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(REVIEW ARTICLE)

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Efficacy of pain treatment therapies for chronic pain among clients in assisted living facilities: A systematic review

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Abstract

Background: More than 60% of residents in assisted living homes experience pain, a complex and subjective emotion. Here, we examine the effectiveness of pain management treatments for residents in assisted living facilities who suffer from chronic pain.

Method: In this review, the PRISMA Statement was adhered to. Included were intervention studies, whether or not they were randomized. Retrospective studies, studies without a control group, and studies without an intervention were among the studies that were excluded. Subjects having chronic pain who were 60 years of age or older, of any gender, and permanently residing in an institutional environment, such as a assisted living facilities or residential care facility, were included in studies that matched the qualifying requirements.

Result: Eight papers total—three non-randomized and five randomized controlled trials—were included in our systematic review. Acupuncture, massage, music therapy, and analgesics are among the interventions employed. Analgesics was the most effective intervention. Exercise had similar effects to social interventions on neuropsychiatric symptoms, pain, and medication intake in older adults with chronic pain; Epsom salt hot fermentation is more effective than regular salt; and acupressure is anticipated to be a beneficial and effective nursing intervention for the elderly with chronic pain.

Conclusion: The most beneficial treatment outcome was obtained from the analgesic medication therapy. Alternative therapies without the use of drugs provide modest to significant therapeutic results.

Keywords: Chronic Pain; Assisted Living Facilities; Interventions

1. Introduction

Pain is a complicated, subjective feeling that affects over 60% of people living in assisted living facilities (1–3). A significant number of residents report having high levels of discomfort; over 40% report moderate pain and 33% report

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severe pain (2). The pain prevalence among residents of long-term care facilities is underestimated and frequently receives insufficient treatment due to problems with pain assessment (4). For instance, assisted living facilities personnel frequently report having trouble figuring out whether or not a clients with dementia is in discomfort and how much (5). The most common causes of higher pain rates are acute (such as falls) or chronic (such as arthritis) diseases (6). Ineffective pain management may also contribute to residents in assisted living facilities experiencing prolonged pain (7). For them, pain has many negative effects, including altered behavior, low emotional and mental health, deteriorated physical and cognitive abilities, heightened social isolation, and a lower standard of living (8,9).

There are numerous approaches to managing pain. Some people use pharmaceutical methods to treat pain, such as analgesics or nonanalgesics. Twelve other people employ non-pharmacological methods to treat pain, such as complementary therapies (like exercise), education interventions (like patient education sessions), and system changes (like pain management procedures) (10).

Evidence synthesis on the effectiveness of various pain management therapies in assisted living facilities residents is required in order to modify current pain management protocols or implement nonpharmacological techniques. Here, we look at how well pain management therapies work for clients with chronic pain who live in assisted living facilities.

2. Method

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement (11) was followed in this review. Intervention studies and controlled trials, whether randomized or not, were included. Excluded studies included retrospective studies, studies without a control group, and studies without an intervention. Studies that met the eligibility requirements included subjects with chronic pain who were 60 years of age or older, of any gender, and permanently residing in an institutional setting, such as a nursing home or residential care facility. The residences had to be occupied by the inmates and provide round-the-clock care in order to meet our definition of an institutional home.

The efficacy of three types of pain intervention approaches—educational, treatment-based, and system modification—was assessed in the eligible trials. We also took into account studies that reported combination interventions. A quantitative, standardized technique was used to quantify pain as a primary or secondary result. Excluded from consideration were studies that solely assessed the subjective perception of pain. Studies published in the period from 2018 to 2024 in English language were included.

The search method focused on papers about adults living in assisted living, skilled nursing, or care facilities; it also revived pain management, including both non-pharmacological and pharmaceutical therapies. A set of restricted terms was used to search concepts. The electronic databases Pubmed, Cochrane, and Google Scholar were searched. We also checked reference lists of included research, pertinent systematic reviews, and gray literature for studies that could not be found through electronic searches.

Data was extracted by 4 authors using shared documents (Google sheet and Google form) with access for all authors to avoid information duplication or missing, a predesigned table was used to extract data which include (citation, study publication year, study design and method, outcomes, study aim, intervention and main findings).

3. Result

We included 8 studies in our systematic review (Fig 1), 5 were randomized controlled trials (12–16) and 3 were non randomized (17–19). Intervensions used include; analgesic (13,16), exercise (15), acupressure (12,19), music therapy (14) and massage (17). Measurement of outcome used in the included studies were illustrated in (Table 1).

