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The Effectiveness of Schema Therapy Based on Mindset on Distress Tolerance in Patients with Psychosomatic Symptoms

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Abstract

Background: Given the high prevalence and chronic nature of psychosomatic disorders, there is a significant need for effective and sustainable psychotherapeutic interventions.

Objectives: This research aimed to investigate the efficacy of Schema Therapy Based on Mindset (STBM) in enhancing distress tolerance among patients presenting with psychosomatic symptoms in Rasht, Ira.

Methods: This randomized controlled clinical trial followed a pre-test, post-test, and 3-month follow-up design included 30 female patients selected via convenience sampling and randomly allocated to the experimental (n = 15) or control (n = 15) group. The experimental group received eight 2-hour sessions of the STBM protocol. Data were collected using the Distress Tolerance Scale (DTS) and analyzed via Repeated Measures Analysis of Variance (RMANOVA) in SPSS-27.

Results: The findings confirmed a statistically significant effect of STBM on improving overall distress tolerance ($P < 0.01$), with therapeutic gains successfully maintained at 3-month follow-up. The intervention specifically yielded significant improvements in the tolerance, absorption, and appraisal subscales. However, the effect on the regulation subscale was not statistically significant.

Conclusion: STBM appears to be a promising intervention for modifying maladaptive cognitive-emotional patterns. This protocol is recommended as a valuable therapeutic tool for managing psychological distress and enhancing coping mechanisms in patients with psychosomatic symptoms.

Keywords: Schema Therapy, Distress Tolerance, Psychosomatic Medicine, Somatization, Regulation

1. Background

In today's medical practice, clinicians frequently encounter patients whose distressing physical symptoms elude straightforward organic explanations, falling instead under the umbrella of psychosomatic disorders or somatoform conditions.[1] These often chronic ailments—such as persistent headaches, irritable bowel syndrome, non-cardiac chest pain, and unrelenting fatigue—arise from an intricate interplay where unresolved emotional turmoil manifests somatically, transforming inner psychological pain into tangible bodily complaints.[2] For those living with these invisible burdens, the toll is immense: repeated, resource-intensive healthcare visits breed diagnostic uncertainty and despair, while the erosion of daily functioning profoundly diminishes their sense of well-being and autonomy.[3] Many of these patients exhibit high levels of alexithymia (difficulty identifying and describing emotions), which is consistently associated with somatization.[4] However, the present study focused primarily on distress tolerance as the key mechanism rather than alexithymia per se. In essence, the somatic symptom serves as an unwitting shield, redirecting attention to a visible, external problem that sidesteps the raw ache of unprocessed feelings.[5] This pathway of somatization highlights an urgent imperative for therapeutic strategies that compassionately dismantle these psychological barriers, fostering healthier ways to engage with negative emotions. By illuminating and alleviating this emotional fragility, we can pave the way for lasting symptom relief and avert the entrenchment of these pervasive, life-altering conditions.

Central to both comprehending and alleviating these struggles is the concept of distress tolerance, which refers to a person's perceived or actual ability to endure uncomfortable psychological, emotional, or physical states without resorting to immediate escape.[6] This multifaceted trait includes one's readiness to persist amid discomfort (Tolerance), the meaning one ascribes to that distress (appraisal), the degree to which it commandeers attention (absorption), and efforts to actively modulate it (regulation).[7] Low distress tolerance emerges as a transdiagnostic vulnerability, threading through a spectrum of mental health challenges, from anxiety and substance use disorders to depressive conditions.[8] Those with diminished capacity in this domain are driven by an urgent need to flee aversive inner experiences, often

turning to hasty, harmful, or counterproductive strategies that offer fleeting solace at the expense of long-term health.[9] Within psychosomatic contexts, low distress tolerance is theoretically proposed—although not yet conclusively proven—to act as an important mechanism that facilitates somatization;[10] individuals who cannot tolerate emotional distress may unconsciously convert it into physical symptoms that feel more legitimate and treatable. Thus, bolstering the ability to sit with and navigate negative affect stands as a cornerstone of treatment, capable of interrupting the self-perpetuating loop of avoidance and embodiment.

To cultivate such resilience, psychotherapeutic approaches must delve into entrenched emotional and cognitive habits with empathy and precision. Schema Therapy (ST), pioneered by Jeffrey Young, builds on cognitive-behavioral foundations by targeting Early Maladaptive Schemas (EMSs) and Schema Modes—enduring, self-sabotaging patterns forged in childhood from unmet relational needs.[11] ST's strength resides in its "mode work," which directly confronts maladaptive coping modes (like avoidance or overcompensation) that fuel psychosomatic expressions.[12] Over the last decade, ST has demonstrated substantial promise in addressing complex conditions such as borderline personality disorder and persistent depression. The present study employed Schema Therapy Based on Mindset (STBM), a recent adaptation that explicitly integrates principles of cognitive flexibility and growth mindset into traditional schema mode work with the aim of reducing rigid schema-driven appraisals of emotional distress.[13,14] This evolution empowers patients to discern inflexible schemas metacognitively and opt for adaptive coping, thereby fortifying emotional fortitude. Existing research underscores ST's benefits in adjacent domains, with evidence of enhanced emotion regulation and alleviated psychological burden in diverse chronic illness cohorts.[15,16] However, controlled trials examining the specific STBM adaptation—particularly its effects on distress tolerance in patients with psychosomatic symptoms—are still limited, making empirical validation of this modified protocol a priority.

