The Effects of a Single Music Relaxation Session on State Anxiety Levels of Adults in a Workplace Environment

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Abstract

Music relaxation has been used to decrease stress and anxiety levels in a number of adult populations including psychiatry, medical settings and occupational work environments. This study aims to investigate the immediate effects of a single music relaxation session in adults in an occupational setting by measuring anxiety levels at the completion of employees shift. Data from 80 customer service specialists (female = 40, male = 40) were obtained from a call center in Queensland.

A randomized controlled trial was conducted comparing verbal discussion as the control condition to music relaxation as the experimental condition. The state portion of the State Trait Anxiety Inventory was used as a pre and post measurement. The results of the study show the music relaxation intervention significantly reduced anxiety levels in participants compared to the discussion group intervention. Participants in the music relaxation intervention indicated a positive increase in feelings of relaxation and pleasantness, as well as decreased tension, immediately after the music relaxation intervention. The results provide evidence supporting the use of music relaxation to decrease anxiety levels in occupational environments. Replication of this study in different occupational environments is recommended to provide further support for the use of music relaxation in the workplace.

Key Words: stress, anxiety, music relaxation, progressive muscle relaxation (PMR).

Introduction

The following study investigated the effects of a single music relaxation session on adult anxiety levels in an occupational environment. Stress and anxiety is common among many employees resulting from different occupational and psychosocial pressures including workplace protocols, meeting deadlines and targets, peer relationships and conflict resolution (Steven & Shanahan, 2002). Traditionally, employees who encounter frequent and intense interpersonal contact experience the highest level of emotional exhaustion and stress (Maslach & Jackson, 1981). As such, much of the research conducted has concentrated on the health-care
industry, where employment positions including nurses and allied health staff deal directly with intense interpersonal contact. However, with high incidences of stress leave and work compensation claims in other occupational settings, more research has been conducted in different occupational arenas, creating awareness to stress and anxiety inducing workplace environments. One such environment is the call center. A need exists for creative outlets that decrease anxiety levels created in the workforce that are cost effective to employers and effective interventions for employees. Music therapy interventions are a viable intervention that can effectively reduce stress and anxiety levels in an occupational environment.

The impetus and focus of the current study arose from the past experience of the researcher as being a former employee of the call center in which the study took place. Coming from first-hand experience, the intense and abusive nature of the types of calls experienced increased emotional stress and anxiety levels in the researcher. This, combined with the frequent nature of such calls, added to the anxiety experienced at the end of the work shift. The pressure of call resolution was extremely high: many customer interactions appeared to be a balancing act between customer demands and compensation for a faulty service and company protocols. Call center management acknowledge the pressure and anxiety that can be experienced in this workplace environment, however lack the appropriate interventions to offer employees opportunities to decrease the stress and anxiety that resulted from their work.

**Literature Review**

The effects of occupational anxiety and stress on mental health in general have been widely recognized. Experts estimate that up to 75% of fatigue and medical disorders are directly attributable to stress (Hughes, Pearson, & Reinhart, 1984; Kaptein, van der Ploeg, Carseen, & Beunderman, 1990). Psychosocial stressors are considered to be major catalysts in the development or progression of serious medical complications including hypertension (Weiner, 1977), gastrointestinal problems (Khorana, 1983), headaches and migraines (Kutash & Schlesinger, 1980; Steven & Shanahan, 2002), cardiovascular disease (Hanser, 1985), hormone levels and emotional regulation (Ader, Felten, & Cohen, 1991; Bartlett, 1996; Kiecolt-Glaser, 1984; Kreutz, Bongard, Rohrmann, & Grebe, 2004). Occupational environments need to be aware of specific psychosocial stressors affecting employees to use preventative measures before the stressors cause serious medical complications.

Research indicates that the call center occupational environment has a high incidence of stress related medical problems. Call centers are
growing at a rate of 40% per year globally with approximately 1.3% of the workforce in Australia employed in a call center (Lewig & Dollard, 2003; Sprigg & Jackson, 2006). Recently, two separate surveys indicated 81.37% of respondents found work-related stress negatively affected their professional performance and concentration at work with 29.25% lodging workers compensation claims for illness and absenteeism (CareerOne, 2006; Steven & Shanahan, 2002). Clearly, a need exists for stress and anxiety reducing interventions to be employed in call centers to prevent such outcomes for employees.

Call Center Job Description

Customer Service Representatives (CSRs) are provided with explicit, specific operational guidelines in the form of “talk time” (average call length and number of calls taken) and customer interaction scripts (wording and phrases necessary to include on every call). The center’s abandonment rate (i.e., percentage of customers who hang up before being answered) is often a heavily weighted criterion of managerial performance. Accordingly, the speed and volume of calls comprise an important criterion on CSR performance. CSRs are also expected to deliver quality service by showing care and concern for the customer (Singh, Goolsby, & Rhoads, 1994). Thus, call center managers place emphasis on both transaction speed and the quality of the customer experience (Batt, 1999). Anecdotal evidence from call center employees worldwide suggests the pressure to handle calls quickly while simultaneously following scripts and company guidelines to create a positive customer experience is what leads to anxiety, stress and emotional exhaustion (Sprigg, Stride, Wall, Holman, & Smith, 2007; Witt, Andrews, & Carlson, 2004).

