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Research Article

A randomized mixed-methods pilot feasibility trial of CBT group therapy with 4T-Integrated religious psychoeducation for religious obsessions and compulsions

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Objective: To evaluate the feasibility, acceptability, and religious congruence of integrating the 4T religious psychoeducation model into CBT group therapy for religious OCD, with exploratory analyses of clinical change.
Method: Twenty-three adults with religious OCD were randomly assigned to standard CBGT or a 4T-integrated group. Assessments were conducted at pre-test, post-test, and 1-, 3-, and 12-month follow-ups using the Y-BOCS, OBQ-44, TAFS, PIOS, BDI, and BAI. Linear mixed-effects and nonparametric analyses explored within-group change. Feasibility indicators included recruitment, retention, adherence, and participant feedback. Semi-structured interviews were thematically analyzed to examine acceptability and cultural fit.
Results: Both interventions were feasible and well-tolerated, with adequate recruitment and retention. Participants in both groups showed within-group improvements across symptom and cognitive measures. Exploratory trends suggested greater reductions in thought–action fusion (likelihood) and additional late-phase cognitive shifts in the 4T group. Qualitative findings highlighted positive perceptions of the 4T model's religious congruence, clearer understanding of intrusive thoughts, and enhanced motivation.
Conclusion: This randomized pilot feasibility trial supports the practicality and acceptability of integrating religiously grounded psychoeducation into CBGT for religious OCD. Preliminary trends suggest the need for a larger definitive trial, and qualitative data highlight the contextual relevance of religiously integrated psychoeducation for treatment engagement.

Keywords: Religious OCD; cognitive behavioral psychotherapy

Clinical significance of this article: This paper is based on the first author's doctoral dissertation. Parts of this work were previously presented at the 10th World Congress of Cognitive and Behavioural Therapies, Seoul, South Korea. This pilot study indicates that integrating brief 4T-based religious psychoeducation into group-based CBT is feasible and acceptable for individuals with religious OCD. Across both conditions, participants showed improvements in obsessive–compulsive symptoms, while the 4T component appeared to be associated with changes in specific cognitive domains, such as thought–action fusion and perceived moral responsibility. These findings suggest that the 4T model can add clinically meaningful value in religiously sensitive contexts by enhancing engagement and cognitive clarity.

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Religious Obsessive-Compulsive Disorder (religious OCD) is a prevalent yet understudied OCD subtype, characterized by intrusive religious obsessions and compulsive rituals centered on fears of sin and moral transgression (Buchholz et al., 2019; Deacon & Nelson, 2008; Md Rosli et al., 2019; Siev & Huppert, 2017). Although religious OCD has been documented across diverse faith traditions, its clinical presentation is strongly shaped by each tradition's cultural and theological emphases. For instance, Catholic presentations have historically emphasized excessive guilt, fear of sin, and compulsive confession or prayer, whereas Orthodox Jewish presentations often center on ritual exactness, fear of violating dietary or purity laws, and heightened moral responsibility (Abramowitz et al., 2002; Ciarrocchi, 1995; Greenberg & Shefler, 2002; Miller & Hedges, 2008). Muslim presentations of religious OCD, while sharing these core features of guilt and fear of moral violation, often takes a distinctive form shaped by Islamic theological concepts such as *niyyah* (intention), *qalb* (heart), and *waswasa* (satanic whisperings) (Toprak, 2024). Despite its clinical relevance, religious OCD remains underrepresented in empirical treatment research (Abramowitz & Hellberg, 2020). Given its deep entanglement with religious meaning systems, this subtype poses distinct clinical challenges, particularly in religiously sensitive societies, underscoring the need for culturally and theologically informed treatment frameworks (Abramowitz, 2001; Huppert & Siev, 2010; Md Rosli et al., 2018; Siev & Huppert, 2017; Toprak, 2018).

Cognitive–behavioral group therapy (CBGT) is an established treatment for OCD that integrates psychoeducation, cognitive restructuring, and exposure and response prevention (ERP), with group formats providing additional benefits such as normalization and peer support, and demonstrating sustained efficacy in symptom reduction (McLean et al., 2001; Şafak et al., 2014).

Religiously Integrated Cognitive Behavioral Therapy (RCBT) and its Muslim-adapted form, Islamic Integrated Cognitive Behavioral Therapy (IICBT), integrate religious knowledge and practices into CBT and have been shown to improve acceptability, adherence, and outcomes among religious patients (Aouchekian et al., 2017; Ciarrocchi et al., 2014; Md Rosli et al., 2018, 2019; Toprak, 2018).

The 4T Model is a CBT-integrated psychoeducational framework developed in Turkey for religious OCD, grounded in the Islamic intellectual tradition (Toprak, 2024). It conceptualizes mental processes across four hierarchical constructs: *tahayyul/tasawwur* (imagination or conceptualization), *tewehhum* (baseless assumption), *taakkul* (reasoning), and *tasdiq* (confirmation). Moral responsibility is assigned only to consciously confirmed mental content (*tasdiq*), whereas earlier cognitive processes (*tahayyul/tasawwur, tewehhum,* and *taakkul*) are not considered morally binding. This distinction was developed to offer a useful framework for individuals with OCD, particularly in addressing thought–action fusion.

Preliminary case studies suggest that 4T-based interventions are associated with reductions in symptom severity, enhanced insight, improved tolerance of uncertainty, and greater acceptance of ERP, while supporting differentiation between involuntary intrusive thoughts and religious belief (Çetiner & Toprak, 2025; Işık & Toprak, 2024; Karakan & Toprak, 2023; Toprak, 2022, 2024). Qualitative reports highlight that framing intrusive thoughts as *tahayyul* or *tewehhum* (suspicion/baseless assumptions) reduces guilt and facilitates engagement in therapy, especially when combined with religiously congruent language and texts such as Vesvese Risalesi (Nursi, 2012).

Interventions based on this cognitive structure have contributed to the redefinition of obsessive thoughts and to significant reductions in symptom severity, as demonstrated in case studies (Çetiner & Toprak, 2025; Toprak, 2024, 2025). Moreover, the model has been applied not only to religious OCD but also to intrusive thoughts observed in post traumatic stress disorder (Işık & Toprak, 2024).

In later developments, the model was enriched with Islamic ontological references such as the *heart*, *Satan*, and *whisper*, bringing it closer to the lived experience of religious OCD (Toprak, 2024). In this regard, the 4T Model diverges from classical CBT approaches by offering a unique framework that incorporates the axiom of the heart's presence as an active component in cognitive processing.

Centering the concepts of *heart* (*qalb*) and *confirmation* (*tasdiq*), the model delineates the boundaries between belief, morality, imagination, impulse, and thought. Similarly, through the concepts of *Satan* and *whisper*, obsessive thoughts are explained as being independent from the individual's intentions and core values. Religious knowledge is further used to demonstrate that certain cognitive patterns —such as perfectionism and intolerance of uncertainty—are incongruent with the Islamic religious framework. In this respect, the model not only addresses religious sensitivity, but also provides an ontological contribution rooted in Islamic thought, offering an alternative cognitive framework to traditional CBT.

This framework offers a clinical lens for distinguishing faith (*i¯mān*) from OCD-related phenomena and separating involuntary thoughts from moral

responsibility, which may facilitate engagement with treatment. This distinction is particularly relevant in Turkey's religious–cultural context, where doubts and rituals are often interpreted through Islamic concepts such as *niyyah*, *qalb*, and *waswasa*. Prior research highlights the importance of differentiating obsessive–compulsive symptoms from religious obligations to ensure that psychotherapy is not experienced as threatening to faith (Md Rosli et al., 2018; Siev & Huppert, 2017).