Although the theoretical nexus between impaired distress tolerance and somatization is compelling, and ST's mode-focused techniques align well with these evasive dynamics, empirical validation lags behind. In particular, controlled trials evaluating the STBM approach's impact on distress tolerance's core dimensions in psychosomatic patients are few and far between. This shortfall is especially poignant in locales like Rasht, Iran, where culturally attuned, empirically grounded psychological interventions can bridge critical care gaps. Considering the chronic and often relapsing trajectory of these symptoms, affirming an accessible, enduring therapy holds profound clinical value.

2. Objectives

The present study was designed as a controlled clinical trial with the primary objective of determining the effectiveness of STBM on overall distress tolerance and its four specific subscales (tolerance, absorption, appraisal, and regulation) in patients presenting with psychosomatic symptoms.

3. Methods

3.1. Study Design

This quantitative study employed a two-arm randomized controlled clinical trial design utilizing a pre-test, post-test, and 3-month follow-up structure.

3.2. Participants

The study included only female patients, reflecting the predominant referral pattern for psychosomatic symptoms in the participating centers in Rasht, Iran. The statistical population comprised all patients presenting with psychosomatic symptoms who were referred to public health centers and hospitals in the city of Rasht, Iran, during the year 2025. A convenience sample of 30 eligible female patients was selected based on their willingness to participate. Following selection, participants were randomly allocated to either the experimental group (n = 15) or the control group (n = 15) using a simple random allocation sequence generated by a computerized random number table. Group assignment was implemented via sequentially numbered, opaque, sealed envelopes to ensure concealment. The inclusion criteria for participation were as follows: a confirmed clinical diagnosis of Somatic Symptom Disorder (DSM-5) or Bodily Distress Disorder (ICD-11) made by a board-certified psychiatrist; a clinical presentation consistent with psychosomatic symptoms (e.g., medically unexplained physical symptoms) without a confirmed organic diagnosis; age between 18 and 50 years; possession of basic literacy skills; and provision of written informed consent. The exclusion criteria included: receiving concurrent psychotherapy during the study period; diagnosis of a severe psychiatric disorder (e.g., psychotic or bipolar disorder); current unstable psychotropic medication (dose changes within the past 4 weeks) or substance dependence; and failure to attend more than two consecutive intervention sessions. Although stable psychotropic medication was permitted, no participant in either group was taking such medication at baseline. The study was conducted in strict accordance with the Declaration of Helsinki. Ethical approval was obtained from the relevant institutional ethics committee (ID: IR.IAU.LIAU.REC.1404.053), and the study was registered with the Iranian Registry of Clinical Trials (IRCT: IRCT20250808066787N1). All participants received a full explanation of the study procedures and their rights and provided written informed consent prior to commencing the study. Participants in

