

Massage, a complementary therapy effectively promoting the health and well-being of older people in residential care settings: a review of the literature

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Aims. To explore the potential benefits of massage within daily routine care of the older person in residential care settings.

Background. Globally, the proportion of people over 65 years is rapidly rising. Increased longevity means older people may experience a rise in physiological and psychological health problems. These issues potentially place an increased demand for quality long-term care for the older person. Complementary approaches such as massage appear to be needed in quality residential care.

Design. A critical literature review was undertaken.

Methods. A literature review pertaining to massage in the older resident was conducted using a range of online databases. Fourteen studies dated 1993–2012 met the inclusion criteria and were critically evaluated as suitable resources for this review.

Results. Evidence suggests massage may be advantageous from client and nursing perspectives. Clients' perceive massage to positively influence factors such as pain, sleep, emotional status and psychosocial health. Evidence also demonstrates massage to benefit the client and organisation by reducing the necessity for restraint and pharmacological intervention. Massage may be incorporated into care provision and adopted by care providers and family members as an additional strategy to enhance quality of life for older people.

Conclusion. Massage offers a practical activity that can be used to enhance the health and well-being of the older person in residential care.

Implications for practice. Massage offers benefit for promoting health and well-being of the older person along with potential increased engagement of family in care provision. Integration of massage into daily care activities of the older person requires ongoing promotion and implementation.

Key words: long-term care, massage, nursing home, older person, residential care, senior citizens

What does this research add to existing knowledge in gerontology?

- This review provides support to the limited body of evidence regarding use of massage for older people in residential care settings. Generalised conclusions suggest massage may complement other mainstream therapies to meet the physiological and psychological needs of older people.
- Advantages of massage for older people in residential care settings can extend beyond the promotion of relaxation and alleviation of pain.

What are the implications of this knowledge for nursing care with older people?

- Massage presents a non-invasive, non-pharmacological integrative approach to complement mainstream healthcare practices for the older person.
- Massage could be undertaken as a nurse initiated intervention following nominal education with the goal to include care providers and/or family members.

How should the findings be used to influence policy/practice/research/education?

- Government funding is required to support provision of massage in residential aged care as an innovative strategy to support healthy ageing.
- Nurses, carers and family are well positioned to incorporate massage as a supportive activity in the care of the older person.
- Further research is required to establish an effective mechanism for the implementation of massage into care regimes for older people.

Keegan, 2013). The efficacy and health benefits of massage for older people in residential care settings are concerns due to the limited breadth of discourse around complementary and alternative healthcare practices.

Integrative medicine (IM) is described as the merging of conventional medicine and alternative complementary medicine/therapies (CAM) along with lifestyle interventions as a holistic approach (Australian Integrative Medicine Association n.d.). IM is the use of the most appropriate, safe, cost-effective and evidence-based modalities to promote health by the blending of the latter practices (Dossey & Keegan, 2013). CAM is recognised, accepted and used within contemporary healthcare practices (Willison & Andrews, 2004). CAM is described as a 'group of diverse medical and healthcare systems, practices and products not generally considered part of conventional medicine' (National Centre for Complementary and Alternative Medicine [NCCAM] 2013).

Massage is becoming one of the most recognised forms of complementary therapies used in contemporary nursing practice (Mok & Woo, 2004). Those caring for older people continuously use touch in their practice in both a procedural and a sensory manner. As the skin is a person's largest sensory organ, it has intimate connections with the central nervous system (Walker & Walker, 2003). Touch is intended to provide a beneficial effect for the older person in the specific form of massage.

As the proportion of people over 65 years of age worldwide increases, a rise in degenerative and chronic disease management including diabetes, cancer, mental illness, rheumatologic and cardiovascular diseases is occurring (Adams *et al.*, 2009; WHO 2012). Older people in residential care often encounter complex issues commonly associated with cognitive impairment and dementia, which may lead to increased anxiety, depression and agitation. Such complexities require a more integrative healthcare approach than traditional medicine offers to meet the unique physical and psychological needs of older people (Adams *et al.*, 2001).

Historically, massage has been utilised as an effective therapeutic tool. Recently, massage has become more prominent as an adjunct therapy to mainstream or 'Western' healthcare (Mok & Woo, 2004), contributing to manage-

Introduction

A conundrum for complementary therapies such as massage is that their effects are not always measurable in the same way as other therapies or conventional medicine (Dossey &

ment of a wide range of chronic conditions experienced by the older population (Cohen-Mansfield, 2001; Adams *et al.*, 2009). Massage takes various forms, with unique and beneficial styles making it difficult to define, accurately and completely (Fritz, 2000). To set the scene for this paper, massage for the older person is defined as a form of touch 'to relax the client, improve general well-being and reduce mental stress and general body tension. . .the speed of delivery is slow and the pressure is light to moderate' (Tuchan *et al.*, 2004, p. 5).

Walker and Walker (2003) suggest that massage when done correctly and with caring intent using slow, rhythmic stroking, and kneading of the body's skin and muscle tissue' can be a comforting and relaxing experience. For the older person, body areas most appropriate for massage include the hands, feet, back, neck and shoulders. Massage can be beneficial by supporting rehabilitation, restoration and normalisation of anatomical and physiological function. Psychological benefits occur subjectively and influence sensation and perception (Fritz, 2000). Massage is often combined with other therapies such as aromatherapy (AT) or calming music (CM) to enhance the therapeutic benefit (Dossey & Keegan, 2013). Kilstoff and Chenoweth (1998) note clients in a dementia day care centre receiving hand treatments over an 18-month period showed increased alertness, self-hygiene and contentment, along with reduced levels of agitation, withdrawal and wandering.

Formal techniques require the provider to have undertaken a special course and demonstrate a certification level. However, for a fundamental, informal relaxation massage, providers can learn elementary techniques through continuing education (Harvey, 1999; Dossey & Keegan, 2013).

In the context of the older person in addition to the therapeutic benefits, consideration of the contraindications of massage is essential. Contraindications can be particular to each client and each area of the body. An understanding of the contraindications 'should be based on a set of medical and therapeutic guidelines pertinent to clinical applications and recent research developments' rather than relying on a list of specific contraindications (Fritz, 2000; p. 210). Broad categories of contraindications might include recent trauma, signs of infection, signs of inflammation, possibility of haemorrhage or the presence of tumours or cancer. Caution is also required providing massage over endangerment sites, such as 'bones, organs, nerves and blood vessels close to the surface' that are 'not well protected by muscles or connective tissue' (Tuchan *et al.*, 2004; p. 136). A study by Cambron *et al.* (2007) showed only 10% of clients' experienced minor discomfort and no major side effects were noted. Hansen *et al.* (2006) assessed the effects of a range of massage and

touch therapies on conditions associated with dementia with no identified severe side effects.

A review is therefore needed to identify the potential benefits of massage and make recommendations to inform care providers who may seek to integrate massage into care for older people in residential health care settings. The goal of this review was to generate knowledge and promote interest for future research in this evolving area of nursing practice.

Aims

The primary aim of this review was to explore the literature to identify the potential benefits of massage for older people residing in long-term healthcare settings.

