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Comparative Impact of Cognitive Rehabilitation versus Mindfulness-Based Stress Reduction on Hope and Self-Efficacy in Mild Cognitive Impairment

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Abstract

Background: Mild cognitive impairment (MCI) represents a transitional stage between normal age-related cognitive decline and dementia. In this population, psychological factors such as hope and self-efficacy are frequently impaired, contributing to reduced quality of life and potential progression to dementia.

Objectives: This study aimed to compare the effects of cognitive rehabilitation (CR) and mindfulness-based stress reduction (MBSR) on self-efficacy and hope in individuals with MCI.

Methods: A quasi-experimental pretest-posttest design with a control group and a three-month follow-up was employed. The study population comprised patients with MCI attending memory and cognitive rehabilitation clinics in Tehran in 2024. Forty-five participants were selected through convenience sampling and randomly allocated to three groups: CR (n = 15), MBSR (n = 15), and control (n = 15). Each intervention group received 10 sessions, while the control group received no intervention. Outcomes were assessed using the General Self-Efficacy Scale and the Adult Hope Scale. Data were analyzed with repeated-measures analysis of variance (ANOVA).

Results: CR significantly improved self-efficacy at posttest ($P < 0.01$), with effects well maintained (and slightly numerically increased) at the three-month follow-up. MBSR showed no significant immediate effect on self-efficacy but was superior to control at follow-up. Both CR and MBSR significantly increased hope ($P < 0.05$), with CR showing greater improvements at posttest ($P < 0.05$). Direct comparisons indicated CR superiority over MBSR mainly at posttest for both outcomes.

Conclusion: Both interventions provide psychological benefits for individuals with MCI, but CR appears to be more effective in strengthening self-efficacy beliefs and future-oriented motivation. Clinically, this suggests CR as a valuable adjunct to support autonomy in MCI patients.

Keywords: Cognitive Training, Mindfulness, Self-efficacy, Hope, Cognitive Dysfunction

1. Background

Mild Cognitive Impairment (MCI) is increasingly recognized as a critical clinical entity. It represents a transitional state between the expected cognitive decline of normal aging and the more debilitating stages of dementia or Alzheimer's disease.[1] Individuals diagnosed with MCI exhibit noticeable deficits in memory and other cognitive domains, such as executive function and attention, that exceed the norms for their age and education level.[2] While these impairments are not yet severe enough to fundamentally obstruct independent daily living, they often signal a prodromal phase of neurodegenerative pathologies.[3] Beyond the objective cognitive symptoms, this population faces a significant psychological burden, with reported prevalence rates of anxiety and depression ranging from 10% to 50%, characterized by high levels of distress.[5] The realization of fading mental faculties often leads to a cycle of psychological vulnerability, where the fear of further decline exacerbates the patient's condition, making it imperative to address not only the neurological symptoms but also the emotional and psychological resilience of these individuals.[5]

Self-efficacy, defined as an individual's belief in their capacity to execute behaviors necessary to produce specific performance attainments, is a pivotal psychological construct affected by MCI.[6] In the context of cognitive decline, low self-efficacy manifests as a lack of confidence in one's ability to manage daily challenges or utilize cognitive strategies, leading to avoidance behaviors and premature withdrawal from social and mental activities.[7] Research indicates that patients with low self-efficacy tend to perceive difficult tasks as personal threats rather than challenges to be mastered, which heightens stress and further impairs functional performance. However, some evidence is derived from

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related populations such as those with chronic illnesses.[8] Consequently, fostering self-efficacy is essential for MCI patients as it empowers them to maintain autonomy, utilize compensatory techniques, and remain actively engaged in their rehabilitation process, ultimately slowing the perceived trajectory of their impairment.[9,10]

Hope is another fundamental psychological pillar that is frequently undermined in individuals facing chronic cognitive challenges. Within the framework of positive psychology, hope is conceptualized as a motivational state based on a synergistically derived sense of successful agency (goal-directed determination) and pathways (planning of ways to meet goals) thinking.[11] In MCI patients, the uncertainty of future cognitive stability can lead to a state of "learned helplessness," where the individual loses the drive to pursue meaningful life goals or anticipate positive outcomes.[12] A lack of hope is strongly associated with increased suicidal ideation and negative emotionality in elderly populations. Conversely, high levels of hope are linked to greater flexibility, vitality, and better coping mechanisms when facing physical or mental adversity.[13] Strengthening this construct is therefore vital for improving the overall quality of life and psychological well-being of those living with early-stage cognitive deficits.

