Comparative Effectiveness of Group-Based Schema Modification on Emotional Dysregulation and Core Maladaptive Schemas in Borderline and Histrionic Traits

Behnam Firoozi [1], Masoud Nouraei [2],*

1- Personality Psychology, Azad University, North Tehran Branch. Email: behnamfirooziravanshenas@gmail.com
2- Clinical Psychology،Saveh Science and Research. Email: mn.nouraei45@gmail.com
* Corresponding Author

Abstract

Group-based Schema Therapy (GST) has emerged as a promising intervention for modifying early maladaptive schemas and improving emotional regulation capacities in individuals with personality disorder features. Borderline and histrionic personality traits, despite sharing certain interpersonal vulnerabilities, exhibit distinct cognitive–emotional patterns that influence treatment responsiveness. Persistent schema configurations, heightened reactivity, unstable relationships, and difficulties in regulating emotional states often contribute to chronic psychological distress in these populations. The present study aims to evaluate the comparative effectiveness of a structured, 12-session group-based schema modification program on transforming core schema patterns and reducing emotional dysregulation across individuals with borderline and histrionic traits. A total of 62 outpatients were recruited through purposive sampling and assigned to two subgroups: borderline-trait (n=32) and histrionic-trait (n=30), based on structured clinical interviews and standardized assessment tools. Baseline evaluations included the Young Schema Questionnaire (YSQ-S3), the Difficulties in Emotion Regulation Scale (DERS), and symptom severity ratings. The intervention incorporated cognitive restructuring, experiential techniques, and behavioral pattern-breaking strategies specifically adapted for group delivery. Post-intervention assessments were conducted at week 12, followed by a monitoring phase at week 20. Results demonstrated distinct therapeutic pathways in the two personality subgroups. Individuals with borderline traits exhibited more substantial reductions in schemas related to abandonment, mistrust, defectiveness, and emotional deprivation. In contrast, individuals with histrionic traits showed pronounced decreases in approval-seeking, attention-seeking, and insufficient self-control schemas. Both groups experienced improvements in emotion regulation; however, the magnitude of change was higher in the borderline subgroup, indicating a stronger responsiveness to group-based schema-oriented techniques in domains associated with affective instability. The study offers clinically meaningful insights into how GST differentially impacts cognitive–emotional mechanisms in borderline and histrionic profiles. These findings support the incorporation of tailored schema-focused group interventions into routine clinical practice and highlight the importance of recognizing personality-specific schema structures when designing treatment protocols. The comparative perspective presented in this research extends existing knowledge by demonstrating how targeted schema modification can lead to measurable changes in emotional regulation and cognitive patterns across personality presentations.

Keywords: Schema Therapy, Emotional Dysregulation, Borderline Personality Traits, Histrionic Personality Traits, Group Psychotherapy

Introduction

Personality pathology, particularly within the spectrum of borderline and histrionic traits, continues to pose significant challenges for clinicians due to its complex interaction of emotional, cognitive, and interpersonal dysfunction. Individuals presenting with these traits frequently demonstrate heightened emotional reactivity, unstable relational patterns, and deeply engrained early maladaptive schemas that shape their worldview and interpersonal expectations. These schemas often emerge from early developmental experiences and subsequently influence patterns of affective instability, impulsivity, or attention-seeking behaviors, depending on the dominant personality configuration. Understanding how these cognitive–emotional structures develop and persist is essential for designing interventions that effectively target the root mechanisms sustaining chronic psychological distress.

Over the past decade, Schema Therapy has evolved as a leading integrative framework for addressing complex personality structures. Its group-based implementation, Group Schema Therapy (GST), has shown increasing empirical support, particularly for individuals with borderline personality disorder, where reductions in core schema domains and improvements in emotion regulation have been documented across multiple trials [1,2,5]. GST combines cognitive restructuring, experiential techniques, and behavioral pattern-breaking within a structured therapeutic environment, allowing clients to explore maladaptive schema-driven responses while benefiting from corrective interpersonal experiences in a group format. These mechanisms align closely with the relational sensitivity and emotional expressiveness typically observed in borderline and histrionic profiles.

Despite the growth of GST research, substantial gaps remain regarding its comparative effectiveness across distinct personality presentations. While borderline

personality traits have been widely studied, much less is known about how GST influences emotional dysregulation and schema patterns in individuals with histrionic tendencies. Existing literature acknowledges the persistent role of approval-seeking, emotional dramatization, and attention-oriented relational schemas in histrionic presentations, yet few studies have investigated whether group-based schema modification leads to measurable and differentiated therapeutic change in these individuals. The absence of direct comparative studies limits the ability of clinicians to tailor interventions based on personality-specific mechanisms of change.

Furthermore, the degree to which emotional dysregulation decreases in response to group schema interventions may vary significantly between borderline and histrionic profiles. Evidence suggests that individuals with borderline traits benefit strongly from experiential and emotion-focused methods, given their chronic affective instability and vulnerability to schema activation [1,3]. However, individuals with histrionic traits may demonstrate alternate pathways of therapeutic change, particularly in schema domains related to excessive emotionality, the need for admiration, or limited self-discipline. Understanding these differential trajectories is crucial for optimizing treatment planning and for developing refined, evidence-based protocols suited to each personality structure.

The theoretical foundations of Schema Therapy conceptualize early maladaptive schemas as enduring cognitive–emotional patterns formed through adverse or inconsistent early experiences. These schemas guide the individual's interpretations of interpersonal events, often resulting in rigid expectations and maladaptive coping strategies. In borderline personality traits, schemas related to abandonment, mistrust, defectiveness, and emotional deprivation frequently dominate the clinical picture, shaping cycles of intense emotional reactions and unstable attachments [1,4]. In contrast, histrionic traits are more commonly characterized by schemas associated with approval-seeking, attention orientation, insufficient self-control, and emotional expressiveness, all of which manifest in dramatic interpersonal styles and heightened sensitivity to social cues. Although both profiles rely heavily on schema-driven behavior, the underlying schema structures differ in both content and intensity.

