ilişkili

Cite this article as:
Söğüt Kahramanlar M, Uysal B, Altan Atalay A. Examining the Influence of Situational Factors on Reappraisal Efficiency in Adults: An Exploratory Study. J Cogn Behav Psychother Res 2026;15(2):96–107.

Address for correspondence:
Meryem Söğüt Kahramanlar.
İbn Haldun Üniversitesi, Psikoloji Bölümü, İstanbul, Türkiye
E-mail:
meryem.sogut@stu.ihu.edu.tr

Submitted: 14.04.2026
Revised: 27.04.2026
Accepted: 11.05.2026
Available Online: 00.05.2026

JCBPR, Available online at http://www.jcbpr.org/

olduğunu gösterdi. Yeniden amaçlandırmanın üzüntü için, yeniden yapılandırmanın ise kaygı için daha sık kullanıldığı tespit edildi. Varyans analizleri, bilişsel yeniden yapılandırma stratejilerini kullanan katılımcıların, kullanmayanlara kıyasla daha düşük düzeyde sıkıntı bildirdiklerini ortaya koydu ($F [2, 92]=13.825$, $p<0.001$, $\eta^2=0.23$). Ancak, algılanan kontrol ile bilişsel yeniden yapılandırma türü arasındaki etkileşimler anlamlı bulunmadı ($ps>0.05$). Bu çalışma, kurama dayalı bilişsel yeniden yapılandırma stratejilerinin anlaşılmasına katkı sağlamakta ve bu stratejilerin duygusal deneyimlerle ilişkilerinin bağlamsal faktörlere bağlı olarak değişebileceğini düşündürmektedir.

Anahtar Kelimeler: Bilişsel değerlendirme, bilişsel yeniden yapılandırma, duygu düzenleme, durumsal faktörler

INTRODUCTION

Emotions are central to personal and social functioning (Reeck et al., 2016). They emerge when individuals evaluate a situation as relevant to their goals, needs, and values (Frijda, 1986; Lazarus, 1991). For example, sadness may occur when a negative event is perceived as irreversible and highly relevant to one's goals, whereas anxiety may arise when a situation is perceived as uncertain, threatening, and uncontrollable (Smith & Ellsworth, 1985; Miceli & Castelfranchi, 2005). This evaluation process, referred to as appraisal, involves multiple dimensions, such as relevance to one's goals, congruence with goal pursuit, accountability attributed to self or others, certainty about future outcomes, and the ability to influence the situation (Moors et al., 2013; Scherer et al., 2001). Appraisal theories suggest that emotions emerge from the interaction of these distinct patterns of evaluations regarding specific situations (Roseman & Smith, 2001; Scherer et al., 2001; Smith & Lazarus, 1990). Therefore, examining appraisal patterns is essential for understanding emotional experiences and their regulation.

Emotion regulation (ER) refers to the processes by which individuals alter their emotional states in terms of type, duration, or intensity (Gross, 2001, 2014). Common ER strategies include suppression, distraction, cognitive reappraisal, and acceptance (Aldao et al., 2010). Among these strategies, cognitive reappraisal (CR), which refers to intentionally shifting how a situation is interpreted to change its emotional impact (Gross & John, 2003), has received extensive empirical and clinical attention (Aldao et al., 2010; Larionow et al., 2025). CR has been introduced as an integral part of several therapeutic approaches, such as cognitive behavioral therapy and metacognitive therapy (Beck & Dozois, 2011; Wells, 2011). Several empirical studies have provided evidence for the effectiveness of CR in reducing negative emotions and enhancing well-being across both non-clinical and clinical populations (Kam et al., 2024; Liu et al., 2019; Troy et al., 2013). Despite its wide use and demonstrated benefits in practice and research, the broad use of the term "reappraisal" without a clear theoretical background makes it difficult to differentiate between specific CR tactics (Ehring & Woud, 2023). In the literature, reappraisal has been operationalized in several ways, including looking at a situation more positively (Lau & Tov, 2023), changing the personal relevance of a situation and one's subjective distance from it (Sun et al., 2022), distancing oneself from an emotional event through a non-observer perspective (Zhu et al., 2024), or modifying future consequences (Mcrae et al, 2012). The ability to compare the effectiveness of study findings is limited by this mixed reappraisal operationalization.

Uusberg et al. (2019) introduced the reappraisal framework to address these issues. Their model introduces two theoretically grounded reappraisal mechanisms: reconstrual and repurposing. Reconstrual refers to modifying a situation's mental representation, while repurposing involves modifying the situation's underlying goals or values. For example, reconstrual may involve reinterpreting an exam as a manageable challenge rather than an obstacle to success, whereas repurposing may involve shifting expectations from achieving high grades to doing one's best and accepting the experience as an opportunity for personal growth (Uusberg et al., 2023a). Therefore, reconstrual and repurposing may be useful depending on the specific characteristics of the situation. Empirical studies comparing these two strategies are very limited, and the available research that has directly examined them has failed to find significant differences regarding their effectiveness in decreasing negative and increasing positive emotional responses (Wang et al., 2025; Kam et al., 2024). However, these studies did not consider the situational factors that may influence the effectiveness of reconstrual and repurposing strategies.

The effectiveness of an ER strategy may vary across situations (Aldao et al, 2015; Kobylińska & Kusev, 2019), such as according to an individual's perceived control over the situation (Ford & Troy, 2019; Aldao, 2013). Several studies

have reported that reappraisal is linked to more positive outcomes when the situation is perceived as low in control (Haines et al., 2016). However, it can be maladaptive when faced with a controllable stressor that requires action (Troy et al., 2013). Therefore, the current study aims to examine how reconstrual and repurposing are associated with sadness and anxiety across different levels of perceived control. Furthermore, emotion type may be a factor influencing the selection of different reappraisal strategies and their associations with decreases in negative emotional intensity (Dixon-Gordon et al., 2015). Anxiety and sadness are distinct emotions in terms of both their appraisal dimensions and temporal orientation (Frijda et al, 1989; Pomerantz & Rose, 2014). Anxiety is primarily a future-oriented emotion linked to anticipated threat, whereas sadness indicates a past orientation related to irreversible loss (Eysenck & Fajkowska, 2017; Scherer et al., 2022). These differences in appraisal dimensions and temporal orientation may necessitate the use of distinct CR tactics.

The current exploratory study aimed to a) explore the individuals' strategic preference for reconstrual and repurposing in sadness and anxiety-related situations, b) examine the role of appraisal dimensions in determining the type of emotion experienced (sadness or anxiety), and c) explore whether reconstrual and repurposing are associated with differences in reported emotional intensity (sadness and anxiety) across levels of perceived control (low/high). We aim to understand how reconstrual and repurposing strategies relate to emotional experiences across different situations by examining these questions. First, based on appraisal theories, we expected anxiety to be associated with the appraisal dimensions of coping potential and incongruence, whereas sadness was expected to be linked to the dimensions of relevance and outlook valence. Second, we hypothesized that both reconstrual and repurposing would be associated with lower reported levels of sadness and anxiety compared to those who did not use any reappraisal strategy. Third, reconstrual was expected to be more strongly associated with lower negative emotional intensity in situations perceived as high in control. Modifying the interpretation can alter perceived risk and increase the sense of agency. In contrast, repurposing was expected to be more strongly associated with lower negative emotional intensity in situations perceived as low in control, such as sadness-inducing losses, because it shifts the focus from what cannot be changed to what can be learned or valued. Lastly, we aimed to explore individual preferences regarding strategy use in sadness and anxiety-inducing situations, although no prior hypotheses were developed for strategy selection due to limited prior research.

METHODS

Participants

A total of 120 university students (Mage=23.98 years, SD=3.05; female=109) provided memories of sadness via Qualtrics. The inclusion criteria required participants to be between 18 and 30 years of age. Participants who did not complete the primary study measures or failed attention checks were excluded. Participants who self-reported a current psychiatric diagnosis were excluded from the analyses. A subset of these participants (n=72) completed the anxiety memory procedure due to drop out. No significant differences in any of the variables were found between participants who continued and those who did not continue after the sadness task ($p>0.05$ for all outcome variables).

Measures

The Autobiographical Memory Test (Williams & Broadbent, 1986)

Participants were instructed to recall and describe a personal experience involving the cue emotion (sadness and anxiety) in as much detail as possible. The event was required to have a clear beginning and an end, to occur at a specific time and place, to involve the participants' direct experience or something they personally witnessed, and to have occurred more than one year ago (Campbell et al., 2011). This time frame was specifically chosen to ensure that participants had sufficient distance from the event, which allowed for natural reflection and meaning-making. With time, people usually reinterpret past experiences, which gives a chance to observe how initial appraisals evolved (Bachfischer & Harris, 2025).

Emotion Ratings

Participants rated the intensity of eight emotions (distress, anxiety, unhappiness, guilt, sadness, fear, anger, uneasiness, and shame) on a 1–5 Likert scale (1=not at all, 5=very much).

Appraisal Dimensions

Appraisals for each memory were assessed using a 10-item measure developed by Uusberg et al. (2023b). The measure focused on five main appraisals via 10 dimensions, such as relevance (this situation matters to me), congruence (this situation is potentially desirable for me), incongruence (this situation is potentially harmful to me), accountability by the self (I am responsible for this situation), accountability by others (someone else is responsible for this situation), accountability by none (no one in particular is responsible for this situation), outlook certainty (I do not know how this situation is going to turn out), situational coping potential (I can change this situation for better), emotional coping potential (I can accept whatever happens in this situation), outlook valence (this situation is going to turn out well in one

way or another). This measure was translated into Turkish for this study. The initial Turkish translation was reviewed by 10 psychology graduates fluent in both Turkish and English in terms of item clarity and linguistic equivalence between the Turkish and English versions.

Reappraisal

Reappraisal was assessed via two open-ended questions requiring both past interpretation of the memory (Please write in detail what this event meant to you at the time you experienced it in the past and your thoughts about the event at that time) and current interpretation of the event (Please write in detail what this event means to you at this moment and your current thoughts about it). Participants' descriptions were coded as reconstruals if their current description reflected a change in their situational interpretation compared to their initial evaluation. They were coded as repurposing if they indicated a shift in their personal goals, priorities, or expectations. They were coded as no reappraisal if there was no change in thinking from the initial evaluation to the current interpretation. Coding was conducted in accordance with the reAppraisal framework by one of the authors based on the procedure outlined by Uusberg (A. Uusberg, personal communication, May 24, 2024).

Perceived Control

Perceived control regarding the memories was measured using a single item (to what extent was this event you were able to control or alter?) rated on a scale from 0 to 100. Higher scores indicate higher perceived control.

Trait Reappraisal and Suppression

We used the Turkish adaptation of the ER Questionnaire (Eldeleklioğlu & Eroğlu, 2015) originally developed by Gross and John (2003) to measure trait reappraisal and suppression. The questionnaire is a 10-item measure rated on a 7-point Likert scale (1=strongly disagree, 7=strongly agree) that assesses two ER strategies: CR (6 items) and expressive suppression (4 items). Higher scores indicate higher use of each strategy. Cronbach's alpha values for the reappraisal subscale were 0.78 and 0.73, respectively, for the suppression subscale. Test-retest reliability coefficients for the reappraisal subscale were 0.74 and 0.72 for the suppression subscale.

Anxiety and Depression

We used the Turkish version of Patient Health Questionnaire-4 (PHQ-4, Demirci & Ekşi, 2018), which is a 4 item self-report measure consisting of two anxiety and two depression items rated on a 4-point scale (0–3). The internal consistency reliability coefficient was 0.83 for the overall scale 0.76 for the anxiety subscale, and 0.68 for the depression subscale. Higher scores indicate greater symptom severity.

Ethical Approval

Ethical approval for the study was obtained from the Ibn Haldun University Ethics Committee for Social and Human Sciences (No: 2023/08-03; Date: 15.12.2023), and the study was conducted in accordance with the ethical principles of the Declaration of Helsinki.

Procedure

Participants first completed the demographic questions. Then, the participants were instructed to recall and write two different memories that elicited feelings of sadness and anxiety, respectively. For each memory, they rated the emotional intensity of eight different emotions (troubled, anxious, unhappy, guilty, sad, scared, angry, uneasy, and ashamed) on a 1-point scale 5 Likert scale. The participants were asked to provide emotional ratings for their current emotional state (T2-Emotion) and at the time of the event (T1-Emotion). Then, the participants described how their interpretations of these events were at the time of the event and how their perspectives had changed since the time of the incident. The participants completed 10 items regarding their current appraisals of the memory in addition to rating their perceived control over each memory on a scale from 0 to 100. Finally, the participants completed the ER Questionnaire and Patient Health Questionnaire-4.

Before completing the measures, participants were informed about the general purpose and procedures of the study, and written informed consent was obtained to ensure voluntary participation. The study took 25 min on average via Qualtrics.

Statistical Analysis

All statistical analyses were performed using the Statistical Package for the Social Sciences 25. Descriptive statistics were used to analyze the types of recalled memories and the distribution of reappraisal strategies. We performed linear regression analyses to examine the predictive roles of appraisal dimensions on current sadness and anxiety scores. Factorial analysis of variance (ANOVA) was conducted to examine the main effects of reappraisal type and perceived control on current emotion levels and their interaction effects. We categorized the perceived control ratings into high and low perceived control groups using a median split. Furthermore, an exploratory factor analysis was conducted to examine the empirical coherence of the theoretically defined appraisal dimensions in terms of appraisal measure. Factor loadings and theoretical interpretability were used to group items into preliminary composites (coping, external accountability, and threat/relevance). Internal consistency analyses were then performed for each composite. When the reliability estimates were below the acceptable thresholds (<0.70), the corresponding constructs

Table 1. Descriptive statistics by type of reappraisal

Group/emotion type	Age (M)	N	T1 emotion (M)	T2 emotion (M)	Perceived control (M)	Trait reappraisal (M)	Trait suppression (M)	Depression/ anxiety (M)
No reappraisal (sadness)	24.09	43	4.95	4.21	18.44	24.85	11.75	4.64/5.03
Reconstrual (sadness)	23.95	22	4.73	2.68	28.50	26.72	13.88	4.11/4.44
Repurposing (sadness)	23.87	33	4.88	3.00	19.72	27.90	13.22	4.22/4.36
No reappraisal (anxiety)	23.21	19	4.95	3.00	37.15	10.31	11.78	4.57/4.89
Reconstrual (anxiety)	23.54	35	4.86	1.74	54.68	16.44	13.28	4.02/4.42
Repurposing (anxiety)	23.61	18	4.89	2.06	56.66	16.72	12.70	4.88/4.82

T1 emotion: Emotion rating at the time of incident; T2 emotion: Current emotion rating; N: number of participants.

Table 2. Themes by reappraisal type for sadness

Theme	No reappraisal (N)	Reconstrual (N)	Repurposing (N)	Total (N)
Death of a loved one	23	4	10	37
Friendship	3	4	5	12
Health-related	3	4	5	12
Family relationship	5	3	3	11
Romantic relationship	1	3	3	7
Failure (academic or occupational)	1	0	3	4
Seperation	2	1	1	4
Other/miscellaneous	5	3	3	11
Total	43	22	33	98

Other/miscellaneous: moving-related experiences, work-related stress, and physical violence.

were retained as single-item indicators rather than composite scales. Perceived control and self-accountability were analyzed as single-item variables in subsequent analyses.

RESULTS

Descriptive Statistics

Among the 120 participants who provided memories related to sadness, the death of a loved one was the most frequently reported theme, followed by interpersonal and health-related difficulties. Less frequent themes included failure, separation, and other miscellaneous events. Responses from 98 participants were coded into one of the predefined ER categories (reconstrual, repurposing, or no reappraisal). To ensure categorical clarity, participants whose responses reflected both reconstrual and repurposing were excluded from further analyses.

Among the 72 participants who provided memories about anxiety, exam-related stress was the most frequently reported theme, followed by broader academic, health-related, and situational stressors. The relationship-related and other less frequent themes were also reported. For the reappraisal strategy classification, 72 participants were included in the final analysis. The Appendix presents descriptive statistics for thematic content.

For the reappraisal strategy usage for sadness memories, the participants most frequently used repurposing (33.7%, n=33) or engaged in no reappraisal (43.9%, n=43). Reconstrual was used by 22 (22.4%) participants. Reconstrual was the most frequently used strategy for anxiety memories (48.6%, n=35). Repurposing was used by 24.9% of the participants (n=18), whereas 26.4% (n=19) reported no use of reappraisal (Table 1). The initial emotion ratings were consistently high for both sadness (M=4.88, SD=0.10) and anxiety (M=4.89, SD=0.06) (Appendix 1–3).