The Present Study: Objectives and Research Questions

Despite promising case-level findings, controlled comparative research on 4T-based interventions remains limited. Accordingly, this pilot feasibility study examined the contribution of a brief 4T-based religious psychoeducational component when integrated into group-based Cognitive Behavioral Therapy (CBGT) for individuals with religious OCD, using a randomized mixed-methods design.

The study aimed to assess (a) the feasibility of recruitment, randomization, retention, and adherence across CBGT and CBGT augmented with 4T psychoeducation; (b) patterns of change in obsessive–compulsive symptoms and related cognitive domains across treatment conditions and assessment points; (c) whether the addition of 4T psychoeducation is associated with differential trends in cognitive processes particularly relevant to religious OCD; and (d) participants' subjective experiences of the religious psychoeducational content and its perceived impact on meaning-making, religious congruence, and therapeutic engagement.

It was hypothesized that both interventions would be associated with improvements in obsessive–compulsive symptoms and related cognitive mechanisms, and that the 4T-integrated condition would be perceived as more meaningful and religiously congruent.

Method

Design

This study was conducted as a randomized parallel-group pilot feasibility trial embedded within an explanatory sequential mixed-methods design (Creswell & Plano Clark, 2011). Participants were allocated to two intervention conditions using a 1:1 ratio. Quantitative data were collected and analyzed first to examine changes in religious OCD symptoms across five assessment points (pre-test, post-test, and 1-, 3-, and 12-month follow-ups), followed by qualitative thematic analysis of participants' written and verbal feedback to contextualize and elaborate on quantitative findings (Creswell, 2009). No substantive changes were made to the trial design, eligibility criteria, intervention content, or outcome measures after trial initiation; all procedures were implemented as planned.

Participants

Participants were recruited via social media announcement offering free psychotherapy support for individuals experiencing symptoms of religious OCD. The application form remained open for four months (January–May 2021), during which 395 applications were received.

Applications were screened using predefined exclusion criteria: age under 18; lack of primary school education; absence of religious content in OCD symptoms; psychiatric disorders taking precedence over OCD; primary neurological disorders or intellectual disability; DSM-5 diagnoses of psychotic or bipolar disorders; history of substance use–related psychiatric illness; antisocial or borderline personality disorders; and current engagement in psychotherapy. Based on these criteria, 210 applicants were excluded, leaving 185 potential participants. Given the pilot nature of the trial, no formal power analysis was conducted; sample size was determined pragmatically based on feasibility, available resources, and the aim of generating preliminary estimates for a future fully powered trial.

All 185 individuals underwent diagnostic assessment using the Structured Clinical Interview for DSM-5 (SCID-5-CV), conducted online via secure Zoom videoconferencing, to evaluate OCD and comorbid psychiatric disorders. 76 individuals met criteria for OCD, of whom, only 43 proceeded to further assessment following exlusion based on predifined criteria or refusal to participate in group therapy. At this stage, severity of obsessions and compulsions, as well as levels of depression, anxiety, and insight, were assessed using standardized psychometric instruments. Subsequently, 11 participants dropped out for various reasons. The final sample consisted of 32 individuals with OCD characterized by predominant religious obsessions, who were randomized to Cognitive Behavioral Group Therapy (CBGT; n = 16) or CBGT with 4T-integrated religious psychoeducation (n = 16). Attrition during treatment resulted in 13 completers in the CBGT group and 10 in the 4T group, all of whom provided data at post-treatment and 1-, 3-, and 12-month follow-ups (N = 23 at each time point).

Participant flow is summarized in the CONSORT diagram (Eldridge et al., 2016) (Figure 1), and descriptive characteristics are presented in Table I.

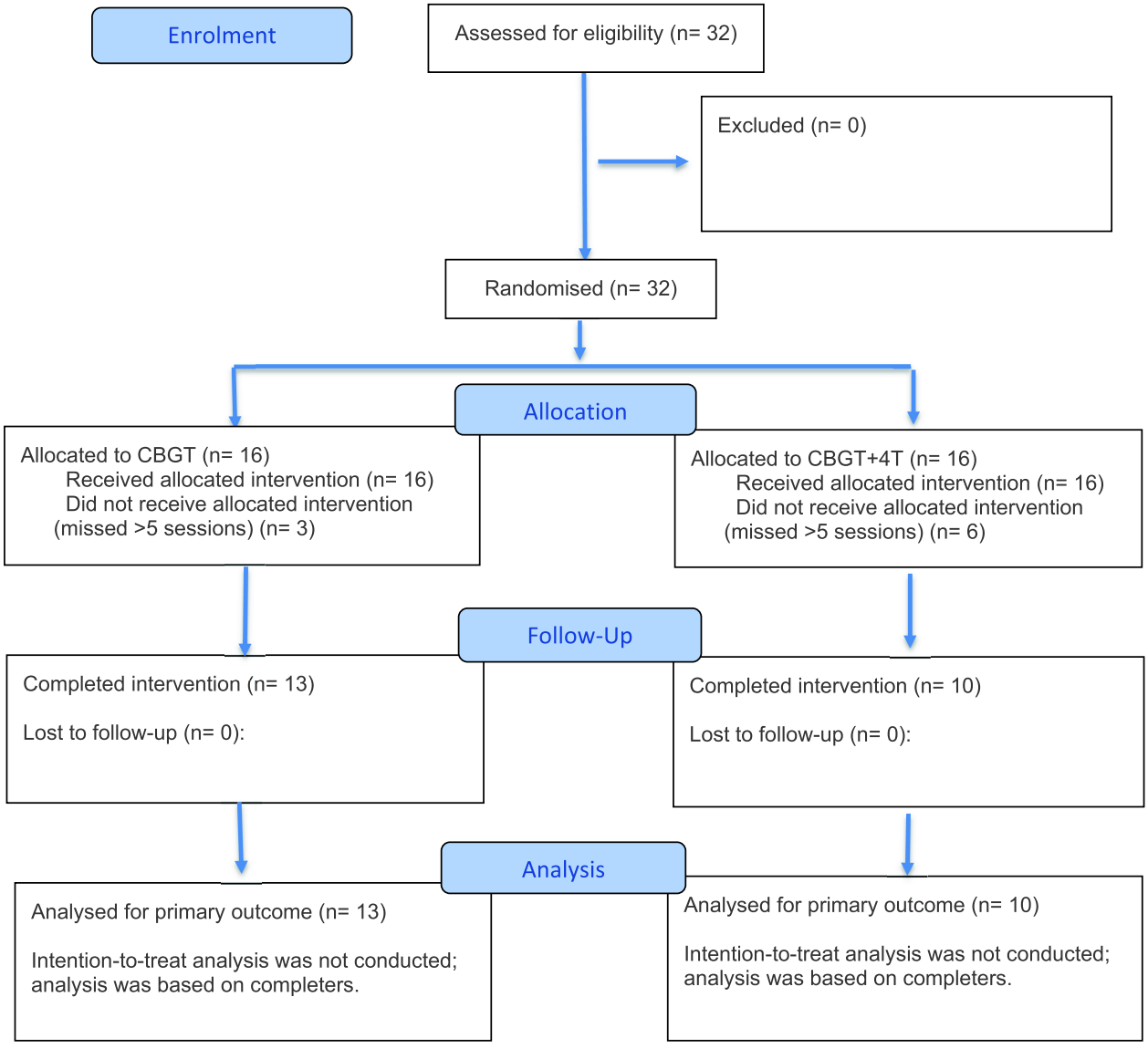

Figure 1. Flowcharts of participants (CONSORT 2025 Flow Diagram).
Note. Flow diagram of the progress through the phases of a randomised trial of two groups (that is, enrolment, intervention allocation, follow-up, and data analysis).

