The effect of aromatherapy massage with music on the stress and anxiety levels of emergency nurses: comparison between summer and winter

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Aims and objectives. This research aimed to evaluate the use of aromatherapy massage and music as an intervention to cope with the occupational stress and anxiety that emergency department staff experience. The study also aimed to compare any differences in results between a summer and winter 12-week massage plan.

Background. Emergency nurses are subjected to significant stressors during their work and it is known that workloads and patient demands influence the role stress has on nurses. The perception that winter months are busier for emergency departments has long been held and there is some evidence that people with cardiac and respiratory dysfunction do present more frequently in the winter months. Massage has been found to decrease staff anxiety.

Design. The study used a one-group pre-test, post-test quasi-experimental design with random assignment.

Method. Staff occupational stress was assessed pre- and post- 12 weeks of aromatherapy massage with music and anxiety was measured pre and post each massage
Results. A total of 365 massages were given over two 12-week periods, one during summer and the other during winter. Analysis identified that aromatherapy massage with music significantly reduced anxiety for both seasonal periods. Premassage anxiety was significantly higher in winter than summer. No differences in sick leave and workload were found. There was no difference in the occupational stress levels of nurses following the two 12-week periods of massage.

Conclusion. Emergency nurses were significantly more anxious in winter than summer but this cannot be attributed to increased sick leave or workloads. Aromatherapy massage with music significantly reduced emergency nurses’ anxiety.

Relevance to clinical practice. High levels of anxiety and stress can be detrimental to the physical and emotional health of emergency nurses and the provision of a support mechanism such as on-site massage as an effective strategy should be considered.

Key words: anxiety, aromatherapy massage, emergency nurses, nursing, occupational stress, seasonal variations

Introduction

There are many factors that contribute to the occupational stress experienced by nurses, with workloads and patient demands identified as particularly influential (Muncer et al. 2001, Adeb-Saeedi 2002, Hegney et al. 2003). Generally, there has been an increase in emergency nurses’ workloads with increased scope of practice (nurse initiated X-rays, pathology and analgesia) and a corresponding increase in patient attendance to the emergency department (ED) over the last few years (Fry & Jones 2005). Many nurses, however, believe that their workloads during the winter months are further increased because of increases in patient presentations and nurses’ sick leave. This paper outlines the findings of a study that questioned these assumptions by extending a project conducted during the winter (see Davis et al. 2005) to enable a comparison of the seasonal (winter and summer) effectiveness of aromatherapy massage on the stress and anxiety levels of emergency nurses.

The literature was reviewed for the project using databases that included nursing, medical and allied health literature for the years 1990–2005 (CINAHL, Medline, Psychinfo, PsychLit, Cochrane, Proquest). The keywords used were occupational stress, massage, aromatherapy massage, emergency nurses, anxiety, workloads, emergency presentations and seasonal variation in various combinations. Relevant literature, identified from the reference lists of retrieved papers, was also included.

There is evidence that EDs do experience seasonal variations in presentations with more attendances in winter months associated with respiratory and cardiac dysfunction (Whiting et al. 1999, Downing & Wilson 2002, 2005). Emergency nursing is inherently stressful and can be physically and emotionally exhausting. Yang et al. (2001) found that emergency nurses had higher levels of professional stress to general ward nurses and that the most stressful issues were ‘patient-related difficulties, organizational structure, lack of resources and conflict with other professionals’ (p. 1016). Highly stressed workers are less productive, experience more negative health consequences and change jobs more frequently than those who do not feel stressed. Reduced productivity (Danna & Griffin 1999), absenteeism (Danna & Griffin 1999, Hemingway & Smith 1999, Bartram et al. 2004) and health related problems (Theorell & Karasek 1996, Danna & Griffin 1999, Cottrell 2001, Olofsson et al. 2003) are well-documented adverse effects of occupational stress. There is also a link between work stressors and job burnout that can affect the quality of nursing care, staff conflict and absenteeism (Payne 2001). Research also suggests that supportive strategies in the workplace can lower stress and improve job satisfaction (House 1981, Garrett & McDaniel 2001, Bartram et al. 2004). Strategies to improve job satisfaction are extremely important in the current context of nursing shortages.