Cognitive Rehabilitation (CR) has emerged as a robust non-pharmacological intervention designed to enhance or maintain cognitive functioning through structured, goal-oriented mental exercises.[14] Unlike simple brain training, CR focuses on improving daily functional abilities by targeting specific neurocognitive domains like working memory, attention, and problem-solving.[15] Previous studies have demonstrated that CR not only facilitates neuroplasticity but also significantly boosts patients' self-perceived competence. For instance, research has highlighted that cognitive interventions are effective in increasing treatment engagement and self-efficacy in patients with early-stage Alzheimer's.[16] By providing tangible proof of cognitive improvement, CR helps individuals regain a sense of mastery over their mental processes, thereby addressing both the objective cognitive deficits and the subjective belief systems of the patient.[17]

Mindfulness-Based Stress Reduction (MBSR) offers a complementary approach by focusing on emotional regulation and the cultivation of present-moment awareness through meditation and yoga.[18] MBSR is particularly effective in reducing the psychological distress and physiological stress associated with chronic illness and aging.[19] In the field of cognitive health, mindfulness practices have been shown to improve psychological distress and stress management among elderly populations and their caregivers.[20] Previous literature suggests that MBSR aids in fostering a non-judgmental acceptance of one's current state, which can be highly beneficial for the emotional stability of MCI patients.[21] While it may not directly target cognitive skills, its role in reducing anxiety and increasing mental health is well-documented, making it a viable intervention for improving constructs like hope and life satisfaction in those facing progressive health challenges.[22,23]

The necessity of the current research stems from the relative scarcity of direct comparative studies that simultaneously evaluate the efficacy of structured cognitive training and mindfulness-based interventions on the psychological capital of MCI patients. Although some trials have examined these approaches separately or in related conditions such as subjective cognitive concerns.[21,22] While both therapies have shown promise independently, understanding which modality, or if both, is more effective in bolstering self-efficacy and hope is crucial for developing personalized and comprehensive care plans. Given the increasing prevalence of MCI in aging societies, identifying interventions that can strengthen psychological resilience is a public health priority.

2. Objectives

Therefore, the present study aimed to compare the effectiveness of CR and MBSR on self-efficacy and hope in individuals with MCI.

3. Methods

3.1. Design

This study employed a quasi-experimental pretest-posttest design with a control group and a three-month follow-up period.

3.2. Participants

The statistical population comprised all individuals diagnosed with MCI who were referred to memory and cognitive rehabilitation clinics in Tehran during 2024. A total of 45 participants were selected through convenience sampling and were randomly allocated into three groups: Cognitive Rehabilitation (CR, n = 15), Mindfulness-Based Stress Reduction (MBSR, n = 15), and a control group (n = 15) (Figure 1). Sample size was determined via a priori power analysis using G*Power software, indicating that 45 participants (15 per group) would provide approximately 80% power to detect a medium effect size (partial $\eta^2 = 0.06$) for the Group × Time interaction in repeated-measures ANOVA at $\alpha = 0.05$, assuming a correlation of 0.5 among repeated measures. Inclusion criteria included a clinical diagnosis of MCI by a neurologist, age between 55 and 75 years, minimum middle-school education, and a score between 21 and 26 on the Montreal Cognitive Assessment (MoCA). Exclusion criteria were the presence of comorbid major psychiatric disorders (e.g., schizophrenia), severe physical disabilities preventing session attendance, and concurrent participation in other psychological interventions. Ethical

