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Foot massage versus quiet presence on agitation and mood in people with dementia: A randomised controlled trial

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ABSTRACT

Background: There is increasing interest in using complementary and alternative treatments to manage behavioural and psychological symptoms of dementia such as agitation, aggression and depressed mood.
Objective: To compare the effect of foot massage (intervention) and quiet presence (control) on agitation and mood in people with dementia.
Design: A randomised controlled trial using a within-subjects, crossover design.
Settings: Five long-term care facilities in Brisbane, Australia. The primary outcome was the Cohen-Mansfield Agitation Inventory (CMAI) and the secondary outcome was the Observed Emotion Rating Scale (OERS). The screening and data collection research assistants, families, and care staff were blinded to participant allocation.
Participants: Participants of the study were 55 long-term care residents aged 74–103 years (mean age 86.5), with moderate to severe dementia and a history of agitated behaviour according to the Pittsburgh Agitation Scale. A computer-program randomised participants to 10-min foot massage (intervention) or quiet presence (control), every weekday for 3 weeks.
Results: A carry-over effect was identified in the data, and so the data was treated as a parallel groups RCT. The mean total CMAI increased in both groups (reflecting an increase in agitation) with this increase greater in the quiet presence group than the foot massage group ($p = 0.03$). There was a trend towards a difference on OERS General Alertness, with a positive change in alertness for participants in the foot massage group (indicating reduced alertness) and a negative change for participants in the quiet presence group (indicating increased alertness) ($F_{(1,51)} = 3.88$, $p = 0.05$, partial $\acute{\eta}^2 = 0.07$).
Conclusions: The findings highlight the need for further research on the specific conditions under which massage might promote relaxation and improve mood for people with dementia. The unfamiliar research assistants and variations in usual activity may have contributed to the increase in agitation and this needs further research.
Trial registration: ACTRN12612000658819.

What is already known about the topic?

- Anxiety associated with unfamiliar surroundings, and the disorientation and mental confusion that accompanies dementia can be displayed as agitation and mood disorders.

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- A relaxation intervention such as foot massage may help to induce a calming and reassuring sensation.
- Existing studies have focused on neck and shoulder massage.

What this paper adds

- This is the first known randomised controlled trial of foot massage for agitation in people with dementia.
- Further research is needed to understand the specific conditions under which foot massage may be helpful.
- Resting in the presence of another human being is of importance in care of people with dementia.

1. Background

More than 35 billion people worldwide have dementia (ADI, 2012) and more than 90% of these will experience behavioural and psychological symptoms including agitation, irritability, anxiety, apathy and depression, particularly in the mid to late stage of the syndrome (Cerejeira et al., 2012). These symptoms can be distressing for people with dementia and increase the burden of care for families and care staff (Papastavrou et al., 2007). Agitation, for example, can manifest as wandering, physical aggression, repetitive movements and vocalisations, screaming, or resisting care. Mood disorders such as depression and apathy are also a common behavioural symptom of dementia and the associated apathy can also add to the burden of care (Pfennig et al., 2007).

The behavioural and psychological symptoms of dementia have traditionally been managed with pharmacological intervention or physical restraints (Brodaty et al., 2001). While antipsychotic medications may offer some reduction in symptoms, they have a number of potential side-effects such as an increase in falls and an increase in mortality (Ballard and Howard, 2006; Ray et al., 2009; Sink et al., 2005) and there are ethical issues surrounding the use of physical restraints (Hughes, 2002). With this in mind, there has been an increased focus on the use of non-pharmacological interventions such as music (Cooke et al., 2010; Sung et al., 2006), aromatherapy (Nguyen and Paton, 2008), and massage (Suzuki et al., 2010) as a means to reduce the behavioural and psychological symptoms of dementia. These interventions are designed to elicit a relaxation response, which may reduce agitation and eliminate the need for physical or chemical management of the behavioural and psychological symptoms of dementia (Brett, 2002; Cohen-Mansfield, 2001).

Massage, in particular, is thought to induce a calming and reassuring sensation, with reduced discomfort and improved mood resulting from the subsequent production of oxytocin (Goldstone, 2000; Uvnäs-Moberg, 2004). It may also foster a sense of meaningful communication in the absence of language skills (Tuchtan, 2004). There is a growing body of massage studies reporting positively on the effect of massage on stress, anxiety, sleep, pain, and comfort. Two recent reviews (Hansen et al., 2006; Moyle et al., 2012), however, have indicated that the poor methodological quality of the existing research (including small sample sizes, no control groups, and no random allocation of participants) makes it difficult to draw definitive conclusions.

The existing studies have also predominantly focused on neck and shoulder or hand massage. These massages sites are not always accepted by people with dementia and, in the case of hand massage, can actually increase agitation (Fu et al., 2007). Foot massage, which has been found to relieve pain and reduce stress in other populations, may be an acceptable alternative (Wang and Keck, 2004). A handful of studies have been conducted on foot massage for people with dementia (Moyle et al., 2011; Sutherland et al., 1999) and they have provided preliminary support for its use in the management of stress and agitation. The methodological quality of these studies has been limited, however, and there is a clear need for further investigation and more rigorous research methods.

The aim of this study was to explore the effect of foot massage on agitation and mood in people with dementia living in residential care, using a randomised cross-over trial. It was hypothesised that participants in the foot massage condition would experience a decline in agitation scores over time, while participants in the control group would not.

2. Methods

2.1. Study design

This study was designed and conducted as a randomised controlled trial using within-subjects, crossover design with each subject serving as his/her own control (Senn, 2002). This design ensured participants received both treatments in sequence and that the change in a variable was measured at different times. Treatment fidelity was maintained by: comprehensive training of research assistants in the implementation of the foot massage and quiet presence protocols, as well as the principles of working with people with dementia; a standardised, detailed procedural manual for both treatments; and spot-checks of paperwork and massage technique in weeks 1 and 2 of both treatment periods. Two research assistants conducted screening; four conducted baseline and post-test assessments; seven delivered the foot massage intervention; and seven delivered the quiet presence intervention.

The trial was registered with the Australian and New Zealand Trials registry (ACTRN12612000658819) and received ethics approval from the University Human Research Ethics Committee and approval from the clinical settings to conduct the study. The study is reported according to the CONSORT 2010 statement (Schulz et al., 2010).

2.2. Settings

The study was conducted at five long-term care facilities in South East Queensland, Australia, owned and operated by the one provider. The facilities are all similar in respect to philosophy of care, staffing, and frailty of residents. The facilities provided low (assisted), high (nursing home), and respite care.