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Study Protocol for a Randomized Controlled Trial of the Efficacy of a Transdiagnostic Cognitive Behavior Therapy Model Delivered in Group Therapy for Anxiety Disorders

İclal Aydın,[1] Burcu Uysal,[1] Mehmet Hakan Türkçapar[2]

[1]Department of Psychology, Ibn Haldun University, İstanbul, Türkiye
[2]Department of Psychology, University of Social Sciences, Ankara, Türkiye

ABSTRACT

Transdiagnostic protocols have been found to be effective in treating anxiety disorders by targeting shared transdiagnostic processes across diagnostic categories. The present study aims to introduce a novel group-based transdiagnostic cognitive behavioral therapy (tCBT) protocol developed for the treatment of anxiety disorders and to describe the design of a randomized controlled trial examining its efficacy. Participants are adults aged 18–65 years with a principal diagnosis of generalized anxiety disorder, social anxiety disorder, panic disorder, or other specified anxiety disorder, assessed via the Structured Clinical Interview for DSM-5 Disorders, Clinician Version (SCID-5-CV). A 2×3 mixed-design randomized controlled trial was employed, comparing tCBT (intervention group) with Rogerian supportive therapy (control group), with assessments at pretest, posttest, and 1-month follow-up. A 1-year follow-up was additionally initiated as an exploratory assessment, with data collection currently ongoing. Distress intolerance, intolerance of uncertainty and dysfunctional metacognitions are included as outcome variables given their roles as transdiagnostic factors across anxiety disorders. The Generalized Anxiety Disorder-7 Scale, Distress Tolerance Scale, Intolerance of Uncertainty Scale-12, Penn State Worry Questionnaire, Metacognitions Questionnaire-30, and Patient Health Questionnaire-9 are administered to assess outcome variables. The tCBT protocol consists of five modules delivered over eight weekly online sessions. This protocol is an adaptation of a group therapy format of the first transdiagnostic individual protocol developed and applied in Türkiye. The findings are expected to pioneer the development of further transdiagnostic protocols in Türkiye and to contribute to the broader transdiagnostic literature.

Keywords: Anxiety disorders, cognitive behavioral therapy, comorbidity, psychotherapy group, randomized controlled trial, transdiagnostic protocols.

ÖZ

Anksiyete Bozukluklarında Grup Terapisi Formatında Uygulanan Tanı Ötesi BDT Modelinin Etkililiğinin İncelenmesi: Randomize Kontrollü Bir Çalışma Protokolü

Tanı ötesi protokollerin, tanı kategorileri arasındaki ortak tanı ötesi süreçleri düzenleyerek anksiyete bozukluklarının tedavisinde etkili olduğu bulunmuştur. Bu çalışma, anksiyete bozukluklarının tedavisi için geliştirilen yeni bir grup temelli tanı ötesi bilişsel davranışçı terapi (tBDT) protokolünü tanıtmayı ve bu protokolün etkililiğini inceleyen randomize kontrollü bir çalışmanın tasarımını sunmayı amaçlamaktadır. Çalışma, DSM-5 bozuklukları için yapılandırılmış klinik görüşme klinisyen versiyonu (SCID-5-CV)'na göre birincil tanı olarak yaygın anksiyete (kaygı) bozukluğu (YAB), sosyal anksiyete (kaygı) bozukluğu (SAB),

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Address for correspondence:
İclal Aydın.
İbn Haldun Üniversitesi, Psikoloji Bölümü, İstanbul, Türkiye
Phone: +90 212 692 02 12
E-mail:
iclalaydin@stu.ihu.edu.tr

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panik bozukluk (PB) veya tanımlanmış diğer bir anksiyete (kaygı) bozukluğu tanı ölçütlerini karşılayan 18-65 yaş arası yetişkinlerle yürütülmektedir. Çalışmada tBDT (müdahale grubu) ile Rogerian destekleyici terapiyi (kontrol grubu) karşılaştıran, ön test, son test, bir aylık izlem ölçümlerini içeren 2x3 karışık desenli randomize kontrollü bir tasarım kullanıldı. Ek olarak, bir yıllık izlem ölçümü keşifsel bir değerlendirme olarak başlatılmış olup veri toplama süreci devam etmektedir. Sıkıntıya dayanıksızlık (SD) ve belirsizliğe tahammülsüzlük (BT), anksiyete bozukluklarında tanı ötesi faktörler olmaları nedeniyle sonuç değişkenleri olarak çalışmaya dahil edildi. Araştırmada, yaygın anksiyete bozukluğu-7 ölçeği (YAB-7), sıkıntıya dayanma ölçeği (SDÖ), belirsizliğe tahammülsüzlük ölçeği-12 (BTÖ-12), Penn State endişe ölçeği (PSEÖ), üstbiliş ölçeği-30 (ÜBÖ-30) ve hasta sağlık anketi-9 (HSA-9) kullanılmaktadır. tBDT protokolü beş modülden oluşmaktadır. Müdahale grubunda, tBDT protokolü sekiz hafta süreyle çevrim içi formatında uygulanmaktadır. Bu protokol, Türkiye'de geliştirilen ve uygulanan ilk tanı ötesi bireysel protokolün grup terapisi formatına uyarlamış halidir. Bu çalışmanın bulgularının Türkiye'deki tanı ötesi protokollerin geliştirilmesine öncülük etmesi ve uluslararası tanı ötesi literatürüne katkı sağlaması beklenmektedir.