Themes by Reappraisal

As shown in Table 2, autobiographical memories related to sadness among participants who used reconstrual or repurposing primarily involved experiences of losing a loved

Table 3. Themes by reappraisal type for anxiety

Theme	No reappraisal (N)	Reconstrual (N)	Repurposing (N)	Total (N)
Academic	5	20	10	35
Health-related	8	2	0	10
Romantic/social relationships	0	6	1	7
Environmental/situational	3	3	2	8
Financial	1	0	1	2
Family relationship	0	2	0	2
Work-related	1	1	2	4
Other/miscellaneous	1	1	2	4
Total	19	35	18	72

Academic issues: examination, presentation, study; Health-related issues: health, health of a loved one, personal health; Romantic/social relationships: arguing with romantic partner, friendship, marriage decision, inappropriate friendship; Environmental/situational stressors: being in crowded/dangerous place, being in public, going out alone, car travel, moving city, political instability, earthquake; Financial stressors: debt, house foreclosure; Other/miscellaneous: dog fear, missing pet, physical abuse.

Table 4. Linear regression results predicting sadness and anxiety levels from appraisal dimensions

Appraisal dimensions	Sadness				Anxiety			
	B (SE)	β	t	p	B (SE)	β	t	p
Relevance/threat	0.424 (0.20)	0.224	2.11	0.037	0.190 (0.13)	0.156	1.43	0.156
Self-accountability	-0.169(0.14)	-0.136	-1.14	0.255	0.309 (0.11)	0.335	2.77	0.007
External-accountability	-0.162 (0.11)	-0.151	-1.43	0.155	-0.260 (0.12)	-0.235	-2.08	0.041
Coping potential	-0.208 (0.15)	-0.136	-1.34	0.183	-0.304 (0.12)	-0.263	-2.47	0.016
Perceived control	-0.009 (0.006)	-0.165	-1.4	0.164	-0.021 (0.005)	-0.503	-4.01	<0.001
Model adjusted R^2	**0.116**				**0.237**			

one or difficulties in close relationships. However, participants who did not report using any type of reappraisal mostly recalled loss-related memories.

As summarized in Table 3, anxiety-related memories differed across regulation strategies. Among participants who used reconstrual or repurposing, memories most often centered on academic demands and performance-related stressors. Conversely, participants who did not report using reappraisal were more likely to recall health-related concerns.

Role of Appraisal Dimensions in Emotion Score Prediction

Two linear regression analyses were conducted to examine which appraisal dimensions were associated with sadness and anxiety intensity. In both analyses, a common set of theoretically relevant appraisal categories (coping, external accountability, threat/relevance, perceived controllability, and self-accountability) were used as predictors to ensure conceptual comparability across emotions.

The first regression predicting sadness was significant ($p=0.005$, adjusted $R^2=0.161$), with relevance/threat emerging as the only significant predictor ($p=0.037$). The model for anxiety was also significant ($p<0.001$, adjusted $R^2=0.240$), with lower perceived control ($p<0.001$) and coping ($p=0.016$), lower external accountability ($p=0.041$), and higher self-accountability ($p=0.007$) significantly predicting anxiety (Table 4). Item-level linear regression analyses (i.e., analyses conducted using 10 single appraisal items and perceived control) are reported in the Appendix for transparency.

Main and Interaction Effects on Emotion Levels

Two 3 (reappraisal type: no reappraisal, reconstrual, and repurposing) 2 (perceived control: high vs. low) factorial ANOVAs were conducted to examine the effects of reappraisal type and perceived control on current sadness and anxiety levels. There was a significant main effect of reappraisal type ($F(2, 92)=13.825$, $p<0.001$, $\eta^2=0.23$) and Perceived Control

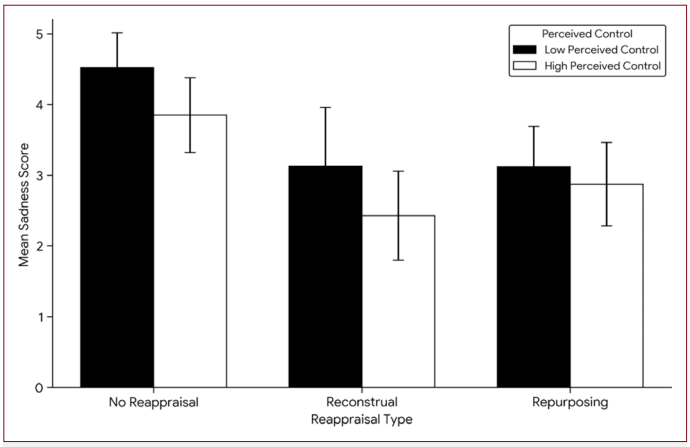

Figure 1. Sadness levels across types of reappraisal at low and high perceived control.

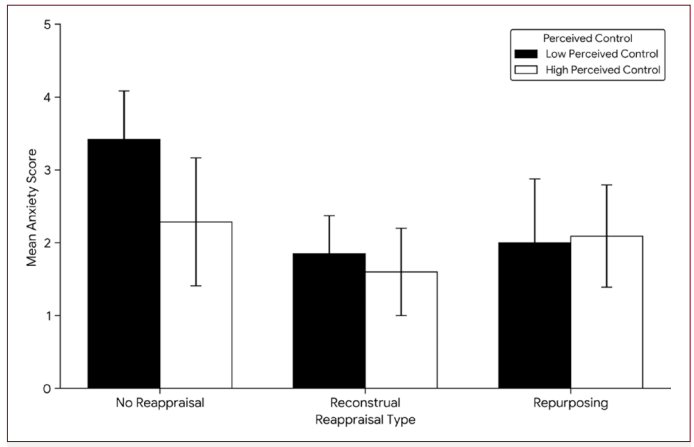

Figure 2. Anxiety levels across reappraisal types at perceived control levels of low and high.

(F(1, 92)=4.462, p=0.037, η^2=0.05) for sadness. Post hoc analyses revealed that both the reconstrual and repurposing groups reported significantly lower levels of sadness than the no reappraisal group (Fig. 1). No significant difference was observed between the reconstrual and repurposing groups (p=1.00). The interaction between the appraisal type and perceived control was not significant (F(2, 92)=0.366, p=0.694).

Significant main effects of reappraisal type (F(2, 66)=5.480, p=0.006, η^2=0.14) on anxiety levels were found, whereas the main effect of perceived control was not significant (F(1,66)=2.131, p=0.149, η^2=0.031). As shown in Figure 2, both the reconstrual and repurposing groups reported significantly lower anxiety levels than the no reappraisal group. No significant difference was found between the reconstrual and repurposing groups (p=1.00), and the interaction between the appraisal type and perceived control was not significant (F (2, 66)=1.323, p=0.273, η^2=0.039). Therefore, Figures 1 and 2 are presented only for descriptive purposes, showing the pattern of means across perceived control levels. Notably, higher perceived control was associated with lower sadness and anxiety levels, especially in the reconstruals condition, although this pattern was not statistically significant. Additional analyses using continuous perceived control yielded similar patterns.

Additional Analysis

Research shows that habitual preferences for certain ER strategies may interact with ER strategies they use in specific situations and determine the success of these individual strategies (Ladis et al., 2022). Therefore, the use of reappraisal in the regulation of specific memories in the current study may differ for individuals with high and low trait suppression. Individuals who habitually suppress emotions often use

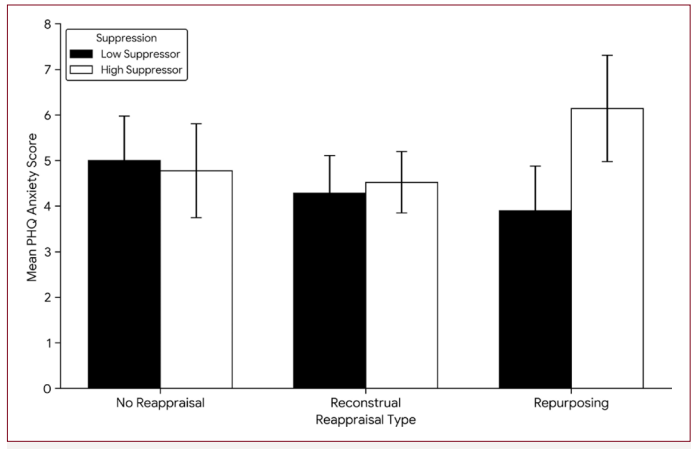

Figure 3. PHQ-4 anxiety levels across reappraisal types at low and high levels of trait suppression.

cognitive strategies to keep emotions away rather than to process them (Che et al., 2015). Therefore, an exploratory 3 (reappraisal type) 2 (low trait suppression and high trait suppression) ANOVA was conducted to determine whether the effect of reappraisal type on anxiety scores differs depending on the individual's trait suppression level. The findings showed a significant interaction between trait suppression and reappraisal type on anxiety symptoms, F(2, 65)=3.22, p=0.046, η^2=0.09. As shown in Figure 3, among participants with low trait suppression, repurposing was linked to lower anxiety (M=3.90, SE=0.49) compared with reconstrual (M=4.29, SE=0.41) and no reappraisal (M=5.00, SE=0.49). In contrast, repurposing was associated with the highest anxiety (M=6.14, SE=0.58), higher than both reconstrual (M=4.52, SE=0.34), and no reappraisal (M=4.78, SE=0.52) among those with high levels of suppression.

DISCUSSION

This study aimed to examine how situational and appraisal-based factors are associated with emotional experiences and how two reappraisal strategies (reconstrual and repurposing) relate to sadness and anxiety across different contexts. First, we explored whether reconstrual and repurposing strategies differed across sadness- and anxiety-inducing situations. Second, we tested the associations between sadness and anxiety and distinct appraisal dimensions by drawing on appraisal theories. Third, we examined whether reconstrual and repurposing were associated with lower levels of negative emotion compared with a no-reappraisal condition. Fourth, we investigated whether these associations varied with perceived control.

The descriptive results revealed a strategic preference pattern, with repurposing being used more frequently for sadness-related memories, while reconstrual was more frequently employed for anxiety-related memories. These findings align with those of (Rompilla et al., 2022; Vishkin et al., 2020), who suggested that sadness, often viewed as a past-oriented emotion linked to irreversible events and a loss of personal control (Frijda et al., 1989), may be associated with the use of acceptance-based strategies (David & Suls, 1999). Since repurposing involves aligning one's internal goals with the external world (Uusberg et al., 2023a), it may help individuals gain secondary control over the situation by adjusting their expectations and adapting to what cannot be changed (Rothbaum et al, 1982). Anxiety is a future-oriented emotion that may involve opportunities for change (Eysenck & Fajkowska, 2017). Therefore, reconstrual may allow individuals to regain a sense of control by modifying the perception of future threats and enhancing coping potential (Gallagheret al., 2014).

Partially supporting the second hypothesis, sadness was linked to a higher perceived importance of the situation. As expected, sadness is closely tied to perceived loss or unmet goals and desires that are personally meaningful to individuals. Previous research has also shown that sadness arises when people face situations that are significant for their goals but are perceived as unchangeable or inevitable (Frijda et al., 1989; Lazarus, 1991).

Another main finding of the current study revealed that anxiety was negatively associated with coping potential and perceived control. Previous research has also found that anxiety is characterized by a perceived threat to significant goals and a belief in insufficient resources to manage this threat (Britton et al., 2011; Chorpita & Barlow, 1998). This finding is also consistent with appraisal models in which perceived threat combined with low perceived coping ability increases anxiety (Chu et al., 2022).

Self-accountability was positively associated with anxiety in the current study, whereas accountability by others was negatively associated with anxiety. This pattern aligns with the findings of Avard and Garratt-Reed (2021), who showed that inflated responsibility beliefs, particularly the belief that one is personally responsible for preventing negative outcomes, are strong predictors of GAD but less strongly associated with depressive symptoms. These results suggest that individuals who perceive themselves as highly responsible for potential threats are more likely to experience anxiety. Conversely, when responsibility is attributed to others, individuals may feel less personal pressure, which may be linked to lower anxiety levels.

Consistent with our expectations, we found that both reconstrual and repurposing strategies were significantly associated with lower levels of sadness and anxiety compared with no reappraisal, supporting the general adaptive quality of CR as an ER strategy (Dawel et al., 2024). However, no significant differences were found between reconstrual and repurposing strategies in decreasing negative emotions. The lack of difference between the two strategies is in line with the limited number of existing studies and earlier studies that reported mixed results on the distinctiveness of reappraisal and acceptance-based strategies (Hofmann et al., 2009; Wolgast et al., 2011). Although theoretically distinct, these two strategies may overlap or produce similar effects in various situations (Wang et al., 2025) because both strategies may help individuals decrease the intensity of negative emotions, whether by reinterpreting meaning or by modifying expectations or goals.

Although we hypothesized that associations between reappraisal type and negative emotional intensity would vary as a function of perceived control, no significant interaction was found between reappraisal type and perceived control. The lack of a significant finding may be related to certain methodological issues, such as the reliance on retrospective reports of perceived control over the situation. Moreover, the use of a single item for assessing perceived control may have influenced the results, reducing the sensitivity to find subtle effects.

Even though the interaction was not significant, we noticed a trend indicating that reconstrual may be linked to relatively lower levels of sadness and anxiety than repurposing for situations perceived as high in control. Although this argument should be evaluated cautiously, when individuals feel a sense of control over a situation, strategies that aim to change the interpretation of the situation may be more contextually appropriate or associated with more favorable emotional outcomes. Conversely, strategies involving acceptance, such as repurposing, might be better suited for situations perceived as less controllable, consistent with prior work (Troy et al., 2018). This finding might highlight the importance of matching ER strategies to the perceived control context.

Additionally, the exploratory analysis results revealed that participants who were higher in trait suppression reported higher anxiety scores when using repurposing compared with those who used no reappraisal or reconstrual. This is in line with research showing that people with high suppression scores tend to experience difficulty in recruiting cognitive resources for reappraisal, thus reducing negative affect through CR is harder for them (Che et al., 2015). However, only repurposing, not reconstrual was linked to higher levels of anxiety in the current study. This finding can be explained based on the association of trait suppression with emotional processing problems, such as emotional experience avoidance and reduced emotional clarity, in addition to inauthenticity (John & Gross, 2004; English & John, 2013). Repurposing (e.g., "That's how the world works," "I learned from this experience," and "It is normal to experience such things"), when used as purely cognitive acceptance without experiential contact with emotions (Chawla & Ostafin, 2007) may not be sufficient to reduce negative emotions and may even maintain anxiety (Wang et al., 2024).

This study contributes to the literature by examining two distinct theoretically grounded reappraisal subtypes rather than treating CR as a unitary construct. The findings revealed the role of specific appraisal dimensions in shaping emotional experience and strategy choice. Although this exploratory study offers useful insights, several limitations may constrain the strength and generalizability of the findings. Relying on retrospective memory recall may introduce biases in the reporting and evaluation of events. Future research could benefit from the use of experience sampling methods to capture real-time emotional experiences and strategies for ER. Second, because the current study focused only on two emotions, future studies should examine other emotions, such as guilt, to gain a more comprehensive understanding of emotional differences. Third, the sample size was relatively small and included a non-clinical group, which may limit the generalizability of the findings. Future studies should aim for larger and more diverse samples to enhance the results' external validity. In addition, although we identified a trend regarding perceived control and reconstrual, the interaction was not statistically significant. Perceived control was measured using a single self-report item in our study. Although this approach limits statistical power, it also raises concerns regarding construct validity. Future research would benefit from employing a multi-item and validated measure of perceived control, alongside larger sample sizes to allow for a more reliable examination of these interactions. Furthermore, the absence of a formally reported inter-rater reliability statistic limits the ability to fully quantify agreement in coding decisions. Additionally, the sample's gender imbalance (predominantly female) limits the generalizability of the findings, the cross-sectional and retrospective design precludes any causal inferences, and the exclusion of participants who reported using both strategies may oversimplify real-world ER processes and reduce ecological validity and sample size.

