

# Journal of Cognitive-Behavioral Psychotherapy and Research

## ORIGINAL ARTICLES

Cognitive Behavioral Therapy in the Presence of Comorbidity in Children and Adolescents with Obsessive Compulsive Disorder

*İnci İzmir SB*

Adaptation and Validation of the Interactive Mentalization Questionnaire in Türkiye

*Ünver B*

Validation and Psychometric Examination of the Turkish Version of the Emotion Beliefs Questionnaire

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Humor in Therapy: Assessing Demand for Integration

*Çakır Mete and Selman*

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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: Kasım 2025 / November 2025

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Volume: 14 Issue: 4 Year: 2025

Journal of  
Cognitive-Behavioral  
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TUBITAK TR Index, PsycInfo, ScopeMed, Türk Psikiyatri Dizini, Türkiye Atıf Dizini, Türk Medline, Index Copernicus, DOAJ, J-Gate, UlrichsWeb, Asos, CiteFactor, DRJI, 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,  
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Dear Colleagues,

It is with great pleasure that we present the fourth issue of the *Journal of Cognitive Behavioral Psychotherapy and Research* (JCBPR) for the year 2025. This issue reflects the journal's ongoing commitment to advancing rigorous, clinically meaningful, and methodologically sound research in cognitive and behavioral sciences. Across the articles accepted for this issue, readers will see clear demonstrations of the field's growing sophistication in psychometric innovation, transdiagnostic conceptualization, and the integration of emerging themes in psychotherapy practice.

The issue opens with "Validation and Psychometric Examination of the Turkish Version of the Emotion Beliefs Questionnaire" by Ezgi Tuna and colleagues. This study contributes substantially to the growing literature on emotion-related metacognitions by providing a carefully conducted adaptation and validation of an important tool for assessing emotion beliefs in Turkish-speaking populations. The authors employ a thorough psychometric methodology, enhancing the field's measurement repertoire and enabling future cognitive and metacognitive research in diverse samples.

We also feature "Humor in Therapy: Assessing Integration Demand" by Betül Çakır Mete and Saliha B. Selman, an innovative contribution exploring the nuanced boundaries of therapeutic technique. Rather than treating humor as a superficial therapeutic embellishment, this article examines the cognitive, relational, and contextual parameters that influence when and how humor may be appropriately integrated into psychotherapy. Their findings offer clinicians a grounded framework for conceptualizing humor within a CBT-consistent therapeutic stance.

Another empirical highlight of this issue is "Cognitive Behavioral Therapy in the Presence of Comorbidity in Children and Adolescents with Obsessive-Compulsive Disorder" by Sevim Berrin İnci İzmir. The study addresses one of the most clinically relevant challenges in child and adolescent mental health—managing comorbidity within CBT protocols for OCD. The authors provide valuable clinical implications, offering guidance on tailoring interventions without sacrificing fidelity to evidence-based principles.

Expanding the issue's scope, we include the comprehensive review "Dissociative Symptoms in Psychiatric Disorders" by Ufuk Kocatepe Avcı. This article synthesizes a rapidly evolving and often fragmented literature, clarifying the prevalence, phenomenology, and cognitive-behavioral conceptualizations of dissociation across diagnostic categories. Importantly, it outlines opportunities for CBT-aligned formulation and intervention strategies, a topic of increasing relevance to both practitioners and researchers.

Finally, "Turkish Adaptation and Validation of the Interactive Mentalization Questionnaire" by Buket Ünver and colleagues offers another psychometrically rigorous scale adaptation study. Mentalization-based constructs continue to intersect meaningfully with CBT, especially within third-wave approaches and process-based frameworks. This contribution enriches the available tools for assessing interpersonal and reflective processes and reinforces the journal's dedication to high-quality measurement science.

As we continue strengthening JCBPR's role in disseminating impactful work, we are delighted to share a major milestone for our professional community. In alignment with our mission to foster scientific exchange and promote excellence in cognitive and behavioral therapies, we are pleased to announce the upcoming "5th Congress of Cognitive Behavioral Psychotherapies," to be held in Ankara between April 30 and May 3, 2026.

The congress will take place under the theme "Cognitive Behavioral Therapy as an Umbrella Concept in Psychotherapy." We take great pride in preparing an international scientific program featuring distinguished scholars, trainers, clinicians, and researchers from Türkiye and abroad—each of whom has contributed meaningfully to the advancement of CBT. The congress aims to cover the full breadth of contemporary topics in CBT, from foundational mechanisms and process-based approaches to innovations in digital mental health, transdiagnostic models, and psychotherapy integration.

We warmly invite our readers, authors, reviewers, and the broader CBT community to join us in Ankara as we collectively celebrate progress, debate emerging ideas, and shape the future of cognitive behavioral psychotherapies.

We extend our sincere gratitude to our authors for their contributions, to our reviewers for their time and expertise, and to our editors for their dedication to maintaining the scientific integrity of the journal. We also thank our readers, whose engagement motivates our continued pursuit of excellence.

We hope that this issue of JCBPR inspires new research questions, informs clinical practice, and deepens understanding across the many domains that fall under the CBT umbrella.

**Mehmet Hakan Türkçapar, MD, PhD**  
Editor-in-Chief  
Journal of Cognitive-Behavioral Psychotherapy and Research

# Cognitive Behavioral Therapy in the Presence of Comorbidity in Children and Adolescents with Obsessive Compulsive Disorder

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## ABSTRACT

Obsessive compulsive disorder (OCD) is a common condition in children and adolescents that can impair social, emotional, and educational development if left untreated. This study investigated the effectiveness of cognitive behavioral therapy (CBT) in treating OCD in 54 participants aged 8–16 years, with or without psychiatric comorbidities. Patients were assessed at baseline and after 3 and 6 months of CBT. Comorbidity was present in 57.4% of the patients. Although no significant differences in symptoms were found between the age groups, comorbidities were more frequent in adolescents. After 6 months of CBT, Childhood Yale-Brown Obsessive-Compulsive Scale scores significantly improved in both groups, more notably in those without comorbidity (29.56–1.56) than in those with comorbidity (35.22–17.29). The findings emphasize that CBT was effective for both groups but improvement was limited when comorbidities were present.

**Keywords:** Adolescents, children, cognitive behavioral therapy, comorbidity, obsessive compulsive disorder.

## ÖZ

### Obsesif Kompulsif Bozukluğu Olan Çocuk ve Ergenlerde Komorbidite Varlığında Bilişsel Davranışçı Terapi

Obsesif Kompulsif Bozukluk (OKB), tedavi edilmezse sosyal, duygusal ve eğitimsel gelişimi bozabilecek, çocuklarda ve ergenlerde sık görülen bir durumdur. Bu çalışmada, psikiyatrik komorbiditesi olan veya olmayan 8-16 yaş arası 54 katılımcıda OKB tedavisinde Bilişsel Davranışçı Terapinin (BDT) etkinliği araştırıldı. Katılımcılar, başlangıçta ve üç ve altı aylık BDT sonrasında değerlendirildi. Örneklemin %57,4'ünde komorbidite mevcuttu. Yaş grupları arasında semptomlarda önemli bir fark bulunmazken, komorbiditeler ergenlerde daha sık görüldü. Altı aylık BDT'nin ardından, Çocukluk Yale-Brown Obsesif Kompulsif Ölçeği puanları her iki grupta da önemli ölçüde düştü; komorbiditesi olmayanlarda (29,56'dan 1,56'ya) komorbiditesi olanlara (35,22'den 17,29'a) göre daha belirgin bir iyileşme görüldü. Bulgular, BDT'nin her iki grup için de etkili olduğunu, ancak komorbiditelerin varlığında iyileşmenin daha sınırlı olduğunu vurgulamaktadır.

**Anahtar Kelimeler:** Ergenler, çocuklar, bilişsel davranışçı terapi, komorbidite, obsesif kompulsif bozukluk.



### Cite this article as:

İnci İzmir SB. Cognitive Behavioral Therapy in the Presence of Comorbidity in Children and Adolescents with Obsessive Compulsive Disorder. J Cogn Behav Psychother Res 2025;14(4):241-252.

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Submitted: 28.08.2025

Revised: 28.09.2025

Accepted: 19.10.2025

Available Online: 18.12.2025

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



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## INTRODUCTION

Obsessive compulsive disorder (OCD) is a prevalent disorder defined by the presence of recurrent obsessions and compulsions that cause marked emotional distress (DSM-5). OCD prevalence in children and adolescents is estimated to be approximately 2% (Rapoport et al, 2000; Heyman et al, 2001). OCD often persists into adulthood if left untreated, resulting in significant impairment

across social, academic, and emotional domains. One of the major clinical concerns of pediatric OCD is its high comorbidity with other psychiatric disorders. Commonly associated conditions include depression, generalized anxiety disorder, specific phobias, attention deficit hyperactivity disorder, and oppositional defiant disorder (Weidle et al, 2014; Storch et al, 2010). Approximately 80% of children with OCD present with at least one comorbid disorder (Erçan et al, 2015; Storch et al, 2010). Previous studies have consistently highlighted the frequent occurrence of comorbidities among patients with OCD (Franklin et al, 2012; Weidle et al, 2014; Sanchez-Meca et al, 2014). The presence of such comorbidities not only increases clinical presentation severity but also complicates treatment planning and delivery. The simultaneous presence of two or more disorders in a patient has been associated with reduced treatment response and higher relapse rates following pharmacological and psychological interventions. Therefore, careful evaluation and accurate diagnosis of comorbid conditions are crucial in clinical practice. Storch et al. (2008) indicated that certain comorbid psychiatric disorders associated with OCD, such as disruptive behavior disorders, depression, and ADHD, can intensify OCD severity in children while impairing their psychosocial functioning, treatment response, and remission rates with CBT compared with those without comorbidity. Treatment adherence and response were consistently reduced across multiple comorbid conditions. Comorbidities complicate pharmacological and psychotherapeutic choices and predict chronicity, higher suicidality, and functional impairment (Pallanti et al, 2011). Farrell et al. (2012) reported that children with one or more comorbidities showed weaker responses to CBT, with outcomes declining as the number of comorbid conditions increased. Similarly, studies by Garcia et al. (2011) and Ginsburg et al. (2008), along with findings from Storch et al. (2008), indicated that poorer treatment response was predicted by externalizing disorders such as ADHD, oppositional defiant disorder, and conduct disorder. Furthermore, externalizing and depressive disorders were associated with reduced remission rates.

Pharmacological interventions are recommended for patients with severe OCD with more severe symptoms. A recent review by Mancuso et al. (2010), encompassing 21 studies with more than 1,300 pediatric patients, showed the efficacy of serotonergic medications in the short- and medium-term treatment of OCD. The Pediatric OCD Treatment Study (POTS, 2004) evaluated sertraline, CBT, and their combination in 112 youths aged 7–17 years. After 12 weeks, all treatment groups outperformed placebo, with the highest remission in the combined group (53.6%), followed by CBT (39.3%), sertraline (21.4%), and placebo (3.6%). CBT was superior to placebo but not significantly different from sertraline, whereas sertraline alone did not separate from placebo.

The AACAP (2012) recommended CBT as the first-line treatment for children with mild to moderate OCD. A meta-analysis by Reynolds, Wilson, Austin, and Hooper (2012) demonstrated that CBT yields large effect sizes in treating pediatric OCD. Empirical evidence strongly supports CBT as an effective treatment for OCD, particularly when combined with exposure and response prevention (ERP) (Farrell et al, 2016). In addition, it substantially decreases the severity of OCD symptoms compared with waitlist controls (Williams et al, 2010; Storch et al, 2010), placebo (POTS, 2004). Randomized controlled trials indicate that CBT provides significant therapeutic benefits in OCD treatment (Watson & Rees, 2008). Effective programs typically integrate psychoeducation, cognitive retraining, and ERP. Even short interventions (as brief as 5 weeks) can significantly improve CY-BOCS scores and overall functioning (Bolton et al, 2011). Weekly sessions are as effective as daily sessions (Storch et al., 2008). Parental involvement enhances outcomes, with models such as Positive Family Interaction Therapy yielding higher response rates than traditional CBT with limited parent participation (Peris & Piacentini, 2013). Telephone- and web-based CBT programs have proven as effective as in-person therapy to address accessibility issues; group CBT is equally efficacious (Storch et al, 2010; Turner et al, 2014). Finally, family-based CBT with ERP outperforms relaxation training in young children (ages 5–8), improving symptoms and daily functioning (Freeman et al, 2012). In a preliminary randomized trial, Merlo et al. (2009) demonstrated that children and adolescents with OCD who received CBT combined with motivational interviewing (MI) showed significantly greater reductions in CY-BOCS scores at mid-treatment (sessions 5 and 9) compared with those receiving CBT plus psychoeducation, with large effect sizes favoring MI. Although post-treatment outcomes were similar across groups, the MI group required, on average, three fewer sessions to achieve comparable gains and had no dropouts.

Despite this, 23%–49% of children with OCD and comorbid conditions respond poorly to treatment, and nearly two-thirds discontinue therapy prematurely. To address this challenge, integrating MI techniques into CBT has been recommended to improve adherence (Ögel & Coşkun, 2011). Preliminary findings indicate that combining CBT with MI may improve treatment outcomes in pediatric OCD (Franklin et al, 2015).

The identification and evaluation of comorbid psychiatric conditions is a key component of effective treatment planning for children with OCD. Only a few clinically based studies on this topic have been conducted in Turkey. This study aimed to investigate the efficacy of CBT for treating children and adolescents with OCD with or without comorbidity.

## METHODS

This cross-sectional study sample included 54 children and adolescents, 8–16 years of age ( $12.00 \pm 2.69$ ), including 25 girls and 29 boys, from the Child and Adolescent Private Psychiatry Clinic in İzmir, Türkiye, who were diagnosed with OCD according to DSM-5 criteria.

At the first psychiatric admission, parents and children were interviewed using the Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children–Present and Lifetime Version (K-SADS-PL). Symptoms of obsessive and compulsive behaviors were assessed using the Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS). Depression inventories were administered to the children and adolescents. As secondary outcome measures, the Clinical Global Impressions-Improvement (CGI-I) scale (Guy, 1976) and the Clinical Global Impressions-Severity (CGI-S) scale were used.

### Assessment Procedure

The purpose of the study was explained separately to parents and adolescents. It was stated that the study was voluntary, and verbal and written consent was obtained that the data collected would be used in the study, with identity information kept confidential. Data were collected after all parents, children, and adolescents gave their consent to participate. A total of 54 children and adolescents with OCD were given CBT incorporating ERP, comprising 24 sessions with a trained CBT therapist for the 6<sup>th</sup> month. Participants were evaluated at baseline, at the end of the 3<sup>rd</sup> month, and at the end of the 6<sup>th</sup> month of treatment. Children and adolescents with intellectual disabilities, a history of head trauma involving loss of consciousness, neurological disorders, other serious medical conditions, or those receiving antipsychotic or antidepressant medications (except methylphenidate) were excluded from the study. Treatment-naïve children and adolescents were included in the study. The child and adolescent psychiatrist administered K-SADS-PL, CGI-I, and CGI-S. To prevent assessor bias, two psychologists administered CY-BOCS assessments simultaneously. Additionally, Beck depression inventory (BDI) and children's depression inventory (CDI) measurement tools were used to assess depressive symptoms, given the sample's age range. The study was conducted in accordance with the Helsinki Declaration. The ethical approval was obtained from the İnönü University Social and Human Sciences Ethics Committee (approval number: 17-04; date: August 16, 2025).

### Therapy Procedure

CBT was based on the principles outlined by March and Mulle (2012). The primary treatment objective is to correct patients' misinterpretations regarding the significance of their unwanted intrusive thoughts and to disrupt the behavioral cycle in which

compulsions and avoidance perpetuate anxiety and reinforce danger-related beliefs. Treatment begins with the therapist developing an initial case formulation. This formulation, which is refined throughout the therapy, provides the foundation for intervention. This study incorporates historical information about the emergence and progression of OCD, along with the cognitive distortions that sustain the disorder. The next step is psychoeducation. The OCD was explained to the patients using age-appropriate metaphors. Psychoeducation includes describing and drawing an anxiety curve and demonstrating that nearly everyone has intrusive thoughts. The importance of family accommodation to the child's OCD symptoms was also explained to the family. Assignments given to families focused on decreasing behavioral expectations of the child/adolescent, restructuring family activities and routines, and limiting assistance that allowed the avoidance of distress-inducing experiences, places, or objects. The third therapy step is cognitive reconstruction. It consists of the modification of the beliefs involved in and resulting in the misinterpretation of intrusive thoughts. Common cognitive distortions underlying obsessions include thought–action fusion, heightened sense of responsibility for harm prevention, rigid black-and-white thinking, and perfectionism coupled with difficulty tolerating uncertainty, which fosters the belief that tasks must be completed perfectly to avert negative outcomes; these responses include suppression and compulsive behaviors aimed at preventing disaster. Finally, behavioral techniques (exposure with response prevention) were planned for exposure to situations that cause distress without any compulsive behavior or safety-seeking behavior. Behavioral techniques aim to help children develop a sense of control and predictability and modify their beliefs and interpretations. When using ERP, triggers (situation, place, person, etc.) were first identified. Then, an anxiety hierarchy was created; it started with the trigger that caused the least distress. During exposure, the child or adolescent was prevented from using any distractions or compulsions. Their thoughts, distress level, and feelings before exposure were determined, and they were asked to note any changes in these after exposure. Additionally, the frequency and duration of the exposure work were planned on an individual basis. Finally, relapse prevention strategies were identified. Parents were involved at the end of the sessions. All participants received the same therapy protocol, regardless of whether they had comorbidities or not. Participant attendance and assessment completion were prospectively tracked. Sessions were scheduled around school hours with make-ups offered to minimize dropout, parents were routinely involved in the sessions, brief reminder contacts were used, and MI elements were incorporated to support adherence. All participants completed the 3- and 6-month evaluations.

## Measures

### *Kiddie-SADS-Lifetime Version (KSADS-PL)*

This is a semi-structured diagnostic interview widely used to assess a broad spectrum of psychiatric disorders in children and adolescents, based on DSM-III-R and DSM-IV criteria. The KSAD-PL was administered and scored by a child and adolescent psychiatrist through one-on-one interviews with the families and children. It is considered a highly reliable tool, and Gökler et al. (2004) established its Turkish reliability and validity.

### *CY-BOCS*

CY-BOCS is regarded as the standard measure for evaluating the severity of OCD symptoms in older children and adolescents (aged 8–18 years) with an OCD diagnosis (Freeman et al, 2011). Two psychologists scored the CY-BOCS during one-on-one interviews with the families and children. The Turkish version of this scale is valid and reliable for assessing OCD symptoms in children (Yucelen et al, 2006). In this study, the internal consistency coefficient of the scale was reported as 0.85.

### *Clinical Global Impressions-Severity (CGI-S)*

CGI-S consists of a single clinician-rated item that evaluates the overall severity of a patient's mental illness based on clinical experience with similar populations. CGI-S was scored by a child and adolescent psychiatrist and psychologist after one-on-one interviews with the families and children. It uses a 7-point scale ranging from 1 (normal, not at all ill) to 7 (among the most severely ill) (Busner & Targum, 2007).

### *Clinical Global Impressions-Improvement (CGI-I)*

CGI-I is administered at each follow-up after treatment begins. The clinician assesses the patient's current clinical status in comparison with baseline at treatment initiation. CGI-I was scored by a child and adolescent psychiatrist and psychologist after one-on-one interviews with the families and children. The scale includes one question rated on a 7-point scale: 1=very much improved, 2=much improved, 3=minimally improved, 4=no change, 5=minimally worse, 6=much worse, and 7=very much worse (Busner & Targum, 2007).

### *BDI*

This self-report scale was designed to assess depressive symptoms and attitudes. It contains 21 items scored on a Likert scale from 0 to 3, yielding total scores between 0 and 63 (Beck et al, 1961). Severity levels were categorized as follows: 0–9=minimal depression, 10–16=mild, 17–29=moderate, and 30–63=severe depression. It was completed by children and adolescents with the assistance of a psychologist. The validity

and reliability of the Turkish version were established by Hisli (1988). In this study sample, the internal consistency of the scale was 0.84.

### *CDI*

This questionnaire is a 27-item self-report designed to assess cognitive, behavioral, and affective symptoms of depression in children (Kovacs, 1981). The total scores range from 0 to 54. It was completed by children and adolescents with the assistance of a psychologist. The Turkish version and validation were performed by Oy (1991), who recommended a cut-off score of 19 for identifying depression. The scale demonstrated an internal consistency coefficient of 0.81 in the current study sample.

## Data Analysis

Statistical analyses were conducted using SPSS version 18. Before data collection, we conducted an a priori G-power analysis for a mixed repeated-measures ANOVA with two groups (comorbid vs. non-comorbid) and three time points (baseline, 3 months, and 6 months) (Faul et al, 2007). Assuming a medium interaction effect ( $f=0.25$ ),  $\alpha=0.05$ , desired power=0.80, correlation among repeated measures=0.50, and  $\epsilon=1.0$ , approximately 48–52 participants were required. Therefore, we targeted  $\geq 50$  participants and enrolled  $n=54$ , which was sufficient for the primary hypothesis and provided additional precision for secondary outcomes (CGI-S/CGI-I, BDI/CDI). Descriptive statistics were applied to summarize the characteristics of participants with OCD. Before group comparisons, continuous variables were assessed for normality and homogeneity of variance. Normality of residuals was assessed using Shapiro–Wilk tests and Q–Q plots; homogeneity of variance was assessed using Levene's test with a  $p>0.05$  rule; and sphericity was assessed using Mauchly's test. As the data met assumptions of normal distribution, ANOVA and independent-samples t-tests were conducted. Repeated-measures analyses were employed to evaluate treatment-related changes. Statistical significance was defined as a p-value below 0.05.

## RESULTS

The participants had a mean age of  $12.07\pm 2.69$  years; the sample consisted of 54 children aged 8–16 years, with 25 females and 29 males. The mean ages of females were  $12.36\pm 2.76$  and of men were  $11.8\pm 2.64$ . The sociodemographic characteristics are shown in Table 1. The baseline group differences are shown in Table 2.

The most commonly observed obsessions were health-related, including fear of catastrophic family and individual events, whereas the most common compulsions reported

**Table 1.** Sociodemographic features of children and adolescents with obsessive compulsive disorder

	n	%
Age, Mean (SD)	12.07	2.67
Age groups		
8–11 years	9.32	1.09
12–16 years	13.97	1.58
Gender		
Male	29	53.7
Female	25	46.3
Socioeconomic level		
High	4	7.4
Medium	21	38.9
Low	29	53.7
Father’s education		
Primary school	2	3.7
Middle school	–	–
High school	2	3.7
University	37	68.5
Master’s degree	13	24.1
Mother’s education		
Primary school	2	7.4
Middle school	2	3.7
High school	4	7.4
University	35	66.7
Master’s degree	10	18.5
Comorbidities in children		
None	23	42.6
ADHD	5	9.3
MD	2	3.7
GAD	6	11.1
ADHD+ODD	7	13
ADHD+MD	8	14.8
ADHD+GAD	3	5.6

ADHD: Attention deficit hyperactivity disorder; ODD: Oppositional defiant disorder; MD: Major depression; GAD: Generalized anxiety disorder.

were controlling behaviors and hoarding/saving. There were no statistically significant differences across genders according to the observed obsessions and compulsions ( $p>0.05$ ). Furthermore, no statistically significant differences were found between children (8–10 years old) and adolescents (11–16 years old) regarding these obsessions and compulsions ( $p>0.05$ ).

Assessment of psychiatric comorbidities revealed that 57.4% of children with OCD presented with at least one comorbid disorder. ADHD was the most common comorbidity and was present in 50% of cases. The results indicated that 60% of females and 55.2% of males presented with at least one psychiatric comorbidity. No statistically significant differences were observed among genders according to psychiatric comorbidity ( $\chi^2=0.13$ ;  $p>0.05$ ). Table 1 presents the distribution of comorbidities. The comorbidity rate was higher in adolescents (61.3%) (11–16 years old) than in children (38.7%) (8–10 years old); however, the difference was not statistically significant ( $\chi^2=0.124$ ;  $p>0.05$ ).

At baseline, significant differences were observed between the groups in terms of compulsions ( $t(52)=-3.87$ ,  $p<0.001$ ) and obsessions ( $t(52)=-3.54$ ,  $p<0.001$ ). The total baseline means of compulsions and obsessions were higher in the comorbidity group than in the noncomorbidity group. In addition, there were statistically significant differences between them at the 3<sup>rd</sup> month of CBT means of compulsions ( $t(52)=-10.26$ ,  $p<0.001$ ) and obsessions ( $t(52)=-10.56$ ,  $p<0.001$ ) and at the 6<sup>th</sup> month of CBT means of compulsions ( $t(52)=-12.25$ ,  $p<0.001$ ) and obsessions ( $t(52)=-12.36$ ,  $p<0.001$ ). The total 3<sup>rd</sup> and 6<sup>th</sup> months of CBT means of compulsions and obsessions were higher in the comorbidity group than in the noncomorbidity group.

Bonferroni-adjusted pairwise comparisons showed that OCD severity decreased from baseline to 3 months ( $M_{diff}=13.65$ ,  $SE=1.05$ , 95% CI [11.05, 16.25],  $p<0.001$ ), from 3 to 6 months ( $M_{diff}=8.57$ ,  $SE=0.56$ , 95% CI [7.20, 9.95],  $p<0.001$ ), and from baseline to 6 months ( $M_{diff}=22.22$ ,  $SE=1.06$ , 95% CI [19.60, 24.84],  $p<0.001$ ). Thus, CY-BOCS scores for obsessions and compulsions showed significant reductions in both groups after 3 months of CBT, regardless of comorbidity status. Moreover, improvements continued to be evident at the 6-month follow-up. Overall, total CY-BOCS scores demonstrated a statistically significant improvement as a function of treatment duration ( $p<0.05$ ). The baseline mean of total CY-BOCS score in children with at least one comorbidity was decreased from  $35.22\pm 5.02$  to  $17.29\pm 5.16$  at the 6<sup>th</sup> month of treatment. For children with OCD without comorbid disorders, the baseline mean of total CY-BOCS score was decreased from  $29.56\pm 4.87$  to  $1.56\pm 4.25$  at the 6<sup>th</sup> month of treatment. There were statistically significant differences between children with OCD with or without comorbidity at the end of the 3<sup>rd</sup> month of therapy ( $t(52)=-10.77$ ,  $p<0.001$ ) and at the end of the 6<sup>th</sup> month of therapy ( $t(52)=-11.90$ ,  $p<0.001$ ). Figure 1 shows the improvements in the means of total CY-BOCS scores.

A repeated-measures ANOVA was conducted to assess the effect of therapy on CY-BOCS scores in the group without

**Table 2.** Baseline group differences

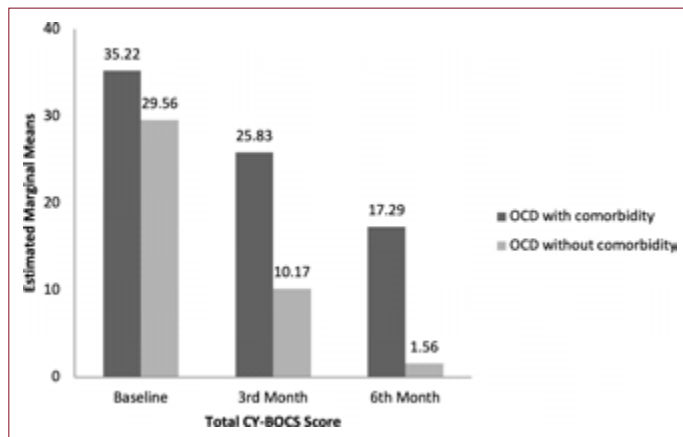
	t	df	p	Mean difference	SE difference	Cohen's d
Age	0.54	52	0.593	0.40	0.75	0.15
Gender	0.35	52	0.727	0.0490	0.14	0.097
BDI baseline	-1.48	30	0.149	-4.21	2.84	-0.53
CDI baseline	-1.99	20	0.061	-6.07	3.05	-0.85
CY-BOCS baseline	-4.14	52	<0.001	-5.66	1.37	-1.14

df: Degrees of freedom; SE: Standard error; BDI: Beck Depression Inventory; CY-BOCS: Childhood Yale-Brown Obsessive Compulsive Scale; CDI: Children's Depression Inventory.

