Effects of Intensive Short-Term Dynamic Psychotherapy on Depression: A Reanalysis of Heshmati et al.'s Data

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Abstract

Objective: This study presents a reanalysis of data from a randomized controlled trial examining the effects of Intensive Short-Term Dynamic Psychotherapy (ISTDP) versus waitlist control on depressive symptoms in individuals with treatment-resistant depression. **Method:** The original trial randomized 86 Iranian adults with treatment-resistant depression to either ISTDP (20 sessions over 10 weeks) or waitlist control. Depression was assessed using the Weinberger Adjustment Inventory Depression subscale at baseline, post-treatment (10 weeks), and 3-month follow-up. Linear mixed-effects models with random intercepts were used to analyze depression trajectories over time. **Results:** A significant Time × Treatment interaction emerged ($p < .001$), indicating differential trajectories between groups. ISTDP participants showed large reductions in depression from baseline to post-treatment (M = -8.40, $p < .001$) with continued improvement through follow-up (M = -12.87, $p < .001$), while waitlist controls showed minimal change. Between-group effect sizes were negligible at baseline (Cohen's $d = 0.08$) but increased substantially by post-treatment ($d = 1.68$, 95% CI [1.15, 2.22]) and follow-up ($d = 2.50$, 95% CI [1.88, 3.11]). **Conclusion:** This reanalysis confirms the large beneficial effects of ISTDP on depression in treatment-resistant depression, with effects that strengthen over time.

Keywords: depression, psychotherapy, ISTDP, treatment-resistant depression, reanalysis

Word count: X

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Results

Participant Characteristics

Table 1 presents baseline demographic and clinical characteristics by treatment condition. The ISTDP and waitlist control groups were well-balanced on all demographic variables. The sample had a mean age of 36.90 years ($SD = 11.73$), with 61.6% female participants. Most participants were currently receiving antidepressant medication (79.1%) and had previously failed a mean of 1.8 antidepressant trials ($SD = 0.9$).

Missing Data

Of the 258 total observations (86 participants × 3 time points), 22 observations (8.5%) had missing depression scores due to participant dropout. Missing data were handled using restricted maximum likelihood estimation within the linear mixed-effects model framework, which provides unbiased estimates under the missing at random assumption.

Primary Outcome: Depression Trajectories

Figure 1 displays the depression trajectories for both treatment groups across the three assessment points. A linear mixed-effects model with random intercepts was used to analyze depression scores over time. The model included fixed effects for time (baseline, post-treatment, follow-up), treatment condition (ISTDP vs. waitlist control), and their interaction.

The Time × Treatment interaction was statistically significant at both post-treatment, , and follow-up, . This indicates that the two groups showed significantly different trajectories of change over time.

Table 1

Baseline Demographic and Clinical Characteristics by Treatment Condition

Characteristic	ISTDP	Waitlist Control
Age, M (SD)	36.5 (12.3)	37.3 (11.3)
Gender, %		
Male	34.9	41.9
Female	65.1	58.1
Marital status, %		
Single	39.5	25.6
Married	51.2	60.5
Widowed/Divorced	9.3	14.0
Education, %		
High school	41.9	34.9
Undergraduate	37.2	48.8
Graduate	20.9	16.3
Employment status, %		
Employed	41.9	65.1
Unemployed	46.5	23.3
Retired	11.6	11.6
Socioeconomic status, %		
Low	14.0	16.3
Middle	65.1	65.1
High	20.9	18.6
Previous antidepressant trials, M (SD)	1.81 (1.01)	1.86 (0.89)
Currently receiving medication, %		
Yes	76.7	81.4
No	23.3	18.6