Conducting studies that combine both reconstrual and repurposing strategies, or even developing a new category that integrates both, could provide deeper insights into their combined effects on ER. Future work should also examine how reconstrual and repurposing function differently for people who tend to suppress their emotions. Reconstrual is about changing how we see the situation so that it fits our expectations, while repurposing includes adjusting our expectations or goals to fit what is actually happening. Since repurposing requires more emotional openness and a willingness to rethink one's goals, it may be especially challenging for high suppressors, who often avoid emotional experiences. Studies using longitudinal or daily life methods could test whether high suppressors consistently struggle with repurposing and whether this difficulty contributes to their higher anxiety. Moreover, it is important to examine the interaction of reappraisal tactics with other ER strategies to better understand their effects on anxiety and depression (McMahon & Naragon-Gainey, 2018) and develop ways to assess whether reappraisal is genuine or more of a surface level. Without making this distinction, the real cognitive change may be confused with strategies that simply avoid emotion.

CONCLUSION

Overall, these findings suggest that both sadness and anxiety are linked to specific appraisals, and targeting emotion-specific appraisals via reappraisal may be relevant in understanding differences in negative emotional intensity. Reappraisal as a single, uniform process may obscure important differences in the way people manage these emotions. By separating reconstrual and repurposing, this study showed that these strategies may have potential differences in how they relate to emotional experiences depending on other situational and individual factors. For clinicians, considering certain factors, such as perceived control or habitual suppression, when using these strategies may help identify appropriate reappraisal interventions for individuals.

Ethics Committee Approval: The study was approved by the Ibn Haldun University Ethics Committee (Decision No: 2023/08-03; Date: 15.12.2023).

Informed Consent: Informed consent was obtained from all individual participants included in the study.

Conflict of Interest: The authors declare that there is no conflict of interest.

Financial Disclosure: The author M.S.K received financial support from the Scientific and Technological Research Council of Türkiye (TÜBİTAK), Scientist Support Programs Directorate (BİDEB), under the 2211 Domestic Graduate Scholarship Program.

Use of AI for Writing Assistance: No AI tools were used.

Authorship Contributions: Concept – MSK; Design – AAA, MSK, BU; Supervision – AAA, BU; Data Collection and/or Processing – MSK; Analysis and/or Interpretation – MSK, AAA, BU; Literature Review – MSK; Writing – MSK; Critical Review – AAA, BU.

Peer-review: Externally peer-reviewed.

REFERENCES

Aldao, A. (2013). The future of emotion regulation research: A transdiagnostic perspective. *Emotion Review, 5*(2), 209-211. [CrossRef]

Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217-237. [CrossRef]

Aldao, A., Sheppes, G., & Gross, J. J. (2015). Emotion regulation flexibility. *Cognitive Therapy and Research, 39*(3), 263-278. [CrossRef]

Avard, S., & Garratt-Reed, D. (2021). The role of inflated responsibility beliefs in predicting symptoms of generalised anxiety disorder and depression. *Australian Journal of Psychology, 73*(2), 157-166. [CrossRef]

Bachfischer, A., & Harris, I. M. (2025). Controlling unwanted memories: A conceptual review grounded in the process model of emotion regulation. *Psychonomic Bulletin & Review, 32*, 2824-2848. [CrossRef]

Beck, J. S., & Dozois, D. J. A. (2011). Cognitive therapy: Current status and future directions. *Annual Review of Medicine, 62*, 397-409. [CrossRef]

Britton, J. C., Lissek, S., Grillon, C., Norcross, M. A., & Pine, D. S. (2011). Development of anxiety: The role of threat appraisal and fear learning. *Depression and Anxiety, 28*(1), 5-17. [CrossRef]

Campbell, J., Nadel, L., Duke, D., & Ryan, L. (2011). Remembering all that and then some: Recollection of autobiographical memories after a 1-year delay. *Memory, 19*(4), 406-415. [CrossRef]

Chawla, N., & Ostafin, B. (2007). Experiential avoidance as a functional dimensional approach to psychopathology: An empirical review. *Journal of Clinical Psychology, 63*(9), 871-890. [CrossRef]

Che, X., Luo, X., Tong, D., Fitzgibbon, B. M., & Yang, J. (2015). Habitual suppression relates to difficulty in regulating emotion with cognitive reappraisal. *Biological Psychology, 112*, 20-26. [CrossRef]

Chorpita, B. F., & Barlow, D. H. (1998). The development of anxiety: The role of control in the early environmental experience. *Psychological Bulletin, 124*(1), 3-21. [CrossRef]

Chu, G. M., Goger, P., Malaktaris, A., & Lang, A. J. (2022). The role of threat appraisal and coping style in psychological response to the COVID-19 pandemic among university students. *Journal of Affective Disorders Reports, 8*, 100325. [CrossRef]

David, J. P., & Suls, J. (1999). Coping efforts in daily life: Role of Big Five traits and problem appraisals. *Journal of Personality, 67*(2), 265-294. [CrossRef]

Dawel, A., Mewton, P., Gulliver, A., Farrer, L. M., Calear, A. L., Newman, E., & Cherbuin, N. (2024). For whom and what does cognitive reappraisal help? A prospective study. *Cognitive Therapy and Research, 48*(4), 687-703. [CrossRef]

Demirci, İ., & Ekşi, H. (2018). Don't bother your pretty little head otherwise you can't enjoy life. In *Proceedings of ERPA International Congresses on Education* (pp. 287-292). Istanbul, Turkey.

Dixon-Gordon, K. L., Aldao, A., & De Los Reyes, A. (2015). Emotion regulation in context: Examining the spontaneous use of strategies across emotional intensity and type of emotion. *Personality and Individual Differences*, 86, 271-276. [CrossRef]

Ehring, T., & Woud, M. L. (2023). Towards a better understanding of the role of reappraisal in psychopathology and its treatment: commentary on "Reappraising Reappraisal: An Expanded View". *Cognition & Emotion, 37*(3), 378-383. [CrossRef]

Eldeleklioğlu, J., & Eroğlu, Y. (2015). A Turkish adaptation of the Emotion Regulation Questionnaire. *Journal of Human Sciences, 12*(1), 1157-1168. [CrossRef]

English, T., & John, O. P. (2013). Understanding the social effects of emotion regulation: The mediating role of authenticity for individual differences in suppression. *Emotion, 13*(2), 314-329. [CrossRef]

Eysenck, M. W., & Fajkowska, M. (2017). Anxiety and depression: Toward overlapping and distinctive features. *Cognition and Emotion, 32*(7), 1391-1400. [CrossRef]

Ford, B. Q., & Troy, A. S. (2019). Reappraisal reconsidered: A closer look at the costs of an acclaimed emotion-regulation strategy. *Current Directions in Psychological Science, 28*(2), 195-203. [CrossRef]

Frijda, N. H. (1986). The emotions. Cambridge University Press; Editions de la Maison des Sciences de l'Homme.

Frijda, N. H., Kuipers, P., & Ter Schure, E. (1989). Relations among emotion, appraisal, and emotional action readiness. *Journal of Personality and Social Psychology, 57*(2), 212-228. [CrossRef]

Gallagher, M. W., Bentley, K. H., & Barlow, D. H. (2014). Perceived control and vulnerability to anxiety disorders: A meta-analytic review. *Cognitive Therapy and Research, 38*(6), 571-584. [CrossRef]

Gross, J. J. (2001). Emotion regulation in adulthood: Timing is everything. *Current Directions in Psychological Science, 10*(6), 214-219. [CrossRef]

Gross, J. J. (2014). Emotion regulation: From laboratory to life. In J. J. Gross (Ed.), *Handbook of emotion regulation* (2nd ed., pp. 3-20). Guilford Press.

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. [CrossRef]

Haines, S. J., Gleeson, J., Kuppens, P., Hollenstein, T., Ciarrochi, J., Labuschagne, I., ... Koval, P. (2016). The wisdom to know the difference: Strategy-situation fit in emotion regulation in daily life is associated with well-being. *Psychological Science, 27*(12), 1651-1659. [CrossRef]

Hofmann, S. G., Heering, S., Sawyer, A. T., & Asnaani, A. (2009). How to handle anxiety: The effects of reappraisal, acceptance, and suppression strategies on anxious arousal. *Behaviour Research and Therapy, 47*(5), 389-394. [CrossRef]

John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation: Personality processes, individual differences, and life span development. *Journal of Personality, 72*(6), 1301-1333. [CrossRef]

Kam, J. W., Wan-Sai-Cheong, L., Zuk, A. A. O., Mehta, A., Dixon, M. L., & Gross, J. J. (2024). A brief reappraisal intervention leads to durable affective benefits. *Emotion, 24*(7), 1676. [CrossRef]

Kobylińska, D., & Kusev, P. (2019). Flexible emotion regulation: How situational demands and individual differences influence the effectiveness of regulatory strategies. *Frontiers in Psychology, 10*, 72. [CrossRef]

Ladis, I., Toner, E. R., Daros, A. R., Daniel, K. E., Boukhechba, M., Chow, P. I., Barnes, L. E., Teachman, B. A., & Ford, B. Q. (2022). Assessing emotion polyregulation in daily life: who uses it, when is it used, and how effective is it? *Affective Science, 4*(2), 248-259. [CrossRef]

Lazarus, R. S. (1991). *Emotion and adaptation*. Oxford University Press. [CrossRef]

Larionow, P., Ocalewski, J., Mudło-Głagolska, K., Michalak, M., & Mazur, M. (2025). The clinical significance of cognitive reappraisal and expressive suppression across positive and negative emotions: Evidence on the Polish version of the Emotion Regulation Questionnaire-Positive/Negative (ERQ-PN). *Frontiers in Psychiatry, 16*, 1614234. [CrossRef]

Lau, C. Y. H., & Tov, W. (2023). Effects of positive reappraisal and self-distancing on the meaningfulness of everyday negative events. *Frontiers in Psychology, 14*, 1093412. [CrossRef]

Liu, J. J., Ein, N., Gervasio, J., & Vickers, K. (2019). The efficacy of stress reappraisal interventions on stress responsivity: A meta-analysis and systematic review of existing evidence. *PLOS ONE, 14*(2), e0212854. [CrossRef]

McMahon, T. P., & Naragon-Gainey, K. (2018). The moderating effect of maladaptive emotion regulation strategies on reappraisal: A daily diary study. *Cognitive Therapy and Research, 42*(5), 552-564. [CrossRef]

McRae, K., Ciesielski, B., & Gross, J. J. (2012). Unpacking cognitive reappraisal: Goals, tactics, and outcomes. *Emotion, 12*(2), 250-255. [CrossRef]

Miceli, M., & Castelfranchi, C. (2005). Anxiety as an "epistemic" emotion: An uncertainty theory of anxiety. *Anxiety, Stress & Coping: An International Journal, 18*(4), 291-319. [CrossRef]

Moors, A., Ellsworth, P. C., Scherer, K. R., & Frijda, N. H. (2013). Appraisal theories of emotion: State of the art and future development. *Emotion Review, 5*(2), 119-124. [CrossRef]

Pomerantz, A. M., & Rose, P. (2014). Is depression the past tense of anxiety? An empirical study of the temporal distinction. *International Journal of Psychology, 49*(6), 446-452. [CrossRef]

Reeck, C., Ames, D. R., & Ochsner, K. N. (2016). The social regulation of emotion: An integrative, cross-disciplinary model. *Trends in Cognitive Sciences, 20*(1), 47-63. [CrossRef]

Rompilla, D. B., Hittner, E. F., Stephens, J. E., Mauss, I., & Haase, C. M. (2022). Emotion regulation in the face of loss: How detachment, positive reappraisal, and acceptance shape experiences, physiology, and perceptions in late life. *Emotion, 22*(7), 1417-1434. [CrossRef]

Roseman, I. J., & Smith, C. A. (2001). Appraisal theory: An overview. In T. J. Mayne & G. A. Bonanno (Eds.), *Emotions: Current issues and future directions* (pp. 3-32). Guilford Press. [CrossRef]

Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology, 42*(1), 5-37. [CrossRef]

Scherer, K. R., Costa, M., Ricci-Bitti, P., & Ryser, V. A. (2022). Appraisal bias and emotion dispositions are risk factors for depression and generalized anxiety: Empirical evidence. *Frontiers in Psychology, 13*, 857419. [CrossRef]

Scherer, K. R., Schorr, A., & Johnstone, T. (Eds.). (2001). *Appraisal processes in emotion: Theory, methods, research*. Oxford University Press. [CrossRef]

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of appraisal and emotion related to taking an exam. *Journal of Personality and Social Psychology, 48*(3), 522-538. [CrossRef]

Smith, C. A., & Lazarus, R. S. (1990). Appraisal components, core relational themes, and the emotions. *Cognition and Emotion, 4*(3), 233-269. [CrossRef]

Sun, Y., Xu, Y., Lv, J., & Liu, Y. (2022). Self- and situation-focused reappraisal are not homogeneous: Evidence from behavioral and brain networks. *Neuropsychologia, 173*, 108282. [CrossRef]

Troy, A. S., Shallcross, A. J., Brunner, A., Friedman, R., & Jones, M. C. (2018). Cognitive reappraisal and acceptance: Effects on emotion, physiology, and perceived cognitive costs. *Emotion, 18*(1), 58-74. [CrossRef]

Troy, A. S., Shallcross, A. J., & Mauss, I. B. (2013). A person-by-situation approach to emotion regulation: Cognitive reappraisal can either help or hurt, depending on the context. *Psychological Science, 24*(12), 2505-2514. [CrossRef]

Uusberg, A., Ford, B., Uusberg, H., & Gross, J. J. (2023a). Reappraising reappraisal: An expanded view. *Cognition and Emotion, 37*(3), 357-370. [CrossRef]

Uusberg, A., Taxer, J. L., Yih, J., Uusberg, H., & Gross, J. J. (2019). Reappraising reappraisal. *Emotion Review, 11*(4), 267-282. [CrossRef]

Uusberg, A., Yih, J., Taxer, J. L., Christ, N. M., Toms, T., Uusberg, H., & Gross, J. J. (2023b). Appraisal shifts during reappraisal. *Emotion, 23*(7), 1985-2001. [CrossRef]

Vishkin, A., Hasson, Y., Millgram, Y., & Tamir, M. (2020). One size does not fit all: Tailoring cognitive reappraisal to different emotions. *Personality and Social Psychology Bulletin, 46*(3), 469-484. [CrossRef]

Wang, Y., Tian, J., & Yang, Q. (2024). Experiential avoidance process model: A review of the mechanism for the generation and maintenance of avoidance behavior. *Psychiatry and Clinical Psychopharmacology, 34*(2), 179-190. [CrossRef]

Wang, C., Li, Y., Sun, T., Darko, A. P., & Ren, J. (2025). The electrocortical effects of repurposing and reconstrual on the regulation of disgust. *PsyCh journal, 14*(6), 979-987. [CrossRef]

Wells, A. (2011). *Metacognitive therapy for anxiety and depression*. Guilford Press.

Williams, J. M., & Broadbent, K. (1986). Autobiographical memory in suicide attempters. *Journal of Abnormal Psychology, 95*(2), 144-149. [CrossRef]

Wolgast, M., Lundh, L. G., & Viborg, G. (2011). Cognitive reappraisal and acceptance: an experimental comparison of two emotion regulation strategies. *Behaviour research and therapy, 49*(12), 858-866. [CrossRef]

Zhu, L., Fu, T., Yan, X., Yuan, J., & Yang, J. (2024). The neurophysiological effects of detached and positive reappraisal during the regulation of self-conscious emotions. *Psychoradiology, 4*, kkae017. [CrossRef]

Appendix 1. Descriptive statistics for emotions across time points (T1 and T2)

Emotion	Sadness memories T1 (SD)	Anxiety memories T1 (SD)	Sadness memories T2 (SD)	Anxiety memories T2 (SD)
Distress	4.47 (0.97)	4.83 (0.48)	2.63 (1.24)	2.44 (1.29)
Anxiety	4.20 (1.20)	4.89 (0.32)	2.01 (1.17)	2.15 (1.27)
Unhappiness	4.64 (0.81)	3.86 (1.26)	3.12 (1.47)	2.07 (1.37)
Guilt	2.59 (1.54)	2.68 (1.59)	1.65 (1.19)	1.76 (1.17)
Sadness	4.76 (0.74)	3.72 (1.48)	3.42 (1.38)	2.17 (1.33)
Fear	3.14 (1.67)	3.85 (1.43)	1.45 (0.92)	1.68 (1.19)
Anger	2.82 (1.65)	2.75 (1.62)	1.93 (1.38)	1.82 (1.24)
Uneasiness	3.47 (1.50)	4.56 (0.73)	1.60 (1.00)	1.86 (1.27)
Shame	1.91 (1.40)	2.25 (1.59)	1.26 (0.73)	1.43 (0.78)

Appendix 2. Descriptive statistics for themes in sadness and anxiety-related memories

Emotion	Theme	n	%	Emotion	Theme	n	%
Sadness	Death of a loved one	46	38.3	Anxiety	Exam-related stress	22	30.6
	Friendship difficulties	16	13.3		Academic issues	13	18.1
	Health-related issues	13	10.8		Health-related issues	10	13.9
	Family relationship difficulties	12	10.0		Environmental/situational stressors	8	11.1
	Romantic relationship difficulties	10	8.3		Romantic/social relationship issues	7	9.7
	Failure	7	5.8		Work-related issues	4	5.6
	Separation	4	3.3		Other	4	5.6
	Other	12	10.0		Financial stressors	2	2.8
	Total	120	100		Family relationship difficulties	2	2.8
					Total	72	100

Percentages are calculated within each emotion category (Sadness: N=120; Anxiety: N=72).

