

Complementary therapies in action – education and outcomes

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A study investigated the use of aromatherapy hand and foot massage on 11 patients in a rural rehabilitation setting. An education programme for nurses, carers and family members was developed and implemented. Clinical outcomes – pain, anxiety, joint flexibility and skin condition were evaluated using Likert scales completed before, and after, treatment at three time points and open questions to ascertain patients' feelings about the treatments. Each patient had three treatments, making a total of 33 massages. A significant reduction in pain and anxiety was apparent after all three treatments ($p=0.05$). Changes in skin condition (softer and more resilient) were highly significant ($p=0.01$). However, there was no significant change in joint flexibility ($p < 0.05$). The main themes emerging from patients' comments were that aromatherapy massage facilitated communication, allowed emotional release and aided relaxation. Nine people undertook the education programme. They indicated that it covered appropriate information and they felt confident to deliver the aromatherapy massages, but the non-nursing participants would have liked more practice before they entered the clinical setting. © 2001 Harcourt Publishers Ltd

BACKGROUND TO THE STUDY AND LITERATURE REVIEW

The utilization of complementary therapies is increasing in both the public and health professional sectors, especially in aged and palliative care settings (McCabe 2001, p. 12). Complementary therapies are frequently used in health care settings in an ad hoc manner, often by people with limited knowledge and competence, and with little consideration of the possible interactions between complementary and orthodox management (Dunning 2001, p. 40; Duffy 2001, pp. 55–56). The increasing use of complementary therapies is occurring at a time when there is a focus on evidence-based practice. The use of complementary therapies is based on a long history of traditional use, anecdotes and case reports but the use of many therapies is not supported by 'scientific evidence'.

The term 'scientific' in this context commonly refers to quantitative studies, particularly randomized controlled trials (RCT). By that definition, there is little or no research into some

complementary therapies. Where research does exist, the methods used often lack scientific rigor, regardless of whether they are quantitative or qualitative in nature and information on which to assess the merits of the study is often lacking (Vickers 1996).

There is a great deal of debate about whether RCTs are the most appropriate method for gathering evidence about the benefits of complementary therapies. The essence of RCTs is the control of variables. There are inherent difficulties in controlling all of the variables operating in many complementary therapy practices. The need to control variables depends on the issue under study, and it may not be desirable in qualitative research methods. In reality, the most appropriate research method for any field of enquiry is one that addresses the research question/aims, rather than the type of therapy under study. For example, efficacy and safety are best determined using an RTC while a qualitative method would be more appropriate for determining beliefs and attitudes.

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A considerable amount of literature supports the health benefits of massage, for instance, a fall in stress hormones (Acolet et al. 1993), improved rest and relaxation (Stevensen 1994), decreased anxiety, tension and tiredness in cancer patients (Sims 1986), decreased anxiety in an aged care setting (Frazer & Ross Kerr 1993) and successful pain management in the elderly (Thomas 1990).

Massage has mechanical effects that improve circulation, aid the removal of waste products from the body, improve joint mobility, relieve pain and reduce muscle tension. In addition, it has psychological benefits, including relaxation and improved sense of well-being. Price and Price (1995) postulate a hormonal basis for some of these effects due to the release of endorphins and serotonin during massage that improves the sense of well-being, and reduces pain. As well as endorphin-mediated pain relief, pain reduction may occur as a result of other direct analgesic effects or masking or blocking the intensity of the pain stimuli (Price & Price 1995, Lynn 1996). However, pain is a personal experience influenced by many factors including previous experience of pain, upbringing, culture and the presence of stress and anxiety (Chaitow 1997). Positive emotions and improved sense of well-being contribute to decreased pain and better outcomes.

Essential oils are attributed with the ability to promote positive emotional balance and specific physical actions. They also have analgesic properties that are said to occur as a result of endorphin and serotonin release (Price & Price 1995). Some essential oils also have a counter-irritant effect. The combination of aromatherapy and massage is a powerful healing combination that works on physical, spiritual and psychological levels.

