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Online Intensive Short-Term Dynamic Psychotherapy for Treatment-Resistant Somatic Symptom Disorder: An Interrupted Time-Series Study

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Keywords
Somatic symptom disorder · Treatment-resistant presentation · Intensive short-term dynamic psychotherapy · Psychodynamic therapy · Online psychotherapy · Interrupted time-series

Abstract

Introduction: Somatic symptom disorder (SSD) is associated with substantial impairment and high healthcare use, particularly among patients with chronic symptoms, psychiatric comorbidity, and poor response to standard interventions. Intensive short-term dynamic psychotherapy (ISTDP) is a promising emotion-focused approach, but evidence in treatment-resistant SSD remains limited. ***Methods:*** In this interrupted time-series study, 25 SSD patients who showed no improvement across two empirically supported online interventions in the preceding project year received up to 16 sessions (M = 14.1) of online ISTDP. Piecewise multilevel modeling compared PHQ-15 trajectories across 60 weeks before and 21 weeks after start of ISTDP. Secondary measures (PHQ-9, GAD-7, PCL-5, DERS-16) were administered pre-, post-, and at 12-week follow-up. ***Results:*** PHQ-15 trajectories were stable or slightly worsening during the pretreatment year but declined significantly after ISTDP began, corresponding to a large estimated slope difference ($d = 1.08$) at the end of the treatment phase. Among completers ($n = 22$), 59% achieved minimal clinically meaningful improvement (≥3 PHQ-15 points), 27% showed ≥30% reduction, and 14% met recovery criteria. Secondary outcomes showed significant pre-post improvements in depression ($d = 0.68$) and anxiety ($d = 0.42$), while trauma symptoms and emotion regulation showed small, non-significant changes ($d \leq 0.30$). Gains were largely maintained at 12-week follow-up. Emotional responses to treatment were common, but serious adverse events rare and dropout low. ***Conclusions:*** Online ISTDP appears feasible and effective for SSD patients who do not benefit from lower intensity interventions and may represent a useful next step in stepped-care pathways for complex, treatment-resistant presentations.

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Introduction

Somatic symptom disorder (SSD) involves persistent and distressing physical symptoms accompanied by excessive thoughts, feelings, or behaviors related to those symptoms, independent of medical explanation. SSD is

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associated with functional impairment, reduced quality of life, high healthcare use, and – when chronic – psychiatric comorbidity, long-term sick leave, and substantial societal costs [1, 2]. Diagnostic uncertainty and limited treatment response may reinforce frustration and unhelpful healthcare dynamics [3].

Cognitive-behavioral therapy (CBT) is the most studied treatment for SSD. Traditional CBT targets symptom-focused attention, catastrophizing, and avoidance, while more recent approaches emphasize mindfulness, acceptance, and psychological flexibility. Although CBT outperforms controls, effects on somatic symptoms are often modest, particularly in chronic and complex cases [4].

Childhood adversity, insecure attachment, alexithymia, and maladaptive personality traits are implicated in the development and persistence of SSD [5, 6]. These factors may limit responsiveness to structured, skills-based treatments and suggest that emotion-focused, relational therapies may be more suitable for complex presentations.

Intensive short-term dynamic psychotherapy (ISTDP) is an emotion-focused, attachment-informed psychodynamic therapy targeting maladaptive defenses, anxiety dysregulation, and avoided emotions linked to early relational trauma [7]. In SSD, ISTDP aims to address psychophysiological pathways through which unprocessed emotions may manifest as somatic symptoms, as well as interpersonal patterns that maintain distress [8]. Randomized trials have reported large effects for ISTDP in SSD and related functional somatic disorders [9, 10].

However, evidence for ISTDP in treatment-resistant SSD remains limited. In this study, treatment resistance was defined as persistent symptoms with no improvement across two empirically supported interventions provided in the preceding project year. Participants meeting this definition received up to 16 sessions of online ISTDP. We compared symptom trajectories before and after ISTDP began, hypothesizing reductions in somatic symptoms and secondary improvements in depression, anxiety, trauma symptoms, and emotion regulation.

