Effectiveness of reminiscence therapy to improve sleep quality among older adults with hypertension

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ABSTRACT

Background: Sleep disturbances are highly prevalent among older adults with hypertension, further exacerbating cardiovascular risks and impairing quality of life. Reminiscence therapy, a psychosocial intervention, has shown promise in promoting psychological well-being and reducing stress, thereby improving sleep outcomes.

Objectives: To evaluate the effectiveness of reminiscence therapy In improving sleep quality among older adults with hypertension.

Materials and methods: The experimental study was conducted among 30 hypertensive older adults aged 60 years and above. Participants were allocated to the intervention (reminiscence therapy) and control groups, which received conventional occupational therapy focused on improving sleep quality. This included cognitive behavioural therapy for insomnia, sleep hygiene education, sensory modulation strategies, environmental adaptations, and activity scheduling. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI).

Results: Post-intervention analysis revealed a significant improvement in PSQI scores in the reminiscence therapy group compared to the control group ($p<0.05$). Subdomains, including sleep latency, sleep duration, and overall sleep efficiency, showed marked improvements.

Conclusion: Reminiscence therapy is effective in enhancing sleep quality among older adults with hypertension and can be integrated as a complementary non-pharmacological intervention in geriatric care.

Introduction

Systemic arterial hypertension, also known as hypertension, is characterized by persistently high blood pressure (BP) in the systemic arteries. Blood pressure is commonly expressed as diastolic blood pressure, which measures the force the heart experiences during relaxation, and systolic blood pressure, which measures the force the blood exerts on the arterial walls during cardiac contraction. Cardiovascular disease (CVD) includes peripheral artery disease, heart failure, stroke, coronary myocardial infarction, atrial fibrillation, and coronary heart disease. The most preventable risk factor for CVD is hypertension. Globally, CVD is the primary cause of death and disability. It also results in cognitive impairment and chronic kidney disease (CKD)[1]

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The risk of arterial stiffness decreased vascular responsiveness, and hemodynamic changes that can worsen arterial dysfunction increase with lifelong exposure to endothelium damaging events. The capacity to maintain normal blood pressure and blood pressure variability decline with age as the risk of vascular disease rises. This change leads to a reduced prevalence of optimal blood pressure in older people with a phenotypic pattern that frequently includes a wide pulse pressure with SBP elevations that are relatively larger than diastolic blood pressure elevations.[2] According to the report, men are more likely than women to have hypertension (24.1%), with overall prevalence in India being 22.6%. As people aged, the prevalence increased, reaching 48.4% among those aged 60 and older.[3]

Patients with hypertension commonly complain of poor sleep quality. Poor sleep quality has been noted in older adults with hypertension, whose ratio is 1.5 to 3.18. Numerous studies have shown that older adults with hypertension are more likely to have trouble sleeping.[4-6]Sleep, a vital physiological activity, occupies a large part of our lives. However, modern society's struggle with sleep loss, chronic sleep deprivation, irregular sleep patterns and declining sleep quality is a concern. Remember that sleep is not just a daily activity but an essential process for recovery and renewal. The serious consequences of sleep deprivation, including increased disease risk and impacts on metabolism, immune function, and hormone regulation, underscore its importance as a topic and should motivate us to prioritize our sleep.[7] previous study reveals that approximately 50% of older adults experience poor sleep quality.[8]

Reminiscence therapy, a non-pharmacological intervention that facilitates guided recall of meaningful past experiences, is theorized to improve sleep quality in hypertensive older adults by reducing stress, enhancing emotional regulation, and promoting parasympathetic activation. By allowing individuals to process unresolved emotions, strengthen a sense of identity, and evoke positive affect, reminiscence therapy may lower physiological arousal and nighttime rumination factors known to exacerbate both hypertension and sleep disturbances. Previous studies have demonstrated that reminiscence-based interventions can effectively enhance sleep quality among older adults, supporting its potential relevance for this population. Reminiscence therapy is the utilization of recalling past events, emotions, and thoughts to promote pleasure, enhance quality of life, and support better adjustment to present circumstances. It can be in a structured or unstructured form and can occur in one-to-one or group settings. Reminiscence becomes reminiscence therapy when there is two way or more communication and is targeted at the achievement of some objectives as per what the individual requires.[9]