Appendix 3. Linear regression results predicting sadness and anxiety scores from item-level appraisal dimensions

Appraisal dimensions	Sadness				Anxiety			
	B (SE)	β	t	p	B (SE)	β	t	p
Relevance	0.229 (0.13)	0.182	1.71	0.091†	-0.127 (0.12)	-0.125	-1.06	0.290
Congruency	0.129 (0.23)	0.057	0.56	0.574	0.037 (0.12)	0.036	0.31	0.759
Incongruency	0.107 (0.19)	0.114	1.12	0.266	0.203 (0.094)	0.250	2.16	0.035*
Self-accountability	-0.085 (0.14)	-0.069	-0.6	0.548	0.317 (0.11)	0.344	2.88	0.005*
Other accountability	-0.047 (0.11)	-0.055	-0.4	0.660	-0.326 (0.11)	-0.369	-2.91	0.005*
No accountability	-0.122 (0.11)	-0.136	-1.1	0.280	-0.178 (0.10)	-0.196	-1.68	0.097
Outlook certainty	0.088 (0.096)	0.092	0.92	0.360	0.133 (0.11)	0.136	1.21	0.230
Situational coping potential	-0.134 (0.11)	-0.143	-1.2	0.218	0.029 (0.12)	0.032	0.24	0.811
Emotional coping potential	0.223 (0.11)	0.206	2.01	0.048*	-0.307 (0.13)	-0.323	-2.33	0.023*
Outlook valence	-0.325 (0.11)	-0.294	-2.9	0.004*	-0.005 (0.11)	-0.005	-0.05	0.964
Perceived control	-0.007 (0.006)	-0.128	-1.1	0.287	-0.023 (0.005)	-0.548	-4.52	<0.001*
Model adjusted R^2		**0.163**				**0.329**		

Model fit: Sadness – $F(11, 88)=2.75$, $p=0.004$, $R^2=0.256$; Anxiety – $F(11, 60)=4.16$, $p<0.001$, $R^2=0.433$. *p<0.05, †p<0.1.

Bilişsel Davranışçı Psikoterapi ve Araştırmalar Dergisi
Journal of Cognitive-Behavioral Psychotherapy and Research
DOI: 10.14744/JCBPR.2026.73903
J Cogn Behav Psychother Res 2026;15(2):108–115

Metacognitive Therapy as an Acceptability Bridge for Military Mental Health: A Prevention-Oriented Framework

Kyuichi Miyazaki

Air and Space Studies Institute, Japan Air Self-Defense Force, Ministry of Defense, Japan

ABSTRACT

Military psychological support systems provide multiple pathways to care; however, a stable use gap persists at subclinical levels where performance is at risk but specialty thresholds are not met. This study proposes a performance-congruent, metacognitively framed approach that targets information-processing patterns—perseveration, threat monitoring, and inflexible control—rather than disorder labels. Grounded in the self-regulatory executive function (S-REF) model and metacognitive therapy (MCT), this paper argues that brief, skill-based elements can be embedded within existing training without creating diagnostic pathways. The proposal emphasizes two levels of prevention. At the universal level, concise literacy on the cognitive–attentional syndrome and micropractice of attentional shifting and detached responding can be delivered in short blocks and reinforced through task-tied prompts. At the selective/indicated level, S-REF-informed formulation, disengagement practice, and metacognitive belief testing are applied in small-group labs or brief individual sessions to reduce cognitive–attentional loops that degrade daily performance. Design principles include role-congruent framing, minimal transaction costs, clarity of confidentiality, modularity, and contextualization to mission tasks. This paper outlines boundary conditions and pragmatic evaluation directions, acknowledging that uptake will vary with culture and tempo and that some presentations require case-formulated protocols beyond preventive microdrills. If implemented with these constraints—short, embedded, S-REF-consistent, and paired with clear referral options—metacognitively framed elements offer a feasible route to narrowing the acceptability gap for subclinical personnel while complementing existing clinical services.

Keywords: Attentional control, detached mindfulness, metacognitive therapy, military, prevention, S-REF.

ÖZ

Askeri Ruh Sağlığında Kabul Edilebilirlik Köprüsü Olarak Metakognitif Terapi: Önlemeye Yönelik Bir Çerçeve

Askeri psikolojik destek sistemleri bakıma erişim için birden çok yol sunar; ancak performansın risk altında olduğu fakat uzman hizmet eşiklerinin karşılanmadığı subklinik düzeylerde istikrarlı bir yararlanma açığı sürmektedir. Bu makale, bozukluk etiketleri yerine yineleme (perseverasyon), tehdit izleme ve esnek olmayan kontrol gibi bilgi işleme örüntülerini hedefleyen, metakognitif çerçeveli ve performansla uyumlu bir yaklaşım önermektedir. Öz Düzenleyici Yürütücü İşlev (S-REF) modeli ve metakognitif terapiye dayalı olarak, kısa ve beceri odaklı unsurların tanısal bir yol oluşturulmadan mevcut eğitimlerin içine gömülebileceğini savunur. Öneri iki önleme düzeyini vurgulamaktadır. Evrensel düzeyde, bilişsel-dikkatsel sendrom hakkında kısa bir okuryazarlık ile dikkat kaydırma ve ayrışmış tepki verme (detached responding) mikro uygulamaları kısa bloklar halinde sunulabilir ve göreve bağlı ipuçlarıyla pekiştirilebilir. Seçici/gösterilmiş düzeyde, küçük grup çalışmaları veya kısa

Cite this article as:
Miyazaki K. Metacognitive Therapy as an Acceptability Bridge for Military Mental Health: A Prevention-Oriented Framework. J Cogn Behav Psychother Res 2026;15(2):108–115.

Address for correspondence:
Kyuichi Miyazaki.
Air and Space Studies Institute, Japan Air Self-Defense Force, Ministry of Defense, Japan
E-mail: kyuichim@gmail.com

Submitted: 11.01.2026
Revised: 21.03.2026
Accepted: 24.03.2026
Available Online: 00.05.2026

JCBPR, Available online at http://www.jcbpr.org/

bire bir oturumlar; günlük performansı bozan bilişsel-dikkatsel döngüleri azaltmak için S-REF temelli formülasyon, ayrışma (disengagement) uygulaması ve metakognitif inanç testini kullanır. Tasarım ilkeleri; rolle uyumlu çerçeveleme, asgari işlem maliyeti, gizlilik konusunda açıklık, modülerlik ve görev/mission görevlerine göre bağlamsallaştırmayı içerir. Ayrıca, benimsenmenin kültür ve tempo ile değişeceğini ve bazı başvuruların önleyici mikro alıştırmaların ötesinde olguya göre formüle edilmiş protokoller gerektireceğini kabul ederek, sınır koşullarını ve pragmatik değerlendirme yönlerini ortaya koyar. Bu sınırlılıklar altında -kısa, gömülü, S-REF ile tutarlı ve açık sevk seçenekleriyle eşleştirilmiş biçimde- uygulandığında, metakognitif çerçeveli unsurlar mevcut klinik hizmetleri tamamlayarak subklinik personel için kabul edilebilirlik açığını daraltmada uygulanabilir bir yol sunar.

Anahtar Kelimeler: Dikkat kontrolü, tarafsız farkındalık, metabilişsel terapi, askeriye, önleme, öz düzenleyici yürütücü işlev modeli.

INTRODUCTION

Armed forces continue to report substantial mental health burdens, including patterns that do not meet diagnostic thresholds yet impair readiness, operational performance, and interpersonal functioning (Hoge et al., 2004). Most services appropriately prioritize clinical treatment for diagnosed disorders, but this focus can leave a large middle range of personnel without timely, acceptable options. Mild-to-moderate strain may persist for months, eroding sleep, concentration, decision quality, and social functioning while remaining outside referral criteria or being normalized as "part of the job." A prevention gap follows: organizations need early, low-burden support that complements clinical services rather than competing with them and can be embedded in routine settings.

Acceptability is the central constraint. Even when services are available, personnel may avoid formal pathways because they expect career harm, confidentiality risks, or social judgment. These pressures reflect local incentives, unit norms, and the opportunity costs of seeking help under operational tempo. Therefore, a prevention-oriented design needs to ask not only what is effective but also what can be adopted, practiced repeatedly, and sustained in environments where strain is generated.

Stigma-reduction efforts are ethically and clinically justified. Service members frequently report perceived career harm, confidentiality concerns, and practical barriers as reasons for avoiding formal mental health care in military settings (Hoge et al., 2004). Negative attitudes about treatment and stigma-related concerns are also linked to lower use of services (Kim et al., 2011). The literature further describes stigma as a persistent barrier to help-seeking (Sharp et al., 2015). Beliefs about readiness and self-reliance can make diagnostic treatment pathways feel incongruent with the role of some personnel (Greene-Shortridge et al., 2007). Beliefs about mental health care can function as an additional barrier to military personnel and veterans' use of services (Vogt, 2011). This review argues that prevention-oriented and role-congruent routes can complement stigma reduction by reducing the need to adopt diagnostic labels or enter formal clinical pathways at an early stage.

The proposed route frames mental health as adaptive information processing under operational demands. This emphasis follows an information-processing account of emotional disorder in which sustained internal threat focus and perseverative thinking maintain distress (Wells & Matthews, 1996). Instead of beginning with diagnostic categories, the framing begins with processes that personnel already recognize as performance-relevant: attention allocation, threat monitoring, worry and rumination, sleep-related arousal, and flexibility of coping choices. Psychological support can then be offered as skills training in processing style—how attention is directed, how internal experiences are related to, and how coping routines are selected and revised—using neutral, non-diagnostic language that preserves the individual's professional self-concept.

Metacognitive therapy (MCT) is a brief, evidence-based approach designed to reduce persistent distress by changing how people relate to their internal experiences and how they allocate attention (Wells, 2009). It is grounded in the self-regulating executive function (S-REF) model and targets the cognitive attentional syndrome (CAS): a pattern of worry/rumination, threat monitoring, and maladaptive coping strategies that maintain distress (Wells & Matthews, 1996). The MCT logic can be adapted for prevention by focusing on proximal process targets and using non-diagnostic language while remaining consistent with evidence-based psychological principles.

Accordingly, this review proposes an MCT-informed framework for military psychological support across primary and secondary prevention. This paper (i) summarizes the practical barriers that shape utilization and acceptability, (ii) outlines the S-REF/MCT constructs most relevant to military contexts, and (iii) presents an implementation blueprint with evaluation anchors that can be integrated into existing support systems. The aim of this study is not to medicalize transient strain but to provide structured support for regulating attention and processing routines that otherwise accumulate into persistent impairment. In doing so, the paper offers a bridge between clinical evidence and real-world delivery constraints in military organizations.

The remainder of this paper reviews the current landscape and barriers in military psychological services, summarizes the S-REF/MCT model and relevant evidence, and proposes a high-level implementation design for prevention-focused delivery. This study concludes with limitations and priorities for future work.

Current Landscape and Barriers in Psychological Services for Military Personnel

Service Pathways and Their Utilization

Most military organizations maintain tiered psychological support spanning unit-level and peer support, primary care, and specialist mental health pathways; however, service use is often lower than predicted. In the United Kingdom, for example, a systematic review of veteran help-seeking identified barriers such as military cultural norms (e.g., stoicism and self-reliance), stigma, and practical difficulties in navigating or accessing services (Randles & Finnegan, 2022). This mismatch between need and uptake is particularly relevant for prevention-oriented approaches like MCT because subclinical difficulties can persist without crossing thresholds that trigger formal referral.

Career, Confidentiality, and Stigma

Military organizations must balance a legitimate interest in deployability and risk management with the expectation of privacy. In practice, this balance is experienced through documentation requirements, fit-for-duty decision points, and the perceived permeability of medical information across the chain of command. Even when formal policies support confidentiality, personnel may anticipate career costs or unwanted visibility and therefore delay engagement until impairment is difficult to conceal or thresholds for referral are crossed (Bogaers et al., 2020).

Stigma-reduction initiatives remain ethically and clinically important but may be insufficient when avoidance is anchored in soldier identity and professional values, such as reliability, self-control, and readiness (Greene-Shortridge et al., 2007). Stigma has also been consistently described as a barrier to seeking care among personnel with mental health problems (Sharp et al., 2015). If support is framed primarily through psychiatric labels, some personnel may interpret help-seeking as adopting a "patient" role that conflicts with that identity. Therefore, this review emphasizes an additional route that can be offered in parallel: skills training framed as performance-sustaining mental readiness, with clear pathways for referral when impairment or risk is detected.

Subclinical Presentations and the Gaps in Prevention

Subclinical patterns, such as worry, sleep disruption, irritability, and attentional drift, can significantly degrade coordination and decision quality while remaining below diagnostic thresholds. Because these difficulties are often interpreted as "normal stress" or a personal discipline issue, they may persist for months without triggering formal pathways. Therefore, prevention-oriented support is most valuable when it is low-burden, available early, and aligned with how personnel make sense of strain in daily work.

Capacity versus Acceptability: A Practical Distinction

From a systems perspective, mild-to-moderate difficulties can remain untreated because the pathway is difficult to access or does not fit the user's situation. A patient-centered access framework highlights how approachability, acceptability, and appropriateness emerge at the service design and population needs interface (Levesque et al., 2013). Implementation outcomes such as reach, acceptability, fidelity, and sustainability should be tracked alongside clinical outcomes for prevention-oriented delivery so that scale-up decisions are based on both effectiveness and feasibility (Proctor et al., 2011).

Decision Dynamics under Operational Constraints

Barriers are not solely attitudinal; help-seeking unfolds as a behavioral chain. Personnel repeatedly decide whether to notice a problem, whether to name it a support issue, who to approach, and how much to disclose. Each step is shaped by immediate contingencies (time pressure, peer norms) and anticipated consequences (career impact, visibility) (Hoge et al., 2004). The availability of low-stakes entry points and trusted intermediaries can alter these choices by lowering the initial engagement cost (Bogaers et al., 2020). This decision structure implies that prevention delivery should minimize high-cost thresholds and offer practice-based skill modules that can be accessed without committing to a clinical identity.

These barriers point to the need for brief, low-disclosure interventions that target processing style (e.g., attention allocation and responses to internal events) and can be

practiced without adopting a clinical identity. The next section introduces the S-REF model and MCT as a candidate framework for this purpose.

S-REF and MCT: Theory, Evidence, and Military Fit

S-REF/CAS: Core Constructs

The S-REF model explains how patterns of appraisal, attention, and coping can maintain emotional disorder. In this account, executive control processes shape how attention is allocated (for example, toward threat signals or internal states) and how coping strategies are selected. When coping is dominated by negative thinking and monitoring, distress can persist even when external stressors remain (Wells & Matthews, 1994, 1996).

Metacognitive Beliefs and CAS Loop

Metacognitive beliefs organize and sustain the CAS within the S-REF model. Positive metacognitive beliefs (e.g., "worry keeps me prepared") can legitimize perseveration under uncertainty, whereas negative beliefs (e.g., "once it starts, I cannot stop" or "my worry is dangerous") increase perceived threat and urgency, further fueling monitoring and rumination (Wells & Matthews, 1996). These belief patterns are measurable and have been operationalized in instruments such as the MCQ-30 (Wells & Cartwright-Hatton, 2004).