Methods

This study (KOSMOS 3) was the final phase of a longitudinal research program evaluating sequential online treatments for persistent somatic symptoms (the KOSMOS project; see online suppl. material; for all online suppl. material, see https://doi.org/10.1159/000550629). An interrupted time-series design was chosen to evaluate within-patient changes in symptom trajectories associated with the introduction of online ISTDP following a prolonged period of non-response to prior interventions. The protocol was preregistered at ClinicalTrials.gov (NCT06682104) and reporting follows STROBE guidelines (online suppl. Table S6).

Participant Selection

Participants completed repeated assessments over 60 weeks during KOSMOS 1 and 2. These data were used to identify individuals who showed no change across both phases. Individual trajectories were estimated using linear regression and ordered by least favorable outcomes. Eligibility was assessed sequentially until the feasible sample (n = 27) was reached.

Beyond lack of improvement in earlier phases, inclusion in KOSMOS 3 required (1) participation in both interview conditions in KOSMOS 1; (2) meeting DSM-5 criteria for SSD; (3) completion of at least four modules of Internet-based Emotional Awareness and Expression Therapy in KOSMOS 2; and (4) a PHQ-15 score ≥10 at the last assessment.

Exclusion criteria from earlier phases were reapplied, including severe psychiatric disorders (e.g., psychosis, active suicidality), significant substance misuse, sedative medication, or somatic problems requiring medical evaluation. One psychiatrist and one general medicine specialist reviewed available data and conducted brief telephone reassessments when needed.

Intervention

ISTDP was delivered via videoconferencing in a manual-guided, time-limited format consisting of one extended initial session (≤2 h) followed by 15 weekly sessions (50–60 min), completed within a 21-week window. Seventeen therapists provided treatment; all had completed a 3-year ISTDP core training. Sessions were recorded and weekly supervision was available. Participants continued their usual medical care throughout all three KOSMOS phases. Additional therapist and intervention details are provided in the online supplementary material (text; online suppl. Table S1).

Outcome Measures

The primary outcome was the Patient Health Questionnaire-15 (PHQ-15), administered repeatedly throughout KOSMOS. In KOSMOS 3, participants completed the PHQ-15 weekly during treatment, once at

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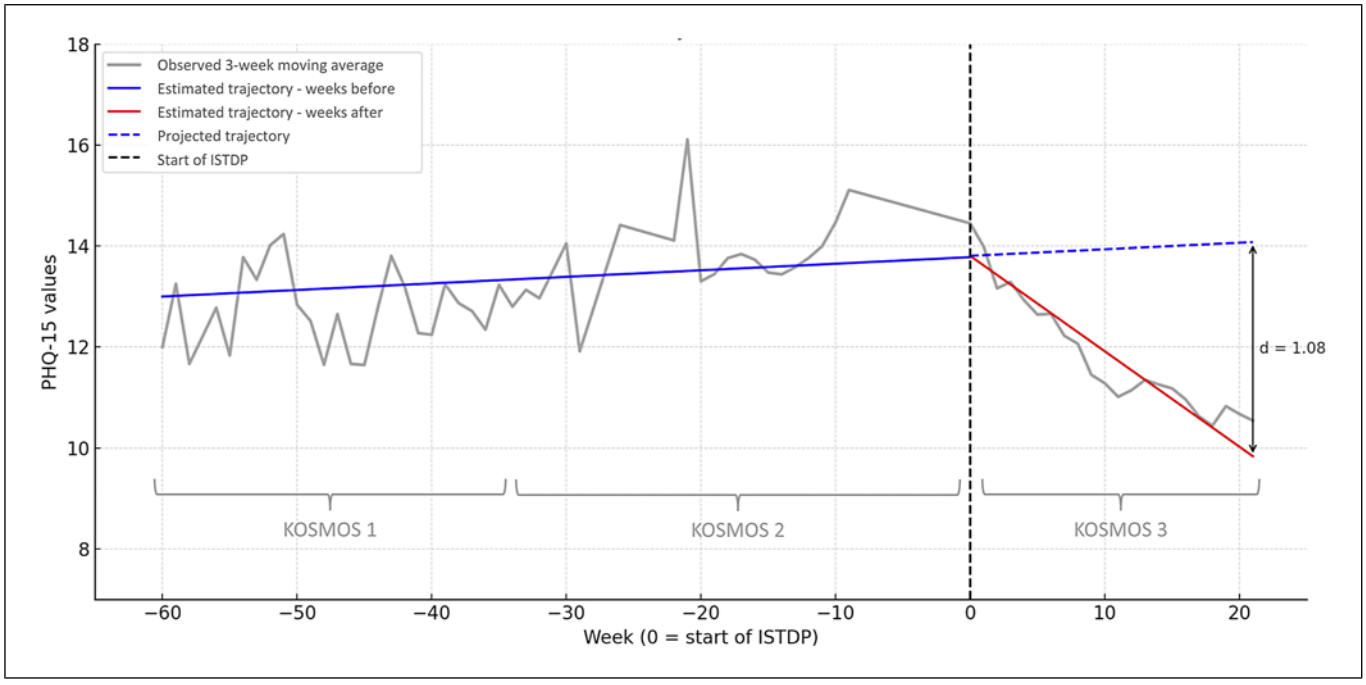

