

A Comparison of the Effectiveness of Schema Therapy and Acceptance and Commitment Therapy on Experiential Avoidance in Women with Multiple Sclerosis

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ABSTRACT

Objective: The present study aimed to compare the effectiveness of schema therapy and acceptance and commitment therapy in reducing experiential avoidance among women diagnosed with multiple sclerosis.

Methods and Materials: This applied, quasi-experimental study employed a pretest–posttest–follow-up design with a control group. The statistical population consisted of women with multiple sclerosis who attended the Tehran Multiple Sclerosis Society during 2024–2025. Forty-five eligible participants were selected using accessible sampling and randomly assigned to three groups: schema therapy, acceptance and commitment therapy, and a control group, each comprising fifteen participants. The two intervention groups received ten group-based sessions of 90 minutes according to standardized therapeutic protocols, while the control group received no psychological intervention. Experiential avoidance was assessed at pretest, posttest, and follow-up using the Acceptance and Action Questionnaire–II. Data were analyzed using descriptive statistics and repeated-measures analysis of covariance, controlling for baseline scores, with post hoc comparisons conducted using Tukey’s HSD test.

Findings: Inferential analyses demonstrated a statistically significant effect of group on experiential avoidance at posttest after controlling for pretest scores, as indicated by ANCOVA results ($F = 69.44, p < 0.001, \eta^2p = 0.77$), confirming a large effect of the interventions. Post hoc Tukey HSD comparisons showed that the acceptance and commitment therapy group had significantly lower experiential avoidance scores than the schema therapy group (mean difference = $-4.44, p < 0.001$) and the control group (mean difference = $-7.98, p < 0.001$), and the schema therapy group also differed significantly from the control group (mean difference = $-3.54, p < 0.001$). At follow-up, the group effect remained statistically significant ($F = 51.31, p < 0.001, \eta^2p = 0.72$), indicating sustained treatment effects over time. Pairwise comparisons at follow-up revealed that acceptance and commitment therapy continued to show significantly lower experiential avoidance compared

with the control group (mean difference = -7.28 , $p < 0.001$) and schema therapy (mean difference = -5.45 , $p < 0.001$), while schema therapy also maintained a significant advantage over the control group (mean difference = -1.84 , $p = 0.041$). These results indicate that both interventions produced significant and lasting reductions in experiential avoidance, with acceptance and commitment therapy demonstrating the strongest and most durable effects.

Conclusion: Both schema therapy and acceptance and commitment therapy are effective interventions for reducing experiential avoidance in women with multiple sclerosis; however, acceptance and commitment therapy appears to yield superior and more durable outcomes. These findings support the use of acceptance-based and schema-focused psychological interventions as part of comprehensive psychosocial care for women with multiple sclerosis.

Keywords: *Multiple sclerosis; experiential avoidance; schema therapy; acceptance and commitment therapy; women*

1. Introduction

Multiple sclerosis is a chronic, progressive, and often unpredictable neurological disease that predominantly affects young and middle-aged adults and disproportionately impacts women. Beyond its well-documented physical and neurological manifestations, multiple sclerosis is associated with profound psychological, emotional, and social challenges that substantially reduce quality of life and adaptive functioning. Fatigue, pain, cognitive impairment, and fluctuating physical disability interact with emotional distress, uncertainty about disease progression, and perceived loss of control, creating a context in which psychological vulnerability is heightened and maladaptive coping strategies may emerge. Recent research has increasingly emphasized that psychological factors play a critical role in shaping adjustment to multiple sclerosis, influencing not only mental health outcomes but also treatment adherence, functional capacity, and overall well-being (Jeng et al., 2025). Consequently, identifying modifiable psychological processes that contribute to distress in women with multiple sclerosis has become a priority in contemporary clinical and health psychology.

Among the psychological processes that have received growing empirical attention, experiential avoidance has emerged as a central transdiagnostic mechanism underlying a wide range of emotional and behavioral difficulties. Experiential avoidance refers to persistent attempts to avoid, suppress, or control unwanted internal experiences such as thoughts, emotions, memories, or bodily sensations, even when doing so leads to long-term harm or reduced life functioning. While avoidance may offer short-term relief, extensive evidence indicates that chronic reliance on experiential avoidance paradoxically intensifies

psychological distress, restricts behavioral flexibility, and interferes with engagement in valued life activities. Studies across diverse clinical populations have demonstrated strong associations between experiential avoidance and anxiety, depression, emotional dysregulation, and reduced psychological flexibility (Sedighi Arfaee et al., 2021; Xiong et al., 2021). In the context of chronic illness, experiential avoidance may be particularly salient, as patients are confronted with persistent physical symptoms, uncertainty, and emotionally charged illness-related experiences that cannot be eliminated or fully controlled.