Methods of MCT: Attentional Control and Detached Mindfulness

MCT translates the S-REF principles into procedures that target metacognitive beliefs and attentional control. Rather than restructuring the content of thoughts, MCT aims to reduce the CAS by changing the thinking style and its relationship to internal events (Wells, 2009). In practice, this involves testing beliefs about the usefulness and uncontrollability of worry/rumination, reducing threat monitoring, and restoring flexible control over attentional placement (Wells & Matthews, 1996).

Mechanisms of Change and Micro-Intervention

MCT procedures are supported by a structured, time-limited dialogue that targets metacognitive beliefs that sustain the CAS. The facilitator helps personnel test positive beliefs about worry and rumination (e.g., "it keeps me prepared") and negative beliefs about uncontrollability or danger (e.g., "once it starts, I cannot stop"). The aim is to reduce perseveration and threat monitoring by shifting to deliberate attentional control and detached mindfulness rather than to disputing the content of thoughts (Wells, 2009). This logic can be expressed as short prompts and brief practice in prevention-oriented delivery: notice the trigger, label the process, redirect attention, and postpone extended worry or rumination.

Evidence Base and Military Fit

Controlled trials and meta-analyses have suggested that MCT produces large reductions in anxiety and depressive symptoms across disorders (Normann & Morina, 2018). A review of recent advances similarly concludes that MCT compares well with other evidence-supported approaches in the current literature (McEvoy, 2019). Randomized evidence is available for generalized anxiety disorder (van der Heiden et al., 2012) and post-traumatic stress disorder (Wells & Colbear, 2012).

Component research also aligns with the S-REF emphasis on attentional control. A laboratory-based study reported that the attention training technique (ATT) reduced self-focused attention and anxiety outcomes (Fergus et al., 2014). A randomized trial comparing ATT with an alternative compassion-focused intervention also reported symptom improvements in a sample of students (Haukaas et al., 2018).

Military operations routinely involve sleep restriction, sustained vigilance, uncertainty, and acute stressors that degrade attention and executive control—capabilities required for situational awareness and rapid decision-making (Belenky et al., 2003). Field research shows that overnight military training with sleep loss can impair sustained alertness and monitoring on tasks relevant to safety-critical work (Passi et al., 2022). Laboratory protocols of simulated military operational stress produce measurable declines in serving personnel's tactical adaptive decision-making and vigilance (Sekel et al., 2023). Rapid reviews further emphasize the need to monitor and protect the cognitive function of warfighters in high-stress environments to preserve mission-critical information processing (Main et al., 2023).

Concepts such as cognitive resilience and cognitive readiness are increasingly used to describe the demands of information processing in modern operations. A recent review synthesized evidence and mechanisms for military personnel's cognitive resilience to psychological stress and highlighted modifiable targets for training and prevention (Flood et al., 2022). A theoretical model of military cognitive readiness distinguishes readiness demands at operational and strategic levels and supports the development of measurement for complex decision contexts (Grier, 2012). The U.S. Army doctrine also embeds cognitive performance and mental readiness within broader readiness systems (Department of the Army, 2020). Supporting materials for Holistic Health and Fitness describe unit-level mental readiness coaching and structured skills practice as part of performance optimization (Department of the Army, 2023).

These military findings are compatible with the S-REF account of how prolonged threat monitoring and perseverative thinking

Table 1. The core elements of an MCT-informed prevention program for primary and secondary prevention

Element	Primary prevention (universal)	Secondary prevention (selective or indicated)	Process target (S-REF/CAS)
Information-processing primer	10–15 min module in routine training; non-diagnostic language; links to readiness.	Brief recap at entry: tailored examples based on role demands.	Normalizes attention limits and introduces CAS as a maintainable loop.
CAS recognition and labeling	Simple checklist: worry/rumination, threat monitoring, and unhelpful coping; taught as performance drains.	Individual or small-group mapping of CAS patterns and triggers.	Improves perseveration detection and monitoring under load.
Attention flexibility practice	1–3 min drills (ATT-style shifting) embedded in a warm-up or debrief; repeated weekly.	Guided practice with feedback and troubleshooting barriers to practice.	Deliberate attentional control is restored and internal threat focus is reduced.
Detached responding skills	Short prompts: notice–label–redirect; postpone extended worry/rumination.	Structured experiments on uncontrollability/usefulness beliefs and individualized DM practice.	Weakens the metacognitive drivers of perseveration and monitoring.
Cues and habit support	Unit-level cues (brief audio/text prompts) during routine windows (opt-in).	Personalized cues linked to high-demand periods and relapse prevention plan.	Increases repetition and generalization without additional disclosure.
Low-burden indicators	Weekly self-rating: time spent worrying/ruminating, perceived attentional control, and sleep quality.	Same indicators + brief functional check (concentration lapses and decision delays).	Tracks proximal change and supports iterative adjustment.
Escalation pathway	Clear clinical pathway signposting; safety exceptions stated up front.	Rapid referral when impairment/risk is detected and warm handoff procedures.	Preserves ethical boundaries and prevents misclassification of clinical need.

MCT: Metacognitive therapy; S-REF: Self-regulatory executive function; CAS: Cognitive attentional syndrome.

can dominate attention under stress and reduce flexible, goal-directed control (Wells & Matthews, 1996). MCT offers a concise, process-focused route to address these loops by training attentional flexibility, changing metacognitive beliefs, and reducing extended worry and rumination. These elements can be practiced with minimal symptom-focused disclosure and without positioning personnel as patients when delivered as prevention-oriented skills training. Therefore, an MCT-informed approach is a plausible complement to existing readiness programs, while specialist clinical care remains available when diagnosable disorders and functional impairment are present.

High-Level Implementation of Primary and Secondary Prevention

Aims, Scope, and Core Principles

This section outlines a pragmatic framework for embedding S-REF/MCT-derived elements in routine activities at the primary (universal) and secondary (selective/indicated) prevention levels. This study aims to strengthen control over attentional allocation and thinking style—the core information-processing variables in S-REF (Wells & Matthews, 1996)—while avoiding the medicalization of routine strain and unnecessary movement into clinical pathways.

A shared mental health literacy module can support this aim by teaching mental health as an information-processing problem under load: how attention is captured, how internal threat signals are monitored, and how worry or rumination consumes limited control resources. This framing is consistent with the military focus on cognitive performance and readiness, where operational priorities are vigilance, fatigue management, and decision quality (Department of the Army, 2020; Main et al., 2023). Therefore, the prevention package begins with a brief information-processing primer and then provides small, repeatable cues during routine training.

Table 1 summarizes the core program elements proposed for primary and secondary prevention. The table is intended as a design aid: it specifies process targets (CAS

components), delivery formats, and low-burden indicators that can be embedded in existing training cycles without expanding clinical throughput.

Table 1 summarizes each element as a low-disclosure skills component that can be embedded in routine training. The underlying logic is to treat distress-relevant patterns as information-processing vulnerabilities under load and strengthen attention control and coping flexibility in ways that support readiness and decision quality (Department of the Army, 2020; Main et al., 2023).

The information-processing primer links mental health to operationally familiar constraints: limited attentional resources, fatigue effects, vigilance demands, and decision quality. Sleep restriction and sustained operations reliably degrade alertness and executive control (Belenky et al., 2003), and field studies have shown that night training with sleep loss can impair sustained vigilance and monitoring on safety-relevant tasks (Passi et al., 2022). In this frame, CAS labels (worry/rumination, threat monitoring, and unhelpful coping) are introduced as practical detection tools rather than diagnostic categories, especially under high workload and uncertainty, where perseveration and monitoring can compete with situational awareness and adaptive decision-making (Sekel et al., 2023).

Short attention-flexibility drills are included because attention allocation is a central operational requirement, and fatigue and operational stressors reduce sustained attention and monitoring performance (Belenky et al., 2003; Passi et al., 2022). Detached responding skills (e.g., notice–label–redirect routines and worry postponement) are framed as methods to recover goal-directed control when internal threat processing is escalated under uncertainty. This aligns with the broader emphasis on cognitive resilience and readiness as modifiable targets in military populations (Flood et al., 2022; Department of the Army, 2020).

Implementation relies on cues, habit supports, and low-burden proximal indicators to sustain repetition in real settings. When doctrine endorses mental readiness coaching and structured practice, the package can align with existing delivery roles and rhythms (Department of the Army, 2023). Finally, a clear escalation pathway protects ethical boundaries and prevents undertreatment. Given that perceived career harm and confidentiality concerns can delay engagement, escalation criteria and limits of confidentiality should be stated up front (Hoge et al., 2004; Vogt, 2011).

Interventions should be brief, repeatable, and aligned with unit rhythms to make practice routine rather than exceptional. Delivery should use neutral, non-diagnostic language and require minimal disclosure. Routine records should only capture completion and fidelity indicators, not clinical content, to prevent reclassification as medical data. The package is designed to complement, not replace, clinical pathways when higher-risk presentations are detected (Vogt, 2011).

The four practical principles guide the implementation. First, role congruence: language should emphasize sustaining operational performance and readiness rather than implying weakness or loss of status. Second, stepped access: entry points should allow confidential participation with clear options for escalation when risk or impairment is detected. Third, minimal disruption: delivery should be brief, modular, and compatible with training cycles. Fourth, measurement: outcomes should include both mental health indicators and operationally relevant behavioral markers (e.g., concentration lapses, decision delays, and help-seeking behavior). Perceived career harm and practical barriers to care have been repeatedly reported in combat-deployed and garrison populations (Hoge et al., 2004). Negative attitudes about treatment and stigma-related concerns are also linked to lower use of services (Kim et al., 2011). Beliefs about mental health care and role expectations can further reduce the willingness to engage with formal pathways (Vogt, 2011).

LIMITATIONS AND FUTURE DIRECTIONS

Evidence Base and Measurement Constraints

The evidence base for MCT is strongest in anxiety and depressive disorders in civilian samples, with an expanding literature in occupational settings. However, direct evidence in military populations remains limited, and heterogeneity across roles and units constrains generalizability. Aircrew, maintainers, and ground combat units differ in routines, exposure patterns, and acceptable help-seeking pathways; therefore, any claims about broad effectiveness should be treated as provisional until they are evaluated across contexts.

Although the proposed evaluation anchors are intentionally low-burden and performance-adjacent, the link between proximal change (e.g., reduced CAS-consistent worry/rumination or threat monitoring) and downstream operational outcomes is not guaranteed. Self-logged metrics (practice counts and brief ratings) are feasible at scale but vulnerable to expectancy effects and selective reporting. To strengthen inference, triangulation with independent indicators (brief behavioral tasks, supervisor-neutral performance markers, or passive usage logs with appropriate safeguards) is needed.

Implementation Risks and Ethical Safeguards

Brief skills packages are vulnerable to fidelity drift: units may compress, omit, or embellish procedures until they no longer resemble the intended intervention. To reduce this risk, delivery should be standardized (using short scripts and checklists), and facilitators should have minimal competency checks. Ethical boundaries should also be made explicit.

These modules are not a substitute for clinical assessment and treatment and should not be used as a fitness decision-making tool. Participation should be voluntary, confidentiality protections should be clear in advance, and referral routes for those who need formal care should be specified.

Evaluation, Reporting, and Scale-Up Priorities

Priority studies should test whether microinterventions reliably reduce CAS-consistent patterns (worry/rumination, threat monitoring, and unhelpful coping) under operational constraints and whether any benefits are generalizable beyond self-reporting. Designs feasible for unit settings (cluster randomization, stepped-wedge rollouts, or interrupted time series) can be used to track change over time.

Dose-response and durability also require testing. Trials should compare daily versus intermittent practice schedules, examine whether gains persist during high-demand periods, and identify the minimal effective dose.

Implementation research should proceed alongside effectiveness testing. Determinants of uptake, fidelity, and sustainment should be measured, and cultural/doctrinal adaptation (terminology, examples, and delivery roles) should be documented without diluting core mechanisms. Digital supports (e.g., brief audio prompts) may extend reach and support practice; however, they must be designed to protect confidentiality and avoid creating new monitoring pressures.

Pre-registration and transparent reporting are recommended to support cumulative learning, with a minimal data set defined in advance. Equity considerations should be explicit: access and benefit should be examined across roles and posting locations to avoid concentrating effects in already-resourced units.

CONCLUSION

Military organizations face a persistent gap between available psychological services and actual uptake when difficulties are subclinical, intermittent, or perceived as incompatible with soldier identity. Therefore, prevention-oriented support depends on acceptability and delivery constraints as much as on clinical efficacy.

This review argued that an identity-congruent frame—mental health as adaptive information processing under operational demands—can complement stigma reduction efforts by lowering disclosure and opportunity costs. S-REF and MCT provide a coherent set of constructs and procedures for targeting the CAS and maintaining metacognitive beliefs (Wells & Matthews, 1996). When translated into a prevention-oriented skills package, these elements can be delivered in ways that reduce the need for symptom-focused disclosure while maintaining clear pathways for clinical escalation when risk or impairment is detected.

The proposed blueprint emphasizes brief literacy, embedded micropractices in routine cue windows, clear ethical boundaries, and rapid pathways for referring personnel at elevated risk. The package is intended to be testable: future work should evaluate uptake, fidelity, proximal processing change, and downstream outcomes using designs that are feasible for unit settings.

Conflict of Interest: The author declares that there is no conflict of interest.

Financial Disclosure: No funding was received for the preparation, writing, or publication of this study.

Use of AI for Writing Assistance: During final proof correction, the author used ChatGPT (OpenAI) solely to assist in identifying possible typographical, grammatical, formatting, and production-related issues. The author reviewed all AI-assisted suggestions, made all final editorial decisions, and accepts full responsibility for the content of the publication.

Peer-review: Externally peer-reviewed.

REFERENCES

Belenky, G., Wesensten, N. J., Thorne, D. R., Thomas, M. L., Sing, H. C., Redmond, D. P., Russo, M. B., & Balkin, T. J. (2003). Patterns of performance degradation and restoration during sleep restriction and recovery sleep. *Journal of Sleep Research, 12*(1), 1–12. [CrossRef]

Bogaers, R. I., Geuze, E. G., van Weeghel, J., Leijten, F. R. M., van de Mheen, D., Varis, P. K., Rozema, A. D., & Brouwers, E. P. M. (2020). Barriers and facilitators for treatment-seeking for mental health conditions and substance misuse: Multi-perspective focus group study within the military. *BJPsych Open, 6*(6), e146. [CrossRef]

Department of the Army. (2020). FM 7-22: *Holistic health and fitness*. Retrieved from https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN30511-FM_7-22-000-WEB-1.pdf

Department of the Army. (2023). *The H2F handbook*. Retrieved from https://usacimt.tradoc.army.mil/wp-content/uploads/2024/08/H2FHandbook_v2.pdf

Fergus, T. A., Wheless, N. E., & Wright, L. C. (2014). The attention training technique, self-focused attention, and anxiety: A laboratory-based component study. *Behaviour Research and Therapy, 61*, 150–155. [CrossRef]

Flood, A., Brown, B. A., & Vella, S. A. (2022). Cognitive resilience and tactical athletes: A narrative review. *Frontiers in Psychology, 13*, 948093. [CrossRef]

Greene-Shortridge, T. M., Britt, T. W., & Castro, C. A. (2007). The stigma of mental health problems in the military. *Military Medicine, 172*(2), 157–161. [CrossRef]

Grier, R. A. (2012). Military cognitive readiness at the operational and strategic levels: A theoretical model for measurement development. *Journal of Cognitive Engineering and Decision Making, 6*(4), 358–392. [CrossRef]

Haukaas, R. B., Gjerde, I. B., Varting, G., Hallan, H. E., & Solem, S. (2018). A randomized controlled trial comparing the attention training technique and mindful self-compassion for students with symptoms of depression and anxiety. *Frontiers in Psychology, 9*, 827. [CrossRef]

Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine, 351*(1), 13–22. [CrossRef]

Kim, P. Y., Britt, T. W., Klocko, R. P., Riviere, L. A., Adler, A. B., & Bliese, P. D. (2011). Stigma, negative attitudes about treatment, and utilization of mental health care among soldiers. *Military Psychology, 23*(1), 65–81. [CrossRef]

Levesque, J.-F., Harris, M. F., & Russell, G. (2013). Patient-centred access to health care: Conceptualising access at the interface of health systems and populations. *International Journal for Equity in Health, 12*, 18. [CrossRef]

Main, L. C., Landers, G. J., Grove, J. R., & Hillman, D. R. (2023). Monitoring cognitive function in the fatigued warfighter: A review. *Journal of Science and Medicine in Sport, 26*(5), 277–285. [CrossRef]

McEvoy, P. M. (2019). Metacognitive therapy for anxiety disorders: A review of recent advances and future research directions. *Current Psychiatry Reports, 21*(5), 29. [CrossRef]

Normann, N., & Morina, N. (2018). The efficacy of metacognitive therapy: A systematic review and meta-analysis. *Frontiers in Psychology, 9*, 2211. [CrossRef]

Passi, T., Lukander, K., Laarni, J., Närväinen, J., Rissanen, J., Vaara, J. P., Pihlainen, K., Kallinen, K., Ojanen, T., Mauno, S., & Pakarinen, S. (2022). Effects of overnight military training and acute battle stress on the cognitive performance of soldiers in simulated urban combat. *Frontiers in Psychology, 13*, 925157. [CrossRef]

Proctor, E., Silmere, H., Raghavan, R., Hovmand, P., Aarons, G., Bunger, A., Griffey, R., & Hensley, M. (2011). Outcomes for implementation research: Conceptual distinctions, measurement challenges, and research agenda. *Administration and Policy in Mental Health and Mental Health Services Research, 38*(2), 65–76. [CrossRef]

Randles, R., & Finnegan, A. (2022). Veteran help-seeking behaviour for mental health issues: A systematic review. *BMJ Military Health, 168*(1), 99–104. [CrossRef]

Sekel, N. M., Beckner, M. E., VanZant, R. S., Murphy, N. E., & Nindl, B. C. (2023). Military tactical adaptive decision making during simulated military operational stress is influenced by personality, resilience, aerobic fitness, and neurocognitive function. *Frontiers in Psychology, 14*, 1102425. [CrossRef]

Sharp, M.-L., Fear, N. T., Rona, R. J., Wessely, S., Greenberg, N., Jones, N., & Goodwin, L. (2015). Stigma as a barrier to seeking health care among military personnel with mental health problems. *Epidemiologic Reviews, 37*(1), 144–162. [CrossRef]

van der Heiden, C., Muris, P., & van der Molen, H. T. (2012). Randomized controlled trial on the effectiveness of metacognitive therapy and intolerance-of-uncertainty therapy for generalized anxiety disorder. *Behaviour Research and Therapy, 50*(2), 100–109. [CrossRef]

Vogt, D. (2011). Mental health-related beliefs as a barrier to service use for military personnel and veterans: A review. *Psychiatric Services, 62*(2), 135–142. [CrossRef]

Wells, A. (2009). *Metacognitive therapy for anxiety and depression*. New York, NY: Guilford Press.