Objectives and methods

A critical research-based review was employed to establish the advantages of massage, related to the physical and psychosocial health of the older person in residential care settings. This method provided a means to draw evidence from studies through a variety of research methodologies to inform the review aim. The initial phase conducted an extensive search of existing primary, peer-reviewed studies reporting on massage therapy in the residential care environment. The search included the following online databases; Cumulative Index of Nursing and Allied Health Literature (CINAHL), Ovid MEDLINE, ProQUEST, SCOPUS and the Web of Knowledge. Combinations of keywords specific to the focus of this review were as follows: 'massage', 'older person', 'senior citizens', 'long-term care', 'nursing home' and 'residential care'.

The initial search identified 210 557 potential studies. Further refinement involved amalgamation of keywords, review of titles, abstracts, reference lists and expert recommendations. The search process was limited by the number of studies addressing the older person over the age of 65 years. Consequently, the inclusion and exclusion criteria were modified to include the older person to be over 50 years of age (see Table 1). Few of the retrieved studies focused exclusively on massage and the older person living in residential care settings. As a result, 14 studies were identified for critical analysis (see Fig. 1).

Three studies featured frequently throughout the reference lists of the reviewed studies (Fraser & Kerr, 1993; Snyder *et al.*, 1995; Sansone & Schmitt, 2000). Although older than the initial set time period, these studies were deemed to inform current understanding of the review aim, thus were included. One study drew participants from the community

Table 1 Inclusion and exclusion criteria

Inclusion Criteria	Exclusion Criteria
Older people, >50 years of age	Adults, <50 years of age
Aged Care health settings	Non-healthcare settings
Published date 2002–2012	Published date prior to 2002
Peer-reviewed primary studies	Non-peer-reviewed, literature reviews and systematic reviews
Massage – Simplified forms of massage for the older person. Forms of massage that can be delivered during the routine care of older people by nurses, care staff or family members.	Massage techniques requiring formal education to deliver and forms too complex to deliver during the routine care of the older person by nurses, care staff and family members
English language articles	Non-English articles
The word ‘massage’ appeared in the title	The word ‘massage’ was not in the title
Participants – age group to appear in the title (e.g. elderly, postmenopausal, nursing home residents, older people/adults, dementia residents).	No indication of participants being of an older age group present in the title
Articles retrievable from the database.	Articles not retrievable

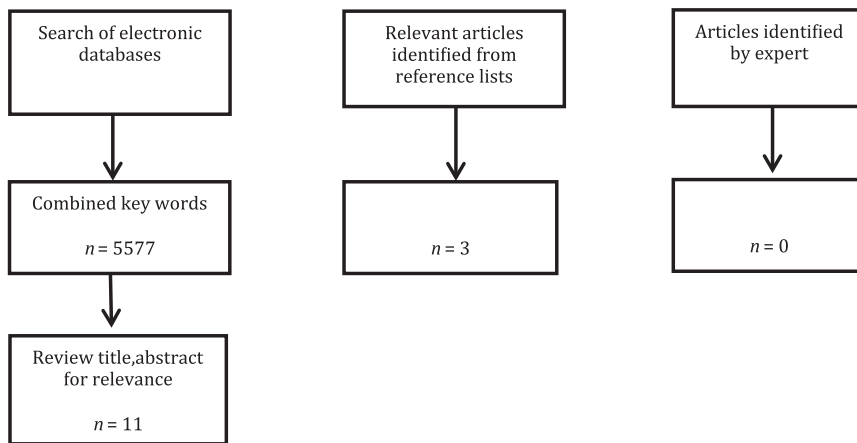


Figure 1 Flow chart of literature search.

rather than from a residential care to investigate the relationship between massage and well-being in the older, wider population (Munk & Zanjani, 2010). A similar investigation was undertaken by Oliveira *et al.* (2011) without report of recruitment criteria. Improved quality of life from massage was found in the identified age group.

Critical appraisal

The 14 reviewed studies presented a broad international perspective drawing from USA, Hong Kong, Australia, Brazil, United Kingdom and Japan. Each study was critically appraised through application of an adapted amalgamation of four appraisal tools (Long *et al.*, 2002; Public Health Resource Unit (CASP) 2006; Schneider, 2007; Polit & Beck 2008). The amalgamation of these tools resulted in 10 questions (see Table 2), which were aimed to establish rigour, reliability and justify individual inclusion into the review. In summary, the outcome of this process identified both weaknesses and strengths within individual studies (see Table 3).

The 14 appraised studies used either quantitative or mixed method designs. Sample sizes ranged from seven to 144 participants aged between 50 and 105 years. Participants included postmenopausal women, people with dementia, stroke and a variety of co-morbidities. Ten studies specified all details of ethic committee approval, while four incompletely addressed aspects such as confidentiality and/or informed consent. All studies defined individual aims and appropriate methodologies in a robust manner. Thirteen nominated an objective analysis of limitations within their studies except Oliveira *et al.* (2011).

The reviewed studies varied across massage sites (hand, back, feet, forehead), length of observation (14 days – 12 months), duration (5-minute to 1-hour sessions) and skill level of the person delivering massage (trained and/or untrained in massage). While these variations were concerning, the limited research existing and otherwise minor deficiencies convinced the authors to include each of the identified research studies. These studies have been summarised for inclusion in the review (see Table 4).

Table 2 Appraisal questions

Critical Appraisal Tool (Questions amalgamated from Schneider 2007, Polit & Beck 2008, Long et al, 2002; Public Health Resource Unit (CASP) 2006.)

- Q1. Aim: Does a literature review provide a solid foundation for the study being undertaken? Were the aims and/or objectives of the study clearly defined?
- Q2. Design: Was the research design and methodology used appropriate to elicit relevant data from the research study?
- Q3. Sample: Was the selection criteria of participants and setting appropriate to the aim of the research? Were participants randomly allocated into a control/treatment groups?
- Q4. Collection: Is there a clear description regarding how the data was collected and the instruments used? Were the data collection methods appropriate to yield data that were regarded of high reliability and validity?
- Q5. Analysis: Was there appropriate analysis of data and comparison between group/s, or using time series/analysis of variance?
- Q6. Rigor: Has validity and reliability of the research been established? (Rate: weak, adequate, good, strong)
- Q7. Ethics: Has the researcher ethically considered the participants? (Ethic Committee approval, informed consent, ethical issues addressed) (Incompletely addressed or fully addressed)
- Q8. Results: Are the results clearly presented and appropriate?
- Q9. Limitations: Has an objective analysis of limitations been presented?
- Q10. Significance: Implications for healthcare discussed and how useful is the information presented? Value score-low (1–3), moderate (4–6), high (7–10). To what setting are these findings generalisable to care settings?

(Appropriate/yes ✓/not appropriate/no ✗)

Thematic analysis

Following critical appraisal of each study, thematic analysis was undertaken utilising a colour coding method to identify commonalities of ideas and words that connected uniquely to the review aim (Taylor *et al.*, 2007). This approach by Richardson-Tench *et al.* (2011) is an effective way of eliciting common ideas from the literature to establish themes. This cyclical process involves the authors discussing the findings of the studies to ensure rigour and common interpretation of themes in this review.