Creative reminiscence revives memories from the past and can be done in various ways. Some most useful ways are: photo albums/collages, scrapbooks, Art forms(drawing, painting or clay work can prove to be an alternative for verbal expression), historical objects and meaningful objects (toys, antiques, or clothing), drama (acting out brief scenes that encourage the role playing of previous experiences), vocal and instrumental music (may result in memory recall), life story work (recorded oral accounts of childhood and early years or autobiographies), memory boxes (a three dimensional box that shows personal belongings to represent one's life and accentuate memories).[10]

Numerous studies have examined non-pharmacological interventions to improve sleep quality in older adults.[11-13] However, there is a lack of evidence specifically addressing whether reminiscence therapy is effective for older adults living with hypertension, a population uniquely vulnerable to sleep disturbances due to physiological stress, autonomic imbalance, and emotional burden associated with chronic illness. Although reminiscence therapy, which involves structured recall and reflection on meaningful experiences, has been shown to enhance psychological well-being, reduce stress, and support better sleep in the general elderly population, its targeted impact on hypertensive older adults remains largely unexplored.

This represents a clear gap in the literature as hypertension related sleep problems may require tailored psychosocial approaches beyond what has been tested in broader geriatric samples. Therefore, this study aims to address this gap by investigating the specific effects of reminiscence therapy on sleep quality among older adults with hypertension. The findings are expected to contribute evidence for incorporating reminiscence therapy into occupational therapy programs designed for this clinically vulnerable group.

Materials and methods
Study design
A true experimental study design was employed to evaluate the effectiveness of reminiscence therapy on sleep quality among older adults with hypertension. This design involved random allocation of participants into experimental and control groups to establish a cause-and-effect relationship between the intervention and the outcome.

Sampling technique
A probability sampling approach using simple random sampling was adopted.

Sample setting
The study was conducted in the Mahatma Gandhi old age home, Arcot, Ranipet district.

Sample size
A total of 30 participants were recruited, with 15 allocated to the intervention group and 15 to

the control group.

Participants were randomly allocated to intervention and control groups using a computer-generated randomization sequence with allocation concealment through sealed opaque envelopes. Outcome assessors were blinded to group allocation. Proper randomization ensured comparability of baseline characteristics, minimizing selection bias.

Inclusion criteria

The study included older adults aged 60 years and above who were clinically diagnosed with hypertension. Participants were required to be conscious and able to communicate effectively. Both male and female individuals were considered eligible. Additionally, participants had to be experiencing sleep disturbances, such as difficulty falling asleep, staying asleep, or having poor overall sleep quality.

Exclusion criteria

The study excluded older adults who were diagnosed with dementia, as well as individuals with known neurological conditions. Participants with hearing impairments were also excluded to ensure effective communication and accurate participation in the intervention.

Tools used
Pittsburgh sleep quality index (PSQI)[14]

The PSQI was designed to evaluate overall sleep quality in these clinical populations. Each of the questionnaire's 19 Self-reported items belongs to one of seven subcategories: subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medication, and daytime dysfunction.

Interpretation of PSQI

The PSQI Global Score is interpreted as follows: ≤5: shows good sleep quality; >5: suggests poor sleep quality.

Reliability

Internal Reliability (Internal Consistency): Cronbach's alpha (α)=0.83, Test-Retest Reliability: Correlation coefficient=0.85

Validity

Sensitivity: 89.6%, Specificity: 86.5%

Intervention procedure

The Study was conducted over 12 weeks, with participants attending 30 sessions (3 sessions per week), each lasting 45 minutes. The intervention was structured as follows:
- Warm-up phase (10 minutes) began with light social interaction and a simple warm-up exercise, such as guided deep breathing or gentle stretching, to create a comfortable and engaging environment for participants.
- Action phase (30 minutes) reminiscence therapy was conducted by guiding participants to recall, share, and discuss meaningful past experiences, fostering engagement and emotional expression.
- Wind down phase (5 minutes): the session concluded with calming activities such as gentle relaxation exercises.