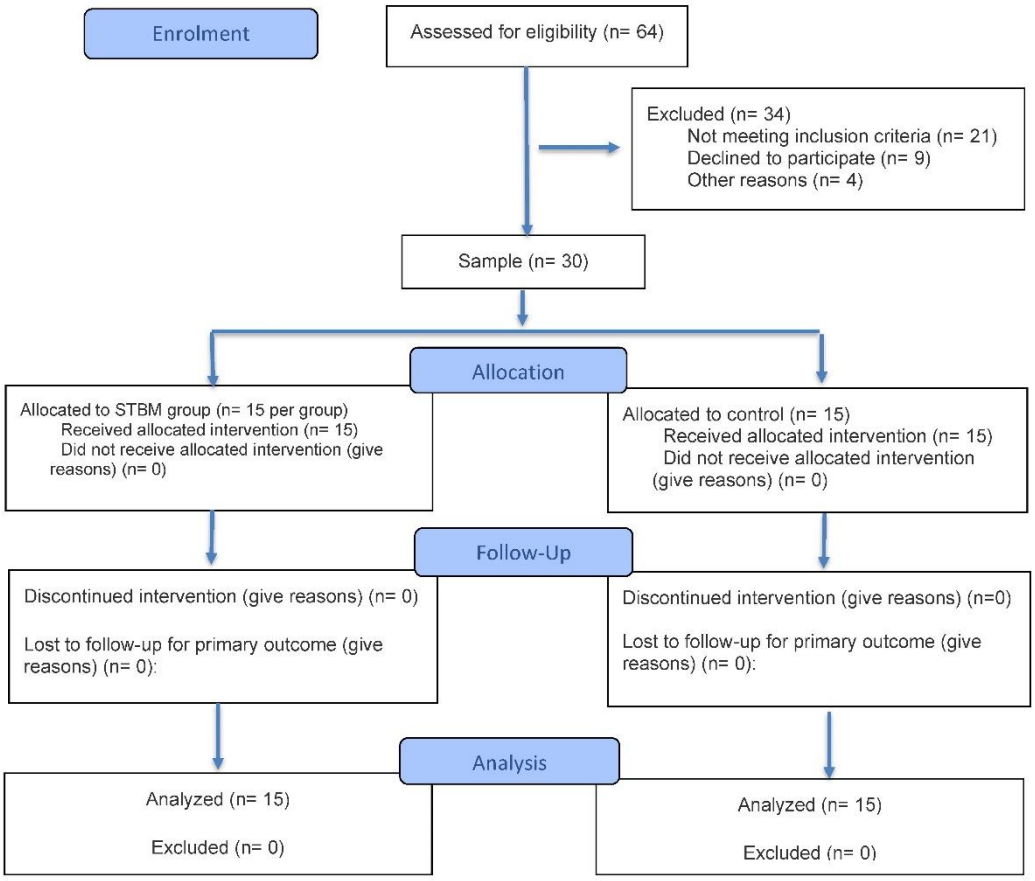

Figure 1. CONSORT Participant Flow Diagram.

the control group were offered the intervention protocol at the conclusion of the follow-up period as an ethical incentive. A CONSORT participant flow diagram is provided in Figure 1.

3.3. Sample Size Consideration

An a priori power analysis using G*Power indicated that a total sample of 30 participants (15 per group) would provide 80% power to detect a large time × group interaction effect ($\eta^2p = 0.14$, equivalent to Cohen's $f = 0.40$) in repeated-measures ANOVA (within-between interaction) with $\alpha = 0.05$, three measurements, and a correlation among repeated measures of 0.50. This calculation was based on effect sizes reported in previous schema therapy trials with clinical populations.[14,16]

3.4. Research Instrument

The primary instrument used for data collection was the Distress Tolerance Scale (DTS), a 15-item self-report measure developed by Simons and Gaher.[17] The scale is designed to assess an individual's perceived capacity to endure aversive psychological and physical states. It utilizes a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), yielding a total score that can range from 15 to 75, with higher scores reflecting greater distress tolerance. The DTS comprises four distinct subscales: tolerance (willingness to persist in distress), absorption (attentional focus during distress), appraisal (cognitive interpretation of the distress), and regulation (active attempts to modulate the distress). In the original validation studies, the scale demonstrated excellent psychometric properties. In Iranian studies, the Persian version of the DTS has consistently shown good reliability, with Cronbach's alpha coefficients for the total scale typically ranging between 0.75 and 0.85.[18] For the present study, the internal consistency of the DTS was high, with a Cronbach's alpha of alpha = 0.82 for the total score.

3.5. Study Design

The study adhered to a rigorous timeline involving three phases of data collection. Initially, all 30 participants completed the DTS as a pre-test. Subsequently, the experimental group began the STBM intervention, while the control group received no active intervention, serving as a wait-list group. The use of a wait-list rather than an active or attention-control condition was chosen for ethical and feasibility reasons in this preliminary efficacy trial. However, this design cannot fully rule out non-specific expectancy or attention effects. Immediately following the completion of the eight therapeutic sessions, both the experimental and control groups

completed the DTS again for the post-test assessment. Finally, a third administration of the DTS was conducted exactly three months post-intervention to evaluate the durability of the treatment effects during the follow-up phase. Data collection was overseen by a research assistant who was kept unaware of the participants' group allocation to minimize experimenter bias.

3.6. Intervention

The experimental group received the STBM protocol, adapted from the work of Reubsaet.[19] The intervention was delivered in a group format, consisting of eight 120-minute weekly sessions. All sessions were conducted by the first author, a licensed clinical psychologist with nine years of post-qualification experience and formal certification in Schema Therapy (International Society of Schema Therapy – ISST). Treatment adherence was monitored through audio recordings of all sessions, rated by an independent ISST-certified supervisor using a standardized fidelity checklist; the mean adherence rate was 92%. The STBM protocol integrates the core concepts of Schema Therapy Mode Work—specifically targeting the Avoidant Coping Mode implicated in somatization—with principles of cognitive flexibility and a growth mindset. This modification aims to enhance participants' metacognitive ability to identify and shift away from rigid, maladaptive schemas toward a healthier, more resilient coping mode, known as the Healthy Adult Mode. The core structure and objectives of the sessions are summarized in Table 1.