Results

Client and nursing perspectives relative to massage and the older person are identified. The client perspective identifies the potential benefits of massage for older people residing in long-term care. The nursing perspective recognises the benefits of massage for the older person and the organisation.

Following synthesis of the data, these themes are presented below (see Table 5).

Client perspective

The client perspective is evident in all 14 of the studies reviewed. Six themes encompass the client perspective on benefits of massage within care (see Table 5).

Anxiety and agitation

The theme anxiety and agitation is informed by 11 studies. A range of reliable and comprehensive assessment tools are used to measure anxiety and agitation for example the Spielberger State-Trait Anxiety Inventory (STAI), Cohen-Mansfield Agitation Inventory (CMAI), Behavioural Pathology in Alzheimer’s Disease Rating Scale and Gottfries-Brane-Steen Scales. Fraser and Kerr (1993) studied 21 residents’ anxiety levels following back massage (BM). Five minutes of slow stroke back massage (SSBM) using light–moderate pressure from head to sacrum was provided. Alternatively, Hicks-Moore and Robinson (2008) studied 41 nursing home residents with a history of agitation. Foot massage (FM) and hand massage (HM), either independently or combined, effectively reduced agitation behaviours. Agitation behaviours were described as ‘purposeless wandering, pacing back and forth, general restlessness, attention seeking and repetitive statements’ (Hicks-Moore & Robinson, 2008). Each intervention lasted 10 minutes over three consecutive treatments, using slow strokes and light pressure. Both studies demonstrate massage has the potential to reduce some agitation-related behaviour with a sense of calm.

Another targeted participant group of 68 medically diagnosed cognitively impaired residents (not prescribed medication for anxiety), displayed a reduction in the intensity and frequency of agitation-related behaviours (Remington, 2002). A 10-minute intervention of CM, HM or both simultaneously was provided. Similarly, Holliday-Welsh *et al.*’s (2009) targeted group of 54 participants with agitated behaviours significantly decreased following six sessions of 10–15 minutes of Swedish massage. This form of massage includes, ‘effleurage’, a straightforward technique performed by applying light to moderate pressure over the skin using a continuous gliding or sliding motion (Holliday-Welsh *et al.*, 2009). Snyder *et al.* (1995) also identify, in 26 participants, over a 10-day observation period that HM reduces frequency and intensity of agitation before care activities.

Moyle *et al.* (2011) studied FM on 17 male and female residents and recognised regular short FMs reduced agitation and related behavioural problems in those with

Table 3 Summary of critical appraisal

Studies Author & Date	Q1. Aim	Q2. Design	Q3. Sample	Q4. Collect-ion	Q5. Analysis	Q6. Rigor	Q7. Ethics	Q8. Results	Q9. Limitations	Q10. Significance (/10)
Fraser and Kerr (1993)	✓✓	✓	✓✓	✓✓	✓	Strong	Partially addressed	✓	✓	9 ✓
Hicks-Moore and Robinson (2008)	✓✓	✓	✓✓	✓✓	✓	Strong	Fully addressed	✓	✓	8 ✓
Holliday-Welsh <i>et al.</i> (2009)	✓✓	✓	✓X	✓X	✓	Good	Fully addressed	✓	✓	7 ✓
Kolcaba <i>et al.</i> (2006)	✓✓	✓	✓X Unclear	✓X	✓	Good	Fully addressed	✓	✓	7 ✓
Mok and Woo (2004)	✓✓	✓	✓✓	✓✓	✓	Strong	Fully addressed	✓	✓	9 ✓
Moyle <i>et al.</i> (2011)	✓✓	✓	✓X	✓✓	✓	Good	Fully addressed	✓	✓	7 ✓
Munk and Zanjani (2010)	✓✓	✓	✓X	✓✓	✓	Good	Fully addressed	✓	✓	8 ✓
Nelson and Coyle (2010)	✓✓	✓	✓✓	✓X Unclear	✓	Good/ strong	Fully addressed	✓	✓	8 ✓
Oliveira <i>et al.</i> (2011)	✓✓	✓	✓X	✓✓	✓	Good	Fully addressed	✓	X	7 ✓
Remington (2002)	✓✓	✓	✓✓	✓✓	✓	Good/ strong	Fully addressed	✓	✓	8 ✓
Sansone and Schmitt(2000)	✓✓	✓	✓X	✓X Unclear	X Unclear	Good	Partially addressed	✓	✓	6 ✓
Snyder <i>et al.</i> (1995)	✓✓	✓	✓X	✓X Unclear	X Unclear	Good	Partially addressed	✓	✓	7 ✓
Soden <i>et al.</i> (2004)	✓✓	✓	✓✓	✓✓	✓	Good/ strong	Fully addressed	✓	✓	8 ✓
Suzuki <i>et al.</i> (2010)	✓✓	✓	✓✓	✓✓	X Unclear	Good	Partially addressed	✓	✓	7 ✓

dementia or clinical history of significant agitation. The remaining studies informing this theme report similar results with back, neck, shoulder and HM ranging in sample sizes (7–102). Interventions varied (10–60 minutes), and study periods extended from one to eight weeks. All participants demonstrated a reduction in anxiety and agitation-related behaviours (Sansone & Schmitt, 2000; Mok & Woo, 2004; Munk & Zanjani, 2010; Suzuki *et al.*, 2010; Oliveira *et al.*, 2011). Significantly, this theme indicates massage provides benefit to the older person in reducing anxiety-related behaviour.

Relationships and interpersonal communication

Relationships and interpersonal communication are identified in six studies. Each suggests massage as an important form of non-verbal communication and supporting a caring approach and connectedness to the older person. Qualitative interviews and reports from participants and care staff indicate massage as an effective form of non-verbal communication

particularly with cognitively compromised older people (Sansone & Schmitt, 2000; Mok & Woo, 2004).

Sansone and Schmitt (2000) report care attendants view massage as beneficial for 84% of their 59 residents. Positive outcomes include improved communication during massage, providing significant value for the carers of the older person. Learning simple massage techniques may also enable family members to benefit through actively remaining involved in the care of their loved-one. In addition, it may provide opportunities for relevant others to maintain or establish more caring and connected relationships (Sansone & Schmitt, 2000; Mok & Woo, 2004; Holliday-Welsh *et al.*, 2009). This evidence supports the position that various forms of massage assist the building of therapeutic relationships and strengthening of family ties.