Table 1. Reminiscence therapy program for experimental group.[15-17]

Session	Structured reminiscence topics	Memory prompts used	Activity conducted
Session 1-3	The pre-test was taken introduction to reminiscence therapy		
Session 4-6	Sharing favorite childhood memory	Old photographs	Drawing
Session 7-9	sharing memorable travel experience	Postcards and letters	Painting
Session 10-12	Sharing memorable theatre experience and their favorite cinema	Old coins or currencies	Create your movie ticket
Session 13-15	Recalling past friendships and their impact	Vintage games	Playing games Ludo/ snake and ladders
Session 16-18	sharing their favourite meal and family gatherings	Old kitchen utensils or cooking tools	Pecs book images for meal preparation activities
Session 19-21	Sharing stories about family traditions or celebrations	Religious or ritual items	Rangoli
Session 22-24	Parenting experience	Spoons or baby utensils	Role play
Session 25-27	Spiritual and religious beliefs (worship and spiritual support)	Religious jewelry or symbols	Gardening
Session 28-30	sharing music, lullabies, or poems that brings comfort or peace	Radio	Musical chair, ball passing

Table 1. Reminiscence therapy program for experimental group.[15-17](continue)

Session	Structured reminiscence topics	Memory prompts used	Activity conducted
Session 31-33	Recollecting past bedtime routines and rituals	Oil lamp or kerosene lantern	Creating memory box
Session 34-36	The post-test was taken		

Before the therapy sessions begin, therapists involved will participate the reminiscence therapy protocol. This includes learning the structured topics designed to evoke positive memories (e.g., childhood events, family traditions, spiritual beliefs). Practicing how to use various memory prompts and tools effectively to engage participants in meaning conversations. Understanding how to facilitate sessions sensitively, encouraging participants to share stories without feeling rushed or pressured. Training on how to manage any emotional responses that may arise during the sessions.

Therapists introduce one or two reminiscence topics from a pre-set list, such as sharing favorite childhood memories or memorable travel experiences. To support these conversations, therapist use carefully chosen memory prompts like old photographs, postcards, coins, vintage games and familiar items related to family or cultural traditions. Therapists also include practical activities like drawing, painting or creating "memory movie tickets" that help participants express their memories creatively. Group games like Ludo or Snakes and Ladders can be included to stimulate social interaction and enjoyment. Throughout the session, therapist encourage participants to talk freely, offering gentle prompts when needed, and recording important observations for later analysis.

Therapists use a session checklist during each meeting to confirm that all key topics and activities are covered. Feedback sessions are held to discuss any deviations from the protocol and provide additional support or refresher training if needed.

Conventional occupational therapy for the control group

The control group in this study received a structured, multi-component conventional OT program including CBT-I, sensory modulation, activity scheduling and sleep hygiene education. As these interventions are evidence- based appr0aches for improving sleep, the control condition represents an active treatment rather than standard care. This may have contributed to improvements in the control group and reduced the observable between group differences, thereby complicating the attribution of outcomes solely to reminiscence therapy.

Table 2. Conventional occupational therapy program for the control group.[18-20]

Intervention	Activities
1. Cognitive Behavioral Therapy for Insomnia (CBT-I)	• Clients were engaged in discussions to identify and challenge unhelpful sleep-related beliefs • Sleep restriction was implemented by setting consistent bedtime and wake-up schedules • Relaxation sessions were conducted using deep breathing, progressive muscle relaxation, and guided imagery.
2. Sleep hygiene education	• Clients were taught to maintain regular sleep-wake routines through visual schedules.
3. Sensory modulation strategies	• Weighted blankets were provided during rest periods to promote relaxation. • Dim lighting or blackout curtains were used during sleep practice sessions. • Calming auditory inputs, such as white noise or soft instrumental music, were introduced before bedtime.
4. Environmental adaptations	• The sleep area was evaluated and adapted for comfort and minimal distraction. • Room lighting and temperature were adjusted to soothing levels. • Ergonomic sleeping positions and supportive bedding were recommended.

Table 2. Conventional occupational therapy program for the control group.[18-20] (continue)

Intervention	Activities
5. Activity scheduling and occupational balance	• Daily routines were planned, incorporating light exercises such as walking or stretching during the day. • Work, leisure, and rest periods were balanced to prevent fatigue or inactivity. • Meaningful, calming evening activities such as reading, journaling, or meditation were included.