**Table 3.** Group comparison of CY-BOCS scores

	With comorbidity		Without comorbidity		t	df	p	Cohen's d
	Mean	SD	Mean	SD				
Baseline compulsion total score	17.58	2.46	14.70	3.02	-3.87	52	<0.001	-1.06
Baseline obsession total score	17.59	3.02	14.83	2.53	-3.54	52	<0.001	-0.98
3 <sup>rd</sup> month compulsion total score	12.84	2.34	5.44	2.97	-10.26	52	<0.001	-2.82
3 <sup>rd</sup> month obsession total score	12.94	2.84	4.44	3.03	-10.58	52	<0.001	-2.91
6 <sup>th</sup> month compulsion total score	8.68	2.45	0.83	2.14	-12.25	52	<0.001	-3.37
6 <sup>th</sup> month obsession total score	8.84	2.54	0.74	2.13	-12.36	52	<0.001	-3.40

df: Degrees of freedom; SD: Standard deviation.



**Figure 1.** Means of total CY-BOCS score.

OCD: Obsessive compulsive disorder; CY-BOCS: Children's Yale-Brown Obsessive-Compulsive Scale.

comorbidity. The sphericity assumption was met according to Mauchly's test,  $\chi^2(2)=0.71$ ,  $p=0.07$ . Significant differences were observed between the mean CY-BOCS scores ( $F(2, 44)=259.014$ ,  $p<0.001$ , partial  $\eta^2=0.92$ ). The variance in total CY-BOCS scores was explained by CBT at a rate of nearly 92%. In addition, Mauchly's test demonstrated compliance with the sphericity assumption,  $\chi^2(2)=0.60$ ,  $p<0.001$  for the comorbidity

group. The analysis revealed statistically significant differences in CY-BOCS mean scores ( $F(2, 60)=204.60$ ,  $p<0.001$ ; partial  $\eta^2=0.87$ ). Table 3 summarizes the detailed group comparison results for CY-BOCS scores at baseline and following 3 and 6 months of therapy.

Although the groups differed at baseline on the CY-BOCS subscales, a sensitivity analysis using repeated-measures ANCOVA with baseline CY-BOCS total as a covariate showed that the covariate was not a significant predictor, and the group  $\times$  time conclusions were unchanged ( $F(2,50)=2.23$ ,  $p=0.142$ ). In the repeated-measures ANOVA conducted with comorbidity and three time intervals, the main effect of time was found to be very strong ( $F(2,51)=392.98$ ,  $p<0.001$ , partial  $\eta^2=0.94$ ). Bonferroni-adjusted pairwise comparisons showed that the improvement was  $D06>D03>D36$  (all pairwise comparisons  $p<0.001$ ), that is, the total improvement over 0–6 months was the largest, the improvement over 0–3 months was moderate, and the additional improvement over 3–6 months was the smallest. The time  $\times$  group interaction was significant ( $F(2,104)=21.66$ ,  $p<0.001$ , partial  $\eta^2=0.30$ ). Children without comorbidities showed much greater improvement than those with comorbidities in the 0–3 and 0–6 intervals, whereas additional gains in the 3–6 interval were similar in both groups. According to the adjusted change means, the group without comorbidity achieved

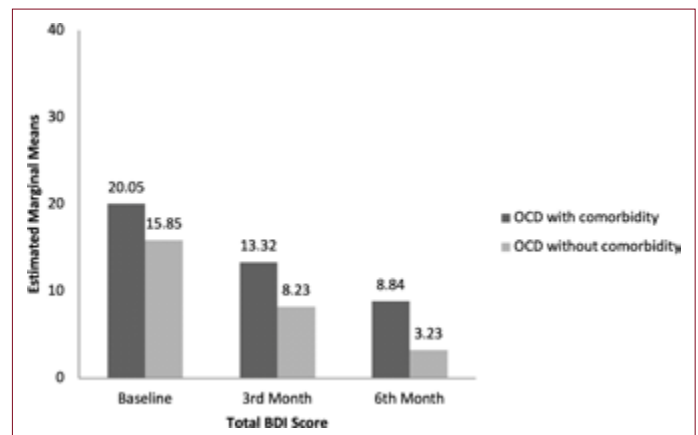
**Table 4.** Rate of clinical global impressions-severity and improvement according to the existence of comorbidity

	OCD with comorbidity		OCD without comorbidity		p	
	n	%	n	%		
CGI-S						
Normal, not at all ill	–	–	–	–	0.000	
Borderline mentally ill	–	–	–	–		
Midly ill	–	–	–	–		
Moderately ill	–	–	–	–		
Markedly ill	2	3.2	42	91.3		
Severely ill	50	80.6	4	8.7		
Extremely ill	10	16.1	–	–		
	3 months of treatment		6 months of treatment		p	p
	n	%	n	%		
Very much worse	–	–	–	–	0.001	0.000
Much worse	–	–	–	–		
Minimally worse	–	–	–	–		
No change	8	12.9	–	–		
Minimally Improved	42	67.7	14	22.6		
Much improved	12	19.4	38	61.3		
Completely improved	–	–	10	16.1		
	3 months of treatment		6 months of treatment		p	p
	n	%	n	%		
Very much worse	–	–	–	–	0.001	0.000
Much worse	–	–	–	–		
Minimally worse	–	–	–	–		
No change	8	12.9	–	–		
Minimally Improved	42	67.7	14	22.6		
Much improved	12	19.4	38	61.3		
Completely improved	–	–	10	16.1		

CGI-S: Clinical Global Impressions-Severity; CGI-I: Clinical Global Impressions-Improvement, OCD: Obsessive compulsive disorder.

13.69 points (SE=1.60,  $p < 0.001$ ) more improvement at 0–3 months and 14.40 points (SE=1.49,  $p < 0.001$ ) more improvement at 0–6 months compared with the comorbid group (partial  $\eta^2 = 0.589-0.646$ ). The overall between-group difference was also significant ( $F(1,52) = 37.04$ ,  $p < 0.001$ , partial  $\eta^2 = 0.42$ ). The study demonstrated that comorbidity status has a significant impact on the response to CBT. Moreover, comorbidity weakens early gains and overall treatment effect; additional improvement between 3 and 6 months follows a similar trajectory.

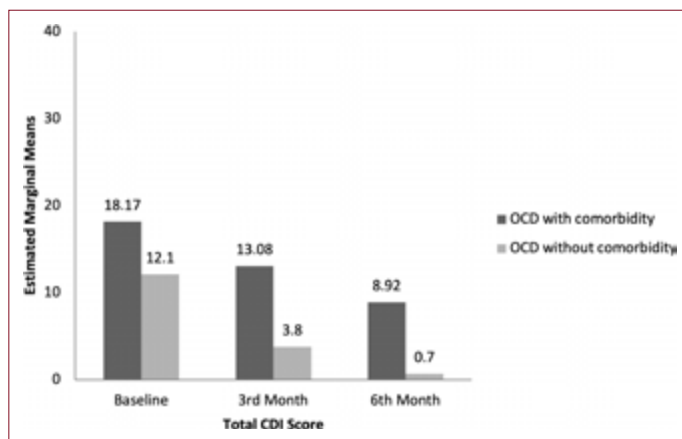
When evaluating BDI total scores for adolescents according to whether they had any comorbidity, statistically significant differences were found between the means of BDI score at the end of the 3<sup>rd</sup> month of CBT ( $t(30) = -2.11$ ,  $p < 0.05$ ) and at the end of the 6<sup>th</sup> month of CBT ( $t(30) = -3.13$ ,  $p < 0.01$ ) (Fig. 2). The BDI scores of adolescents without comorbidities decreased more significantly after CBT than those with comorbidities. In addition, in the assessment of overall CDI scores for children adolescents according to whether they had any comorbidity, statistically significant differences were found between the means of CDI score at the baseline ( $t(13.29) = -2.15$ ,  $p = 0.05$ ), at the end of the 3<sup>rd</sup>



**Figure 2.** Means of the total BDI score in adolescents.

BDI: Beck Depression Inventory; OCD: Obsessive compulsive disorder.

month of CBT ( $t(12.84) = -3.92$ ,  $p < 0.01$ ) and at the end of the 6<sup>th</sup> month of CBT ( $t(13.16) = -5.87$ ,  $p < 0.001$ ) (Fig. 3). Similar to adolescents, children without comorbidities showed a more significant decrease in CDI scores after CBT than those with comorbidities.



**Figure 3.** Means of the total CDI score in children.

CDI: Children's Depression Inventory; OCD: Obsessive compulsive disorder.

The CGI-S and CGI-I subscales also demonstrated significant improvements following CBT. Specifically, the severity of obsessions and compulsions was markedly reduced with treatment (Table 4). In total, 16.1% of children with OCD and comorbidity demonstrated dramatic improvements since the initiation of therapy, and 61.3% of them also showed significant improvement. In addition, 95.6% of the children with OCD without comorbidity showed complete improvement, whereas the remaining 4.3% demonstrated minimal improvement. The CGI-I scores of the children in the comorbidity group were lower than those of the children with only OCD. Specifically, the severity of the symptoms of OCD, regardless of the presence of comorbidity, decreased significantly during the 3<sup>rd</sup> month of CBT, with significant improvements observed during the 6<sup>th</sup> month of CBT as evaluated by the CGI-S and CGI-I subscales, respectively.

## DISCUSSION

This study assessed the efficacy of CBT for pediatric OCD in participants with and without psychiatric comorbidities. It showed that CBT was effective in both groups, although improvement was more limited in patients with comorbidities. Liber et al. (2010) stated that symptom severity and having a comorbid disorder affect the treatment response. However, some studies have stated that CBT is equally effective for children with anxiety disorders with or without comorbidity (Southam-Gerow et al, 2008). Some studies have emphasized that having comorbidity negatively impacts the treatment response of children (Kennard et al, 2005; Startevic, 2005).

Our results indicated that the most commonly observed obsessions were related to health, which includes fear of catastrophic family and individual events, and the most common types of compulsions observed were checking and hoarding/saving. Hojgaard et al. (2018) reported that

the symmetry and hoarding symptom dimensions are more common in adolescents than in children. In addition, previous studies have indicated that the symmetry and hoarding dimensions are generally associated with a higher risk of comorbidity (Torres et al, 2016; Hojgaard et al, 2018).

Comorbidities often add complexity to the progression and clinical management of OCD. Garcia et al. (2011) reported that baseline OCD severity, impairment, insight, comorbid externalizing symptoms, and family accommodation reduced CBT treatment response. Consistent with the current study, Storch et al. (2008) stated that children with OCD who have any comorbidity had reduced treatment response to CBT. In contrast to this study, Farrell et al. (2012) found that having comorbidities did not negatively affect the treatment response. More recently, Farrell et al. (2020) observed that children with OCD+ADHD were less likely to be responders or remitters after CBT than those without ADHD. Garcia et al. (2011), Ginsburg et al. (2008), and Storch et al. (2008) reported that comorbid externalizing disorders, such as ADHD, ODD, and conduct disorder, were linked to poorer CBT response, and that externalizing and depressive comorbidities were associated with lower remission rates. This finding is consistent with our study results.

The treatment content of the disorder accompanying OCD has different effects on the treatment response. According to Pallantini et al. (2011), comorbidity is common in pediatric OCD and often dampens the CBT/ERP response unless treatment is adapted. Comorbid depression is linked to worse outcomes with behavioral therapy, likely by reducing motivation and learning, whereas bipolar spectrum comorbidity undermines compliance and requires mood stabilization first—otherwise standard OCD treatment (including SSRIs used alongside CBT) can destabilize mood. In contrast, youth with tic disorders tend to respond less well to SSRIs but show comparable benefit from CBT/ERP; therefore, graded, prolonged exposures with strict response prevention should be emphasized in therapy. Comorbid anxiety disorders (e.g., GAD, PD, and PTSD) heighten avoidance and indecisiveness, necessitating clearer rationales and heavier parent coaching to reduce family accommodation. ADHD/TS comorbidity brings attentional and organizational difficulties (and more hoarding); therefore, sessions often need a tighter structure, shorter exposure trials with repetition, and external support for homework. Psychosis-spectrum comorbidity (poor insight and delusional themes) complicates diagnosis and may limit CBT targets until psychosis is stabilized. Overall, comorbidities predict greater severity and chronicity; therefore, to preserve effectiveness, manualized CBT should be delivered with fidelity but tailored parent modules, homework scaffolding, careful pacing, and mood monitoring.

Comorbid psychiatric conditions are common in children with OCD. Storch et al. (2008) reported that 74% of adolescents with OCD had at least one additional psychiatric diagnosis. In line with the AACAP practice parameter (2012), our findings showed that 47.1% of children with OCD presented with at least one comorbid condition. ADHD and depression emerged as the most frequent comorbidities in the present study, consistent with earlier research reporting elevated rates of anxiety, ADHD, and tic disorders in pediatric OCD (Geller et al, 2001; Huang et al, 2014; Peris et al, 2017). Furthermore, Geller et al. (2001) noted that an earlier onset of OCD increases the likelihood of comorbid ADHD. While several studies have identified high rates of anxiety disorders among children and adolescents with OCD, our results showed that ADHD was the predominant comorbidity, with a prevalence of 42.6%. The variability in reported rates across studies may reflect differences in methodology, sample size, participant age, and inclusion or exclusion criteria. Peris et al. (2017) also observed that adolescents are more likely than children to present with internalizing comorbidities. Interestingly, although our study found higher comorbidity rates among adolescents than among children, the difference was not statistically significant.

In the CBT treatment of OCD, three fundamental elements form the cornerstone of intervention: psychoeducation, cognitive therapy, and ERP. Psychoeducation provides patients and their families with an understanding of the mechanisms of OCD, reducing stigma and misconceptions while preparing them for active treatment engagement. Cognitive therapy focuses on identifying and restructuring maladaptive beliefs and misinterpretations of intrusive thoughts, thereby reducing the perceived threat associated with obsessions. ERP, considered the gold standard behavioral technique, directly addresses avoidance and compulsive rituals, facilitating habituation and corrective learning through systematic and repeated exposure to feared stimuli. Beyond these established components, recent literature highlights the added value of MI as an adjunctive approach. Randall and McNeil (2017) noted that MI has been successfully applied alongside CBT in OCD and across a spectrum of anxiety disorders, demonstrating improvements in treatment adherence, engagement, and overall outcomes. In this study, we integrated MI techniques in CBT to enhance therapy motivation and treatment compliance.

In addition, managing family accommodation in the therapy process is an important factor for decreasing the child's OCD symptoms and enhancing treatment compliance because family members' responses to the child's OCD symptoms can have important implications for how symptoms are maintained. Previous studies have shown that higher levels of family accommodation reduce the efficacy of CBT, pharmacotherapy (sertraline), and combination treatment

(CBT+sertraline) in pediatric OCD (Garcia et al, 2011; Merlo et al, 2009; Storch et al, 2010). Overall, family accommodation is an important clinical and prognostic variable to assess in children and adolescents with OCD to facilitate the treatment process. The findings of this study indicate that CBT was highly effective in alleviating OCD symptoms among children and adolescents, regardless of the comorbidity status.

AACAP guidelines (2012) identify CBT, psychoeducation, and family counseling as the preferred initial treatment approach for OCD. Several studies on children and adolescents with OCD have found that CBT is superior to placebo or waitlist and SSRIs treatment (POTS, 2004; Barrett et al, 2004). Randomized controlled trials have consistently shown that CBT is an effective intervention for pediatric OCD, with evidence indicating a reduction in symptom severity ranging from approximately 40% to 65% (Watson & Rees, 2008). The results of this study are consistent with the literature. In this study, the severity of OCD symptoms, regardless of the presence of comorbidity, decreased significantly during the 3<sup>rd</sup> month of CBT, with significant improvements observed during the 6<sup>th</sup> month of CBT as evaluated by the CGI-S and CGI-I subscales, respectively.

Overall, our results underline the effect of CBT in pediatric OCD with or without comorbidity. The coexistence of psychiatric comorbidities tends to intensify the severity of clinical presentations and adds complexity to the treatment process and procedures. Therefore, accurate diagnosis and careful evaluation of comorbid conditions are crucial. The identification of comorbidities has improved treatment strategies and therapeutic response. The most significant limitation of this study is its limited generalizability owing to a small sample size and a one-centered sample. Therefore, studying with a larger sample in future studies is considered more descriptive. The baseline severity of OCD symptoms in the comorbid group was another limitation. This may affect the results. Therefore, future studies must include an analysis of this confounding factor or ensure that symptom severity is equally distributed at the beginning of the study. Despite these limitations, the findings of this study have important implications for clinical treatment. Moreover, determining the comorbid disorders associated with OCD will positively affect the prognosis.

## CONCLUSION

This study demonstrated that CBT is an effective intervention for children and adolescents with OCD, regardless of the presence of psychiatric comorbidities. Although participants with comorbid conditions exhibited less symptom reduction than those without, both groups benefited significantly from CBT over the 6-month treatment period. These findings

highlight the importance of providing early, evidence-based psychological interventions in young patients to reduce symptom severity and improve functioning. Moreover, the results underscore the clinical relevance of systematically assessing comorbidities, as their presence may complicate treatment response and require tailored therapeutic strategies. In particular, clinicians should anticipate smaller gains in comorbid cases and adapt CBT protocols accordingly (e.g., tailored exposure, motivational support, and stronger family involvement). Despite the sample size and single-center design limitations, this study contributes to the growing body of evidence supporting CBT as a first-line treatment for pediatric OCD. Future research with larger, multicenter samples is warranted to strengthen the generalizability of these findings and to explore the integration of adjunctive strategies, such as MI and family-focused interventions, in improving treatment outcomes.

**Ethics Committee Approval:** The İnönü University Social and Human Sciences Ethics Committee granted approval for this study (date: 16.08.2025, number: 17-04).

**Informed Consent:** Informed consent was obtained from all study participants and their parents.

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

**Financial Disclosure:** The author received no financial support for the research, authorship, and/or publication of this article.

**Use of AI for Writing Assistance:** Not declared.

**Acknowledgments:** The author would like to thank Dr. Eyüp Sabri Ercan for his contribution to the diagnosis and Ezgi Sumbas for her contribution to the ethics process.

**Peer-review:** Externally peer-reviewed.

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# Adaptation and Validation of the Interactive Mentalization Questionnaire in Türkiye

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## ABSTRACT

The Interactive Mentalization Questionnaire (IMQ) is the only brief, self-report instrument that assesses three complementary facets of mentalizing in social interaction: perspective-taking (self–other), metacognition (self–self), and meta-mentalization (other–self). As there is no multidimensional mentalization scale available for Turkish speakers yet, we used a multistep, forward- and back-translation procedure to translate the IMQ and examined its psychometric properties in a community sample of Turkish adults ( $n=953$ ; 43% women, mean age=31.8 years). After removing four poorly performing items, exploratory and confirmatory factor analyses replicated the original three-factor structure, yielding a 16-item version with an excellent global fit, strong internal consistency ( $\alpha_t=0.87$ ), and informative item parameters from graded-response modeling. Construct validity was supported by convergent correlations with the Turkish Mentalization Scale (MentS), prefrontal-function indices, and divergent correlations with borderline and psychopathic traits. Strict measurement invariance was established across gender, psychiatric diagnosis status, and continuous age. Reliable change indices and minimal important differences were established to facilitate clinical monitoring. Thus, the Turkish IMQ is a concise, psychometrically solid tool for research, cross-cultural comparison, and routine outcome assessment in Turkish mental health settings.

**Keywords:** Cultural adaptation, mentalization, meta-mentalization, perspective-taking, scale validation.

## ÖZ

### Etkileşimsel Zihinselleştirme Ölçeğinin Türkçe Uyarlama ve Geçerlilik Çalışması

Etkileşimsel Zihinselleştirme Ölçeği (EZÖ), sosyal etkileşimde zihinselleştirmenin üç tamamlayıcı yönünü değerlendiren tek kısa, öz bildirim aracıdır: Perspektif alma (Ben–Öteki), üstbilgi (Ben–Ben) ve meta-zihinselleştirme (Öteki–Ben). Türkçede çok boyutlu bir zihinselleştirme ölçeği bulunmadığından, EZÖ çok aşamalı, çeviri-geri çeviri yöntemiyle Türkçeye uyarlandı ve Türk yetişkinlerden oluşan bir toplum örnekleminde ( $n=953$ ; %43 kadın, yaş ortalaması=31,8) psikometrik özellikleri incelendi. Açımlayıcı ve doğrulayıcı faktör analizleri, düşük performans gösteren dört madde çıkarıldıktan sonra özgün üç faktörlü yapıyı doğruladı; böylece mükemmel model uyumu ve güçlü iç tutarlılık ( $\alpha_t=0,87$ ) gösteren 16 maddelik bir versiyon elde edildi. Zihinselleştirme ölçeği ve kişiler arası nörobiyoloji temelli prefrontal işlev indeksleriyle yakınsak korelasyonlar; borderline ve psikopatik eğilimlerle ayrılan korelasyonlar yapı geçerliliğini destekledi. Cinsiyet, psikiyatrik tanı durumu ve yaş değişkeni açısından ölçüm değişmezliği sağlandı. Klinik izlemeyi kolaylaştırmak için güvenilir değişim indeksleri ve minimal önemli fark değerleri belirlendi. Bu bulgular doğrultusunda, Türkçe EZÖ; araştırmalarda, kültürler arası karşılaştırmalarda ve klinik değerlendirme süreçlerinde kullanılabilir kısa, geçerli ve güvenilir bir araç sunmaktadır.

**Anahtar Kelimeler:** Kültürel uyarlama, zihinselleştirme, meta-zihinselleştirme, perspektif alma, ölçek geçerliliği.



### Cite this article as:

Ünver B. Adaptation and Validation of the Interactive Mentalization Questionnaire in Türkiye. J Cogn Behav Psychother Res 2025;14(4):253–263.

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**Submitted:** 09.07.2025

**Revised:** 09.09.2025

**Accepted:** 01.10.2025

**Available Online:** 18.12.2025

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



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## INTRODUCTION

Mentalization is the process by which we attribute mental states to our own and others' behavior (Fonagy & Bateman, 2019). It forms part of a broader set of socio-cognitive skills aimed at perceiving, interpreting, and processing social information from the environment. Metacognition (i.e., second-order capacity to monitor, evaluate, and regulate one's own cognitive processes) encompasses knowledge of personal beliefs, awareness of current mental states, and confidence judgments (Drigas & Mitsea, 2020; Fiedler et al, 2019; Rouault et al, 2018). By generating and flexibly updating mental representations of self–other relationships, mentalization guides socially adaptive behavior and supports the development of a coherent sense of self (Fonagy et al, 2002; Luyten & Fonagy, 2018).

Mentalization underpins relational reciprocity, emotion regulation, and empathy because it involves meaning-making and perspective-taking (Arioli et al, 2021; Majdandžić et al, 2016). Meta-mentalization (i.e., the estimation of how much insight another agent has into their own thoughts and intentions) combines perspective-taking with metacognitive appraisal and is crucial for strategic interaction (Bhatt et al, 2010; Silston et al, 2018; Wu et al, 2020). Longitudinal studies have reported positive associations between mentalization and language abilities, as well as between executive and emotional control (Osterhaus & Bosacki, 2022). Understanding others' current mental state allows individuals to anticipate future reactions based on others' beliefs (Jara-Ettinger et al, 2015; Zhang et al, 2025) and plan future actions using past observations (Ho et al, 2022), thereby extending the impact of mentalization beyond the "here and now." Deficits in mentalization are implicated in a wide range of psychiatric disorders, including social anxiety disorder, post-traumatic stress disorder, obsessive–compulsive disorder, borderline personality disorder, psychosis, autism spectrum disorder, and suicidal behavior (Bora, 2021; Johnson et al, 2022; Sloover et al, 2022).

Although mentalization plays a key role in mental health and is intertwined with various cognitive and emotional functions, it is challenging to develop a valid and reliable tool to gauge one's own and others' mentalizing capacities. Fonagy et al. (1998) introduced the RFS, which assesses individuals' capacity to reflect on their attachment experiences by coding responses to the Adult Attachment Interview (George et al, 1996). Renowned for its high reliability, validity, and factorial integrity, the RFS has become the gold standard for measuring mentalization (Taubner et al, 2013). However, its application requires extensive training and certification for interviewers and a considerable investment of time for

conducting interviews, transcribing responses, and coding. These characteristics make RFS assessment complex and time-intensive, especially in large cohorts. To address these limitations, several self-report instruments, including the Mentalization Questionnaire (MZQ; Hausberg et al, 2012), the Mentalization Scale (MentS; Dimitrijević et al, 2018; Stefana et al, 2024), and the Reflective Functioning Questionnaire (RFQ; Fonagy & Bateman, 2019), have been developed. Although these scales measure both mentalization and metacognitive aspects, they do not assess meta-mentalization, a construct necessary for a comprehensive analysis of mentalization. Therefore, to fill this gap, Wu et al. (2022) recently developed and validated the Interactive Mentalizing Questionnaire (IMQ), which evaluates three interrelated components of mentalization in social interaction.

The main purpose of this study was to validate the Turkish version of the IMQ. Analyses include descriptive statistics and item properties based on classical test theory, factor structure using exploratory and confirmatory factor analysis, measurement invariance, item response theory, internal consistency, and correlations with external variables.

## METHOD

### Participants and the Procedure

A total of 953 Turkish adults (43% female;  $M=31.75$  years,  $SD=12.16$ ) were recruited through snowball sampling in Türkiye. Most participants reported university education (75%) and middle socioeconomic status (60%); 16% disclosed a past psychiatric or neurological diagnosis, and 10% reported current psychotropic medication. Ethical approval was obtained from the Işık University Ethics Review Board (approval no: 2024/03, date: April 16, 2024). This study was conducted in accordance with the Declaration of Helsinki to ensure the ethical standards and the rights of the participants.

### Translation Procedure

Three bilingual psychologists produced forward translations following the Mapi Research Trust guidelines; a reconciliation panel created a consensus version. Two linguists ensured clarity. Ten adults piloted the draft, prompting minor lexical changes. Independent back-translation was approved by the original IMQ authors.

### Measures

#### IMQ

The IMQ (Wu et al., 2022) is a 20-item self-report measure of mentalization. Each item is rated on a 4-point Likert scale (1=very true; 4=very false) that yields three distinct subscale scores: (i) self–other mentalization (IMQ\_SO) assesses

how individuals infer others' mental states from their own perspective (e.g., "When I watch a movie, I can always guess what the character will do next"), (ii) self-self metacognition (IMQ\_SS) captures one's awareness and evaluation of their own mental states (e.g., "When I fail, I know exactly why I failed"), and (iii) other-self meta-mentalization (IMQ\_OS) reflects how well individuals believe others can infer their own thoughts and feelings (e.g., "Sometimes, I think people have direct insight into what I am thinking"). Subscale scores were calculated by summing the relevant items, with higher totals indicating stronger tendencies in the targeted dimension. In the original validation sample, the internal consistency was good ( $\alpha=0.76$  for IMQ\_SO, 0.83 for IMQ\_SS, and 0.81 for IMQ\_OS; Wu et al, 2022).

### **MentS**

The Turkish adaptation of the MentS (Törenli Kaya et al, 2023) comprises 25 items that provide an overall mentalization score and three subscale scores: self-related (MentS-S), other-related (MentS-O), and motivation (MentS-M). In this sample, McDonald's  $\omega_1$  was 0.91 for the full scale and 0.83 for MentS-S, 0.88 for MentS-O, and 0.77 for MentS-M.

### **BPQ**

The Turkish adaptation of the Borderline Personality Questionnaire (BPQ; Ceylan et al, 2017) is an 80-item self-report measure of borderline personality traits. It assesses nine borderline personality disorder DSM criteria (American Psychiatric Association, 2000): impulsivity, affective instability, abandonment, relationships, self-image, suicide/self-mutilation, emptiness, intense anger, and psychosis. Higher scores reflect greater borderline features. In the current sample,  $\omega_1$  was 0.98 for the total scale and ranged between 0.79 and 0.91 across the nine subscales.

### **LSRP**

The Turkish adaptation of the Levenson Self-Report Psychopathy Scale (LSRP; Engeler & Yargıç, 2004) is a 26-item self-report questionnaire developed to assess psychopathic traits, mapped onto the two-factor structure of the Psychopathy Checklist-Revised (PCL-R). The primary psychopathy subscale (16 items) paralleled the PCL-R Factor 1 (affective-interpersonal features), and the secondary psychopathy subscale (10 items) paralleled the PCL-R Factor 2 (antisocial lifestyle). The subscale scores are summed separately and combined for a total score. In our sample, the internal consistency was high for the total scale ( $\omega_1=0.88$ ) and primary subscale ( $\omega_1=0.90$ ) and acceptable for the secondary subscale ( $\omega_1=0.67$ ).