Table 1. Summary of STBM Sessions

Session	Key topics and techniques
1	Introduction to the STBM model; establishing therapeutic goals and expectations. Psychoeducation on psychosomatic symptoms as a communication of unmet emotional needs and emotional avoidance. Introducing the concept of distress tolerance and its role in somatization.
2	Detailed exploration of the five core emotional needs (e.g., Secure Attachment, Autonomy). Identifying participants' dominant EMSs through self-report and guided imagery, particularly those related to detachment/rejection (e.g., Emotional Deprivation).
3	Teaching the concept of Schema Modes (Child, Coping, Parent, and Healthy Adult). In-depth focus on the Avoidant Coping Mode and its functional link to escaping emotional distress by shifting focus to physical symptoms. Identifying triggers for mode activation.
4	Using experiential techniques (e.g., two-chair work, limited reparenting) to confront and process the core emotions being avoided. Directly addressing the emotional intensity that drives low distress tolerance. Practicing staying present with emotional discomfort.
5	Introducing the Mindset component: Shifting from a "fixed mindset" (rigid, catastrophic appraisal of distress) to a "growth mindset" (distress as tolerable and manageable). Techniques included cognitive restructuring of core schema beliefs and challenging all-or-nothing thinking.
6	Practical exercises to consolidate the Healthy Adult Mode (HAM) as the central mode for coping. Focusing on HAM's role in setting healthy boundaries, validating emotional needs, and making adaptive choices instead of resorting to avoidance. Introduction of compassionate self-soothing techniques.
7	Specific skill-building for distress tolerance. Techniques included: Tolerating the Emotion (mindful acceptance of the physical sensations of distress), Distraction Techniques (shifting focus constructively), and Self-Calming Strategies (using the five senses to ground oneself during crisis).
8	Comprehensive review of schemas, modes, and the acquired distress tolerance skills. Developing a personalized Relapse Prevention Plan centered on early identification of the Avoidant Coping Mode and automatic deployment of the Healthy Adult/Distress Tolerance skills. Emphasis on maintaining long-term emotional resilience.

3.7. Data Analysis

All collected data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 27. Descriptive statistics were used to summarize participant demographic characteristics. Prior to hypothesis testing, the assumptions of normality and homogeneity of variances were assessed. The primary hypothesis regarding the effectiveness of STBM across time was tested using a Repeated Measures Analysis of Variance (RMANOVA).

4. Results

The study sample consisted of 30 female participants, reflecting the predominant referral patterns for psychosomatic symptoms in local health settings in Rasht, Iran. The mean age of participants was 28.65 years (SD = 5.39), with all individuals meeting the inclusion criteria and demonstrating baseline equivalence across groups in terms of age and initial symptom severity.

As illustrated in Table 2, participants in the experimental group exhibited marked improvements in mean scores for overall distress tolerance and its subscales following the STBM intervention, with gains largely sustained at the three-month follow-up. Specifically, the experimental group's total distress tolerance score rose from a pre-test mean of 30.50 (SD = 8.57) to 40.83 (SD = 8.88) at post-test and 41.33 (SD = 7.56) at follow-up, contrasting with minimal fluctuations in the control group (pre-test: M = 31.17, SD = 8.57; post-test: M = 30.58, SD = 8.83; follow-up: M = 31.00, SD = 8.62). Notable subscale enhancements in the experimental group included tolerance (from 4.92 to 7.67), absorption (from 6.17 to 8.58), and appraisal (from 13.00 to 17.75). However, regulation exhibited inconsistent patterns, showing minor improvements at post-test and follow-up (from 6.42 pre-test to 7.33).

Prior to conducting the RMANOVA, Mauchly's test of sphericity was performed. Sphericity was violated for the tolerance subscale ($\chi^2 = 8.14$, P = 0.017), the absorption subscale ($\chi^2 = 6.93$, $P = 0.031$), the appraisal subscale ($\chi^2 = 10.28$, $P = 0.006$), and total distress tolerance ($\chi^2 = 12.45$, $P = 0.002$), but not for regulation ($\chi^2 = 3.11$, $P = 0.211$). Therefore, Greenhouse-Geisser corrections were

Table 2. Descriptive Statistics for Distress Tolerance and Its Subscales Across Pre-test, Post-test, and Follow-up Phases by Group

Variable	Phases	STBM group		Control group	
		Mean	SD	Mean	SD
Tolerance	Pre-test	4.92	1.68	5.58	1.88
	Post-test	7.25	2.70	5.00	1.71
	Follow-up	7.67	2.10	5.33	1.23
Absorption	Pre-test	6.17	2.41	6.25	1.96
	Post-test	8.58	2.07	6.08	1.93
	Follow-up	8.58	2.19	6.33	1.61
Appraisal	Pre-test	13.00	3.62	12.33	4.21
	Post-test	17.75	3.82	12.33	4.77
	Follow-up	17.75	3.25	11.83	4.28
Regulation	Pre-test	6.42	2.84	7.00	2.76
	Post-test	7.25	2.73	6.33	2.84
	Follow-up	7.33	3.03	7.17	2.62
Distress tolerance (total)	Pre-test	30.50	8.57	31.17	8.57
	Post-test	40.83	8.88	30.58	8.83
	Follow-up	41.33	7.56	31.00	8.62

applied for the variables in which sphericity was violated. The corrected degrees of freedom and corresponding p-values are reported below.