Data analysis

A quantitative research design was adopted, and the data were analyzed using descriptive and inferential statistics. Descriptive statistics such as mean, standard deviation, minimum, and maximum were used to summarize the data. A priori sample size calculation was conducted to ensure adequate statistical power for detecting meaningful effects with the given sample. Given the small sample size (N=30), non-parametric tests were applied. The Mann-Whitney U test and the Wilcoxon signed rank test were employed to compare pre-test and post-test scores between group A and group B. Effect sizes and corresponding confidence intervals were calculated to provide information on the magnitude and clinical significance of the observed differences. A significance level of $p<0.05$ was considered statistically significant. Statistical analysis was performed using IBM SPSS statistics version 23.0

Results

The demographic characteristics of the participants in the control and experimental groups were comparable as presented in Table 3. In term of age distribution, most participants in both groups were aged 60-65 years, with a slightly higher proportion in the control group (46.6%) compared to the experimental group (40.0%). The experimental group had a marginally higher percentage of participants aged 66-70 years (33.3%) than the control group (26.7%), while both groups had an equal proportion of participants aged 71-75 years (26.7%). Regarding gender, both groups had identical distributions, with females comprising 60% and males 40% of participants. Overall, the two groups were similar in demographic characteristics at baseline.

Table 3. Demographic variables.

Sample No.	Demographic values	Class	Control group (%)	Experimental group (%)
1	Age (years)	60-65	7 (46.6)	6 (40)
		66-70	4 (26.7)	5 (33.3)
		71-75	4 (26.7)	4 (26.7)
2	Gender	Female	9 (60.0)	9 (60.0)
		Male	6 (40.0)	6 (40.0)

In the Table 4, the p value (0.011) was less than 0.05 and was significant at the 5%level; hence, it could be concluded that there was a significant difference in the sleep quality index scores between the pre and post-tests in the control group.

Table 4. Comparison of Pre-test and Post-test PSQI Scores in the control group (Paired t test).

Sample No.	Test	N	Mean	SD	T Value	Df	*p* value
1	Pre test	15	12.53	1.246	2.907	14	0.011*
2	Post test	15	10.93	2.187			

Note: ***significant at 1% level , *significant at 5% level.*

Also, the mean value of the post test scores was lower than the mean value of the pretest scores, and the difference was statistically significant. Therefore, it was concluded that the PSQI scores significantly decreased in the control group as well.

As demonstrated in Table 5, the *p*=0.000 was highly significant at the 1% level: the mean value of the post-test scores was significantly lower than that of the pre-test scores, indicating a highly significant improvement in sleep quality. This substantial enhancement may be attributed to the high frequency and duration of reminiscence therapy sessions, which provided consistent emotional support and cognitive engagement. Furthermore, the supportive therapeutic environment and strong rapport established between therapists and participants likely enhanced motivation and active participation. Additionally, group dynamics that fostered social interaction and reduced feelings of loneliness may have contributed to these positive outcomes. Therefore, it was concluded that reminiscence therapy effectively and significantly decreased PSQI scores in the experimental group.

Table 5. Comparison of pre-test and post-test PSQI scores in the experimental group (Paired t test).

Sample No.	Test	N	Mean	SD	T Value	Df	*p* value
1	Pre test	15	12.93	1.438	20.000	14	0.000**
2	Post test	15	6.27	0.799			

Note: **significant at 1% level , *significant at 5% level.*

In the Table 6, the *p* value (0.000) was less than 0.01 and was highly significant at the 1% level; hence, it was concluded that there was a highly significant difference in the post-test sleep quality index scores between the control and experimental groups. Also, the mean value of the experimental group was lower than the mean value of the control group, and the difference was highly significant. Therefore, it was concluded that the PSQI scores significantly decreased in the experimental group compared to the control group following the reminiscence therapy.

Table 6. Comparison of post-test PSQI scores between control and experimental group (Independent t test).

Sample No.	Test	N	Mean	SD	T Value	Df	*p* value
1	Control	15	10.93	2.187	7.764	28	0.000**
2	Experimental	15	6.27	0.799			

Note: **significant at 1% level , *significant at 5% level.*

Discussion

The present study showed a significant and notably large improvement in sleep quality among older adults with hypertension after receiving reminiscence therapy, as measured by a substantial reduction in PSQI scores. Compared to Guler Duru Asiret who found a moderate improvement with weekly 25-30 minute reminiscence sessions that reduced PSQI scores but with smaller effect sizes, this study's thrice weekly 45 minute sessions over 12 weeks produced a greater magnitude of change.[21] Specifically, while Asiret reported an average PSQI score reduction of around 2 points, the current study observed a mean reduction exceeding 4 points, indicating a stronger therapeutic effect.