As well as the effect on emotions, massage and aromatherapy allow rapport to be established between the receiver and the therapist through the medium of touch. The establishment of a therapeutic relationship is an important factor in improving the physical and mental status of the patient and their faith in the efficacy of the treatment. There are several therapeutic components of an aromatherapy massage that include touch, the pharmacological actions of essential oils on physical, psychological and spiritual levels and, frequently, the use of music (King 1994). The combination of essential oils, touch and music is a powerful combination that can promote relaxation and decrease stress.

Stress is an important coping factor in the short term, but if stress is prolonged it leads to immunosuppression, development of diseases such as myocardial infarction, gastric ulceration, asthma, decreased healing potential, anxiety and depression (Selye 1976, Owens & Ehrenreich 1991, Benson & Stuart 1993). Prolonged stress

has implications for the healing potential and learning capacity of individuals and may indirectly affect length-of-stay in hospital and, therefore, health-related costs.

Families and carers make significant contributions in many health care settings, particularly in aged care services. Part of the new approach to care delivery is to involve these people in care delivery (Kilstiff & Chenoweth 1998). At least one study has reported benefits to the carers from such involvement (Field 1998). In Kilstiff and Chenoweth's study, older retired volunteers reported personal benefits from massaging infants. Involving family in the delivery of care while the patient is in hospital allows them to develop the skills and confidence to continue to care for their loved ones after discharge, and thus make a major contribution to the continuity of care. In addition, it empowers people to be actively involved in their care and shifts the emphasis from dependence to independence. Teaching touch skills like massage also facilitates personal relationships and closeness.

Use and safety of complementary therapies

The quality of complementary therapy training varies widely despite the many courses available, and nurses claim that many complementary therapies are inherent nursing practices. The potential dangers arising from the use of massage and aromatherapy by untrained staff with respect to patient safety has been described by a number of complementary therapy experts (Buckle 1997, Pfeil 1994, Wafer 1994). The possibility of litigation arising from unsafe practices must also be considered with respect to the responsibility of individual practitioners and employers (Weir 2000).

There are legitimate concerns about the safety and efficacy of complementary therapies. Some have more potential for harm than others. Harm may result from the therapy itself, occur as a result of not consulting orthodox care soon enough, incorrect diagnosis, or as a result of insufficient knowledge and competence of the people delivering the therapy. Thus, educating practitioners and monitoring outcomes are important elements of safety. In addition, outcome monitoring can contribute to the evidence base of complementary therapy practice.

Although overall complementary therapies comprise only a small part of nursing practice, the usage is increasing (Parkman 2001). Aromatherapy and massage are very popular modalities, particularly in aged care and rehabilitation settings. The exact number of nurses using complementary therapies in patient care is difficult to determine, but anecdotal evidence suggests nurses make up a large proportion of

people undertaking complementary therapy courses, especially aromatherapy, in Australia. Likewise, all levels of society use complementary therapies especially for chronic diseases (Hobbs & Davies 1998), and community surveys indicate that half the Australian population took some form of complementary therapy in the past year (MacLennan, Wilson & Taylor 1996).

In order to address some of these issues, a study was designed that aimed to develop and evaluate an education package relating to the use of massage and aromatherapy in clinical nursing practice. Participants in the education programme used hand and foot massage and aromatherapy in a rehabilitation setting in a rural hospital. It was expected that the results could serve as a basis on which to make recommendations about the transferability of the model to other practice settings. An inherent part of the study was monitoring clinical outcomes of the treatments.

CONTEXTUAL FRAMEWORK OF THE STUDY

Health and recovery from illness is a multifactorial phenomenon. Conventional medicine primarily addresses the physical needs of an individual. Complementary care aims to assist in the delivery of holistic care by using a range of therapies that complement conventional care.