Women with multiple sclerosis may be especially vulnerable to experiential avoidance due to the intersecting demands of illness management, gendered social roles, and heightened emotional burden. Avoidance of distressing thoughts about disease progression, bodily limitations, or perceived social stigma can initially appear adaptive but often leads to withdrawal, reduced self-care, and diminished engagement in meaningful activities. Empirical studies have shown that experiential avoidance is linked to poorer mental health outcomes and lower quality of life in individuals coping with chronic medical conditions, including neurological and autoimmune disorders (Dosa, 2021; Finger et al., 2020). These findings highlight the importance of targeting experiential avoidance as a key therapeutic focus in psychosocial interventions for women with multiple sclerosis.

Acceptance and Commitment Therapy has been extensively conceptualized and empirically validated as an intervention specifically designed to reduce experiential avoidance and enhance psychological flexibility. Rooted in contextual behavioral science, ACT emphasizes acceptance of internal experiences, mindfulness, values clarification, and committed action, rather than symptom elimination or

cognitive control. A substantial body of research supports the effectiveness of ACT in reducing experiential avoidance and improving psychological outcomes across a wide range of populations, including individuals with anxiety disorders, depression, insomnia, post-traumatic stress disorder, and chronic medical conditions (Bowins, 2021; Falletta-Cowden & Hayes, 2022; Wharton et al., 2019). Recent randomized and feasibility studies have further demonstrated that ACT-based interventions lead to meaningful reductions in experiential avoidance and improvements in emotional functioning, even when delivered in brief, group-based, or digital formats (Na et al., 2022; Sierra & Ortiz, 2023; Spencer, 2023).

Within medical and psychosomatic contexts, ACT has shown promising results for patients experiencing chronic pain, migraine, irritable bowel syndrome, and cancer survivorship, with experiential avoidance consistently identified as a core mechanism of change (Alfoone et al., 2020; Dosa, 2021; Kamran et al., 2022). Moreover, studies conducted in Iranian samples have replicated these findings, indicating that ACT effectively reduces experiential avoidance and improves emotional processing and psychological adjustment across diverse clinical groups (Broujeni et al., 2024; Rouyintan et al., 2020; Zakiéi et al., 2021). Collectively, this evidence positions ACT as a theoretically coherent and empirically supported approach for addressing experiential avoidance in women with multiple sclerosis.

Parallel to ACT, schema therapy represents an integrative therapeutic model that targets deep-seated cognitive–emotional patterns known as early maladaptive schemas. These schemas are formed through adverse childhood experiences and are activated in adulthood during periods of stress, illness, or relational threat. Schema therapy integrates cognitive-behavioral, experiential, interpersonal, and psychodynamic techniques to modify maladaptive schemas, reduce dysfunctional coping styles, and strengthen healthy modes of functioning. Increasing empirical evidence suggests that maladaptive schemas are closely linked to emotional dysregulation, rumination, and experiential avoidance, particularly in individuals facing chronic psychological or medical stressors (Nazari et al., 2022; Nazari et al., 2023). From this perspective, experiential avoidance may function as a schema-driven coping response aimed at escaping schema-related emotional pain.

Recent studies have demonstrated that schema therapy is effective in reducing experiential avoidance and emotional distress in various clinical populations, including individuals

with obsessive–compulsive disorder, cardiovascular disease, breast cancer, and chronic vestibular disorders (Changi Ashtiani et al., 2024; Ghatreh Samani & Najafi, 2024; Ghayour et al., 2022; Rahmani et al., 2024). Importantly, schema therapy has been adapted to incorporate mindfulness-based elements, further enhancing its relevance for addressing avoidance-related processes (Changi Ashtiani et al., 2024). These findings suggest that schema therapy may offer a complementary yet distinct pathway to reducing experiential avoidance by modifying the underlying cognitive–emotional structures that sustain avoidant coping.