Anahtar Kelimeler: Anksiyete bozuklukları, bilişsel davranışçı terapi, eş tanı, grup terapisi, randomize kontrollü çalışma, tanı ötesi protokoller.

INTRODUCTION

The category of anxiety disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM) has gradually expanded, with a notable increase in the number of subtypes (American Psychiatric Association [APA], 1980, 1994, 2013; Crocq, 2015). These changes have generated significant debate in the literature (Barlow et al., 2004). Central to these debates is the substantial increase in the prevalence of comorbid diagnoses in clinical practice, which has led to questions regarding the effectiveness of existing categorical classifications (Brown et al., 2001; Kessler et al., 2005). In addition, it has been argued that cross-sectional approaches are insufficient for understanding emotional disorders and that dimensional assessments are needed (Brown & Barlow, 2009). Furthermore, subthreshold cases—those who do not fully meet diagnostic criteria yet experience significant clinical distress—are frequently encountered in practice (Helmchen & Linden, 2000). These classification-related issues are also reflected in treatment protocols. Although the efficacy of disorder-specific treatment protocols has been demonstrated in randomized controlled trials (Butler et al., 2006; Hofmann et al., 2012), these protocols have been found to yield inadequate responses in comorbid cases in clinical practice, with significantly diminished effects in such cases (Dalgleish et al., 2020). Moreover, the proliferation of disorder-specific protocols has created challenges for their dissemination and complicated clinician training (Barlow et al., 2004).

In light of these concerns, transdiagnostic approaches that prioritize dimensional assessments over categorical classification and aim to understand common processes underlying psychopathologies have represented a significant shift in the literature (Andrews et al., 2009; Dalgleish et al., 2020; Kotov et al., 2017; Krueger et al., 1998). The transdiagnostic approach offers a more flexible and comprehensive framework by addressing the shared emotional, cognitive, and behavioral mechanisms across emotional disorders (Bullis et al., 2019). Among these common factors, DI, IU, and dysfunctional metacognitions—the three constructs examined in the present study—are transdiagnostic processes underlying several psychopathologies, including anxiety disorders (Laposa et al., 2015; Mahoney & McEvoy, 2012; Wells & Cartwright-Hatton, 2004).

Distress intolerance (DI) refers to a diminished perceived capacity to withstand negative emotional states (Simons & Gaher, 2005). DI functions as a common transdiagnostic factor across different anxiety disorders (Laposa et al., 2015; Michel et al., 2016). Enhancing distress tolerance is considered a core intervention component in treatment protocols (Barlow et al., 2018). IU is defined as a dispositional fear of the unknown and a tendency to respond negatively to uncertain situations (Buhr & Dugas, 2009). IU functions as a transdiagnostic factor in anxiety and related disorders (Carleton, 2016; Mahoney & McEvoy, 2012). Transdiagnostic protocols have been found to reduce IU, and these reductions are associated with decreased symptom severity (Boswell et al., 2013; Khakpoor et al., 2019).

While DI refers to the perceived inability to tolerate negative emotional states (Simons & Gaher, 2005) and IU reflects a dispositional tendency to respond negatively to uncertain situations (Buhr & Dugas, 2009), metacognitions refer to beliefs about one's own thinking processes (Wells & Cartwright-Hatton, 2004). According to the role of metacognitive

processes in the anxiety disorders, the present study examines them as a transdiagnostic factor alongside distress intolerance and intolerance of uncertainty.

Transdiagnostic Protocols

The transdiagnostic approach has led to the development of transdiagnostic treatment protocols that can be applied across mental disorders (Barlow et al., 2011; Norton, 2012). These protocols have been shown to produce similar levels of reduction in anxiety symptom severity compared with disorder-specific protocols, and these effects are maintained at long-term follow-up assessments (Barlow et al., 2017; Bullis et al., 2023; Newby et al., 2015). Furthermore, transdiagnostic protocols have been found to reduce symptom levels in comorbid cases as well (Farchione et al., 2012; Reinholt et al., 2017; Roberge et al., 2022).

Research has demonstrated that transdiagnostic protocols yield positive outcomes not only in the treatment of anxiety disorders and depression (Corpas et al., 2022; Farchione et al., 2012; Ito et al., 2023; Osma et al., 2022; Reinholt et al., 2017; Yan et al., 2022) but also in the treatment of various other mental disorders, including posttraumatic stress disorder (PTSD), obsessive-compulsive disorder, and substance use disorders (Farchione et al., 2012). Within anxiety disorders specifically, these protocols have been shown to be effective in reducing symptom severity across several anxiety disorders, including generalized anxiety disorder (GAD), social anxiety disorder (SAD), panic disorder (PD), agoraphobia, and anxiety disorder not otherwise specified (Farchione et al., 2012; Norton, 2008; Roberge et al., 2022; Talkovsky et al., 2017). Meta-analyses and systematic reviews also support their effectiveness across different anxiety disorders (Ayuso-Bartol et al., 2024; Erarslan İngeç & Yorulmaz, 2021; Norton & Philipp, 2008; Sakiris & Berle, 2019). Beyond their efficacy in treatment, these protocols have also been shown to have preventive effects on the onset of mental disorders (DeTore et al., 2023; Garcia-Lopez et al., 2024).