Fig. 1. Observed and estimated PHQ-15 trajectories before and after start of ISTDP (n = 25).

post-treatment and at 12-week follow-up. Visual analog scales (VAS) assessing symptom intensity and interference served as co-primary outcomes.

Secondary outcomes – assessed pretreatment, post-treatment, and at 12-week follow-up – included depressive symptoms (PHQ-9), anxiety (GAD-7), trauma symptoms (PCL-5), and emotion regulation difficulties (DERS-16). In addition, the Negative Effects Questionnaire (NEQ) was administered post-treatment to assess challenging treatment experiences.

Statistical Analysis

Treatment effects on PHQ-15 and VAS scores were evaluated using two-level piecewise multilevel models, with repeated assessments (level 1) nested within participants (level 2). A fixed breakpoint was set at the transition between KOSMOS 2 and KOSMOS 3. Two time variables captured weekly rates of change before and after ISTDP. Models included random intercepts and slopes and were estimated using restricted maximum likelihood, under the missing-at-random assumption. Complementary paired t tests assessed post-treatment to follow-up changes. Clinically meaningful improvement and recovery were operationalized using PHQ-15 thresholds and Jacobson-Truax criteria, and secondary outcomes were analyzed using paired t tests (pre-to-post, post-to-follow-up). Further details are provided in the online supplementary material.

Results

Of 58 non-responders assessed for eligibility, 27 were selected and 25 initiated ISTDP. The sample consisted mainly of middle-aged women with longstanding, multifaceted somatic symptoms and substantial psychiatric comorbidity. All met DSM-5 criteria for SSD of at least moderate severity. Participants attended an average of 14.1 sessions; 68% completed the full 16-session protocol. Two participants discontinued treatment and one was hospitalized after a suicide attempt; all available data were retained.

Figure 1 displays observed and model-estimated PHQ-15 trajectories. Prior to ISTDP, symptoms showed a stable to slightly worsening trend (b = 0.013, p = 0.121), while decreasing significantly (b = −0.192, p < 0.001) after ISTDP began. The slope difference corresponded to a large effect size (d = 1.08) at the end of the treatment phase. Pairwise t tests were non-significant at the 12-week follow-up, suggesting gains were broadly stable. In contrast, VAS ratings of symptom intensity and interference did not change significantly. Among treatment completers (n = 22), 59% showed minimal clinically meaningful improvement (≥3 PHQ-15 points) and 27% achieved 30% symptom reduction. Using Jacobson-Truax criteria, 32% reliably improved and 14% recovered. Secondary outcomes showed significant,