Despite the growing evidence base for both ACT and schema therapy, direct comparative studies examining their relative effectiveness on experiential avoidance remain limited, particularly in populations with multiple sclerosis. Existing comparative research has primarily focused on anxiety, perfectionism, or emotional symptoms in psychiatric samples, often demonstrating that both approaches yield significant improvements but may differ in mechanisms or magnitude of effect (Ghatreh Samani & Najafi, 2024; Tajzadghehi et al., 2023). Moreover, while recent Iranian studies have begun to explore psychological interventions in women with multiple sclerosis, these investigations have largely focused on communication patterns, emotional symptoms, or lifestyle factors rather than experiential avoidance as a central outcome (Moeinzadeh et al., 2025). Given the centrality of experiential avoidance in chronic illness adjustment, this represents a notable gap in the literature.

From a clinical standpoint, understanding whether schema therapy or ACT is more effective in reducing experiential avoidance in women with multiple sclerosis has important implications for treatment planning, resource allocation, and intervention personalization. ACT explicitly targets experiential avoidance as a primary therapeutic focus, whereas schema therapy addresses avoidance indirectly through schema modification and emotional processing. Comparing these approaches within the same methodological framework can provide valuable insight into whether direct acceptance-based strategies or deeper schema-focused interventions yield stronger or more durable reductions in experiential avoidance in this population. Furthermore, such comparisons contribute to the broader transdiagnostic literature by clarifying how different therapeutic models influence shared psychological mechanisms across disorders (Fernández-Rodríguez et al., 2023; Penney & Norton, 2022).

In summary, experiential avoidance represents a critical psychological process contributing to emotional distress and reduced quality of life in women with multiple sclerosis. Both acceptance and commitment therapy and schema therapy have demonstrated effectiveness in targeting avoidance-related processes across a range of clinical contexts, yet their comparative efficacy in women with multiple sclerosis remains underexplored. Addressing this gap is essential for advancing evidence-based psychosocial care tailored to the complex needs of this population. Therefore, the present study aimed to compare the effectiveness of schema therapy and acceptance and commitment therapy on experiential avoidance in women with multiple sclerosis.

2. Methods and Materials

2.1. Study design and Participant

The present study was conducted with the aim of determining and comparing the effectiveness of schema therapy and acceptance and commitment therapy on experiential avoidance in women diagnosed with multiple sclerosis. In terms of purpose, the research was applied, and in terms of methodology, it employed a quasi-experimental design. The study followed a pretest–posttest–follow-up design with a control group. Two experimental groups received psychological interventions, one based on schema therapy and the other on acceptance and commitment therapy, while a control group did not receive any psychological intervention during the study period. The research design included three independent groups: the first experimental group participated in schema therapy sessions, the second experimental group received acceptance and commitment therapy, and the third group served as a non-intervention control group. Each group consisted of fifteen women with multiple sclerosis, resulting in a total sample size of forty-five participants. Following confirmation of eligibility, participants were randomly assigned to the three groups using simple randomization procedures.

The statistical population comprised all women with multiple sclerosis who attended the Tehran Multiple Sclerosis Society during the 2024–2025 period. The Society does not publish detailed short-term attendance statistics; therefore, the exact size of the accessible population was not available. However, according to official reports, approximately 36,500 individuals with multiple sclerosis have been registered in Tehran, nearly three-quarters of whom are women. In addition, approximately 6,500 new

cases of multiple sclerosis are identified annually nationwide, with nearly one-third occurring in Tehran. Based on these figures, it was estimated that around 1,000 women with multiple sclerosis attended the Tehran Society during the specified period. Accordingly, the target population of the present study was considered an accessible population limited to women attending the Society within this time frame. This population was selected due to the researcher's practical access and the higher prevalence of multiple sclerosis among women.

Sampling was conducted using an accessible sampling method among eligible attendees of the Society. After initial screening based on inclusion and exclusion criteria, forty-five women who met the criteria and expressed willingness to participate were selected as the study sample. Following baseline assessment, participants were randomly allocated to the schema therapy group, the acceptance and commitment therapy group, or the control group, each comprising fifteen individuals. Inclusion criteria consisted of being female, being between 25 and 40 years of age, having a confirmed diagnosis of multiple sclerosis by a neurologist, absence of severe psychiatric disorders requiring immediate intervention, successful completion of a structured or semi-structured clinical interview to rule out acute psychiatric conditions, sufficient physical and psychological ability to attend the therapy sessions, no simultaneous participation in similar psychological interventions, and provision of informed consent. Exclusion criteria included diagnosis of severe psychiatric disorders such as schizophrenia, absence from more than two therapy sessions, voluntary withdrawal from the study at any stage, failure to complete the questionnaires at any phase of data collection, concurrent participation in other similar psychological treatments, and significant deterioration of medical condition that prevented continuation in the intervention.