According to Akbarnezhad et al. (12), after the intervention, there were significant differences in the WOMAC index, physical dysfunction, and pain between the groups. Post hoc comparisons showed a significant decrease in the overall WOMAC index, physical dysfunction, and discomfort among acupressure recipients. In actuality, ANOVA discovered differences in the means of pain, stiffness, and physical disability among the three groups. In Ansari et al. (13) study, Knee pain and stiff joints were significantly reduced in both groups; however, the intervention group's effect magnitude was greater. Additionally, Chang & Park's study found a statistically significant improvement in the participants' levels of musculoskeletal pain, depression, and timely and group sleep (Table 2).

Costa et al. discovered that while not everyone at a care facility may gain equally, many residents may benefit by listening to their favorite music. In Husebø et al. trial, the intervention group had gains in daily activity function and

reduced medication use, while the staff reported less discomfort and considered that the intervention may produce clinically meaningful change. There was no discernible variation in pain relief from Excercise that might have therapeutic value according to Maltais et al. (15) study. In Pehlivan & Karadakovan, (17) study, when older patients with knee osteoarthritis received aromatherapy massages, their pain levels decreased and their functional status and quality of life increased.

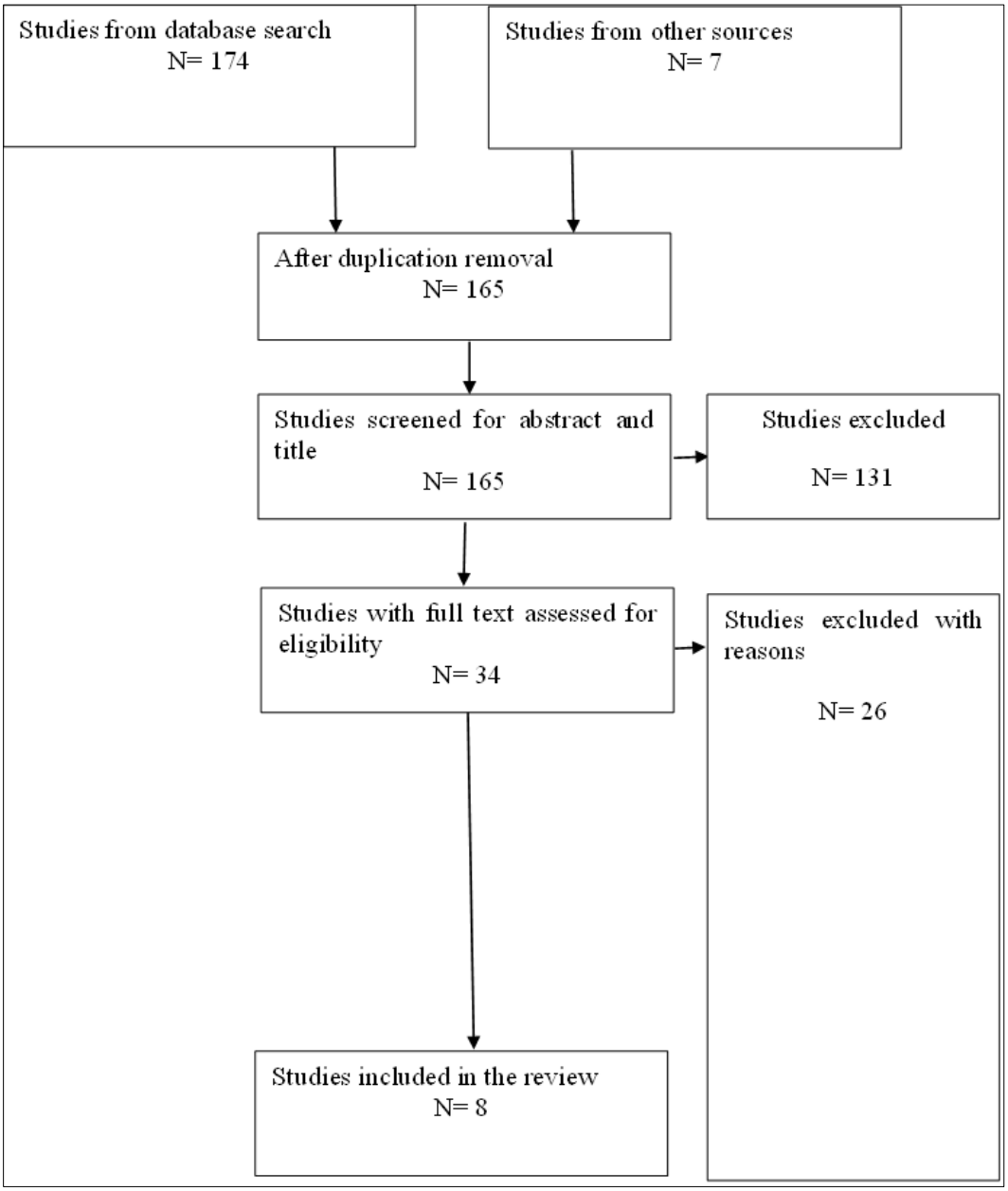

Figure 1 PRISMA consort chart

Table 1 Characteristics of included studies

Citation	Sample size	Design	outcome	Intervention
Akbarnezhad et al. (12)	49	RCT	Visual Analogue Scale, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC)	acupressure
Ansari et al. (13)	61	RCT	WOMAC	Analgesic

Chang & Park (19)	49	Controlled before and after	Brief Pain Inventory (BPI)	Acupressure
Costa et al. (14)	113	RCT	Iowa Pain Thermometer (LPT), Verbal Descriptor Scale (VDS)	Music therapy
Husebø et al. (16)	545	Cluster RCT	(Mobilization Observation Behavior Intensity Dementia Pain Scale) MOBID-2	Analgesic
Maltais et al. (15)	91	Cluster RCT	Algoplus Scale	Exercise
Okram et al. (18)	40	quasi-experimental	(Global pain scale) GPS	Non-analgesic
Pehlivan & Karadakovan, (17)	90	Controlled before and after	WOMAC	Massage

Table 2 Study aim and main findings

Citation	Aim	Main findings