### **IPNB-PFCFS**

The Interpersonal Neurobiology-Based Prefrontal Cortex Functions Scale (IPNB-PFCFS; Hisli-Şahin & Varlık-Özsoy, 2017) is a 40-item self-report instrument designed to assess prefrontal cortex-mediated functions within an interpersonal neurobiology framework. Five subscales were scored by summing their respective items: body regulation; life and fear modulation; empathy and response flexibility; insight; and morality. A total score is obtained by summing all the items. In our sample,  $\omega_1$  was 0.94 for the total score and ranged from 0.79 to 0.84 for all subscales, except body regulation ( $\omega_1=0.60$ ).

### **Statistical Analyses**

Analyses were conducted using R 4.4.2. The sample was randomly divided into exploratory (n=500) and confirmatory (n=453) subsamples. EFA used principal-axis factoring with PROMAX rotation on polychoric correlations; items with primary loadings of <0.32 or cross-loadings of >0.30 were removed. CFA compared the one-factor, correlated three-factor, and bi-factor models (WLSMV estimation). Reliability was estimated using McDonald's  $\omega_1$  and Cronbach's  $\alpha$ . Graded-response IRT models were used to provide item parameters. Configural, metric, scalar, and strict invariance were tested across gender (ordinal indicators) and psychiatric status (continuous indicators), whereas age invariance was assessed using the MIMIC model. The convergent and divergent validity was evaluated using Bonferroni-corrected Pearson correlations.

## **RESULTS**

### **Item Analysis**

Item means ranged from 2.24 to 3.48; skewness=-1.27 to 0.23; and kurtosis=-1.15 to 1.36. Most items demonstrated moderate correlations ( $r\geq 0.30$ ), but four items (7, 12, 13, and 18) showed poor discrimination (corrected  $r<0.10$ ). Appendix 1 details the descriptive statistics for the IMQ items. Appendix 2 presents the demographic and clinical characteristics of the confirmatory, exploratory, and full samples.

### **Factor Structure**

Parallel analysis suggested four factors when using PCA, seven factors when using squared multiple correlations, and five factors when using exploratory factor analysis. Given the limited number of items, five- or six-factor solutions were unlikely. Therefore, EFA was conducted on the exploratory subsample, extracting four correlated factors and evaluating these for adequate indicators ( $\geq$ three items with loadings of  $\geq 0.32$ ) and conceptual coherence. Because only two items loaded above 0.32 on the fourth factor, we ran a subsequent EFA to extract three factors. After removing items 7 and 12 due

**Table 1.** Item response theory parameters and information statistics for the IMQ subscales (n=953)

Scale	Item	Loading	$\alpha$	$\beta_1$	$\beta_2$	$\beta_3$	Total information	Peak information	Peak $\theta$
Self–self									
	2	0.698	1.64	-3.39	-1.81	0.14	41.06	0.74	-1.9
	11	0.729	1.75	-3.12	-1.65	0.34	44.53	0.84	-1.8
	14	0.536	1.12	-4.13	-2.54	-0.34	24.28	0.37	-3.1
	15	0.627	1.46	-3.46	-1.66	0.52	36.44	0.58	-1.8
	16	0.687	1.75	-3.77	-1.78	0.30	46.87	0.80	-1.8
	17	0.272	0.49	-5.41	-1.90	0.97	7.15	0.07	-1.6
	19	0.553	1.18	-3.92	-1.59	0.98	28.95	0.38	-1.7
	20	0.756	2.10	-2.79	-1.59	0.05	52.94	1.21	-1.7
Self–other									
	3	0.867	3.26	-2.31	-1.23	0.41	91.10	2.74	-1.3
	4	0.919	4.84	-2.30	-1.13	0.36	143.04	5.87	-2.3
	5	0.460	0.88	-4.88	-1.55	1.69	20.06	0.21	-1.5
	8	0.412	0.75	-5.41	-2.29	0.92	15.13	0.16	-2.4
	10	0.665	1.64	-2.92	-1.32	0.68	41.49	0.74	-1.4
Other–self									
	1	0.680	1.14	-3.46	-1.67	-0.21	23.53	0.39	-1.3
	6	0.356	2.56	-1.75	-0.36	1.24	70.03	1.71	-0.4
	9	0.635	1.43	-2.71	-0.54	2.14	37.55	0.54	-0.6

IMQ: Interactive Mentalization Questionnaire;  $\alpha$ : Discrimination parameter;  $\beta_1$ – $\beta_3$ : Difficulty thresholds; Loadings: Standardized factor loadings from the confirmatory factor analysis; Peak  $\theta$ : Ability level ( $\theta$ ) at which information is maximal.

**Table 2.** Descriptive statistics, measurement error, and reliable change indices for total and subscale IMQ scores (n=953)

Scale	Mean (SD)	Trimmed mean	MAD	Min–Max	Skewness	Kurtosis	SE	SE <sub>m</sub>	SE <sub>d</sub>	90% CC	95% CC	MID	MCRC
Total score	52.74 (5.75)	52.98	5.93	24–68	-0.57	1.21	0.19	2.08	2.93	3.41	4.06	2.88	5.75
Self–self	26.04 (3.57)	26.25	2.96	10–32	-0.62	0.56	0.12	1.51	2.14	2.49	2.97	1.79	4.20
Self–other	15.62 (2.54)	15.73	2.96	5–20	-0.49	0.53	0.08	1.14	1.61	1.87	2.23	1.27	3.15
Other–self	8.72 (1.77)	8.82	1.48	3–12	-0.56	0.19	0.06	0.95	1.35	1.57	1.87	0.89	2.64

IMQ: Interactive Mentalization Questionnaire; 90% CC: Critical change at the 90% confidence level; 95% CC: Critical change at the 95% confidence level; MAD: Median absolute deviation; MCRC: Minimum change for a reliable change; MID: Minimally important difference; SE: Standard error; SE<sub>m</sub>: Standard error of measurement; SE<sub>d</sub>: Standard error of difference; SD: Standard deviation; Trimmed Mean: Mean after trimming 10% of scores at each tail.

to high cross-loadings and items 13 and 18 due to primary loadings below 0.32, we conducted a final EFA to extract three correlated factors. Items demonstrated adequate to strong loadings on their respective factors (all loadings  $\geq 0.33$ ), and the item–factor distribution perfectly matched that of the original IMQ version (Wu et al, 2022). Appendix 3 and 4 present the item-level EFA results. The final 16-item Turkish version of the IMQ is presented in Appendix 5.

The one-, three-, and bi-factor models were tested using the CFA. The one-factor model of the IMQ showed poor results:  $\chi^2/df=8.03$ , CFI=0.79, TLI=0.75, RMSEA=0.13, and SRMR=0.10. The three-factor model showed a good fit for the data:  $\chi^2/df=2.26$ , CFI=0.96, TLI=0.96, RMSEA=0.05, and SRMR=0.06. Finally, the bi-factor model showed the best fit indices:  $\chi^2/df=2.31$ , CFI=0.97, TLI=0.95, RMSEA=0.05, and SRMR=0.05.

**Item Response Theory**

Table 1 presents the item parameters. For self–self mentalization, the discrimination parameters ranged from 0.49 (item 17) to 2.10 (item 20), with six of eight items exceeding  $\alpha=1.15$ , indicating a strong ability to distinguish among respondents across trait levels. Item information values varied between 7.15 and 52.94 and peaked at  $\theta \approx -3.1$  to  $-1.6$ , suggesting that Factor 1 is the most precise for below-average respondents, yet it maintains acceptable precision across the continuum. For the self–other mentalization, the discrimination parameters were more variable ( $\alpha=0.75-4.84$ ), with two items (item 3, item 4) exhibiting very high sensitivity ( $\alpha > 3.0$ ). The total information per item ranged from 15.13 to 143.04, peaking at  $\theta \approx -2.3$ . This pattern indicates that Factor 2 measures most precisely at low-to-moderate trait levels but is less sensitive at extreme levels. In contrast, Factor 3 items showed moderate discrimination ( $\alpha=1.14-2.56$ ) and lower information (23.53–70.03) with peaks between  $\theta \approx -1.3$  and  $-0.4$ . These characteristics imply that Factor 3 provides limited precision for distinguishing individuals reliably, particularly at higher trait levels. Figure 1 shows the item characteristic curves illustrating these parameter differences.

**Reliability Analysis**

Internal consistency for the IMQ was strong: McDonald’s  $\Omega_t = 0.87$  and Cronbach’s  $\alpha = 0.76$  for the total scale;  $\Omega_t = 0.82$  ( $\alpha = 0.74$ ),  $\Omega_t = 0.80$  ( $\alpha = 0.73$ ), and  $\Omega_t = 0.71$  ( $\alpha = 0.62$ ) for Factors 1–3, respectively.

**Measurement Error and Reliable Change Indices**

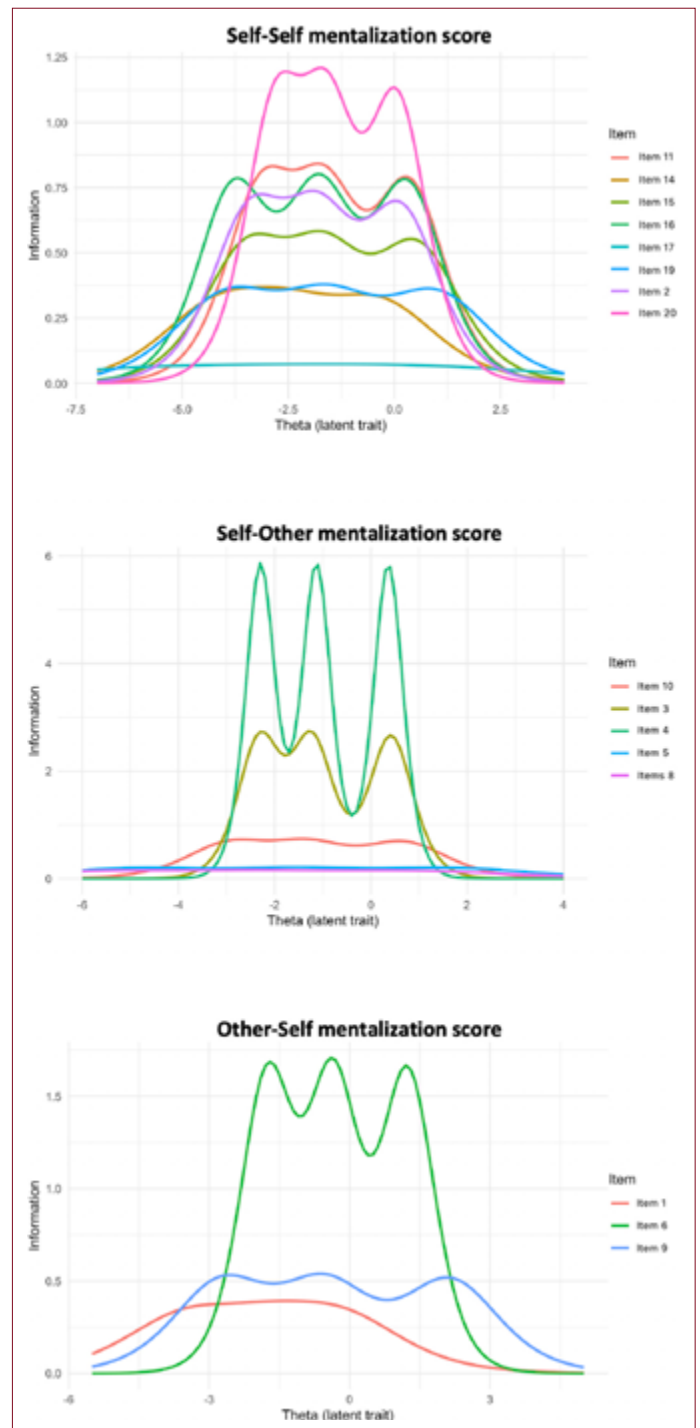
Table 2 presents the descriptive statistics, measurement error, and reliable change indices for the total and subscale scores of the IMQ.

**Correlations Between the Total and Subscale Scores**

IMQ total score was very strongly associated with self–self mentalization subscore ( $r=0.85, p<0.001$ ), strongly associated with self–other mentalization subscore ( $r=0.77, p<0.001$ ), and weakly associated with other–self mentalization subscore ( $r=0.31, p<0.001$ ). Self–self and self–other mentalization subscores were moderately correlated ( $r=0.50, p<0.001$ ), whereas correlations involving other–self mentalization subscore were negligible and nonsignificant (self–self and other–self:  $r=0.06, p=0.092$ ; self–other and other–self:  $r=-0.03, p=0.333$ ).

**Associations of Total and Subscale Scores with Sociodemographic and Clinical Variables**

Age was positively and weakly associated with the self–self mentalization subscale ( $r=0.22, p<0.001$ ). All other correlations between IMQ total or subscale scores and sociodemographic



**Figure 1.** Item information functions.

The horizontal axis ( $\theta$ ) represents the underlying latent trait continuum (low to high), and the vertical axis indicates the amount of information (i.e., precision) each item provides at each trait level. The peaks of the curves show where an item is most informative (smallest standard error), and the width of each curve reflects the range of  $\theta$  over which the item contributes useful information. Clear, orderly peaks and intersections indicate good discrimination and well-functioning response categories.

**Table 3.** Measurement invariance of the IMQ across age, gender, and psychiatric diagnosis (n=953)

Invariance	$\chi^2$	of	CFI	$\Delta$ CFI	TLI	$\Delta$ TLI	RMSEA	$\Delta$ RMSEA	SRMR	$\Delta$ SRMR
Gender										
Configural	511.65	202	0.959	—	0.951	—	0.057	—	0.059	—
Metric	496.83	215	0.963	0.004	0.958	0.007	0.053	-0.004	0.061	0.002
Scalar	536.52	244	0.961	-0.002	0.962	0.011	0.050	-0.007	0.060	0.001
Strict	536.52	244	0.961	-0.002	0.962	0.011	0.050	-0.007	0.060	0.001
Psychiatric diagnosis										
Configural	464.01	202	0.914	—	0.898	—	0.052	—	0.049	—
Metric	478.17	215	0.913	-0.001	0.903	0.005	0.051	-0.001	0.051	0.002
Scalar	496.92	228	0.912	-0.002	0.907	0.009	0.050	-0.002	0.052	0.003
Strict	532.06	244	0.905	-0.009	0.907	0.009	0.050	-0.002	0.054	0.005
Age	441.57	114	0.956	—	0.954	—	0.055	—	0.051	—
MIMIC model										

$\Delta$  values reflect the change from the configural model within each grouping variable.  $\Delta$ : Delta; MIMIC: Multiple indicators multiple causes; CFI: Comparative Fit Index;  $\Delta$ CFI: Delta Comparative Fit Index; TLI: Tucker–Lewis Index;  $\Delta$ TLI: Delta Tucker–Lewis Index; RMSEA: Root Mean Square Error of Approximation;  $\Delta$ RMSEA: Delta root mean square error of approximation; SRMR: Standardized root mean square residual;  $\Delta$ SRMR: Delta standardized root mean square residual.

(gender, educational level, socioeconomic status) or clinical (psychiatric diagnosis, psychiatric medication) variables were non-significant ( $r$ s ranged from -0.07 to 0.09,  $p$ s $\geq$ 0.06).

**Measurement Invariance**

Table 3 shows a strict invariance across gender ( $\Delta$ CFI $\leq$ 0.002;  $\Delta$ RMSEA $\leq$ 0.003) and psychiatric status ( $\Delta$ CFI $\leq$ 0.004). The MIMIC model showed no differential item functioning across age ( $\chi^2$ [114]=441.57, CFI=0.956, RMSEA=0.055).

**Construct and Convergent Validity**

As detailed in Table 4, the IMQ total score and self-self (metacognition) subscale evidenced moderate positive correlations with several construct and convergent validity measures. Specifically, the IMQ total score correlated moderately with the MentS total score ( $r=0.43$ ,  $p<0.001$ ), MentS-O ( $r=0.50$ ,  $p<0.001$ ), the IPNB-PFCFS total score ( $r=0.44$ ,  $p<0.001$ ) and its subscores Life and Fear Modulation subscale ( $r=0.44$ ,  $p<0.001$ ) and Empathy and Response Flexibility ( $r=0.40$ ,  $p<0.001$ ). The IMQ self-self subscale similarly showed moderate associations with MentS-O ( $r=0.44$ ,  $p<0.001$ ), IPNB-PFCFS total score ( $r=0.49$ ,  $p<0.001$ ), IPNB-PFCFS Life and Fear Modulation ( $r=0.46$ ,  $p<0.001$ ), and IPNB-PFCFS Empathy and Response Flexibility ( $r=0.45$ ,  $p<0.001$ ). All other correlations were weak ( $r$ s $<$ 0.40).

**DISCUSSION**

This study examines the psychometric properties of the IMQ’s first Turkish translation and adaptation in a large community sample.

**Summary of the Key Findings**

The Turkish IMQ provides a dependable overall mentalization score plus three practical domains (self-self, self-other, other-self) consistent with the original. After removing weaker items, both the total and subscale scores performed well: total, self-self, and self-other were reliable and most informative for patients with low-to-average mentalization, whereas other-self was acceptable but less precise, especially at higher ability. Scores were similar across gender and psychiatric status, with no age-related item bias. As expected, the total and self-self/self-other scores showed moderate links to external measures of empathy, emotion regulation, and prefrontal functioning. Clinically, the total, self-self, and self-other scores can be relied on for screening and monitoring; the other-self scores are interpreted with caution, and the reliable change thresholds in Table 2 are used to judge meaningful improvement or worsening.

**Structure and Hierarchy**

The factor analyses supported the theorized three-factor solution. The four items were eliminated because of low item-total correlations and substantial cross-loadings. Item 18 (“Do you believe in telepathy?”) was particularly problematic: its corrected item-total correlation was zero, and qualitative feedback indicated that the Turkish wording suggested a concrete perceptual ability rather than the intended meta-mentalization construct, thereby obscuring its meaning. To address such ambiguity in future adaptations, problematic items—particularly those referencing concepts such as “telepathy” or “mind reading”—should be rephrased to avoid

**Table 4.** Correlations between IMQ total and subscale scores and validity measures (n=953)

Measure	Total score	Self-self	Self-other	Other-self
<b>BPQ</b>				
Total score	-0.19 <sup>†</sup>	-0.29 <sup>†</sup>	0.03	-0.19 <sup>†</sup>
Impulsivity	-0.01	-0.09	0.10	-0.15 <sup>†</sup>
Affective instability	-0.17 <sup>†</sup>	-0.28 <sup>†</sup>	0.01	-0.13*
Abandonment	-0.17 <sup>†</sup>	-0.22 <sup>†</sup>	-0.01	-0.17 <sup>†</sup>
Relationships	-0.13*	-0.20 <sup>†</sup>	0.00	-0.09
Self-image	-0.27 <sup>†</sup>	-0.34 <sup>†</sup>	-0.10	-0.14*
Suicide/self-mutilation	-0.10	-0.19 <sup>†</sup>	0.02	-0.07
Emptiness	-0.20 <sup>†</sup>	-0.27 <sup>†</sup>	-0.03	-0.14*
Intense anger	-0.11	-0.20 <sup>†</sup>	0.03	-0.10
Psychotic states	0.06	0.01	0.24 <sup>†</sup>	-0.26 <sup>†</sup>
<b>IPNB-PFCFS</b>				
Total score	0.44 <sup>†</sup>	0.49 <sup>†</sup>	0.29 <sup>†</sup>	0.10
Body regulation	0.28 <sup>†</sup>	0.32 <sup>†</sup>	0.17 <sup>†</sup>	0.05
Life and fear modulation	0.44 <sup>†</sup>	0.46 <sup>†</sup>	0.34 <sup>†</sup>	0.05
Morality	0.20 <sup>†</sup>	0.31 <sup>†</sup>	0.09	0.03
Empathy and response flexibility	0.40 <sup>†</sup>	0.45 <sup>†</sup>	0.25 <sup>†</sup>	0.07
Insight	0.31 <sup>†</sup>	0.30 <sup>†</sup>	0.22 <sup>†</sup>	0.10
<b>LSRP</b>				
Total score	-0.10	-0.19 <sup>†</sup>	0.07	-0.23 <sup>†</sup>
Primary psychopathy	-0.04	-0.13*	0.09	-0.21 <sup>†</sup>
Secondary psychopathy	-0.16 <sup>†</sup>	-0.23 <sup>†</sup>	-0.01	-0.16 <sup>†</sup>
<b>MentS</b>				
Total score	0.43 <sup>†</sup>	0.38 <sup>†</sup>	0.29 <sup>†</sup>	0.26 <sup>†</sup>
Motivation to mentalize	0.20 <sup>†</sup>	0.14*	0.17 <sup>†</sup>	0.14*
Other-related mentalization	0.50 <sup>†</sup>	0.44 <sup>†</sup>	0.39 <sup>†</sup>	0.17 <sup>†</sup>
Self-related mentalization	0.27 <sup>†</sup>	0.27 <sup>†</sup>	0.11	0.25 <sup>†</sup>

BPQ: Borderline Personality Questionnaire; IMQ: Interactive Mentalizing Questionnaire; IPNB-PFCFS: Interpersonal Neurobiology-Based Prefrontal Cortex Functions Scale; LSRP: Levenson Self-Report Psychopathy Scale; MentS: Mentalization Scale; †: P<0.001; \*: P<0.05.

misinterpretation as magical thinking. For example, phrasing that emphasizes subjective inference (e.g., “Have you ever felt that someone intuitively understood your thoughts or emotions?”) may better convey the meta-mentalization construct without triggering culturally loaded associations. Incorporating such changes may enhance the face validity of the scale and reduce the risk of construct-irrelevant variance due to cultural misunderstandings.

The deletion of these items sharpened the factor structure without narrowing the content coverage. The three Turkish factors are correlated yet distinct in the original IMQ, and the final item-factor pattern is identical to that reported by Wu et al. (2022). Metacognition (self-self) showed a moderate positive association with perspective-taking (self-other), replicating earlier findings and dovetailing with simulation theory, which proposes that people rely on the same metacognitive apparatus to represent both their own and others’ mental states (Carruthers, 1996; Harris, 1992). Mirror-neuron research demonstrates overlapping activation during action execution and observation (Gallese & Goldman, 1998; Gallese et al, 2007).

In contrast, correlations involving meta-mentalization (other-self) were negligible, diverging from the modest associations observed in the original validation but consistent with the initial expectations of the scale developers (Wu et al, 2022). One plausible explanation is that the ambiguous wording of the discarded items (all drawn from the self-other and other-self subscales) may have inflated the perceived ability. Notably, the original IMQ was not subjected to cognitive interviews with representatives of the target population, which is a recommended step in scale development for detecting such ambiguities (Stefana et al, 2025).

Pruning left the other-self subscale with only three items (1, 6, and 9) and highlighted two culture-specific concerns. First, the remaining items ask whether strangers can “read” or “sense” hidden feelings, language that can evoke magical thinking or paranoid interpretations rather than the belief that others sometimes grasp one’s inner states. Second, interpersonal disclosure norms in Türkiye are comparatively cautious; limited epistemic trust may lead respondents to reject the premise that outsiders truly understand them, thereby lowering the mean scores and inflating the error variance. Consequently, low other-self scores likely reflect genuine doubt about being understood and measurement mismatch. This subscale should be interpreted with caution and treated as exploratory. Although the inclusion of this dimension aligns with the theoretical structure of the original IMQ, its weak psychometric performance in the Turkish adaptation suggests that it may function as a distinct or culturally constrained construct. As such, the current findings regarding the other-self factor should be viewed as preliminary and hypothesis-generating. Retaining the subscale provides a basis for theoretical continuity; however, its limited reliability and inconsistent external associations indicate the need for further refinement. Future research should include qualitative methods and cognitive interviewing to generate culturally resonant items that better capture the intended construct in Turkish populations. Subsequent pilot testing using IRT and differential item functioning analyses can refine and validate the revised items.

### Measurement Invariance

To date, no study has examined the measurement invariance for the IMQ, including the original validation by Wu et al. (2022); thus, the present analyses offer the first evidence on this point. The Turkish IMQ satisfied strict invariance across gender and psychiatric diagnosis status. Changes in global fit indices indicated that factor loadings, item thresholds, and residual variances were equivalent for men and women and for participants with and without a self-reported psychiatric condition. These findings exceed the “partial measurement invariance” often reported in clinical and cross-cultural research (Leitgöb et al, 2023). A MIMIC model was used to assess age-related measurement invariance. The model demonstrated that item functioning is unbiased across the adult lifespan represented in our sample (18–88 years). Taken together, these results provide strong evidence that the Turkish IMQ yields scores that are directly comparable across gender, mental health status, and age, granting researchers and clinicians confidence that the observed group differences/similarities in mentalization are substantive rather than artifactual.

### Associations with External Constructs

The correlational pattern was broadly consistent with the theoretical expectations. The overall IMQ score, particularly the self–self mentalization subscale, showed moderate positive links with both the MentS and the IPNB-PFCFS. These associations reinforce the idea that monitoring one’s own mental states is embedded in a wider network of empathic and regulatory skills. Metacognition (self–self) was most strongly related to the IPNB-PFCFS total score and its Life and Fear Modulation subscale and Empathy and Response Flexibility subscale, suggesting that accurate monitoring and evaluation of our own cognitive processes co-occur with greater emotional stability and interpersonal attunement.

Perspective-taking (self–other) followed a similar, though slightly weaker, pattern, correlating with the MentS other-related mentalization score and the IPNB-PFCFS subscores. This finding aligns with the notion that inferring the states of others draws on, but does not wholly overlap with, executive control processes.

In contrast, meta-mentalization (other–self) displayed only weak or very weak correlations to most external measures, supporting the view that estimating how well others understand us taps a subtler ability that current Turkish instruments seldom capture. Nevertheless, meta-mentalization scores were negatively related to several borderline personality features (e.g., abandonment fears, feelings of emptiness, and psychotic states), suggesting that perceiving oneself as opaque to others may co-occur with relational insecurity. A

small positive link also emerged between perspective-taking and the BPQ Psychotic States subscale, echoing evidence that over-attribution, or “hyper-mentalizing,” can accompany transient psychotic-like experiences.

Wu et al. (2022) found that perspective-taking (self–other) correlated positively with psychopathy, whereas metacognition (self–self) and meta-mentalization (other–self) correlated negatively. Our data partially replicated this pattern: metacognition and meta-mentalization were inversely related to both global and secondary-psychopathy scores, whereas perspective-taking showed a small positive association with the primary (interpersonal–affective) psychopathy factor. This convergence supports the proposition that “interpersonal” psychopathic traits may rely on intact, or even enhanced, perspective-taking skills, whereas impulsive–antisocial traits are generally associated with deficient mentalization (Sandvik et al, 2014). Wu et al. (2022) interpreted the positive association between perspective-taking and psychopathy as a potential marker of overconfidence in social-inferential abilities. This interpretation echoes construal-level research showing that psychological distance can foster self-idealization and inflated competence judgments (Griffin et al, 1990; Kivetz & Tyler, 2007). A similar mechanism may operate in our Turkish sample, where higher primary psychopathy was accompanied by slightly elevated claims of perspective-taking accuracy.

At the maladaptive pole, higher BPQ totals and higher secondary-psychopathy scores on the LSRP were associated with lower metacognition in our sample, consistent with research showing that emotional dysregulation and impulsivity compromise introspective accuracy. These findings indicate that the Turkish IMQ captures the core aspects of social cognition and self-regulation while still indexing unique variance, particularly in the meta-mentalization domain.

The weak performance of the other–self subscale in the Turkish context highlights cultural nuances in how individuals perceive being understood by others and limits its immediate interpretability in applied settings. Thus, its use in research and practice should be considered exploratory until further refinement is undertaken.

### Clinical Implications

The Turkish IMQ’s psychometric soundness supports its potential use in clinical settings. In particular, the measure may serve as a valuable tool in mentalization-based interventions by helping clinicians assess patients’ strengths and difficulties across distinct mentalizing dimensions. The strong associations between the self–self and self–other subscales and measures of empathy, prefrontal functioning, and emotion regulation suggest that the Turkish IMQ could inform case formulation

and treatment planning, especially in therapies targeting emotional insight, interpersonal understanding, and affect modulation. Future research may explore the sensitivity of the IMQ to clinical change and its usefulness in evaluating therapeutic progress over time.

However, the other–self subscale demonstrated limited psychometric performance in the Turkish context. Its weak internal consistency, low correlations with other subscales, and inconsistent associations with external measures suggest that this dimension is not yet suitable for clinical application. Further research is necessary to refine the subscale's item content in culturally sensitive ways before it can be confidently applied in therapeutic contexts. Until then, clinicians should interpret other–self scores with caution and avoid using them as standalone indicators in clinical decision-making.