No significant between-group differences were observed in age, gender, education level, or OCD subtype (all ps > .05). Participants in both groups presented with autogenous, reactive, or mixed OCD subtypes.

Procedure

After completing an online sociodemographic form and the Yale-Brown Obsessive-Compulsive Symptom Checklist (Y-BOCS-SC), eligible applicants underwent diagnostic assessment using the SCID-5-CV and a clinical evaluation interview. Participants meeting inclusion criteria completed a battery of standardized psychometric instruments assessing OCD severity, depression, anxiety, insight, scrupulosity, obsessive beliefs, and thought–action fusion.

32 participants provided written informed consent and were randomized to one of two treatment conditions, with allocation balanced on key baseline characteristics (age, gender, education, medication use, OCD subtype, and severity). Given the pilot nature of the study and the small sample size, no formal allocation concealment procedures were implemented. The random allocation sequence, participant enrolment, and group assignment were conducted by members of the research team. Due to the nature of the psychological interventions, neither participants nor therapist were blinded to group allocation.

Table I. Comparison of sociodemographic between groups.

	CBGT ($n = 13$)		4T ($n = 10$)		p
	M	*SD*	*M*	*SD*	
Age	28.46	8.81	28.30	11.26	0.970[a]
	n	%	*N*	%	*p*
Gender					
Female	10	76.92	7	30.00	1.000[b]
Male	3	23.08	3	70.00	
Education Level					
Pre-Undergraduate	9	69.23	6	60.00	0.685[b]
Undergraduate and Post-Graduate	4	30.77	4	40.00	
OCD Type					
Autogenous	5	38.46	3	30.00	0.760[b]
Reactive	5	38.46	3	30.00	
Mixed	3	23.08	4	40.00	

Note. a: Independent Samples t-Test; b: Fisher's Exact Test.

Interventions were delivered online via secure Zoom videoconferencing in weekly 60–90 min group sessions over 25 weeks. One group received standard Cognitive Behavioral Group Therapy (CBGT), while the other received CBGT augmented with a brief 4T-based religious psychoeducational component delivered during Weeks 17–20. Both conditions shared the same core CBGT framework, including psychoeducation about OCD, cognitive restructuring, and Exposure and Response Prevention (ERP).

Assessments were conducted at four primary time points: baseline (pre-test), prior to the 4T intervention (intermediate/pre-test), following the 4T intervention (intermediate/post-test), and post-treatment. Follow-up assessments were additionally conducted at 1, 3, and 12 months post-treatment to evaluate maintenance of treatment effects. All completers undertook all assessment phases.

The study was designed and reported in accordance with the CONSORT extension for pilot and feasibility trials (Eldridge et al., 2016), with completed checklist provided in the Supplementary Materials.

Treatment Fidelity

Treatment fidelity was ensured through a structured session protocol developed at study outset, with all sessions delivered in accordance with this protocol. Two parallel groups were conducted and progressed at an identical pace, with equivalent content delivered. Weekly midweek planning meetings were held to review and finalize upcoming session content, and detailed written session plans were prepared in advance.

All intervention materials and session plans were supervised and approved by Prof. Mehmet Hakan Türkçapar, President and trainer of the Turkish Association for Cognitive Behavioral Psychotherapies. Selected session recordings were reviewed in supervision to monitor adherence. All group sessions were delivered by the first author, a therapist certified by the Academy of Cognitive Therapy (ACT) and the European Association for Behavioural and Cognitive Therapies (EABCT). To mitigate therapist allegiance bias, adherence-related issues were systematically logged and discussed during weekly supervision.

Measures

The Sociodemographic Data Form was used to collect participants' sociodemographic and clinical information, including age, gender, education, marital and employment status, psychiatric diagnosis, treatment history, medication use, substance use, and the presence of religious OCD symptoms. Obsessive–compulsive symptom dimensions and severity were assessed with the clinician-administered Yale–Brown Obsessive–Compulsive Symptom Checklist (Y-BOCS-SC) and Yale–Brown Obsessive–Compulsive Scale (Y-BOCS), respectively (Goodman et al., 1989; Karamustafalıoğlu et al., 1993; Koçoğlu & Bahtiyar, 2021; Tek et al., 1995; Türkçapar, 2005). Insight (recognition of obsessive–compulsive symptoms as irrational) was indexed by Item 11 of the Y-BOCS and insight and delusional beliefs were assessed with the Brown Assessment of Beliefs Scale (BABS; Eisen et al., 1998; Özcan et al., 2013). Depressive and anxiety symptoms were measured using the Beck Depression Inventory (BDI; Beck et al., 1961; Hisli, 1989) and Beck Anxiety Inventory (BAI; Beck et al., 1988; Ulusoy et al., 1998). Religious scrupulosity (including fears of sinning and divine punishment) was assessed with the Penn Inventory of Scrupulosity (PIOS; Abramowitz et al., 2002; İnözü et al., 2017a), dysfunctional beliefs with the Obsessive Beliefs Questionnaire-44 (OBQ-44; Obsessive Compulsive Cognitions Working Group, 2005; Boysan et al., 2010), and thought–action fusion beliefs with the Thought-Action Fusion Scale (TAFS; Shafran et al., 1996; Yorulmaz et al., 2004). All instruments have established reliability and validated Turkish versions.

Intervention

Participants received either standard Cognitive Behavioral Group Therapy (CBGT) or CBGT augmented with a brief 4T-based religious psychoeducational component. Both interventions followed the same CBGT framework, including psychoeducation

about OCD, cognitive restructuring, and Exposure and Response Prevention (ERP). The 4T-integrated intervention additionally included three religious psychoeducation sessions delivered during Weeks 17–20, aiming to contextualize obsessive symptoms within the 4T cognitive framework. Both conditions were implemented using a religiously sensitive approach. Detailed descriptions of intervention development, session content, and between-condition comparisons are provided in the Supplementary Materials.

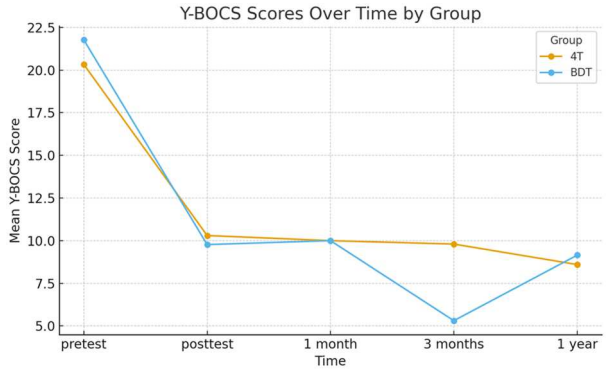

Figure 2. Changes in Y-BOCS total scores over time.
Note. Mean Y-BOCS total scores of the CBT and 4T groups at five time points (pre-test, post-test, 1-month follow-up, 3-month follow-up, and 1-year follow-up). Scores decreased over time in both groups, indicating overall treatment effectiveness, with slightly greater reductions observed in the 4T group.

