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Effects of Aromatherapy Combined with Auricular Seed Embedding on Sleep Quality of the Elderly in Nursing Homes

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Abstract: *Objective:* To observe the effect of aromatherapy combined with auricular seed embedding on the sleep quality of the elderly in nursing homes. *Methods:* 70 elderly people in nursing homes (from April to June 2026) were selected and randomly divided into a control group (35 cases) with conventional intervention and an observation group (35 cases) with aromatherapy combined with auricular seed burial. The study observed sleep quality, anxiety, daytime fatigue, and the number of night awakenings in the elderly. *Results:* 1 month and 2 months after the intervention, compared with the control group, the observation group had lower Pittsburgh Sleep Quality Index (PSQI) scores, lower Hamilton Anxiety Scale (HAMA) scores, less daytime fatigue, and fewer night awakenings, $P < 0.05$. *Conclusion:* Aromatherapy combined with auricular seed burial can improve the sleep quality and anxiety of the elderly in nursing homes, reduce daytime fatigue, and reduce the number of night awakenings, which is worth learning from.

Keywords: Aromatherapy; Ear acupuncture seed burial; Nursing home; Elderly; Sleep quality

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1. Introduction

In recent years, due to the accelerated aging of society, sleep problems among the elderly in nursing homes have become more and more obvious, and this situation has also become an important reason affecting their physical and mental health [1]. For the elderly, once sleep disorders occur, their physical, mental and other problems will become more serious. For sleep problems in the elderly, conventional intervention methods can alleviate sleep disorders to a certain extent, but their role in improving sleep quality is not significant [2]. Traditional Chinese medicine has done a lot of research on sleep disorders and has a unique theoretical system and rich practical experience. It is believed that sleep disorders in the elderly can be solved by adjusting the balance of yin and yang and harmonizing the functions of the organs, and it will not have adverse effects on the elderly during the specific implementation process, so it has a high degree of acceptance [3]. At this stage, people are further aware of the important role played by traditional Chinese

medicine in the process of healthy elderly care. They believe that health preservation is the unique advantage of traditional Chinese medicine, and relevant traditional Chinese medicine theories can better meet the needs of the elderly to prevent diseases and maintain physical health. During the implementation of aromatherapy, the aroma of natural plant essential oils is mainly used to regulate the physical and mental state. Burying seeds in the ear acupoints mainly stimulates the ear acupoints. The impact of the above methods on sleep quality among the elderly in nursing homes can be further explored.

2. Materials and methods

2.1. General information

70 elderly people in nursing homes from April to June 2026 were selected and randomly divided into 2 groups. There were 35 patients in the control group, 8 males and 27 females, aged 74 to 94 (84.75 ± 4.56) years old, and 35 patients in the observation group, 10 males and 25 females, aged 78 to 95 (84.63 ± 4.54) years old. Comparison of general data, $P > 0.05$.

Inclusion criteria: all meet the relevant diagnostic standards of the "Chinese Adult Insomnia Diagnosis and Treatment Guidelines" [4]; age is over 70 years old; stable condition, no major psychological stress events, severe trauma, or major surgery in the past 6 months; normal cognitive function; no history of allergies to the materials used in this study; able to communicate normally; clear consciousness.

Exclusion criteria: Alzheimer's disease and other mental diseases; alcoholism, drug abuse, or habit of drinking strong tea, coffee, etc.; in the acute stage of any disease; combined with serious systemic diseases; unable to complete the scale test; missing data.

2.2. Method

Control group: collect general information about the elderly and carefully fill in the general information questionnaire to ensure the integrity of the data. During the intervention process, the normal living habits of the elderly were followed, and their activities were not interfered with, such as daily hot water foot baths, moderate activities, etc., so that they could maintain their original life rhythm. Carry out systematic health education to guide the elderly to actively adjust their own mental state, optimize their sleep environment, keep their daily diet light, not be fasting or overly full when going to bed, and not drink drinks that may affect sleep, such as tea, coffee, etc., before going to bed. Guide the elderly to master correct relaxation training methods to relieve their own tension. Guidance in recording a sleep diary for further tracking of sleep status.