There has been limited research on the use of massage to alleviate occupational stress. Table 1 outlines the findings from research examining nurses’ occupational stress and anxiety and use of massage with or without aromatherapy. As shown, there is little consistency in the studies in terms of design, intervention and measures used. Many studies had small sample sizes and limited descriptions of intervention and self-report approaches. The process of randomization was not always evident or was not used. No literature was found that addressed a seasonal comparison of the use of aromatherapy massage for stress and anxiety of nursing staff.
<table>
<thead>
<tr>
<th>Author/s</th>
<th>Origin/setting</th>
<th>Design and sample</th>
<th>Instruments and administration</th>
<th>Intervention</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lewis (1995)</td>
<td>UK labour ward – midwives, medical officers, auxiliaries, domestics and a receptionist</td>
<td>Quasi-experiment</td>
<td>Research designed survey pulse rates</td>
<td>20-minute massage on-site</td>
<td>Eight per cent of participants felt stress at work. After massage pulse rates fell by an average of 12 beats per minute. All participants felt the massage had reduced stress.</td>
</tr>
<tr>
<td>Scott (1995)</td>
<td>UK hospital staff</td>
<td>Quasi-experiment</td>
<td>Modified anxiety scale before and after two aromatherapy massages</td>
<td>Two aromatherapy massages (not clearly described)</td>
<td>‘New and existing clients experience a definite ‘feel good’ factor and symptom relief’ (p. 23)</td>
</tr>
<tr>
<td>Shulman and Jones (1996)</td>
<td>Large US manufacturing organization</td>
<td>Quasi-experiment</td>
<td>STAI pretest, post-test and delayed test two and three-weeks after intervention</td>
<td>On-site 15-minute chair massage once a week for 6 weeks</td>
<td>Significant reduction in state levels for the massage group. Significant lower delayed post-test mean for massage group</td>
</tr>
<tr>
<td>Cady and Jones (1997)</td>
<td>US state government</td>
<td>Quasi-experiment</td>
<td>Diastolic and systolic blood pressure (BP)</td>
<td>On-site 15-minute chair massage</td>
<td>No control group. Significant reduction in systolic and diastolic blood pressure</td>
</tr>
<tr>
<td>Field et al. (1997)</td>
<td>US hospital employees</td>
<td>Quasi-experiment</td>
<td>STAI (state) and the POMS</td>
<td>On-site 10-minute chair massage or Listening to gentle music for 10 minutes or 10 minutes of progressive muscle relaxation and visual imagery or 10 minutes in a social support group</td>
<td>Massage group reported lower anxiety, depression, fatigue and confusion and greater vigour</td>
</tr>
<tr>
<td>Katz et al. (1999)</td>
<td>Canadian nursing staff</td>
<td>Pilot study RCT stated but no control group</td>
<td>POMS; Pain, tension, headache and relaxation, duration of treatment effects survey</td>
<td>On-site 15-minute chair massage – participant receive at least four massages</td>
<td>Pain intensity and tension levels significantly reduced. Self-reported levels of relaxation increased significantly. Significant difference on a number of POMS scales (mood was significantly improved). Fifty per cent reported effects persisted</td>
</tr>
<tr>
<td>Davis et al. (2005)</td>
<td>Australian emergency nurses</td>
<td>Quasi-experiment</td>
<td>POSS, stressors significant to ED and sick leave figures pre and post 12 weeks of massage; and the Faces Anxiety Scale (FAS) pre and postindividual massages</td>
<td>On-site 15 minute chair aromatherapy massage with music</td>
<td>No change to occupation stress scores pre and post 12 weeks of massage. No change in sick leave figures. Significant reduction in anxiety scores</td>
</tr>
</tbody>
</table>

STAI, state-trait anxiety inventory; POMS, profile of mood states; RCT, randomised control trial; POSS, perceived occupation stress scale; ED, emergency department.
Method

Aim

The study aimed to compare the seasonal (winter/summer) differences in stress and anxiety levels of ED nursing staff following on-site aromatherapy massage with music.

Design

The study used a one-group pretest, post-test quasi-experimental design. The institution’s human research ethics committee gave ethics approval.

Sample and setting

All permanent registered nurses working in a large tertiary hospital ED for the duration of the study were eligible to participate in the study. Nurses were recruited during their work time and those who agreed to participate provided written consent to the study.