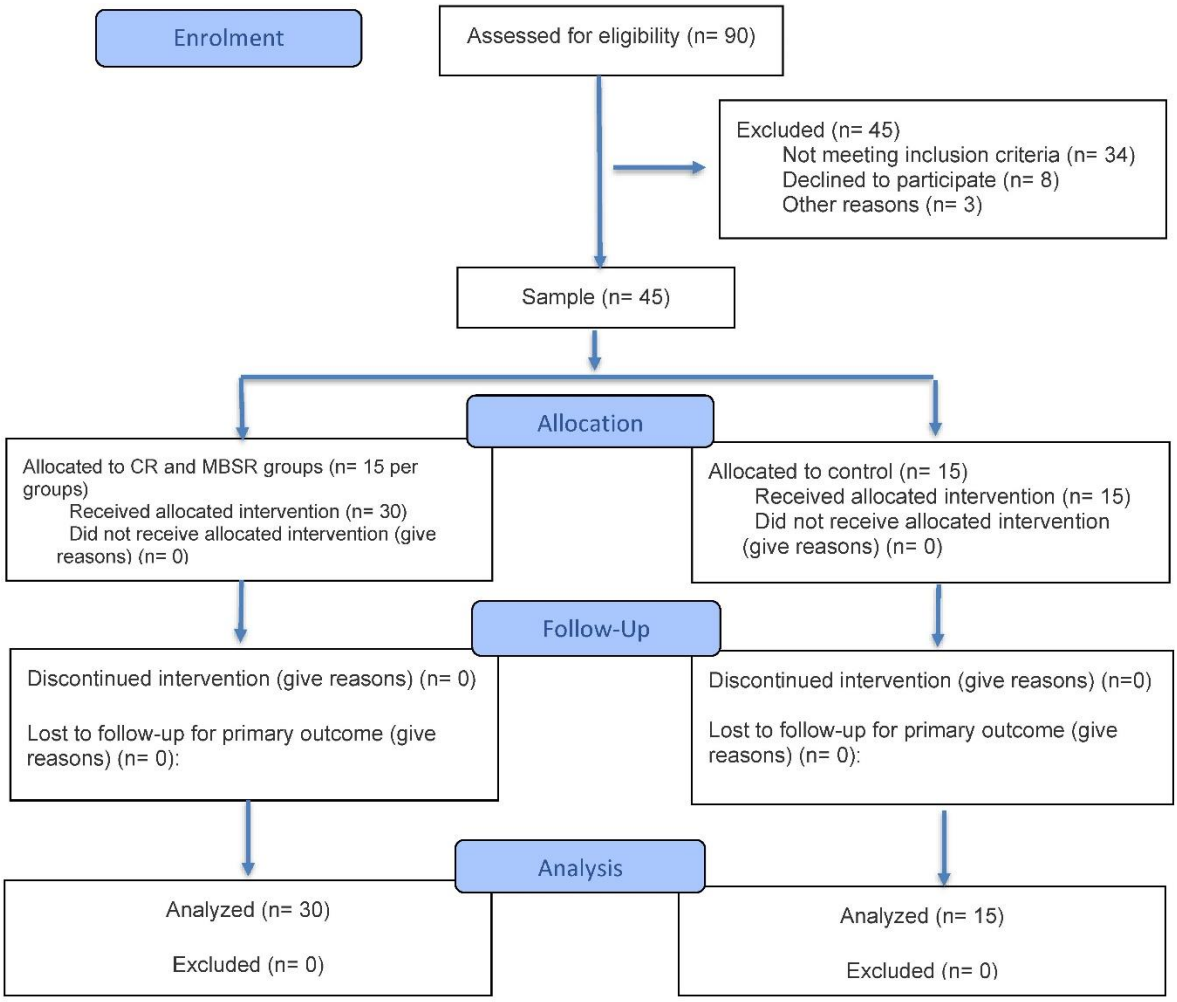


Figure 1. CONSORT Flow Diagram Illustrating Participant Recruitment, Allocation, Follow-up, and Analysis.

considerations were strictly observed; all participants provided written informed consent. Confidentiality was maintained throughout the study, and participants were informed of their right to withdraw at any stage.