The inclusion of reliable change indices (RCI) and minimally important differences (MID) enhances the clinical interpretability of the Turkish IMQ by providing actionable thresholds for patient monitoring. In practice, clinicians should compute the change score ( $\Delta$ =follow-up – baseline) for the total or relevant subscale and compare  $|\Delta|$  to the thresholds in Table 2. If  $|\Delta| \geq RCI$ , the change is statistically reliable (unlikely due to measurement error); if  $|\Delta| \geq MID$ , the change is clinically noticeable/meaningful. Changes can be classified as follows: (i)  $|\Delta| < MID \rightarrow$  no meaningful change; (ii)  $MID \leq |\Delta| < RCI \rightarrow$  possibly meaningful to the patient but not statistically reliable (the clinician should monitor and corroborate); (iii)  $RCI \leq |\Delta| < MID \rightarrow$  reliable but small (the clinician should consider incremental adjustment); and (iv)  $|\Delta| \geq RCI$  and  $\geq MID \rightarrow$  reliable and clinically meaningful improvement ( $\Delta > 0$ ) or worsening ( $\Delta < 0$ ). Apply these rules to the total and subscale scores using the corresponding thresholds in Table 2; considering its lower precision, interpret other–self change estimates with added caution and prioritize total, self–self, and self–other for treatment decisions.

Nonetheless, one limitation of the current study concerns the sample's demographic composition. Although the large sample size strengthens the statistical power and generalizability within certain strata, the overrepresentation of university-educated participants (75%) restricts the applicability of the findings to populations with lower educational or socioeconomic backgrounds. Mentalization abilities may be shaped by broader contextual factors, such as access to education, literacy levels, and exposure to psychological vocabulary (Pluck, 2021). Future studies should aim to replicate these findings in more socioeconomically and educationally diverse samples to enhance the Turkish IMQ's ecological validity and generalizability. Another limitation is the exclusive use of a community sample. Although the current study provides robust evidence for the psychometric

validity of the Turkish IMQ in a nonclinical population, its performance in clinical populations (e.g., individuals with psychiatric disorders) remains unknown. The capacity of the scale to discriminate between diagnostic groups and its responsiveness to therapeutic change require investigation. Future research should examine the diagnostic utility of the IMQ and its convergent validity with clinically relevant outcomes in structured samples, particularly in disorders marked by impaired mentalization (e.g., borderline personality disorder, psychosis, or autism spectrum disorder).

## CONCLUSION

The current findings confirm the Turkish IMQ as a psychometrically sound and clinically promising tool for assessing mentalization in social interaction. While the self–self and self–other subscales demonstrated strong psychometric performance and clinical utility, the other–self subscale requires further refinement and cultural adaptation. The Turkish IMQ can reliably support both research and practice, provided that the other-self subscale is interpreted with caution.

**Ethics Committee Approval:** The Işık University Institute of Social Sciences Ethics Committee granted approval for this study (date: 16.04.2024, number: 2024/03).

**Conflict of Interest:** The author has no conflict of interest to declare.

**Financial Disclosure:** This research was funded by Işık University Scientific Research Projects Coordination Unit (Project No. 23B105). The author gratefully acknowledges Işık University for its support.

**Use of AI for Writing Assistance:** During the preparation of this work, the author used ChatGPT 5 to edit the language (grammar, syntax, clarity, and readability) of the original draft. After using this tool, the author reviewed and edited the content as needed and take full responsibility for the content of the publication.

**Peer-review:** Externally peer-reviewed.

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**Appendix 1.** Descriptive statistics for items in the IMQ (n=953)

Item	Mean (SD)	Skewness	Kurtosis	Min–Max	Item–total correlation
1	3.35 (0.84)	-1.05	0.15	1–4	0.17
2	3.34 (0.70)	-0.81	0.28	1–4	0.41
3	3.19 (0.72)	-0.64	0.26	1–4	0.46
4	3.20 (0.71)	-0.56	-0.01	1–4	0.46
5	2.97 (0.71)	-0.27	-0.19	1–4	0.31
6	2.70 (0.82)	-0.22	-0.45	1–4	0.17
7	2.36 (1.03)	0.14	-1.15	1–4	0.08
8	3.15 (0.75)	-0.57	-0.13	1–4	0.32
9	2.68 (0.70)	-0.28	-0.01	1–4	0.13
10	3.11 (0.74)	-0.53	-0.03	1–4	0.45
11	3.26 (0.71)	-0.71	0.26	1–4	0.47
12	2.24 (0.98)	0.23	-1.02	1–4	0.03
13	2.68 (0.86)	-0.13	-0.65	1–4	0.02
14	3.48 (0.70)	-1.27	1.36	1–4	0.37
15	3.21 (0.72)	-0.61	0.07	1–4	0.35
16	3.30 (0.67)	-0.56	-0.16	1–4	0.48
17	3.02 (0.95)	-0.55	-0.78	1–4	0.17
18	2.37 (1.04)	0.18	-1.13	1–4	-0.00
19	3.08 (0.72)	-0.43	-0.08	1–4	0.28
20	3.35 (0.73)	-0.94	0.51	1–4	0.43

IMQ: Interactive Mentalization Questionnaire; SD: Standard deviation; Min: Minimum; Max: Maximum.

<b>Appendix 2.</b> Descriptive statistics for the confirmatory, exploratory, and full samples				
<b>Characteristic</b>	<b>Confirmatory (n=453)</b>	<b>Exploratory (n=500)</b>	<b>Full (n=953)</b>	<b>p</b>
	<b>n (%)</b>	<b>n (%)</b>	<b>n (%)</b>	
Gender				0.412
Male	265 (59)	280 (56)	545 (57)	
Female	187 (41)	220 (44)	407 (43)	
Other	1 (0)	0 (0)	1 (0)	
Age, years	32.67 (12.25)	30.91 (12.03)	31.75 (12.16)	0.026
Education level				0.967
1	4 (1)	4 (1)	8 (1)	
2	46 (10)	55 (11)	101 (11)	
3	341 (75)	376 (75)	717 (75)	
4	62 (14)	65 (13)	127 (13)	
Socioeconomic status				0.259
1	62 (14)	56 (11)	118 (12)	
2	277 (61)	298 (60)	575 (60)	
3	114 (25)	146 (29)	260 (27)	
Prior psychiatric diagnosis				0.407
Yes	68 (15)	86 (17)	154 (16)	
No	385 (85)	414 (83)	799 (84)	
Psychotropic medication				0.171
Yes	37 (8)	55 (11)	92 (10)	
No	416 (92)	445 (89)	861 (90)	
IMQ total score, mean (SD)	52.77 (5.70)	52.72 (5.80)	52.74 (5.75)	0.893
IMQ_SS	26.13 (3.61)	25.96 (3.53)	26.04 (3.57)	0.463
IMQ_SO	15.67 (2.55)	15.58 (2.53)	15.62 (2.54)	0.585
IMQ_OS	8.62 (1.84)	8.81 (1.72)	8.72 (1.77)	0.101

IMQ: Interactive Mentalization Questionnaire; SD: Standard deviation; Min: Minimum; Max: Maximum.

**Appendix 3.** Item-level exploratory factor analysis results: The first round

Item	F1	F2	F3
1	0.152	0.596	-0.050
2	0.692	0.102	-0.096
3	0.613	-0.018	0.461
4	0.615	-0.101	0.474
5	0.376	-0.060	0.263
6	0.065	0.681	0.034
7	-0.055	-0.073	0.505
8	0.426	0.020	0.104
9	0.016	0.623	-0.007
10	0.534	-0.024	0.443
11	0.711	0.086	-0.002
12	-0.246	0.271	0.465
13	-0.050	0.283	-0.045
14	0.507	0.049	-0.031
15	0.569	0.002	-0.164
16	0.693	0.057	0.079
17	0.242	-0.032	0.018
18	-0.138	0.292	0.175
19	0.555	-0.117	-0.125
20	0.751	0.024	-0.160

Averaging was performed with the averaging method mean (trim=0) across 72 EFAs, varying the following settings: init\_comm, criterion\_type, k\_promax, P\_type, and varimax\_type.

**Appendix 4.** Item-level exploratory factor analysis results–second round

Item	F1	F2	F3
1	0.146	-0.091	0.530
2	0.542	0.167	0.096
3	-0.009	0.882	0.036
4	-0.037	0.944	-0.061
5	0.162	0.343	-0.043
6	-0.083	0.047	0.771
8	0.287	0.210	0.021
9	-0.043	-0.042	0.594
10	0.162	0.571	-0.025
11	0.549	0.217	0.078
14	0.484	0.051	0.042
15	0.661	-0.089	-0.042
16	0.538	0.235	0.054
17	0.280	-0.003	-0.070
19	0.637	-0.054	-0.130
20	0.792	-0.022	-0.012

Averaging was performed with the averaging method mean (trim=0) across 72 EFAs, varying the following settings: init\_comm, criterion\_type, k\_promax, P\_type, and varimax\_type.

**Appendix 5.** Etkileşimli Zihinselleştirme Ölçeği

Yönerge: Bu ölçeğin her bir maddesi bir kişinin katılabileceği ya da katılmayabileceği bir ifadeden oluşmaktadır. Her madde için, maddenin söylediklerine ne kadar katıldığınızı veya katılmadığınızı belirtin. Lütfen tüm maddelere yanıt verin; hiçbirini boş bırakmayın. Her ifade için sadece bir yanıt seçin. Lütfen olabildiğince doğru ve dürüst yanıt verin. Her bir maddeyi diğer maddelerden bağımsız olarak düşünüp yanıtlayın. Başka bir deyişle, yanıtlarınızda “tutarlı” olma konusunda endişelenmeyin. Aşağıdaki dört maddeden birini seçin: 1 = çok doğru; 2 = biraz doğru; 3 = biraz yanlış; 4=çok yanlış.

1. Tanımadığınız kişilerin sizin zihninizi başkalarından daha iyi okuyabildiğine inanabiliyor musunuz?
2. Neyi neden yaptığım konusunda isabetli bir içgörüyü sahibim.
3. Başka bir kişinin ne düşündüğünü anlamakta iyi olduğuma inanıyorum.
4. Başkalarının ne düşündüğünü anlayabileceğim konusunda kendime güveniyorum.
5. Bir film izlerken karakterin bir sonraki adımda ne yapacağını her zaman tahmin edebilirim.
6. Bazen insanların ne düşündüğümü doğrudan anladıklarını düşünüyorum.
7. Tam tersi bir fikir düşünürken de başka birinin fikrini anlayabilirim.
8. Başkalarının sizin ne düşündüğünüzü tahmin edebileceğinden ne kadar eminsiniz?
9. Arkadaşlarıma kıyasla (ortalama olarak), başkalarının ne düşündüğünü tahmin etme konusunda daha iyiyim.
10. Neyi neden düşündüğüme dair isabetli bir içgörüyü sahibim.
11. Başkalarının benimle alay edip etmediğini anlayabilirim.
12. Başarısız olduğumda, tam olarak neden başaramadığımı bilirim.
13. Arkadaşlarıma kıyasla (ortalama olarak), kendi düşünce ve davranışlarım hakkında daha iyi bir içgörüyü sahibim.
14. Düşüncelerimi kendime saklamakta iyiyimdir.
15. Yeni bir görevi yerine getirdiğimde onu doğru yaptığımdan eminimdir.
16. Kim olduğumu bilmek konusunda kendime güvenim yüksektir.

**Ters puanlanan maddeler:** 2, 3, 4, 5, 7, 9, 10, 11, 12, 13, 14, 15, 16.

**Alt ölçekler:** -ben-öteki: 3, 4, 5, 7, 9.

-ben-ben: 2, 10, 11, 12, 13, 14, 15, 16.

-öteki-ben: 1, 6, 8.

# Validation and Psychometric Examination of the Turkish Version of the Emotion Beliefs Questionnaire

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## ABSTRACT

Beliefs about emotions have important consequences on how emotions are regulated, influencing the effectiveness of emotion management and overall mental health outcomes. The Emotion Beliefs Questionnaire (EBQ) was recently developed to evaluate the extent to which individuals believe that positive and negative emotions are controllable and useful. This study aimed to develop the Turkish EBQ form and examine its psychometric characteristics. The original form of the EBQ was translated and back-translated before being completed by a sample of 385 Turkish adults ( $M_{age}=21.76$ ,  $SD=2.18$ , 74.8% women), along with measures of positive and negative affect, non-acceptance of emotions, psychological distress, and loneliness. Similar to the scale development study, the findings of the CFAs suggested a three-factor structure, which includes a general controllability dimension for positive and negative emotions and two separate dimensions for the usefulness of positive and negative emotions. The internal consistency coefficients and test-retest reliability values were comparable to those of the original version. Correlations with other constructs were consistent with our predictions, demonstrating the Turkish version's validity. Taken together, the analyses indicated that the Turkish EBQ is a reliable and valid questionnaire for assessing emotional beliefs.

**Keywords:** Beliefs about emotions, confirmatory factor analysis, emotion beliefs, Emotion Beliefs Questionnaire, psychometric properties.

## ÖZ

### Duygu İnançları Ölçeğinin Türkçe Versiyonunun Doğrulama ve Psikometrik İncelemesi

Duygularla ilgili inançlar, bireylerin duygularını nasıl düzenlediğini ve duygu düzenleme sürecinin etkinliğini şekillendirerek genel ruh sağlığı üzerinde önemli sonuçlar doğurmaktadır. Duygu İnançları Ölçeği (Emotion Beliefs Questionnaire; EBQ), bireylerin olumlu ve olumsuz duyguların kontrol edilebilir ve faydalı olduğuna ne ölçüde inandıklarını değerlendirmek amacıyla yakın zamanda geliştirilen bir öz bildirim ölçeğidir. Bu çalışmanın amacı, EBQ'nun Türkçe formunu geliştirmek ve psikometrik özelliklerini incelemektir. Ölçeğin orijinal formu çevrilip geri çevrildikten sonra, 385 Türk yetişkinden ( $Ort_{yaş}=21,76$ ,  $SS=2,18$ ; %74,8 kadın) oluşan bir örneklem tarafından dolduruldu. Katılımcılardan ayrıca olumlu ve olumsuz duygulanım, duyguları kabul etme ile ilgili güçlükler, psikolojik sıkıntı ve yalnızlık düzeylerine ilişkin ölçümler alındı. Orijinal ölçeğin geliştirme çalışmasıyla paralel olarak, doğrulayıcı faktör analizleri sonuçları olumlu ve olumsuz duygulara ilişkin genel bir kontrol edilebilirlik boyutu ile olumlu ve olumsuz duyguların faydalılığına ilişkin iki ayrı boyut içeren toplam üç faktörlü bir yapıyı destekledi. İç tutarlılık katsayıları ve test-tekrar test güvenilirlik değerleri orijinal form ile karşılaştırılabilir düzeydedir. Ölçeğin diğer değişkenlerle olan korelasyonları da beklentilerle tutarlı bulundu ve Türkçe formun geçerliliğine ilişkin kanıt sağladı. Genel olarak bulgular Türkçe EBQ'nun duygu inançlarını değerlendirmede güvenilir ve geçerli bir ölçme aracı olduğunu göstermektedir.

**Anahtar Kelimeler:** Duygu inançları, doğrulayıcı faktör analizi, duygularla ilgili inançlar, Duygu İnançları Ölçeği, psikometrik özellikler.



#### Cite this article as:

Tuna E. Validation and Psychometric Examination of the Turkish Version of the Emotion Beliefs Questionnaire. J Cogn Behav Psychother Res 2025;14(4):264–275.

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**Submitted:** 21.08.2025

**Revised:** 31.10.2025

**Accepted:** 08.11.2025

**Available Online:** 18.12.2025

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



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## INTRODUCTION

Emotion beliefs include diverse attitudes, judgments, and values attached to emotions, such as characterizing them as helpful or hindering, changeable or fixed, or desirable or undesirable (Kisley et al, 2024). These beliefs shape how emotions are perceived and how we react to our own and other people's emotions; thus, they may have important psychological and psychosocial well-being outcomes (Ford & Gross, 2018). Ford and Gross (2018, 2019) posited that even though there are diverse emotion beliefs, beliefs about emotions can be categorized into two superordinate sets: (1) controllability (i.e., beliefs about whether emotions are controllable versus uncontrollable) and (2) usefulness (i.e., beliefs about whether emotions are useful versus useless). Ford and Gross (2018, 2019) also identified various subordinate beliefs within this framework, such as beliefs regarding specific emotional experiences (e.g., *anger is uncontrollable*), emotional valence (e.g., *negative emotions are bad*), specific emotion intensities (e.g., *high-intensity emotions are bad*), or emotion beliefs related to specific contexts (e.g., *emotions are bad in professional settings*). The authors suggested that emotional valence, among various subordinate categories, is especially relevant and influential in organizing emotional beliefs.

Previous research has revealed that different ways of thinking about emotions have significant effects on psychological well-being and psychopathological symptoms (De Castella et al, 2018; Ford et al, 2018a; Johnston et al, 2024a; Zhang et al, 2023; Zimmermann et al, 2021). For example, believing that emotions are fixed entities and cannot be intentionally changed has been related to increased levels of depressive symptoms, more negative and fewer positive emotional experiences, and lower social adjustment during the transition to college (Kneeland & Dovidio, 2020; Tamir et al, 2007). Furthermore, a belief that emotions are unhelpful is linked to reduced levels of happiness and social support (Karnaze & Levine, 2017), lower well-being, reduced emotional acceptance, and more frequent substance use (Karnaze & Levine, 2020). These types of dysfunctional emotion beliefs, such as believing that emotions are fixed or useless, might be especially prominent in clinical populations, such as individuals with social anxiety disorder, and may play a role in the perpetuation of psychopathology symptoms (De Castella et al, 2014). On the other hand, stronger beliefs about the usefulness of emotions have been linked to greater psychological well-being (Johnston et al, 2024a; Karnaze & Levine, 2020).

Empirical research has also shown that emotion beliefs are closely linked to emotion regulation and may indirectly influence well-being through their effects on the emotion regulation process (De Castella et al, 2018; Ford et al, 2018b;

Zimmermann et al, 2021). Evidence from correlational and experimental studies indicates that believing more strongly that emotions can be intentionally changed or controlled is related to the use of more adaptive and antecedent-focused emotion regulation strategies, such as cognitive reappraisal, and less frequent use of less adaptive strategies, such as rumination and avoidance, and more effective emotion regulation (De Castella et al, 2013, 2018; Ford et al, 2018b; Kneeland & Dovidio, 2020; Kneeland & Simpson, 2022; Zimmermann et al, 2021). Furthermore, individuals who maintain the belief that emotions can be changed may be more inclined toward initiating the emotion regulation process regardless of the implemented strategy (Kneeland et al, 2016). On the contrary, holding the belief that emotions cannot be changed is associated with stronger emotional reactions to stressors, relying on less adaptive strategies of regulating emotions, such as avoidance, and general difficulties in emotion regulation (De Castella et al, 2013, 2018; Kappes & Schikowski, 2013). Additionally, those who believe that people cannot change their emotions may be less accepting of their emotional experiences (Kneeland et al, 2016), perceive emotions as unpleasant and beyond their control (Kappes & Schikowski, 2013), and may have negative secondary emotional reactions, such as guilt and self-criticism, which may impede adaptive regulation of emotions. To illustrate, after not being invited to a party by friends and feeling rejected and angry, someone who believes that emotions can be intentionally changed/controlled may feel control over emotions and attempt to regulate them by trying to see the situation from a different perspective. In contrast, someone who believes that people cannot change their emotions may find these emotions threatening and beyond control and either does not regulate emotions at all or implements less adaptive strategies, such as cognitive or behavioral avoidance.

In contrast to controllability beliefs, studies focusing on usefulness beliefs are less common; however, existing evidence links beliefs that emotions are good/useful to a more accepting stance toward emotions and a more adaptive emotion regulation process. For example, in one study, individuals holding the belief that emotions are functional reported using cognitive reappraisal more frequently and using expressive suppression, a less adaptive emotion regulation strategy, less frequently (Karnaze & Levine, 2020). Perceiving emotions as helpful was associated with a more accepting attitude toward emotional reactions to a distressing movie clip. Another study revealed that believing that emotions are helpful is related to an increased use of cognitive reappraisal, which is among the more adaptive emotion regulation strategies (Karnaze & Levine, 2017). Perceiving emotions as unacceptable and bad predicts a higher level of negative emotions during stressful

daily situations (Ford et al, 2018a) and increased use of expressive suppression (Karnaze & Levine, 2017). Similar to controllability beliefs, believing that emotions are bad/useless may influence whether the emotion regulation process is initiated (Ford & Gross, 2018). For example, finding an emotion desirable or useful may increase the desire to seek or up-regulate that emotion (Ford & Gross, 2019). Overall, previous findings suggest that emotion beliefs have a significant impact on the emotion regulation process and psychological and social well-being, which underscores the importance of accurately assessing these beliefs for further research and interventions.

### Emotion Beliefs Questionnaire (EBQ)

In recent years, there have been several attempts to develop valid and reliable tools for measuring emotion beliefs, with increasing research attention on how people perceive emotions and related outcomes (e.g., Karnaze & Levine, 2020; Thomassin et al, 2020; Veilleux et al, 2015). Building on the framework proposed by Ford and Gross (2018, 2019), Becerra and colleagues (2020) suggested three criteria that measures of emotion beliefs should meet: (1) measuring the controllability and usefulness domains separately, (2) assessing emotion beliefs as a general construct at a superordinate level (i.e., not one's beliefs about their own emotions), and (3) providing valence-specific information (i.e., beliefs about positive and negative emotions). After careful investigation of the previously developed measures, they indicated that none of the existing measurement tools met all three criteria and highlighted the need for a new self-report questionnaire assessing emotion beliefs. Based on this need, the EBQ, which is a 16-item self-report questionnaire measuring beliefs about how controllable and useful positive and negative emotions are, was developed (Becerra et al, 2020). The EBQ encompassed two superordinate subscales of controllability and usefulness and four subordinate subscales based on emotional valence: (1) negative-controllability, (2) positive-controllability, (3) negative-usefulness, and (4) positive-usefulness. In their scale development study, Becerra et al. (2020) showed that the EBQ is most accurately depicted by a three-factor model with a general controllability factor that consists of controllability beliefs about both positive and negative emotions and two distinct factors for positive-usefulness and negative-usefulness beliefs. However, some later studies supported the intended four-factor structure, which includes four distinct subscales on controllability and usefulness beliefs about positive and negative emotions (Becerra et al, 2023; Johnston et al, 2024b).

The EBQ is a reliable and valid tool for assessing beliefs about whether emotions can be controlled and are considered

useful. The reliability coefficients of the scale and its subscales in terms of internal consistency were good in multiple studies (Becerra et al, 2020; Johnston et al, 2024b; Larionow et al, 2024; Ranjbar et al, 2023). In a recent study, Johnston and colleagues (2024b) found Cronbach's alphas of 0.85 for the negative-controllability subscale, 0.84 for the other three subscales, and 0.92 for the total scale. Additionally, these studies also found that the EBQ and its subscale scores correlated with each other, with other assessment tools of emotion beliefs, as well as measures of emotion regulation difficulties and indicators of psychological distress, in expected ways, providing evidence for construct validity.

Previous research has tested the psychometric characteristics of the EBQ in Australian (Becerra et al, 2020), American (Johnston et al, 2024b), Iranian (Ranjbar et al, 2023), Polish (Larionow et al, 2024), Norwegian (Raanes et al, 2024), and Italian (Rogier et al, 2023) samples and confirmed that the EBQ is a reliable and valid measure of emotion beliefs. However, whether the EBQ is a reliable and valid assessment tool for these beliefs across a broader range of non-Western cultural contexts remains unclear. Studying emotion beliefs in different cultures using validated measures can provide a deeper understanding of cultural similarities and differences in emotion and emotion regulation processes and inform culturally sensitive interventions. Therefore, further investigation is required to determine the effectiveness of the EBQ in measuring emotion beliefs across different cultures.

### The Current Study

The findings suggest that emotion beliefs shape how emotions are perceived and regulated, with significant links to psychological well-being and mental health. To the best of our knowledge, no measurement tools exist in Turkish to assess emotion beliefs within the scope of controllability and usefulness dimensions as proposed by Ford and Gross (2018, 2019). Furthermore, cross-cultural studies exploring similarities and differences in emotion beliefs between Turkish samples and other cultures are lacking. Based on these gaps, our goal in this investigation was to develop a Turkish version of the EBQ and report its psychometric characteristics. Translation and validation of the Turkish form of the EBQ will facilitate future research on emotion beliefs in Turkish-speaking populations and allow cross-cultural comparisons. The Turkish cultural context has a mixture of Eastern and Western influences, where values of both autonomy and connectedness are prominent (Aytuğlu et al, 2023). In this context, measuring and understanding emotion beliefs may provide important insights into cultural variation in these beliefs and associated outcomes.

The study hypotheses were as follows: (1) The Turkish EBQ will have a multi-factor structure, potentially similar to the

three-factor structure found in the original study by Becerra and colleagues (2020); however, a four-factor model found in later studies will also be considered; (2) The Turkish EBQ will exhibit good internal consistency and stability over time; (3) The Turkish form will demonstrate evidence for convergent and predictive validity; specifically, scores on the Turkish form 3a) will be positively associated with negative affect, difficulties in accepting emotional experiences, and negative markers of well-being (i.e., psychological distress, as indicated by depression, anxiety, and stress scores, and loneliness); 3b) will be negatively associated with positive affect, and 3c) will explain significant variance in time-1 psychological distress scores and predict time-2 scores.

## METHODS

### Participants

The study participants consisted of 385 Turkish adults (females, 74.8%; males, 24.4%; other, 0.8%) aged between 18 and 46 years, with a mean age of 21.76 (SD=2.18). The mean self-rated socioeconomic status (SES) was 5.96 (SD=1.44) on a 10-point scale, with higher scores representing higher SES. Regarding relationship status, 50.65% of the participants reported being single, and 49.35% reported being in a romantic relationship or married. Regarding psychiatric history, 74.5% of the participants reported no psychiatric history across their lifetime, 22.6% reported having a psychiatric history, and the remaining 2.9% declined to provide information. Among the time-1 participants, 29 (80.8% females, 19.2% males) participated in the time-2 assessment. The mean age of the time-2 sample was 21.58 years (SD=1.24).

### Measures

#### *The Emotion Beliefs Questionnaire (EBQ; Becerra et al., 2020)*

The EBQ is a self-report measure of emotional beliefs in two superordinate dimensions of controllability and usefulness and two subordinate categories based on emotional valence. The questionnaire consists of 16 items and has four subscales with four items in each subscale: positive-controllability (e.g., “People cannot control their positive emotions”), negative-controllability (e.g., “People cannot control their negative emotions”), positive-usefulness (e.g., “There is very little use for positive emotions”), and negative-usefulness (e.g., “There is very little use for negative emotions”). The participants used a 7-point Likert-type rating scale (1=strongly disagree; 7=strongly agree) to rate how strongly they agree with each item. Higher scores on each subscale represent stronger beliefs that emotions are not controllable by intention and are not useful. All subscale scores can be added to provide a total score, which indicates the general level of unhelpful beliefs about emotions.

Accumulating evidence indicates that the EBQ is a reliable and valid measurement tool of emotion beliefs. Cronbach’s alpha coefficients from multiple studies show that the EBQ and its subscales have good internal reliability (Becerra et al, 2020; Johnston et al, 2024b; Larionow et al, 2024; Ranjbar et al, 2023). In terms of concurrent and criterion validity, studies suggest that EBQ scores correlate positively with scores from other emotional beliefs scales (Becerra et al, 2020; Ranjbar et al, 2023). Furthermore, higher scores on the EBQ composite and subscale scores were positively related to deficits in emotion regulation, anxiety intolerance, and psychological distress symptoms (Becerra et al, 2020, 2023; Johnston et al, 2024a).

#### *The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988)*

PANAS is a self-report questionnaire that evaluates positive and negative emotional experiences using 10 positive adjectives (e.g., strong) and 10 negative adjectives (e.g., irritable). Participants rated their extent of experiencing each emotional state using a 5-point Likert-type scale (1=very slightly or not at all; 5=extremely), with higher scores reflecting higher levels of experiencing positive or negative affect. The Turkish form of PANAS was developed by Gençöz (2000) and exhibited good internal consistency and test-retest consistency over time, as well as evidence for validity. PANAS was used to evaluate positive and negative affective states (PA and NA) in the past week. Cronbach’s alpha coefficient was 0.85 for the PA and 0.87 for NA subscale.