Transdiagnostic protocols are delivered in various formats (Ayuso-Bartol et al., 2024; Newby et al., 2015). Studies have found that, in addition to individual therapy sessions (Ito et al., 2023; Farchione et al., 2012), group-based formats are also effective (Corpas et al., 2022; Norton & Philipp, 2008; Osma et al., 2022; Reinholt et al., 2017; Roberge et al., 2022; Talkovsky et al., 2017). Studies examining online applications have reported significant reductions in anxiety and depression symptoms (Garcia-Lopez et al., 2024; Yan et al., 2022). The literature indicates that transdiagnostic protocols are as effective as disorder-specific protocols in terms of clinical efficacy (Barlow et al., 2017) and offer advantages for dissemination in clinical practice and therapist training (McHugh et al., 2009). In comorbid cases, which have increased with the proliferation of diagnostic subtypes, the efficacy of disorder-specific treatments decreases, and the transdiagnostic protocols offer a more comprehensive approach by targeting common factors among mental disorders (Dalgleish et al., 2020). They are also advantageous in reducing the training burden on therapists by offering a single protocol for several emotional disorders (McHugh et al., 2009).

The present study aims to examine the efficacy of a novel group-based transdiagnostic cognitive behavioral therapy (tCBT) protocol for the treatment of anxiety disorders. Unlike established transdiagnostic protocols such as Barlow's Unified Protocol (Barlow et al., 2018) and Norton's transdiagnostic group cognitive behavioral therapy (CBT) model (Norton, 2012), which typically require 12–16 sessions and focus primarily on emotion regulation and cognitive restructuring, tCBT is delivered in a shortened eight-session format and is based on the Tridimensional Model of CBT (Özdel & Türkçapar, 2025), which is a transdiagnostic and transtheoretical framework that integrates techniques from multiple CBT-based approaches. Distinctively, tCBT addresses emotions as signals of personal ideals and values rather than solely as targets for regulation. It was hypothesized that tCBT would result in significant reductions in anxiety, worry, and depression and would produce significant changes in transdiagnostic processes (DI and IU) and dysfunctional metacognitions. It was further hypothesized that DI and IU would function as transdiagnostic factors across anxiety disorders and that anxiety disorders would share common metacognitive characteristics.

METHODS

Study Design

This study is a randomized controlled trial aiming to evaluate the effect of a novel group-based transdiagnostic protocol (tCBT) on anxiety disorders. A 2×3 mixed design was employed, with one transdiagnostic intervention (experimental) group and one Rogerian supportive therapy (control) group, including pretest, posttest, and 1-month follow-up assessments (Büyüköztürk, 2020). The first factor represents the independent groups (experimental and control), and the second factor represents repeated measures of the dependent variables (pretest, posttest, and 1-month follow-up). A 1-year follow-up assessment was additionally initiated as an exploratory assessment following the completion of the study, with data collection currently ongoing, to examine the long-term maintenance of treatment gains. Participants were randomly assigned to the experimental or control group. The independent variable was the treatment condition (tCBT or Rogerian supportive therapy). Anxiety symptom severity (GAD-7) and worry (PSWQ) were designated a priori

as the study's two co-primary outcome variables. Worry was specified as a primary outcome because it plays a central, transdiagnostic role across anxiety disorders (McEvoy et al., 2013) and because dedicated worry measures such as the PSWQ are important for accurately capturing treatment-related change in anxiety disorder research (Hanrahan et al., 2013). Secondary outcome variables were depression (PHQ-9), distress tolerance scale (DTS), intolerance of uncertainty (IUS-12), and dysfunctional metacognitions (MCQ-30). Distress tolerance, intolerance of uncertainty, and metacognitions were additionally conceptualized as transdiagnostic process variables and examined in relation to both treatment outcomes and diagnostic features across anxiety disorders.

Participants

Participants included male and female adults aged 18–65 years. For inclusion, participants were required to meet the criteria for at least one of the following as a principal diagnosis: GAD, SAD, PD, or other specified anxiety disorder. Diagnoses were established through individual semistructured clinical interviews (SCID-5-CV) conducted by trained clinicians independent of the research team prior to the study. When comorbid conditions were present, the principal diagnosis was determined based on the clinical judgment of the interviewing clinician, reflecting the disorder considered most prominent and impairing at the time of assessment. Comorbid conditions were permitted if the principal diagnosis was one of the four target anxiety disorders. Participants were recruited through open advertisement and selected using purposive sampling with criterion-based screening.

The exclusion criteria were as follows:

- Current substance use or a psychiatric history related to substance use
- Comorbid psychotic or bipolar disorder or a psychiatric condition of higher clinical priority than the target anxiety disorders
- Currently receiving psychotherapy
- Currently taking psychiatric medication
- Less than primary school education

Participants currently receiving psychotherapy or taking psychiatric medication were excluded to minimize confounding effects on outcome variables and to ensure the internal validity of the findings.

The first author randomly assigned eligible participants to the intervention or control group via SPSS. The first author generated and implemented the allocation sequence. Allocation concealment was not implemented, as the first author was responsible for both generating the allocation sequence and assigning participants to conditions. Randomization was conducted at the individual level prior to group formation. To ensure group equivalence, the randomization procedure was repeated until the two groups showed no statistically significant differences in key baseline characteristics, including age, gender, and anxiety severity. Participant blinding was implemented: participants were not informed of their group allocation or the specific therapeutic approach employed in their group. All participants were aware that they were participating in group therapy for anxiety; however, the type of intervention was not disclosed. Therapist blinding was not fully implemented, as the therapists knew their group assignment. However, the control group therapists were instructed to use only Rogerian techniques, which served as a partial safeguard against therapist bias. Assessor blinding was not implemented because data collection was conducted by the first author. An priori power analysis was conducted using G*Power to determine the required sample size. A medium effect size (f=0.25) was selected as a conservative estimate, consistent with controlled effect sizes reported in meta-analyses of transdiagnostic CBT interventions (Newby et al., 2015). Based on an alpha level of 0.05, a power of 0.80, two groups, and three measurement points, the analysis indicated a minimum total sample size of 28 participants.