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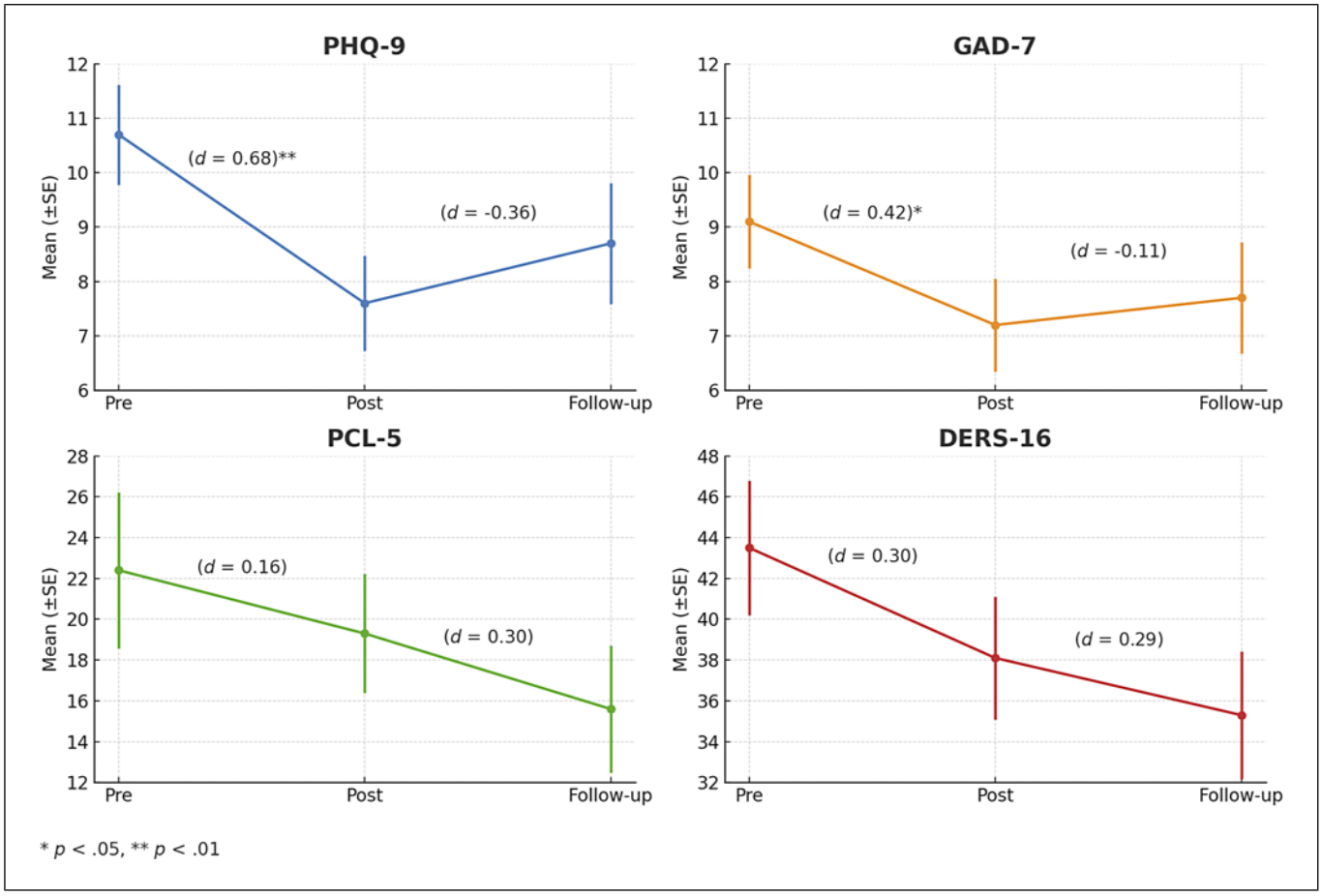