Sleep and relaxation

Massage is the specific focus of six studies investigating the promotion of sleep and relaxation for older people. Mok and Woo (2004) explore the effects of SSBM (10 minutes duration)

Table 4 Summary of reviewed articles

Study	Aim	Sample	Method	Major Findings	Limitations	Relevance
1 Fraser & Kerr (1993) USA	Evaluate the psychological and physiological effects of back massage on anxiety in older people in long-term care	21 participants, aged over 60 years. Able to lie down without discomfort and scored 6 or more in Short portable Mental Status Questionnaire (SPMSQ). Voluntary participation. Random allocation to control/treatment groups. Long-term care facility	Quantitative/Qualitative Experimental design Spielberger State-Trait Anxiety questionnaire (STAI), electromyography (EMG), Systolic/diastolic blood pressure (SBP/DBP) 3 × 3 repeated measure design (ANOVA Model) Massage: 5-minute slow back massage (BM) and normal conversation Control group: 1- no treatment, 2- conversation only	Statistically significant: decrease in mean anxiety (STAI) score between the BM group and the no intervention group. BM group perceived the massage as relaxing and pleasurable. Recommended – touch be encouraged when caring for the elderly. Registered nurses take an active role in providing education and act as role models to other staff re massage	Small sample size, physiological variability of participants (medication regime, and comorbidities)	Support for – correlation between increased anxiety in older people being hospitalised & technology – counterbalanced by caring, touch and human contact. Describe older people as being “deprived” of: touch, social and physical human experiences. Massage is utilised to stimulate circulation, provide sedation and relaxation
2 Hicks-Moore & Robinson (2008) Canada	Establish effectiveness of favourite music (FM) and hand massage (HM) in reducing agitated behaviour in nursing home residents with moderate dementia.	Convenience sample: 41 residents who displayed agitated behaviour and diagnosed with dementia (age 67–92 years). Random allocation to treatment/control group. 3 Special Care Units (SCU) in 3 nursing homes	Quantitative Experimental design. Cohen-Mansfield Agitation Inventory (CMAI) Observational: 10 minutes before, immediately after and 1 hour postintervention. Experimental 3 × 3 repeated measures design (ANOVA Model) Message Intervention: HM, FM and HMFM each lasting 10 minutes. Control group-no treatment	FM and HM individually or combined, displayed a significant decrease in levels of agitation. Reduction in agitation observed immediate, also 1 hour postintervention	Small sample size. Participants: mainly Caucasian and female – not a representative of all residents with dementia (Reduces transferability). Only one research assistant to implement and observe: potential bias. Results possibly influenced by additional social interaction and not intervention	Multiple related studies have found massage (and music) to be therapeutic and beneficial for psychological relaxation, pain control, improving mood and reducing anxiety/agitation
3 Holliday-Welsh <i>et al.</i> (2009) USA	Examine the potential of massage to reduce agitation in cognitively impaired individuals	54 subjects: 2 nursing homes, aged 70–105 years. Cognitive impairment and history of agitated behaviour. Excluded diagnosis of psychosis, or history of sensation disorder (peripheral neuropathy) in the upper extremities. Nursing home residents	Quantitative (ANOVA Model) Observation: 1 minute prior, and then 5-minutely and on conclusion of massage. Agitation also recorded at day 7 and day 14. MDS Agitation Scale (score 0–6 – absent–severe)	4/5 disruptive behaviour associated with cognitive impairment decreased during massage intervention: wandering, verbally agitated/abusive, physically agitated/abusive, resisted care. Although socially inappropriate/disruptive was not significant)	Small sample size. Varied medication regimes – psychoactive medications/nil. Generalisability limited. Nil minority groups were included in the sample. Baseline agitation low in the population of this study	Related studies report touch may trigger agitation, which was not congruent with this study. Suggested family involved to administer massage may benefit the patient, family and care facility

Table 4. Continued

Study	Aim	Sample	Method	Major Findings	Limitations	Relevance
4 Kolcaba <i>et al.</i> (2006) USA	Test the effectiveness of hand massage (HM) as an intervention that affects nursing home resident's comfort and satisfaction	70 participants (60 completed) randomly assigned to treatment/control groups. Voluntary participation across 2 nursing homes. Treatment group 35 (mean age 79 years), comparison group 25 (mean age 78 years). Exclusion participants who received massage from other sources and diagnosis of dementia or psychiatric illnesses)	Quantitative Quasi-experimental design General Comfort Questionnaire (GCQ) Data collection 2 ½-week intervals. Multivariate analysis of variance results (ANOVA) and <i>t</i> tests. Massage (Hand) 15-minute duration) over 5-week period. Control group only received 1 HM at the end of the study	Massage, involved focused one-to-one interaction, non-verbal communication and connection via human touch (counteracts social isolation). Sustained effects were observed 7–14 days postintervention Significant differences in comfort for treatment and control groups Note: on 3rd implementation no significant differences in comfort were found between both groups (possibly due to familiarity with the student data collectors). HM facilitates on-to one connections between the masseur and recipient. Support from supervisors and administrators imperative to ensure staff are able to provide HM, that is training	Comfort and satisfaction of residents a subjective finding. Nursing students administered HM therefore familiarity with the resident, reduced significance of findings in this study. Variances in skill level and experience of masseur	Related research: similar findings in use of HM as a comforting, caring intervention for residents in long-term care. HM was hypothesised to induce positive and interrelated effects on physical, psycho-spiritual, socio-cultural and environmental components of comfort
5 Mok & Woo (2004) Hong Kong	Explore the effect of slow-stroke back massage (SSBM) on anxiety and shoulder pain in elderly patients with stroke	102 participants (equal male/female 65–85 years of age). Randomly assigned to control or intervention group. Inclusion criteria-stroke patient experiencing shoulder pain, 65 years +, not receiving analgesia, able to understand verbal instruction, no history of bradycardia, hypotension, spinal or skin disorders or malignancy of the spinal	Quantitative/Qualitative Experimental design Measured vital signs, State-Trait Anxiety Inventory (STAI). Vertical Visual Analogue Scale (VAS)-pain. Semi-structured questionnaires/open-ended questions. Data collection: pre-, post- and 3 days after intervention. Massage (back), 10-minute SSBM for 7	A significant decrease from pretest to post-test in all variables including, anxiety level, heart rate, systolic BP, diastolic BD and pain scores. Revealed a sustained effect measured 3 days postmassage. Reports of increased relaxation, improved sleep and reduced pain. Participants reported massage was a means through which nurses	One hospital: limiting generalisability. Questionnaire: did not include the word "anxiety" but other descriptors may have caused them to alter their responses. Terminology an issue. Lack of control over the "Hawthorne Effect". Unknown if the effects could be sustained beyond the 3rd day cessation	Further studies have seen improvement in mood, body image, self-esteem, and perceived levels of anxiety and pain. Findings consistent with other studies demonstrating massage promotes sleep, comfort and relaxation