Measures

Structured Clinical Interview for DSM-5 Disorders–Clinician Version (SCID-5-CV)

The SCID-5-CV was administered as a screening interview to determine whether the participants met the inclusion criteria (First et al., 2018). The SCID-5 is a semistructured interview designed to assess DSM-5 (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition) disorders (APA, 2013). The reliability study of the Turkish version reported an overall agreement of 97.2% and a kappa value of 0.74 (Elbir et al., 2019). In this study, the SCID-5 was administered by trained clinicians to determine whether participants met the criteria for at least one of the following as a principal diagnosis: SAD, GAD, PD, or other specified anxiety disorder and to assess comorbid conditions (if present).

Sociodemographic Information Form

A sociodemographic information form was used to collect data on participants' age, gender, marital status, educational background, family characteristics, current or past psychotherapy history, psychiatric medication use, and alcohol/substance use to describe the characteristics of the study sample.

Primary Outcome Measures

Generalized Anxiety Disorder-7 Scale (GAD-7)

The GAD-7 Scale was developed by Spitzer, Kroenke, Williams, and Löwe (2006). The Turkish adaptation (Konkan et al., 2013) demonstrated high internal consistency (Cronbach's α=0.85). The GAD-7 is a 7-item self-report measure using a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). Higher total scores indicate greater anxiety severity. Cutoff scores are 5, 10, and 15 for mild, moderate, and severe anxiety, respectively.

Penn State Worry Questionnaire (PSWQ)

The PSWQ measures pathological worry (Meyer et al., 1990). The Turkish adaptation showed good internal consistency (Cronbach's α=0.88; Boysan et al., 2008). The PSWQ is a 16-item self-report measure using a 5-point Likert scale ranging from 1 (not at all typical of me) to 5 (very typical of me). Total scores range from 16 to 80. Higher total scores indicate higher levels of worry.

Secondary Outcome Measures

Distress Tolerance Scale (DTS)

The DTS (Simons & Gaher, 2005) measures the perceived capacity to tolerate emotional distress. Sargın et al. (2012) conducted the validity and reliability study, which demonstrated high internal consistency (Cronbach's α=0.89). The DTS consists of 15 items rated on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). Lower total scores indicate lower distress tolerance.

Intolerance of Uncertainty Scale–Short Form (IUS-12)

The IUS-12 is a 12-item self-report measure (Carleton et al., 2007). The Turkish validity and reliability study by Sarıçam, Erguvan, Akın, and Akça (2014) reported high internal consistency (Cronbach's α=0.88). A 5-point Likert scale is used, ranging from 1 (not at all characteristic of me) to 5 (entirely characteristic of me). Higher total scores indicate higher IU.

Metacognitions Questionnaire-30 (MCQ-30)

The MCQ-30 was developed by Wells and Cartwright-Hatton (2004). The Turkish validity and reliability study was conducted by Tosun and Irak (2008), and demonstrated high internal consistency (Cronbach's α=0.86). The MCQ-30 is a self-report measure for assessing dysfunctional metacognitions. It consists of 30 items rated on a 4-point Likert scale ranging from 1 (do not agree) to 4 (agree very much). Higher scores indicate more dysfunctional metacognitive activity. Total scores range from 30 to 120.

Patient Health Questionnaire-9 (PHQ-9)

The PHQ-9, originally introduced by Kroenke, Spitzer, and Williams (2001), is used to assess depression severity. A Turkish reliability study (Sarı et al., 2016) demonstrated good internal consistency (Cronbach's α=0.84). The PHQ-9 consists of 9 items rated on a 4-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). Higher total scores indicate increased depression severity. The severity categories are as follows: 0–4, minimal; 5–9, mild; 10–14, moderate; 15–19, moderately severe; and 20–27, severe depression.

Procedure

Ethical approval was obtained from the Ethics Committee of Ibn Haldun University (Decision No. 2023/08-10, December 15, 2023). This trial was registered on ClinicalTrials.gov (NCT06422728). The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Participants were recruited through institutional channels (university email lists and the university psychotherapy center's online platforms), professional networks, and social media announcements. Interested individuals completed an online application form requesting basic information (name, contact details, reason for application, etc.). All applicants received an informed consent form outlining the study's purpose and scope, voluntary participation, right to withdraw, and confidentiality.

Applicants underwent online semistructured diagnostic interviews. Individuals who met the criteria for at least one of the target diagnoses (GAD, SAD, PD, or other specified anxiety disorder) based on the SCID-5-CV clinical assessment were enrolled in the study. Enrolled participants completed an online sociodemographic information form. Prior to the first session, all participants completed the pretest (GAD-7, DTS, IUS-12, PSWQ, MCQ-30, and PHQ-9) online. After the pretest, participants were randomly assigned to the intervention or control group.