Akbarnezhad et al. (12)	To evaluate the impact of acupressure therapy on osteoarthritis-affected knee pain, stiffness, and physical functioning.	WOMAC index did not differ across the three groups at baseline in a statistically meaningful way. Following the intervention, there were notable variations across the groups with respect to pain, physical dysfunction, and the overall WOMAC index. Acupressure recipients' overall WOMAC index, discomfort, and physical dysfunction significantly decreased, according to post hoc comparisons. In fact, ANOVA found that the three groups' means of pain, stiffness, and physical impairment varied.
Ansari et al. (13)	To look into how melilotus officinalis oil affects older persons with mild to moderate primary knee osteoarthritis in terms of knee joint pain and stiffness.	At baseline, there was no statistically significant difference in any of the sociodemographic factors between the intervention and control groups. Both groups experienced a significant reduction in knee discomfort and stiff joints; however, the intervention group experienced a larger effect size. There were no significant negative effects during the investigation.
Chang & Park (19)	To investigate and assess how auricular acupressure affects the musculoskeletal pain, depression, and sleep of senior citizens living in long-term care institutions.	Following the intervention, the experimental group demonstrated a statistically significant improvement in their level of musculoskeletal pain, their level of sadness, and their level of group and timely sleep. Consequently, there is some support for the proposed hypothesis.
Costa et al. (14)	To evaluate how older assisted living facilities residents' pain, despair, and anxiety are affected by listening to their favorite music.	Every dependent variable had statistically significant declines, with the effects on depression and anxiety being larger than those on pain. The control group did not see any appreciable gains. Further investigation revealed factors that either enhanced or restricted the positive effects of the music. People in excruciating agony may not benefit, but people who valued music, listened to it often, and had their preferences met profited more than others.
Husebø et al. (16)	To find out if the COSMOS trial's multicomponent intervention—which included activities, medication, systematic pain management, and communication—improved the quality of life for patients	The study hypothesis that the work-intensive intervention period may be overwhelming health care professionals is supported by the temporary fall in quality of life observed in the intervention group. Nevertheless, there was a notable reversal of the decline throughout the follow-up, suggesting a possible learning impact. Additionally, the staff reported reduced distress and felt that intervention may effect clinically meaningful change, whereas the intervention group saw improvements in daily activity function and took less medication. This implies that extended follow-up is