Statistical Analysis

Quantitative analyses focused on feasibility indicators and patterns of change over time and were conducted using linear mixed-effects models (LMMs) and nonparametric tests. Qualitative data were analyzed using thematic analysis to examine participants' experiences and the perceived relevance of the intervention.

Quantitative data analysis. The Y-BOCS was specified as the primary outcome, with all other measures treated as secondary outcomes. Analyses were conducted using completers data (CBGT: n = 13; 4T: n = 10) and performed in SPSS Version 21 (IBM Corp., 2012). Longitudinal changes were examined using separate linear mixed-effects models (LMMs) for each outcome, including fixed effects for group (CBGT vs. 4T), time (pre-test, post-test, 1-, 3-, and 12-month follow-ups), and their interaction, with random intercepts for participants. Covariance structures were selected based on model fit indices, Type III tests were used for inference, and estimated marginal means with 95% confidence intervals were reported. Bonferroni corrections were applied for multiple testing, and missing data were handled using maximum likelihood estimation under the MAR assumption.

Given the modest sample size, nonparametric tests supplemented LMM findings. Wilcoxon Signed-Rank tests examined within-group changes between Sessions 17 and 20, Friedman tests assessed within-group changes across assessment points, and Mann–Whitney U tests compared groups at each time point, with mean ranks reported.

Qualitative data analysis. Qualitative data were collected from all participants using a mixed-format approach, consisting of written reflections followed by individual semi-structured interviews to elaborate on and clarify written responses. This sequential design facilitated reflection on sensitive experiences and supported deeper contextualization of participants' accounts. Interviews lasted an average of 75 min (range: 60–90 min) and were conducted by the therapist who delivered the intervention, who has formal training in Sociology and Psychology and prior experience in qualitative field research.

All qualitative data were transcribed and analyzed using Braun and Clarke's (2006) six-phase thematic analysis framework. Open coding was conducted independently by three researchers (the first author, a doctoral student, and a master's student in psychology), and codes and themes were refined through discussion to reach consensus. Researcher triangulation was employed to enhance interpretive reliability.

Participants were explicitly asked about any negative or challenging aspects of the intervention. No serious adverse experiences were reported, although some minor process-related challenges were noted. Themes were supported by direct participant quotations and presented in a structured format in the Findings section.

Results

Quantitative Findings

Descriptive statistics. Descriptive statistics (means and standard deviations) for all outcome variables across the five assessment points are presented in Table VI.

Comparison of the pretest, posttest, and follow-up outcomes across groups. Linear mixed-effects analyses were conducted for each outcome variable to examine the main and

Table II. Summary of fixed effects from mixed-effects models.

Outcome	Time Effect	Treatment Effect	Time × Treatment
TAF–Moral	↓ $p = .002^{**}$	ns ($p = .317$)	ns ($p = .891$)
TAF–Likelihood	ns ($p = .561$)	↑ $p < .001^{***}$	↓ $p = .011^{*}$
TAF–Total	↓ $p = .022^{*}$	↑ $p = .032^{*}$	ns ($p = .073$)
OBQ-44 – Importance/Control	↓ $p < .001^{***}$	ns ($p = .545$)	ns ($p = .830$)
OBQ-44 – Perfectionism/Certainty	↓ $p < .001^{***}$	ns ($p = .887$)	ns ($p = .221$)
OBQ-44 – Responsibility/Threat	↓ $p < .001^{***}$	ns ($p = .332$)	ns ($p = .404$)
OBQ-44 – Total	↓ $p < .001^{***}$	ns ($p = .554$)	ns ($p = .812$)
PIOS – Fear of Sin	↓ $p < .001^{***}$	ns ($p = .381$)	ns ($p = .805$)
PIOS – Fear of God	↓ $p = .001^{**}$	ns ($p = .181$)	ns ($p = .789$)
PIOS – Total	↓ $p < .001^{***}$	ns ($p = .201$)	ns ($p = .503$)
Y-BOCS – Compulsion	↓ $p < .001^{***}$	ns ($p = .800$)	ns ($p = .950$)
Y-BOCS – Obsession	↓ $p < .001^{***}$	ns ($p = .729$)	ns ($p = .757$)
Y-BOCS – Total	↓ $p < .001^{***}$	ns ($p = .762$)	ns ($p = .853$)
BAI	ns ($p = .972$)	ns ($p = .113$)	ns ($p = .710$)
BDI	ns ($p = .106$)	ns ($p = .139$)	ns ($p = .663$)

Note. ns = not significant ($p > .05$). Down arrows = significant decrease; up arrows = significant increase. Y-BOCS: Yale–Brown Obsessive–Compulsive Scale, OBQ-44: Obsessional Beliefs Questionnaire, PIOS: The Penn Inventory of Scrupulosity, BDI: Beck Depression Inventory, BAI: Beck Anxiety Inventory. $p < .05.$, * $p < .01.$, $^{**}p < .001.$ ***

interaction effects of treatment group (CBGT vs. 4T) and time (pre-test, post-test, 1-month, 3-month, and 1-year follow-up). All models included fixed effects for group, time, and their interaction, as well as random intercepts for participants to account for individual variability over time (see Table II).

For the Thought-Action Fusion Scale (TAFS), a significant main effect of time was found for the Moral subscale, $B = -1.26$, $SE = 0.39$, $t = -3.20$, $p = .002$, 95% CI [−2.02, −0.49], indicating an overall reduction in scores across assessments (see Figure 5). No significant group or interaction effects were observed. In contrast, the Likelihood subscale revealed a significant main effect of treatment, $B = 7.73$, $SE = 2.00$, $t = 3.86$, $p < .001$, 95% CI [3.81, 11.65], and a significant group × time interaction, $B = -0.85$, $SE = 0.33$, $t = -2.60$, $p = .011$, 95% CI [−1.48, −0.21], indicating greater reductions in thought-action fusion over time in the 4T group. For the TAFS total score, both treatment and time had significant main effects ($ps < .05$), while the interaction effect approached significance ($p = .073$).

Regarding dysfunctional beliefs measured by the Obsessive Beliefs Questionnaire (OBQ-44), all subscales showed significant decreases over time (see Figure 4). The Responsibility/Threat Estimation subscale showed a significant time effect, $B = -3.65$, $SE = 0.84$, $t = -4.35$, $p < .001$, 95% CI [−5.29, −2.00]. Likewise, both the Perfectionism/Certainty and Importance/Control of Thoughts subscales demonstrated significant reductions across time points ($ps < .001$), although group and interaction effects were not significant.

The Penn Inventory of Scrupulosity (PIOS) scores indicated consistent improvements over time for Fear of Sin ($B = -1.00$, $SE = 0.29$, $p < .001$, 95% CI [−1.56, −0.44]), Fear of God ($B = -0.98$, $SE = 0.29$, $p = .001$) and total scores ($B = -1.98$, $SE = 0.52$, $p < .001$), with no significant group × time interactions, suggesting similar change trajectories across conditions (see Figure 3).

Obsessive-compulsive symptom severity, measured by the Yale-Brown Obsessive Compulsive Scale (Y-BOCS), declined significantly over time for Obsession, Compulsion, and Total scores (all $ps < .001$), indicating improvement in symptoms (see Figure 2). No significant differences were found between groups or for the group × time interactions.