The RMANOVA results presented in Table 3 (with Greenhouse-Geisser correction where applicable) revealed a significant main effect of time on overall distress tolerance (F = 87.13, P = 0.007, η^2 = 0.27), indicating general improvements across assessment phases irrespective of group. Critically, the time × group interaction was also significant (F = 9.31, P = 0.005, η^2 = 0.30), highlighting the STBM intervention's unique contribution to sustained gains. Subscale analyses corroborated these findings: significant time × group interactions emerged for tolerance (F = 9.26, P = 0.002, η^2 = 0.30), absorption (F = 6.17, P = 0.010, η^2 = 0.22), and appraisal (F = 10.72, P = 0.001, η^2 = 0.33), reflecting targeted enhancements in willingness to endure distress, reduced absorption by it, and more adaptive cognitive appraisals. In contrast, no significant interaction was observed for Regulation (F = 1.92, P = 0.172, η^2 = 0.08), suggesting that active modulation strategies may require extended or supplementary training to yield measurable effects in this population.

Table 3. Repeated Measures ANOVA Results Examining the Effects of Time, Group, and their Interaction on Distress Tolerance and Subscales

Variable	Source	SS	df	MS	F	*P*	η^2
Tolerance	Time	19.75	1.49	13.25	5.22	0.017	0.19
	Time × Group	35.03	1.49	23.50	9.26	0.002	0.30
	Group	30.68	1	30.68	4.11	0.055	0.16
Absorption	Time	22.75	1.45	15.65	5.76	0.013	0.321
	Time × Group	24.36	1.45	16.76	6.17	0.010	0.22
	Group	43.57	1	43.56	5.09	0.034	0.19
Appraisal	Time	81.75	1.28	63.67	8.69	0.004	0.28
	Time × Group	100.75	1.28	78.47	10.72	0.001	0.33
	Group	288.00	1	288.00	7.36	0.013	0.25
Regulation	Time	4.08	1.43	2.85	1.16	0.310	0.05
	Time × Group	6.75	1.43	4.71	1.92	0.172	0.08
	Group	0.50	1	0.50	0.03	0.875	0.01
Distress tolerance (total)	Time	419.36	1.10	382.30	87.13	0.007	0.27
	Time × Group	480.36	1.10	437.91	9.31	0.005	0.30
	Group	793.35	1	793.35	4.78	0.040	0.18

Table 4. Post-hoc Pairwise Comparisons with Bonferroni Corrections for Within-Group Changes in the Experimental Group

Variables	Comparisons	Mean difference	SE	*P*
Tolerance	Pre-test - Post-test	-2.33	0.90	0.042
	Pre-test - Follow-up	-2.75	0.90	0.013
	Post-test - Follow-up	-0.42	0.90	0.999
Absorption	Pre-test - Post-test	-2.42	0.91	0.036
	Pre-test - Follow-up	-2.42	0.91	0.036
	Post-test - Follow-up	0.01	0.91	0.999
Appraisal	Pre-test - Post-test	-4.75	1.46	0.008
	Pre-test - Follow-up	-4.75	1.46	0.008
	Post-test - Follow-up	0.01	1.46	0.999
Regulation	Pre-test - Post-test	-0.83	1.17	0.999
	Pre-test - Follow-up	-0.92	1.17	0.999
	Post-test - Follow-up	-0.08	1.17	0.999
Distress tolerance (total)	Pre-test - Post-test	-10.33	3.41	0.014
	Pre-test - Follow-up	-10.83	3.41	0.010
	Post-test - Follow-up	-0.50	3.41	0.999

Post-hoc analyses using Bonferroni-adjusted pairwise comparisons, as detailed in Table 4, further delineated the trajectory of changes within the experimental group. Significant mean differences were evident from pre-test to post-test and follow-up for tolerance (pre-post: MD = -2.33, SE = 0.90, P = 0.042; pre-follow-up: MD = -2.75,

SE = 0.90, P = 0.013), absorption (pre-post/follow-up: MD = -2.42, SE = 0.91, P = 0.036), appraisal (pre-post/follow-up: MD = -4.75, SE = 1.46, P = 0.008), and overall distress tolerance (pre-post: MD = -10.33, SE = 3.41, P = 0.014; pre-follow-up: MD = -10.83, SE = 3.41, P = 0.010), with no significant decline from post-test to follow-up across these domains (all P > 0.999). Regulation subscale changes remained non-significant throughout (all P > 0.999), aligning with the broader ANOVA patterns and implying that while STBM effectively bolsters passive tolerance facets, proactive regulatory skills may persist as a residual challenge, warranting future refinements to the protocol for holistic impact.