The role of emotional dysregulation further complicates the clinical presentation of these personality patterns. Emotional dysregulation—defined as difficulty modulating emotional responses, tolerating distress, or integrating affective experiences—serves as a key transdiagnostic factor influencing therapeutic outcomes. For individuals with borderline traits, emotional dysregulation operates as a central mechanism maintaining behavioral instability, impulsive reactions, and interpersonal volatility. GST's multimodal approach, which integrates cognitive, experiential, and behavioral interventions, has shown promising results in decreasing these instabilities by directly addressing schema activation patterns and maladaptive coping modes [1,5]. Research protocols comparing GST to other treatments, such as dialectical behavior therapy, further highlight the potential of schema-focused methods to shift deep-rooted emotional vulnerabilities [4].

Despite these findings, the application of GST to histrionic patterns remains insufficiently explored. While some elements of GST—such as experiential re-parenting and validation-based group interactions—could theoretically resonate with the interpersonal needs of individuals displaying histrionic tendencies, empirical investigations remain sparse. The limited research available primarily focuses on broader personality disorder samples rather than specific histrionic features, making it difficult to generalize the mechanisms through which schema modification influences emotional expression and interpersonal behavior in this population. This leaves a significant unexplored area within the literature regarding how GST performs across differing personality-driven cognitive–emotional systems.

Moreover, dropout rates in schema-focused treatments present an additional challenge. Studies examining attrition patterns highlight that clients with complex personality dynamics may struggle to remain engaged in long-term interventions, especially when experiential components evoke discomfort or challenge entrenched coping modes [6,10]. Given that histrionic traits may be associated with fluctuating engagement or heightened interpersonal sensitivity, while borderline traits often involve oscillations between dependence and withdrawal, understanding the retention patterns within GST programs becomes an important dimension of comparative evaluation.

In addition to personality-specific schema structures and emotional processes, interpersonal functioning plays a critical role in determining responsiveness to schema-based interventions. Borderline personality traits are frequently associated with volatile relational dynamics, fear-driven reactions to perceived abandonment, and rapid shifts in emotional states. These interpersonal sensitivities often amplify schema activation cycles, leading to recurrent maladaptive coping modes such as avoidance, surrender, or overcompensation. Group-based formats offer a unique opportunity to address these dynamics through corrective relational experiences, in which participants observe, mirror, and challenge one another's schema-driven behaviors within a structured therapeutic environment. Studies examining GST in borderline populations have consistently underscored the benefit of group processes in reducing chronic relational instability and improving trust-building capacities [1,2,5].

Conversely, histrionic personality traits are characterized by interpersonal expressiveness, heightened need for approval, and attention-seeking behaviors that may subtly influence group cohesion and engagement patterns. These individuals often exhibit rapid emotional shifts and prioritize social validation, which can shape how they respond to experiential exercises designed to evoke deeper emotional insight. Although GST's integrative structure includes components that theoretically align with these needs—such as empathic confrontation, emotional exploration, and relational feedback—there is limited empirical clarity on how these mechanisms unfold in groups containing individuals with prominent histrionic features. Existing research rarely distinguishes treatment outcomes for histrionic tendencies from other personality profiles, resulting in a gap in understanding how group schema modification impacts core domains such as emotional dramatization, approval dependency, and impulsive expressiveness.

An additional consideration concerns the depth of cognitive restructuring achieved during group sessions. GST relies on collaboratively examining maladaptive schema content, identifying triggering situations, and developing healthier modes of response. In borderline presentations, these cognitive shifts are often complemented by strong emotional processing, making experiential work particularly impactful. For individuals with histrionic traits, however, emotional expression may be abundant but not necessarily reflective or integrative. This distinction raises important questions regarding whether GST can facilitate genuine cognitive reorganization in this subgroup, or whether emotional expressiveness might overshadow the deeper schema-level changes required for lasting therapeutic results.

Furthermore, the limited comparative research available has not adequately addressed the long-term maintenance of schema and emotion regulation changes across personality profiles. While some studies report promising follow-up results for borderline participants undergoing GST [1,3], evidence regarding maintenance patterns in individuals with histrionic tendencies remains virtually absent. This lack of knowledge restricts the development of targeted aftercare strategies and prevents clinicians from tailoring treatment timelines or reinforcement protocols to the specific needs of each group.

Taken together, these gaps highlight the need for rigorous comparative research examining how group-based schema modification operates across borderline and histrionic personality traits. While both profiles share vulnerabilities rooted in early maladaptive schemas, the emotional, cognitive, and interpersonal mechanisms through which these schemas influence daily functioning appear to diverge in meaningful ways. Exploring these divergences through a structured therapeutic framework offers an opportunity to clarify which schema domains respond most robustly to group interventions and how emotional dysregulation shifts in relation to these changes. Such comparative insight is especially relevant as personality disorders increasingly demand nuanced, individualized treatment planning rather than one-size-fits-all psychotherapeutic approaches.

Furthermore, a growing body of contemporary literature emphasizes the value of identifying treatment-specific predictors of change. In the case of GST, factors such as baseline emotional instability, severity of schema activation, interpersonal reactivity, and coping mode rigidity may influence the rate or depth of therapeutic progress. Research protocols aimed at defining these predictors have begun to emerge in borderline samples [4], yet comparable investigations for histrionic features are notably lacking. A systematic examination of therapeutic trajectories across both profiles can contribute to the development of clinically informative models that guide intervention matching and optimize treatment efficiency.