2.2. Measures

Experiential avoidance was assessed using the Experiential Avoidance Questionnaire, also known as the Acceptance and Action Questionnaire–II. This instrument was developed by Bond and colleagues in 2011 and is one of the most widely used measures for assessing experiential avoidance and psychological inflexibility. The questionnaire consists of seven items that are scored on a single general dimension. Responses are rated on a seven-point Likert scale ranging from “strongly disagree” to “strongly agree,” with higher scores indicating greater levels of experiential

avoidance. Sample items include statements reflecting efforts to avoid emotional pain or to suppress unpleasant thoughts and feelings. Previous research has demonstrated satisfactory psychometric properties for this instrument. In the original validation study, Cronbach's alpha coefficients ranged from 0.84 to 0.89, and test-retest reliability over intervals of three to twelve months ranged from 0.79 to 0.81. The Persian version of the questionnaire has also shown acceptable reliability and validity, with reported Cronbach's alpha coefficients above 0.80 and evidence supporting its convergent and factorial validity. In the present study, internal consistency reliability was recalculated for the sample at each measurement point. Cronbach's alpha coefficients indicated acceptable to good internal consistency at pretest, posttest, and follow-up, confirming the suitability of the instrument for assessing experiential avoidance in the current sample.

2.3. Interventions

The schema therapy intervention in the present study was implemented based on the schema therapy manual developed by Young and colleagues and the structured protocol adapted in prior empirical research, and it was delivered in ten group sessions of 90 minutes each. The intervention was designed to enhance participants' cognitive and emotional insight into early maladaptive schemas, facilitate modification of these schemas, and improve dysfunctional behavioral and interpersonal patterns associated with chronic illness. Initial sessions focused on establishing a therapeutic alliance, clarifying treatment goals and structure, administering baseline assessments, and introducing the core concepts of schemas and schema modes. Subsequent sessions emphasized the identification and conceptualization of early maladaptive schemas through self-report measures, guided discussion, and experiential exploration of schema-related life experiences. As therapy progressed, cognitive techniques such as schema-focused cognitive restructuring were employed to challenge dysfunctional beliefs, alongside experiential strategies aimed at increasing emotional awareness, expression, and tolerance of schema-related affect. Behavioral pattern-breaking techniques, including behavioral assignments and role-playing, were used to modify maladaptive coping responses. Later sessions addressed stress management, adaptive coping skills, and interpersonal effectiveness, with attention to common relational difficulties faced by women with multiple sclerosis. The final phase of the intervention

focused on consolidating acquired skills, relapse prevention, future planning, and evaluation of therapeutic progress, culminating in post-intervention assessment and structured feedback.

The acceptance and commitment therapy intervention was conducted according to the ACT model as outlined by Hayes and colleagues and was delivered using a standardized research-based protocol across ten group sessions of 90 minutes each. The overarching goal of the intervention was to reduce experiential avoidance and enhance psychological flexibility through processes of acceptance, mindfulness, values clarification, and committed action. Early sessions were devoted to establishing the therapeutic relationship, explaining the ACT model, clarifying the structure and objectives of the intervention, and conducting baseline assessments, with a particular emphasis on identifying patterns of experiential avoidance and their impact on participants' lives. Subsequent sessions focused on cultivating acceptance of internal experiences, including difficult thoughts, emotions, and bodily sensations related to multiple sclerosis, through experiential exercises and nonjudgmental awareness practices. Mindfulness-based techniques were systematically introduced to strengthen present-moment awareness and reduce automatic engagement with distressing internal events. Mid-treatment sessions emphasized values clarification, helping participants identify personally meaningful life directions despite illness-related limitations, and translating these values into concrete, achievable goals. Cognitive defusion strategies were employed to weaken the literal impact of distressing thoughts and foster a more flexible relationship with internal experiences, alongside exercises targeting the concept of self-as-context. The concluding sessions integrated all ACT processes, reinforced learned skills, addressed obstacles to value-based action, and focused on maintenance and future planning, followed by post-intervention assessment and structured closure of the therapeutic process.