	in nursing homes with complex needs.	necessary for nonpharmacologic multicomponent therapies to guarantee uptake and positive outcomes.
Maltais et al. (15)	Analyze how a 6-month exercise program affects older adults with dementia who reside in nursing homes in terms of neuropsychiatric symptoms, pain, and medication use.	A 4-point difference in the neuropsychiatric inventory and a 1.3-point difference in the number of drugs reduced in favor of exercisers were discovered by between-group analysis to be a non-significant difference that may have therapeutic significance. There were no discernible changes in pain levels, and the social group showed a trend toward higher medication use.
Okram et al. (18)	To evaluate the impact of heat fomentation with Epsom salt versus regular salt on older people's knee pain	The null hypothesis is rejected because Epsom salt hot fomentation is more effective than regular salt.
Pehlivan & Karadakovan, (17)	To find out how aromatherapy massage affects older people with knee osteoarthritis in terms of pain, functional status, and quality of life.	In comparison to the massage and control groups, the aromatherapy group's WOMAC scores were statistically significantly lower and its quality of life scores higher in week four. When comparing the massage group to the control, some notable variations were evident. Week 8 saw a diminishing of these noteworthy variations in the aromatherapy group, whilst the massage group's averages remained unchanged from the beginning.

4. Discussion

In this study we looked at how well interventions for chronic pain management worked for people living in assisted living facilities. We draw the following conclusions: acupressure is anticipated to be a useful and effective nursing intervention for the elderly with chronic pain institutionalized in long-term care institutions; also it may be a beneficial intervention for lowering pain, stiffness, and increasing the function of knees with osteoarthritis; Melilotus officinalis oil, as opposed to diclofenac gel, helps lessen stiffness and pain in the knee joints of older adults with mild to moderate osteoarthritis; Many residents of assisted living facilities may benefit from listening to their favorite music, albeit not everyone may experience the same level of gain; In older people with chronic pain, the benefits of exercise on neuropsychiatric symptoms, pain, and drug intake were similar to those of social interventions; Compared to regular salt, Epsom salt hot fermentation is more effective.

The biggest therapeutic results came from analgesic medication therapies. Trials did reveal some variation, though, which should be taken into account when implementing therapies (13,16). The second-most effective type of interventions was nondrug alternative therapy, with moderate to significant therapeutic outcomes. The multi-component intervention did not enhance QoL in NH patients during the active intervention from baseline to month four, according to a 2019 study by Husebø et al. EQ-VAS and QUALIDEM were used to measure QoL, and follow-up analyses conducted between months 4 and 9 showed that the intervention group had significantly better QoL than the control group. Particularly, the caring relationship, positive affect, and social ties showed improvements (16).

A 12-month exercise program improved daily activity performance, according to a prior report (20). However, no impacts were detected on dementia symptoms in individuals with Alzheimer's disease. It is possible to believe that a social intervention could have a greater positive impact on dementia symptoms than no intervention, making it more challenging to demonstrate the beneficial effects of the exercise intervention in RCT. That study, however, used a no-intervention control group, which differs from the social activity group used in RCT. After a 12-week high-intensity resistance training program, Telenius et al. (21) reported a substantial reduction in neuropsychiatric symptoms in another RCT. The High Intensity Functional Exercises intervention, created by Littbrand et al., (22) was carried out by the study participants.

The Pehlivan et al. study's findings, which examined the effects of aromatherapy massage on pain, stiffness, functional state, and quality of life in older people with osteoarthritis in the knee, showed that aromatherapy had positive effects on pain in particular, as well as stiffness, functional state, and a few sub-dimensions of quality of life. Numerous research (23–25) have been conducted about the effects of aromatherapy on pain and functional status in patients with

osteoarthritis of the knee. Therkleson (2014) (25) applied topical ginger for one week to participants with osteoarthritis in the knees. Following the treatment, the participants' pain, weariness, overall assessment, functional state, and life satisfaction all showed significant and positive improvements. According to research conducted by Nasiri et al. (2016) (26) and Nasiri and Mahmodi (2018) (24), patients who received aromatherapy massages saw a significant reduction in pain severity and activities of daily living handicap as compared to those who did not receive the treatment.

5. Conclusion

The analgesic drug therapy yielded the greatest therapeutic benefits. Non drug alternative treatment provide moderate to considerable therapeutic effects. Not all assisted living facility residents benefit equally from listening to their favorite music. Acupressure is expected to be a helpful and effective nursing intervention for the elderly with chronic pain; Exercise had comparable effects to social interventions on neuropsychiatric symptoms, pain, and drug intake in older adults with chronic pain; Epsom salt hot fermentation works better than ordinary salt.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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