AIMS OF THE STUDY

The definitive aims of the study were to:

- Develop a competency-based complementary therapy education programme for nursing staff and carers that prepared participants for a basic level of practice in aromatherapy and massage
- Implement the model in the rehabilitation unit of a rural hospital
- Monitor the outcomes of aromatherapy massage considering the physical and psychological parameters associated with the patient's diagnoses
- Monitor the patient's satisfaction with the treatment.

The definition of terms used in the study are shown in Table 1.

METHODS

An exploratory study was carried out. In order to exert some control over the multiplicity of variables that affect the use of aromatherapy and

Table 1 Definition of terms used in the study

Anxiety

Anxiety was described as the subjective feelings of tension, apprehension, nervousness and worry. It results from activation or arousal of the autonomic nervous system resulting in physical signs and symptoms.

Carer

This term refers to people who volunteer their services to the hospital. They perform a number of tasks such as transporting patient, some basic care, flower care and magazine rounds for no remuneration.

Healing

Healing is an innate capacity of the body to move from disease or imbalance to balance. It can be supported or suppressed and is dependent on the external and internal resources available to the individual.

Pain

Pain was whatever the patient said it was and was situated where they said it was. 'Only you can measure your own pain' (Chaitow 1997). The nature of pain can only be understood and managed by considering emotional, psychological and physical factors.

Restorative care

This term was used to describe the care delivered in the rehabilitation unit of Mt Alexander hospital that assists the patient to achieve optimal health and normal function within the limits of their capabilities.

massage, and enhance the validity of the results, the study was undertaken in stages. Ten people from the sampling population carried out a pilot test in order to ensure the target group understood the questions, prior to undertaking the study proper. People who took part in the pilot test were excluded from the main study.

An education programme was developed at a basic level of practice for nurses and carers that addressed the professional, practice and safety and efficacy considerations related to the use of aromatherapy and massage. The programme was developed within the framework of the *Guidelines for the Use of Complementary Therapies in Nursing Practice*, Nurses Board of Victoria (1999). The content concentrated on relaxation massage and aromatherapy.

The essential oils used in the study and therefore covered in the education programme were limited to Lavender, (*Lavendula angustifolia*), Bergamot (*Citrus bergamia*), Sweet orange (*Citrus sinensis*) and Marjoram (*Origanum marjorana*). These oils were considered to be safe in the context in which they were to be used, likely to achieve the desired clinical outcomes and they can be blended effectively for yin/yang balance. They were therapeutic grade 100% pure essential oils (Essential Therapeutics, Australia). Therapists selected essential oils for use with individual patients based on a comprehensive nursing assessment. Essential oils were blended in sweet almond oil as a base or carrier oil in concentrations between 1% and 3%. The programme was

competency-based and incorporated theory and clinical practice.

Demographic data

The aromatherapy hand and foot massages were delivered in a defined area of nursing practice, a 24 bed rehabilitation ward in a rural hospital with a capacity of 277 beds. The unit provides care for people with impaired function due to stroke, joint replacement, accidents and other debilitating conditions as well as restorative care. The top eight admission diagnoses for the unit in the 12 months preceding the study were stroke, chronic obstructive airways disease and other pulmonary diseases, cardiac disease, hip replacement, back injury, post-fracture (hip and pelvis), arthritis and other orthopaedic disorders, in that order. The average length of stay is 4 weeks. Both men and women are admitted to the unit. Ages range from 17 to 100 years (Medical Records, Mt Alexander Hospital). Thus, the types of patients likely to be involved in the study were predictable and specific outcomes could be defined and measured.

The number of massages was limited to no more than two massages per patient per day given at least 6 hours apart. Each patient received at least three massages so that comparisons could be made before, and after each massage and the cumulative effects of the treatments could be assessed. The same nurse/carer gave all three massages to individual patients with the exception of one patient who was massaged by two different people.