3.3. Procedure

Randomization was performed using a computer-generated random number sequence to assign participants to groups. After the initial screening and group assignment, all participants completed the pretest questionnaires. The CR and MBSR groups then underwent ten 60-minute weekly intervention sessions. The control group remained on a waiting list and received no intervention during this period. Upon completion of the sessions, a posttest was administered to all groups. To assess the durability of the treatment effects, a follow-up assessment was conducted three months later. All sessions were conducted by trained clinical psychologists in a controlled clinic environment. Assessors administering the questionnaires were blinded to group allocation.

3.4. Instruments

3.4.1. General Self-efficacy Scale (GSE)

Developed by Sherer et al.,[24] this 17-item scale measures an individual's sense of personal agency and competence. Items are scored on a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree), with total scores ranging from 17 to 85. Higher scores indicate greater perceived self-efficacy. In Persian populations, Cronbach's alpha has been reported at 0.86,[25] while the present study yielded a reliability coefficient of 0.81, confirming its internal consistency for this clinical group. Test-retest reliability for the GSE has been reported as 0.60 over six weeks in prior studies.

3.4.2. Snyder's Adult Hope Scale (AHS)

This 12-item instrument assesses hope based on Snyder's cognitive model, comprising two subscales: Agency (goal-directed energy) and Pathways (planning to meet goals). Each item is rated on an 8-point Likert scale (1 = definitely false to 8 = definitely true), with four filler items included. Total scores range from 8 to 64, where higher scores reflect a higher level of hope.[26] Previous research in Iran has demonstrated a Cronbach's alpha of 0.78;[27] in the current study, the reliability was calculated as 0.82. Test-retest reliability for the AHS is approximately

0.80 over several weeks.

3.5. Interventions

The two experimental groups received distinct therapeutic protocols: CR and MBSR. Both interventions were delivered over 10 consecutive weeks in weekly 60-minute group sessions. The number of sessions was chosen to standardize the duration across interventions. While standard MBSR typically involves 8 sessions plus a retreat, this protocol was adapted to 10 sessions to align with the CR program, incorporate additional practice for the MCI population, and allow for cultural adjustments such as extended discussions on family involvement. Sessions were facilitated in a single group of 15 participants for each intervention to promote group dynamics and peer support. Sessions were facilitated by licensed clinical psychologists with specialized training in neuropsychology (for CR) and mindfulness-based therapies (for MBSR). The curricula were adapted to meet the cognitive and psychosocial needs of individuals with MCI, emphasizing practical application and gradual skill-building. In the MBSR group, home practice was encouraged and monitored via self-report logs submitted weekly. Detailed session outlines for each program are provided in Tables 1 and 2.

Table 1. Session Protocol for the CR Program

Session	Primary Focus	Content and Activities
1	Orientation	Building therapeutic alliance; psychoeducation on neuroplasticity; setting personalized cognitive goals.
2	Sustained Attention	Selective attention and concentration exercises (e.g., cancellation tasks, auditory tracking).
3	Working Memory I	Verbal working memory training (e.g., forward/backward digit span, word list recall).
4	Working Memory II	Visual-spatial working memory enhancement (e.g., computerized tasks, pattern recognition).
5	Executive Functions I	Mental flexibility and inhibitory control; introduction to the "Stop-Think-Go" strategy.
6	Executive Functions II	Problem-solving and categorical thinking to support daily decision-making.
7	Information Processing	Timed exercises to improve processing speed and verbal fluency (e.g., category naming, associations).
8	Mnemonics & Compensatory Memory	Teaching internal strategies (categorization, visualization) and external aids (calendars, reminders).
9	Applied Cognition	Integration of strategies into activities of daily living (e.g., medication management, financial tasks).
10	Review & Maintenance	Skill consolidation, progress review, and development of a home-based maintenance plan.