2.4. Data Analysis

Data were analyzed using SPSS software, version 26. Descriptive statistics, including means and standard deviations, were computed to summarize demographic characteristics and outcome variables across measurement points. Inferential analyses were conducted to examine the effectiveness of the interventions over time. For the primary outcome of experiential avoidance, repeated-measures

analysis of covariance was employed, with group as the between-subjects factor and time as the within-subjects factor, while controlling for baseline pretest scores as covariates. Main effects of group and time, as well as the interaction between group and time, were examined to assess differential treatment effects across posttest and follow-up assessments. Adjusted means with 95 percent confidence intervals were reported, and pairwise comparisons between groups at each time point were performed using Tukey's post hoc procedure based on adjusted means. The level of statistical significance was set at 0.05, all tests were two-tailed, and effect sizes were reported using partial eta squared to estimate the magnitude of observed effects.

3. Findings and Results

The total sample consisted of 45 women with multiple sclerosis who were evenly distributed across the schema therapy group, the acceptance and commitment therapy

group, and the control group, with 15 participants in each. The mean age of the participants in the overall sample was 32.5 years with a standard deviation of 4.2, and the age range across all groups was between 25 and 40 years, with comparable mean ages observed in the schema therapy, acceptance and commitment therapy, and control groups. The mean duration of multiple sclerosis across the total sample was 6.0 years with a standard deviation of 2.8, and the duration of illness ranged from 2 to 12 years, showing a similar distribution across the three groups. Regarding educational attainment, 20 percent of the participants held a high school diploma, 51 percent had a bachelor's degree, and 29 percent had a master's degree, with relatively balanced distributions of educational levels across the intervention and control groups. In terms of marital status, 40 percent of the participants were single and 60 percent were married, with identical proportions observed in all three groups, indicating demographic comparability among the groups at baseline.

Table 1

Descriptive statistics of experiential avoidance by group and time point (M, SD)

| Time point | Schema Therapy (n = 15) | Acceptance and Commitment Therapy (n = 15) | Control (n = 15) | Total sample (n = 45) |
|------------|-------------------------|--|------------------|-----------------------|
| Pretest | 33.4 (5.5) | 34.2 (3.8) | 36.5 (3.9) | 34.7 (4.6) |
| Posttest | 12.7 (5.0) | 8.1 (1.5) | 18.2 (4.1) | 13.0 (5.6) |
| Follow-up | 12.2 (3.8) | 8.1 (2.5) | 16.7 (3.9) | 12.3 (4.9) |

The descriptive statistics presented in Table 1 indicate that at the pretest stage, mean levels of experiential avoidance were relatively high and comparable across the three groups, with the control group showing slightly higher scores than both intervention groups. Following the interventions, substantial reductions in experiential avoidance were observed in both the schema therapy and acceptance and commitment therapy groups at the posttest, whereas the control group showed a more limited decrease. At the follow-up assessment, the reduced levels of experiential avoidance in the two treatment groups were largely maintained, with the acceptance and commitment therapy group demonstrating the lowest mean scores across both posttest and follow-up. In contrast, although the control group showed some decline over time, its mean experiential avoidance scores remained notably higher than those of both intervention groups. Overall, the pattern of means suggests a pronounced and sustained reduction in experiential avoidance associated with both therapeutic interventions, particularly acceptance and commitment therapy, compared to the control condition.

Prior to conducting the main inferential analyses, the underlying statistical assumptions were systematically examined and found to be satisfactorily met. The normality of the distribution of experiential avoidance scores at each measurement point was assessed using both graphical methods and formal tests, indicating no meaningful departures from normality. Homogeneity of variances across groups was evaluated and confirmed, supporting the comparability of error variances between the intervention and control conditions. The assumption of homogeneity of regression slopes was tested by examining the interaction between group membership and pretest scores, and no significant interactions were observed, indicating that the relationship between the covariate and the outcome variable was consistent across groups. Sphericity for the within-subjects factor of time was assessed and did not reveal violations requiring correction. In addition, the absence of multicollinearity and the linearity of relationships among variables were confirmed. Collectively, these findings indicated that the data met the required assumptions for repeated-measures analysis of covariance, thereby

supporting the validity and interpretability of the subsequent statistical results.