Sample selection

Expressions of interest were called for from nurses and the volunteer carers at the hospital. Participants were selected on the basis of demonstrated interest and commitment to completing the education programme and participating in the study. Carers met the hospital volunteer acceptance criteria. Patients over 55 years of age in the rehabilitation unit during the period of the study were invited to participate. Informed consent was obtained from each patient or their family where they were unable to give consent themselves. The researcher assessed all patients prior to enrolling them in the study to detect any contraindications to aromatherapy or massage.

Exclusion criteria

Patients who had a history of allergy, known allergy to the essential oils used in the study, were on anti-coagulant therapy, had severe bruising, an open wound or fracture were excluded from participating.

Research questionnaires

A number of validated questionnaires that address some of the aspects monitored in the study were identified but were not appropriate for the specific aims of the study. Taking sections from a previously validated questionnaire and using them in another context cannot guarantee that the new questionnaire will still yield valid results (Treece & Treece 1997). Therefore, questionnaires were developed specifically for the study. A consultative process and pilot test was undertaken to ensure the questionnaires had face and content validity, but formal validation was not undertaken.

The questionnaire used to measure patient responses to the aromatherapy massages was self-completed with the assistance of the therapist or researcher if necessary, and incorporated four aspects:

- Standard demographic data
- Numerical ten point Likert scales to rate pain, anxiety, hand and foot flexibility and skin condition before and 20 minutes after each massage. Twenty minutes was chosen as research has demonstrated that lavender oil is detectable in the blood 20 minutes after application to the skin (Jager et al. 1992). The scale was based on the McGill Pain Questionnaire. The use of numbers is an effective way of recording the difference in perception before and after treatment, but it does not describe feelings. A selection of descriptive words used in other settings to describe pain were also included on the questionnaire to allow subjects to describe the type of pain they experience, thus qualifying their numerical responses. This also has the potential to ascertain if the hand and foot massages were more effective for specific types of pain
- Satisfaction with the treatment, the environment and the performance of the practitioner
- Space was left for comments so that common themes emerging from the data could be identified.

Data analysis

The data were analysed using Analysis of Variance, paired t-tests, and thematic analysis. The level of significance was set at 0.05.

RESULTS

I. Demographic data of patients

Eleven patients participated in the study and each patient received three massages each,

making a total of 33 massages. There were nine females and two males. Their ages ranged from 50 to 90 years, mean 80.05 ± 9.75 SD. Three had used complementary therapies in the past and two were using some form of complementary therapy at the time of the study, but not aromatherapy or massage. Eight had achieved secondary school level and 2 tertiary level. Three were married, one was single and seven were widowed.

The admission diagnoses were: difficulty coping at home (3), post-stroke (2), fractured neck of femur (2), asthma (1), chronic urinary tract infection secondary to diabetes (1), lymphoedema (1) and Parkinson's disease (1). Five reported being anxious and four did not sleep well without sedation. Only three reported the presence of pain and it was described as aching (2), shooting (1) and sharp (1). The responses of males and females were not different and there was no effect of age on the responses.

2. Education package

Nine people, two health professionals and seven carers undertook the education programme. Eight of the nine health professional/carer participants returned an evaluation of the education programme. Six felt that they were adequately prepared for the role, the information was adequate and the course notes easy to follow and use as an ongoing resource tool. Five felt very confident in the clinical area, but one carer felt she needed more clinical practice before delivering care to patients. Carers found demented patients and those with impaired hearing difficult to manage and felt that more practice handling specific problems would be useful. All felt safe and supported in the clinical environment.