Table 2. Session Protocol for the MBSR Program

Session	Primary Focus	Content and Activities
1	Presence & Awareness	Introduction to mindfulness principles; mindful eating exercise (e.g., "Raisin Exercise").
2	Somatic Perception	Body scan meditation to cultivate non-judgmental awareness of physical sensations and tension.
3	Mindful Breathing	Breath as an anchor; practices for noticing mind wandering and gently returning attention.
4	Stress Reactivity	Identifying stressors; distinguishing automatic reactivity from mindful responding.
5	Mindful Movement	Gentle Hatha yoga and mindful stretching with sustained breath awareness.
6	Cognitive Decentering	Observing thoughts as transient events; reducing identification with negative cognitions.
7	Emotional Regulation	Loving-kindness (Metta) meditation to promote self-compassion and reduce self-criticism related to cognitive changes.
8	Mindful Communication	Applying mindfulness to interpersonal interactions; exercises in active listening and mindful speaking.
9	Daily Integration	Incorporating informal mindfulness into routines; strategies for everyday practice.
10	Maintenance & Reflection	Review of program experiences; establishing sustainable home practice; closing reflections.

3.6. Data Analysis

Data were analyzed using IBM SPSS Statistics Version 26. Descriptive statistics, including means and standard deviations, were computed to summarize participant characteristics and outcome measures at each assessment point. To examine within-group changes over time and between-group differences, a mixed-design repeated measures analysis of variance (RM-ANOVA) was conducted separately for self-efficacy and hope. Significant interaction effects (Group × Time) were followed by pairwise comparisons with Bonferroni adjustment to identify specific group differences at posttest and follow-up relative to pretest.

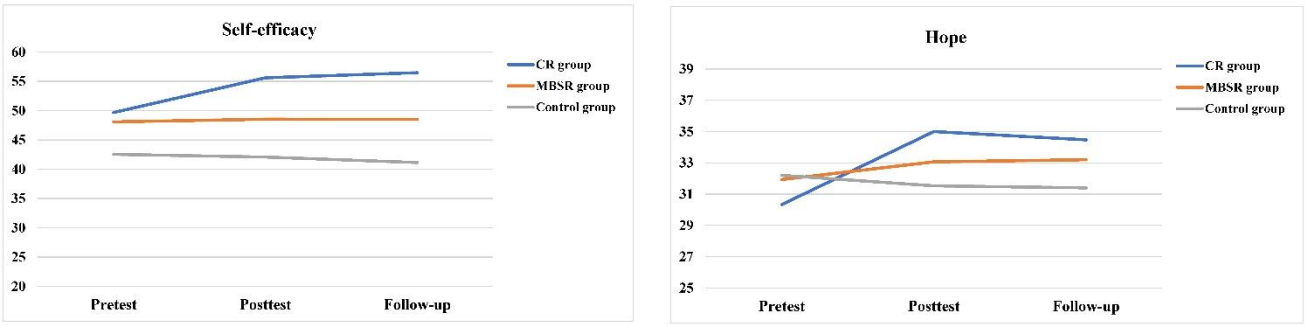
4. Results

The final sample consisted of 45 participants with MCI, with a mean age of 66.4 years (SD = 5.8; range 55–75 years). Baseline comparisons using one-way ANOVA revealed a significant difference between groups in self-efficacy scores ($F = 7.62$, $P = 0.002$), with the control group scoring lower than the intervention groups, but no significant difference in hope scores ($F = 0.42$, $P = 0.659$). Table 3 presents the means and standard deviations for self-efficacy and hope at pretest, posttest, and three-month follow-up. The CR group showed notable increases in self-efficacy from pretest to posttest, with gains largely maintained (and slightly further improved) at follow-up, while both intervention groups demonstrated improvements in hope that were generally maintained; the control group exhibited little change (Figure 2).