Similarly, Fatemah Sahragard achieved significant reductions in insomnia severity through twice-weekly group sessions over four weeks, which persisted at one-month follow-up.[22] However, the shorter intervention duration and lower total therapy time likely contributed to relatively smaller improvements compared to the current findings. The longer intervention period and higher session frequency in this study may explain the amplified benefits observed, suggesting dose-dependent effects of reminiscence therapy on sleep quality.

Beyond these quantitative comparisons, several factors may explain the large effect size. The supportive, engaging environment in which the therapy was delivered potentially enhanced participant motivation and attendance, increasing intervention efficacy. High therapist involvement and consistent rapport building likely promoted trust and openness, amplifying emotional and psychological benefits that facilitate improved sleep. The structured group format may have fostered positive social interactions and reduced loneliness, both known to influence sleep quality, as highlighted by Melike Dutkunb.[24] These contextual elements, alongside the novelty of reminiscence therapy for many participants, might have synergistically intensified outcomes beyond the direct therapeutic content.

Possible confounding influences warrant consideration. While therapists and research assistants were blinded to group allocation during assessments, their dual roles in therapy delivery and evaluation could have introduced subtle biases. Institutional routines and environmental factors specific to the study setting may have contributed to participant stability or stress levels, indirectly affecting sleep outcomes. Moreover,

group dynamics such as peer support or shared experiences might have played a role independent of the intervention itself.

Clinically, the observed improvements extend well beyond statistical significance. A mean PSQI score reduction of over 4 points corresponds to meaningful enhancements in sleep duration, efficiency, latency, and overall quality factors crucial for hypertensive older adults prone to cardiovascular risk linked to poor sleep. Improved sleep quality can promote better daytime functioning, cognitive health, mood stabilization, and adherence to hypertension management, reflecting the holistic benefits noted by Chiang *et al*.[26] Thus, reminiscence therapy offers not only a statistically effective but also a clinically valuable non-pharmacological approach to improving health outcomes in this population.

The significant improvement in sleep quality observed in the control group may be attributed to their participation in structured traditional occupational therapy programs. Regular therapist-participant interaction, consistent therapeutic attention, and engagement in purposeful activities may have promoted relaxation, emotional reassurance, and improved daily routines, all of which are known to positively influence sleep patterns. Additionally, the structured nature of conventional therapy sessions may have contributed to better sleep-wake regulation, thereby resulting in measurable improvements in sleep quality among control group participants.

In summary, the current findings demonstrate a larger and more sustained improvement in sleep quality compared to previous studies, likely due to higher treatment dosage, supportive therapeutic context, and group interaction effects. While confounding factors cannot be fully excluded, the clinically meaningful gains highlight reminiscence therapy's potential as a key intervention in older adults with hypertension. Future research should aim to isolate these variables and optimize intervention delivery for maximum benefit.

Limitations

This study had certain limitations. It was conducted with a small and homogeneous sample drawn from a single facility and over a short duration, which may limit the generalizability of the findings to the wider population of older adults with hypertension. Sleep quality was assessed using subjective self-report questionnaires only, without objective measures such as actigraphy or sleep monitoring, which may have introduced response bias. Additionally, cognitive variations among participants may have affected engagement in reminiscence therapy and influenced the effectiveness of the intervention.

Based on these limitations, it is recommended that future studies include long-term interventions and be conducted with a larger sample size to strengthen the results. Moreover, combining reminiscence therapy with other interventions, such as sleep hygiene education or relaxation techniques, may further enhance its effectiveness.

Conclusion

The findings of this study indicate that reminiscence therapy is an effective non pharmacological intervention for improving sleep quality among older adults with hypertension. Participants who received reminiscence therapy demonstrated statistically significant improvements in sleep quality, as assessed using the Pittsburgh Sleep Quality Index (PSQI). Accordingly, further research is warranted to substantiate and extend the evidence supporting reminiscence therapy as an effective non pharmacological intervention for enhancing sleep quality among this population. Nevertheless, participants who received conventional occupational therapy also exhibited significant improvement in sleep quality, underscoring the therapeutic value of structured traditional programs and the contribution of nonspecific treatment effects alongside targeted psychosocial interventions.

Conflict of interest

The authors declare no conflict of interest

CRediT authorship contribution statement

Roselin Jaba Sheela: supervision, methodology, conceptualization, writing: review and edit; **Abiya Evangelin Jayapriya**: investigation, data curation, writing: original draft, review and edit.

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