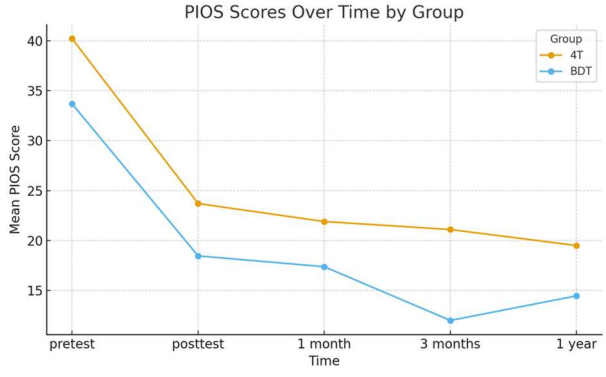

Figure 3. Changes in PIOS total scores over time.
Note. Mean PIOS total scores across five time points. Both groups showed steady decreases in religious scrupulosity, with the 4T group showing a slightly sharper decline after the introduction of religious psychoeducation sessions.

Figure 4. Changes in OBQ-44 total scores over time.
Note. Mean OBQ-44 total scores for CBT and 4T groups. A downward trend is evident in both groups, reflecting reduced dysfunctional beliefs, with marginally greater reductions in the 4T group by the 1-year follow-up.

Figure 6. Changes in BDI total scores over time.
Note. Mean BDI depression scores across time points for 4T and BDT groups. Both groups show a sharp decrease from pretest to posttest, followed by relatively stable scores during follow-up assessments.

Regarding affective symptoms, the Beck Depression Inventory (BDI) showed a marginal effect of time, $B = -0.54$, $SE = 0.33$, $p = .106$ (see Figure 6), while the Beck Anxiety Inventory (BAI) yielded no significant effects (see Figure 7).

In summary, significant time-related improvements were found across most cognitive and symptom measures, with the 4T psychoeducation group showing particular advantages on specific cognitive variables such as thought-action fusion.

Comparison of 17th and 20th session outcomes across groups. The Wilcoxon signed rank test was employed to compare the 17th and 20th session measurements within each group (Table III). In the CBGT group, significant improvements were observed in Fear of God ($z = -2.72$, $p = .007$) and BAI ($z = -2.49$, $p = .013$). In the 4T group, significant improvements were observed in Y-BOCS-SR ($z = -2.02$, $p = .043$), OBQ-44 ($z = -2.50$, $p = .012$), and Fear of God ($z = -2.14$, $p = .032$).

Notably, in the 4T group, large effect size reductions were observed in total OBQ-44 scores and *Perfectionism/Certainty* and *Importance/Control of Thoughts* subscales indicating substantial cognitive changes during the final stage of treatment ($z \approx -2.50$; $r \approx -.55$; $p < .05$). However, no significant change was found in the *Responsibility/Threat Estimation* subscale.

Overall, these findings suggest that both interventions have a positive impact on the participants, albeit with distinct areas of improvement for each group.

Insight findings (Short-term follow-up). Insight outcomes were examined using the Brown

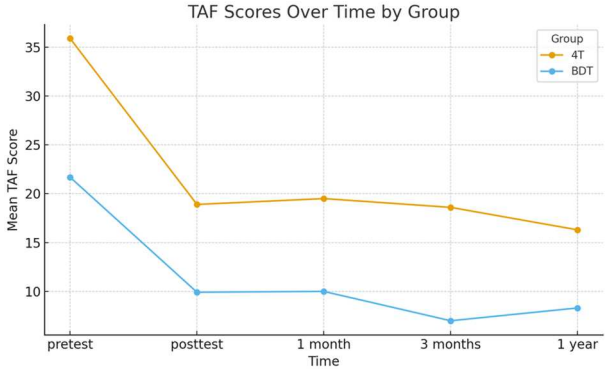

Figure 5. Changes in TAF total scores over time.
Note. Mean TAF total scores of the CBT and 4T groups. While both groups improved, the 4T group exhibited a more pronounced decline, suggesting stronger cognitive restructuring effects in thought–action fusion.

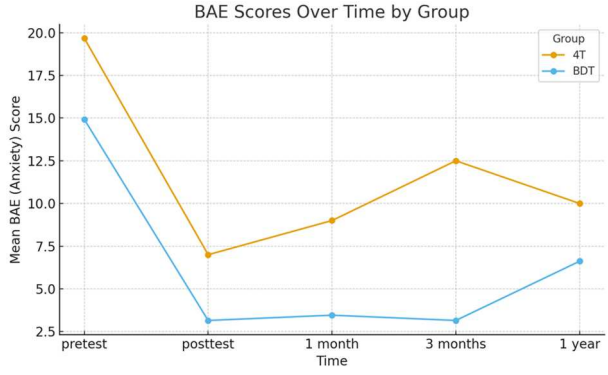

Figure 7. Changes in BAI total scores over time.
Note. Mean BAI anxiety scores across time points for 4T and BDT groups. A clear drop from pretest to posttest is observed in both groups, especially in the BDT group, which maintains lower anxiety levels over time.

Table III. Wilcoxon Signed Rank Test results for the comparison of the 17th and 20th session measurements between CBGT and 4T groups.

Measure	CBGT			4T		
	z	*p*	*r*	*z*	*p*	*r*
Y-BOCS-SR	−0.68	.497	−.13	−2.02	.043*	−.45
OBQ-44 Total	−1.57	.116	−.31	−2.50	.012*	−.56
OBQ-44 Imp./Control	−1.07	.284	−.21	−0.71	.475	−.16
OBQ-44 Perfectionism/Certainty	−1.34	.182	−.26	−2.45	.014*	−.55
OBQ-44 Responsibility/Threat	−0.84	.401	−.16	−2.45	.014*	−.55
PIOS-Total	−1.26	.208	−.25	−1.13	.260	−.25
PIOS-Fear of Sin	−1.06	.291	−.21	−1.45	.147	−.31
PIOS-Fear of God	−2.72	.007**	−.75	−2.14	.032*	−.68
BDI	−0.67	.504	−.13	−1.82	.068	−.41
BAI	−2.49	.013*	−.49	−0.82	.412	−.18

Note. Negative z indicates decrease from session 17 to 20.Y-BOCS-SR: Yale–Brown Obsessive–Compulsive Scale – Self-Report, OBQ-44: Obsessional Beliefs Questionnaire, PIOS: The Penn Inventory of Scrupulosity, BDI: Beck Depression Inventory, BAI: Beck Anxiety Inventory. *$p < .05$, **$p < .01$

Assessment of Beliefs Scale (BABS) and the Insight subscale of the Yale Brown Obsessive Compulsive Scale (Y-BOCS), which were available only at pre-test, post-test, and 1-month follow-up; data from the 3- and 12-month follow-ups were not available for these measures. Friedman and Wilcoxon tests were used to assess change over time.

Brown belief assessment scale (BBAS). The Friedman test indicated significant changes over time in both CBGT ($\chi^2(2) = 24.17$, $p < .001$) and 4T group ($\chi^2(2) = 18.24$, $p < .001$) groups.

The Wilcoxon signed-rank test revealed that, in the CBGT group, there were significant and large effect size decreases in scores from pre-test to post-test ($z = -3.19$, $p = .001$, $r = .62$) and from pre-test to follow-up ($z = -3.18$, $p = .005$, $r = .62$). Additionally, a moderate but significant further decrease was observed between post-test and follow-up ($z = -2.39$, $p = .017$, $r = .47$).