Prior to inferential analyses, preliminary checks were conducted to verify statistical assumptions. Shapiro-Wilk tests confirmed normal distribution of self-efficacy and hope scores across groups and time points ($P > 0.05$). Levene's test supported homogeneity of variances ($P > 0.05$), and Box's M test indicated equality of covariance

Table 3. Descriptive Statistics for Self-efficacy and Hope Scores Across Groups and Assessment Points

Variable	Stage	CR	MBSR	Control
		Mean ± SD	Mean ± SD	Mean ± SD
Self-efficacy	Pretest	49.67 ± 5.09	48.07 ± 7.39	42.53 ± 8.51
	Posttest	55.60 ± 3.09	48.53 ± 6.13	42.07 ± 8.40
	Follow-up	56.47 ± 3.72	48.51 ± 6.63	41.13 ± 8.24
Hope	Pretest	30.33 ± 5.18	31.93 ± 6.61	32.20 ± 5.66
	Posttest	35.00 ± 5.14	33.07 ± 7.09	31.53 ± 5.10
	Follow-up	34.47 ± 4.90	33.20 ± 5.60	31.40 ± 5.28



(A) (B)

Figure 2. Line Graphs Illustrating Changes in Self-efficacy (A) and Hope (B) Scores Over Time (Pretest, Posttest, Three-month Follow-up) for the CR, MBSR, and Control Groups.

matrices. As shown in Table 4, mixed-design repeated measures ANOVA revealed significant main effects of group and time, along with significant Group × Time interactions for self-efficacy, accompanied by large effect sizes. For hope, the main effect of group was non-significant, but significant effects of time and the interaction emerged with medium to large effect sizes, justifying further post-hoc analyses.

Table 4. Results of Mixed-Design Repeated Measures ANOVA for Self-efficacy and Hope

Variable	Source	SS	df	MS	F	P	η^2
Self-efficacy	Group	3246.53	2	1623.27	13.24	0.001	0.39
	Time	116.04	2	58.02	12.22	0.001	0.23
	Group × Time	312.36	4	78.09	16.44	0.001	0.44
Hope	Group	52.86	2	26.43	0.29	0.750	0.01
	Time	81.83	2	40.76	16.41	0.001	0.28
	Group × Time	133.18	4	33.30	13.41	0.001	0.39

Table 5. Within-Group Pairwise Comparisons (Bonferroni-adjusted) for Changes in Self-efficacy and Hope

Variable	Time	CR		MBSR		Control	
		Mean Difference	*P*	Mean Difference	*P*	Mean Difference	*P*
Self-efficacy	Posttest and Pretest	5.93	0.003	0.46	0.999	-0.46	0.999
	Follow-up and Pretest	6.80	0.001	0.44	0.999	-1.40	0.999
	Follow-up and Posttest	0.87	0.999	-0.02	1.000	-0.94	0.999
Hope	Posttest and Pretest	4.67	0.012	1.14	0.045	-0.67	0.999
	Follow-up and Pretest	4.14	0.018	1.27	0.039	-0.80	0.999
	Follow-up and Posttest	-0.53	0.999	0.13	0.999	-0.13	0.999

Post-hoc pairwise comparisons with Bonferroni adjustment (Table 5) indicated that the CR group achieved a significant increase in self-efficacy immediately after the intervention (mean difference = 5.93, 95% CI [2.63, 9.23], $P = 0.003$), which was well maintained at follow-up with a slight numerical increase (mean difference = 0.87 from posttest, 95% CI approximately [-2.5, 4.2], $P > 0.999$) and remained significantly higher than baseline (mean difference = 6.80, 95% CI [3.50, 10.10], $P < 0.001$). No significant changes in self-efficacy were observed in the MBSR or control groups at posttest, though MBSR showed a non-significant trend. For hope, both CR and MBSR groups showed significant and sustained improvements relative to pretest (CR: post-pre mean difference = 4.67, 95% CI [1.00, 8.34], $P = 0.012$; follow-pre = 4.14, 95% CI [0.47, 7.81], $P = 0.018$; MBSR: post-pre = 1.14, 95% CI [0.05, 2.23], $P = 0.045$; follow-pre = 1.27, 95% CI [0.18, 2.36], $P = 0.039$), with no significant loss from posttest to follow-up.