5. Discussion

The present controlled clinical trial was conducted to investigate the effectiveness of the STBM protocol in enhancing distress tolerance and its specific subscales among patients presenting with psychosomatic symptoms, utilizing a robust controlled clinical trial design. The findings provide preliminary evidence that STBM was associated with statistically significant and clinically meaningful improvement in overall distress tolerance in the experimental group compared with a waitlist control. Importantly, these therapeutic gains were effectively maintained during the three-month follow-up period. However, given the small sample size, these results should be considered promising rather than definitive.

The success of STBM appears to be primarily attributable to its mode-focused approach, which is designed to directly confront the core psychological mechanisms driving somatization.[20] Psychosomatic symptoms are widely conceptualized as the physical manifestation of emotional avoidance, wherein individuals unconsciously utilize their bodies as a maladaptive defense mechanism to bypass underlying, intolerable emotional distress.[21] Schema Therapy, through its intensive mode work, systematically challenges the avoidant coping mode.[22] By promoting awareness of this avoidance pattern and strengthening the Healthy Adult Mode, STBM may facilitate greater willingness to experience and process previously avoided emotions,[19] which could explain the observed increases in tolerance, absorption, and appraisal.

A detailed analysis of the subscales provided crucial, fine-grained insight into the precise mechanisms of change. Significant positive improvements were observed across the tolerance, absorption, and appraisal dimensions of distress tolerance. The enhanced tolerance reflects the participants' increased willingness to stay present with aversive emotions, indicating a possible shift away from the compulsive need to escape through physical complaints (somatization). The improvement in appraisal signifies a fundamental cognitive shift; participants appeared to re-evaluate their emotional distress not as catastrophic or overwhelming, but as tolerable, manageable, and transient. This cognitive modification is perfectly consistent with the mindset component of STBM, which explicitly aims to dismantle the cognitive rigidity associated with a "fixed mindset" and promote a more flexible, growth-oriented perspective towards internal, painful experiences.[23,24] Furthermore, the improvement in absorption demonstrates that emotional distress became less attention-commanding and less distracting, suggesting a more adaptive and effective deployment of cognitive resources during emotional arousal.[25]

These findings strongly resonate with existing research that links Schema Therapy to improved emotion regulation, a construct highly intertwined with and predictive of distress tolerance. For instance, the study by Yazdani et al.[26] confirmed the efficacy of Group Schema Therapy in reducing difficulty in emotion regulation among adolescent girls. Similarly, research utilizing components of Emotional Schema Therapy has shown positive effects on improving emotion regulation strategies.[27] Additional studies using standard or adapted schema therapy protocols in patients with chronic pain or functional somatic syndromes have also reported moderate-to-large improvements in emotional awareness and distress tolerance,[28,29] providing indirect support for the present results.

However, a critical and necessary distinction must be made regarding the non-significant effect of STBM on the regulation subscale. This dimension measures proactive, behavioral efforts to modulate, soothe, or actively mitigate distress, representing a skill-based, "doing" approach to emotional challenges. The STBM protocol, while highly effective in cognitive (appraisal) and experiential (tolerance, absorption) restructuring, may not have dedicated sufficient time or intensive behavioral training to these specific "doing" skills. Regulation techniques, which are often highly prescriptive, might require a stronger emphasis or a dedicated skills module to yield significant measurable changes.[7] This suggests a potential area for refinement in the STBM protocol: while the therapy successfully addresses the 'why' (the schemas and modes driving avoidance) and the 'willingness' (tolerance/appraisal), it may need augmentation to fully address the 'how' (the specific behavioral techniques for regulation).

The study has several important limitations that warrant caution in interpreting the results. The sample was small (N = 30), exclusively female, and recruited via convenience sampling from a single region in Iran, which severely limits generalizability. Diagnoses were based on clinical assessment rather than structured interviews, psychotropic medication use was not systematically recorded beyond exclusion of recent changes, and the wait-list control condition does not rule out non-specific effects of attention or expectancy. Moreover, the absence of an

active control group and the lack of long-term follow-up beyond three months prevent conclusions about comparative efficacy or sustained benefits. Finally, treatment fidelity was monitored, but no independent outcome assessor blind to allocation was used for follow-up measurements.

Future research should employ larger, more diverse samples, include male participants, use structured diagnostic interviews, incorporate active control conditions, and extend follow-up periods. Mediation analyses examining changes in schema modes or growth mindset as mechanisms of change would also strengthen causal inference.

The present study validates the use of a focused, time-limited, manualized intervention (STBM) for a population historically difficult and costly to treat. However, no cost-effectiveness data were collected, so claims regarding resource efficiency cannot be substantiated at this stage.