After randomization, the intervention group received weekly group therapy using the tCBT protocol over eight weeks. The control group received Rogerian supportive group therapy over the same period. All sessions in both groups were conducted online. The control group received Rogerian supportive group therapy, delivered online in the same group format and over the same number of sessions as the tCBT group. Two clinical psychologists conducted the tCBT and control groups. Both therapists and co-therapists held master's degrees in clinical psychology and had completed foundational CBT training. Prior to the study, all therapists and co-therapists received transdiagnostic CBT training and supervision from a senior CBT supervisor. The control condition was designed to include only nonspecific therapeutic factors—such as the therapeutic relationship, active listening, and empathic responding—while excluding any

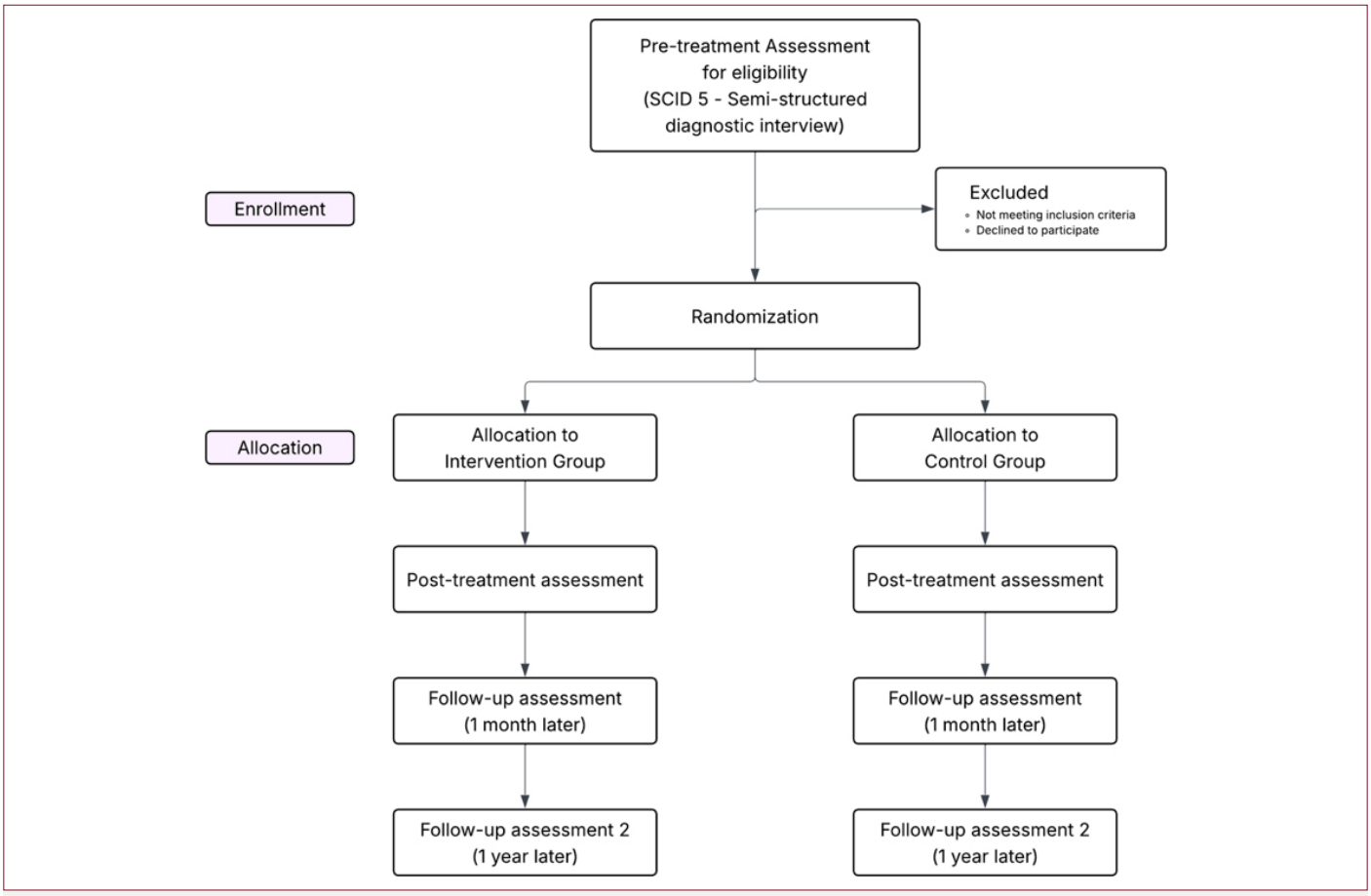

Figure 1. CONSORT flow diagram.

specific CBT techniques, and therapists were required to draw on their general therapeutic competencies accordingly.

Treatment fidelity was monitored through weekly supervision sessions in both groups. All sessions were video-recorded and reviewed by the dissertation advisors on a weekly basis. During these reviews, session content adherence and therapist competence were evaluated, and areas requiring improvement were identified and addressed through supervision. While this process confirmed that sessions were conducted in line with the protocol content, no formal quantitative assessment was conducted. As a preliminary indicator of therapist consistency, exploratory analyses conducted to assess therapist effects revealed no statistically significant differences in outcome variables across therapist-led groups.

At the end of week eight, all participants completed the posttest measures (GAD-7, DTS, IUS-12, PSWQ, MCQ-30, and PHQ-9). One month later, at the beginning of the follow-up session, all participants completed the same measures for the follow-up assessment (Fig. 1). Data collection for the 1-year follow-up assessment is currently ongoing. The same self-report measures will be administered at the 1-year follow-up (Table 1). Findings will be reported upon completion of all measurements.