In the 4T group, similar patterns were observed, with significant and large effect size reductions from pre-test to post-test ($z = -2.81$, $p = .005$, $r = .63$) and from pre-test to follow-up ($z = -2.81$, $p = .005$, $r = .63$). However, no significant difference was found between post-test and follow-up scores ($p > .05$) (see Table IV).

The results of the Mann–Whitney U tests indicated no statistically significant differences between the CBGT and 4T groups in BABS scores at pre-test ($U = 60.50$, $p = .779$), post-test ($U = 38.00$, $p = .064$), or follow-up ($U = 55.00$, $p = .446$), suggesting comparable improvements in belief-related insight in both groups across time (see Table V).

These findings suggest that both interventions produced significant and durable reductions in cognitive distortions. However, while the CBGT group

Table IV. Friedman test post-hoc pairwise comparisons between pretest, posttest, and follow-up in CBGT and 4T groups.

Measure	Group	Comparison	*z*	*p*	*r*
BABS	CBGT	Pre–Post	−3.19	.001**	−.62
		Pre–Follow-up	−3.07	.002**	−.62
	4T	Pre–Post	−2.81	.005**	−.63
		Pre–Follow-up	−2.81	.005**	−.63
Y-BOCS Item 11	CBGT	Pre–Post	−2.75	.006**	−.54
		Pre–Follow-up	−2.62	.009**	−.51
	4T	Pre–Post	−2.72	.006**	−.61
		Pre–Follow-up	−2.57	.010*	−.57

Note. Y-BOCS Item 11: Yale–Brown Obsessive–Compulsive Scale – Item 11, BABS: Brown Assessment of Beliefs Scale. *$p < .05$, **$p < .01$.

Table V. Mann–Whitney U test results comparing CBGT and 4T groups at pretest, posttest, and follow-up.

Measure	Time	*U*	*p*
Y-BOCS Item 11	Pretest	64.5	.973
	Posttest	38.5	.052
	Follow-up	69.0	.804
BABS	Pretest	69.5	.779
	Posttest	45.0	.163
	Follow-up	75.0	.446

Note. Y-BOCS-Item 11: Yale–Brown Obsessive–Compulsive Scale – Item 11, BABS: Brown Assessment of Beliefs Scale.

Table VI. Means (Standard Deviations) of outcome measures across time points.

Measure	Pre	Post	1-month	3-month	1-year
BAI	16.86 (9.69)	4.83 (5.94)	5.87 (7.96)	7.22 (8.21)	8.09 (8.81)
BDI	16.86 (9.69)	7.91 (6.72)	6.96 (5.79)	7.78 (7.69)	7.96 (7.27)
TAF-Total	27.5 (3.66)	13.83 (17.19)	11.78 (14.79)	12.04 (14.52)	10.0 (7.12)
OBQ-44-Total	184.55 (39.38)	119.74 (58.75)	106.26 (56.94)	104.47 (70.26)	107.39 (71.15)
PIOS-Total	36.36 (12.18)	20.74 (13.64)	19.35 (14.46)	16.65 (14.41)	15.96 (14.65)
Y-BOCS-Total	21.18 (5.60)	10.00 (6.79)	8.91 (8.23)	7.26 (6.93)	8.91 (8.23)

Note. N ≈ 22–23 across all time points. Y-BOCS: Yale–Brown Obsessive–Compulsive Scale, OBQ-44: Obsessional Beliefs Questionnaire, PIOS: The Penn Inventory of Scrupulosity, BDI: Beck Depression Inventory, BAI: Beck Anxiety Inventory.

demonstrated additional gains between post-test and follow-up, the 4T group maintained its gains over time.

Y-BOCS insight subscale. Friedman test, indicated significant changes over time in Y-BOCS Insight scores in both the CBGT group ($\chi^2(2) = 12.76$, $p = .002$) and the 4T group ($\chi^2(2) = 16.22$, $p < .001$).

Follow-up Wilcoxon signed-rank tests showed significant and large effect size improvements in both groups from pre-test to post-test (CBGT: $z = -2.75$, $p = .006$, $r = .54$; 4T: $z = -2.72$, $p = .006$, $r = .61$) and from pre-test to follow-up (CBGT: $z = -2.62$, $p = .009$, $r = .51$; 4T: $z = -2.57$, $p = .010$, $r = .57$). No significant difference between post-test and follow-up scores were observed in either group ($p > .30$) (see Table IV).

Mann–Whitney U test results revealed no significant differences between the CBGT and 4T groups in Y-BOCS Insight scores at pre-test ($U = 64.50$, $p = .973$), post-test ($U = 38.50$, $p = .052$), or follow-up ($U = 45.00$, $p = .163$). However, post-test scores approached statistical significance, and the effect size ($r = -.41$) suggested a moderate advantage in favor of the 4T group (see Table V).

In summary, both interventions resulted in meaningful and sustained improvements in participants' insight regarding their obsessive-compulsive symptoms, with the gains maintained at follow-up in both groups and a trend toward greater post-test insight favoring the 4T group.

Qualitative Findings

Within the qualitative component of this study, written and verbal data regarding participants' therapeutic experiences were analyzed using thematic analysis. The analysis yielded twelve sub-themes organized under three main themes: (1) Cognitive Behavioral Therapy, (2) Religion-Based 4T Psychotherapy Model, and (3) Experiences Related to the Structure of Therapy.

Experiences of cognitive and behavioral change. This theme presents participants' reflections on core cognitive and behavioral intervention components of CBT. Overall, both cognitive restructuring (working on thought content) and exposure and response prevention (confronting avoidance behaviors) were described as contributing to meaningful therapeutic change.

Overcoming fears through exposure (ERP). ERP applications were highlighted as a key component of improvement in both groups. Participants particularly emphasized the empowering and transformative effects of the exposure process:

> I never thought I would be able to pray without recording myself on video, but I started doing so in the last few weeks. (CBGT-Participant 1)

> The thing I benefited from the most was the exposure exercises. (4T-Participant 2)

Gaining clarity through cognitive restructuring. This sub-theme compiles feedback indicating that patients have internalized their belief areas related to their symptoms and the cognitive interventions addressing them:

> I learned that my thoughts do not influence my actions or determine who I am. (CBGT-Participant 3)

> It's like … you know how windows fog up … it was like there was a fog in my mind, and every time I learned a false belief, I cleared away some of that fog and started to see things more clearly. It had clouded my mind so much that I couldn't see clearly or think anymore. I was completely focused on performing compulsions or avoiding certain things. (4T-Participant 4)

Understanding OCD through psychoeducation. Participants emphasized the importance of presenting OCD as a disorder, explaining the role of erroneous beliefs in the formation of symptoms, and highlighting the importance of the normalization process:

> When thoughts arise, recognizing that they stem from OCD and reminding myself of this has been comforting. (CBGT-Participant 5)

> I can now put a name to my condition; I learned it's OCD. (4T-Participant 6)

Building routines and confidence through homework. Both groups reported that homework contributed to their therapeutic process:

> Creating a notebook was great. I go back and read it from time to time. (CBGT-Participant 8)

> Putting things down on paper and keeping track of my difficult periods really motivated me. (4T-Participant 7)

Making sense of the experience through metaphors. Metaphors were found to help participants in both groups better understand concepts encountered during therapy:

> … "they will continue to steal your money like the mafia" or "if you give them your hand, they will take your arm" … (CBGT-Participant 9)

> … the tumor example came to mind. You know, you said we couldn't remove all of it, it will take a long time … it was very impactful. (4T-Participant 9)