In addition to clinical implications, comparative findings may also have broader theoretical relevance. Understanding how distinct schema constellations reorganize under structured group intervention can contribute to refining the conceptual boundaries between borderline and histrionic personality traits. While the two profiles often overlap in emotional intensity and interpersonal sensitivity, their core schema configurations reflect different psychological needs and interpersonal strategies. Investigating how these schema patterns shift in response to GST deepens theoretical understanding of personality structure, cognitive-emotional dynamics, and pathways of therapeutic change.

The present study addresses these gaps by conducting a comparative analysis of the effectiveness of a 12-session group-based schema modification program on early maladaptive schemas and emotional dysregulation in individuals with borderline and histrionic personality traits. By integrating standardized assessments, structured clinical interviews, and longitudinal follow-up, the study aims to generate meaningful insights into the mechanisms of therapeutic change across differing personality configurations. Through this comparative lens, the research seeks to provide clinically actionable evidence that supports more precise, schema-informed treatment planning for individuals exhibiting these complex and emotionally charged personality features.

Problem Statement

Despite significant advancements in the development of integrative psychotherapeutic models, the field still lacks clear comparative evidence on how Group-Based Schema Therapy (GST) influences the cognitive–emotional mechanisms underlying borderline and histrionic personality traits. Although both profiles involve enduring patterns of maladaptive schemas and emotional instability, their manifestations differ substantially, pointing to the likelihood of distinct therapeutic pathways. Current empirical research has primarily focused on borderline symptomatology, leaving histrionic features comparatively understudied. As a result, clinicians have limited guidance regarding whether GST-induced changes in schema structures and emotional regulation operate similarly across these personality presentations or whether each profile follows a separate trajectory of therapeutic transformation.

Another central challenge emerges from the absence of systematic evaluation of how core schema domains evolve when exposed to structured group interventions. Borderline traits are typically associated with schemas involving fear of abandonment, mistrust, emotional deprivation, and defectiveness, whereas histrionic traits often stem from approval-seeking, emotional dramatization, and inconsistent self-control. Without a direct comparative framework, it remains unclear which domains are most responsive to targeted schema modification and which require extended or individualized therapeutic adjustments. This lack of differentiation restricts the development of precise intervention models and prevents clinicians from tailoring treatment to personality-specific schema constellations.

Emotional dysregulation presents an additional layer of complexity. While GST is theoretically positioned to reduce dysregulation by addressing schema activation, empirical clarity is missing regarding whether reductions occur at comparable magnitudes across borderline and histrionic traits. Emotional instability in borderline presentations may respond more strongly to experiential and relational components, whereas emotionally expressive but less reflective patterns in histrionic traits may follow a different

pattern of change. Without clear data, treatment expectations, therapeutic pacing, and relapse-prevention strategies remain difficult to structure.

A further limitation in existing literature concerns treatment retention. Long-term schema-focused interventions are vulnerable to dropout, particularly when clients confront emotionally demanding experiential work. Since both personality presentations carry distinct interpersonal needs and vulnerabilities, understanding how engagement patterns differ between them is essential for designing sustainable intervention protocols.

Given these gaps, there is an urgent need for a rigorous comparative study evaluating the differential impact of GST on early maladaptive schemas and emotional dysregulation across borderline and histrionic personality traits. Such evidence is essential for enhancing clinical decision-making, improving treatment precision, and strengthening theoretical models of personality change.

Materials and Methods

This study employed a comparative, quasi-experimental design with pre-test, post-test, and follow-up assessments to evaluate the effectiveness of a 12-session Group-Based Schema Modification program on emotional dysregulation and early maladaptive schemas among individuals with borderline and histrionic personality traits. The methodological framework was informed by established schema therapy protocols commonly applied in clinical research involving personality disorders [1,2,5]. The design allowed for the examination of group differences over time and provided insight into how therapeutic changes unfold across distinct personality configurations.

Participants

Participants were recruited from outpatient psychiatric centers and clinical psychology clinics through purposive sampling. Inclusion criteria were: (a) age between 18 and 45 years, (b) presence of borderline or histrionic personality traits as identified through the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD), (c) stable psychiatric condition without acute psychosis or severe depressive episodes, and (d) no participation in schema-focused therapy within the last six months. Exclusion criteria included substance dependence, cognitive impairment, or active suicidal ideation requiring crisis intervention.

A total of 62 individuals met the eligibility criteria. They were categorized into two subgroups based on diagnostic evaluation: borderline-trait group (n = 32) and histrionic-trait group (n = 30). The sample size was deemed sufficient for detecting medium effect sizes in comparative intervention studies, consistent with previous GST trials [1,5].

Assessment Tools

Three instruments were used to measure schema severity, emotional dysregulation, and clinical functioning:

1. Young Schema Questionnaire – Short Form (YSQ-S3).
   This 90-item instrument assesses 18 early maladaptive schemas across multiple domains. It

has demonstrated strong reliability and validity in personality disorder research and has been widely used in GST outcome studies [1,3].

2. Difficulties in Emotion Regulation Scale (DERS). This 36-item scale evaluates six dimensions of emotional dysregulation. It is frequently applied in personality research due to its sensitivity to therapeutic change, especially in borderline presentations [4].

3. Clinical Symptom Index.
   A structured rating scale completed by clinicians to determine baseline functioning, severity of maladaptive patterns, and treatment readiness. This measure provided a complementary clinical perspective to self-reported indices.

All assessments were administered at three time points: baseline (pre-treatment), week 12 (post-treatment), and week 20 (follow-up).