Intervention

Aromatherapy massages were administered by a massage therapist with a Certificate in Relaxation Therapy and consisted of a 15-minute seated chair massage of the shoulders, mid back, neck, scalp, forehead and temples. The massages were performed in a quiet room with recipients clothed, sitting in a normal chair and listening to new age music through earphones. Aromatherapy spray mist was lightly sprayed above the participant’s head prior to the commencement of the massage. Cavanagh (2005) suggests that, although there is research to suggest that inhaled lavender essential oils improved mood, these findings are contentious. A recent study concluded no support for the benefits of a purely olfactory form of aromatherapy, suggesting cutaneous application as more appropriate (Snow et al. 2004). In the current study, as the massages were undertaken during work time, practical considerations led to the decision to use aerosol aromatherapy. The essential oils available for participants to choose from were rose, lavender, lime and ocean breeze that consisted of lavender, ylang ylang, bergamont and patchouli. The aromatherapy massages with music were implemented over two 12-week periods, one during summer and the other during winter months. Sixteen massages per week were provided for each seasonal period. On the two days massages were implemented, eight names of nursing staff working at that time were randomly selected from an opaque envelope. These staff members were then approached to invite their participation. If a staff member declined another name was pulled from the envelope.

Data collection

A range of pre and post-test data (before and after 12 weeks of massage for summer and winter projects) were collected. Occupational stress data were collected using the Perceived Occupational Stress Scale (POSS) by House et al. (1979) and questions about stressors specific to ED staff. Anxiety was measured before and after each individual massage using the Faces Anxiety Scale (McKinley et al. 2003). Demographic information, sick leave figures and clinical data were collected during both project periods for comparison.

House et al. (1979) used the POSS tool to measure perceived stress among factory workers. The language used by House et al. (1979) was adapted to suit ED staff. The tool consists of 47-items and questions are grouped to measure 12 areas. These are job pressure (five areas assessed), perceived rewards of the job (four measures), general satisfaction with the job (two measures) and a measure of Type A personality. All measures within the POSS have been developed and tested for reliability, face validity, convergent validity and discriminant validity. Reliability of the POSS (House et al. 1979) varies between measures from adequate to very good, with Cronbach’s alpha varying between 0.54 for control rewards and 0.87 for intrinsic rewards. Reliability of the adapted POSS reported by Davis et al. (2005) for the winter project was similar (0.623–0.92 with the exception of extrinsic rewards that had a Cronbach’s alpha of 0.425).

While the POSS looks at overall Occupational Stress measures, it was felt there were sources of stress specific to an ED. These 21 questions were generated from Adeb-Saeedi (2002) study as well as experience and incorporated into the survey used for both the winter and summer data collection periods. The Cronbach’s alpha reported for this scale from the winter period (Davis et al. 2005) was 0.863. Demographic information that included sex, age, marital status, dependent family at home, number of years working in the ED were also included.

The Faces Anxiety Scale (McKinley et al. 2003) was chosen as the measure of anxiety before and after each on-site massage as it enabled participants to identify their level of anxiety quickly and easily, lessening the time away from the workplace. The Faces Anxiety Scale enabled the participant to choose from five faces that depict varying levels of anxiety. The validity has been assessed and shows ‘correlation between the objective clinical judgement of the interviewer and the patients’ self-reports of anxiety on the Faces scales is

#References

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well within the recommended range of 0.4–0.8 for criterion validity’ (McKinley et al. 2004, p. 150).

Data analysis

The Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA), Versions 12.0 and 13.0 and the Statistical Analysis System (SAS Institute Inc., Cary, NC, USA), Version for Windows 9.1 (SAS Institute Inc. 2001) were used to analyse the data. Descriptive statistics for means, standard deviations and ranges were established. Comparisons between pre- and post-massage anxiety scores for winter and summer were undertaken using a linear regression model and generalized estimating equations to account for the repeated measurements on individuals (Liang & Zeger 1986). To analyse the questions in the POSS survey, they were recoded using the guidelines set out by House et al. (1979) into 12 subscales. Each of these 12 subscales was summed and then analysed using a two-sample t-test. Sick leave for the two periods was compared for the same group of individuals using a paired t-test and the patient presentations and discharge from ED compared using a chi-square analysis.