Experiences of religious meaning-making

Religious explanations that reduced guilt. This sub-theme includes Islamic perspectives on OCD, with participants reporting benefits from explanations indicating that obsessive thoughts do not entail religious responsibility:

> … the idea that these thoughts come involuntarily and that we are not responsible for them was very helpful to me … (4T-Participant 6)

> … obsessions that come to people are not something we are obligated to act on, as some scholars have said, and that was very helpful to me. (4T-Participant 10)

Making sense of thoughts with the 4T framework. This sub-theme includes patient statements describing how 4T concepts influenced OCD symptoms, with the model's cognitive framework helping to clarify the distinction between thoughts and values:

> There's also the 4T formula, sir; the devil puts thoughts into the heart, and when the heart rejects them, they go to the mind, and then what happens after that in the mind, how should I put it, the way we interpret things … You know, these thoughts come to everyone's heart, but the way we interpret them affects us. The right way of interpreting and the wrong way of interpreting … That really affected me. (4T-Participant 11)

> … since these thoughts come from outside our will, knowing that we are not responsible for them really helped me. … when I do something, especially when these thoughts come, I do it comfortably because I know I'm not responsible for them. (4T-Participant 6)

Feeling motivated by religious-scientific integration. The integration of religious knowledge and scientific data strengthened therapeutic change:

> Then we grounded these in religion and filled in the gaps left by scientific data with spiritual wholeness, which, to be honest, motivated me to feel that I was exactly where I needed to be and that things were going very well. (4T-Participant 7)

Using religious texts as supportive tools. Some participants described religious texts as a supportive resource for coping with disturbing thoughts:

> This "The more importance you give it, the more it grows; the less importance you give it, the more it fades away" was actually what was constantly on my mind, that it was a form of obsessive thinking … (4T-Participant 4)

> … in the 4T sessions, we learned that thoughts come from outside our will and we are not responsible for them … This thought brought me great joy … it comforted me. (4T-Participant 6)

Experiences of group process and therapeutic relationship. This theme includes participants' feedback on the structure of therapy, covering the unique aspects of group therapy and sub-themes of the therapeutic relationship.

Feeling supported by the therapists. This subtheme captures participants' accounts of how their relationships with the therapist and co-therapist during group therapy affected their OCD symptoms:

> You really put in a lot of effort. I've seen a few psychologists before, but none of them were this interested. (CBGT-Participant 12)

> I wanted to participate more and spend more time with you. It was very helpful for me, so thank you very much. (4T-Participant 13)

Learning from peers and feeling less alone. Both groups emphasized feelings of not being alone and learning from others' experiences:

> It was very important for me that everyone could express themselves courageously—not feeling alone … (CBGT-Participant 14)

> Similarly, when I listened to others in the group, I mean comments and thoughts that never crossed my mind, I think they had a positive effect on me. (4T-Participant 15)

Normalizing the experience through group universality. This sub-theme focuses on the comforting effect of group dynamics such as universality and normalization:

> It was actually even better because I realized that there were many people like me. Thanks to you, I learned that I'm not alone … (CBGT-Participant 16)

> … seeing that there are others like me, realizing that I'm not alone, really helped me heal … (4T-Participant 13)

Adverse Events and Unintended Effects

No serious adverse events were reported in either group. Some participants experienced transient increases in anxiety during exposure-based sessions, which is consistent with the expected therapeutic process in CBT for OCD. Some participants reported increased religious reassurance and reduced guilt related to intrusive thoughts, which were not prespecified outcomes but emerged during qualitative analyses.

Discussion

This mixed-method pilot randomised study examined the feasibility, acceptability, and preliminary outcome patterns of integrating brief 4T-based religious psychoeducation into group-based Cognitive Behavioral Therapy (CBGT) for individuals with religious OCD. Overall, both interventions were associated with meaningful and sustained improvements in obsessive-compulsive symptoms, dysfunctional beliefs, religious OCD, and insight across follow-up assessments. Within the context of a pilot design, the two approaches yielded broadly comparable clinical trajectories rather than definitive differences in overall effectiveness.

At the same time, some differences emerged in specific cognitive mechanisms: a group × time interaction in favor of the 4T group was observed for certain cognitive variables, particularly thought–action fusion (TAF). Reductions in TAF (especially in the Likelihood subscale) were echoed in qualitative feedback, where participants described an increased ability to view intrusive thoughts as separate from their moral values and responsibilities, accompanied by reductions in guilt and anxiety. Taken together, these findings suggest that the religious content of the 4T model may be associated with differential patterns of cognitive change in domains specifically relevant to religious OCD, warranting further investigation in larger trials.

Baseline clinical characteristics of the sample were broadly consistent with previously reported clinical profiles of religious OCD (Buchholz et al., 2019), including elevated levels of moral thought–action fusion (Md Rosli et al., 2019), suggesting that the sample was broadly representative of individuals with religious OCD as described in the literature.

Consistent with previous studies, incorporating religious concepts into therapy appeared to increase treatment acceptance and meaning among religious individuals (Keshavarzi et al., 2020; Md Rosli et al., 2018). The 4T model's focus on distinguishing between involuntary thoughts and religious responsibilities (e.g., the "devil–heart–mind" analogy) may have contributed to reductions in likelihood-based TAF by enhancing cognitive differentiation and reducing guilt and anxiety associated with intrusive thoughts. This differentiation may have enabled participants in the 4T group, as reflected in their feedback, to position intrusive thoughts as experiences beyond their control, thereby reducing their tendency to interpret these thoughts as violations of religious obligations or personal moral inadequacy.

Both groups showed significant reductions in obsessive beliefs (OBQ-44) and religious scrupulosity (PIOS) over time. Reductions in OBQ-44 scores

were supported by qualitative narratives, with participants describing "clearing away the fog" of dysfunctional beliefs and feeling more capable of challenging perfectionistic or rigid thought patterns. Similarly, decreases in PIOS scores paralleled qualitative statements highlighting that religious doubts were no longer perceived as sinful, and that distinguishing involuntary thoughts from religious responsibilities provided significant relief. Although no group × time interaction was found, the consistent improvement at follow-up indicates that both cognitive and religious content gains are lasting. Qualitative findings also support these results; participants reported gaining clarity in their belief structures and decreased self-blame through new interpretations of religious content.

In particular, the approval of quotations from religious texts and the non-judgment of religious doubts as sinful were among the most transformative aspects of the 4T model for participants, according to qualitative data. This aligns with the literature suggesting that religious validation helps individuals with religious OCD reinterpret their symptoms in a way that is consistent with their faith but within a clinically appropriate framework (Siev & Huppert, 2017; Toprak, 2024, 2025).

Improvements in Y-BOCS obsession and compulsion scores aligned with participants' reports that exposure exercises helped them break avoidance patterns and reduced the frequency and intensity of compulsive rituals. Quantitative data showed significant decreases in total Y-BOCS scores, obsession scores, and compulsion scores in both groups; however, no significant differences or interactions were found between the groups. Nevertheless, the stability of these improvements at 3-month and 1-year follow-ups supports the long-term efficacy of both interventions, consistent with prior CBT research (e.g., Håland et al., 2010).