Observation group: (1) Form a professional team, including 1 experienced Chinese medicine practitioner, 3 doctors and 10 nursing staff to ensure the professionalism of intervention measures. Carry out systematic training for all members to ensure that they master the correct positioning of acupoints and acupoint selection techniques, understand the meaning of aromatherapy and ear acupoint seed burial, master the scientific proportioning principles of essential oils, and understand the corresponding implementation methods. After the training content is completed, each person will be strictly assessed to ensure that they have proficiency in relevant knowledge and skills. Participate in the research if all personnel are qualified to ensure the quality and effectiveness of the intervention. (2) When implementing aromatherapy, three single essential oils of lavender, geranium and bergamot are mixed into a compound essential oil according to a

scientific ratio, the ratio is 1:2:3. During the specific use process, different methods are selected taking into account the preferences of the elderly. The first method is spraying. Every day, 30 minutes before the elderly go to bed, drop the compound essential oil into the aroma diffuser. Three drops are enough. Then place it next to the pillow or on the nearest bedside table, no more than 30cm away from the nose. Then take it out or remove it in the morning of the next day. During the implementation of the above method, the essential oils need to be ready for use and placed in a cool and dark place. To ensure the safety of use, a skin allergy test must be conducted before use. (3) When burying seeds in ear points, Chinese medicine practitioners select reasonable acupoints considering the physical characteristics of the elderly, and select 4 acupoints each time for specific operations. Before the operation, the auricles of the elderly should be disinfected. First, use alcohol cotton pads to clean and disinfect the skin, then apply tape with amaranth seeds on it, and use compression techniques to intervene, from light to severe, so that the elderly feel soreness, numbness, swelling, and pain. The patch needs to be changed every 2 days and pressed 3 to 5 times a day. (4) The medical staff of the scientific research team goes to the bedside every morning to ask the elderly about their sleep conditions at night through chatting. According to the 56-day implementation plan, scale assessment and basic sleep data recording will be carried out in stages. At the same time, set up address books for the elderly, such as phone calls and WeChat, and adjust corresponding intervention plans according to specific situations.

2.3. Observation indicators

(1) Sleep quality: Pittsburgh Sleep Quality Index (PSQI), with a total score of 0 to 21 points; the lower the better; (2) Anxiety severity: Hamilton Anxiety Scale (HAMA), a total score of 0 to 56; the lower the better; (3) Basic sleep data: daytime fatigue, the lighter the better; number of night awakenings, the fewer the better.

2.4. Statistical methods

SPSS26.0 software processes data; measurement data is expressed as: mean ± standard deviation (SD), t-test; count data is expressed as: n, %; χ^2 test; $P < 0.05$, the difference is statistically significant.

3. Results

3.1. Comparison of sleep quality

One month and 2 months after the intervention, the observation group was lower than the control group, $P < 0.05$; see **Table 1**.

Table 1. Comparison of sleep quality (mean ± SD, points)

Group	Before intervention	1 month after intervention	2 months after intervention
Control group (n = 35)	13.38 ± 2.17	10.23 ± 1.28	8.73 ± 1.12
Observation group (n = 35)	13.24 ± 2.28	8.26 ± 1.20	6.11 ± 1.38
t	0.263	6.643	8.721
P	0.293	0.000	0.000

3.2. Comparison of anxiety emotions

One month and 2 months after the intervention, the observation group was lower than the control group, $P <$

0.05; see **Table 2**.

Table 2. Comparison of anxiety emotions (mean ± SD, points)

Group	Before intervention	1 month after intervention	2 months after intervention
Control group (n = 35)	50.23 ± 1.23	44.39 ± 1.47	38.22 ± 1.23
Observation group (n = 35)	50.48 ± 1.46	39.58 ± 1.73	33.38 ± 0.48
t	0.775	12.535	21.687
P	0.441	0.000	0.000

3.3. Comparison of basic sleep data

1 month and 2 months after the intervention, the daytime fatigue of the observation group was lighter than that of the control group, and the number of night awakenings was less than that of the control group, $P < 0.05$, see **Table 3**.