Results

The characteristics of the summer and winter participants appeared similar with respect to demographic statistics and are shown in Table 2. A comparison with national figures indicates that there were more males and less part-time employment in the sample compared with the Australian population. Data from five massages were not usable, with a total of 177 massages (summer) and 183 massages (winter) analysed. Fig. 1 shows the premassage summer and winter scores. The premassage scores show that in summer, 54% (n = 95) of participants had moderate to extreme anxiety and in winter 65% (n = 119) of participants had moderate to extreme anxiety. A comparison of the average premassage anxiety scores using a linear regression model and generalized estimating equations (Liang & Zeger 1986) suggests that premassage anxiety levels were somewhat higher in winter compared with summer (average difference = 0.4 units, p = 0.005).

Figure 2 illustrates the post-massage scores for summer and winter. Analysis confirmed what is obvious from the table, i.e. massage significantly reduced anxiety. For both the summer and winter periods 92% (n = 164 for summer; n = 169 winter) of participants had little or no anxiety after the massage. Only 8% of participants in summer (n = 13) and winter (n = 14) were moderately or very anxious after massage. No summer or winter participant perceived extreme anxiety after massage. A comparison of the average post-massage anxiety scores suggests that post-massage anxiety levels were very similar in winter compared with summer (average difference = 0.03 units, p = 0.7). As the pre-massage anxiety scores were higher in winter this result implies that massage had a somewhat greater effect in winter compared with summer.

After the summer 12-week period of massages 33 of the 69 participants (48% response rate) completed the POSS survey

Table 2 Sample characteristics

<table>
<thead>
<tr>
<th></th>
<th>Summer (n = 44)</th>
<th>Winter (n = 35)</th>
<th>P-value*</th>
<th>National†</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Mean = 38.8</td>
<td>Mean = 35.9</td>
<td>0.1</td>
<td>Mean = 38.6</td>
</tr>
<tr>
<td>Gender</td>
<td>F = 82.5%</td>
<td>F = 75.8%</td>
<td>0.6</td>
<td>F = 86.4%</td>
</tr>
<tr>
<td></td>
<td>M = 17.5%</td>
<td>M = 24.2%</td>
<td></td>
<td>M = 13.6%</td>
</tr>
<tr>
<td>Type of employment</td>
<td>F/T = 62.5%</td>
<td>F/T = 57.6%</td>
<td>0.8</td>
<td>F/T = 47.5%</td>
</tr>
<tr>
<td></td>
<td>P/T = 37.5%</td>
<td>P/T = 42.4%</td>
<td></td>
<td>P/T = 52.5</td>
</tr>
<tr>
<td>Years of employment in ED</td>
<td>Mean = 7.7</td>
<td>Mean = 6.9</td>
<td>0.5</td>
<td></td>
</tr>
</tbody>
</table>

ED, emergency department.

*Comparison between summer and winter.

Intrinsic rewards (0–24) 14
Quality concern (0–12) 7
Role conflict (0–12) 6
Importance rewards (0–15) 7
Control rewards (0–9) 4
Job vs. non-job conflict
Workload (0–12) 10
Extrinsic rewards (0–12) 4
Type A personality (0–30) 17
Job satisfaction (0–24) 13
ED stressors Q 48–69 49

Table 3 Occupations stress levels summer and winter

<table>
<thead>
<tr>
<th>Variable</th>
<th>Postmassage summer mean (SD) n = 33</th>
<th>Postmassage winter mean (SD) n = 35</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility pressure (0–12)*</td>
<td>8.3 (2.0)</td>
<td>7.5 (1.8)</td>
<td>0.12</td>
</tr>
<tr>
<td>Quality concern (0–12)</td>
<td>7.4 (1.7)</td>
<td>7.3 (2.2)</td>
<td>0.92</td>
</tr>
<tr>
<td>Role conflict (0–12)</td>
<td>6.6 (2.3)</td>
<td>6.0 (1.9)</td>
<td>0.28</td>
</tr>
<tr>
<td>Job vs. non-job conflict (0–12)</td>
<td>4.8 (2.1)</td>
<td>5.0 (2.3)</td>
<td>0.65</td>
</tr>
<tr>
<td>Workload (0–12)</td>
<td>10.4 (1.8)</td>
<td>10.0 (1.8)</td>
<td>0.41</td>
</tr>
<tr>
<td>Type A personality (0–30)</td>
<td>17.0 (3.6)</td>
<td>16.2 (4.2)</td>
<td>0.41</td>
</tr>
<tr>
<td>Job satisfaction (0–24)</td>
<td>13.2 (5.4)</td>
<td>13.5 (5.5)</td>
<td>0.83</td>
</tr>
<tr>
<td>Occupational self-esteem (0–18)</td>
<td>6.8 (2.8)</td>
<td>6.6 (3.5)</td>
<td>0.82</td>
</tr>
<tr>
<td>Intrinsic rewards (0–24)</td>
<td>14.6 (3.9)</td>
<td>14.3 (3.2)</td>
<td>0.75</td>
</tr>
<tr>
<td>Extrinsic rewards (0–12)</td>
<td>4.2 (2.0)</td>
<td>4.4 (1.9)</td>
<td>0.77</td>
</tr>
<tr>
<td>Importance rewards (0–15)</td>
<td>7.0 (2.5)</td>
<td>7.1 (2.3)</td>
<td>0.76</td>
</tr>
<tr>
<td>Control rewards (0–9)</td>
<td>4.0 (2.3)</td>
<td>3.9 (1.7)</td>
<td>0.86</td>
</tr>
<tr>
<td>ED stressors Q 48–69</td>
<td>49.7 (9.1)</td>
<td>48.8 (10.3)</td>
<td>0.72</td>
</tr>
</tbody>
</table>