Fig. 2. Changes in secondary outcome measures (n = 22). Within-group Cohen's d values with significance markers appear above intervals.

moderate pre-post effects for depression (d = 0.68) and anxiety (d = 0.42), while changes in trauma symptoms and emotion regulation were small ($d \leq 0.30$). Most gains were maintained at the 12-week follow-up (Fig. 2). At post-treatment, almost all participants reported at least one negative effect on the NEQ, most commonly emotional responses of low to moderate impact; one participant reported increased suicidal thoughts. Full descriptive data (online suppl. Tables S2–S5) and complementary figures (online suppl. Fig. S1–S4) are provided in the online supplementary material.

Discussion

This study examined online ISTDP in a well-defined subgroup with treatment-resistant SSD. Participants had completed a full year of empirically supported online interventions, with repeated assessments and access to usual care, without observable improvement. After this extended period of stability, introducing ISTDP produced a clear shift in symptom trajectories: PHQ-15 scores decreased significantly with a large estimated effect size at post-treatment. These findings suggest that online ISTDP may alter the course of illness even in individuals who have not benefitted from lower intensity treatments.

Clinically meaningful improvement was achieved by roughly 60% of treatment completers and 14% met stringent criteria for recovery. Depression and anxiety also improved with medium pre-post effect sizes, and gains were largely maintained at the 12-week follow-up. These results are notable given the chronicity, psychiatric comorbidity, and extensive prior treatment histories. In contrast, changes on single-item VAS ratings were non-significant, possibly reflecting greater

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measurement noise relative to multi-item scales such as the PHQ-15.

The results converge with growing evidence that psychodynamic therapies – and ISTDP in particular – can benefit patients with somatic symptom and functional disorders [9, 10]. Although the effect sizes observed here appear large relative to many CBT studies [4], direct comparisons are inappropriate given methodological differences; the present interrupted time-series design evaluates within-person change after a prolonged baseline rather than between-group contrasts.

A key strength is the data-driven definition of treatment resistance, yielding a clear group of non-responders. Nonetheless, the intervention was brief, and only a minority recovered, suggesting entrenched SSD is difficult to alter. Patients with marked emotional processing difficulties may require longer treatment. The non-significant partial return of depressive symptoms at follow-up underscores the need for extended care in some individuals.

This study provides preliminary evidence that online ISTDP is feasible and acceptable for treatment-resistant SSD. Process-related emotional responses were common but generally mild, with low dropout and few serious adverse events. However, the small and highly selected sample limits generalizability. Future research should evaluate online ISTDP in randomized designs and include larger samples with longer follow-up. Studies should also examine treatment processes related to outcome, as well as pretreatment characteristics associated with non-response to lower intensity interventions.

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Statement of Ethics

All participants provided written informed consent. The KOSMOS project was approved by the Swedish Ethical Review Authority (2023-04956-01) and conducted in accordance with the Declaration of Helsinki. The trial was prospectively registered at ClinicalTrials.gov (NCT06682104).

Conflict of Interest Statement

P.L. and J.M.T. provide ISTDP training and supervision. P.L., J.M.T., and D.M. receive occasional honoraria for ISTDP- and SSD-related lectures from non-profit and for-profit organizations. The other authors have no conflicts of interest to declare.

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Author Contributions

P.L. designed the study, curated and analyzed data, drafted the manuscript, co-managed the KOSMOS project, and secured funding. M.L. contributed to study design, coordination, data collection, and interpretation. M.R. contributed to design, data collection, and interpretation. F.F. and J.M.T. contributed to methodology and interpretation. D.M. designed the study, curated data, co-managed the project, and secured the original funding. All authors critically reviewed and approved the final manuscript and accept responsibility for its content.

Data Availability Statement

Data are not publicly available due to confidentiality, but de-identified datasets may be requested from the corresponding author.

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