#### *Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004)*

DERS is a self-report questionnaire of difficulties experienced by individuals in managing emotions, encompassing 36 items across 6 dimensions. Participants rate each item using a 5-point Likert-type scale (1=almost never, 5=almost always), with higher scores representing greater problems in regulating emotions. DERS is a commonly used self-report tool with strong psychometric properties (Ritschel et al, 2015). The Turkish version of the DERS was developed by Rugancı and Gençöz (2010). The Turkish form demonstrated good internal and temporal consistency and significant correlations with related constructs and mental health outcomes, indicating validity. In our study, only the non-acceptance subscale, which measures difficulties with accepting affective experiences, was used, given its conceptual relevance to emotion beliefs and previous findings linking beliefs that emotions are controllable and useful to greater acceptance of emotions (Hong & Kangas, 2022). The non-acceptance subscale comprises 6 items (e.g., “When I’m upset, I feel guilty for feeling that way”). The Cronbach’s alpha coefficient was calculated as 0.91.

### **Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995)**

DASS-21 is a self-report questionnaire that evaluates the severity of psychological distress by measuring depression, anxiety, and stress symptoms over the past week. The scale uses 21 items (e.g., “I found it hard to wind down”) rated on a 4-point Likert-type scale (0=did not apply to me at all, 3=applied to me very much or most of the time), with higher scores representing greater severity of symptoms. DASS-21 provides three subscale scores for each symptom category and a composite scale score representing the overall level of psychological distress. DASS-21 is a commonly used measurement tool and has shown good psychometric properties (Henry & Crawford, 2005). We used the Turkish version of the DASS-21 that was developed by Sariçam (2018). The Turkish form of the scale has shown good internal consistency and consistency over time, as well as evidence for discriminant validity (Sariçam, 2018). Cronbach’s alpha coefficients were calculated as 0.86, 0.83, and 0.85 for the depression, anxiety, and stress subscales, respectively.

### **The UCLA Loneliness Scale Short Form (ULS-8; Hays & DiMatteo, 1987)**

ULS-8 is a shorter version of the revised UCLA Loneliness Scale (Russell et al, 1980), which evaluates subjective feelings of loneliness using 8 items (e.g., “There is no one I can turn to”). Participants evaluated each ULS-8 item on a 4-point Likert-type scale (1=never, 4=always) to report their frequency of experiencing social isolation and loneliness. ULS-8 is a commonly used self-report tool with psychometric properties established by numerous studies across many samples and cultures (e.g., Swami, 2009; Wu & Yao, 2008). The Turkish form of the ULS-8 was developed by Doğan and colleagues (2011), and its Cronbach’s alpha coefficient was reported as 0.72. The Turkish form had meaningful correlations with other measures of loneliness, depression, and social support scores, demonstrating validity. In our study, ULS-8 was used to assess feelings of loneliness in the past week, and Cronbach’s alpha coefficient was 0.85.

### **Procedure**

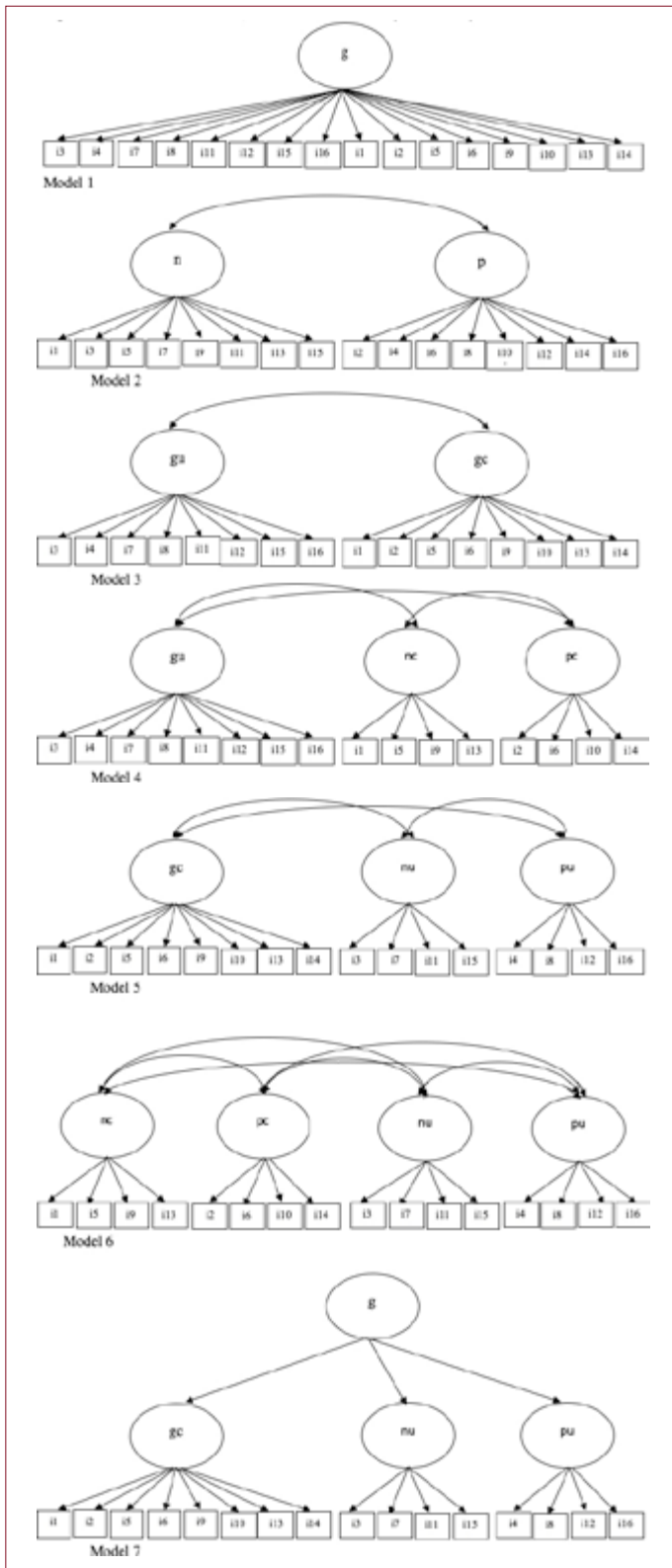
Permission to adapt the EBQ into Turkish was secured from the scale developers. Initially, three clinical psychologists with a doctoral degree, fluent in both Turkish and English, translated the original English form of the EBQ into Turkish. Subsequently, the translated items were back-translated into English and compared with the original version by another clinical psychologist. Necessary modifications were made to ensure compatibility between the two forms before the final Turkish version was produced.

The ethical approval was received from the institutional review board of Middle East Technical University on the 22<sup>nd</sup> of May 2022 (Approval number: 0273-ODTUIAEK-2022). The researchers adhered to ethical principles in research design, data collection, and reporting, in accordance with the 2024 Declaration of Helsinki. The sample was recruited through psychology courses in Middle East Technical University and Çankaya University in Ankara, Türkiye. All study participants completed online informed consent forms before proceeding with the online survey. Respondents received course credits in return for participating in the study. To examine test-retest reliability, participants were asked to provide their consent to be contacted again for a future assessment and were invited via e-mail to a follow-up study. The Turkish form of the EBQ and the DASS-21 were re-administered to those who volunteered to be participants in this follow-up, which took place approximately two months after the time-1 assessment. Data was collected online via Qualtrics in 2023.

### **Data Analysis and Design**

A series of confirmatory factor analyses (CFA) with a maximum-likelihood estimation was used to assess the extent to which the data fit the hypothesized factor structure. Following Becerra et al. (2020), 6 first-order and one higher-order models were tested (Fig. 1). Model 1 (M1) was a single-factor model that tested a general factor representing dysfunctional beliefs about emotions. Model 2 (M2) tested a two-factor model differentiating between beliefs about positive and negative emotions, whereas Model 3 (M3) differentiated between the controllability and usefulness dimensions, regardless of valence. Model 4 (M4) and Model 5 (M5) were three-factor models in which items were divided based on the controllability and usefulness dimensions and differentiated based on emotional valence (positive and negative) for either the controllability (M4) or usefulness (M5) dimension. Model 6 (M6) was a four-factor model in which items were separated based on controllability, usefulness, and emotional valence. Finally, Model 7 (M7) tested the best-fitting first-order model, with first-order factors loading onto a higher-order factor. Latent factors were correlated with each other, except for M7.

The goodness-of-fit of the tested models was evaluated using the following indices: chi-square ( $\chi^2$ ) significance test, comparative fit index (CFI), root mean square error of approximation (RMSEA), the Tucker-Lewis-Index (TLI), and standardized root mean squared residual (SRMR). A non-significant  $\chi^2$ , CFI and TLI values  $\geq 0.90$ , and RMSEA and SRMR values  $\leq 0.08$  were considered evidence for an acceptable fit (Browne & Cudeck, 1992; Marsh et al, 2004). Factor loadings greater than or equal to 0.40 were accepted as meaningful (Stevens, 1992). To decide whether one model was a significantly better fit than another, we used the Akaike information criterion (AIC).



**Figure 1.** The Emotion Beliefs Questionnaire confirmatory factor analysis models.

**Table 1.** Descriptive statistics, reliability, and Intercorrelations of the EBQ and its subscales (N=385)

Subscales	1	2	3	4
1. General-controllability	1			
2. Positive-usefulness	<b>0.47**</b>	1		
3. Negative-usefulness	<b>0.43**</b>	<b>0.39**</b>	1	
4. EBQ Total	<b>0.90**</b>	<b>0.73**</b>	<b>0.69**</b>	1
M	17.92	6.42	10.42	34.75
SD	7.84	3.18	4.52	12.54
Number of items	8	4	4	16
Cronbach's a	0.86	0.72	0.69	0.87
McDonald's w	0.86	0.72	0.74	0.86
Test-retest r <sup>a</sup>	<b>0.54**</b>	<b>0.75**</b>	<b>0.41*</b>	<b>0.61**</b>

a: n=29; \*: P<0.05; \*\*: P<0.01.

Cronbach's alpha and McDonald's omega ( $\omega$ ) coefficients were computed for each subscale and composite of the EBQ. Test-retest reliability was assessed by computing the Pearson correlation coefficients between the scores on the EBQ and its subscales at time-1 and time-2. Convergent and predictive validity was determined by exploring the Pearson correlation coefficients between the EBQ scores and associated constructs and by employing the EBQ subscales as predictors and psychopathology symptoms as outcomes through multiple regression analyses. Convergent validity was further examined by calculating the average variance extracted (AVE). AVE values of 0.50 were interpreted as acceptable (Fornell & Larcker, 1981).

This study employed both cross-sectional and longitudinal designs. SPSS version 21 and AMOS version 29 were used for data analysis.

## RESULTS

### Descriptive Statistics

Table 1 shows the means and standard deviations for the EBQ subscales and total scores.

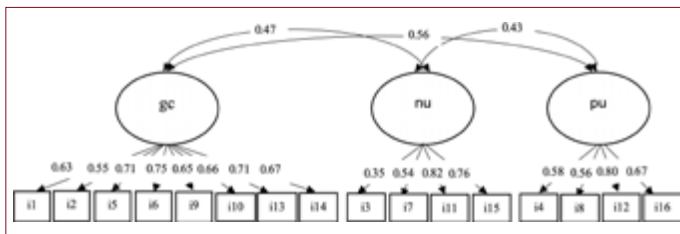
### Factor Analyses of Turkish EBQ

A series of CFAs was run to test the factorial validity of the Turkish EBQ form. The results are summarized in Table 2. M1 and M2, as well as M3 and M4, were poor fits to the data. Both M5 and M6 showed a relatively better fit to the data than the other models, even though the model fit was still inadequate. However, in M6, the negative-controllability and positive-controllability dimensions were highly correlated (estimated  $r=1.05$ ,  $p<0.001$ ), indicating model misspecification and multicollinearity issues. Given that the positive and negative valence items could not be differentiated for the controllability

**Table 2.** Goodness-of-fit values for the confirmatory factor analyses

Model	Factors	$\chi^2$ (df)	CFI	TLI	AIC	RMSEA (90% CI)	SRMR
1	g	398.311 (104) *	0.71	0.66	806.86	0.13 (0.111, 0.137)	0.10
2	n, p	741.562 (103) *	0.71	0.66	807.56	0.13 (0.119, 0.136)	0.09
3	gen-con, gen-use	538.872 (103) *	0.80	0.77	604.87	0.11 (0.096, 0.114)	0.07
4	neg-con, pos-con, gen-use	530.841 (101) *	0.80	0.77	600.84	0.11 (0.097, 0.114)	0.07
5	gen-con, pos-use, neg-use	366.184 (101) *	0.88	0.86	436.18	0.08 (0.074, 0.092)	0.07
6	neg-con, pos-con, pos-use, neg-use	355.517 (98) *	0.88	0.86	431.52	0.08 (0.074, 0.092)	0.07
Modified 5	gen-con, pos-use, neg-use	328.383 (99)*	0.90	0.87	402.38	0.08 (0.068, 0.087)	0.07
7	gen-con, pos-use, neg-use + g	328.383 (99)*	0.90	0.87	402.38	0.08 (0.074, 0.092)	0.07

\*:  $P < 0.001$ ; df: degrees of freedom; CFI: comparative Fit Index; TLI: Tucker-Lewis-Index; AIC: Akaike information criterion; RMSEA: Root-mean-square error of approximation; SRMR: Standardized root mean square residual; gen-con: General-controllability; gen-use: General-usefulness; neg-con: Negative-controllability; pos-con: Positive-controllability; neg-use: Negative-usefulness; pos-use: Positive-usefulness.



**Figure 2.** Standardized loadings and factor correlations for the modified Model 5 of the Emotion Beliefs Questionnaire Turkish form.

gc: General-controllability; nu: Negative-usefulness; pu: Positive-usefulness. Error terms of items 2 and 9, and items 6 and 13 were allowed to covary.

dimension, we proceeded with the three-factor M5 (with a general controllability factor and two factors for positive and negative-usefulness).

We examined the modification indices of M5 and added covariances between the error terms of items 2 (“People cannot control their positive emotions”) and 9 (“People cannot control their negative emotions”), and 6 (“People cannot learn techniques to effectively control their positive emotions”) and 13 (“People cannot learn techniques to effectively control their negative emotions”), given that these items belonged to the general controllability factor and had similar wording. The modified M5 model showed an adequate fit to the data. Each item demonstrated a significant loading to its expected factor ( $p < 0.001$ ). Standardized factor loadings were above 0.40, except for item 3 (i.e., “There is very little use for negative emotions”), which had a negative-usefulness factor loading of 0.35. Figure 2 shows the standardized factor loadings for the final model. Estimated factor intercorrelations based on the CFA showed significant positive correlations between

positive and negative-usefulness (estimated  $r = 0.43$ ), general controllability and positive-usefulness (estimated  $r = 0.56$ ), and general controllability and negative-usefulness factors (estimated  $r = 0.47$ ),  $p < 0.001$ .

The higher-order version of the modified M5 was tested in M7, and the fit values and factor loadings were identical to those of the modified M5, with the first-order factors loading on the higher-factor with estimated loadings of 0.78 (general controllability), 0.72 (positive-usefulness), and 0.60 (Negative-usefulness,  $p < 0.001$ ). The model comparison showed that the M5 and M7 (AIC=402.38) models provided a better fit than the other models.

### Reliability Statistics

Cronbach’s alpha and McDonald’s omega coefficients, and the test-retest reliability statistics for the EBQ subscale and total scores are provided in Table 1.

### Convergent and Predictive Validity

The Pearson correlation coefficients among the EBQ subscales and the total scale were computed and are presented in Table 2. As anticipated, all EBQ subscales showed significant positive correlations with one another and the total scale score. AVE was 0.66 for general controllability, 0.65 for positive-usefulness, and 0.42 for the negative-usefulness subscales.

The Pearson’s correlation coefficients between the EBQ subscale scores and scores on the related constructs are shown in Table 3. As anticipated, all three EBQ subscales and the total scale scores correlated positively with the negative markers of well-being, which are psychological distress symptoms (depression, anxiety, and stress scores, and loneliness) ( $p < 0.01$ ). Furthermore, as expected, the scores on the three EBQ subscales and the total scale correlated positively with non-acceptance of emotional reactions ( $p < 0.01$ ).

**Table 3.** Correlations of the EBQ subscales with negative indicators of well-being, affect measures, and non-acceptance of emotional responses (N=385)

Subscales	Dep	Anxiety	Stress	Lone	PA	NA	Nona
1. General-controllability	<b>0.18**</b>	<b>0.16**</b>	<b>0.19**</b>	<b>0.21**</b>	-0.05	<b>0.32**</b>	<b>0.25**</b>
2. Positive-usefulness	<b>0.13**</b>	<b>0.19**</b>	<b>0.15**</b>	<b>0.17**</b>	0.00	<b>0.20**</b>	<b>0.18**</b>
3. Negative-usefulness	<b>0.20**</b>	<b>0.19**</b>	<b>0.17**</b>	<b>0.19**</b>	<b>-0.12*</b>	<b>0.21**</b>	<b>0.28**</b>
4. EBQ total	<b>0.22**</b>	<b>0.21**</b>	<b>0.22**</b>	<b>0.24**</b>	-0.08	<b>0.33**</b>	<b>0.30**</b>

\*:  $P < 0.05$ ; \*\*:  $P < 0.01$ ; Dep: Depression; Lone: Loneliness; PA: Positive affect; NA: Negative affect; Nona: Non-acceptance.

All three EBQ subscales and the total scale score positively correlated with NA ( $p < 0.01$ ). Only the negative-usefulness subscale was significantly negatively correlated with PA ( $p < 0.05$ ).

Two multiple regression analyses were used on time-1 data (N=385) to establish predictive validity and assess the extent to which the EBQ subscales explain the variance in psychological distress and loneliness scores. For psychological distress, the overall model was significant ( $F[3, 381]=8.75$ ,  $p < 0.001$ ) and explained 6% of the variance in psychological distress. Among the EBQ subscales, Negative-Usefulness ( $\beta=0.18$ ,  $p=0.016$ ) was a significant predictor of psychological distress scores. For loneliness, the overall model was significant ( $F[3, 381]=7.97$ ,  $p < 0.001$ ) and explained 6% of the variance in the loneliness scores. General controllability was a significant predictor of loneliness,  $\beta=0.09$ ,  $p=0.021$ ).

Lastly, a multiple regression analysis was conducted on time-2 psychological distress scores using time-1 emotion beliefs as predictors ( $n=29$ ). The overall model was marginally significant ( $F(3, 25)=2.97$ ,  $p=0.051$ ) and explained 26% of the variance in psychological distress. Among the EBQ subscales, negative-usefulness scores at time-1 were a significant predictor of time-2 psychological distress scores ( $\beta=0.58$ ,  $p=0.010$ ).

## DISCUSSION

This study aimed to validate and explore the psychometric characteristics of the Turkish form of the EBQ in a sample of Turkish adults. Accordingly, the Turkish EBQ's factorial structure was tested using CFA. The internal reliability and test-retest consistency were then examined. Lastly, evidence for validity was evaluated by reporting on the associations between the EBQ dimensions and psychological distress, non-acceptance of emotional experiences, and PA and NA.

Our results indicated an acceptable fit for the modified three-factor model of the EBQ in this Turkish adult sample. Although the four-factor solution showed a similar fit to the data as the initial three-factor model, the high correlation between the negative-controllability and positive-controllability subscale scores in the four-factor model indicated that two

separate dimensions for valence-based controllability beliefs may not be necessary. Although Becerra and colleagues (2020) proposed a three-factor structure for the EBQ rather than the intended four-factor structure, some of the later studies supported a four-factor model with separate subscales for negative and positive valence, organized under two superordinate dimensions of controllability and usefulness (e.g., Ranjbar et al, 2023; Johnston et al, 2024b). Our findings concerning the factor structure in the Turkish sample align with the structure in Becerra et al. (2020) and indicate that the total score for general controllability should be utilized alongside two distinct dimensions for usefulness beliefs in calculating the subscale scores for the Turkish form. This structure is also similar to that of the Norwegian version of the EBQ, as reported in a recent study by Raanes and colleagues (2024). In the Turkish cultural context, the distinction between positive and negative-controllability beliefs may be less relevant. However, despite the support for the three-factor structure, our findings indicated that the Turkish EBQ model fit indices were lower in the present sample than in previous validation and adaptation studies. This discrepancy could be associated with various factors, such as sample characteristics, cultural differences related to emotional beliefs, and measurement-related issues.

In the CFA, item 3 (i.e., “*There is very little use for negative emotions*”) had a relatively low loading to its expected factor, negative-usefulness. Furthermore, this subscale exhibited a relatively low internal consistency. Compared to other items in this subscale (e.g., “*Negative emotions are harmful*”), item 3 is softer in its meaning, which may partly explain why it does not align well with the rest of the items in this subscale. Additionally, the phrase “*very little use*” could be interpreted in different ways, with some participants possibly understanding it as negative emotions having limited but present usefulness. Although we believe that item translations of the Turkish form adequately capture the intended constructs, future studies might consider modifying the phrasing of item 3 to enhance the psychometric properties of the Turkish EBQ.

The Turkish form of the EBQ and its subscales had acceptable to good internal consistency in terms of reliability. The relatively lower internal reliability of the negative-usefulness subscale was associated with issues related to item 3 and should be further tested in future studies. Given the trait-like nature of the emotion beliefs, we expected that the EBQ total and subscale scores would show some stability over time. As anticipated, the test-retest reliability at an approximately 2-month interval suggested that the total and subscale scores of the EBQ demonstrated moderate to high consistency.

As expected, the Turkish EBQ and its subscales showed good convergent and predictive validity in terms of our examination of validity. Significant and positive associations were found among the EBQ subscales and between EBQ scores and levels of psychological distress, supporting the validity of the Turkish form. We also found that holding problematic beliefs about emotions, as measured by the Turkish EBQ, was correlated with an increased tendency toward negative affective experiences and a non-acceptance attitude toward them. This result is in line with existing research linking beliefs that emotions cannot be intentionally changed to increased NA (Kneeland et al, 2020; Tamir et al, 2007) and lower levels of emotional acceptance (Kneeland et al, 2016). An interesting finding in our study was that only the negative-usefulness subscale was significantly associated with PA, with stronger beliefs regarding the uselessness of negative emotions being associated with lower levels of PA, suggesting that the questionnaire is sensitive to positive and negative emotional experiences. Consistent with the role of appraisals on emotions, appraising negative emotions as useful for achieving goals and one's well-being might promote positive emotions (Karnaze & Levine, 2017). Conversely, those who have a greater tendency toward positive affective experiences might find negative emotions more useful.

Furthermore, the EBQ scores significantly predicted psychological distress scores both at time-1 and at an approximately 2-month interval, indicating that a belief that negative emotions are useless may contribute to elevated levels of psychological distress. Our findings are compatible with previous research revealing that dysfunctional beliefs about emotions are linked to lower psychological well-being (Becerra et al, 2020; DeCestella et al, 2013, 2018; Ford et al, 2018b; Johnston et al, 2024a) and highlight the importance of addressing beliefs about the usefulness of negative emotions in interventions targeting psychological distress.

Our findings also revealed that stronger beliefs about the uncontrollability of emotions predict higher levels of loneliness. In a previous study, participants' adaptive or maladaptive beliefs about emotions were linked to increased or decreased

social support, respectively, with cognitive reappraisal or expressive suppression mediating this relationship (Karnaze & Levine, 2017). Therefore, the relationship between beliefs about emotions and loneliness in our study might be explained by the implementation of less adaptive strategies for regulating emotions, such as expressive suppression or avoidance, which may, in turn, contribute to decreased social well-being.

Concerning the limitations of the present study, our reliance on convenience sampling in participant recruitment and the resulting sample characteristics limit the applicability of our findings to the broader Turkish population. Our sample largely consisted of young, female, and nonclinical Turkish university students of middle socioeconomic status. This limitation necessitates the validation of the Turkish EBQ in a more representative sample as well as in clinical samples. An additional limitation of our study was the use of online self-report questionnaires in data collection. Although online surveys provide an easy and time-efficient method of data collection, they may also result in sampling issues, such as self-selection bias, and potential data credibility problems (Wright, 2005). Future studies should employ multiple assessment methods in data collection. Lastly, our test-retest sample was small, which suggests that further testing of the stability of the EBQ scores using larger samples is required to confirm the test-retest reliability.

Apart from these limitations, the current investigation was the first study to develop a Turkish version of the EBQ and explore its psychometric properties. Additionally, to the best of our knowledge, our study was the first to investigate how scores on the EBQ relate to PA and NA and subjective feelings of loneliness. We believe that the development of the Turkish EBQ will facilitate future research on emotion beliefs in Turkish-speaking populations and allow cross-cultural comparisons between cultural contexts, contributing to the field of emotion and cultural psychology.

## CONCLUSION

In conclusion, our findings support the Turkish EBQ as a reliable and valid self-report assessment tool of emotion beliefs, specifically under the controllability and usefulness dimensions, among Turkish adults. The study revealed that stronger beliefs that emotions cannot be intentionally controlled and are not useful, as assessed by the Turkish EBQ, were associated with increased levels of psychological distress, NA, and loneliness and decreased levels of PA. Furthermore, holding stronger maladaptive emotion beliefs was associated with a non-accepting stance toward emotional experiences. Overall, the findings highlight the significance of measuring emotion beliefs across diverse populations and their critical role in psychological well-being.

**Ethics Committee Approval:** This study was approved by the Middle East Technical University Ethics Committee (No:0273-ODTÜİAEK-2022; Date: 20.05.2022).

**Informed Consent:** Written informed consent was obtained from all participants included in the study.

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

**Financial Disclosure:** The author received no financial support for the research, authorship, and/or publication of this article.

**Use of AI for Writing Assistance:** We declare that OpenAI (GPT-4) was used only to correct grammar and improve the clarity of writing.

**Peer-review:** Externally peer-reviewed.

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# Humor in Therapy: Assessing Demand for Integration

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## ABSTRACT

Humor can deepen therapeutic alliance and cognitive flexibility, yet its clinical value appears to depend on the characteristics of the client. This study examined how sociocultural factors play a role in psychotherapy expectations for humor use. In a preregistered study of adults ( $n=398$ , 77.1% female;  $Mage=34.5$ ,  $SD=12.1$ ), participants completed personality, coping humor, expectation of humor in therapy, and demographic/cultural measures. Group differences were assessed using t-tests and analysis of variance (t/ANOVA); a path model (adjusted for demographic and contextual covariates) was used to test whether the approach to humor in culture was linked to coping humor and expectations for humor in psychotherapy. Men reported greater use of coping humor than women ( $p<0.05$ ). Habitual coping with humor was strongly correlated with higher expectations for therapeutic humor ( $\rho=0.60$ ,  $p<0.05$ ). Regression analyses showed that older age ( $\beta=0.16$ ,  $p<0.05$ ) and a positive cultural approach to humor ( $\beta=3.74$ ,  $p<0.05$ ) were independently associated with stronger expectations of humor in psychotherapy. A favorable cultural stance toward humor was associated with more coping humor ( $\beta=0.24$ ,  $p<0.05$ ), which in turn was related to higher expectations ( $\beta=0.38$ ,  $p<0.05$ ); the indirect effect ( $\beta=0.09$ , 95% CI.05–0.14) accounted for 40% of the total association. Personality traits and other covariates were not significant. Clients who come from humor-affirming cultures and already rely on humor to cope are most likely to expect and presumably benefit from humor in psychotherapy. Therefore, a culturally attuned, client-centered use of humor may enhance engagement without compromising therapeutic seriousness.

**Keywords:** Coping, cultural differences, expectations in therapy, humor, individual differences, psychotherapy.

## ÖZ

### Terapide Mizah: Entegrasyon Gereksiniminin Değerlendirilmesi

Mizah, terapötik ilişkiyi güçlendirebilir ve bilişsel esnekliği artırabilir, ancak klinik değeri genellikle danışanın kişisel özelliklerine bağlıdır. Bu çalışmada, sosyokültürel faktörlerin psikoterapide mizah kullanımına yönelik beklentilerde nasıl bir rol oynadığı incelendi. Önceden kayıtlı bu çalışmada (katılımcı sayısı=398, %77,1 kadın; ortalama yaş=34,5,  $SS=12,1$ ) katılımcılardan kişilik, mizahla başa çıkma, terapide mizah beklentisi ve demografik/kültürel ölçümler toplandı. Grup farklılıkları t-testleri ve ANOVA ile ölçüldü; kovaryantlarla ayarlanmış bir yol modeli, başa çıkma mizahının kültürel tutumları terapiye yönelik mizah beklentileriyle nasıl ilişkilendirdiğini test etti. Temel bulgularda, erkekler, kadınlara kıyasla daha fazla başa çıkma mizahı kullandıklarını bildirdi ( $p<0,05$ ). Mizahla başa çıkma, daha yüksek terapötik mizah beklentisiyle güçlü bir şekilde ilişkilidir ( $\rho=0,60$ ,  $p<0,05$ ). Regresyon analizleri, daha ileri yaşın ( $\beta=0,16$ ,  $p<0,05$ ) ve mizaha karşı olumlu kültürel bir yaklaşımın ( $\beta=3,74$ ,  $p<0,05$ ) bağımsız olarak daha yüksek mizah beklentileriyle bağlantılı olduğunu gösterdi. Mizaha olumlu kültürel bakış açısı, daha fazla başa çıkma mizahını ( $\beta=0,24$ ,  $p<0,05$ ) ve dolayısıyla daha yüksek terapötik mizah beklentisini ( $\beta=0,38$ ,  $p<0,05$ ) öngörmektedir. Bu dolaylı etkinin büyüklüğü ( $\beta=0,09$ , %95 GA=0,05-0,14),



### Cite this article as:

Çakır Mete B, Selman SB. Humor in Therapy: Assessing Demand for Integration. J Cogn Behav Psychother Res 2025;14(4):276–285.