Table 1. Assessment schedule across study time points

Measures	Pretest	Posttest	1-month follow-up	1-year follow-up*
GAD-7				
PSWQ				
DTS				
IUS-12				
MCQ-30				
PHQ-9				

1-year follow-up data collection is currently ongoing. GAD-7: Generalized anxiety disorder-7; PSWQ: Penn state worry questionnaire; DTS: Distress tolerance scale; IUS-12: Intolerance of uncertainty scale-12; MCQ-30: Metacognitions questionnaire-30; PHQ-9: Patient health questionnaire-9.

Rogerian Supportive Therapy (Control Group) Guideline

The supportive therapy was conducted in a nondirective, unstructured manner, consistent with Rogerian principles, focusing on the therapeutic relationship and participants' subjective experiences rather than symptom reduction or skill acquisition. Permissible techniques included active listening, summarizing, clarifying, reflecting emotions, asking process-oriented and in-the-moment questions, and addressing relational dynamics within the session.

The therapists and co-therapists were explicitly instructed not to provide advice, psychoeducation, or structured interventions. Cognitive restructuring, behavioral assignments, and any directive CBT techniques were not permitted. When participants asked for guidance—for instance, regarding how to manage anxiety—therapists responded by stating that the focus of the group was on participants finding their own solutions and redirected the focus to the participant's internal processes rather than offering solutions, consistent with the nondirective stance of the approach.

Content and Structure of the Transdiagnostic Protocol

The tCBT protocol was originally developed for use in individual therapy sessions. For the present doctoral research, the protocol was adapted to a group therapy format and is being empirically tested for the first time. The tCBT is based on the Tridimensional Model of CBT proposed by Özdel and Türkçapar (2025), whose core dimensions have received empirical support from Yapan, Türkçapar, and Boysan (2022). Within this framework, three core dimensions involved in the maintenance of psychopathology—the attention/focus domain, the cognitive evaluation/operation domain, and the behavioral domain—constitute the scope of the protocol. Additionally, the tCBT integrates techniques from various CBT approaches, consistent with the tridimensional model. The tCBT consists of five modules. The content of these modules is presented in Table 2.

General Principles of the tCBT

The general principles of the tCBT are as follows:

Therapeutic Alliance: The therapeutic alliance established with clients facilitates a sense of safety and enables the exploration of challenging emotional material. The therapist must respond to the client promptly and personally.

Personalized Examples: All examples and exercises in therapy are drawn directly from the client's experiences, allowing for a more focused, in-depth therapeutic process.

Flexible Structure: The protocol serves as a guide rather than a rigid structure. Depending on individual needs, certain components (examples, metaphors, explanations) may be emphasized more, while others may be addressed more briefly.

Role of Between-Session Practice: Between-session practice encompasses session content and therapeutic gains. Each practice assignment is reviewed at the beginning of the following session and used to enrich the personal formulation of the client.

Adaptation of the tCBT to a Group Therapy Format

The general principles outlined above also apply to the group therapy format. Within this framework, the therapist addresses each session's agenda through personalized examples from group participants. After the session agenda is presented using one or two participants' examples, time is allocated for each participant to apply what they have learned to their own formulation. The therapist assists the participants while they work on their formulations and answers their questions. At the end of the session, between-session practices (e.g., thought records and behavioral experiments) are explained in detail and then individually reviewed with each participant at the beginning of the following session.

In the present study, participants were divided into smaller subgroups due to group size, with a co-therapist assigned to each subgroup. Co-therapists maintained consistent responsibility for the same participants throughout the group therapy process, assisting them with in-session exercises, sending reminder messages for between-session assignments, and answering their questions. Sessions were conducted via Zoom and lasted approximately 90 minutes. Each group consisted of up to 16 participants. As the intervention was administered online, metaphors and visual content were presented through prepared PowerPoint slides rather than real-time drawing, ensuring efficient use of session time.

Session-by-Session Implementation of the tCBT in Group Therapy Format

In the first session, following introductions, participants are informed about group rules (voluntary participation, confidentiality, responsibilities toward other group members, etc.) and the overall structure of the group process (number and duration of sessions, administration of measures, etc.). Each participant shares their anxiety-related concerns and expresses their expectations for therapy. Finally, the goals for the group therapy process are established.

In the second session, the five-part formulation is introduced using examples from one or two participants. Each component of the formulation (situation/environment/events, thoughts, emotions, bodily sensations, and behaviors) is defined. The treatment rationale is then discussed with reference to the

Table 2. Content of the transdiagnostic protocol (tCBT) modules

Modules	Objectives	Module content
Formulation and Treatment Rationale (1 session)	Mapping the five-part formulation with concrete examples and explaining how CBT works	Five factors affecting our psychology (events/situations/environment, perceptions and thoughts, emotions, bodily sensations, and behaviors) are addressed; the treatment rationale is presented; CBT psychoeducation is provided; the rationale for between-session practices is discussed.
Emotions (1–2 sessions)	Recognizing emotions and understanding that they are signals indicating ideals and values rather than danger signals	The definition and types of emotions (event/situation-based emotions and thought-based emotions) are discussed; the function of emotions is defined; ideals and values signaled by emotions are addressed; the consequences of misreading or accurately reading emotions are discussed.
Thoughts (2–3 sessions)	Noticing automatic thoughts, distinguishing thoughts from reality, and challenging dysfunctional thoughts	The definition of perception and thought is provided; the thought–reality distinction is discussed; the function of thoughts is addressed; strategies for dealing with thoughts that are not serving their function are discussed; the distinction between the observing mind and the talking mind is made; metacognitive techniques for managing worry and ruminative thoughts are addressed; thought content is examined: evidence review and alternative explanations are explored.
Behaviors (1–2 sessions)	Emphasizing behaviors as a controllable domain/factor and encouraging small, manageable steps in line with ideals and values	The definition of behavior is provided; controllable versus uncontrollable domains/factors are addressed; directing behaviors in accordance with ideals and values is discussed; the meaning of life and important life domains (academic and professional domain, romantic relationships domain, physical well-being domain, etc.) are identified; the importance of behavioral engagement in these domains is discussed.
Maintenance of Gains and Relapse Prevention (1 session)	Recognizing gains acquired throughout the process and discussing how to maintain them	Skills learned and practiced during therapy are summarized; gains from the process are reviewed; strategies for maintaining gains moving forward are discussed.