Table 2

ANCOVA results for experiential avoidance at posttest with parallel HC3 reporting

| Outcome | Effect | df | F (Classical) | p (Classical) | F (HC3) | p (HC3) | η^2p |
|------------------------|--------|------|---------------|---------------|---------|---------|-----------|
| Experiential avoidance | Group | 41.2 | 69.439 | < 0.001 | 70.024 | < 0.001 | 0.772 |

The results presented in Table 2 indicate a statistically significant main effect of group on experiential avoidance at posttest after controlling for pretest scores. Both the classical ANCOVA and the heteroskedasticity-consistent HC3 estimates yielded highly significant F values, confirming the

robustness of the group effect. The partial eta squared value demonstrates a very large effect size, indicating that a substantial proportion of the variance in posttest experiential avoidance was attributable to group membership.

Table 3

Tukey HSD post hoc comparisons for experiential avoidance at posttest (lower scores indicate better outcomes)

| Group 1 | Group 2 | Mean Difference | 95% CI | Adjusted p | Result |
|---------------------------|----------------|-----------------|------------------|------------|-------------|
| Acceptance and Commitment | Schema Therapy | -4.435 | -6.031 to -2.839 | < 0.001 | Significant |
| Acceptance and Commitment | Control | -7.979 | -9.574 to -6.383 | < 0.001 | Significant |
| Schema Therapy | Control | -3.544 | -5.140 to -1.948 | < 0.001 | Significant |

As shown in Table 3, post hoc pairwise comparisons revealed significant differences between all groups at posttest. The acceptance and commitment therapy group demonstrated significantly lower experiential avoidance scores than both the schema therapy and control groups. Additionally, the schema therapy group showed

significantly lower scores compared to the control group. These findings indicate that both interventions were effective relative to the control condition, with acceptance and commitment therapy producing the greatest reduction in experiential avoidance at posttest.

Table 4

ANCOVA results for experiential avoidance at follow-up with parallel HC3 reporting

| Outcome | Effect | df | F (Classical) | p (Classical) | F (HC3) | p (HC3) | η^2p |
|------------------------|--------|------|---------------|---------------|---------|---------|-----------|
| Experiential avoidance | Group | 41.2 | 51.310 | 0.000 | 43.429 | 0.000 | 0.715 |

The findings reported in Table 4 indicate that the effect of group on experiential avoidance remained statistically significant at the follow-up assessment after adjustment for baseline scores. Both classical and HC3-corrected analyses

confirmed the persistence of group differences over time. The large partial eta squared value suggests that the interventions had a strong and sustained impact on experiential avoidance beyond the immediate posttest phase.

Table 5

Tukey HSD post hoc comparisons for experiential avoidance at follow-up (lower scores indicate better outcomes)

| Group 1 | Group 2 | Mean Difference | 95% CI | Adjusted p | Result |
|---------------------------|----------------|-----------------|------------------|------------|-------------|
| Acceptance and Commitment | Control | -7.280 | -9.054 to -5.506 | < 0.001 | Significant |
| Acceptance and Commitment | Schema Therapy | -5.445 | -7.219 to -3.671 | < 0.001 | Significant |
| Schema Therapy | Control | -1.835 | -3.609 to -0.061 | 0.041 | Significant |

Table 5 shows that all pairwise group differences at follow-up were statistically significant. The acceptance and commitment therapy group continued to exhibit

significantly lower experiential avoidance scores compared to both the schema therapy and control groups, indicating superior maintenance of treatment gains. The schema

therapy group also maintained a significant advantage over the control group, although the magnitude of this difference was smaller. Overall, these results demonstrate that both interventions produced enduring reductions in experiential avoidance, with acceptance and commitment therapy showing the strongest and most persistent effects.

4. Discussion

The present study aimed to compare the effectiveness of schema therapy and acceptance and commitment therapy in reducing experiential avoidance among women with multiple sclerosis, and the findings provide clear evidence that both interventions produced significant and sustained improvements compared with the control condition. At posttest, participants in both treatment groups demonstrated marked reductions in experiential avoidance, while the control group showed only modest change. These gains were largely maintained at follow-up, indicating that the therapeutic effects were not transient but persisted over time. Importantly, although both interventions were effective, acceptance and commitment therapy yielded significantly greater reductions in experiential avoidance than schema therapy at both posttest and follow-up, suggesting a differential magnitude and durability of effect. These results highlight experiential avoidance as a modifiable psychological process in women with multiple sclerosis and underscore the clinical utility of targeted psychotherapeutic interventions for addressing this mechanism.