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Submitted: 13.05.2025

Revised: 05.11.2025

Accepted: 08.11.2025

Available Online: 18.12.2025

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



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toplam ilişkinin %40'ını açıklamaktadır. Kişilik özellikleri ve diğer kovaryantlar anlamlı bulunmadı. Mizahı olumlayan kültürlerden gelen ve zaten mizahla başa çıkmayı tercih eden danışanlar, psikoterapide mizah kullanılmasını en çok bekleyen ve muhtemelen bu yaklaşımdan en çok fayda gören gruplardır. Bu nedenle, kültürel olarak hassas, danışan odaklı mizah kullanımı, terapötik ciddiyeti tehlikeye atmadan terapi sürecindeki katılımı artırabilir.

**Anahtar Kelimeler:** Baş etme, bireysel farklılıklar, kültürel tutumlar, mizah, psikoterapi, terapide beklentiler.

## INTRODUCTION

Humor is recognized as a clinically versatile technique that can enhance cognitive restructuring, emotional regulation, and therapeutic alliances (Ellis & Whiteley, 1979; Martin, 2007). Humor interventions reduce depressive and anxious symptoms and improve happiness (Wellenzohn et al, 2016; Zhao et al, 2019). However, the small and inconsistent effect sizes, along with reports of boundary blurring or offense, raise doubt on the uniform benefit of humor in psychotherapy (Falkenberg et al, 2011; Hussong & Micucci, 2021; Sarink & García-Montes, 2023). Clarifying who benefits most from humor is a pressing clinical question.

### Theoretical Background

The broaden-and-build theory (Fredrickson, 1998) suggests that positive emotions, broaden thought-action repertoires, fostering creativity and cognitive flexibility. This broadened thinking helps build enduring social and psychological resources, reinforcing overall well-being. However, the impact of positive emotions varies according to individual factors, such as resilience, which influences the ability to find positive meaning in adversity (Fredrickson, 2001; 2004). The consistency of the broadening component has also been questioned in recent empirical work, as it does not always function as predicted (Roth et al, 2024). These findings align with the notion that individual and cultural differences may shape the effects of positive emotions, including humor, highlighting the importance of examining for whom and under what conditions humor is beneficial in psychotherapy.

### Humor in Psychotherapy

Martin (2007) identified three uses of humor in psychotherapy: as a communication tool (e.g., fostering empathy), as a direct intervention (e.g., humor-enhancing therapy), and as a support for evidence-based techniques (e.g., targeting irrational beliefs). Research on humor as a communication tool in therapy suggests that it facilitates client understanding and relieves stress (Dionigi & Canestrari, 2018; Consoli et al, 2018); however, it also carries risks, such as offending clients and blurring boundaries

(Hussong & Micucci, 2021). The efficacy of humor-based interventions remains equivocal. While some studies report benefits, such as increased life satisfaction in older adults (Tse et al, 2010) and subjective happiness in community samples (Wellenzohn et al, 2016), some found limited effects (Rudnick et al, 2014; Sim, 2015). Mental health outcomes are similarly inconsistent: humor reduced depression and anxiety in non-clinical students and subclinical groups (Narula et al, 2011; Tagalidou, et al, 2018) but showed that not all humor types serve a functional role for depression (Altan-Atalay & Boluvat, 2024). A recent systematic review reported modest improvements across mental health indicators (Sarink & García-Montes, 2023), whereas newer evidence suggests more substantial benefits—showing that laughter-based interventions can significantly enhance life satisfaction and reduce anxiety (Porrás-Jimenez et al, 2025).

### Humor in Cognitive Behavioral Therapy

A few studies have examined the role of humor in evidence-based therapies. Albert Ellis, a pioneer of cognitive behavioral therapies, argued that excessive seriousness contributes to neurotic disorders and advocated the integration of humor to challenge irrational beliefs (Ellis, 1980). Although traditional Cognitive Behavioral Therapy (CBT) does not explicitly address this, humor can still serve for cognitive restructuring by encouraging alternative perspectives (Amici, 2019). Empirical studies on humor in CBT are limited. One study found no significant differences in the outcomes between traditional and humor-based desensitization for spider phobia (Ventis et al, 2001). However, another study reported more frequent use of humor in CBT than in PA or PDT, with positive associations between humor and the therapeutic relationship (Brooks et al, 2023). Despite these insights, the direct impact of humor on CBT outcomes remains underexplored, highlighting the need for targeted studies.

### Humor and Individual Differences

Individual differences, such as age, gender, education, and social status, may influence humor use in coping and psychotherapy. Research shows consistent patterns across sociodemographic groups; for instance, men show different

neural responses to humor than women (Hofmann et al, 2023). Adolescents report higher use of aggressive humor than young adults (Falanga et al, 2020), and younger adults demonstrate greater humor orientation, which supports coping (Wanzer et al, 2009). Romantic relationships and socioeconomic status have also been associated with humor styles (Tümkeya, 2011), whereas low school motivation was linked to more negative humor use (Saroglou & Scariot, 2002). Personality traits are similarly influential, with extraversion linked to affiliative humor and neuroticism to self-defeating humor (Plessen et al, 2020). Moreover, various studies have highlighted the links between humor use and mental health conditions (Boerner et al, 2017; Schneider et al, 2018).

### Humor and Cultural Differences

Culture is also recognized as a key factor influencing the use of humor (Martin, 2007; Jiang et al, 2019). Individualistic cultures often view humor as a positive trait linked to creativity, whereas collectivistic cultures may perceive it as disruptive to social harmony, reserving it for more formal professional contexts (Chen & Martin, 2007; Yue et al, 2016; Jiang et al, 2019). Humor use also varies with cultural dimensions such as power distance and uncertainty avoidance. Cultures with low power distance generally embrace humor more freely, whereas others avoid humor due to higher social risks (Lu et al, 2019). Conversely, a study on laughter therapy reported stronger effects in Asian samples, which has been suggested to reflect cultural values that attribute greater relational significance to humor (Porrás-Jimenez, et al, 2025). From this perspective, examining how culture shapes the impact of humor on psychotherapy is a worthwhile endeavor. A study examining regional differences in Türkiye further illustrates how sociocultural context shapes humor patterns: teachers in the Aegean and Mediterranean regions, characterized by greater access to education, leisure, and tourism, reported higher overall humor use, whereas those in Southeastern and Northeastern Anatolia, regions with higher migration and stress, reported less overall humor use (Uyanık et al, 2015).

### The Present Study

This preregistered, cross-sectional study assessed whether (a) sociocultural factors, (b) Big-Five traits, and (c) coping humor (CH) were associated with expectations for humor (EHC) in a community sample. We further tested whether coping humor plays a role in the link between cultural approaches and humor and these expectations. We hypothesized that those from humor-affirming cultures and using humor as a coping mechanism would expect more humor in therapy.

## METHODS

Following quantitative research guidelines (Appelbaum et al, 2018; Simmons et al, 2012), we documented the decisions on data exclusion, sample size, and measures. This study was conducted in accordance with the principles of the Declaration of Helsinki. Ethics committee approval was obtained from the institutional review board of the authors' affiliated university (No: 45776; Date: 10 September 2024). The study was preregistered (<https://doi.org/10.17605/OSF.IO/ST9CK>).

### Participants

An a priori power analysis conducted using G\*Power (version 3.1.9.4; Faul et al, 2007) indicated that a total sample size of 285 was required to detect a small effect size ( $f^2=0.10$ ) (Campbell et al, 2008) with 14 independent variables,  $\alpha=0.05$ , and power  $(1-\beta)=0.95$ . The target sample size was set at 400 to account for potential missing data. Participants were recruited via social media and provided informed consent to ensure anonymity. They then completed secure online surveys assessing the relevant psychological and demographic factors. All data were stored in compliance with data protection regulations. Two participants were excluded because they submitted the survey without answering any questions. Table 1 presents the demographic details of the participants.

### Measures

#### Ten Item Personality Inventory

The Ten Item Personality Inventory (TIPI; Gosling et al, 2003) assesses the Big-Five Factor Personality traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Participants responded to 10 items using a 7-point Likert-type scale. The Turkish adaptation of TIPI has demonstrated reliable psychometric properties (Atak, 2013).

#### Coping with Humor Scale

The Coping Humor Scale (CHS; Martin & Lefcourt, 1983) uses a 7-item, 4-point Likert-type scale to measure the use of humor as a coping mechanism in stressful situations. Although the Turkish version has demonstrated reliable psychometric properties (Yerlikaya, 2009), the internal consistency in this study was suboptimal ( $\alpha=0.53$ ).

#### Expectations Regarding Humor in the Counseling Scale

The Expectations about Humor in Counseling Scale (EHC; Blevins, 2010) uses an 8-item, 7-point Likert-type scale to assess expectations of humor in counseling. The Turkish version of the scale was developed for this study and demonstrated strong internal consistency ( $\alpha=0.91$ ).

**Table 1.** Demographic characteristics of the participants (n=398)

Variable	n (%)	Variable	n (%)
Gender (female)	307 (77.1)	Southeastern Anatolia	16 (4.0)
Age	34.5 (12.1) [18.0, 65.0]	Central Anatolia	60 (15.1)
18–24	85 (21.4)	Black Sea	33 (8.3)
25–29	101 (25.4)	Marmara	173 (43.5)
30–34	56 (14.1)	Missing	2 (0.4)
35–39	28 (7.0)	Frequency of humor in the culture	
40–49	64 (16.1)	Sometimes used	174 (43.7)
50–65	62 (15.6)	Never used	1 (0.3)
Missing	2 (0.4)	Neutral	24 (6.0)
Education level		Rarely used	11 (2.8)
High school graduate	74 (18.6)	Frequently used	187 (47.0)
Less than in high school	11 (2.8)	Missing	1(0.2)
College graduate	192 (48.2)	Approach to humor in culture	
Master's/doctoral degree	117 (29.4)	Very positive	69 (17.3)
Missing	4 (1)	Very negative	1 (0.3)
Relationship status		Neutral	52 (13.1)
Single	178 (44.7)	Positive	269 (67.6)
Divorced	9 (2.3)	Negative	6 (1.5)
Married	210 (52.8)	Missing	1 (0.2)
Missing	1 (0.2)	Psychological support received	177 (44.5)
Subjective social status	6.30 (1.63) [1.00, 10.0]	Anxiety	103 (25.9)
Occupation		Depression	49 (12.3)
Employed	190 (47.7)	Trauma	26 (6.5)
Retired	22 (5.5)	Anger Issues	28 (7.0)
Homemaker	61 (15.3)	Relationship Issues	79 (19.8)
Student	25 (6.3)	Attention Issues	21 (5.3)
Unemployed	94 (23.6)	Number of sessions	
Missing	6 (1.6)	1–5 Sessions	58 (14.6)
Geographical background		11–20 Sessions	31 (7.8)
Mediterranean	21 (5.3)	21+ Sessions	31 (7.8)
Eastern Anatolia	27 (6.8)	6–10 Sessions	50 (12.6)
Aegean	66 (16.6)	Missing	7 (1.7)

Continuous variables are presented as mean and standard deviation (M, SD) along with minimum and maximum values (min, max); categorical variables are presented as counts and percentages (n, %).

### Demographic Information Form

The demographic information form, developed for this study, includes 12 items on gender, age, education level, occupation, subjective social status (SSS), relationship status, geographical background (GB), frequency of humor in the culture (FHC), approach toward humor in the culture (AHC), history of psychological support, the specific issue for which

psychological support was previously sought, and the number of sessions attended (if applicable). FHC was measured with the question: 'How frequently is humor used in your culture (family and close social environment)?' and AHC with the question: 'What is your general attitude toward humor in your culture (family and close social environment)?' Both items were rated on a 0–4 scale (FHC: 0=never, 4=frequently; AHC: 0=very negative, 4=very positive).

**Table 2.** Descriptive statistics of the main variables of the study

Variable	Mean (SD) [min, max]
CH	18.4 (2.75) [10, 26]
EHC	38 (10.4) [8, 56]
Extraversion	4.84 (1.5) [1, 7]
Agreeableness	5.1 (1.17) [1.5, 7]
Conscientiousness	5.48 (1.23) [1, 7]
Neuroticism	3.74 (1.37) [1, 7]
Openness to the experience	4.65 (1.23) [1, 7]

M, SD, min, and max are used to represent mean, standard deviation, minimum, and maximum values, respectively. CH: Coping with humor; EHC: Expectations about humor in therapy.

### Analysis Plan

First, demographic and sociocultural factors were analyzed, and descriptive statistics were used to identify the key variables. A correlational analysis was conducted to examine the relationships between demographic and sociocultural characteristics, personality traits, CH, and EHC. Additionally, an independent samples t-test and ANOVA were used to explore the group differences in CH and EHC between the categorical variables. A multiple regression analysis was conducted to examine the combined effects of the independent variables on EHC.

Exploratory path analyses were conducted to clarify the relationships among AHC, CH, and EHC based on the significant regression results. A path analysis model was estimated, and three primary paths were specified: a path from AHC to CH (a), from CH to EHC (b), and a direct path from AHC to EHC (c'). The total association (c) between AHC and EHC is conceptualized as the sum of the direct effect (c') and the indirect effect (a×b). Given the cross-sectional design, these paths reflect overlapping variance and not causality.

Statistical analyses were conducted using the lavaan package (version 0.6.15) in R (version 4.2.3). To accommodate nonnormality, the models were estimated using maximum likelihood (ML) with 1,000 bootstrap resamples and bias-corrected accelerated (BCa) 95% CIs. To adjust for potential confounding influences, several covariates were included, such as age, occupation, education level, SSS, GB, relationship status, number of psychological support sessions attended, and personality traits. All main variables were scaled prior to analysis. Model fit was evaluated using established guidelines: a nonsignificant chi-square, Comparative Fit Index (CFI), and Tucker–Lewis Index (TLI) values above 0.95 (Hu & Bentler, 1999), and both the Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR) values below 0.08 (Kaplan, 2008; Xia & Yang, 2019).

## RESULTS

### Preliminary Analysis

Table 2 presents the descriptive statistics of the key variables. The Shapiro–Wilk test showed that personality traits, including extraversion, agreeableness, conscientiousness, neuroticism, CH, and EHC, were not normally distributed ( $p < 0.05$ ), indicating deviations from normality. However, openness to experience was normally distributed ( $p > 0.05$ ). Table 3 presents the correlations among the variables. The Spearman Correlation Test suggests that our main study variables of CH and EHC did not show significant correlations with other variables, but they were strongly associated with each other ( $r = 0.6$ ,  $p < 0.05$ ). This indicates that participants who reported higher expectations about humor in psychotherapy tended to use humor as a coping strategy.

### Differences in Sociodemographic Group

A t-test indicated that gender plays a significant role in the use of CH ( $p < 0.05$ ). Men ( $M = 19$ ,  $SD = 3.10$ ) reported using CH significantly more than women ( $M = 18.3$ ,  $SD = 2.63$ ). When examining EHC, the results approached significance but did not reach the conventional threshold ( $p = 0.06$ ). Men reported a slightly higher average score ( $M = 39.8$ ,  $SD = 9.78$ ) than women ( $M = 37.5$ ,  $SD = 10.5$ ). Table 4 presents these group differences by gender.

### Regression Analysis

To explore the possible combined role of these independent variables on EHC, a multiple regression analysis was conducted including all theoretically and empirically potentially related variables (age, occupation, education level, SSS, FHC, AHC, GB, relationship status, and the number of psychological support sessions attended). The results suggest that age was significantly related to EHC scores, with older participants reporting higher expectations ( $\beta = 0.14$ ,  $p < 0.05$ ). In addition, the humor approach in the participants' culture was positively associated with EHC, suggesting that a positive humor approach in the individuals' culture was related to higher EHC scores ( $\beta = 3.72$ ,  $p < 0.05$ ). The overall model was statistically significant ( $F(16, 342) = 2.66$ ,  $p < 0.05$ ), explaining approximately 11% of the variance in the EHC scores ( $R^2 = 0.11$ ).

A second multiple regression analysis was conducted to extend the previous multiple regression model by including personality traits. The model revealed that age ( $\beta = 0.16$ ,  $p < 0.05$ ) and AHC ( $\beta = 3.74$ ,  $p < 0.05$ ) remained as variables significantly associated with EHC. However, personality traits and other variables were not significantly associated with the outcome variable. The model explained approximately 11% of the variance in the EHC scores ( $R^2 = 0.1115$ ), and the overall model was statistically significant ( $F(21, 320) = 1.91$ ,  $p < 0.05$ ).

**Table 3.** Spearman's  $\rho$ -correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. CH												
2. EHC	0.60*											
3. Age	-0.04	-0.06										
4. Edu	-0.11	-0.16	0.43									
5. SSS	0.02	-0.09	0.55	0.35								
6. FHC	0.15	0.21	-0.30	-0.19	-0.17							
7. AHC	0.36	0.35	-0.15	-0.17	0.00	0.74**						
8. NoS	-0.01	-0.07	-0.27	0.11	-0.17	-0.18	-0.23					
9. Ext	-0.07	-0.15	0.36	0.16	0.49	0.02	0.12	-0.18				
10. Agg	0.21	0.21	0.40	0.34	0.44	0.17	0.31	0.10	0.61*			
11. Con	-0.07	-0.06	0.59*	0.24	0.61*	-0.11	0.02	-0.39	0.65*	0.62*		
12. Neu	-0.21	-0.13	-0.62*	-0.35	-0.58*	-0.11	-0.27	0.30	-0.55	-0.58*	-0.80**	
13. OE	0.03	-0.12	-0.04	-0.05	0.08	0.13	0.21	-0.14	0.53	0.45	0.33	-0.36

\*:  $P < 0.05$ ; \*\*:  $P < 0.01$ ; CH: Coping with humor; EHC: Expectations about Humor in therapy; FHC: Frequency of humor in the culture; AHC: Approach to humor in the culture; Edu: Education; SSS: Subjective social status; NoS: Number of sessions attended for psychological support; Ext: Extraversion; Agg: Agreeableness; Con: Conscientiousness; Neu: Neuroticism; OE: Openness to experience.

**Table 4.** Group differences

	Male (n=91)	Female (n=307)	p
	Mean (SD) [min, max]	Mean (SD) [min, max]	
CH	19.0 (3.10) [10.0, 26.0]	18.3 (2.63) [10.0, 26.0]	0.041
EHC	39.8 (9.78) [14.0, 56.0]	37.5 (10.5) [8.00, 56.0]	0.068

M, SD, min, and max represent the mean, standard deviation, minimum, and maximum values, respectively. CH: Coping with humor; EHC: Expectations about humor in therapy.

### Path Analysis

The overall model fit was excellent. The chi-square value of 17.211 ( $df=12$ ,  $p=0.142$ ) indicates that the model-implied covariance structure does not significantly differ from the observed data. A CFI of 0.949 (very close to the recommended 0.95 cutoff), TLI of 0.886 (slightly below the recommended cutoff), SRMR of 0.02 (well below the 0.08 threshold), and RMSEA of 0.036 (90% CI [0.000, 0.071]) corroborate the overall adequate model fit. Path a (AHC  $\rightarrow$  CH) was ( $\beta=0.246$ ,  $p < 0.05$ , 95% CI [0.151, 0.352]) significant, suggesting that positive cultural views on humor are linked to more frequent use of CH. Path b (CH  $\rightarrow$  EHC) was significant ( $\beta=0.382$ ,  $p < 0.05$ , 95% confidence interval [CI] [0.264, 0.495]), indicating that the frequent use of CH is associated with higher EHC. Path c' (AHC  $\rightarrow$  EHC) was also significant ( $\beta=0.162$ ,  $p < 0.05$ , 95% CI [0.059, 0.272]). This implies that people who have positive cultural views on humor also have higher EHC, independent of personal use of humor.

The examination of the indirect effect (axb) was also significant ( $\beta=0.094$ ,  $p < 0.05$ , 95% CI [0.051, 0.144]), suggesting that a notable proportion of the association between AHC and EHC is shared with CH. This indicates that people who have positive cultural views on humor may apply CH, which may in turn be associated with EHC. The total effect (direct + indirect) was also significant ( $\beta=0.256$ ,  $p < 0.05$ , 95% CI [0.148, 0.361]). Additionally, the ratio of the indirect effect to the total effect was estimated to be 0.40 ( $p < 0.05$ , 95% CI [0.247, 0.712]). This indicates that the association with CH accounts for approximately 40% of the shared variance between AHC and EHC, suggesting that CH explains a significant part of the cultural influence on EHC. Although several covariates were included to control for confounding factors, most did not reach statistical significance. Table 5 presents standardized parameter estimates and p-values. Given the nonnormality in several variables, all 95% CIs are bias-corrected and accelerated bootstrap intervals based on 1,000 resamples. Figure 1 presents the path analysis's main findings.

### DISCUSSION

The present study synthesized extant research on humor in psychotherapy and tested whether factors of individual and cultural differences account for the field's mixed results (Saroglou & Scariot, 2002; Tümkaya, 2011; Plessen et al, 2020). Contrary to our expectations, education, occupation, SSS, relationship status, GB, prior psychological treatment, and most personality dimensions were unrelated to either CH or EHC. However, men reported significantly more frequent use

**Table 5.** Parameter estimates

Path	$\beta$ (Beta)	p	95% CI
Covariates			
Age	0.009	0.096	(-0.002, 0.020)
Education	0.034	0.619	(-0.111, 0.158)
Subjective social status	-0.005	0.882	(-0.076, 0.066)
Relationship status	-0.187	0.173	(-0.457, 0.079)
Geographical background	0.009	0.774	(-0.053, 0.067)
Number of psychological support sessions provided	-0.000	0.929	(-0.006, 0.006)
Extraversion	-0.018	0.640	(-0.094, 0.053)
Agreeableness	0.038	0.389	(-0.052, 0.124)
Conscientiousness	0.031	0.544	(-0.067, 0.132)
Neuroticism	0.035	0.398	(-0.046, 0.116)
Openness to the experience	-0.050	0.244	(-0.133, 0.034)
Regression paths			
AHC → CH (a)	0.246	<0.05	(0.151, 0.352)
CH → EHC (b)	0.382	<0.05	(0.264, 0.495)
AHC → EHC (c')	0.162	<0.05	(0.059, 0.272)
Defined parameters			
AHC → CH → EHC ( $a_1 * b_1$ )	0.094	<0.05	(0.051, 0.144)
Total (c) = $c' + (a_1 * b_1)$	0.256	<0.05	(0.148, 0.361)

$\beta$ =standardized regression (path) coefficient; p=p-value, indicating the significance level; CI: Confidence interval for  $\beta$ ; "→" denotes the direction of the path in the model; a, b, c', c represent specific path labels. AHC: Approaches to humor in culture; CH: Coping with humor; EHC: Expectations about humor in therapy; CH: Coping with humor; EHC: Expectations about humor in therapy.

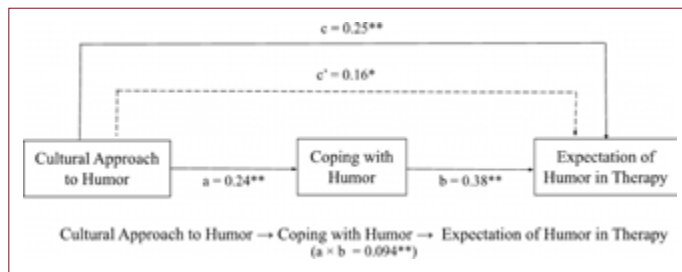
of CH. Given that men are generally less likely than women to seek psychological support (National Institute of Mental Health, 2021), incorporating humor into psychotherapy might create a more approachable environment for male clients. Additionally, older participants had significantly greater EHC, possibly reflecting a more positive appraisal of humor's role based on life experience. Furthermore, CH was robustly associated with EHC.

The most novel contribution of this study is its identification of both direct and indirect significant associations between AHC, CH, and EHC, which partially supports the main hypothesis. Cultural dimensions, such as individualism-collectivism and power distance, are known to influence the use of humor (Lu et al, 2019), and cross-cultural research indicates that the psychological impact of humor interventions may vary depending on cultural values (Porrás-Jiménez et al, 2025). Our findings extend this literature by demonstrating that AHC is associated with both CH and EHC. Within the framework of social learning theory, individuals may learn to use humor in response to difficult situations by observing others in their cultural environment (Bandura, 1977). Meanwhile, operant

conditioning theory suggests that if positive outcomes are obtained, humor use may be reinforced (Skinner, 1938). This learned use of humor may, in turn, inform individuals' expectations about its role in therapy.

The other demographic characteristics and personality traits were not significantly associated with CH or EHC. This aligns with the mixed findings in the literature, which highlight the need for more comprehensive research on the role of these factors (Ventis et al, 2001; Narula et al, 2011; Tagalidou et al, 2018; Altan-Atalay & Boluvat, 2024). Although humor styles are known to be linked to personality traits (Mendiburo-Seguel et al, 2015), this study did not examine them separately, representing a limitation worth addressing in future research, as different humor styles may have distinct effects on therapeutic outcomes (Yonatan-Leus et al, 2018).

This study has several limitations. Its cross-sectional design prevents causal inferences, and self-reports introduce the risk of social desirability bias. Additionally, the CHS demonstrated a relatively low internal consistency (Cronbach's  $\alpha=0.53$ ), which limits the reliability of findings involving this measure and calls



**Figure 1.** The path model examines the association between cultural approaches and humor, coping with humor, and expectations about humor in therapy. Paths are standardized; covariates are included in the model but omitted from the diagram for clarity.

for cautious interpretation. The “GB” variable, derived from participants’ selection among Türkiye’s seven geographical regions, provides only a broad regional classification and therefore has limited power to reflect cultural diversity. Although two single-item indicators, FHC and AHC, were used to supplement the cultural assessment, these measures primarily capture the perceptions of participants within their immediate environments rather than the broader and multifaceted nature of culture. Future studies should employ more comprehensive and validated instruments or qualitative approaches to better capture the complexity of cultural influences. Most participants were female (77%), which restricts the generalizability of the findings to broader populations. Finally, a larger and more demographically balanced sample could have provided a more representative distribution.

## CONCLUSION

In conclusion, the study addresses a key gap by examining the link between individual and cultural characteristics and the expectation of humor in therapy, offering practical insights for developing more culturally sensitive interventions. Notably, the finding that a favorable cultural stance toward humor was associated with more coping humor, which in turn was related to higher expectations underscores the necessity of considering the influence of culture for the effective use of humor in therapy. Future research could use larger samples and advanced qualitative methods to capture more nuanced cultural perspectives.

**Ethics Committee Approval:** The Ibn Haldun University Ethic Committee granted approval for this study (date: 10.09.2024, number: 45776).

**Informed Consent:** Written informed consent was obtained from all participants prior to their inclusion in the study.

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

**Financial Disclosure:** The authors received no financial support for the research, authorship, and/or publication of this article.

**Use of AI for Writing Assistance:** AI-assisted tools (e.g., ChatGPT) were employed solely for linguistic assistance.

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

**Peer-review:** Externally peer-reviewed.

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# Dissociative Symptoms in Patients with Psychiatric Disorders

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## ABSTRACT

Growing evidence suggests that dissociation plays a transdiagnostic role across various psychiatric disorders, functioning as a maladaptive coping mechanism that complicates symptom presentation and hinders treatment response. These symptoms occur in a wide array of psychiatric conditions without meeting the criteria for a dissociative disorder and have a strong link with trauma, stress, and overwhelming emotional difficulties. When present alongside another disorder, they have been shown to worsen the prognosis and treatment outcomes. This review aims to provide an overview of the presentations of dissociative symptoms in patients with post-traumatic stress disorder, borderline personality disorder, panic disorder, obsessive-compulsive disorder, and psychosis. This review advances the existing literature by offering a comprehensive synthesis of dissociative symptoms across a broad range of psychiatric disorders, incorporating recent empirical findings, and elucidating their implications for cognitive-behavioral therapeutic frameworks. The main emphasis of this review is to highlight the importance of recognizing dissociative symptoms in clinical settings for better treatment.