Between-group comparisons revealed that, at posttest,

the CR group outperformed both MBSR (mean difference = 7.07, 95% CI [1.77, 12.37], $P = 0.009$) and the control group (mean difference = 13.53, 95% CI [8.23, 18.83], $P < 0.001$) on self-efficacy. CR also surpassed the control group on hope (mean difference = 3.47, 95% CI [0.77, 6.17], $P = 0.012$), while MBSR did not significantly differ from the control group at posttest. At follow-up, CR maintained superiority over the control group on both outcomes (self-efficacy: mean difference = 5.34, 95% CI [0.04, 10.64], $P = 0.042$; hope: mean difference = 3.07, 95% CI [0.37, 5.77], $P = 0.024$), and MBSR showed higher self-efficacy than the control group (mean difference = 7.38, 95% CI [2.08, 12.68], $P = 0.018$) (Table 6). Overall, CR demonstrated strong immediate effects on self-efficacy that were well-sustained and even slightly numerically improved at follow-up, yielding particularly robust and enduring benefits relative to the control and MBSR groups.

Table 6. Between-group Pairwise Comparisons (Bonferroni-adjusted) at Each Assessment Point

Variable	Groups	Pretest		Posttest		Follow-up	
		Mean Difference	*P*	Mean Difference	*P*	Mean Difference	*P*
Self-efficacy	CR and MBSR	1.60	0.999	7.07	0.009	-2.04	0.999
	CR and Control	7.14	0.057	13.53	0.001	5.34	0.042
	MBSR and Control	5.54	0.165	6.46	0.066	7.38	0.018
Hope	CR and MBSR	-1.60	0.999	1.93	0.045	1.27	0.273
	CR and Control	-1.87	0.999	3.47	0.012	3.07	0.024
	MBSR and Control	-0.27	0.999	1.54	0.273	1.80	0.138

5. Discussion

The present study found that CR led to significant improvements in self-efficacy at posttest, which were largely maintained (with a slight further numerical increase) at the three-month follow-up, while MBSR showed no immediate effect on self-efficacy but emerged as superior to the control group at follow-up. Both interventions increased hope, with CR demonstrating greater gains at posttest and sustained effects for both at follow-up. These results underscore the vital role of structured, domain-specific cognitive training in strengthening the psychological capital of patients facing early-stage neurocognitive decline.

The significant superiority of CR in enhancing self-efficacy can be attributed to the "Mastery Experience" mechanism. According to Bandura's social cognitive theory, the most effective way to build a sense of efficacy is through successful experiences.[28] CR provides participants with structured, achievable mental challenges that yield tangible evidence of cognitive competence, thereby fostering mastery experiences. As MCI patients witness their progress in memory tasks and executive functions, their internal belief in their ability to manage daily life (self-efficacy) is restored. This finding is consistent with the study by Twamley et al.[29], which indicated that compensatory cognitive training leads to higher perceived competence and reduced functional disability. Furthermore, the systematic nature of CR helps patients move away from "learned helplessness" towards a proactive self-management state.

Regarding the construct of hope, the results indicated that both CR and MBSR sessions led to significant improvements. However, the higher efficacy of CR suggests that for MCI patients, improving the "Pathways" component of hope, defined as the ability to generate strategies for goal attainment, is more critical than emotional regulation alone. CR provides these patients with concrete mnemonic tools and problem-solving strategies, which directly nourish their goal-oriented motivation.[15] Our results align with the findings of Mousavi et al.[30], who demonstrated that interventions targeting cognitive-theory-related principles significantly improve psychological resilience and hope in clinical populations. By reducing the perceived barrier of cognitive failure, CR allows patients to re-envision a future where they maintain autonomy, thereby increasing their hope scores.