Table 4. Continued

Study	Aim	Sample	Method	Major Findings	Limitations	Relevance
6 Moyle <i>et al.</i> (2011) Australia, Brisbane	To explore the effects of foot massage on agitated behaviour in older people with dementia living in long-term care	column. Hospitalised stroke patients Purposeful sample: 17 men and 5 women. Diagnosis: dementia and clinical history of significant agitation. Residential care facility	consecutive evenings. Control group-not offered SSBM Quasi-experimental Cohen-Mansfield Agitation Inventory (CMAI-SF) and Revised Memory and Behaviour Problems Checklist (RMBPC) tools. Message: feet, 5 minutes per foot, daily for 14 days	expressed their caring attitude and provided the patient with a sense of connection. SSBM is supported as an adjunct to pharmacological treatment, and is clinically effective reducing anxiety and shoulder pain in elderly stroke patients Short foot massages can reduce agitation in dementia (after 2 weeks) Changes maintained for at least 2 weeks following cessation of massage Foot massage well tolerated by people with dementia. Foot massage may provide longer lasting effect than other forms of massage	Absence of control group, lack of randomisation, the absence of intention to treat analyses. Positive result may be associated with companionship rather than intervention. Preliminary report: pilot study	Findings consistent with previous research on general massage. Maintenance effect novel (new findings to this study).
7 Munk and Zanjani (2010) USA	To examine the potential of massage therapy as intervention for older adults, by comparing the relationship between massage usage and self-reported health	144 participants: randomly selected. Sourced from voter registration and message clinics. 63 participants received massage in previous year. 60 + years of age. Community dwelling individuals	Quantitative Cross-sectional design. Analysis included RAND-36 (36 item health survey), Chi-square and ANOVA Model analysis, and Multiple Linear Regression. Message: treatment techniques, length of each treatment and duration of treatment is variable	Regardless of age and cumulative morbidities, older adults who received massage therapy in the past year had significantly better emotional health than did those adults who did not receive massage: includes components of emotional health including depression, anxiety, self-esteem, mood and outlook	Due to the cross-sectional design, causation regarding message therapy usage and health outcomes can only be asserted, not confirmed. Those of lower incomes were excluded, as they were less able to afford the treatment. Non-white individuals were underrepresented. All participants: community-dwelling residents: reduces transferability to the clinical setting	Supported by several other studies: found message therapy to increase serotonin levels, demonstrating a positive outcome for depressed and anxious individuals Munk, Kruger & Zanjani (2011)-continuation from this original study: shows older people experiencing persistent pain reported reduced physical & emotional issues, better emotional health, less fatigue, better social functioning and overall health Consistent with similar studies in the acute setting (hospital). Studies also reported that the decline in PRN-SHD medications were more likely to reduce in those who have
8 Nelson & Coyle (2010) USA	To determine if a non-pharmacologic sleep intervention (massage at bedtime) could reduce "as needed" sedative-hypnotic drugs (PRN-SHD)	28 randomly assigned participants, 15-intervention group and 13-control group. Age 66-98 years. (Exclusion if diagnosis of	Quantitative Experimental design. PRN-SHD usage collected Data analysis using Statistical Package for the Social Sciences software	13% reduction PRN-SHD usage for the intervention group. Reduction in PRN-SHD usage may have significant benefits in reducing	Small study size duration: may limit findings re change in sleep patterns and need for PRN-SHD long-term Requests for PRN-SHD medication had not been	

Table 4. Continued

Study	Aim	Sample	Method	Major Findings	Limitations	Relevance
9 Oliveira <i>et al.</i> (2011) Brazil	To evaluate the effect of therapeutic massage on insomnia, depression and anxiety on postmenopausal women with insomnia	sleep apnoea, periodic limb movements, regular order for sedation or SHD at bedtime, or MMSE <15). Involved 4 nursing homes	(version 15) ANOVA model Massage: head, neck, shoulders, back Intervention: 15-minute massage at bedtime for 7 days. Control group- went to bed without intervention at designated times	adverse events such as falls or confusion.	measured (only administered medication). Findings may be influenced by: An active treatment/"sham" treatment for the control group could have potentially controlled placebo effects; staff screened for potential participants; screening for sleep apnoea with polysomnography; standardised bedtime eliminated individual preferences; differences in health conditions influence on sleep. Use of objective measures of sleep quality and duration, for example ActiGraph, would have assessed the effectiveness of improving sleep	recently been prescribed these medications
9 Oliveira <i>et al.</i> (2011) Brazil	To evaluate the effect of therapeutic massage on insomnia, depression and anxiety on postmenopausal women with insomnia	Purposive sample: 7 postmenopausal women aged 50–65 years with insomnia (at least 3 times a week). Excluded participants with serious health problems, antidepressant or sleep inducing aids. Setting unknown	Quantitative Questionnaires-Spielberger State Trait Anxiety Inventory and Beck Depression Inventory (STAI) and Sleep Diary (including Polysomnography (PSG) Statistical analysis. Massage: 1 hour massage, twice weekly for 16 sessions	Significant improvement in symptoms of anxiety and depression. All participants fell asleep more rapidly and gradual improvement of quality of sleep (subjective) PSG analysis (objective)- significant difference in REM latency and sleep stages 1, 3 and 4. Re-evaluated after 1 year with 2 participants having reverted back to insomnia, 2 sleeping better, 3 no problems with sleeping: suggests lasting effects CM and HM reduced the level of agitation. A significant difference between the treatment group and control group identified.	Small sample size Absence of control group.	Consistent with other research findings including a study with elderly subjects, observed that foot massage (reflex therapy) improved sleep, reduced depression and increased serotonin levels. Similar study resulted in 96% improved symptoms of insomnia
10 Remington (2002) USA	To examine whether modifying environmental stimuli by using calming music and HM affects agitated behaviour in persons with dementia	Purposive sample of 68 residents diagnosed with Alzheimer's Disease or dementia (age 60 years+). Divided into 4 random groups.	Quantitative Experimental design Cohen-Mansfield Agitation Inventory (CMAI). Experimental Design. One way analysis of	CM and HM reduced the level of agitation. A significant difference between the treatment group and control group identified.	Residents were all from middle-class communities. Majority: white, female and widowed – may not represent all nursing home residents – cannot be generalised	Similar study: did not have the same findings in verbally agitated: found this behaviour increased, not increased

Table 4. Continued

Study	Aim	Sample	Method	Major Findings	Limitations	Relevance
11 Sansone & Schmitt (2000) USA	Examine the effects of gentle massage on elderly residents suffering from chronic pain and those with dementia who exhibited anxious and agitated behaviour	Exclusion: those receiving medication for agitated behaviour 4 long-term care facilities 59 residents. Intervention: 3 X 12- week phases of the program 2 groups: 1-suffering pain from chronic disease, for example OA/osteoporosis and group 2-Alzheimer's disease with symptoms, for example anxiety, agitation or restlessness. Average age 85 years predominantly female. 364 bed nursing home	variance (ANOVA) Model Message: HM 10 minutes, CM (calming music) 10 minutes and CM and HM 10 minutes. Control group-no experimental intervention Quantitative/Qualitative designs (mixed) Cohort Study Data collection-pain scales and anxiety/agitation assessment (Comprehensive Assessment and Referral Evaluation) Message: included forehead, neck, shoulders, back and hands. 2 sessions weekly for 15 minutes	Reduction of agitation: before, during and after intervention with a sustained effect Physical aggressive behaviour: did not reduce, but physical non-aggressive behaviour did reduce significantly. Verbal agitation also reduced Group 1-Significant reduction in pain scores (approximately 30%) in each of the 3 phases. Group 2-inconsistent results in reduced levels of anxiety. Suggests massage is more effective during the intervention and not long-term Demonstrated to promote appetite, improve sleep and reduced violent outbursts in some of the residents. Message can assist residents who feel abandoned and unloved, to receive additional hands on attention, which was welcomed by the residents in this study	Message administration differing administrators: potential inconsistency. Inconsistent data collectors: Nurses rated pain, anxiety, and enthusiasm – subjective. Dementia causes fluctuating mental states that alter behaviour. Measurement of coping, mood and pain levels is difficult. Only 4 male participants	Additional studies report message benefits with acutely ill and dying patients. Encouraged family members to be involved: active role in their loved ones care, enhancing feelings of usefulness
12 Snyder et al. (1995) USA	To explore if administering hand massage (HM) before care activities that were associated with agitation behaviour, would reduce the frequency and intensity of these behaviours during care activities	Participants: 26 Age 60–97 years. 3 Alzheimer Care Units	Quantitative Quasi-experimental design Observational study Haycox Dementia Scale Message: hand; 10–5 minutes (2 ½ each hand), morning and afternoon for 10 days	HM before care activities reduced frequency and intensity of agitation, compared to behaviour during the baseline period (including incidences of grabbing, screaming/yelling, hitting/punching, trying to get to another place). Episodes of physical resistance and sentence repetition were not affected by HM intervention	Effectiveness of HM reducing agitation in the afternoon was reduced: possibly due to afternoon staff less enthusiastic to administer HM. Observations by staff: suggest differences in manner when HM administered, less effective in the afternoon. Differing stress levels of participants in the afternoon may provide explanation. Gender differences: agitation	Similar studies demonstrated that HM consistently produced an increase in the level of relaxation. HM can be taught to staff and family members and is easily learned