**Keywords:** Borderline personality disorder, dissociative symptoms, obsessive-compulsive disorder, panic disorder, post-traumatic stress disorder, psychosis.

## ÖZ

### Psikiyatrik Bozukluklarda Disosiyatif Belirtiler

Disosiyasyonun çeşitli psikiyatrik bozukluklarda tanılar üstü bir rol oynadığını ve belirtilerin ortaya çıkışını karmaşıklaştıran, tedavi yanıtını zorlaştıran uyumsuz bir başa çıkma mekanizması olarak işlev gördüğünü öne süren kanıtlar giderek artmaktadır. Bu belirtiler, disosiyatif bozukluk tanı kriterlerini karşılamadan da birçok psikiyatrik duruma eşlik edebilmekte; travma, stres ve yoğun duygusal zorluklarla güçlü bir ilişki göstermektedir. Bir bozukluğa eşlik ettiğinde, bu belirtilerin prognozu ve tedavi sonuçlarını kötüleştirdiği öne sürülmektedir. Bu derleme, travma sonrası stres bozukluğu, sınırda kişilik bozukluğu, panik bozukluk, obsesif kompulsif bozukluk ve psikotik bozukluklarda disosiyatif belirtilerin eşliğini gözden geçirmeyi amaçlamaktadır. Bu çalışma, disosiyatif belirtilerin geniş bir psikiyatrik bozukluk yelpazesinde kapsamlı bir sentezini sunarak mevcut literatüre katkıda bulunmakta, son dönemdeki ampirik bulguları dahil etmekte ve bilişsel davranışçı terapötik çerçeveler açısından çıkarımları açıklamaktadır. Derlemenin temel vurgusu, klinik ortamlarda disosiyatif belirtilerin tanınmasının tedavi süreçleri için kritik öneminin altını çizmektedir.

**Anahtar Kelimeler:** Sınırda kişilik bozukluğu, disosiyatif belirtiler, obsesif kompulsif bozukluk, panik bozukluk, travma sonrası stres bozukluğu, psikoz.



### Cite this article as:

Kocatepe Avcı U. Dissociative Symptoms in Patients with Psychiatric Disorders. J Cogn Behav Psychother Res 2025;14(4):286-295.

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**Submitted:** 09.07.2025

**Revised:** 31.08.2025

**Accepted:** 14.10.2025

**Available Online:** 18.12.2025

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



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## INTRODUCTION

Pierre Janet, an early researcher of dissociation, described it as either a withdrawal of consciousness or a breakdown of integrated thought and functional systems (Janet, 1907; akt. Atchison & McFarlane, 1994). He observed that this withdrawal leads to a narrowing of attention—such as daydreaming or zoning out—while disintegration affects memory and identity, evident in conditions such as dissociative amnesia and identity fragmentation. However, many scholars have reduced dissociation to merely the separation of integrated mental processes such as thought and emotion (Spiegel & Cardeña, 1991). Waller, Putnam, and Carlson (1996) later categorized those experiences into nonpathological (e.g., zoning out during movies) and pathological (e.g., amnesia). Currently, the DSM-5 describes dissociation as “a disruption of and/or discontinuity in the normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior” (American Psychiatric Association [APA], 2013). Dissociative disorders fall into a distinct diagnostic category in the Diagnostic and Statistical Manual of Mental Disorders (APA, 2013), however, dissociative symptoms can appear across various psychiatric disorders (Ural et al, 2015a). These symptoms can range from normal experiences, such as daydreaming to severe, pathological ones, such as detachment from reality (Reyno et al, 2020). Dissociative symptoms are also prevalent in nonclinical populations (Rathée & Kumar, 2020), but when accompanied by a disorder, they tend to worsen prognosis and increase the severity in clinical populations (Campbell et al, 2022).

Dissociation is considered a normal psychophysiological mechanism, and dissociative symptoms are common not only in dissociative disorders but also across nearly all mental health conditions (Bernstein & Putnam, 1986), especially in trauma-related conditions such as post-traumatic stress disorder (PTSD) and borderline personality disorder (BPD) (APA, 2013). Although the pathological aspect may appear adaptive by temporarily relieving the stress of overwhelming information (Waller et al, 2001), there is a large volume of research emphasizes that comorbid dissociative symptoms intensify the severity of related disorders (Campbell et al, 2022; Justo et al, 2018), predict unfavorable outcomes (Buchnik-Daniely et al, 2021; Kolek et al, 2019), and are associated with suboptimal treatment response (Lanius et al, 2018; Ural et al, 2015b). Moreover, it has been suggested that persistent derealization serves as an early psychological and biological indicator of more severe psychiatric conditions following trauma exposure (Lebois et al, 2022). Therefore, the assessment of dissociation should be a standard component of all comprehensive psychopathological assessments (Lyssenko et al, 2018). Given the importance of this issue, the current review summarizes

existing knowledge regarding the manifestation of dissociative symptoms across various psychiatric disorders. Considering the possible presence of dissociative symptoms in different psychiatric conditions is essential for the development of more effective treatment strategies.

## POST-TRAUMATIC STRESS DISORDER (PTSD)

Over many years of research, it has become evident that a powerful association exists between dissociation and traumatic experiences (Chu & Dill, 1990; Ellason & Ross, 1997; Gast et al, 2001; Macarenco et al, 2021). The relationship between these two variables has been primarily explained by two theories. According to one theory, some individuals are more predisposed to dissociation, which helps them cope with the negative emotional effects of traumatic events by engaging in dissociation (Spiegel et al, 1988). In this context, dissociation functions as a maladaptive coping strategy that disrupts the integration of traumatic memories, an integration that is crucial for healing. Another theory (Janet, 1907; Nijenhuis et al, 2002, 2004) proposes that severe stress following trauma disrupts normal cognitive processes, leading to dissociation, particularly when an individual’s ability to integrate experiences is limited. The latter theory accounts for the more pronounced dissociative experiences observed in children subjected to long-term and high-intensity trauma (Ogawa et al, 1997). Numerous studies comparing traumatized and non-traumatized groups have found that the former exhibit more pronounced dissociative features (Vanderlinden et al, 1993). Childhood trauma is associated with various psychopathologies linked to dissociation, including dissociative disorders, somatic symptom disorders, as well as schizophrenia (Şener et al, 2020), obsessive-compulsive disorder (Özgündüz et al, 2019), anxiety, and depression (Gul et al, 2016). Additionally, dissociation is identified as a common symptom of PTSD in the DSM-5 (APA, 2013).

Peritraumatic dissociation, a dissociative response occurring during or immediately after a traumatic event, has long been recognized as a significant predictor of PTSD development (Breh & Seidler, 2007; Marmar et al, 1994; Ursano et al, 1999). Higher levels of peritraumatic dissociation are associated with increased PTSD severity and more chronic symptom trajectories (Benzakour et al, 2021; Figueroa et al, 2024). For instance, Lensvelt-Mulders et al. (2008) conducted a meta-analysis and confirmed that peritraumatic dissociation is a robust predictor of PTSD across various trauma-exposed populations. Similarly, Unal et al. (2025) emphasized the significant role of peritraumatic dissociation and related cognitive-emotional factors in PTSD symptomatology among earthquake survivors. They also emphasized the potential benefits of cognitive-behavioral interventions focused on emotion regulation and the

modification of maladaptive beliefs to improve treatment outcomes in this population. These findings underscore the importance of addressing peritraumatic dissociation in clinical settings to improve treatment outcomes for individuals with trauma-related disorders.

Dissociation is so closely related to trauma that the DSM-5 induces a distinct PTSD subtype. The dissociative subtype is diagnosed in those who meet the PTSD criteria and report chronic and recurrent symptoms of depersonalization and derealization (APA, 2013). Emerging findings indicate that this is a distinct and clearly recognizable dissociative subtype of PTSD (D-PTSD), characterized by prominent depersonalization and derealization, which may have important treatment implications (Misitano et al, 2024). The validity of this subtype has been supported by numerous studies conducted with various trauma victims (Hansen et al, 2017). The presence of dissociative symptoms in PTSD worsens the clinical profile and negatively affects treatment outcomes. For instance, Armour et al. (2014b), in their research with sexual assault survivors, suggested that the victims presenting with dissociative symptoms also had higher level of anxiety, depression, hostility, and sleep difficulties than those without dissociative symptoms. Blevins et al. (2014) reported that among college students with a history of trauma exposure, individuals presenting with dissociative symptoms had higher levels of many psychiatric conditions (i.e., anxiety disorders, depression, schizophrenia, and substance-related disorders) than the non-dissociative group. Furthermore, recent meta-analytic evidence suggests that dissociation serves as a transdiagnostic mediator between trauma exposure and PTSD and psychotic symptoms (Liu et al, 2025). Conversely, other studies conducted with military veterans, the dissociative and non-dissociative groups did not differ significantly, suggesting that the type and context of the traumatic event may influence the findings (Armour et al, 2014a; Wolf et al, 2012a). Physical abuse (Kate et al, 2021; Steuwe et al, 2012) and sexual abuse are strongly related to the presence of dissociative symptoms in PTSD (Kate et al, 2021; Steuwe et al, 2012; Wolf et al, 2012b). In addition, dissociation is associated with suicide attempts among victims of sexual abuse (Brokke et al, 2022). Furthermore, cognitive behavior therapy (CBT) was been shown to be an effective strategy for managing dissociative symptoms in the dissociative subtype of PTSD both in individual (Vancappel et al, 2022) and group settings (Vancappel et al, 2025). Importantly, a recent case study demonstrated that a patient with dissociative PTSD experienced significant symptom reduction following an adjusted CBT protocol incorporating emotion regulation and dissociation management techniques prior to exposure therapy. This highlights the importance of preparatory interventions before trauma-focused work (Vancappel et al, 2022).

Dissociation can manifest across a broad spectrum, ranging from nonclinical to clinical samples. However, in non-traumatized individuals, dissociative symptoms that fall below the clinical threshold are not always expected to be related to traumatic experiences or to be pathological. In contrast, pathological dissociation is more frequently observed in traumatized groups (Xiao et al, 2006).

## **BORDERLINE PERSONALITY DISORDER**

Dissociative symptoms in people with BPD contribute to various negative impacts, making the management and treatment of the disorder more challenging. More than half of patients with BPD present with various dissociative symptoms (Nivoli et al, 2017). Dissociative symptoms such as depersonalization and derealization are strongly associated with BPD severity (Al-Shamali et al, 2022; Nivoli et al, 2017), self-harm, suicidality (Kloet & Lynn, 2020), and reduced treatment efficacy (Al-Shamali et al, 2022), especially in the psychotherapy context. In BPD, symptoms of depersonalization worsen the severity of the disorder, intensify interpersonal problems, and increase suicidality, whereas derealization is linked to heightened intolerance to loneliness (Nivoli et al, 2017). Recurrent suicide attempts and self-injurious behavior among patients with BPD are associated with higher levels of dissociative symptomatology (Kloet & Lynn, 2020). Other conditions, such as mood disturbance or co-occurring BPD and PTSD symptoms, may influence the association, highlighting the complexity of the relationship between self-harm and dissociation (Sommer et al, 2021). Hence, recognizing and treating dissociative symptoms is essential for improving therapeutic outcomes.

Patients with severe dissociation, particularly those experiencing derealization, have poorer overall mental health outcomes and greater psychological distress. This effect was especially pronounced in women, who exhibited poorer improvement in psychosocial quality of life than those with milder dissociative symptoms (Wilfer et al, 2021). Moreover, dissociative experiences influence psychophysiological responses to emotional stimuli, such as startle reaction and skin conductance level. Patients with BPD demonstrated heightened dissociative experiences that partially mediated differences observed between BPD patients and healthy control groups in physiological response (Barnow et al, 2012).

Extensive research highlights the critical need for a thorough assessment of dissociative symptoms in individuals with BPD. Dissociation in individuals with BPD has been associated with poorer treatment outcomes, elevated risk for self-harm and suicidality, and a broad range of symptoms, including depersonalization, derealization, amnesia, and identity confusion (Korzekwa et al, 2009a). Similarly, clini-

cians should recognize the neurobiological underpinnings of dissociation and its implications for therapy, suggesting that tailored interventions could enhance clinical outcomes (Korzekwa et al, 2009b). Among the treatment modalities, DBT and its variants (e.g., DBT-PTSD with prolonged exposure components) appear promising for reducing dissociative symptoms—though empirical support specific to BPD remains limited and requires further investigation (Prillinger et al, 2024). Overall, these findings underscore the importance of integrating dissociation-focused assessments and interventions—within CBT frameworks—for BPD patients. Future studies should systematically evaluate the efficacy of such tailored approaches and explore their impact on long-term functional outcomes.

### **PANIC DISORDER**

Stress is a causal factor for dissociation, and dissociative symptoms are typically present in anxiety disorders (Soffer-Dudek & Shahar, 2011). Panic Disorder (PD) is one such anxiety disorder in which dissociative symptoms, specifically depersonalization and derealization, frequently occur. They are included among the established criteria for the diagnosis of panic attacks according to the DSM-5 (APA, 2013), although their presence is not required for diagnosis. However, a few studies suggest that depersonalization in patients with PD extends beyond panic attacks and becomes a pervasive experience (Segui et al, 2000).

Dissociative symptoms are particularly prevalent among patients with PD, and studies have shown that these symptoms are generally associated with worse outcomes. For example, patients with PTSD and PD both reported higher levels of dissociative symptoms than healthy controls (Pfaltz et al, 2013). Dissociation among patients with PD is related to worse prognoses and to the severity of the disorder (Kolek et al, 2019; Soffer-Dudek, 2014). However, the relationship between dissociation and PD severity remains unclear—whether dissociation intensifies PD severity or whether greater PD severity leads to dissociative symptoms. In one study, the severity of PD was found to be a risk factor for developing depersonalization disorder (Mendoza et al, 2011), while in another study, dissociation among patients with PD was found to increase anxiety but not depressive symptoms (Pastucha et al, 2009).

Dissociative symptoms can also complicate the treatment response in patients with PD. For instance, one study divided patients into high- and low- dissociation symptom groups and administered a slowly escalating dose of venlafaxine over 10 weeks. Results indicated that individuals with higher dissociative symptoms were less responsive to treatment, showing that dissociation can interfere with treatment effectiveness (Ural et al, 2015b). Similarly, a study of PD patients treated with

paroxetine found that greater dissociative experiences negatively impacted treatment response (Gulsun et al, 2007). Further studies identified that higher dissociation levels exhibited increased psychopathology, lower response to CBT, higher relapse, and poorer long-term outcome at the 1-year follow-up (Michelson et al, 1998). Dissociation also poses a problem in making exposure-based treatments effective because individuals may dissociate from anxiety during exposure, preventing them from fully confronting the feared situation and learning that they can tolerate elevated anxiety (Ball et al, 1997; Majohr et al, 2011).

Moreover, research conducted in Türkiye has found that early emotional neglect is linked to higher levels of dissociative symptoms, along with the severity of PD. Various forms of early maltreatment—such as emotional neglect, abuse, and physical neglect—were associated with dissociation and more severe PD symptoms. Dissociation may act as a defense mechanism against traumatic memories, contributing to difficulties in emotion regulation, somatic symptoms that cannot be medically explained, and anxiety related to panic attacks (Ural et al, 2015a).

### **OBSESSIVE-COMPULSIVE DISORDER**

Obsessive-compulsive disorder (OCD) is another psychiatric condition in which dissociative symptoms are commonly observed, and these symptoms have been linked to several cognitive processes, supporting the view that dissociation may represent a cognitive trait (Selvi et al, 2012). Research indicates that psychological dissociation in OCD patients correlates with the severity of anxiety symptoms but not directly with OCD symptom severity (Raszka et al, 2009), and OCD patients score higher on dissociation than the general population (Boysan et al, 2018). Moreover, approximately 8% of OCD patients have a comorbid dissociative disorder, and even those without a formal dissociative disorder exhibit higher dissociative symptoms than the general population (Sideli et al, 2023).

Childhood trauma plays a significant role in the development of dissociative symptoms in patients with OCD, with studies showing that early trauma and the S/S variant of the 5-HTT gene can predict dissociative symptoms (Lochner et al, 2004). Additionally, patients with OCD with more severe dissociative symptoms tend to have worsened OCD symptoms, higher depression levels, and a greater likelihood of having a co-occurring personality disorder (Goff et al, 1992). Interestingly, dissociative symptoms are particularly related to the obsessive-compulsive dimensions of “checking” and “symmetry/ ordering,” but not to “washing/ cleaning,” “counting/ touching,” or “aggressive impulses” (Grabe et al, 1999).

The link between dissociative experiences and OCD may be mediated by inward-focused attention, repetitive behaviors, and temporo-parietal dysfunction, sleep disturbances, and hyperactive imagery systems (Soffer-Dudek, 2023). Clinicians should be cautious when dissociative symptoms are present in patients with OCD, as they may indicate a chronic and complex dissociative disorder, potentially affecting the patient's response to cognitive-behavioral therapy and medication (Belli et al, 2012). Furthermore, childhood trauma has been shown to increase dissociative experiences in patients with OCD, who also tend to display specific demographic and comorbidity patterns (Lochner et al, 2007). Assessing and addressing dissociation in OCD can therefore improve treatment outcomes (Sideli et al, 2023).

Patients with OCD exhibit higher levels of dissociative amnesia and depersonalization/derealization than healthy controls and patients with anxiety disorders (Pozza et al, 2016). Inferential confusion and dissociation have been identified as strong predictors of OCD symptoms, independent of obsessive beliefs and mood disorders (Paradis et al, 2015). Among OCD patients, those with checking compulsion are more likely to experience dissociation, with amnesic dissociation being a key factor in this relationship (Rufer et al, 2006).

Dissociation may negatively influence the treatment outcomes for patients with OCD, particularly those with a history of childhood trauma. The presence of dissociative symptoms has been linked to less effective cognitive-behavioral treatment, as higher baseline absorption and imaginative involvement predict poorer outcomes (Rufer et al, 2006). In addition, dissociative symptoms in patients with OCD are moderately related to obsessive-compulsive symptoms in clinical and nonclinical populations, suggesting that reducing dissociation may enhance treatment efficacy (Sideli et al, 2023). The research further suggests that the more dissociative symptoms OCD patients have, the more severe their OCD symptoms will be (Boger et al, 2020).

These findings highlight the importance of recognizing and addressing dissociative symptoms for treating OCD, as they play a crucial role in the severity of the disorder and the response to therapy.

## PSYCHOSIS

Discriminating between dissociative and psychotic symptoms can be challenging (Frewen & Lanius, 2014). Similar to dissociative experiences, psychosis exists on a continuum with normality and transcends diagnostic boundaries, not being exclusive to any single disorder (Reininghaus et al, 2019). Dissociation can also be a symptom of schizophrenia (Holowka et al, 2003). Extensive evidence has established a significant

overlap between schizophrenia spectrum disorders and dissociative disorders (Renard et al, 2017), suggesting that dissociation may be a core element in vulnerability to psychotic experiences across the psychotic continuum (Longden et al, 2020). A significant body of research has suggested that patients with schizophrenia have elevated dissociative symptoms (Lyssenko et al, 2018; O'Driscoll et al, 2014). Dissociative experiences are strongly associated with delusional thoughts (Moskowitz et al, 2009), paranoia (Justo et al, 2018), negative symptoms (Ross & Keyes, 2004), and even symptoms resembling psychosis in a nonclinical population (Giesbrecht et al, 2007). Specific psychotic symptoms, such as auditory hallucinations and delusions of control or experiences of passive influence, are increasingly conceptualized as dissociative rather than psychotic (Moskowitz & Corstens, 2008; van der Hart & Witztum, 2019).

The co-occurrence of dissociative phenomena and auditory hallucinations has been of particular research interest, with a meta-analysis of 19 studies reporting strong associations between the two in clinical and nonclinical populations (Pilton et al, 2015). Moreover, some studies have suggested that auditory hallucinations in schizophrenia may represent a dissociative rather than a psychotic symptom (Moskowitz & Corstens, 2018). Supporting this view, the relationship between hallucinatory experiences and dissociation was found to be stronger in patients with schizophrenia and comorbid PTSD than in those diagnosed with schizophrenia alone (Wearne et al, 2020). Identity dissociation was most strongly associated with perceptual disturbances and strange experiences, while emotional constriction was most strongly associated with negative symptoms of psychosis (Fung et al, 2023).

In a large-scale study, 65.4% of 617 patients reported regularly experiencing at least one dissociative symptom over the past two weeks, with an average of 8.9 symptoms. Dissociation was found to be associated with paranoia, hallucinations, reduced psychological well-being, and specific cognitive patterns and it was also implicated as a causal factor of hallucinations. Approximately 66% of patients diagnosed with psychosis exhibit regular dissociative symptoms, and dissociation appears to have a direct impact on psychotic symptoms, mediated by various cognitive and emotional factors (Černis et al, 2022). In addition, patients with treatment-resistant schizophrenia exhibit dissociation levels more than twice as high as those observed in individuals in remission. The difference between the two groups indicates that antipsychotic resistance is linked to heightened dissociation in treatment-resistant patients, highlighting the need for alternative therapies approaches and earlier diagnostic strategies (Panov, 2022).

## CONCLUSION

A wide spectrum of psychiatric disorders is frequently associated with dissociative symptoms, which negatively affect functionality, prognosis, and treatment outcomes. These symptoms have strong links with traumatic populations and contribute to the complexity of psychological conditions. Understanding these symptoms and identifying appropriate intervention strategies are of critical importance within the clinical practice. In this context, CBT have emerged as effective treatment modalities for managing dissociative symptoms. CBT techniques, such as cognitive restructuring, emotion regulation strategies, and body awareness, play a crucial role in alleviating dissociative experiences. However, the existing literature still lacks studies examining the effectiveness of CBT on various disorders. Although evidence shows that trauma-focused interventions can improve dissociative symptomatology, randomized controlled trials specifically targeting high-dissociation subgroups remain scarce (Atchley & Bedford, 2021). Furthermore, adopting a multidisciplinary approach could enhance clinical outcomes, particularly considering the frequent comorbidity of dissociative symptoms with other psychopathological conditions. Dissociation appears to function as a transdiagnostic process that contributes to symptom persistence and treatment resistance across multiple psychiatric disorders. Recognizing this role can help guide the development of more precise and cross-cutting intervention strategies. A more detailed examination of the impact of CBT on different groups with dissociative symptoms will be helpful for clinicians.

By integrating a transdiagnostic perspective with recent empirical evidence, this review underscores the need for greater clinical attention to dissociative symptoms and their relevance in tailoring cognitive-behavioral interventions across diverse psychiatric populations. Future research should further investigate the mechanisms underlying dissociation across diagnostic categories and explore targeted therapeutic strategies tailored to dissociative features.

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

**Use of AI for Writing Assistance:** No artificial intelligence tool was used during the planning of this study, the literature review, the writing process, or the generation of references.

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

**Peer-review:** Externally peer-reviewed.

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# Biological and Cognitive-Behavioral Etiology and Treatment of Female Orgasmic Disorder: A Narrative Review

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## ABSTRACT

Female orgasmic disorder (FOD) is a prevalent sexual dysfunction affecting approximately 11–42% of women worldwide. This condition is characterized by marked delay in, infrequency of, reduced intensity of, or absence of orgasm, causing significant distress. This narrative review examines the biological and cognitive-behavioral etiological factors underlying FOD and synthesizes the current evidence on treatment approaches. Biological factors include neuroanatomical substrates involving cortical, subcortical, and brainstem regions, autonomic nervous system dynamics, hormonal influences, and iatrogenic causes. Cognitive-behavioral factors include spectating, cognitive distraction, maladaptive sexual beliefs, performance anxiety, attentional deficits in interoceptive awareness, and behavioral avoidance. Treatment approaches, including directed masturbation programs, sensate focus techniques, cognitive restructuring, mindfulness-based interventions, and pharmacological options, were evaluated. Meta-analytic evidence demonstrates that cognitive-behavioral therapy significantly improves overall sexual function, with directed masturbation showing the strongest evidence for the treatment of lifelong FOD. Mindfulness-based cognitive therapy shows promise in enhancing interoceptive awareness and reducing spectating. An integrated biopsychosocial treatment model incorporating both biological and cognitive-behavioral components is recommended for comprehensive clinical management of FOD..

**Keywords:** Cognitive-behavioral therapy, directed masturbation, female orgasmic disorder, mindfulness, sexual dysfunction, spectating.

## ÖZ

### Kadın Orgazm Bozukluğunun Biyolojik ve Bilişsel Davranışçı Etiyolojisi ve Tedavisi: Anlatı Derlemesi

Kadın orgazm bozukluğu (KOB), dünya genelinde kadınların yaklaşık %11–42'sini etkileyen, belirgin gecikme, seyreklik, yoğunlukta azalma veya orgazm yokluğu ile karakterize edilen ve önemli sıkıntıya neden olan yaygın bir cinsel işlev bozukluğudur. Bu anlatı derlemesi, KOB'un altında yatan biyolojik ve bilişsel davranışçı etiyojik etkenleri ele alarak tedavi yaklaşımlarına ilişkin güncel kanıtları incelemektedir. Biyolojik etkenler arasında kortikal, subkortikal ve beyin sapı bölgelerini içeren nöroanatomik yapılar; otonom sinir sistemi dinamikleri, hormonal etkiler ve iyatrojenik nedenler yer almaktadır. Bilişsel davranışçı etkenler ise kendini gözlemek ve bilişsel dikkat dağınıklığı, uyumsuz cinsel inançlar, performans kaygısı, bedensel duyumlara farkındalığa ilişkin dikkat eksiklikleri ve davranışsal kaçınma örüntülerini kapsamaktadır. Yönlendirilmiş mastürbasyon programları, duysal odaklanma teknikleri, bilişsel yeniden yapılandırma, farkındalık temelli müdahaleler ve farmakolojik seçenekler dahil tedavi yaklaşımları



#### Cite this article as:

Türkçapar AF, Türkçapar MH. Biological and Cognitive-Behavioral Etiology and Treatment of Female Orgasmic Disorder: A Narrative Review. J Cogn Behav Psychother Res 2025;14(4):296–305.

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Submitted: 04.12.2025

Revised: 09.12.2025

Accepted: 10.12.2025

Available Online: 18.12.2025

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



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değerlendirilmektedir. Meta-analitik kanıtlar, bilişsel davranışçı terapinin genel cinsel işlevi önemli ölçüde iyileştirdiğini göstermekte olup, yönlendirilmiş mastürbasyon yaşam boyu süren KOB için en güçlü kanıta sahiptir. Farkındalık temelli bilişsel terapi, beden duyularına farkındalığı artırma ve seyirciliği azaltmada umut vadetmektedir. Kapsamlı klinik yönetim için hem biyolojik hem de bilişsel davranışçı bileşenleri içeren bütünlük bir biyopsikososyal tedavi modeli önerilmektedir.

**Anahtar Kelimeler:** Bilişsel davranışçı terapi, cinsel işlev bozukluğu, farkındalık, kendini gözlemek, kadın orgazm bozukluğu, yönlendirilmiş mastürbasyon.

## INTRODUCTION

Female orgasmic disorder (FOD) is one of the most prevalent sexual dysfunctions encountered in clinical practice, affecting a substantial proportion of women across diverse cultural contexts and age groups. According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), FOD is characterized by the presence of either a marked delay in, marked infrequency of, or absence of orgasm, or markedly reduced intensity of orgasmic sensations, experienced on almost all or all (approximately 75–100%) occasions of sexual activity (American Psychiatric Association, 2013). These symptoms must persist for a minimum of approximately six months and cause clinically significant distress to the individual. The DSM-5 classification further distinguishes between lifelong and acquired subtypes, as well as between generalized and situational presentations, providing a framework for understanding the heterogeneous nature of this condition.

Epidemiological data reveal considerable variability in prevalence estimates, reflecting methodological differences in assessment and cultural factors that influence sexual expression. The reported prevalence of female orgasmic problems ranges from 10% to 42%, depending on factors such as age, culture, symptom duration, and severity criteria employed (McCabe et al, 2016). The Global Study of Sexual Attitudes and Behaviors found that for women aged 40–80 years, the inability to achieve orgasm varies across world regions, with frequencies ranging from 10% in Northern Europe to 34% in Southeast Asia (Laumann et al, 2005). The PRESIDE study, which included over 30,000 American women, estimated the prevalence of orgasm dysfunction at approximately 21% (Shifren et al, 2008). These figures underscore the clinical significance of FOD as a common concern that warrants systematic research attention.