Wells, A., & Cartwright-Hatton, S. (2004). A short form of the metacognitions questionnaire: Properties of the MCQ-30. *Behaviour Research and Therapy, 42*(4), 385–396. [CrossRef]

Wells, A., & Colbear, J. S. (2012). Treating posttraumatic stress disorder with metacognitive therapy: A preliminary controlled trial. *Journal of Clinical Psychology, 68*(4), 373–381. [CrossRef]

Wells, A., & Matthews, G. (1994). *Attention and emotion: A clinical perspective*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Wells, A., & Matthews, G. (1996). Modelling cognition in emotional disorder: The S-REF model. *Behaviour Research and Therapy, 34*(11–12), 881–888. [CrossRef]

Bilişsel Davranışçı Psikoterapi ve Araştırmalar Dergisi
Journal of Cognitive-Behavioral Psychotherapy and Research
DOI: 10.14744/JCBPR.2026.90560
J Cogn Behav Psychother Res 2026;15(2):116–126

Cognitive Behavioral Therapy for Separation Anxiety Disorder: Three Cases

Sevilay Umut Kılınç, Feride Nurseli Engel, Özlem Devrim Balaban

Department of Psychiatry, Prof. Dr. Mazhar Osman Mental Health and Neurological Diseases Training and Research Hospital, İstanbul, Türkiye

ABSTRACT

Separation anxiety disorder (SAD) is characterized by excessive fear and anxiety related to separation from attachment figures. Until relatively recently, SAD was considered exclusively a childhood disorder; however, accumulating evidence indicates that it may persist from childhood into adulthood or emerge for the first time during adulthood, which is referred to as adult separation anxiety disorder (ASAD). High rates of psychiatric comorbidity in individuals with ASAD complicate diagnostic and differential diagnosis processes. Psychotherapy is central to ASAD management. Cognitive behavioral therapy (CBT) is an evidence-based, well-established intervention for anxiety disorders. Nevertheless, ASAD frequently presents with resistance to treatment, as observed in other anxiety disorders. This article examines the therapeutic course and clinical outcomes of three patients diagnosed with ASAD in their twenties who underwent combined pharmacotherapy and CBT. Each case was characterized by substantial psychiatric comorbidities, including anxiety and depression. The CBT protocol for ASAD started with psychoeducation, encompassing case conceptualization, the phenomenology of separation anxiety, adult clinical presentation, and the cognitive, emotional, and behavioral mechanisms that perpetuate anxiety. The formulation was collaboratively constructed and discussed with patients to enhance their autonomy. Dysfunctional responses to perceived separation threats, associated maladaptive schemas, and functional impairments were systematically identified. Catastrophic cognitions related to separation, inadequacy, and abandonment were modified. Treatment proceeded with graded exposure designed to facilitate independent functioning apart from the primary attachment figures. In all three patients, the treatment process ended with remission. Pharmacotherapy was discontinued. Taken together, these observations highlight important clinical implications. When SAD appears in adulthood, the diagnosis is often delayed. Symptoms may be mistaken for other anxiety disorders, which can lead to an insufficient response to psychotherapy. If treatment response is poor, comorbid or primary SAD should be considered. CBT should be considered an effective treatment option.

Keywords: Adult separation anxiety disorder, case report, cognitive behavioral therapy, diagnosis, intervention, separation anxiety, therapeutic alliance.

ÖZ

Ayrılma Kaygısı Bozukluğunda Bilişsel Davranışçı Terapi: Üç Olgu

Ayrılma kaygısı bozukluğu (AKB), bağlanma figürlerinden ayrılmaya ilişkin aşırı korku ve kaygı ile karakterizedir. Yakın zamana kadar AKB yalnızca çocukluk çağına özgü bir bozukluk olarak kabul edilmekteydi ancak artan kanıtlar, bu bozukluğun çocukluktan yetişkinliğe kadar devam edebileceğini ya da ilk kez yetişkinlikte ortaya çıkabileceğini göstermektedir. Bu durum, yetişkin ayrılma kaygısı bozukluğu (YAKB) olarak adlandırılmaktadır. YAKB olan bireylerde yüksek oranda görülen komorbid psikiyatrik tanılar, tanı ve ayırıcı tanı süreçlerini zorlaştırmaktadır. Psikoterapiler, YAKB'nin yönetiminde merkezi bir

Cite this article as:
Umut Kılınç S, Engel FN, Devrim Balaban Ö. Cognitive Behavioral Therapy for Separation Anxiety Disorder: Three Cases. J Cogn Behav Psychother Res 2026; 15(2):116–126.

Address for correspondence:
Feride Nurseli Engel.
Prof. Dr. Mazhar Osman Ruh Sağlığı ve Nörolojik Hastalıklar Eğitim ve Araştırma Hastanesi, Psikiyatri Anabilim Dalı, İstanbul, Türkiye
Phone: +90 531 845 78 36
E-mail: frideengel@gmail.com

Submitted: 24.07.2025
Revised: 01.04.2026
Accepted: 07.04.2026
Available Online: 00.05.2026

JCBPR, Available online at http://www.jcbpr.org/

rol oynamaktadır. Bilişsel davranışçı terapi (BDT), anksiyete bozuklukları için kanıta dayalı ve iyi uygulanabilen bir tedavi yöntemidir. Bununla birlikte, YAKB, diğer anksiyete bozukluklarında da görüldüğü gibi, sıklıkla tedaviye direnç gösterebilmektedir. Bu makale, YAKB tanısı alan ve yirmili yaşlarında olan üç hastanın farmakoterapi ve BDT kombine tedavisiyle terapötik seyirlerini ve klinik sonuçlarını incelemektedir. Her bir olgu, ek anksiyete ve depresif bozukluklar dahil olmak üzere belirgin komorbid tanılarla karakterizedir. YAKB için uygulanan BDT protokolü, olgu formülasyonu, ayrılma kaygısının fenomenolojisi, yetişkinlikteki klinik görünümü ve kaygıyı sürdüren bilişsel, duygusal ve davranışsal mekanizmaları içeren psikoeğitimle başladı. Formülasyon, hastalarla iş birliği içinde oluşturuldu ve hastaların özerkliğini artırmak amacıyla birlikte tartışıldı. Ayrılma tehdidine yönelik işlevsiz tepkiler, buna eşlik eden uyumsuz şemalar ve işlevsel bozulmalar sistematik olarak belirlendi. Ayrılmaya, yetersizlik duygularına ve terk edilme korkusuna ilişkin felaketleştiren bilişler modifiye edilmeye çalışıldı. Tedavi, hastaların birincil bağlanma figürlerinden bağımsız işlevsellik kazanmasını sağlamak amacıyla dereceli maruz bırakma teknikleriyle sürdürüldü. Üç olgunun tamamında tedavi süreci remisyon ile sonuçlandı. Farmakoterapi sonlandırıldı. Tüm bu bulgular değerlendirildiğinde önemli klinik sonuçlar ortaya koymaktadır. AKB yetişkinlikte ortaya çıktığında tanı sıklıkla gecikmektedir. Belirtiler diğer anksiyete bozukluklarıyla karıştırılabilmektedir. Bu durum psikoterapiye yetersiz yanıt verilmesine neden olabilir. Tedaviye yanıtın düşük olduğu durumlarda, klinisyenler eşlik eden ya da birincil AKB olasılığını göz önünde bulundurmalıdır. BDT, etkili bir tedavi seçeneği olarak değerlendirilmelidir.

Anahtar Kelimeler: Yetişkin ayrılma kaygısı bozukluğu, olgu sunumu, bilişsel davranışçı terapi, tanı, müdahale, ayrılma kaygısı, terapötik iş birliği.

INTRODUCTION

Separation anxiety disorder (SAD) is characterized by excessive fear and anxiety linked to separation from attachment figures (Manicavasagar & Silove, 1997). This diagnosis was viewed as a childhood disorder until two decades ago (American Psychiatric Association, 1994). However, research shows that childhood-onset SAD may persist into adulthood, and the disorder can also begin in adulthood (Manicavasagar & Silove, 1997). The age restriction requiring onset before 18 years was removed, so adult separation anxiety disorder (ASAD) was added to the DSM-5 diagnostic system (American Psychiatric Association, 2013).

Common features of ASAD include persistent worries that harm may come to attachment figures or that events like abduction may result in permanent separation. Patients often resist attending work or school and show pronounced somatic symptoms during separation (Manicavasagar et al., 1997; Silove et al., 2010). Apart from attachment figures, they may experience recurrent and excessive distress, which can manifest as anger outbursts, social withdrawal, panic attacks, or intense grief. Many refuse to sleep without attachment figures and report frequent nightmares with separation themes (American Psychiatric Association, 2013). Physical symptoms—such as nausea, vomiting, abdominal pain, and headaches—also frequently occur with separation (Bögels et al., 2013).

The comorbidity rates among patients with adult SAD are notably high. The lifetime probability of receiving another comorbid diagnosis of an anxiety disorder is 67% (Beck, 2011). In a clinical study, lifetime comorbidity rates in patients with separation anxiety disorder were found to be 69% for major depressive disorder and 67% for agoraphobia and panic disorder (Manicavasagar et al., 1997; Silove et al., 2015). Recent research further indicates that the substantial symptomatic overlap with other anxiety and mood disorders contributes to delayed diagnosis in adult populations (Manicavasagar et al., 2010; Silove et al., 2010). In this context, ASAD with comorbid psychiatric conditions is linked to more severe clinical profiles and is associated with poorer treatment response and increased emotional dysregulation (Milrod et al., 2014, Pini et al., 2025). The disorder carries a high risk of chronicity and leads to significant functional impairment if left untreated (Silove et al., 2015).

Given the clinical burden, high comorbidity, risk of chronicity, and potential for treatment resistance associated with ASAD, it is essential to consider effective evidence-based treatment approaches (Beck, 2011; Milrod et al., 2014; Pini et al., 2025). Cognitive behavioral therapy (CBT) is a structured approach to psychotherapy that has been used on an evidence-based basis since the 1980s for mental disorders, particularly anxiety and depressive disorders (Beck, 2011). The effectiveness of CBT, which aims to understand belief and behavior systems through conceptualization, has been demonstrated in anxiety disorders

Table 1. Clinical characteristics of the cases

Cases	Case 1	Case 2	Case 3
Medical diagnosis	Adult separation anxiety disorder	Adult separation anxiety disorder	Adult separation anxiety disorder
Comorbid disorder	Panic disorder	Generalized anxiety disorder depression	Generalized anxiety disorder depression
Total number of sessions	28	34	29
Baseline Hamilton Anxiety rating scale score	42	28	22
Post-treatment Hamilton Anxiety rating scale score	4	1	3
Baseline Adult Separation Anxiety questionnaire score	68	56	52
Post-treatment Adult Separation Anxiety questionnaire score	14	7	7
Baseline Beck Depression inventory scale score	7	19	18
Post-treatment Beck Depression inventory score	5	4	4

and is recommended as the first-line treatment (Ströhle et al., 2018, Butler et al., 2006). Studies have demonstrated that CBT is highly effective in reducing symptoms of ASAD and improving patients' levels of functioning; moreover, CBT has been shown to accelerate clinical improvement when it is addressed as a primary therapeutic focus in treatment-resistant cases comorbid with other anxiety disorders (Milrod et al., 2014, Silove et al., 2015, Manicavasagar et al., 2010, Pini et al., 2014, Namlı et al., 2022).

In this context, targeted psychotherapeutic approaches may be particularly relevant for addressing the clinical features of ASAD. CBT offers a structured and theory-driven framework that directly addresses maladaptive cognitions, behavioral avoidance, and attachment-related fears underlying ASAD, thereby facilitating symptom reduction and functional recovery (Wheaton & Kaiser, 2021, Namlı et al., 2022). Accordingly, this study aims to illustrate the applicability and clinical effectiveness of CBT by presenting the therapy process of three patients diagnosed with ASAD.

Clinical Characteristics of the Cases

This case report describes the treatment process and outcomes of three patients in their twenties diagnosed with ASAD. A psychiatrist established the patients' diagnoses according to the DSM-5 criteria. The Structured Clinical Interview for DSM-5 (SCID-5) was administered (Bayad et al., 2021). Psychometric instruments possessing established reliability and validity in the participants' native language were systematically employed in the clinical assessment and longitudinal monitoring of patients. The Hamilton Anxiety Rating Scale (HAM-A), Adult Separation Anxiety Questionnaire (ASA-27), and Beck Depression Inventory (BDI) were administered as standardized measures to evaluate symptom severity and track treatment-related changes. Clinical interpretation was facilitated by established cut-off thresholds (HAM-A ≥ 18 for moderate anxiety, ASA-27 ≥ 22 for separation anxiety, and BDI ≥ 17 for moderate depression) (Yazıcı et al., 1998, Diriöz et al., 2011, Hisli, 1989). Two patients received a combination of pharmacotherapy and CBT, whereas one received CBT alone; these treatment variations were determined by clinical circumstances rather than by design. Table 1 presents the clinical diagnoses of the cases, the number of therapy sessions, and baseline and post-treatment scale scores. In all three cases, CBT was delivered by a psychotherapist who holds diplomate status from the Academy of Cognitive Therapy and is accredited by the European Association for Behavioral and Cognitive Therapies. The therapy was conducted by the first author. All participants provided informed consent. This report aims to contribute to the clinical management of ASAD by presenting the techniques and treatment algorithm employed in ASAD, a condition often associated with features predictive of poorer treatment response (Miniati et al., 2012).

CASE REPORTS

Case 1

A 22-year-old male patient, living with his parents, had attended university but was unable to continue due to panic attacks. He reported experiencing panic attacks when he was away from home, and he sometimes woke up at night experiencing panic attacks when he was home alone. The patient, whose anticipatory anxiety was prominent, had been taking 40 mg/day of paroxetine for approximately 1 year with a diagnosis of panic disorder. The patient's HAM-A score was 42, and there was an inadequate response to treatment. CBT was initiated while pharmacotherapy was continued, and a decrease in symptoms was noted from the initial sessions.