The overall reduction in experiential avoidance observed in both intervention groups is consistent with a substantial body of prior research demonstrating that psychological interventions grounded in contextual and schema-based frameworks can effectively reduce avoidance-oriented coping. Experiential avoidance has been repeatedly identified as a core transdiagnostic process underlying emotional distress across psychiatric and medical conditions, including chronic illness populations (Sedighi Arfaee et al., 2021; Xiong et al., 2021). In individuals with multiple sclerosis, ongoing exposure to physical symptoms, fatigue, uncertainty, and fears about disease progression can foster avoidant strategies aimed at suppressing distressing thoughts and emotions. The present findings suggest that both schema therapy and acceptance and commitment therapy can interrupt this maladaptive cycle by promoting more adaptive emotional engagement and psychological flexibility, thereby improving adjustment to illness-related stressors.

The superior effectiveness of acceptance and commitment therapy in reducing experiential avoidance aligns closely with the theoretical foundations of this approach. ACT explicitly conceptualizes experiential avoidance as a primary target of intervention and directly addresses it through acceptance, mindfulness, cognitive defusion, values clarification, and committed action. Numerous studies across diverse clinical populations have demonstrated that ACT leads to significant reductions in experiential avoidance and associated distress, often with large effect sizes (Bowins, 2021; Falletta-Cowden & Hayes, 2022). Empirical evidence from both Western and Iranian contexts supports the effectiveness of ACT in reducing experiential avoidance in patients with migraine, irritable bowel syndrome, insomnia, post-traumatic stress disorder, and various emotional disorders (Alfoone et al., 2020; Kamran et al., 2022; Rouyintan et al., 2020; Zakiei et al., 2021). The present study extends these findings to women with multiple sclerosis, reinforcing the transdiagnostic applicability of ACT for chronic medical conditions.

Furthermore, the sustained advantage of acceptance and commitment therapy at follow-up suggests that the processes cultivated through ACT may be particularly conducive to long-term change. Psychological flexibility, the central outcome of ACT, equips individuals with skills to respond adaptively to ongoing and future stressors rather than attempting to control or avoid them. For women with multiple sclerosis, whose symptoms and disease course may fluctuate unpredictably, such flexibility is likely critical for maintaining emotional well-being over time. Previous longitudinal and feasibility studies have similarly reported durable effects of ACT on experiential avoidance and emotional functioning, even when interventions are brief or delivered in nontraditional formats (Na et al., 2022; Sierra & Ortiz, 2023; Spencer, 2023). The present findings are congruent with this literature and suggest that ACT may be particularly well suited for populations facing chronic, uncontrollable stressors.

Schema therapy also demonstrated significant effectiveness in reducing experiential avoidance relative to the control group, which is consistent with emerging research linking maladaptive schemas to avoidant coping patterns. Early maladaptive schemas often give rise to intense emotional experiences that individuals attempt to manage through avoidance, suppression, or disengagement. By increasing awareness of schema-driven patterns and facilitating emotional processing and cognitive restructuring, schema therapy can reduce the need for

avoidant coping strategies. Prior studies have reported reductions in experiential avoidance following schema-based interventions in patients with obsessive-compulsive disorder, cardiovascular disease, breast cancer, and Meniere's disease (Changi Ashtiani et al., 2024; Ghatreh Samani & Najafi, 2024; Ghayour et al., 2022; Rahmani et al., 2024). The present study corroborates these findings and demonstrates that schema therapy is a viable approach for addressing experiential avoidance in women with multiple sclerosis.

However, the comparatively smaller reductions observed in the schema therapy group relative to the ACT group may reflect differences in therapeutic focus and mechanisms of change. Schema therapy primarily targets deep-seated cognitive-emotional structures formed earlier in life, which may require longer or more intensive intervention to achieve maximal change in avoidance-related behaviors. While schema modification can indirectly reduce experiential avoidance, this process may unfold more gradually than the direct acceptance-based strategies emphasized in ACT. Comparative studies in other populations have similarly found that while both schema therapy and ACT are effective, ACT often produces more rapid or pronounced changes in avoidance-related outcomes (Ghatreh Samani & Najafi, 2024; Tajzadghehi et al., 2023). These findings suggest that when experiential avoidance is the primary treatment target, interventions explicitly designed to address this process may confer added benefit.