CBT: Cognitive behavioral therapy; tCBT: Transdiagnostic cognitive behavioral therapy.

domains in which psychiatric medication and psychotherapy are effective. CBT psychoeducation is provided, explaining the goals and focus areas of CBT as an evidence-based approach. Finally, the rationale for between-session practices is discussed. At the end of the session, participants are provided with a thought record and asked to complete it during the week.

In the third session, situational formulation examples from one or two participants are reviewed. Using a metaphor, emotions are categorized into two types: (1) event/situation-based emotions and (2) thought-based emotions. The function of emotions is discussed. Participants learn how to identify the ideals and values signaled by their emotions through their own examples. The consequences of misreading versus accurately reading emotions are discussed, emphasizing the importance of using emotions as a "signaling system." As between-session practice, an expanded thought record that includes a "my ideals and values" section is provided to participants.

In the fourth session, work on thoughts begins using situation-level formulation examples from one or two participants. Following a discussion of the definition and impact of thoughts, the distinction between thoughts and reality is illustrated through metaphors. The function of thoughts is then defined, and strategies for dealing with thoughts that are not serving their function are discussed. For between-session practice, participants are asked to continue completing the thought record and to practice relating to their thoughts "as if they were not facts" based on what they learned in the session.

In the fifth session, work on thoughts continues. The distinction between the observing mind and the thinking mind is introduced through a metaphor. Participants learn metacognitive techniques for managing worry and ruminative thoughts. These techniques are taught in four steps: (1) letting go of the thought, (2) noting thoughts, (3) the three-minute three-question exercise, and (4) scheduling time for thoughts.

For between-session practice, participants are asked to apply these four techniques sequentially (moving to the next step when the previous one is insufficient).

In the sixth session, the content of thoughts is examined using situational formulation examples from one or two participants. Evidence examination and alternative explanations are explored through formulation examples. For between-session practice, participants are asked to apply the evidence examination technique to the thoughts they have recorded. A thought examination form is provided for this purpose.

In the seventh session, behaviors are defined using situational formulations from one or two participants. Factors affecting our psychology are categorized as controllable versus uncontrollable. In this context, the topic of directing behavior in accordance with one's ideals and values is discussed. For between-session practice, participants plan a behavioral experiment by identifying a behavior aligned with their ideals and values based on their own formulations.

In the final (eighth) session, the meaning of life and important life domains (academic and professional, romantic relationships, friendships, etc.) are discussed through the questions, "What kind of person do I want to be?" and "What kind of life do I want to live?" The importance of behavioral engagement in these domains is discussed. Participants compare their former and current patterns ("How did I used to think and behave? How do I think and behave now?") to evaluate gains from the process. Strategies for maintaining these gains are then discussed. Participants are asked to continue completing the thought examination form, carry out the behavioral experiments planned in the session, and practice self-administered sessions until the follow-up session scheduled one month later. This session also serves as a preliminary termination session; however formal closure takes place in the follow-up session.

In the follow-up (ninth) session, the practice assignments planned for the 1-month interval (regular completion of the thought examination form, planned behavioral experiments, and self-administered session practice) are reviewed. A short summary of the protocol is shared. Participants' questions and feedback are addressed. This session serves as the final closure session for the group.

Statistical Analysis

Following the completion of all assessments, data will be analyzed using IBM SPSS 25. Descriptive statistics and frequency analyses will be used for demographic data. Multiple regression analysis will be conducted to examine whether DI, IU, and metacognitive characteristics predict anxiety, worry, and depression levels. A supplementary power analysis conducted in G*Power indicated that the current sample size provides adequate power for the planned regression analyses (f^2=0.15, α=0.05, power=0.80, three predictors). To examine the efficacy of tCBT, a 2×3 mixed ANOVA will be conducted with group (tCBT vs. Rogerian supportive therapy) as the between-subjects factor and time (pretreatment, posttreatment, and 1-month follow-up) as the within-subjects factor. Assumptions of normality and sphericity will be tested prior to analyses; the Greenhouse–Geisser correction will be applied if sphericity is violated. Effect sizes will be reported as partial eta-squared (η^2p). Cohen's d will be calculated for pairwise comparisons. Given the use of multiple outcome variables, correction procedures such as the Bonferroni adjustment will be considered during the analysis phase to control for Type I error. To examine the efficacy of tCBT, the primary intention-to-treat analyses will be conducted using linear mixed-effects modeling or a mixed model for repeated measures. In these models, treatment group, time, and the group × time interaction will be included as fixed effects, with repeated measurements nested within participants. This approach allows all available repeated-measures data to be included without imputing missing values and is appropriate for longitudinal clinical trial data with incomplete observations under the missing-at-random assumption. Last observation carried forward (LOCF) will not be used as the primary method for handling missing outcome data. If applied, LOCF will be used only as a supplementary sensitivity analysis to evaluate the robustness of the findings. Results based on LOCF will be interpreted cautiously and compared with the primary mixed-effects model results. In addition to the intention-to-treat analysis, a per-protocol analysis will be conducted, including only participants who completed all treatment sessions. The 1-year follow-up data will be analyzed and reported separately as part of an unplanned exploratory analysis conducted following the completion of the study.