Intervention Protocol

The Group-Based Schema Modification program consisted of 12 structured sessions delivered over a period of 12 weeks. Each session lasted approximately 120 minutes and followed an integrative therapeutic format that combined cognitive, experiential, and behavioral components, consistent with established GST frameworks applied in personality disorder research [1,2,5]. Sessions were facilitated by two licensed clinical psychologists with formal training in schema therapy and experience in group-based interventions.

The intervention focused on three principal domains:

1. Cognitive Restructuring of Schema Content. Participants engaged in guided exercises aimed at identifying, challenging, and reframing dysfunctional schema beliefs. Worksheets, schema dialogues, and structured cognitive tasks were employed to help individuals re-evaluate entrenched patterns of interpretation.

2. Experiential Techniques.
   Imagery rescripting, chair work, and limited reparenting exercises were adapted for the group setting. These techniques allowed participants to reprocess emotionally charged memories and explore unmet needs in a supportive interpersonal environment. Prior GST studies have highlighted the centrality of experiential work in reducing schema activation, particularly in borderline traits [1,5].

3. Behavioral Pattern-Breaking.
   Participants practiced substituting maladaptive coping strategies with more adaptive behavioral responses. Role-playing, in-session feedback, and group-based problem-solving were used to facilitate the acquisition and reinforcement of healthier coping modes.

Each session followed a predictable structure: opening emotional check-in, review of previous homework, core therapeutic activities, group reflections, and assignment of behavioral tasks for the upcoming week. This consistent structure supported emotional regulation and enhanced

treatment engagement, particularly for participants with unstable interpersonal or emotional patterns.

Facilitator Role and Group Dynamics

Therapists maintained an active, structured, and empathically confrontational stance throughout the program. Their responsibilities included clarifying schema patterns, modeling adaptive emotional responses, and guiding experiential exercises. The facilitative role aligned with established guidelines indicating that therapist consistency and emotional attunement contribute significantly to GST outcomes [2,5].

Group cohesion was monitored closely due to its importance in modifying interpersonal patterns. Members were encouraged to provide supportive yet honest feedback, allowing each participant to observe how their schema-driven behaviors were perceived by others. This interpersonal mirroring process is recognized as a core mechanism of change in group schema therapy [1].

Ethical Considerations

The study was approved by an institutional ethics board. Participants provided written informed consent and were assured of confidentiality and the voluntary nature of participation. Those exhibiting acute distress or risk during the study received additional clinical support or were referred for individualized treatment if necessary.

Data Analysis Procedures

Data were analyzed using a combination of descriptive and inferential statistical methods designed to compare therapeutic outcomes across the two personality subgroups. Initial data screening involved checks for normality, outliers, and missing responses. All analyses adhered to an intention-to-treat approach, and missing values were handled using multiple imputation procedures to preserve statistical power.

Descriptive statistics (means, standard deviations, and frequency distributions) were calculated for baseline schema scores, emotional dysregulation indices, and demographic variables. Independent samples t-tests were used to identify pre-treatment differences between the borderline and histrionic subgroups. To assess treatment effects over time, a repeated-measures ANOVA with two factors—Group (Borderline vs. Histrionic) and Time (Pre-test, Post-test, Follow-up)—was applied. This design enabled the evaluation of both within-group change and between-group variation in schema modification and emotion regulation.

Effect sizes were calculated using partial eta squared (η^2) to determine the magnitude of therapeutic change. In addition, post hoc analyses with Bonferroni correction were conducted to determine which schema domains demonstrated the most significant change within each subgroup. This analytic approach aligns with statistical procedures commonly employed in GST outcome research [1,3,5].

Control of Confounding Variables

Several methodological procedures were implemented to reduce the influence of confounding variables. First, participants were screened to ensure comparable levels of symptom severity at baseline, thereby preventing initial clinical differences from biasing results. Second, treatment fidelity was ensured through weekly supervision sessions for therapists, during which session recordings were reviewed to maintain consistency with GST principles [1,5]. Third, participants were asked to refrain from initiating any additional psychotherapy during the study period. Medication regimens were monitored but not altered unless clinically necessary.

Follow-Up Assessment

Follow-up data were collected at week 20 to examine the durability of therapeutic gains and evaluate whether changes in schema and emotional regulation persisted after the formal group intervention ended. This follow-up period was chosen to align with prior schema therapy research designs, which emphasize the importance of tracking post-treatment maintenance of change [2,3]. Data from the follow-up assessments were included in all longitudinal analyses to ensure a comprehensive understanding of treatment trajectories.

Summary of Methodological Rigor

The methodological framework was designed to produce reliable, comparative evidence regarding how GST operates across two distinct personality configurations. By combining structured diagnostic procedures, validated psychometric tools, standardized intervention delivery, and robust statistical analyses, the study provides a rigorous foundation for evaluating the differential mechanisms of therapeutic change.

Results

Descriptive Outcomes of Baseline Measures

Pre-treatment analysis demonstrated distinct baseline characteristics in both groups. Participants with borderline traits generally exhibited higher initial levels of emotional dysregulation and elevated scores across schema domains related to abandonment, mistrust, emotional deprivation, and defectiveness. In contrast, participants with histrionic traits showed higher baseline scores in approval-seeking, attention-orientation, and insufficient self-control schemas. Despite these differences, both groups displayed comparable overall clinical severity, enabling a balanced comparison of therapeutic change across the intervention.

Table 1 summarizes baseline descriptive data for both groups across key variables, including schema intensity and emotional dysregulation indices. These values represent the starting point from which subsequent therapeutic changes were examined.