6. Conclusion

In conclusion, this small-scale randomized controlled trial offers preliminary evidence that STBM may be a promising intervention for improving distress tolerance-particularly its tolerance, absorption, and appraisal components-in female patients with psychosomatic symptoms. The observed effects were maintained at the 3-month follow-up and align with theoretical expectations derived from schema mode work and growth mindset principles. Nevertheless, the small sample size, exclusively female composition, waitlist control design, and absence of long-term data preclude strong conclusions about clinical efficacy or superiority over other approaches. Larger, methodologically rigorous replication studies are needed before STBM can be recommended as a standard treatment option. The current findings encourage further development and evaluation of this adapted protocol as a potentially useful tool in the management of psychological distress underlying somatization.

Research Highlights

What Is Already Known?

Psychosomatic disorders, characterized by unexplained physical symptoms rooted in emotional distress, are prevalent and burdensome, often linked to alexithymia and low distress tolerance. Schema Therapy effectively targets maladaptive schemas and modes to enhance emotion regulation in chronic conditions.

What Does This Study Add?

This controlled trial demonstrates STBM's efficacy in boosting overall distress tolerance and its tolerance, absorption, and appraisal subscales among female psychosomatic patients, with sustained three-month gains. It fills an empirical gap by validating a culturally attuned intervention.

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Author Contributions

ERR: Conceptualization, Methodology, Investigation, Formal analysis, Funding acquisition, Project administration, Writing – original draft; MAL: Conceptualization, Methodology, Supervision, Validation, Writing – review & editing.

Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

Ethical Approval

This study was approved by the Ethics Committee of Islamic Azad University, Lahijan Branch, Iran (Ethics Code: ID: IR.IAU.LIAU.REC.1404.053). The trial was registered with the Iranian Registry of Clinical Trials (IRCT20250808066787N1). All participants provided written informed consent prior to enrollment.

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Declaration of Generative AI and AI-assisted technologies

During the preparation of this work the authors used ChatGPT in order to improve the language and readability of the text. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

References

1. Maroti D. Introducing a new specifier for functional somatic disorder: a psychodynamic approach to investigating emotional factors. Front Psychiatry. 2025;16:1481405. doi:10.3389/fpsyt.2025.1481405
2. Rostami Ravari MA, Vaziri S, Rafiepoor A, Sarafraz M. The Impact of Intensive Short-Term Dynamic Psychotherapy on Ego Strength and Gastrointestinal Dysfunctions in Psychosomatic Patients with Gastrointestinal Symptoms. Hosp Pract Res. 2024;9(2):462-8. doi:10.30491/hpr.2024.478027.1450
3. Leue C, van Schijndel MA, Keszthelyi D, van Koeveringe G, Ponds RW, Kathol RG, et al. The multidisciplinary arena of psychosomatic medicine – Time for a transitional network approach. Eur J Psychiatry. 2020;34(2):63-73. doi:10.1016/j.ejpsy.2020.02.003
4. Stephenson R. Introducing alexithymia: a concept within the psychosomatic process. Disabil Rehabil. 1996;18(4):209-14. doi:10.3109/09638289609166302
5. Chauhan A, Jain CK. Psychosomatic Disorder: The Current Implications and Challenges. Cardiovasc Hematol Agents Med Chem. 2024;22(4):399-406. doi:10.2174/0118715257265832231009072953
6. Mousavi S, Mousavi S, Shahsavari MR. Effects of Compassion-Focused Therapy on Resilience and Distress Tolerance in Female Heads of Households. Women's Health Bulletin. 2023;10(3):200-9. doi:10.30476/whb.2023.99466.1238
7. Hsu T, Thomas EBK, Welch EK, O'Hara MW, McCabe JE. Examining the Structure of Distress Tolerance: Are Behavioral and Self-Report Indicators Assessing the Same Construct? J Contextual Behav Sci. 2023;27:143-51. doi:10.1016/j.jcbs.2023.02.001
8. Mohsenabadi H, Pirmoradi M, Zahedi Tajrishi K, Gharraee B. A transdiagnostic approach to investigate of the relationships between anxiety sensitivity and health anxiety: the mediated roles of distress tolerance