Physical outcomes

The majority of treatments were hand massages. The figures show before and after rating scores for the three treatments for pain (Fig. 1); anxiety (Fig. 2); flexibility (Fig. 3); and skin condition (Fig. 4). Pain and anxiety showed significant changes for all subjects ($p > 0.05$) and changes in skin condition were highly significant ($p > 0.01$). Skin became more resilient and softer. There were no significant changes in joint flexibility ($p > 0.05$) but decreased swelling was noted after massage in two cases evidenced by the ease of moving the patient's rings even after removing all the massage oil and reduced ankle size in the patient with lymphoedema. In two cases fists that were usually clenched could be opened easily, which assisted with personal hygiene. There were multiple transient effects over time on pain and

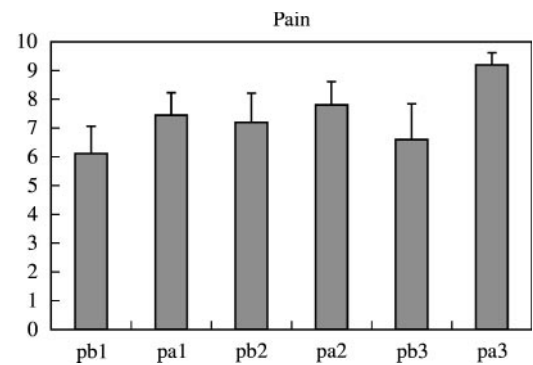


Fig. 1. Pain rating, scored out of 10, where 10 is worst and 0 is best, rated by questionnaire administered before and 20 min after massage at three time points. Pain was significantly reduced after massage ($p < 0.05$). pb: pain rating before massage; pa: pain rating after massage. The numbers, 1, 2 and 3, refer to the three massage time points.

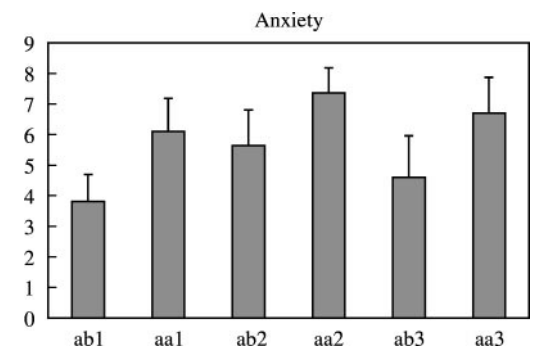


Fig. 2. Anxiety levels scored out of 10, where 10 is worst and 0 is best, rated by questionnaire before and 20 min after massage at three time points. Significant reductions in anxiety levels occurred ($p < 0.05$). ab: anxiety rating before massage; aa: anxiety rating after massage. The numbers, 1, 2 and 3, refer to the three massage time points.

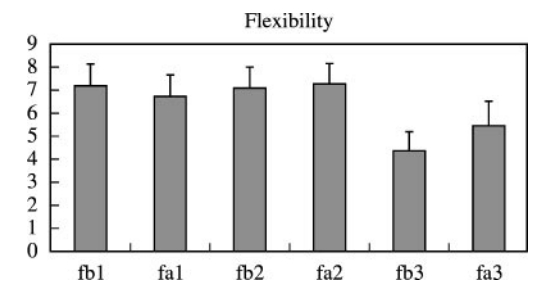


Fig. 3. Joint flexibility scored out of 10, where 10 is worst and 0 is best, rated by questionnaire 20 min after massage at three time points. No significant changes were demonstrated ($p > 0.05$). fb: flexibility before massage; fa: flexibility after massage. The numbers refer to the three massage time points.

anxiety but effects were not cumulative over the three massages ($p > 0.05$).

Psychological outcomes

Three main themes emerged from the thematic analysis of the comments made by patients on the questionnaires. These themes were that the treatments:

- Facilitated communication
- Allowed emotional release (three patients cried)

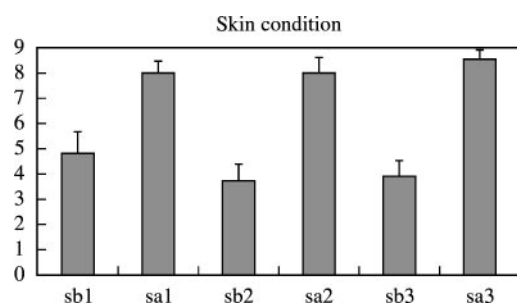


Fig. 4. Skin condition scored out of 10, where 10 is worst and 0 is best, rated by questionnaire before and 20 min after massage. There was a highly significant improvement in skin condition ($p=0.01$). sb: skin condition before massage; Sa: skin condition after massage. The numbers refer to the three massage time points.