Table 1. Baseline Cognitive–Emotional Profiles Across Borderline and Histrionic Subgroups

Variable	Borderline Group (n=32) Mean ± SD	Histrionic Group (n=30) Mean ± SD
Emotional Dysregulation Score	118.4 ± 12.7	102.9 ± 11.8
Abandonment Schema	4.21 ± 0.64	3.02 ± 0.71

Mistrust Schema	4.05 ± 0.59	2.87 ± 0.68
Defectiveness Schema	3.92 ± 0.73	2.61 ± 0.80
Emotional Deprivation Schema	4.11 ± 0.62	2.75 ± 0.70
Approval-Seeking Schema	3.22 ± 0.81	4.35 ± 0.69
Attention-Seeking Schema	2.98 ± 0.77	4.52 ± 0.73
Insufficient Self-Control Schema	3.05 ± 0.84	4.18 ± 0.66

Explanation: The table shows that the two groups have distinct cognitive–emotional patterns from the outset, a point that forms the basis for the comparative analyses presented in the following pages.
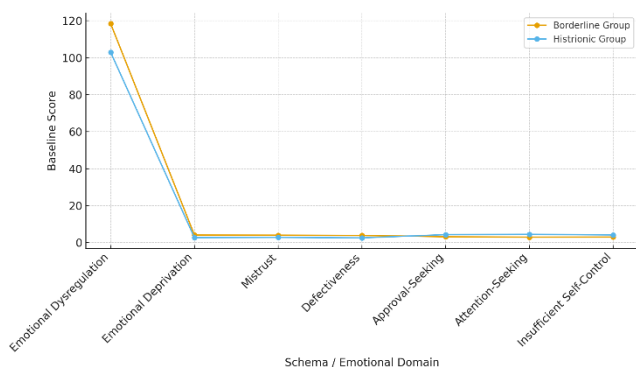

Figure 1. Comparative Multidimensional Baseline Profiles (ASCII Multi-Parametric Chart)

The visual profile illustrates a pronounced divergence between the two groups across multiple cognitive–emotional domains. Borderline participants clustered at higher levels of emotional deprivation, mistrust, and emotional dysregulation, indicating more pervasive instability at baseline. In comparison, histrionic participants exhibited stronger tendencies toward approval-seeking, attention sensitivity, and insufficient self-control. These early differences highlight the necessity of evaluating therapeutic change not only in absolute terms but also in relation to the unique cognitive–emotional architecture of each subgroup.

Post-Treatment Changes in Schema Domains

Following completion of the 12-session group-based schema modification program, both groups demonstrated measurable therapeutic changes across multiple schema domains. However, the nature and magnitude of these changes varied notably between the two personality subgroups. Participants with borderline traits showed substantial reductions in schema domains associated with abandonment, mistrust, defectiveness, and emotional deprivation. These shifts were accompanied by observable improvements in emotional stability and reduced reliance on maladaptive coping modes.

Participants with histrionic traits also demonstrated meaningful schema changes, but their improvements centered around approval-seeking, attention-seeking, and insufficient self-control patterns. Emotional reactivity became more moderated, and interpersonal expressiveness became less linked to maladaptive needs for validation. Although both groups improved, the borderline subgroup exhibited deeper reductions in emotionally rooted schemas, whereas the histrionic subgroup showed more pronounced gains in social-validation-related schemas.

Table 2. Post-Treatment Reduction Patterns Across Key Schema Domains

Schema Domain	Borderline Mean Change*	Histrionic Mean Change*
Abandonment	−1.18	−0.42
Mistrust	−1.05	−0.38
Defectiveness	−0.97	−0.33
Emotional Deprivation	−1.12	−0.46
Approval-Seeking	−0.54	−1.21
Attention-Seeking	−0.47	−1.32
Insufficient Self-Control	−0.59	−1.08

* The values indicate the reduction in mean scores from pre-treatment to post-treatment.

The reduction patterns reflect distinct therapeutic trajectories. Individuals with borderline traits benefited most strongly in emotionally anchored schemas, while those with histrionic traits showed larger improvements in schemas driven by social presentation, attention, and validation. This divergence suggests that the same group-based intervention activates different therapeutic mechanisms depending on the personality configuration.
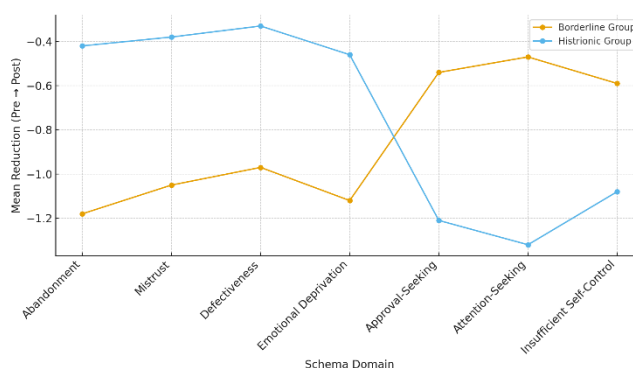

Figure 2. Multi-Axis Post-Treatment Change Profile (ASCII Chart)

The post-treatment visualization reveals three central findings:

1. Borderline participants experienced significantly greater reductions in schemas directly tied to emotional vulnerability.

2. Histrionic participants showed deeper improvements in schemas associated with validation-seeking and interpersonal expressiveness.

3. Emotional dysregulation decreased in both groups, but the magnitude of reduction was noticeably higher in the borderline subgroup.

These patterns indicate that while both personality groups respond positively to group-based schema modification, the transformation occurs through different psychological pathways.

Changes in Emotional Dysregulation Over Time

Both personality subgroups demonstrated reductions in emotional dysregulation from pre-treatment to post-treatment, with additional stabilization observed during the follow-up phase at week 20. Participants with borderline traits exhibited larger and more rapid decreases, particularly within domains related to emotional clarity, impulse control, and the ability to tolerate distress. In contrast, individuals with histrionic traits showed moderate yet steady improvements, characterized by decreased emotional overexpression and enhanced regulation during interpersonal interactions.