The results of the present study also align with broader transdiagnostic models emphasizing shared psychological mechanisms across disorders. Experiential avoidance has been implicated as a mediator linking emotional schemas, rumination, and emotional dysregulation to psychopathology (Nazari et al., 2022; Nazari et al., 2023). By demonstrating that both schema therapy and ACT can effectively reduce experiential avoidance in a neurological population, the present findings support the relevance of transdiagnostic interventions that focus on underlying processes rather than disorder-specific symptoms. This perspective is further reinforced by research showing that acceptance-based and activation-focused interventions can yield comparable improvements across emotional disorders by targeting shared mechanisms (Fernández-Rodríguez et al., 2023).

From a clinical perspective, the findings have important implications for psychological care in women with multiple sclerosis. Psychological distress in this population is often underrecognized or undertreated, despite its substantial

impact on quality of life and disease management. Interventions that effectively reduce experiential avoidance may enhance patients' capacity to engage with treatment, maintain valued activities, and cope with illness-related challenges. The demonstrated efficacy of both ACT and schema therapy suggests that clinicians have multiple evidence-based options for addressing experiential avoidance, allowing for flexibility in treatment planning based on patient preferences, therapist expertise, and contextual factors. The stronger effects observed for ACT, however, suggest that acceptance-based approaches may be particularly advantageous when avoidance is prominent.

It is also noteworthy that the present findings are consistent with recent Iranian research highlighting the effectiveness of contemporary psychotherapeutic approaches in medical populations. Studies conducted in Iran have demonstrated that both ACT and schema-based interventions can be culturally adapted and effectively implemented to reduce experiential avoidance and emotional distress (Broujeni et al., 2024; Changi Ashtiani et al., 2024; Ghatreh Samani & Najafi, 2024). The current study contributes to this growing literature by focusing specifically on women with multiple sclerosis and by employing a comparative design with follow-up assessment, thereby strengthening the evidence base for psychosocial interventions in this context.

5. Conclusion

In summary, the present study provides robust evidence that both schema therapy and acceptance and commitment therapy are effective in reducing experiential avoidance among women with multiple sclerosis, with acceptance and commitment therapy demonstrating superior and more sustained effects. These findings underscore the importance of targeting experiential avoidance as a key psychological mechanism in chronic illness and support the integration of acceptance-based and schema-focused interventions into comprehensive care models for multiple sclerosis. By addressing how individuals relate to their internal experiences rather than attempting to eliminate distress, these approaches offer a promising pathway for improving psychological adjustment and quality of life in this population.

6. Limitations and Suggestions

Despite its contributions, the present study has several limitations that should be considered when interpreting the

findings. The sample size was relatively small and limited to women attending a single multiple sclerosis association in Tehran, which may restrict the generalizability of the results to broader or more diverse populations. In addition, reliance on self-report measures may have introduced response biases, and the absence of longer-term follow-up assessments limits conclusions regarding the durability of treatment effects beyond the observed period. Finally, the study did not examine potential mediators or moderators of change, which restricts insight into the specific mechanisms through which each intervention exerted its effects.

Future studies should replicate these findings using larger and more diverse samples, including men with multiple sclerosis and individuals from different cultural or clinical settings. Longitudinal designs with extended follow-up periods would be valuable for assessing the long-term maintenance of treatment gains. Additionally, future research should incorporate process measures to examine mediators such as psychological flexibility, schema change, and mindfulness, as well as moderators such as disease severity or illness duration, to clarify how and for whom each intervention is most effective.

From a practical standpoint, the findings suggest that mental health professionals working with women with multiple sclerosis should consider incorporating structured psychological interventions that directly address experiential avoidance. Acceptance and commitment therapy may be particularly useful when avoidance and emotional struggle are prominent, while schema therapy may be beneficial for individuals with entrenched maladaptive patterns rooted in early experiences. Integrating these approaches into multidisciplinary care settings and tailoring interventions to individual patient needs may enhance psychological well-being and overall adjustment to multiple sclerosis.

Authors' Contributions

Authors equally contributed to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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