Note. ISTDP = Intensive Short-Term Dynamic Psychotherapy. N = 86

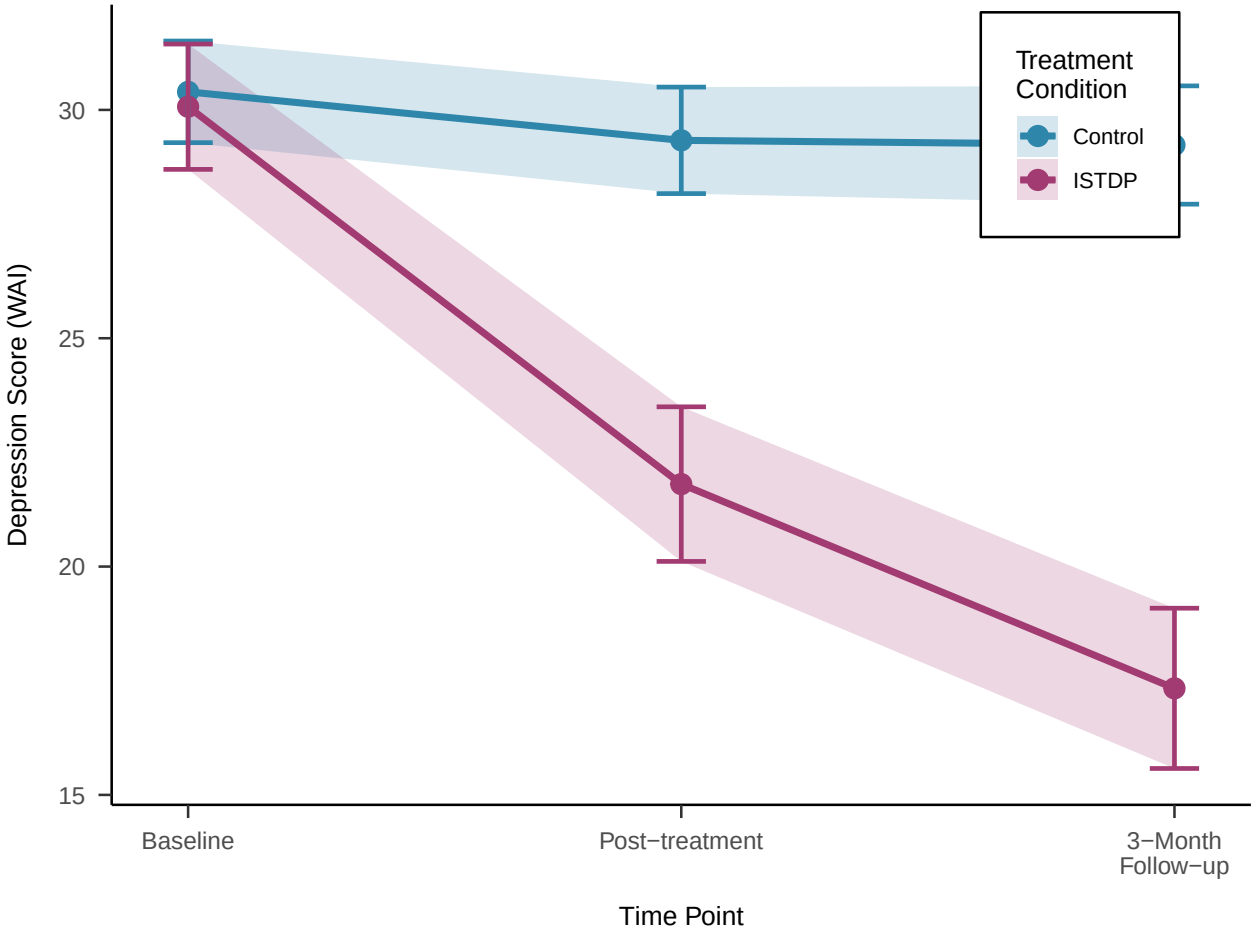

Figure 1. Mean depression trajectories by treatment condition. Error bars represent 95% confidence intervals. ISTDP = Intensive Short-Term Dynamic Psychotherapy.

Estimated Marginal Means. Table 2 presents the estimated marginal means for depression scores at each time point by treatment condition. At baseline, the groups did not differ significantly in depression levels, $t(131.2) = 0.34$, $p = .734$, Cohen's $d = 0.08$, 95% CI [-0.35, 0.51].

However, at post-treatment, ISTDP participants showed significantly lower depression scores than waitlist controls, $t(144.9) = 7.64$, $p < .001$, Cohen's $d = 1.68$, 95% CI [1.15, 2.22], representing a large effect. This between-group difference increased further at 3-month follow-up, $t(144.9) = 12.03$, $p < .001$, Cohen's $d = 2.50$, 95% CI [1.88, 3.11], representing a very large effect.

Table 2

Estimated Marginal Means for Depression Scores by Treatment Condition and Time Point

	ISTDP			Waitlist Control		
Time Point	*M*	*SE*	95% CI	*M*	*SE*	95% CI
Baseline	30.07	0.68	[28.73, 31.41]	30.40	0.68	[29.06, 31.73]
Post-treatment	21.67	0.71	[20.26, 23.08]	29.29	0.70	[27.92, 30.67]
3-Month Follow-up	17.20	0.71	[15.79, 18.61]	29.19	0.70	[27.81, 30.56]

Note. Values are estimated marginal means from the linear mixed-effects model with random intercepts. CI = 95\% confidence interval. ISTDP = Intensive Short-Term Dynamic Psychotherapy.

Within-Group Changes. For ISTDP participants, depression scores decreased significantly from baseline to post-treatment ($M_{\text{diff}} = 8.40$, $SE = 0.62$, $p < .001$) and continued to decrease from baseline to 3-month follow-up ($M_{\text{diff}} = 12.87$, $SE = 0.62$, $p < .001$). Additional improvement occurred between post-treatment and follow-up ($M_{\text{diff}} = 4.47$, $SE = 0.63$, $p < .001$).

In contrast, waitlist control participants showed minimal change in depression scores across all time points (all ps $> .10$), with no significant differences between baseline and post-treatment ($M_{\text{diff}} = 1.10$, $p = .156$), baseline and follow-up ($M_{\text{diff}} = 1.21$, $p = .110$), or post-treatment and follow-up ($M_{\text{diff}} = 0.10$, $p = .984$).