Table 3. Comparison of sleep basic data (mean ± SD)

Group	Daytime fatigue level (minutes)			Number of night awakenings (times/night)		
	Before intervention	1 month after intervention	2 months after intervention	Before intervention	1 month after intervention	2 months after intervention
Control group (n = 35)	4.57 ± 1.17	3.56 ± 1.02	2.45 ± 0.62	2.76 ± 0.68	2.10 ± 0.47	1.87 ± 0.43
Observation group (n = 35)	4.45 ± 1.20	2.37 ± 0.68	1.72 ± 0.58	2.72 ± 0.74	1.38 ± 0.37	1.12 ± 0.40
t	0.423	5.743	5.087	0.235	7.121	7.555
P	0.673	0.000	0.000	0.815	0.000	0.000

4. Discussions

Elderly people in nursing homes often suffer from reduced sleep quality due to various factors, such as decline in physiological functions, increased psychological stress, etc. The main manifestations are difficulty falling asleep, shallow sleep, and easy awakening [5]. The combined application of aromatherapy and auricular seed burial is an innovative method that combines traditional Chinese medicine theory and modern aromatic medicine [6]. Aromatherapy mainly uses natural plant essential oils, which allow the active ingredients to reach the limbic system of the brain through people's sense of smell, regulate the secretion of neurotransmitters, relieve the body's negative emotions, and also help improve sleep quality. Burying seeds in auricular points can stimulate acupuncture points on the auricle, regulate the functions of the internal organs, and also has a good soothing and sleep-promoting effect. In the process of combined application of the above methods, comprehensive intervention can be carried out in different ways. Therefore, for the elderly in nursing homes, aromatherapy and auricular seed burial can be combined in the process of improving sleep quality.

In the results of this study, 1 month and 2 months after the intervention, the PSQI score of the intervention group was lower than that of the control group ($P < 0.05$). The reason is that during aromatherapy, the aroma of essential oils can help relieve the tension of the elderly, reduce their anxiety, and make it easier for the elderly to enter a relaxed state, which in turn shortens the time it takes them to fall asleep and improves sleep efficiency. During the process of auricular seed burial, the ear acupoints of the elderly are effectively stimulated, thereby regulating the functions of the internal organs, especially the acupoints closely related to sleep, which is beneficial to the body to achieve a balance of yin and yang and

improve sleep quality [7]. During the intervention process, a professional team provides relevant services to the elderly, provides careful guidance, and conducts follow-up visits. The above aspects ensure better implementation of intervention measures, and can also provide continuous support and help for the elderly to ensure the improvement of sleep quality from many aspects. One month and 2 months after the intervention, the anxiety score of the intervention group was lower than that of the control group ($P < 0.05$). The reason is that during aromatherapy, relevant essential oils can play a role in the limbic system of the brain through the olfactory pathway, regulating the secretion of neurotransmitters such as 5-hydroxytryptamine, which is beneficial in directly alleviating the patient's anxiety. Burying seeds in ear acupoints can stimulate relevant acupoints, such as Shenmen, subcortex, etc., and regulate autonomic nervous system function through meridian conduction, which is beneficial for reducing sympathetic nerve excitability and thereby improving patients' anxiety [8]. One month and two months after the intervention, the daytime fatigue of the observation group was lighter than that of the control group, and the number of night awakenings was less than that of the control group ($P < 0.05$). The reason is that aromatherapy has a better effect on improving nighttime sleep quality, helping patients obtain deep sleep and reducing daytime fatigue. Burying seeds in ear acupuncture points can continuously stimulate ear acupoints, regulate endocrine functions, inhibit excessive secretion of cortisol, and reduce stress levels. The above effects are beneficial in reducing the number of nighttime awakenings. Under the guidance of a professional team, it is helpful for patients to establish regular work and rest habits and optimize the sleep environment. It can also further reduce daytime fatigue and reduce the number of nighttime awakenings [9].

5. Conclusion

Therefore, aromatherapy combined with ear acupuncture seed burial for the elderly in nursing homes can help improve sleep quality, improve anxiety, reduce daytime fatigue, and reduce the number of night awakenings, which has promotional value.

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Disclosure statement

The authors declare no conflict of interest.

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