ED, emergency department.
*Range of scores.

The number of sick leave hours for winter (Aug–Oct 2004) and summer (Jan–Mar 2004) were totalled for each participant and then divided by the number of standard hours to get the proportion of sick leave hours for each participant and each period (winter/summer). These proportions had a skewed distribution hence they were log-transformed to obtain approximately symmetrical data. A paired t-test was then used to compare the average (log) proportion of sick leave hours taken in winter and summer. This analysis resulted in p = 0.2 implying there is no evidence to suggest a difference in amount of sick leave taken in winter and summer (Table 4). Participants in both time periods took just over 4% of their standard working hours as sick leave on average.

The ED staff dealt with a total of 10 774 patients in summer compared with 10 741 in winter hence a very similar overall number. These patients can be broken down into triage categories to determine whether there is any difference in the distribution of this variable between the winter and summer time periods (Table 5). This may be an important variable as a higher proportion of urgent cases may be associated with higher levels of stress on the staff having to deal with those cases. When the distributions of triage categories are compared with a chi-squared test the resulting p < 0.0001 indicates they are statistically different. However, an inspection of the proportions of patients within each subgroup suggests the distributions are arguably clinically similar. In other words, although the distributions are not exactly the same, they are not particularly different either. The highly statistically significant result is mainly because of the huge sample sizes compared rather that the differences in the distributions.

Table 4 Proportion of standard working hours taken as sick leave in winter and summer

<table>
<thead>
<tr>
<th>Time period</th>
<th>Geometric mean* (%)</th>
<th>Range (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>4.2</td>
<td>1.6–62</td>
</tr>
<tr>
<td>Winter</td>
<td>4.4</td>
<td>1.6–62</td>
</tr>
</tbody>
</table>

*Geometric means are an appropriate measure of central tendency when data is skewed.

Table 5 Emergency Department workload for winter compared with summer

<table>
<thead>
<tr>
<th>Triage</th>
<th>Summer n (%)</th>
<th>Winter n (%)</th>
<th>Total n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>133 (1)</td>
<td>106 (1)</td>
<td>239 (1)</td>
</tr>
<tr>
<td>2</td>
<td>1362 (13)</td>
<td>1599 (15)</td>
<td>2961 (14)</td>
</tr>
<tr>
<td>3</td>
<td>4688 (44)</td>
<td>4869 (45)</td>
<td>9557 (44)</td>
</tr>
<tr>
<td>4</td>
<td>3703 (34)</td>
<td>3326 (31)</td>
<td>7029 (33)</td>
</tr>
<tr>
<td>5</td>
<td>866 (8)</td>
<td>822 (8)</td>
<td>1688 (8)</td>
</tr>
<tr>
<td>Total</td>
<td>10752 (100)*</td>
<td>10722 (100)*</td>
<td>21474 (100)*</td>
</tr>
</tbody>
</table>

*22 patients died in summer and 19 patients died in winter – these were not assigned a triage category.
Another way to break down the overall number of patients seen in ED in winter and summer is to split the total number into those who were admitted to hospital and those who were discharged home. This may be an important variable as it could be argued that those patients who get admitted to hospital are sicker hence will be associated with an increased level of care by staff compared with those patients discharged home. The results are shown in Table 6. A chi-square test comparing the two distributions resulted in $p = 0.08$ indicated no statistical evidence of a difference between the two time periods. Therefore, it can be concluded that the proportions of patients admitted to hospital and discharged home are similar in winter and summer.