Although anticipatory anxiety persisted, the frequency of panic attacks decreased substantially from 7–8 to 2–3 episodes per week. The patient could leave the house more easily and could sleep through most nights without experiencing panic attacks; however, anticipatory anxiety continued.

The anticipatory anxiety persisted despite these improvements. The patient initially benefited from CBT, but no further improvement was observed after the 10th session. The patient came to all sessions with his mother and had panic attacks when she was not with him. The patient was classified as having ASAD based on his life history, medical history, CBT process, and current symptoms. His ASA-27 score was 68, and his BDI score was 7. Symptoms had started 1.5 years prior when the patient was admitted to university and faced independent living. The absence of childhood symptoms and overlapping panic disorder criteria were attributed to the delayed diagnosis. The diagnosis was updated to include panic disorder and ASAD, and psychotherapy was replanned accordingly. In this case, the primary attachment figure was his mother, and he structured his life around her presence. Safety behaviors included ensuring that his mother was within reach and that he was close to home. He avoided any action that might trigger anxiety, including moving quickly. Because the physiological and cognitive aspects of anxiety had already been addressed, psychoeducation specific to ASAD was provided. Longitudinal case formulation identified intervention areas, and a hierarchical list of avoidance and safety behaviors was created. A rapid decrease in symptoms was observed afterward. Exposure and response prevention techniques were frequently used along with behavioral experiments. Therapy focused on emotional regulation, distress tolerance, self-compassion, and self-identity. As symptoms decreased, the medication was tapered off. A total of 28 therapy sessions were conducted, and following the initiation of targeted interventions for ASAD after the 10th session, the patient demonstrated remission, with a HAM-A score of 4, a BDI score of 5, and an ASA-27 score of 14 at the conclusion of treatment. Pharmacological treatment was tapered and discontinued during the remission phase, and no relapse of separation anxiety symptoms was documented over an 18-month follow-up.

Case 2

A 26-year-old pregnant woman presented with persistent sadness and anxiety, worrying about her financial future, health, and motherhood. These concerns had been present for years and occupied most of her day. She was in her 21st week of pregnancy and spent much of her time imagining worst-case scenarios about raising her baby alone or losing her child, often crying. She stated that she began her days with these thoughts. She reported experiencing a severe depressive episode when she first moved away from home for university, during which she and her mother frequently cried over the phone. Psychiatric evaluation diagnosed her with generalized anxiety disorder (GAD) and ASAD according to DSM-5. Her HAM-A score was 28, her BDI score was 19, and ASA-27 score was 56. The patient refused pharmacotherapy because of her pregnancy.

Psychotherapy was planned primarily for depressive symptoms and GAD. The initial therapy targeted depressive symptoms using behavioral interventions. Rumination was addressed using cognitive distancing techniques. When the patient's HAM-A score decreased below 20, ASAD-focused psychotherapy was introduced. Her primary attachment figure had shifted from her mother to her husband, and ASAD was impacting her anxiety levels and her marital relationship, leading to frequent conflicts. First, the patient underwent a motivational interview.

Psychoeducation about the disease was provided along with a longitudinal formulation. Intervention areas were identified and a hierarchical list of avoidance and safety behaviors was developed. Rumination was addressed again. Exposure and response prevention and behavioral experiments were frequently implemented in this patient. The therapy emphasized emotional regulation, distress tolerance, self-compassion, self-efficacy, role perception, and schema work. Courses and training were planned to address areas of perceived inadequacy. Since she avoided responsibility due to fear of making mistakes, therapy focused on developing her competence. No pharmacotherapy was provided because of pregnancy. Following 34 therapy sessions, during which depressive symptoms and GAD were initially addressed at the level of automatic thoughts and behavioral activation over the first 17 sessions before initiating targeted interventions for separation anxiety, her HAM-A score was reduced to 1, her BDI score to 4, and ASA-27 score to 7, achieving remission. No relapse was detected during the 18-month follow-up after the conclusion of therapy.

Case 3

A 20-year-old female university student presented with complaints of reluctance to attend school, feelings of worthlessness and guilt, excessive anxiety, frequent phone calls to her mother, fear of earthquakes, obsessive research on earthquake risks, and crying spells triggered by catastrophic thoughts. She reported experiencing intense distress when away from her mother or home, having difficulty coping with her emotions, and occasionally feeling relieved by eating, which had resulted in weight gain in recent years. She also recalled experiencing brief separations from her mother during childhood, during which she believed her mother had died when she was out of sight.

Based on clinical evaluation, developmental history, and current symptoms, the patient was diagnosed with depressive disorder, GAD, and ASAD. At baseline assessment, her Hamilton Anxiety Rating Scale (HAM-A) score was 22, her BDI score was 18, and her ASA-27 score was 52.

In the initial treatment phase, depressive symptoms and GAD were prioritized. During the first 10 sessions, the interventions focused on behavioral activation and automatic thoughts. Subsequently, following work on maladaptive metacognitive beliefs, approximately a 50% reduction in symptoms was achieved, accompanied by an improvement in overall functioning. After the 15th session, the treatment shifted to interventions targeting ASAD. At this stage, disorder-specific psychoeducation was provided, a longitudinal case formulation was developed, and a hierarchical list of avoidance and safety behaviors was constructed. Given the patient's pronounced difficulties with distress tolerance and emotion regulation, longer-duration exposure exercises were incorporated into behavioral experiments.

The therapeutic process was terminated after 29 therapy sessions. At the conclusion of treatment, the patient's HAM-A score decreased to 3, her BDI score to 4, and her ASA-27 score to 7. No relapse was observed during the 18-month follow-up period.

Cognitive Behavioral Therapy Process for Adult Separation Anxiety Disorder

In anxiety disorders, CBT, which is considered a first-line treatment, begins with psychoeducation focusing on the introduction of the therapeutic model, the nature of separation anxiety, the clinical features specific to its adult presentation, and the cognitive–emotional–behavioral processes that maintain anxiety (National Institute for Health and Care Excellence [NICE], 2024, NICE, 2024, Majidli et al., 2026).

The foundation of the therapeutic process is the presentation of disorder-specific psychoeducation through individualized case formulations. Psychoeducation not only enhances patients' understanding of the disorder but also facilitates their ability to observe their own behavioral patterns from a more objective, external perspective, thereby increasing insight and treatment motivation (Oliveira & Dias, 2023). Psychoeducation also serves a critical function in helping patients comprehend the rationale for tolerating anxiety and distress encountered during treatment in this patient group, where difficulties in emotion regulation are prominent.

The therapeutic process begins with longitudinal case formulations, which serve as the starting point for identifying dysfunctional behavioral patterns triggered by perceived separation threats, underlying maladaptive schemas, and domains of impaired functioning. As illustrated in the

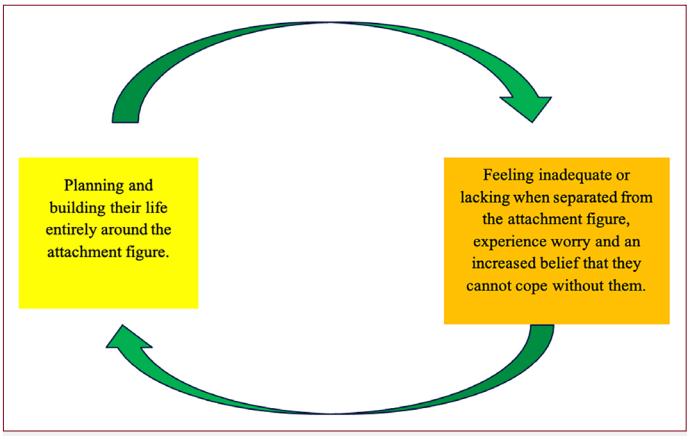

Figure 1. Formulation model a.

conceptual models presented in Figure 1 (Formulation Model a) and Figure 2 (Formulation Model b), these formulations guide the identification of separation-specific catastrophic cognitions and schemas related to inadequacy and abandonment, which are addressed through cognitive interventions. The therapeutic process is then continued with graduated exposure interventions aimed at facilitating experiences independent of attachment figures in patients whose lives have been largely structured around these relationships. During this phase, patients are encouraged to confront separation-related situations, reduce safety behaviors (e.g., frequent phone calls, reassurance seeking, and monitoring physical proximity), and develop tolerance for negative emotional states. In parallel, strengthening emotion regulation capacities, enhancing self-esteem, and fostering self-compassion skills constitute key treatment targets.

In some cases, additional difficulties may emerge even after initial therapeutic progress. If managing the strong anxiety and distress from separation-related thoughts is particularly difficult, it may be beneficial to first focus on treating comorbid conditions such as depression or GAD. This step-by-step approach helps patients better regulate their emotions and maintain engagement with subsequent interventions for separation anxiety. Following the management of these comorbid conditions, therapy focuses on behavioral experiments, which help test negative expectations and support patients in managing difficult emotions during exposure, thereby building practical coping skills. The therapeutic process concludes with a structured and planned termination phase during which patients experience a healthy separation, are supported in developing independence, and collaboratively engage in relapse prevention. This approach targets the core issues of ASAD and contributes to sustained improvement in daily functioning and well-being.

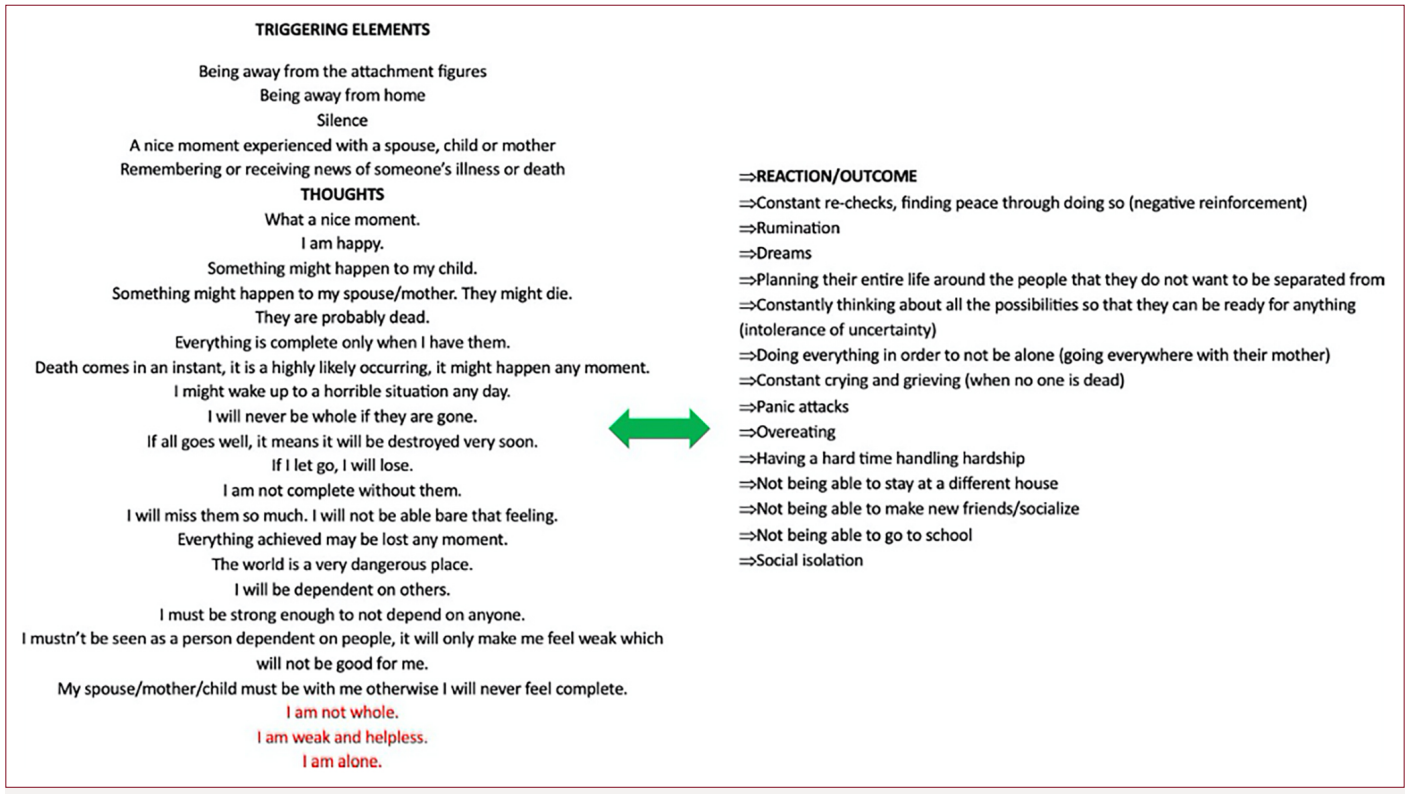

Figure 2. Formulation model b.

In all three cases presented in this study, the therapy process was conducted following standard CBT session structures. Nevertheless, as described above, particular emphasis was placed on psychoeducation, collaborative sharing of case formulations with patients, and the promotion of therapeutic autonomy. These processes, including joint case formulation, enabled patients to evaluate their difficulties from a more objective perspective and identify specific targets for intervention (Figs 1 and 2).

Patients assumed responsibility for between-session assignments throughout the treatment process, and therapy progressed within a collaborative framework. CBT not only facilitated cognitive change but also enhanced patients' abilities to identify emotions, maintain focus on session agendas, and recognize tangible therapeutic gains, thereby strengthening their sense of competence. These developments support individuation processes and contribute to more effective therapeutic progress. Treatment resulted in multi-level cognitive restructuring across automatic thoughts, intermediate beliefs, rules and assumptions, and core beliefs.

Overall, CBT is associated with increased tolerance for negative emotions and functional outcomes. The integrated use of exposure-based techniques and behavioral experiments appears to be instrumental in promoting adaptive coping and reducing maladaptive responses to separation-related distress. As summarized in Table 2, a range of CBT techniques spanning cognitive, behavioral, and emotion-focused domains was systematically applied across different therapeutic phases, reflecting a structured and individualized treatment approach.

Adult Separation Anxiety and Therapeutic Alliances

The therapeutic alliance is regarded not only as a supportive element but also as a fundamental mechanism that substantially enhances the effectiveness of CBT within the context of ASAD. Deep-rooted fears of separation from attachment figures may hinder engagement in exposure-based interventions and cognitive restructuring; therefore, establishing a secure and consistent therapist–client relationship is critical for strengthening these interventions' feasibility and clinical impact. The sense of safety fostered within the therapeutic relationship enables clients to develop tolerance for previously avoided emotions, confront separation-related triggers, and apply CBT techniques more effectively.

In this framework, the therapeutic relationship functions both as a context in which attachment-related vulnerabilities can be addressed and as a catalytic process that potentiates CBT's cognitive and behavioral components. Consequently,

Table 2. Cognitive behavioral therapy processes

Sessions	Content	Aim
Psychoeducation	Disorder, cognitive behavioral model, and physiology of anxiety.	The patient understands their mental disorder, the therapy model, and the effects of anxiety on the mind and body
Cognitive and metacognitive interventions	Automatic thoughts, cognitive qualities (catastrophizing, inference from emotion, etc.).	Recognizing automatic thoughts, objectively evaluating thoughts, and initiating the process of cognitive processing restructuring
Case formulation	Pschoeducation for the disorder is repeated and established with the patient; intolerance of uncertainty, rumination, excessive control, planning life according to the attachment figure, etc.	Identifying the factors that sustain the disease and determining the intervention areas
Exposure therapy for avoidance issues and cognitive intervention continuation	Behavior experiments Exposure-response prevention. Automatic thoughts and beliefs continue to be addressed using cross-sectional formulations in accordance with the goalsthat were set.	Cognitive restructuring and habituation
Sessions for achieving autonomy	Developing emotional regulation, self-compassion, and daily life skills.	Realizing that negative emotions are bearable, gaining the ability to regulate their own emotions, and acquiring or strengthening skills needed in daily life (such as at work, increasing financial resources, obtaining a driver's license, etc.), taking responsibility (for their work or mistakes).
Self-respect and schema focused interventions	Psychoeducation on the concepts. Behavior experiments.	Strengthening a balanced self-concept.
Coping strategies	Coping attitudes that increase dependence on others rather than developing independent skills.	Healthy and functional coping strategies are discussed.

more robust and enduring clinical change can be achieved. As clients' autonomy develops, their capacity to experience a healthy separation from the therapist further consolidates these therapeutic gains and supports a secure termination of treatment.