Table 4. Continued

Study	Aim	Sample	Method	Major Findings	Limitations	Relevance
13 Soden <i>et al.</i> (2004) UK	Compare the effects of a course of massage with/without an essential oil on physical and psychological symptoms in patients with cancer. Determine if there was evidence of longer lasting benefits beyond the immediate post-treatment phase	Participants: 42 patients with cancer (median age 73 years) and ability to complete assessment scales. Participants excluded: if aromatherapy/massage previously received chemotherapy or radiography within the previous month. Randomly allocated into 1 of 3 groups. 3 Palliative care units	Quantitative Visual Analogue Scale (VAS)-pain intensity and Modified Tursky Pain Descriptor Scale. Verran & Synder-Halpern (VSH) sleep scale. Hospital Anxiety and Depression Scale (HAD) Rotterdam Symptom Checklist (RSCL). Massage: back, 30 minutes each morning. 2 treatment groups received intervention for 4 weeks. Control group-received no massage	Significant reduction in VAS pain scores in intervention groups although short-lived. Aromatherapy and massage: beneficial effect on sleep quality and useful non-pharmacological treatment. Statistically significant improvement in depression scores in the massage group	increased with males receiving HM Small sample size No set criteria for physical and psychological entrance criteria (varying levels of pain, sleep difficulties and anxiety amongst the groups). Individualised massage treatments may have enhanced effectiveness of the treatment results	Other studies have demonstrated overall improvement in quality of life utilising aromatherapy and massage in palliative care
14 Suzuki <i>et al.</i> , 2010 Japan	To clarify the effects of a 6-week tactile massage (TM) on changes in physical and mental function, symptoms of behavioural and physiological symptoms of dementia (BPSD) among dementia patients	Purposive sample of 40 participants.(28 completed study) Selection: according to gender, age (not stated, only "elderly"), dementia type, cognitive function and ability of performing ADL's. Hospitalised in a specialist 100-bed dementia ward	Quantitative Quasi-experimental design Mini Mental State Examination (MMSE) pre- and postintervention. Gottfries-Brane-Steen Scale (GBS) Behaviour Pathology in Alzheimer's rating scale (BEHAVE-AD) Salivary CgA (physiological stress test) Massage: 30-minute TM, 5 × weekly for 6 weeks. Between 1600 and	Reduced episodes of delusional notions, aggressiveness, behaviour impairment, and diurnal rhythm disturbances. Participants slept more soundly. Massage assists to deepen mutual understanding between patient and the nurse-therapist assisting to fulfil the psychological need of attachment Massage assists to restore the humanness in elderly patients with severe	Small number of participants. Varied in severity of dementia resulting in some withdrawal of participants. Inability to collect all saliva samples: influence transparency of results	Congruent with other studies support slow- stroke TM-improvement in pain, sleep, inability to move, body tension, blood glucose and Hb1Ac, nausea and vomiting, anxiety and stress. Reduced aggressiveness, frequency of incontinence, and less incidences of declining care

Table 5 Themes and subthemes of the reviewed studies

Perspectives	Themes	No. of studies per theme	Empirical sources
1) Client perspective: (n = 14)	1.1 Anxiety and agitation	11	Fraser and Kerr (1993), Hicks-Moore and Robinson (2008), Holliday-Welsh <i>et al.</i> (2009), Mok and Woo (2004), Moyle <i>et al.</i> (2011), Munk and Zanjani (2010), Oliveira <i>et al.</i> (2011), Remington (2002), Sansone and Schmitt (2000), Snyder <i>et al.</i> (1995), Suzuki <i>et al.</i> (2010)
	1.2 Relationships and interpersonal communication	6	Fraser and Kerr (1993), Holliday-Welsh <i>et al.</i> (2009), Kolcaba <i>et al.</i> (2006), Mok and Woo (2004), Sansone and Schmitt (2000), Suzuki <i>et al.</i> (2010)
	1.3 Sleep and relaxation	6	Mok and Woo (2004), Nelson and Coyle (2010), Oliveira <i>et al.</i> (2011), Sansone and Schmitt (2000), Soden <i>et al.</i> (2004), Suzuki <i>et al.</i> (2010)
	1.5 Social isolation and touch deprivation	5	Fraser and Kerr (1993), Holliday-Welsh <i>et al.</i> (2009), Kolcaba <i>et al.</i> (2006), Mok and Woo (2004), Sansone and Schmitt (2000)
	1.4 Emotional well-being and mood	4	Fraser and Kerr (1993), Munk and Zanjani (2010), Oliveira <i>et al.</i> (2011), Soden <i>et al.</i> (2004)
	1.6 Pain and discomfort	4	Kolcaba <i>et al.</i> (2006), Mok and Woo (2004), Soden <i>et al.</i> (2004), Sansone and Schmitt (2000)
2) Nurse perspective: (n = 11)	2.1 Sustained effects of massage therapy	5	Hicks-Moore and Robinson (2008), Holliday-Welsh <i>et al.</i> (2009), Moyle <i>et al.</i> (2011), Oliveira <i>et al.</i> (2011), Remington (2002)
	2.2 Restraint and pharmacological intervention reduction	6	Holliday-Welsh <i>et al.</i> (2009), Moyle <i>et al.</i> (2011), Nelson and Coyle (2010), Remington (2002), Sansone and Schmitt (2000), Soden <i>et al.</i> (2004)
	2.3 Education	6	Hicks-Moore and Robinson (2008), Holliday-Welsh <i>et al.</i> (2009), Kolcaba <i>et al.</i> (2006), Remington (2002), Sansone and Schmitt (2000), Snyder <i>et al.</i> (1995)
	2.4 Organisation support and staff motivation	2	Fraser and Kerr (1993), Kolcaba <i>et al.</i> (2006)

over seven consecutive evenings. This study uses pretested tools, measures vital signs and semistructured questionnaires to collect data. The treatment group of 102 older clients following stroke demonstrates benefits through promoting relaxation to induce sleep and improving overall sleep quality. Nelson and Coyle (2010) investigate the use of head, neck, shoulder and BM for 15 minutes at bedtime for seven days with 15 residents. Results demonstrate a 13% reduction in requests for sedative-hypnotic medication at night. Additionally, Soden *et al.* (2004) using the Verran and Snyder-Halpern sleep scale studied the quality of sleep in 42 older clients with cancer. The results demonstrate quality of sleep is positively influenced after weekly sessions of 30-minute BMs, irrespective of the simultaneous use of aromatherapy. Suzuki *et al.* (2010) utilised nursing observations of sleep patterns for 20 residents with dementia. They found sleep was induced more rapidly and for longer periods through the introduction of regular 30-minute evening HMs (5/week for 6 weeks).