### Discussion

The literature suggests that patient-related issues, lack of resources and workloads influence the stress and anxiety experienced by nurses. As ED nurses perceive that the winter months are busier it was interesting to find that, while no statistical difference was identified in the occupational stress of staff, a small but statistically significant difference in pre-intervention levels of anxiety in ED nursing staff was evident in winter compared with summer. This difference was not seen after the staff received massage indicating that massage reduced anxiety levels slightly more in winter compared with summer.

In light of the findings from the review of the literature, this study investigated the amount of sick leave taken by ED nurses, total number of patients and the clinical categories of patients presenting to the ED as well as the proportion of patients admitted to hospital or discharged as possible explanations for stress and anxiety levels of ED nurses. However, there was no clinically significant difference in any of these variables between winter and summer. Therefore the reasons for the higher anxiety levels in winter compared with summer found in this study cannot be explained by the measures of workload investigated or sick leave.

In terms of patient-related issues, although no difference was found in the variables measured in the study, it may be that certain diagnoses of patients within triage categories were more demanding of nursing care, thus increasing workload. Literature does suggest that individuals with respiratory and cardiac dysfunction (Whiting et al. 1999, Downing & Wilson 2002, 2005) present more in winter months and Schory et al. (2003) argue that people with certain psychiatric diagnoses present to emergency services more frequently in inclement weather. Patients with these diagnoses often require high levels of care and those with psychiatric disorders can be difficult and stressful to manage in the ED environment. It may also have been the case that the proportion of older and frailer patients requiring time-intensive nursing care, that would also increase workloads was higher in the winter months.

The study conducted by Dusselier et al. (2005) identified that college students who reported feeling more depression, including anxiety disorder and seasonal affective disorder experienced feelings of stress significantly more frequently. The current study examined workplace factors that may contribute to nurses’ anxiety and stress. It did not collect personal, emotional or physical health related data for consideration regarding connections to levels of anxiety and occupational stress. Another explanation for the increased anxiety levels of ED nurses in winter may be that there were more new nursing staff in the ED, increasing the supervision and responsibility of existing staff.

### Limitations

A more rigorous randomization would be the most suitable sampling method and the use of a control group would have also enhanced analyses of difference however practical issues made this unrealistic. The intervention for this study also combined a number of alternative therapies. A study that examined each therapy’s effect on nurses’ stress and anxiety would also be useful. The study was conducted in one organization and results may be context specific making it difficult to generalize to other settings. Data collected did not include staff separations to enable the incorporation of this in the analysis, or diagnoses or ages of patients within triage categories. Personal characteristics of ED nurses were also not collected; as a result, an examination of the associations between such variables and anxiety/stress not possible.

### Conclusion

These results suggest there was no change to nurses’ occupational stress levels in winter and summer. Nurses’ anxiety levels were higher in winter compared with summer and this cannot be explained by an increased workload.
because of increased patient presentations, clinical urgency of patients or increased sick leave. However, massage was clearly effective in reducing anxiety levels short term during both seasons. Introducing stress reduction strategies in the workplace decreased anxiety and may lower the stress levels of nursing staff, thus increase job satisfaction.

Aromatherapy massage with music has demonstrated an immediate positive impact on staff anxiety. Providing the opportunity for staff wishing to have a seated massage while at work may have positive implications for the clinical area as it is simple, requires little time to implement and staff are accepting of this method. The participants in this study were provided with the massages during their work hours and although this at times proved difficult in terms or providing appropriate cover for the department, many participants indicated that they would participate in a massage during meal relief, before or after a shift.

A follow-up to this study would be to use a randomized control trial design to examine differences in anxiety/stress scores of different intervention groups (massage, music, aroma and time out). It would also be useful to examine relationships between the personal characteristics of participants such as age, gender, health behaviours and health status and anxiety/stress levels. Other factors influencing workload, such as patient diagnoses and age, could also be measured. As well, while the current study did not focus on the effect of low anxiety and the implication of anxiety and stress levels on patient care, this is an area for future research.

Acknowledgement

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Contributions

Study design: MC, KH, MJ, CD, JF; data collection and analysis: MC, KH, MJ, CD and manuscript preparation: MC, KH, MJ, CD, JF.

References


Emergency care


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