Effect Sizes. Figure 2 displays the between-group effect sizes (Cohen's d) at each time point. Effect sizes increased substantially over time, from negligible at baseline ($d = 0.08$, 95% CI [-0.35, 0.51]) to large at post-treatment ($d = 1.68$, 95% CI [1.15, 2.22]) and very large at 3-month follow-up ($d = 2.50$, 95% CI [1.88, 3.11]).

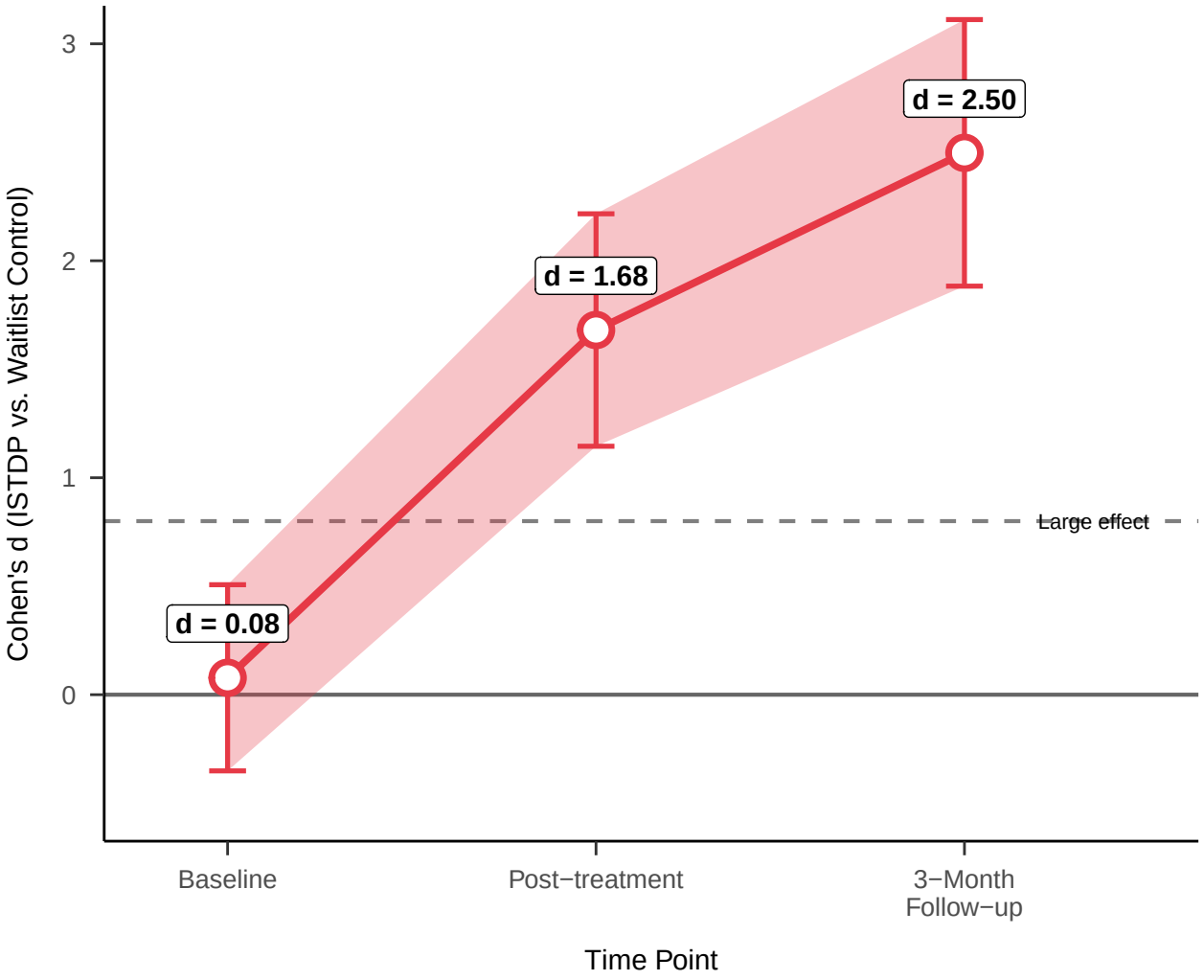

Figure 2. Between-group effect sizes (Cohen's d) over time with 95% confidence intervals. Positive values indicate lower depression in the ISTDP group compared to waitlist control. The dashed line represents the threshold for a large effect (d = 0.80).

Model Diagnostics

The random intercept variance was 12.59, indicating substantial between-person variability in baseline depression levels. The residual variance was 7.04. Visual inspection of residual plots (not shown) indicated acceptable model fit, with approximately normally distributed residuals and homogeneous variance across predicted values.

References

Supplementary Materials

The complete dataset and analysis code are publicly available on the Open Science Framework at https://doi.org/10.17605/OSF.IO/75PU8.