In the present study, the therapeutic process was conducted in accordance with the importance attributed to the therapist–patient relationship and attachment in the literature (Milrod et al., 2016), with session content and between-session tasks determined collaboratively with the patient. Despite the technical and structured nature of CBT, numerous studies have demonstrated that the therapeutic alliance is an indispensable determinant of treatment efficacy (Langhoff et al., 2008). The strategic use of the therapeutic relationship and therapist–patient attachment within the intervention process in ASAD appears to elevate the effectiveness of therapy to a more advanced level.

Sample Behavioral Experiment

A behavioral experiment, the details of which are provided in Table 3, was planned for the patient who was experiencing intense anxiety and worry as a result of his mother leaving the country for a week. Table 4 presents examples of automatic thoughts and core beliefs identified in these three cases, as well as the new beliefs that emerged following cognitive change at the end of therapy.

DISCUSSION

This case series aimed to present a clinical perspective that considers the clinical presentation and diagnostic challenges of ASAD and to outline a partially structured CBT process tailored for ASAD. The clinical features observed across the three cases were consistent with the literature on SAD in adulthood, which often includes fears of separation from various loved ones, concerns about their safety, and avoidance behaviors such as reluctance to attend work or study in another city. Unlike children

Table 3. Sample behavioral experiment

Target cognitions	Level of belief	Experiment content	Prediction	Conclusion	New cognition
I must not be separated from my mother. I cannot possibly take it.	%90	He will call his mother once a day. He will not engage in behaviors to relieve distress in situations of increased uncertainty. He will continue going to school.	I will not be able to stop myself from crying. I will not be able to stay at home. I will go mad. I will spend every second thinking about her. I will not be able to take care of myself.	He did not experience any crying spells in the absence of his mother. He managed to go to school. He managed to cook and clean. He was able spend time with his friends.	I can bear negative emotions and do not lose it. I miss my mother, but that does not mean I am helpless. It would be better if she is with me but I have realized that I can take care of myself in her absence. Loneliness does not necessarily mean helplessness.

Table 4. Thought–alternative thought

Thought	Alternative thought
Everything is complete with them.	Their presence is important in many ways, but even without them, I still have many good things in my life.
I will not be able to cope without them.	If they are not in my life, I may feel their absence, but that does not mean that I cannot function or be whole.
If all is well, it means that it will all be destroyed someday.	I can be up against the good and the bad in life. The fact that all is well in a moment does not mean that it will be destroyed later.
If I let go, I will lose everything.	When I need support, if she is absent, I might have her by my side or others.
I will miss her too much. I cannot bear being apart.	Separation may not be easy, but I can adapt and learn to tolerate it when the time comes. Perhaps I am more resilient than I think I am.
I cannot do things on my own.	Some things may be difficult to do alone, but I can always ask for help.
The world is dangerous.	The world might be dangerous, but I can handle challenges like others.
I will depend on others.	Sometimes I may need support. If in need, I can ask for help and find it. Asking for help is not a bad thing.
If my parents, partner, or child are not with me, I will feel incomplete.	Being without someone does not make me incomplete.
I am not enough on my own.	I am a capable and sufficient individual.
I am weak and helpless.	I do not have to be incredibly strong; I can find ways to cope and solve problems.
I am alone.	When I feel lonely, I can reach out to people for support and connection.

with SAD, in whom overt behaviors like crying or clinging are more common, adults more frequently exhibit subtle avoidance or safety behaviors; these patterns were evident across the cases presented. For example, the first and third cases showed avoidance of studying in another city, and the second case demonstrated frequent phone calls to loved ones. One study

reported that 69% of individuals felt safer with loved ones (Seligman & Wuyek, 2007), a feature evident in all cases.

ASAD has received relatively limited attention in clinical settings. Manicavasagar et al. suggested that ASAD is among the least recognized disorders in clinical settings, largely because its symptoms are often overshadowed by those of panic disorder, agoraphobia, or GAD. The high prevalence of psychiatric comorbidities—particularly other anxiety disorders and depression—among patients with ASAD further complicates the diagnostic process and may lead to the disorder being overlooked as a primary diagnosis and instead misinterpreted as a "secondary feature" or attributed to a "dependent personality structure" (Silove et al., 2010, Manicavasagar et al., 2010).

A review of the treatment histories revealed that the presence of significant psychiatric comorbidities contributed to diagnostic overshadowing and delayed the implementation of ASAD-specific interventions in all three cases. This finding is consistent with Manicavasagar et al. (2010), who reported that separation-related symptoms in adults are often masked by atypical presentations, such as somatic complaints or anger outbursts, leading clinicians to conceptualize them within the broader anxiety spectrum rather than recognizing ASAD as a distinct condition (Manicavasagar et al., 2010).

Current evidence suggests that the presence of comorbid ASAD may predict non-response to standard CBT. Although anxiety disorders generally show high remission rates with CBT, the presence of SAD as a comorbid condition has been associated with resistance to treatment (Aaronson et al., 2008; Milrod et al., 2014). Studies have reported that adult patients who fail to benefit from standard psychotherapy or pharmacological treatment for an anxiety disorder are often subsequently diagnosed with SAD (Milrod et al., 2016, Dogan et al., 2021). In accordance with these findings, the first case in this series was initially diagnosed with panic disorder, whereas the second and third cases were diagnosed with GAD. However, none of the patients achieved the expected therapeutic benefit from CBT before receiving an ASAD diagnosis.

Although a standardized CBT protocol specifically designed for ASAD has not yet been established, the literature emphasizes the need to adapt classical CBT approaches to address disorder-specific vulnerabilities (Kirsten et al., 2008, Manicavasagar & Silove, 2020). Individuals with ASAD frequently exhibit elevated anxiety sensitivity, intolerance of uncertainty, and separation-focused catastrophic cognitions, all of which have been shown to reduce responsiveness to standard exposure-based CBT (Kirsten et al., 2008, Wheaton & Kaiser, 2021). Consequently, several tailored interventions have been recommended, including cognitive restructuring of catastrophic interpretations related to separation and bodily sensations (Schiele et al., 2021, Wheaton & Kaiser, 2021), interoceptive exposure to reduce the avoidance of anxiety related somatic cues (Schiele et al., 2021), and systematic *in vivo* and imaginal exposure to separation-related triggers (Manicavasagar & Silove, 2020). In addition, relationally adapted interventions—such as strengthening the therapeutic alliance, addressing attachment-based fears within the therapeutic relationship, and using the therapist as a secure base—have been shown to improve treatment outcomes in adults with pronounced separation anxiety (Kirsten et al., 2008). Taken together, these findings suggest that CBT for ASAD is most effective when disorder-specific cognitive and behavioral interventions are integrated with attachment-sensitive relational strategies.

Several limitations of this case series should be noted. The inclusion of only three cases, the lack of data on family characteristics, and the absence of family sessions during the psychotherapy process constitute important limitations. Future studies and clinical applications would benefit from a larger sample size and the inclusion of additional domains, such as family involvement.

CONCLUSION

In conclusion, when SAD emerges in adulthood, diagnosis is often delayed, and symptoms are frequently misattributed to other anxiety disorders, which may result in insufficient response to psychotherapy. In cases where adequate treatment response is not achieved, the possibility of comorbid or primary SAD should be carefully considered. When SAD is identified in adulthood, CBT—when appropriately adapted—should be regarded as an effective and feasible treatment option, similar to its application in other anxiety disorders.

Ethics Committee Approval: This is a single case report, and therefore ethics committee approval was not required in accordance with institutional policies.

Informed Consent: In this study informed consent was taken from each patient.

Conflict of Interest: The authors declare that there is no conflict of interest.

Financial Disclosure: No funding was received for the preparation, writing, or publication of this study.

Use of AI for Writing Assistance: In this article AI was not used in any part of the study.

Author Contributions: Concept – SUK; Design – SUK; Supervision – SUK; Fundings – SUK, FNE; Materials – SUK; Data Collection and/or Processing – SUK; Analysis and/or Interpretation – SUK, FNE; Literature Review – SUK, FNE; Writing – SUK, FNE; Critical Review – ÖDB.

Peer-review: Externally peer-reviewed.

REFERENCES

Aaronson, C. J., Shear, M. K., Goetz, R. R., Allen, L. B., Barlow, D. H., White, K. S., Ray, S., Money, R., Saksa, J. R., Woods, S. W., & Gorman, J. M. (2008). Predictors and time course of response among panic disorder patients treated with cognitive-behavioral therapy. *The Journal of Clinical Psychiatry, 69*(3), 418–424. [CrossRef]

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). American Psychiatric Association.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association. [CrossRef]

Bayad, S., Alp Topbaş, Ö., Kocabaş, T., Elbir, M., Gökten-Ulusoy, D., Korkmaz, U., … Aydemir, Ö. (2021). DSM-5 Kişilik Bozuklukları için Yapılandırılmış Klinik Görüşme (SCID-5-PD)'nin Türkçeye uyarlanması ve psikometrik özellikleri. *Türk Psikiyatri Dergisi, 32*(4), 1–10. [Article in Turkish]

Beck, J. S. (2011). *Cognitive behavior therapy: Basics and beyond* (2nd ed.). Guilford Press.

Bögels, S. M., Knappe, S., & Clark, L. A. (2013). Adult separation anxiety disorder in DSM-5. *Clinical Psychology Review, 33*(5), 663–674. [CrossRef]

Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive-behavioral therapy: A review of meta-analyses. *Clinical Psychology Review, 26*(1), 17–31. [CrossRef]

Diriöz, M., Kılıç, C., & Kılıç, E. Z. (2011). Yetişkin Ayrılık Anksiyetesi Ölçeği (ASA-27)'nin Türkçe formunun geçerlik ve güvenirliği. *Anadolu Psikiyatri Dergisi, 12*(3), 218–224. [Article in Turkish]

Dogan, B., Kocabas, O., Sevincok, D., Baygin, C., Memis, C. O., & Sevincok, L. (2021). Separation anxiety disorder in panic disorder patients with and without comorbid agoraphobia. *Psychiatry, 84*(1), 68–80. [CrossRef]

Hisli, N. (1989). Beck depresyon envanteri'nin geçerliği üzerine bir çalışma. *Türk Psikoloji Dergisi, 7*(23), 3–13. [Article in Turkish]

Kirsten, L. T., Grenyer, B. F. S., Wagner, R., & Manicavasagar, V. (2008). Impact of separation anxiety on psychotherapy outcomes for adults with anxiety disorders. *Counselling and Psychotherapy Research, 8*(1), 36–42. [CrossRef]

Langhoff, C., Baer, T., Zubraegel, D., & Linden, M. (2008). Therapist–patient alliance, patient–therapist alliance, mutual therapeutic alliance, therapist–patient concordance, and outcome of CBT in GAD. *Journal of Cognitive Psychotherapy, 22*(1), 68–79. [CrossRef]

Majidli, S., Mammadova, S., Mammadova, G., & Aliyeva, G. (2026). Effectiveness of cognitive-behavioral therapy (CBT) in reducing anxiety symptoms across different anxiety disorders compared to control conditions and alternative treatments: A systematic literature review.

Manicavasagar, V., & Silove, D. (1997). Is there an adult form of separation anxiety disorder? A brief clinical report. *The Australian and New Zealand Journal of Psychiatry, 31*(2), 299–303. [CrossRef]

Manicavasagar, V., & Silove, D. (2020). *Separation anxiety disorder in adults: Clinical features, diagnostic dilemmas and treatment guidelines*. Academic Press.

Manicavasagar, V., Marnane, C., Pini, S., Abelli, M., Rees, S., Eapen, V., & Silove, D. (2010). Adult separation anxiety disorder: A disorder comes of age. *Current Psychiatry Reports, 12*, 290–297. [CrossRef]

Manicavasagar, V., Silove, D., & Curtis, J. (1997). Separation anxiety in adulthood: A phenomenological investigation. *Comprehensive Psychiatry, 38*(5), 274–282. [CrossRef]

Milrod, B., Altemus, M., Gross, C., Busch, F., Silver, G., Christos, P., Stieber, J., & Schneier, F. (2016). Adult separation anxiety in treatment nonresponders with anxiety disorders: Delineation of the syndrome and exploration of attachment-based psychotherapy and biomarkers. *Comprehensive Psychiatry, 66*, 139–145. [CrossRef]

Milrod, B., Markowitz, J. C., Gerber, A. J., Cyranowski, J., Altemus, M., Shapiro, T., Hofer, M., & Glatt, C. (2014). Childhood separation anxiety and the pathogenesis and treatment of adult anxiety. *The American Journal of Psychiatry, 171*(1), 34–43. [CrossRef]

Miniati, M., Calugi, S., Rucci, P., Shear, M. K., Benvenuti, A., Santoro, D., Mauri, M., & Cassano, G. B. (2012). Predictors of response among patients with panic disorder treated with medications in a naturalistic follow-up: The role of adult separation anxiety. *Journal of Affective Disorders, 136*(3), 675–679. [CrossRef]

Namlı, Z., Özbay, A., & Tamam, L. (2022). Yetişkin Ayrılma Anksiyetesi Bozukluğu: Bir Gözden Geçirme.. *Psikiyatride Güncel Yaklaşımlar, 14*(1), 46–56. [Article in Turkish] [CrossRef]

National Institute for Health and Care Excellence. (2024). *Generalised anxiety disorder and panic disorder in adults: Management* (Clinical guideline CG113). Retrived from https://www.nice.org.uk/guidance/cg113 (Original work published 2011)

National Institute for Health and Care Excellence. (2024). *Social anxiety disorder: Recognition, assessment and treatment* (Clinical guideline CG159). Retrived from https://www.nice.org.uk/guidance/cg159 (Original work published 2013)

Oliveira, C. T. D., & Dias, A. C. G. (2023). How can psychoeducation help in the treatment of mental disorders? *Estudos de Psicologia (Campinas)*, 40, e190183. [CrossRef]

Pini, S., Abelli, M., Troisi, A., Siracusano, A., Cassano, G. B., Shear, K. M., & Baldwin, D. S. (2014). The relationships among separation anxiety disorder, adult attachment style and agoraphobia in patients with panic disorder. *Journal of Anxiety Disorders, 28*(8), 741–746. [CrossRef]

Pini, S., Nardi, B., Carpita, B., Lorenzi, G., Mula, M., Milrod, B., … Baldwin, D. S. (2025). Relationships between depersonalization–derealization symptoms and separation anxiety in adult patients with mood and anxiety disorders. *Frontiers in Psychiatry, 16*, Article 1565217. [CrossRef]

Schiele, M. A., Vietz, M., Gajewska, A., Unterecker, S., Gottschalk, M. G., Deckert, J., Neufang, S., Schmidt, N. B., & Domschke, K. (2021). The cognitive anxiety sensitivity treatment (CAST) in anxiety prevention: Focus on separation anxiety and interoception. *European Neuropsychopharmacology: The Journal of the European College of Neuropsychopharmacology, 53*, 104–113. [CrossRef]

Seligman, L. D., & Wuyek, L. A. (2007). Correlates of separation anxiety symptoms among first-semester college students: An exploratory study. *The Journal of Psychology, 141*(2), 135–145. [CrossRef]

Silove, D. M., Marnane, C. L., Wagner, R., Manicavasagar, V., & Rees, S. (2010). The prevalence and correlates of adult separation anxiety disorder in an anxiety clinic. *BMC Psychiatry, 10*, Article 21. [CrossRef]

Silove, D., Alonso, J., Bromet, E., Gruber, M., Sampson, N., Scott, K., … Kessler, R. C. (2015). Pediatric-onset and adult-onset separation anxiety disorder across countries in the World Mental Health Survey. *American Journal of Psychiatry, 172*(7), 647–656. [CrossRef]

Ströhle, A., Gensichen, J., & Domschke, K. (2018). Diagnostik und Therapie von Angsterkrankungen. *Dtsch Arztebl Int, 115*(37), 611–620.

Wheaton, M. G., & Kaiser, N. (2021). Anxiety sensitivity and intolerance of uncertainty as factors related to adult separation anxiety disorder symptoms. *International Journal of Cognitive Therapy, 14*, 473–484. [CrossRef]

Yazıcı, M. K., Demir, B., Tanrıverdi, N., Karaağaç, N., Yolaç, P., & Köroğlu, E. (1998). Hamilton Anksiyete Değerlendirme Ölçeği'nin geçerlik ve güvenirliği. *Türk Psikiyatri Dergisi, 9*(2), 114–120. [Article in Turkish]

KARE
MEDYA