- Promoted relaxation (three patients slept so soundly after the treatment they were unable to be roused to complete the after massage rating).

The therapeutic relationship between the patient and the therapist, and the professional behaviour of the therapist were seen as important. It allowed patients to realise that good things can happen in hospitals.

Patient satisfaction

Overall, patients were satisfied with the treatments and commented that the therapists were gentle, competent and considerate of their privacy. Six reported that they were unable to smell the essential oils.

Health professional/carers satisfaction

Two registered nurses and seven carers participated in the education programme and undertook the aromatherapy massages in the ward. Therapists enjoyed giving 'something extra' to the patients. The carers reported feeling nervous at first and being afraid they might hurt the patient. All were new to massage and felt establishing a relationship with the patient was important. The nurses were also new to aromatherapy and massage but were more confident in giving the massages.

DISCUSSION

The research method was appropriate to the study, yielded the required data and met the requirements for ensuring rigor in qualitative methodologies.

The results demonstrate that massage and aromatherapy combinations can contribute to improved outcomes for patients in rehabilitation settings especially with respect to decreasing pain

and improving anxiety levels. It is interesting that most subjects reported decreased pain after the massage where only three had reported pain on the initial questionnaire. The reasons for this finding are not known. It may be related to an improved sense of well-being and decreased tension as a result of relaxation (Chaitow 1997). There are not enough data to ascertain if aromatherapy massage is more effective in certain types of pain than in others, and this aspect is worthy of further study.

One would have expected improved flexibility in the hands and feet after massage due to the relaxation effect, especially given the reduction in oedema. The reasons why joints were not more flexible is unknown. It could be due in part to the way the question was phrased, although no problems with the question were identified in the pilot test.

The effects were not cumulative for any of the outcomes measured and this finding may reflect the absorption and clearance rates of essential oils established in other studies, for example, Jager et al. 1992. It suggests that aromatherapy massages need to be repeated in order to maintain a treatment effect.

The treatment effects may have been underestimated as three of the 11 subjects slept after being massaged and after massage data were not completed by them.

Not surprisingly, the nurses felt more confident in the clinical situation than the carers did. It will be important to structure future programmes to take account of this finding and to prepare carers for the type of patients they are likely to encounter in the particular situation and give them practice at dealing with these situations. Both the carers and nurses felt they had developed skills they did not previously possess and derived great satisfaction from using these skills. They were satisfied with the education programme and felt it adequately covered the topic and theoretical preparation, but the carers, in particular, would prefer more practice. An important outcome of the study was that a range of aromatherapy hand and foot massage competencies have now been established that can be transferred to other health care settings.

Consideration of the psychological effects of illness and hospitalization are extremely important in promoting patient comfort and well-being. Decreased anxiety, relaxation and sleep are important aspects of well-being and good clinical outcomes. In this case incorporating aromatherapy massages into usual management practices demonstrated to the patients that 'good things' can occur in hospitals and had a significant impact on their sense of wellbeing. In addition, carers and family members acquiring aromatherapy hand and foot massage skills were able to continue the treatment after discharge as

part of the continuum of care that enhanced their coping skills and sense of being able to contribute to the care in a meaningful way.

IMPLICATIONS FOR NURSING

The education programme extended the scope of nursing practice for the nurses who participated in the study and increased their job satisfaction. It is conceivable that the programme would have a similar benefit for other nurses. The education module and model of practice for the combination of complementary and conventional management is potentially transferable to other practice settings. The study adds to existing knowledge about the suitability of the research method to the study of aromatherapy and massage in clinical settings.

LIMITATIONS OF THE STUDY

Caution should be used in extrapolating the results to other settings because the sample size was small. Patients served as their own controls before and after massages, but there was no control group and other factors than those addressed may have been operating.

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