DISCUSSION

The aim of the present study is to investigate the efficacy of a CBT-based group tCBT, developed as a transdiagnostic protocol, in the treatment of anxiety disorders. First, tCBT is expected to produce significant reductions in the severity of anxiety, worry, and depression. Second, tCBT is also expected to produce significant effects on DI and IU levels, which are considered transdiagnostic factors in the literature (Laposa et al., 2015; Mahoney & McEvoy, 2012). Additionally, DI and IU are hypothesized to function as transdiagnostic factors across anxiety disorders, and common metacognitive characteristics are expected to be observed. In this regard, this study is expected to make a significant contribution to the literature by investigating transdiagnostic processes in anxiety disorders

and examining the potential for treating different anxiety disorders (GAD, SAD, PD, and other specified anxiety disorder) using a transdiagnostic CBT protocol. The tCBT is the first transdiagnostic protocol developed and applied in Türkiye. As such, it is expected to make an important contribution to transdiagnostic research in Türkiye and to pioneer the development of other transdiagnostic protocols.

Many RCTs in the literature use waitlist control groups. However, in the present study, the intervention group receiving tCBT is compared with a control group that receives Rogerian supportive therapy, which is expected to make an important contribution to the literature. The tCBT protocol, which consists of five modules and is deliverable in as few as six to eight sessions, is expected to provide practical advantages for therapists. Furthermore, this study included participants with comorbid diagnoses, allowing for an evaluation of the effects of tCBT in individuals with comorbidity. Several researchers have noted that transdiagnostic protocols offer considerable advantages over disorder-specific protocols, including the treatment of comorbid conditions, ease of therapist training and implementation, and faster group formation by accommodating multiple diagnoses within a single group (Barlow et al., 2017; McHugh et al., 2009).

The group-based and internet-delivered format of tCBT offers significant advantages in terms of treatment accessibility. Owing to the economic burden of individual therapy, many individuals in Türkiye cannot access treatment. Group therapy can facilitate greater accessibility, and the cost-effectiveness of group-based tCBT is expected to be valuable for improving access to mental health services. The internet-based delivery format further expands accessibility by overcoming practical and geographic barriers to face-to-face treatment. Given the limited number of group-based and internet-delivered transdiagnostic protocols, this study is also expected to contribute to the development of such protocols and the investigation of transdiagnostic efficacy across different cultures.

There are some limitations to this study. Because the study was conducted with a Turkish sample, the generalizability of the findings to other cultural contexts may be limited. Additionally, the sample may not be representative of all individuals with anxiety disorders because it consisted of volunteers who self-referred in response to open advertisements, which may introduce self-selection bias. The study relies solely on self-report measures, which may be subject to response biases. Clinician-administered measures, such as the Clinical Global Impression Scale, were not included, which may limit the objectivity of the findings. Additionally, diagnostic change following treatment was not assessed because clinical interviews were conducted only at baseline. The use of multiple outcome variables increases the risk of Type I error due to multiple comparisons. The online group therapy format may have introduced variability in participant engagement and adherence, which could have influenced outcomes. Therapist effects cannot be ruled out because the same two therapists delivered both the intervention and control conditions. However, exploratory analyses revealed no statistically significant differences in outcome variables across therapist-led groups, providing preliminary evidence of comparable treatment delivery. Future studies should consider assigning different therapists to each condition to more rigorously control for therapist effects. Fidelity monitoring was based on supervisory review, and no formal quantitative assessment was conducted, which represents a limitation. Exploratory analyses revealed no statistically significant differences in outcome variables across therapist-led groups, which may be interpreted as a supporting indicator of treatment fidelity. Future studies should consider quantitative assessment of treatment fidelity.

Furthermore, although the control condition was designed to be distinct from tCBT, the degree to which Rogerian supportive therapy was sufficiently differentiated from the intervention condition in practice warrants consideration. Finally, potential researcher allegiance bias may have influenced the findings, given that the tCBT protocol was developed by one of the study supervisors. In summary, despite these limitations, this study will introduce a novel protocol to the literature, and its findings are expected to contribute to future research on the efficacy of transdiagnostic protocols and transdiagnostic processes.

CONCLUSION

This study introduces a novel group-based tCBT protocol, which is the first such protocol developed in Turkish. This study is expected to make an important contribution to transdiagnostic research in Türkiye and to pioneer the development of other transdiagnostic protocols. The group-based and internet-delivered format of tCBT may help expand treatment accessibility by overcoming practical and economic barriers. Furthermore, the inclusion of participants with comorbid diagnoses allows for an evaluation of the effects of tCBT in individuals with comorbidity. Given the limited number of group-based and internet-delivered transdiagnostic protocols in the literature, the findings of this study are expected to contribute to future research on the efficacy of transdiagnostic protocols and transdiagnostic processes. In the future, conducting similar studies with larger samples will further strengthen the evidence base for transdiagnostic interventions.

Ethics Committee Approval: This study was approved by the Ibn Haldun University ethics committee (Decision No: 2023/08-10; Date: 15.12.2023).

Trial Registration: This trial was registered on ClinicalTrials.gov (NCT06422728).

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

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