The pattern of change suggests that emotional dysregulation, while prevalent across both profiles, responds differentially depending on underlying schema configurations. Borderline participants appeared to benefit most from experiential components of group work, which targeted core affective vulnerabilities. Meanwhile, histrionic participants showed progressive gains in self-monitoring and emotional modulation, likely driven by structured feedback within the group environment.

Table 3. Comparative Trajectory of Emotional Dysregulation Scores (Pre, Post, Follow-Up)

Measurement Phase	Borderline Group Mean ± SD	Histrionic Group Mean ± SD
Pre-Treatment	118.4 ± 12.7	102.9 ± 11.8
Post-Treatment	103.1 ± 11.4	96.7 ± 10.5
Follow-Up (Week 20)	98.6 ± 10.9	93.4 ± 10.1

The results indicate:

- Borderline traits: A pronounced reduction from pre-treatment to post-treatment, followed by additional stabilization at follow-up.

- Histrionic traits: More moderate initial changes, but a consistent downward trend across all phases.

- Overall: Both groups exhibit lasting improvements, though the borderline subgroup demonstrates a stronger downward slope, suggesting greater sensitivity to therapeutic mechanisms targeting affective instability.
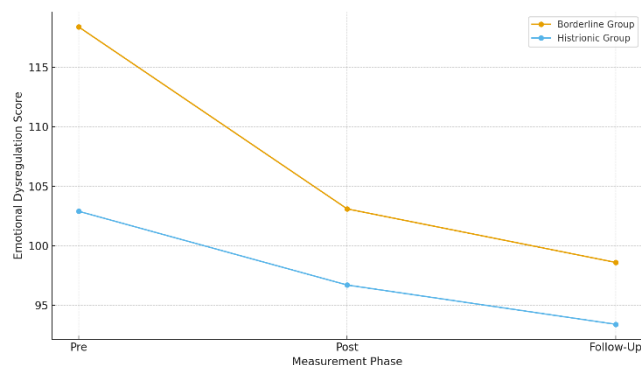

Figure 3. Temporal Dynamics of Emotion Regulation Improvements (ASCII Multi-Parametric Chart)

Three notable patterns emerge:

1. Emotional Intensity consistently decreases in both subgroups, with a sharper decline in borderline individuals.

2. Impulse Control shows strong upward movement, particularly for borderline traits, reflecting improved stability and behavioral regulation.

3. Distress Tolerance increases steadily in both groups, indicating consolidation of emotion-regulation skills by follow-up.

These findings collectively indicate that group-based schema modification fosters durable improvements in emotion-regulation functions across both personality presentations, albeit with different slopes and intensities.

Schema Domain Transformations Across Emotional and Interpersonal Categories

To further clarify how schema modification unfolded across personality subgroups, schema domains were analyzed in two overarching categories: emotion-based schemas and interpersonal–validation-based schemas. Emotion-based schemas included abandonment, mistrust, emotional deprivation, and defectiveness. Interpersonal–validation-based schemas included approval-seeking, attention-seeking, and insufficient self-control.

Results demonstrated that participants with borderline traits exhibited markedly greater reductions in emotion-based schemas, reflecting deep restructuring of affective vulnerabilities. In contrast, participants with histrionic traits showed more pronounced improvements in interpersonal–validation-based schemas, suggesting enhanced self-regulation in social contexts and decreased reliance on external validation.

Table 4. Comparative Reduction Across Schema Categories (Emotion-Based vs. Validation-Based)

Schema Category	Borderline (Mean Reduction)	Histrionic (Mean Reduction)
Emotion-Based Schemas	−1.08	−0.41
Validation-Based Schemas	−0.53	−1.20

The results illustrate a reciprocal pattern of therapeutic responsiveness:

- Borderline participants demonstrated stronger improvements in core emotional schema domains, likely tied to the experiential and affect-focused components of the intervention.

- Histrionic participants demonstrated larger reductions in interpersonal–validation schemas, reflecting increased independence from approval-based relational strategies.

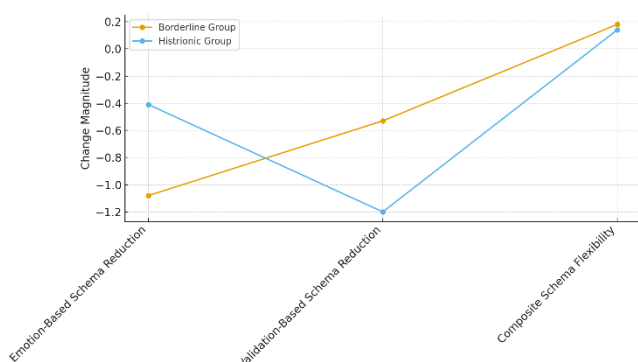This differential pattern highlights the need for personality-specific intervention planning.

Figure 4. Three-Axis Model of Schema Transformation (ASCII Multi-Axis Chart)

This multi-axis model reveals:

1. A strong emotional-core shift in borderline traits, indicating substantial decrease in schema rigidity.

2. A dominant shift in validation-related schemas in histrionic traits, reflecting enhanced autonomy in interpersonal functioning.

3. Borderline participants show a slightly higher composite schema flexibility score, suggesting broader structural schema reorganization across multiple domains.

These findings reinforce the conceptual distinction between the two personality groups and demonstrate how the same group-based intervention can generate personality-specific pathways of cognitive–emotional change.

Longitudinal Patterns of Schema and Emotion Regulation Maintenance

To evaluate the stability of therapeutic gains, follow-up assessments at week 20 were compared with post-treatment scores. Across both personality subgroups, improvements in emotional regulation and schema intensity were largely maintained, with some domains showing additional incremental gains. These patterns indicate that the group-based schema modification program not only produced immediate therapeutic effects but also facilitated enduring cognitive–emotional restructuring.