and emotion regulation. Front Psychiatry. 2025;16:1478442. doi:10.3389/fpsyt.2025.1478442
9. Koohzad N, Asgari P, Heidari A, Esmaeili S, Johari Fard R. Mitigating Social Stigma and Enhancing Distress Tolerance: A Comparative Analysis of Mindfulness-Based Parenting Training and Transdiagnostic Interventions in Mothers of Autistic Children. Hosp Pract Res. 2025;10(1):601-8. doi:10.30491/hpr.2025.509298.1480
10. Badaye A, Vaziri S, Lotfi Kashani F. Developing a Psychosomatic Symptoms Model based on Emotional Regulation, Defense Mechanisms, and Attachment Styles Mediated by Distress Level in psychosomatic Patients. Hormozgan Med J. 2021;25(3):98–103. doi:10.34172/hmj.2021.11
11. Bach B, Lockwood G, Young JE. A new look at the schema therapy model: organization and role of early maladaptive schemas. Cogn Behav Ther. 2018;47(4): 328-49. doi:10.1080/16506073.2017.1410566
12. Momeni F, Bavi S, Sevari K, Eftekhar Saadi Z, Khalafi A. The Effectiveness of Compassion-Focused Therapy and Emotion-Focused Schema Therapy on Early Maladaptive Schemas and Anxiety Sensitivity in Women with Bulimia Nervosa. Hosp Pract Res. 2025 ;10(3):726-32. doi:10.30491/hpr.2025.529851.1496
13. Mohseni F, Bibak F. The Effectiveness of Schema Therapy Focused on Mindset on Self-Esteem and Impulsivity in Individuals with Narcissistic Personality Disorder. Health Nexus. 2023;1(3):114-21. doi:10.61838/kman.hn.1.3.15
14. Sadri Damirchi E, Moradi Z, Noroozi Homayoon M. Investigating the effectiveness of based-on-mentality schema therapy on feelings of loneliness, depression and self-concept of unmarried girls over 40 years old in Khorram Abad city. J Prev Couns. 2024;5(4):39-57. doi:10.22098/jpc.2024.15112.1236
15. Kalantarian E, Homaei R, Dasht Bozorgi Z. Effects of Emotional Schema Therapy and Dialectical Behavior Therapy on Cognitive Emotion Regulation in Patients with Bipolar II Disorder. Mod Care J. 2023;21(1): e138135. doi:10.5812/mcj-138135
16. Pourpashang M, Mousavi S. The effects of group schema therapy on psychological wellbeing and resilience in the clients under substance dependence treatment. J Client- Centered Nurs Care. 2021;7(2): 159-66. doi:10.32598/JCCNC.7.2.366.1
17. Simons JS, Gaher RM. The Distress Tolerance Scale: Development and Validation of a Self-Report Measure. Motiv Emot. 2005;29(2):83-102. doi:10.1007/s11031-005-7955-3
18. Azizi AR. Reliability and validity of the Persian version of distress tolerance scale. Iran J Psychiatry. 2010;5(4):154-8.
19. Reubsaet, R. Schema therapy – A phase-oriented approach, targeting tasks and techniques in individual and group schema therapy. Pavilion Publishing; 2021.
20. Edwards DJA. Using Schema Modes for Case Conceptualization in Schema Therapy: An Applied Clinical Approach. Front Psychol. 2021;12:763670. doi:10.3389/fpsyg.2021.763670
21. Shapira-Berman O. Psychosomatic symptoms as physical dreams: Emotional experiences given expression through the body. Contemp Psychoanal. 2018;54(3):560-89. doi:10.1080/00107530.2018.1492301
22. Sepidkar Y, Zenoozian S, Ahmadi F. Schema modes and social maladjustment: The mediating role of difficulty in emotion regulation. Heliyon. 2024;10(22): e40219. doi:10.1016/j.heliyon.2024.e40219
23. Forouzani S, Norbakhsh Amiri F, Abbasi M, Pilehvar Zavareh S, Maghsoudi S. Effectiveness of Group Schema Therapy on Life Attitude and Distress Tolerance in Women Attending Counseling Clinics. Psychol Woman J. 2023;4(4):102-8. doi:10.61838/kman.pwj.4.4.12
24. Ahmadzadeh Samani S, Dehnashi A, Kalantari M, Rezaei Dehnavi S. Effectiveness of Teaching Skills Based on Schema Therapy on the Distress Tolerance and Psychological Flexibility of Female Students with Early Maladaptive Schema. Psychol Except Individ. 2021;11(43):87-116. doi:10.22054/jpe.2021.57328.2259
25. Farzinfar K, Nejat H, Doustkam M, Tuzandeh Jani H. Comparison of the Effectiveness of Schema Therapy and Integrated Cognitive-Speech Approach in Emotional Regulation, and Distress Tolerance of Individuals Suffering from Stuttering. Avicenna J Clin Med. 2021;27(4):239. doi:10.52547/ajcm.27.4.239
26. Yazdani M, Hafezi F, Ehteshamzadeh P, Dasht Bozorgi Z. Efficacy of Group Schema Therapy on Difficulty in Emotion Regulation and Aggression in Adolescent Girls. J Psychol Stud. 2021;16(4):59-76. doi:10.22051/psy.2021.31473.2240
27. Eskandari F, Abedi Ghlich Ghashlaghi M. The Effects of Emotional Schema Therapy on Social Health and Attitude Towards Social Harms Among Female Students. Casp J Health Res. 2025;10(1):63-72. doi:10.32598/CJHR.10.1.1922.1