Sansone and Schmitt (2000) conferred with care staff in their study regarding a group of predominantly female residents with a history of insomnia. Staff reported massage

of the forehead, neck, shoulders, back and hands, assisted with reducing pain scores and inducing sleep more readily. Furthermore, Oliveira *et al.* (2011) employed the use of polysomnography (PSG), a diagnostic evaluation in addition to questionnaires, to measure characteristics of sleep in seven participants with a history of difficulty falling asleep or insomnia. Despite the small sample size, data from 16 massage sessions (2/week hourly) demonstrated a positive impact on sleep and relaxation. Encouraging effects were reported through participant sleep diaries of their perception of well-being upon waking (Oliveira *et al.*, 2011). Overall, the evidence provides support for massage to assist older people to fall asleep more rapidly, decreases the severity of negative sleep experiences and provides improved sense of well-being.

Social isolation and touch deprivation

Social isolation and touch deprivation is evident in five studies on massage for older people that utilise questionnaires, interviews and observation. Kolcaba *et al.*'s (2006) study of HM with 35 residents (treatment group) indicates touch as significant in meeting holistic needs of the older

person (physically, psychospiritually and socioculturally). Mok and Woo's (2004) cohort of older stroke clients describe touch through massage as a means of conveying the nurses' genuine concern and perceive it as a more personal approach. Touch through massage is construed as different from task and procedural touch that occur during daily care activities (Mok & Woo, 2004).

Sansone and Schmitt (2000) suggest massage in the context of touch, as welcoming by residents who felt abandoned or unloved. Fraser and Kerr (1993) report human touch and interaction integrated within nursing care strategies of massage provide calming and soothing signals and strong psychological and social benefits. Holliday-Welsh *et al.* (2009) assert massage provided by family caregivers to the cognitively impaired older person supports increased interactions and promotes overall well-being. Fundamentally, this evidence indicates human touch via massage has the potential to counter the effects of perceived social isolation and touch deprivation.

Emotional well-being and mood

Emotional well-being and mood are the focus of four studies. Munk and Zanjani (2010) with a population of 144 participants identified a direct association between massage and improved emotional health of older people. Treatment techniques, length of each treatment and duration are variable amongst the large participant cohort. However, findings generally indicate reduced levels of depression, improved mood, enhanced self-esteem and restored outlook on life (Munk & Zanjani, 2010). The work of Fraser and Kerr (1993) and Oliveira *et al.* (2011) identifies participants' feelings of pleasure and relaxation following massage and a decrease in severity of perceived anxiety–depressive symptoms. These two studies use PSG, electromyography, systolic and diastolic blood pressure and a range of pretested tools to provide greater reliability of results. Furthermore, Soden *et al.* (2004) demonstrate statistical improvement in depression scores of the BM group of 42 palliative care patients following morning BMs (weekly). The consistency of evidence indicates massage has the potential to maintain or enhance psychological health and well-being for the older person.

Pain and discomfort

Four studies describe pain and discomfort in relation to the health and well-being of older people. Pain and discomfort are assessed using physiological measurements (i.e. blood pressure and heart rate), with support of participant self-reports on pain using the Visual Analogue Scale (VAS) and Modified Tursky Pain Descriptor Scale. Mok and Woo's

(2004) study of the effects of SSBM notes that clients did not require any form of pain relief. Results following massage show a decrease in five variables including heart rate, systolic and diastolic blood pressure, pain scores and level of anxiety (Mok & Woo, 2004). The physiological findings support unanimous participant reports of massage therapy as an effective nursing intervention providing pain relief and relaxation (Mok & Woo, 2004). Kolcaba *et al.* (2006) agree and postulate that HM (or touch) increases comfort through reduction of pain perception. Additionally, Sansone and Schmitt (2000) demonstrate a steady decline in mean pain scores of the 25 residents receiving massage (15 minutes \times 2/week) for chronic pain. Techniques include slow and gentle strokes to forehead, neck, shoulders, back and hands. Similarly, Soden *et al.* (2004) examined the effects of BM massage and aromatherapy for 42 patients receiving palliative care with reduction of pain assessment scores statistically demonstrated following second treatment. Collectively, a variety of massage techniques reduced pain scores and pain perception in older people, positively influencing their health and well-being.

Nurse perspective

The nurse perspective is evident in 11 of the studies reviewed. Four themes emerge indicating nurses' support for the integration of massage into daily care for the older person (see Table 5).

Sustained effects

Nurses assert in six of the studies that massage produces a 'sustained effect' (i.e. positive effects continuing over time) when integrated into the care of the older person. These studies use similar designs, repeat measures after massage and tests of analysis (e.g. analysis of variance (ANOVA)), along with multiple data collection approaches.

Holliday-Welsh *et al.* (2009) and Moyle *et al.* (2011) report sustained positive effects up to 14 days following HM and FM, reducing anxiety and agitated behaviours in dementia clients. Positive effects of HM, up to an hour postintervention, are evidenced by prolonged reduction in agitation and increased comfort in older cognitively impaired participants (Remington, 2002). Oliveira *et al.* (2011) noted that massage had short- and long-term beneficial effects with five of seven insomniac participants reporting improved sleep patterns after one year. Hicks-Moore and Robinson's (2008) researcher observed a reduction in agitation for an hour, after a 10-minute HM, with positive but reduced effects over time. In contrast, Soden *et al.* (2004) noted anxiety reduction was not long term; however, depression scores showed a

meaningful improvement. Overall, this theme suggests that massage is perceived by nurses as providing positive effects on anxiety, agitation and increases comfort for older people.

Restraint and pharmacological intervention reduction

Massage emerges as a useful alternative to chemical and physical restraint in management of anxiety and agitation in older people, in six studies. Sansone and Schmitt (2000) found in their 34 residents that massage provided a viable alternative in the reduction of agitation and restlessness. The need for psychotropic medication as a restraint was decreased in terms of frequency and amount required. Similarly, Moyle *et al.* (2011) investigated the use of FM for people with dementia. Massage was well tolerated, reducing agitation, behavioural problems, decreasing the need for chemical and physical restraint. Remington (2002) also found massage effective as a part of a routine comprehensive plan to meet the needs of agitated residents.