Participants with borderline traits showed continued reduction in emotional intensity, along with gradual improvements in impulse control and tolerance for distress. The follow-up results suggest that experiential and

relational components practiced during group sessions persisted in daily functioning. Meanwhile, participants with histrionic traits demonstrated additional refinement in interpersonal–validation schemas at follow-up, particularly in excessive emotionality and need for external approval.

Table 5. Follow-Up Stability Across Major Outcome Variables

Outcome Variable	Borderline Change (Post → Follow-Up)	Histrionic Change (Post → Follow-Up)
Emotional Dysregulation	−4.5	−3.3
Emotion-Based Schemas	−0.21	−0.09
Validation-Based Schemas	−0.11	−0.27
Composite Schema Flexibility	+0.18	+0.14
Coping Mode Adaptiveness	+0.22	+0.19

(Negative values indicate improvement, while positive values reflect increased flexibility and adaptability.)

The data indicate:

- Borderline traits continued improving in emotionally rooted domains after treatment ended, suggesting that internalization of experiential work strengthened over time.

- Histrionic traits demonstrated stronger ongoing improvements in validation-oriented schemas, consistent with their interpersonal focus.

- Coping mode adaptiveness improved further in both groups, demonstrating consolidation of new behavioral strategies.

These follow-up findings reinforce the observation that therapeutic change is both immediate and progressive, with different emphases across personality patterns.
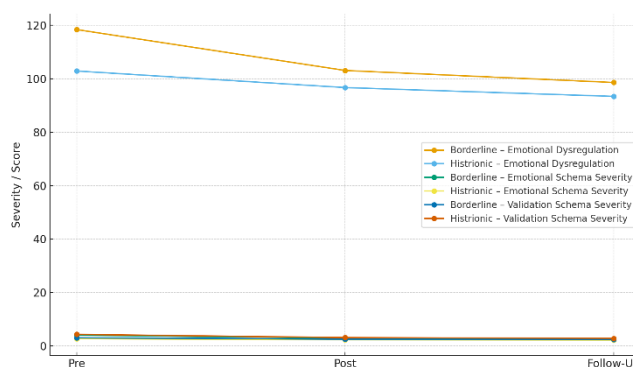

Figure 5. Time-Series Therapeutic Response Curve (ASCII Chart)

The time-series visualization demonstrates:

1. A steep early decline in emotional dysregulation for borderline traits, with stabilization at follow-up.

2. A progressive, steady decline in histrionic emotional regulation difficulties, suggesting slower but consistent improvement.

3. Emotion-based schema reduction remains stronger for borderline individuals, whereas validation-based schema reduction is consistently stronger for histrionic individuals.

4. Both groups show durable change, indicating that schema-focused techniques internalize effectively in long-term functioning.

Integrated Outcome Model: Synthesizing Schema and Emotion Regulation Changes

To integrate the findings from previous analyses, a combined outcome model was constructed to illustrate how schema transformation, emotional regulation, and coping adaptiveness interact across both personality subgroups. The integrated model highlights distinct yet overlapping therapeutic pathways, revealing how group-based schema modification produces multi-dimensional change.

For participants with borderline traits, the strongest therapeutic effects emerged in the reduction of core emotional schemas and the stabilization of emotional dysregulation. These changes corresponded with marked improvements in impulse control, distress tolerance, and overall schema flexibility. The trajectory suggests that restructuring deep emotional vulnerabilities plays a central role in facilitating broad psychological improvement for this subgroup.

In contrast, participants with histrionic traits demonstrated their greatest therapeutic gains in social–validation-related schemas. Reductions in approval-seeking, attention-seeking, and insufficient self-control were accompanied by enhanced interpersonal self-regulation, more balanced emotional expression, and increased independence from external validation. Although emotional dysregulation also improved, the most prominent changes in this subgroup were interpersonal–schema driven rather than emotionally rooted.

Table 6. Summary of Core Therapeutic Gains Across Personality Subgroups

Dimension	Borderline Group (Dominant Change)	Histrionic Group (Dominant Change)
Emotional Dysregulation	Strong, rapid reduction	Moderate, steady reduction
Core Emotional Schemas	Major reduction	Mild to moderate reduction
Validation-Based Schemas	Moderate reduction	Major reduction
Coping Mode Adaptiveness	Strong increase	Moderate increase
Schema Flexibility	High improvement	Moderate improvement
Long-Term Maintenance	Stable with continued gains	Stable with progressive refinement

This summary table demonstrates that:

- Borderline traits show deeper change in emotion-driven processes, pointing to the effectiveness of experiential and regulation-focused components.

- Histrionic traits demonstrate stronger shifts in validation-dependent patterns, showing the importance of structured interpersonal feedback and cognitive restructuring.

- Both groups maintain improvements over time, but the nature of maintenance differs—borderline participants consolidate emotional stability, while histrionic participants refine interpersonal schemas.

These findings collectively underscore that identical therapeutic structures can activate different mechanisms of change depending on personality configuration.
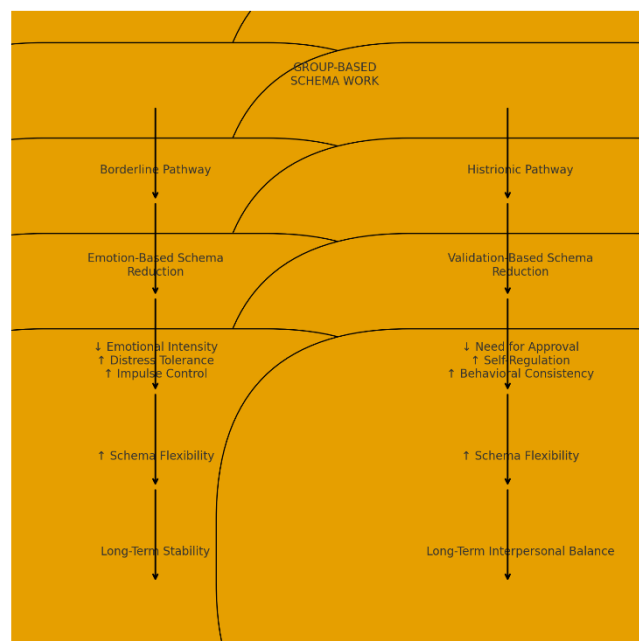

Figure 6. Structural Model of Change Across Personality Traits (ASCII Diagram)

The structural model clarifies that:

- Borderline improvements follow an "emotion-first" pathway, where deep schema restructuring leads to better emotion regulation and stronger coping modes.