The impact of FOD extends beyond the immediate sexual experience to influence broader domains of psychological well-being, relational satisfaction, and quality of life (Meston et al, 2004). Women with orgasmic difficulties often report decreased sexual satisfaction, reduced relationship quality, and increased psychological distress. The etiology of FOD is multifactorial and involves complex interactions among biological

vulnerabilities, psychological factors, interpersonal dynamics, and sociocultural influences. This complexity necessitates an integrative biopsychosocial approach to conceptualization and treatment.

This narrative review comprehensively examines the biological and cognitive-behavioral factors implicated in the etiology of FOD and synthesizes the current evidence regarding treatment approaches. The review aims to provide clinicians with an evidence-based framework for understanding and treating this prevalent condition by integrating neurobiological findings with cognitive-behavioral formulations. Special attention is devoted to treatment modalities within the cognitive-behavioral therapy (CBT) tradition, including directed masturbation, sensate focus, cognitive restructuring, and emerging mindfulness-based interventions.

## DIAGNOSTIC CONSIDERATIONS

Accurate diagnosis of FOD requires careful clinical assessment to distinguish it from other sex dysfunctions and to identify relevant subtypes that may inform treatment selection. The DSM-5 criteria specify that the dysfunction must not be better explained by a nonsexual mental disorder, relationship distress, partner violence, or other significant stressors and must not be attributable to the effects of a substance, medication, or another medical condition (APA, 2013). The clinician must also determine whether the presentation represents inadequate sexual stimulation, which would not warrant a diagnosis of FOD.

The distinction between lifelong and acquired FOD has significant clinical implications. Lifelong FOD indicates the presence of orgasmic difficulties since the individual became sexually active, whereas acquired FOD develops after a period of relatively normal orgasmic functioning. Similarly, the generalized versus situational distinction specifies whether difficulties occur across all contexts or only with certain types of stimulation, situations, or partners. A woman who achieves orgasm during masturbation but not during partnered activity would be classified as having situational FOD, whereas a woman who has never experienced orgasm under any circumstances would meet the criteria for lifelong, generalized FOD.

Clinical consensus holds that a woman who can obtain orgasm during intercourse with manual clitoral stimulation but not through vaginal penetration alone would not typically meet the criteria for FOD unless she experiences significant distress about this pattern (Graham, 2010). This recognition shows that most women need direct clitoral stimulation to reach orgasm, and expecting orgasm from vaginal penetration alone is often unrealistic and based on outdated views of female sexuality.

Assessment should encompass a thorough medical history to identify potential organic contributors, including neurological conditions (e.g., multiple sclerosis, spinal cord injury, and pelvic nerve damage), endocrine disorders, and medication effects. A comprehensive psychosexual history explores developmental factors, relationship dynamics, trauma history, and current stressors. Validated instruments, such as the Female Sexual Function Index and the Female Sexual Distress Scale, can provide a standardized assessment of symptom severity and associated distress.

## BIOLOGICAL ETIOLOGY

### Neuroanatomical Substrates

Functional neuroimaging studies have substantially advanced the understanding of the mechanisms underlying female orgasm. Wise et al. (2017) conducted functional magnetic resonance imaging (fMRI) during self- and partner-induced clitoral stimulation and orgasm, identifying extensive cortical, subcortical, and brainstem regions that reach peak activation at orgasm. The key structures included the nucleus accumbens (reward processing), insula (interoceptive awareness), anterior cingulate cortex (emotional processing), orbitofrontal cortex (decision-making and pleasure), paracentral lobule (sensorimotor integration), cerebellum, hippocampus, amygdala, hypothalamus, ventral tegmental area, and dorsal raphe (Wise et al, 2017).

The hypothalamus shows particularly robust activation during orgasm, consistent with its role in oxytocin release and autonomic regulation. Oxytocin, released during orgasm, produces pleasurable sensations and uterine contractions characteristic of the orgasmic response (Komisaruk et al, 2006). The dorsal raphe nucleus, a primary source of serotonergic projections, shows increased activity, potentially explaining the mood-elevating and analgesic effects often reported during orgasm.

Georgiadis et al. (2009) have contributed important findings regarding the differential patterns of sexual response activation and deactivation. In partner-stimulated conditions, certain frontal and temporal regions, particularly the left orbitofrontal cortex, show decreased activity during orgasm (Georgiadis et al, 2009). This deactivation has been interpreted as reflecting a “letting go” of cognitive control, which is potentially necessary for the altered state of consciousness characteristic of orgasm.

The implications for FOD treatment are significant: interventions that facilitate the deactivation of excessive cognitive control mechanism deactivation may enhance orgasmic capacity.

### Dynamics of the Autonomic Nervous System

The complex interplay between the sympathetic and parasympathetic divisions of the autonomic nervous system is involved in the female sexual response. Genital arousal is primarily mediated through the parasympathetic pathways (pelvic splanchnic nerves, S2–S4), resulting in vasocongestion and lubrication. The transition from arousal plateau to orgasm involves sympathetic activation, with orgasm itself representing a coordinated sympathetic discharge that produces pelvic musculature rhythmic contractions. Disruptions at any point in this sequence can impair the orgasmic response.

The vagus nerve provides an additional pathway for genital-brain connectivity that bypasses the spinal cord. Komisaruk and Whipple demonstrated that women with complete spinal cord injuries can experience orgasm through cervical stimulation, mediated by vagal afferents (Whipple et al, 1996). This finding has implications for understanding orgasmic potential in women with neurological conditions and suggests that multiple neural pathways may contribute to orgasmic capacity.

### Hormonal Factors

Hormonal influences on female orgasmic function remain an area of ongoing investigation, with evidence suggesting modest but clinically relevant effects. Estrogen maintains genital tissue integrity and vaginal lubrication, with estrogen deficiency (as occurs in menopause) associated with vulvovaginal atrophy that may indirectly impair the orgasmic response through dyspareunia and decreased sensation. Testosterone, though present in lower concentrations in women, appears to influence sexual desire and potentially arousal, with some evidence suggesting a role in orgasmic function as well.

Oxytocin and prolactin are released during orgasm and contribute to the subjective pleasure and satiation experience. Although definitive evidence is lacking, research has explored whether variations in oxytocin receptor sensitivity or release patterns might contribute to individual differences in orgasmic capacity. The complexity of hormonal influences underscores the need for comprehensive endocrine assessment in women presenting with acquired FOD, particularly in the context of menopause, hormonal contraception, or conditions affecting the hypothalamic-pituitary-gonadal axis.

### Iatrogenic and Medical Factors

Medications represent a significant iatrogenic cause of acquired FOD, with selective serotonin reuptake inhibitors (SSRIs) and serotonin–norepinephrine reuptake inhibitors (SNRIs) be-

ing the most implicated classes. SSRI- and SNRI-induced sexual dysfunction affects 30%–70% of users and includes delayed or absent orgasm as a prominent feature (Clayton et al, 2014). This condition is often underrecognized in clinical practice and should be systematically screened when assessing acquired FOD. Other medications associated with orgasmic dysfunction include antipsychotics (particularly first-generation agents with strong dopamine blockade), certain antihypertensives, and opioid analgesics.

Medical conditions, including multiple sclerosis, Parkinson's disease, diabetic neuropathy, and spinal cord pathology, can impair orgasmic function. Pelvic surgery, including hysterectomy, may affect genital innervation, though evidence regarding effects on orgasm is mixed. Chronic health conditions, such as diabetes, cardiovascular disease, and chronic pain syndromes, are associated with increased rates of sexual dysfunction, likely through multiple mechanisms, including neurological, vascular, hormonal, and psychological pathways.

## COGNITIVE-BEHAVIORAL ETIOLOGY

### Cognitive Distraction and Spectating

The concept of spectating, introduced by Masters and Johnson (1970), remains central to cognitive-behavioral conceptualizations of sexual dysfunction. Spectating refers to the tendency to observe and evaluate oneself during sexual activity from a third-person perspective rather than remaining immersed in the subjective experience of sensations and pleasure. This self-monitoring process diverts attentional resources away from erotic cues and toward performance concerns, thereby disrupting the natural progression of sexual responses.

Barlow's (1986) influential model elaborated these mechanisms, proposing that performance-related cues activate anxiety in sexually dysfunctional individuals, which triggers a shift in attention from reward-motivated focus on arousal cues to threat-motivated focus on potential sexual failure. Cognitive distraction impairs the processing of erotic stimuli necessary for maintaining arousal and achieving orgasm. The resulting negative effect loop may perpetuate dysfunction by promoting avoidance of erotic cues and increased focus on nonerotic concerns.

Empirical research supports the harmful effects of cognitive distraction on female sexual arousal. Studies employing dichotic listening tasks or other distraction manipulations have demonstrated decreased genital and subjective arousal when women's attention is diverted from erotic stimuli (Dove & Wiederman, 2000; Elliott & O'Donohue, 1997). Meston (2006) found that experimentally induced self-focused attention decreased vaginal pulse amplitude in sexually functional women, supporting the clinical relevance of spectating as a mechanism of dysfunction (Meston, 2006).

Gender differences in cognitive distraction content have been identified, with women reporting more appearance-related distracting thoughts during sexual activity than men, who report more performance-focused concerns (Meana & Nunnink, 2006). Body image concerns represent a particularly salient form of cognitive distraction for women, with negative body esteem associated with spectating, reduced arousal, and orgasmic difficulties. Women dissatisfied with their bodies reported difficulty reaching orgasm, and these associations were mediated by appearance-related cognitive distraction during sex (Carvalho et al, 2017).

### Maladaptive Sexual Beliefs and Schemas

Cognitive content in the form of sexuality-related beliefs and schemas plays a significant role in orgasmic dysfunction. Nobre's cognitive-emotional model identifies several belief categories associated with sexual difficulties in women, including beliefs about sexual conservatism, female age-related beliefs, body image beliefs, motherhood primacy beliefs, and affection primacy beliefs (Nobre, 2017). These beliefs may create unrealistic expectations, induce guilt about sexual pleasure, or establish conditions that make orgasm difficult or impossible.

Specific beliefs relevant to orgasmic function include the expectation of orgasm through vaginal penetration alone, beliefs that women should be passive recipients rather than active agents in sexual encounters, and myths about spontaneous female arousal paralleling male patterns. When sexual experiences fail to match these expectations, women may interpret the discrepancy as evidence of dysfunction, triggering anxiety and self-monitoring that further impairs sexual response. According to Carvalho and Nobre (2023), automatic thoughts during sexual activity were among the strongest predictors of sexual desire and function in women. This finding supports the inclusion of cognitive assessment in the evaluation of FOD.

### Deficits in Interoceptive Awareness

Recent studies have emphasized the significance of interoception (the perception of the body's internal signals) in women's sexual responses and orgasmic function. Lower interoceptive measure scores have been linked to orgasmic disorders, difficulties with arousal, and sexual dissatisfaction (Jaderek et al, 2023). The ability to pay attention to and interpret genital sensations during sexual activity appears to be necessary for the gradual increase of arousal toward the orgasmic threshold. Women with deficits in this ability may fail to notice or correctly interpret physiological arousal cues, resulting in reduced subjective arousal and impaired orgasmic response.

A study that compared women with and without anorgasmia found that women with anorgasmia showed deficits in awareness during dual sexual activity (Silverstein et al, 2011).

Higher levels of body awareness have been linked to greater consistency in sexual response, as measured by the alignment between subjective arousal and genital response (as indicated by vaginal lubrication). These findings provide a theoretical rationale for mindfulness-based interventions in the treatment of FOD, as discussed in subsequent sections.

### **Behavioral Patterns and History of Learning**

Behavioral factors that contribute to FOD include limited sexual knowledge, insufficient arousal, and avoidance patterns that prevent exposure to situations that could lead to orgasm. Women who experience FOD throughout their lives may have received inadequate sexual education, developed barriers to exploring their genital areas, or never discovered their most effective forms of arousal. Additionally, individuals may be prevented from participating in sexual activities that could facilitate orgasm by behavioral barriers associated with shame, guilt, or religious prohibitions.

A learning history plays a crucial role because orgasm can be understood as a partially acquired response that develops through the experience of effective stimulation. Women who have never masturbated or explored their bodies may lack the self-knowledge necessary to communicate their preferences to partners or achieve orgasm. Conversely, women who have developed a specific pattern of stimulation necessary for orgasm (e.g., masturbating in a particular way) may have difficulty achieving orgasm with partners who stimulate them differently.

Relational factors also influence behavioral pathways. Women may struggle to express their stimulation needs due to communication barriers that may stem from shame or a lack of self-awareness about their needs. Technique, attentiveness, and willingness to provide prolonged stimulation can affect the likelihood of orgasm in partnered contexts. More broadly, relationship quality affects sexual functioning; conflict, anger, or emotional disconnection create contexts that are inhospitable to sexual satisfaction.

## **COGNITIVE-BEHAVIORAL TREATMENT APPROACHES**

### **Directed Masturbation Programs**

Directed masturbation (DM) is the treatment approach with the strongest empirical support for lifelong FOD. Developed by LoPiccolo and Lobitz (1972) and popularized by Barbach's (1974) group treatment model, DM consists of a gradual series of self-exploration and self-stimulation exercises designed to increase body awareness, reduce sexual anxiety, and build orgasm capacity through effective stimulation techniques.

A typical DM program involves stages such as visual and tactile body exploration, genital exploration, genital self-stimu-

lation without performance pressure, identification of pleasurable techniques, extended self-stimulation with the goal of orgasm, introduction of fantasy or erotic materials if helpful, and inclusion of partner activities. Meston et al. (2004) concluded that masturbation training is an empirically valid and effective treatment for women with lifelong general anorgasmia (Meston et al, 2004).

Controlled studies show high success rates. Riley and Riley (1978) reported that 90% of women who underwent the DM program gained orgasmic capacity, compared with 53% of those treated with traditional sensate focus approaches, and that 85% of the DM group achieved orgasm at least 75% of the time during sexual intercourse. A comparative study found that both systematic desensitization and DM improved sexual self-acceptance and pleasure, but DM alone significantly increased sexual arousal and orgasm rates (Anderson, 1981). These findings establish DM as the first-line psychological intervention for primary anorgasmia.

The mechanisms underlying the effectiveness of DM likely include increased awareness of genitalia and interoceptive sensitivity, desensitization to negative associations with sexual organs and sexual pleasure, identification of effective arousal patterns, and increased sexual self-efficacy. Addressing the client's resistance to masturbation, which may stem from religious, cultural, or personal prohibitions, is an important therapeutic task. Cognitive interventions targeting beliefs that masturbation is immoral or abnormal may be necessary before moving on to behavioral exercises.

### **Sensate Focus Therapy**

Developed by Masters and Johnson in 1970, sensate focus remains a fundamental element of sex therapy for various dysfunctions, including FOD. The technique involves a series of structured touch exercises that progress from nongenital to genital contact. Sexual intercourse and orgasm are prohibited during the initial stages of treatment. By explicitly removing performance expectations, couples can focus on sensory pleasure without experiencing anxiety about achieving specific outcomes.

The mechanism of sensate focus was initially conceptualized as anxiety reduction: the anxiety that inhibits arousal is reduced by removing performance pressure. However, subsequent research has questioned the importance of anxiety in FOD development. Meston et al. (2004) noted that controlled studies of sensate focus as the primary treatment for FOD did not demonstrate a significant improvement in the ability to orgasm and suggested that anxiety reduction techniques are only appropriate for women with anorgasmia when sexual anxiety is clearly present.

Sensate focus is primarily a technique to reduce spectator mode and increase awareness of pleasurable sensations in the present moment. When combined with mindfulness principles, such as noticing sensations without judgment and bringing attention back to the body when the mind wanders, sensate focus can function as a mindfulness practice. This reconceptualization suggests that sensate focus is most effective when integrated with cognitive and mindfulness components rather than as a standalone intervention.

### Cognitive Restructuring and Psychoeducation

Cognitive restructuring in FOD treatment targets maladaptive beliefs about sexuality, unrealistic expectations regarding female orgasm, and automatic negative thoughts that accompany spectating. Common cognitive distortions include dichotomous thinking about sexual success and failure, catastrophizing about orgasmic difficulty implications, and mind-reading about partner judgments.

Psychoeducation is an important component that can correct myths and misconceptions by providing accurate information about female sexual anatomy and responses. Core educational content includes topics such as the normal variation in orgasm response patterns, why a high proportion of women require direct clitoral stimulation to achieve orgasm, the difference between subjective and physiological arousal, and how factors such as fatigue, stress, and relationship quality impact sexual response.

A randomized trial by Trudel et al. (2001) found that CBT resulted in significant improvements in sexual and marital satisfaction, perception of sexual arousal, and sexual self-esteem, as well as reductions in depression and anxiety, for women with hypoactive sexual desire, with 74% reporting improvement (Trudel et al, 2001). Although this study specifically focused on desire rather than orgasm, it demonstrates the efficacy of comprehensive CBT in treating female sexual dysfunction. A recent systematic review and meta-analysis confirmed that CBT effectively improves overall sexual function (SMD=1.34) and the orgasm domain (MD=1.75) compared with control conditions (Sharifpour et al, 2024).

### Mindfulness-Based Interventions

Mindfulness-based approaches have demonstrated considerable promise in the treatment of sexual dysfunction in women, including FOD. Mindfulness, defined as the state of being aware of one's present experience without judgment, can address the various mechanisms involved in orgasmic dysfunction, such as cognitive distraction, spectating, and internal perception disorders. By encouraging continuous attention to bodily sensations without evaluation, mindfulness practice can enhance the awareness of internal perceptions necessary to recognize and generate arousal, leading to orgasm.

Brotto et al. conducted pioneering research on mindfulness-based interventions for women with sex difficulties. In a controlled trial, mindfulness-based group therapy significantly improved sexual desire, arousal, lubrication, satisfaction, and overall sexual functioning compared with a delayed treatment control group (Brotto et al, 2014). Increases in dispositional mindfulness and reductions in depressive symptoms were predictive of improvements in sexual desire orgasmic difficulties and sex-related distress also decreased, although these improvements occurred in both the treatment and control groups.

A randomized study specifically examining women who have difficulty achieving orgasm compared video-based mindfulness-based cognitive therapy (MBCT) with video-based traditional CBT (Adam et al, 2020). Both treatments significantly improved sexual functioning and reduced sexual distress. The study found that participants who underwent MBCT reported significantly greater subjective sexual arousal responses after sessions than those who underwent CBT, although both treatments were equally effective in reducing sexual distress. These findings suggest that mindfulness integration adds value to CBT, particularly for enhancing subjective arousal.

Systematic reviews of mindfulness-based therapy (MBT) for sexual dysfunction indicate that it leads to improvement in subjectively evaluated arousal and desire, sexual satisfaction, and reduction of fear linked with sexual activity (Jąderek & Lew-Starowicz, 2019). The research also showed improved consistency between subjectively perceived arousal and genital response—a finding consistent with mindfulness enhancing interoceptive accuracy. However, the evidence regarding MBT for pain-related sexual difficulties is less consistent. The online delivery of mindfulness interventions shows promising feasibility, potentially expanding access to evidence-based treatment (Stephenson et al, 2021).

### BIOLOGICAL TREATMENT APPROACHES

Pharmacological treatment specifically for FOD remains limited, with no medications currently approved for this indication by regulatory agencies. This stands in contrast to the extensive pharmacopeia available for male sexual dysfunction, reflecting both biological differences and historical disparities in female sexuality research. Nevertheless, several pharmacological approaches have been investigated or used off-label. These pharmacological approaches are considered adjunctive and typically target comorbid conditions (e.g., depression, hypoactive sexual desire disorder) or iatrogenic causes (e.g., SSRI-induced dysfunction) rather than serving as primary standalone treatments for FOD.

Bupropion, a norepinephrine–dopamine reuptake inhibitor, has shown some promise for the treatment of female sexual

dysfunction. Its dopaminergic mechanism contrasts with serotonergic antidepressants that often impair sexual function. Case series and some controlled data suggest that bupropion may improve libido and possibly orgasm, particularly in women with SSRI-induced sexual dysfunction (Clayton et al, 2014). It may be considered when orgasmic dysfunction coexists with depression requiring pharmacotherapy.

Testosterone replacement therapy (TRT) is an effective treatment option for postmenopausal women with hypoactive sexual desire disorder (HSDD) because testosterone is vital for sexual function and health. However, data on its effectiveness in premenopausal women with HSDD are still limited. Further research on the long-term effects of TRT on women of all ages is needed (Uloko et al, 2022). The effects on orgasm are less clear. When used in conjunction with estrogen in postmenopausal women, transdermal testosterone has shown benefits for desire and may indirectly improve orgasmic function by enhancing arousal (Davis et al, 2008). An international panel of organizations, including the North American Menopause Society, the International Menopause Society, the Endocrine Society, the European Menopause and Andropause Society, and the International Society for Sexual Medicine, concluded that the only evidence-based indication for testosterone therapy in women is the treatment of HSDD, and that current data support its moderate therapeutic efficacy. However, as there are currently no products approved by national health authorities for women, male formulations may be cautiously used at female doses, with blood testosterone concentrations being regularly monitored (Davis et al, 2019).

Phosphodiesterase type 5 (PDE5) inhibitors, such as sildenafil, have shown inconsistent results in women, despite being highly effective for male erectile dysfunction (Thurman et al, 2024). The mechanism—enhancing genital blood flow—theoretically should improve arousal, but controlled trials have not demonstrated reliable improvement in desire or orgasm in premenopausal women without underlying vascular pathology. Some benefits may exist for postmenopausal women or those with specific arousal difficulties.

FDA-approved Eros Clitoral Therapy Device represents a non-pharmacological biological intervention. This vacuum device increases clitoral blood flow and engorgement, potentially enhancing sensation and arousal. Improvements in orgasm, sensation, and satisfaction with use have been reported (Billups et al, 2001). This may be particularly relevant for women with decreased genital sensation, including those with diabetes or neurological conditions.

Strategies for iatrogenic FOD related to medications include dose reduction, switching to agents with more favorable sexual side effect profiles, or adding adjunctive treatments. Opti-

ons for SSRI-induced anorgasmia include reducing the dose if clinically feasible, switching to bupropion or mirtazapine, or adding bupropion to the SSRI regimen. Drug holidays (skipping doses before anticipated sexual activity) have limited evidence and may compromise psychiatric stability.

## INTEGRATED BIOPSYCHOSOCIAL TREATMENT MODEL

The multifactorial etiology of FOD necessitates comprehensive assessment and individualized treatment planning that addresses relevant biological, psychological, and interpersonal factors. A thorough evaluation should identify predisposing factors (developmental history, trauma, and medical vulnerabilities), precipitating factors (relationship changes, medical illness, medication initiation, and life stressors), and maintaining factors (cognitive distortions, avoidance behaviors, and ongoing relational conflict). This formulation guides the selection and sequencing of treatments.

For women with lifelong, generalized FOD without prominent relationship distress or psychopathology, based on the evidence reviewed, DM represents the first-line intervention. This may be delivered individually, in a group format, or through bibliotherapy with texts such as *becoming orgasmic* (Heiman & LoPiccolo, 1988). Progress is monitored, and barriers are explored and addressed if initial attempts at orgasm through masturbation are unsuccessful, potentially including cognitive work on prohibitions against self-pleasure.

When cognitive factors, such as spectating, performance anxiety, and maladaptive beliefs, are prominent, cognitive restructuring is integrated with behavioral interventions. Psychoeducation provides a foundation by normalizing variation in female sexual responses and correcting myths. During sexual activity, specific beliefs are identified through thought records and challenged using standard CBT techniques. Behavioral experiments test predictions (e.g., that not having an orgasm will be catastrophic) to generate disconfirming evidence.

Mindfulness components can be integrated throughout treatment to enhance interoceptive awareness and reduce spectating. Formal mindfulness practice establishes attentional skills, whereas informal practice involves sense focus during sexual activity. The focus is on noticing sensations as they are, without evaluation or attempts to make them different. When the mind wanders to performance concerns or other distractions, the attention is gently returned to bodily sensation.

For women with situational FOD or significant relational factors, partner involvement is important. Couples-based sense focus exercises improve communication and address relational dynamics interfering with sexual satisfaction. Partners are

educated about the female sexual response and the specific preferences and needs of the woman. When relationship distress is severe, couples therapy addressing broader relationship issues may be necessary before focusing on sexual concerns.

Clinical algorithm (practical summary):

Step 1: Comprehensive assessment of biological, psychological, and relational factors.

Step 2: First-line treatment for lifelong generalized FOD–DM.

Step 3: CBT components (cognitive restructuring, psychoeducation, and mindfulness) are added based on maintaining factors.

Step 4: Address iatrogenic and medical contributors (especially SSRIs/SNRIs and endocrine issues).

Medical evaluation and management should be performed in parallel with psychological intervention when indicated. This includes review of medications for potential sexual side effects, assessment and treatment of contributing medical conditions, and hormonal evaluation for postmenopausal women or those with endocrine symptoms. Collaboration between mental health and medical providers optimizes comprehensive care.

## DISCUSSION

This narrative review synthesized current knowledge regarding the biological and cognitive-behavioral etiology of FOD and evaluated the evidence base for treatment approaches. Several conclusions emerge with implications for clinical practice and future research.

First, neuroimaging research has substantially advanced understanding of the brain mechanisms underlying female orgasm, revealing extensive activation across reward, interoceptive, emotional, and autonomic regulatory systems. These findings have translational potential—for example, the observation that cognitive control regions are deactivated during orgasm suggests that interventions facilitating reduced cognitive monitoring may enhance orgasmic capacity. The prominent role of interoceptive cortices supports the relevance of mindfulness-based approaches that train attention to bodily sensation.

Second, cognitive-behavioral mechanisms, particularly spectating and cognitive distraction, have robust empirical support as factors that maintain FOD. The tendency to monitor and evaluate oneself during sexual activity diverts attention from the erotic cues necessary to build and sustain arousal. Women are particularly susceptible to appearance-related cognitive distraction, which links body image concerns to orgasmic difficulties. Through attention retraining and cognitive restructuring, cognitive-behavioral interventions directly target these maintaining factors.

Third, among psychological treatments, DM demonstrates the strongest evidence for lifelong FOD, with success rates of 80–90% for achieving orgasm through self-stimulation. CBT more broadly produces significant improvements in sexual function across multiple domains. The integration of mindfulness components appears to add value, particularly for enhancing subjective arousal and reducing spectating, although more research directly comparing integrated versus non-integrated approaches is needed.

Several limitations of the current evidence base warrant acknowledgment. Many treatment studies have methodological limitations, including small sample sizes, inadequate control conditions, heterogeneous populations, and variable outcome measures. The field would benefit from larger, well-controlled trials with standardized assessments and longer follow-up. Research on predictors of treatment response is limited, hampering the ability to match patients to optimal treatments. The cultural adaptation of interventions requires attention, as most research has been conducted in Western contexts with limited attention to diverse populations.

Future research directions include the investigation of neurobiological predictors and correlates of treatment response, development of personalized medicine approaches matching treatments to patient characteristics, evaluation of technology-assisted and online delivery formats to improve access, and examination of long-term maintenance of treatment gains. Mechanisms research could clarify the active ingredients of complex interventions, potentially allowing more efficient targeted approaches. Preliminary cognitive restructuring addressing guilt or prohibition may be required before behavioral intervention, especially in cultures where masturbation is taboo.

## CONCLUSION

FOD is a prevalent condition with a multifactorial etiology encompassing biological vulnerabilities and cognitive-behavioral factors. Comprehensive assessment identifies predisposing, precipitating, and maintaining factors to guide the selection of individualized treatment. DM provides the strongest evidence base for lifelong FOD, whereas cognitive-behavioral approaches targeting spectating, maladaptive beliefs, and behavioral avoidance address common maintaining factors. Integration of mindfulness techniques shows promise for enhancing interoceptive awareness and reducing cognitive interference. A biopsychosocial framework that integrates biological and psychological interventions offers the most comprehensive approach to this common clinical challenge. Clinicians treating FOD can be cautiously optimistic that effective interventions exist, while recognizing the need for continued research to optimize outcomes for diverse patient populations.

**Informed Consent:** As this article is a review study, informed consent is not applicable.

**Conflict of Interest:** The authors report no conflicts of interest related to the content, authorship, or publication of this manuscript.

**Use of AI for Writing Assistance:** During the literature review, the authors used Claude AI (Opus 4.5) and ChatGPT 5.1 as assistive tools to support information retrieval, summarization, and language refinement. All content was reviewed, verified, and finalized by the authors to ensure accuracy and scholarly integrity.

**Financial Disclosure:** The authors declare that no financial support, grants, or funding of any kind were received for the preparation of this manuscript.

**Author Contributions:** Concept – MHT; Design – MHT; Supervision – AFT; Data Collection and/or Processing – MHT; Analysis and/or Interpretation – AFT; Literature Review – AFT; Writing – AFT, MHT; Critical Review – AFT.

**Peer-review:** Externally peer-reviewed.

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