Holliday-Welsh *et al.* (2009) identify psychotropic medications as having potential to negatively impact on the quality of life for older people. Psychotropic medications affect the older person by increasing drowsiness and confusion while decreasing their ability to interact with others and their environment. In support of reducing pharmacological intervention for the older resident, Nelson and Coyle's (2010) findings reveal massage before bedtime assists in reducing falls and confusion with medications not required for sleep. Soden *et al.* (2004) also found massage moderated the need for pharmacological intervention, improving sleep in palliative care patients. Findings in this theme advocated for the use of massage as a more practical and holistic way of managing sleep and agitation in older people, decreasing the requirement for physically restrictive measures and pharmacological interventions.

Education

Massage is a relatively straightforward and non-invasive intervention. It requires fundamental education in techniques and minimal financial and time commitment to benefit older clients (Snyder *et al.*, 1995; Remington, 2002; Kolcaba *et al.*, 2006; Hicks-Moore & Robinson, 2008; Holliday-Welsh *et al.*, 2009). Basic massage techniques are easily gained by nurses, care staff, family members and volunteers (Snyder *et al.*, 1995; Kolcaba *et al.*, 2006; Hicks-Moore & Robinson, 2008; Holliday-Welsh *et al.*, 2009). Recognising the financial feasibility, Sansone and Schmitt (2000) suggest a massage therapist could complete staff education in basic techniques within 1–2 hours.

Findings in this theme indicate, from an organisational perspective, the advantages of massage appear favourable in relation to time spent and potential cost of education. Additional benefits emerge when including others such as carers and family members in education on massage delivery for the older person.

Organisational support and staff motivation

The theme of organisational support and staff motivation is found in two studies. Kolcaba *et al.* (2006) propose that nursing managers and administrators are well positioned to ensure massage becomes a daily expectation of care for the older person. Staff enthusiasm and participation in massage are also reported as integral to high-quality care delivery and client satisfaction within long-term care settings (Kolcaba *et al.*, 2006). Massage for the older person is recommended for incorporation into educational programmes and clinical settings of current and future health professionals (Fraser & Kerr, 1993). Findings from this theme support the potential move by policymakers to include massage as a daily component of care.

Discussion

Evidence indicates there are beneficial effects of massage on various aspects of health and well-being of older people in residential care settings. In particular, massage appears to reduce anxiety-related behaviours in the older person. Importantly, nurses identify this effect along with an increased comfort level. With advancing cognitive decline, anxiety and agitation-related behaviours are estimated to include 75–80% of the older population residing in long-term care settings (Ham, 2007). Care, planning and management of these health concerns are needed within an increasingly ageing population.

The underlying cause of agitation is often difficult to assess and culminates in a resolution strategy of prescribing at times, unnecessary medications (Lindsey 2009). Conn and Madan (2006) suggest pharmacological intervention presents an array of associated risks particularly in this population group. Regardless of the use of medications, general consensus across the reviewed studies indicates massage (in a variety of forms) positively impacts on the lives of clients, other residents, family members, care staff and care organisations as a whole (Holliday-Welsh *et al.*, 2009).

A variety of massage techniques appear to reduce pain perception in the older person, leading to positive effects on their health. Specifically, massage is demonstrated to be effective in promoting comfort through reduction of pain. Pain as a unique and subjective experience is estimated to

occur in 40–80% of people living in residential care settings (Zwakhalen *et al.*, 2006). Therefore, massage is a realistic choice as an alternative and effective pain management strategy for the older person. This appears particularly relevant for the cognitively impaired client whose ability to self-report may be limited. Reduction of pain has the capacity to promote relaxation and induce sleep quality.

Massage therapy is viewed as a non-invasive intervention that aids the older person's induction of sleep, reduction in night restlessness and positively influences the older person's perception of the world during wakefulness. Sleep is an important physiological process ensuring restorative function and psychological well-being (Wolkove *et al.*, 2007). This review offers support for massage aiding older people to fall asleep more rapidly with a decrease in reported subjective negative sleep experiences. For nursing staff, this approach is considered a more practical and holistic approach to managing sleep and agitation in older people. These strategies could then reduce the need for physical restraint and pharmacological interventions.

Psychological health and well-being is an important aspect of holistic care and feelings of loneliness, reduced sense of purpose or recent bereavement often impacts the older person's psychological well-being. Clients with progressive cognitive impairment and grief appear to be at a higher risk of a lowered emotional well-being (Remington, 2002). For this particular group, massage offers comfort, reassurance and enhanced psychological and emotional well-being. In general, a sense of isolation is magnified as one's independence diminishes (Fraser & Kerr, 1993). This is significant for older people with visual and auditory deterioration, who experience increasing social and environmental isolation. For the older person, massage offers a means of social engagement and an opportunity for human touch (Sansone & Schmitt, 2000). While tactile sensory perception diminishes with ageing, the need for the older person to be touched remains important to their health (Fraser & Kerr, 1993).

Engagement in massage supports the development of therapeutic relationships with staff and strengthens family ties. Massage by family members has the capacity to nurture family connections through ongoing, active involvement in the care of their loved-one (Sansone & Schmitt, 2000).

Massage presents a favourable addition to nurses' holistic care approach, particularly as time with individual clients is reduced by increasing technology and workloads in the clinical environment (Fraser & Kerr, 1993). While supportive and enthusiastic of this approach to client care, nurses require managerial and administrator support before implementation. Massage as a nurse-initiated intervention also requires support

through funding for education and practice. Currently in Australia, recognition of the benefits of massage for the older person already exists. The Federal government offers supplemental funding opportunities to residential care organisations to allow for the delivery of massage for clients who experience pain (Department of Health and Ageing 2012).

Conclusion

On the basis of findings presented in this review, the inclusion of massage in education programmes and practice for the care of older people is recommended. Massage emerges as a practical supplement to individualised care of the older person. Sustainable positive effects of massage on agitation, pain, sleep and psychological well-being are demonstrated and could be applied in practice. Staff, family and volunteers could easily acquire appropriate techniques in massage with relatively minimal, in-expensive training cost to organisations.

It is noteworthy that no reviewed studies focus specifically on the cost of introducing massage into daily routine care. Future research with the older client could involve health economics to establish through financial analysis the benefits of massage. Additional qualitative investigations from the perspective of both clients and caregivers would be beneficial. Longitudinal studies into the long-term effects of massage are also recommended.

Limitations to this review include the varied duration, frequency, technique, site, skill and knowledge of the person delivering massage. Additionally, external or environmental influences such as medications, co-morbidities, privacy, cultural issues, perception of body or the familiarity with the person providing massage are not always identified. Data collection and methodologies are also varied, and no studies report adverse effects or a decline of treatment. Given these limitations, the generalisation of results is approached with caution. Nevertheless, this review of relevant studies increases awareness of the potential use of massage for the older person in residential care environments.

Contributions

All authors have met at least one of the following criteria as recommended by the ICMJE: <http://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html> and have agreed on the final version for publishing:

- Substantial contributions to conception and design, acquisition of data or analysis and interpretation of data;

- Drafting the article or revising it critically for important intellectual content.

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Conflict of interest

There is no conflict of interest declared by the authors.

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