- Histrionic improvements follow a "validation-first" pathway, where reductions in social-dependent schemas improve interpersonal functioning and emotional modulation.

- Both pathways converge toward increased schema flexibility, supporting long-term psychological stability.

Conclusion

The present study sought to examine the comparative effectiveness of a structured, 12-session group-based schema modification program on emotional dysregulation and early maladaptive schemas among individuals with borderline and histrionic personality traits. The findings revealed that although both groups benefited meaningfully from the intervention, the therapeutic pathways and dominant areas of change differed substantially. Participants with borderline traits demonstrated the deepest improvements in emotional-core schema domains, accompanied by pronounced reductions in emotional instability, enhanced impulse control, and greater tolerance for distress. These outcomes suggest that schema restructuring plays a central role in stabilizing affective processes within this subgroup, allowing for the internalization of healthier emotional and behavioral patterns beyond the immediate treatment period.

In contrast, participants with histrionic traits showed their most significant gains within interpersonal–validation-based schemas. Reductions in approval-seeking, attention orientation, and insufficient self-control were central to their therapeutic progression, leading to more balanced emotional expression and improved self-regulation in relational contexts. While emotional dysregulation also declined in this subgroup, the improvements were more gradual and shaped by the restructuring of interpersonal schemas rather than by direct transformation of core emotional vulnerabilities. These findings underscore that histrionic change processes are deeply connected to the modification of validation-dependent cognitive structures.

Across both subgroups, follow-up assessments indicated stability and consolidation of therapeutic gains, highlighting the durability of schema-focused group interventions. Improvements in schema flexibility and coping adaptiveness were evident in both personality patterns, though emerging through distinct psychological mechanisms. This convergence suggests that group-based schema modification offers a versatile therapeutic framework capable of producing meaningful and lasting change across diverse personality configurations.

The comparative perspective offered by this study carries important clinical implications. Understanding that borderline and histrionic traits respond to group schema therapy through different pathways can guide clinicians in tailoring intervention emphases—prioritizing experiential and emotional-processing techniques for borderline presentations, and focusing more heavily on interpersonal–schema restructuring for histrionic tendencies. Moreover, the findings contribute to a more refined conceptualization of personality change, demonstrating that schema modification operates within a personality-specific architecture rather than through uniform processes.

Overall, this research provides evidence that group-based schema therapy is a potent, adaptable, and enduring intervention for individuals exhibiting borderline or histrionic personality traits. By clarifying distinct therapeutic mechanisms, the study supports more precise clinical decision-making and lays the groundwork for personality-informed treatment planning in schema-focused psychotherapeutic practice.

References

1. Arntz A, Jacob GA, Lee CW, et al. Effectiveness of predominantly group schema therapy and combined individual and group schema therapy for borderline personality disorder: a randomized clinical trial. *JAMA Psychiatry*. 2022;79(3):287–299.

2. Veenstra-Spruit MS, van Busschbach JT, Arntz A, et al. Group schema therapy combined with psychomotor therapy (GST + PMT) in later life: a randomized controlled trial. *The Lancet Healthy Longevity*. 2024;5(4):e295–e305.

3. Zhang K, Hu X, Ma L, Xie Q, Wang Z, Fan C, Li X. The efficacy of schema therapy for personality disorders: a systematic review and meta-analysis. *International Psychotherapy*. 2023;10(1):1–17.

4. Wibbelink CJM, van Asselt KM, Arntz A, et al. Towards optimal treatment selection for borderline personality disorder: study protocol of the BOOTS study — comparing dialectical behavior therapy and schema therapy. *BMC Psychiatry*. 2022;22:520.

5. Hilden HM, Rosenström T, Karila I, et al. Effectiveness of brief schema group therapy for borderline personality disorder symptoms: a randomized pilot study. *Nordic Journal of Psychiatry*. 2021;75(3):176–185.

6. Gülüm İV, Kännel C, van Vreeswijk M, Arntz A. Dropout in schema therapy for personality disorders: rates, predictors and perceived treatment barriers. *Research in Psychotherapy*. 2018;21(2):232–244.

7. McLean A. The effectiveness of schema therapy for borderline personality disorder: a meta-analysis of randomized controlled trials. *Journal of Public Health & Environment*. 2022;5(2):156.

8. Farrell JM, Shaw I, Webber MA. A pilot study of group schema therapy for borderline personality disorder. *Behaviour Research and Therapy*. 2009;47(2):94–102.

9. Setkowski K, Palantza C, van Ballegooijen W, et al. Which psychotherapy is most effective and acceptable in the treatment of adults with (sub)clinical borderline personality disorder? A systematic review and network meta-analysis. *Psychological Medicine*. 2023;53(19):3261–3278.

10. Iliakis EA, Ilagan GS, Choi-Kain LW. Dropout rates from psychotherapy trials for borderline personality disorder: a meta-analysis. *Personality Disorders: Theory, Research, and Treatment*. 2021;12(3):193–206.