Although between-group differences were not statistically significant, within-group comparisons between the 17th and 20th sessions showed that the 4T group achieved significant gains in Y-BOCS self-reports, suggesting a possible cumulative effect of religious psychoeducation in the final stages of therapy. Additionally, in the 4T group, a statistically significant and large effect size decrease was observed in total OBQ-44 scores and in the Perfectionism/Certainty and Importance/ Control of Thoughts subscales between the 17th and 20th sessions. This finding suggests that the 4T model is particularly effective in promoting cognitive restructuring in the later stages of therapy, especially during sessions where religious content is explicitly addressed. The significant changes in these areas may reflect an increased ability among participants to reinterpret intrusive thoughts not as moral failures or violations of religious obligations, but as manageable cognitive events.

Depressive symptoms (BDI) showed a small and non-significant decrease over time; however, no significant change was observed in anxiety symptoms (BAI) between assessments. A possible explanation for this may be the emotionally challenging and delayed nature of ERP; while it may increase anxiety in the short term, it may provide benefits in the long term. Interestingly, Wilcoxon tests showed a significant decrease in BAI at the end of treatment in the CBGT group, while no similar change was observed in the 4T group. This may be due to the emotionally intense nature of religious-themed discussions or the limited application of ERP at this stage. These results are consistent with previous research showing that ERP is highly effective for OCD symptoms but may initially increase distress (McGuire et al., 2015). Therefore, the therapeutic window for emotional improvement may be narrower in interventions that heavily involve religious themes.

Both groups demonstrated significant gains in insight (Y-BOCS Insight subscale and BABS), from the pre-test to the post-test and follow-up test. The gains in insight were consistent with qualitative narratives emphasizing that participants began to conceptualize their symptoms as clinical phenomena rather than moral failings, which facilitated acceptance of the therapeutic process. Although follow-up data for the Y-BOCS Insight subscale were limited to one-month, improvements were observed in both groups, with a non-significant trend and a moderate effect size in favor of the 4T group. This suggests that the psychoeducational components of the 4T model may have helped participants reinterpret their symptoms within a non-moral, clinical framework. As previously emphasized in the literature (Visser et al., 2015), enhancing insight is particularly important in individuals with religious strictness who struggle to accept the irrationality of their concerns. However, the lack of 3-month and 12-month follow-up data for this measure limits our ability to assess the long-term sustainability of improvements in insight. Future studies should address this issue.

Religious anxiety did not significantly decrease overall, though small-to-moderate improvements were observed at follow-up, particularly in Fear of God and Fear of Sin subscales. Interestingly, only the 4T group experienced a significant decrease in Fear of God between the 17th and 20th sessions, suggesting delayed therapeutic effects of religious reframing. Contrary to expectations, the 4T group did not show superiority over CBGT in reducing

total religious anxiety. This may be due to limitations of the scales used, such as cultural biases or insufficient capture of Islam-specific sensitivities (Huppert & Fradkin, 2016; İnözü et al., 2017b; Keshavarzi et al., 2020; Md Rosli et al., 2019).

Qualitative data shed light on the mechanisms underlying these changes. Participants in the 4T group reported a stronger sense of spiritual validation, clarity in the cognitive interpretation of religious thoughts, and increased therapeutic motivation. The integration of religious concepts not only increased acceptance of treatment but also appeared to alleviate internalized shame and guilt, which are central to religious OCD (Captari et al., 2018; Hook et al., 2010; Siev & Huppert, 2017). Participants in both groups reported benefits from ERP and cognitive restructuring; however, the religious grounding of 4T provided a deeper layer of meaning for individuals with religious or spiritual worldviews.

In addition, participants in the 4T group experienced cognitive restructuring not only as a functional technique but also as a tool for awareness aligned with religious meaning. This was clearly reflected in written and verbal feedback, with some participants stating that the concepts and interventions of the 4T model provided "reinterpretation" and "relief" within their own religious inner worlds. The 4T Model served as a bridge that facilitated the acceptance of techniques such as cognitive restructuring and ERP; in this context, it enabled the internalization of cognitive content not only logically but also spiritually.

In this context, the greater emphasis on the impact of ERP and the stronger emphasis on the therapeutic relationship in the 4T group demonstrate that the model's integration of religion and science provides a reassuring foundation for participants. Therefore, this integrative approach supported by religious references has not only enhanced the effectiveness of interventions but also strengthened participants' active engagement in the treatment process (Aten & Leach, 2009; Hathaway et al., 2021).

While this study employed a randomised pilot trial design, its primary aim was not to establish the clinical superiority of the 4T model, but rather to evaluate its cultural and religious congruence and its acceptability within a group-based CBT. Future research should explore strategies to enhance treatment adherence within religiously integrated interventions, as the 4T group showed higher attrition despite comparable clinical benefits.

Key limitations include small sample size, attrition rates resulting in unequal group sizes, online delivery format of therapy restricting applicability to individual therapy settings or face-to-face clinical contexts, absence of blinding, completer-only analyses, and limited assessment of religiosity. The brief duration of the 4T intervention (three sessions), relative to the longer CBT protocol (16 sessions) including multiple ERP sessions (5 sessions), may also have constrained its observable impact. Given the exploratory nature of this trial and the limited sample size, these findings should be interpreted as preliminary rather than conclusive.

The findings of this pilot trial support consideration of progression to a future, fully powered randomised controlled trial, with several methodological refinements. Future studies should examine the 4T model in larger and more diverse samples, increasing session frequency and integrating it into exposure and response prevention (ERP) protocols in a structured manner, rather than as an extension of cognitive therapy. Such research may help clarify the specific contributions of religiously sensitive psychoeducation to OCD treatment outcomes, and should also report intra-class correlations (ICCs) to better capture the proportion of variance attributable to individual differences in longitudinal analyses.

Conclusion

This randomized mixed-methods pilot trial primarily examined the feasibility, cultural congruence, and acceptability of integrating 4T-based religious psychoeducation into CBT, rather than testing clinical efficacy or superiority. Within this pilot framework, both CBGT and CBGT augmented with 4T psychoeducation were associated with improvements in obsessive–compulsive symptoms, dysfunctional beliefs, scrupulosity, and insight over time. Although religious integration did not confer consistent advantages across all outcomes, it appeared to contribute to specific cognitive processes—particularly thought–action fusion—and to participants' subjective treatment experiences. Overall, the findings underscore the central role of ERP in symptom reduction and suggest that structured, religiously integrated psychoeducation models such as 4T can be feasibly incorporated into CBT. Future research should evaluate optimized combinations of ERP, cognitive restructuring, and religiously adapted content in larger and more diverse samples.

Other Information

This pilot trial was not prospectively registered, as it was exploratory and focused on feasibility and acceptability. No separate trial protocol was published. The study received no external funding and was approved by the Social and Human Sciences Ethics Committee of Hasan Kalyoncu University

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Authors' Contributions

Guarantor of the integrity of the entire study: TBT; study concepts and design: TBT, MHT; literature research: TBT, MHT; statistical analysis: TBT, MHT; manuscript preparation: TBT, MHT. All authors approved the final version of the manuscript.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

The author affirms that generative AI and AI-assisted technologies (e.g., ChatGPT by OpenAI) were utilized solely for the purposes of translating specific sections into English, revising the grammatical structure of sentences to enhance clarity and academic style, and generating descriptive line graphs based on the statistical output provided by the author. All content, interpretations, and critical analyses presented in the manuscript are the original intellectual work of the author.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

Availability of Data and Materials

The datasets and materials during the present study are available from the corresponding author on request.

Supplemental data

Supplemental data for this article can be accessed online at https://doi.org/10.1080/16078454.2025.2569859.

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