While MBSR did not show a significant immediate effect on self-efficacy compared to CR, its impact on hope and the positive trend observed in the follow-up phase are noteworthy. MBSR facilitates a non-judgmental acceptance of the present moment, which can mitigate the existential anxiety associated with memory loss. This "decentering" process helps patients detach from the stigma of MCI through acceptance mechanisms, fostering a more resilient outlook.[21] The efficacy of mindfulness in improving psychological well-being in this study is supported by the research of Martínez-Pérez et al.,[31] which highlighted the strong correlation between mindfulness abilities and perceived self-efficacy in adults. MBSR likely acts as an emotional stabilizer that prevents the psychological "spiraling" often seen after an MCI diagnosis, even if it does not directly rebuild the cognitive structures in the same way CR does.

The sustained (and slightly further improved) self-efficacy in the CR group at follow-up suggests that the mastery experiences gained during the structured sessions were sufficiently internalized to persist over time without the need for booster sessions in this sample. This pattern aligns with some literature indicating durable gains in perceived competence following targeted CR in MCI when training emphasizes practical, transferable strategies.

In contrast, MBSR's delayed effects on self-efficacy at follow-up could reflect the gradual integration of mindfulness practices into daily life, leading to cumulative benefits over time.

Regarding cultural relevance, this study was conducted in an Iranian context, where family-oriented values and collectivism may influence psychological interventions. Both CR and MBSR were adapted to incorporate discussions on family support and cultural coping mechanisms, potentially enhancing their acceptability and efficacy among Tehran-based participants. However, further research is needed to explore how these cultural factors moderate outcomes.

Clinically, CR may be particularly beneficial for patients with MCI who have low baseline self-efficacy and are seeking immediate functional gains, while MBSR could be suitable for those with higher emotional distress who need sustained mood benefits. Integrating elements of both approaches could offer comprehensive support.

Despite the significant findings, this study has several limitations. The use of convenience sampling and a relatively small sample size may limit the generalizability of the results to the broader MCI population. Moreover, the sample was drawn exclusively from urban clinics in Tehran, potentially limiting the generalizability to rural or non-Iranian populations with different sociocultural contexts. Furthermore, reliance on self-report questionnaires may introduce social desirability bias. Future research should use larger, multi-center samples and incorporate longitudinal designs to track the long-term neurobiological changes associated with these interventions.

6. Conclusion

In conclusion, this study demonstrates that both CR and MBSR serve as viable non-pharmacological interventions for improving the psychological well-being of individuals with MCI. However, CR proved more effective in bolstering self-efficacy and fostering hope in the short term, with self-efficacy gains well sustained at follow-up, likely due to its structured approach in restoring functional mastery and providing concrete cognitive strategies. While MBSR is beneficial for emotional regulation, the domain-specific nature of CR more directly addresses the internal barriers associated with cognitive decline. Consequently, we recommend CR as a first-line psychological adjunct for MCI patients to enhance their psychological resilience and overall quality of life. In aging societies, promoting such non-pharmacological options is essential for public health strategies aimed at mitigating the burden of cognitive decline.

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Research Highlights

What Is Already Known?

MCI is associated with reduced self-efficacy and hope, contributing to psychological distress. CR enhances functional competence and self-efficacy through mastery experiences, while MBSR improves emotional regulation, acceptance, and well-being in aging and chronic illness populations.

What Does This Study Add?

This study provides the first direct comparison of CR versus MBSR in MCI, demonstrating superior immediate and partially sustained effects of CR on self-efficacy and hope, highlighting its potential as a preferred intervention for strengthening psychological resilience in early neurocognitive decline.

Author Contributions

HV: Conceptualization, Investigation, Methodology, Data curation, Writing – original draft, Writing – review and editing; MA: Conceptualization, Methodology, Project administration, Supervision, Formal analysis, Investigation, Writing – original draft, Writing – review and editing; MS: Conceptualization, Investigation, Resources, Data curation, Validation, Writing – review and editing.

Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

Ethical Approval

The research protocol was reviewed and approved by the Ethics Committee of Islamic Azad University, Central Tehran Branch (Approval Reference: IR.IAU.CTB.REC.1404.065).

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