On top of this, CSRs are often the target of customer aggression as complaints about product quality or errors are reported daily. Grandey, Dickter and Sin (2004) have developed a model of customer verbal aggression encountered in the call center, drawing on the traditional stressor-strain framework. Objective conditions that are part of the psychosocial and physical environment are stressors if they are perceived as harmful or threatening to the individual (Lazarus & Folkman, 1984), or if they place a demand on employees that results in a physiological adaptation response (Selye, 1982). Given that human discomfort arises with being the target of anger, and the fact that this behaviour communicates that customer satisfaction has declined, it is likely that verbal aggression is highly stressful (Averill, 1983).
The Role of Intersubjective Sharing and Understanding

Maslach and Jackson (1981) initially proposed that employees who have the most frequent and intense interpersonal contact experience the highest level of emotional exhaustion and stress. Hence, many studies examining stress and emotional exhaustion have been concentrated in the health-care industry (Fowler, 2006; Zellars & Perrewé, 2001). However, Cordes and Dougherty (1993) explained CSRs also experience high levels of burnout and stress due to frequent and intense interactions with multiple others in their job description. CSRs are apt to experience high levels of stress as each constituent group places different demands on them (Von Emst & Harrison, 1998). Singh et al. (1994) reported CSRs experience higher levels of stress and emotional exhaustion than social and welfare workers, mental health workers, medical residents, and law enforcement officers due to abusive calls, pressure to meet targets and organizational requirements.

Conventional Coping Strategies

Muscle relaxation, in the form of progressive muscle relaxation (PMR) or massage, have been used as techniques in occupational environments to decrease stress and anxiety. Sprigg et al. (2007) reported that the effect of PMR on call center employees increased relaxation while also preventing musculoskeletal disorder, which can result as consequence of desk jobs and tension held in muscles. On top of this, many call centers emphasize the role of peer and managerial support, with team meetings set aside for debriefing weekly, counseling services available for those seeking professional help, and relying on peers for support when experiencing abusive customers (Hughes et al., 1984).

Regular hostility from customers creates an unpleasant work environment that employees may seek to avoid whenever possible. Withdrawal is a common form of coping strategy, in particular for mood control: emotions are regulated by avoiding situations that create a negative mood state (George, 1989; Hackett, Bycio, & Guion, 1989). High appraisal of work events as stressful arouses anxiety and negative emotions in employees. As such, the desire to remove oneself to stabilize internal arousal and decrease stress and anxiety results in absenteeism from the workplace (George, 1989; Grandley et al., 2004).

Recent research suggests a need exists for interventions in the workplace to decrease anxiety. Music therapy interventions offer employers both an effective intervention technique to reduce stress and anxiety in the workplace while also being a cost effective technique through the use of group music therapy work (Cordes & Dougherty, 1993; Fowler, 2006; Lesiuk, 2005; Pelletier, 2004).
The Use of Music

Music has been used to positively influence psychological states in working adults, including raising energy levels, reducing stress and tension, and decreasing depressive symptoms (Grocke & Wigram, 2007; Thayer, Newman, & McClain, 1994). Thayer (1989) reported results from an informal survey and found more than 10% of respondents reported that music listening was the best method to improve their mood; the majority of remaining participants reported that music had a positive impact on their current mood state. The music therapist is able to use music where they match a participant’s mood state, and sensitively, attentively and responsively encourage change of the mood state to foster a healthier mood. Interconnectedness is a term used to describe the relationship where the music therapist matches a participant’s current mood functioning and encourages change through music, the tool through which the therapist and participant are connecting (Trolldalen, 2005). Music can also act as an anxiolytic treatment – an anxiety preventative or reducing measure – and improve the emotional state of adults (Laiho, 2004; Lesiuk, 2005; Saarikallio & Erkkilä, 2007; Silk, Steinberg, & Scheffeld-Morris, 2003; Thayer, Newman, & McClain, 1994). Music acts a mood regulation tool, increasing positive feelings and sense of self-esteem (Pelletier, 2004).

Analysis of musical selection indicates individuals value their own or preferred music. Musical selection is crucial when investigating the effects of music, particularly when using music to decrease anxiety levels, as participant preferred or chosen music has shown to be more effective compared to musical selections chosen by researchers. Following a comparison of five different types of music Stratton and Zalanowski (1984) reported a significant correlation between degree of relaxation and preference for music. Davis and Thaut (1989) also reinforced the importance of preference in a study measuring physiological and psychological subjective responses to preferred, relaxing music. The researchers concluded that preference, familiarity or past experiences with the music may have an overriding effect on positive behaviour change than the type of music.

Participant preferred or chosen music is further supported from other music therapy studies where anxiety reduction is being investigated. Elliot (1994) found no significant differences in anxiety reduction for patients in a coronary care unit when participants did not choose the music and listened to light instrumental classical music. Mixed results have also been found in studies allowing patients to choose from an offered selection of music. Anxiety was decreased significantly for participants in several studies when given a choice of general genres but not specific artists or
songs (Finlaw, 1997; Steelman, 1990; Winter, Paskin, & Baker, 1994). As Gerra et al. (1998) suggested, the participant’s preference and certain elements of music (i.e., tonality, tempo, selections of musical instruments, percussive qualities, whether or not music has dramatic changes, etc.) are the factors appropriate to musical choice.

Music Therapy in Clinical Populations

Traditionally, research has been conducted in clinical populations using a wide variety of music therapy techniques. Cevasco, Kennedy and Generally (2005) investigated three different types of music therapy interventions – movement-to-music, rhythm activities and competitive games – on depression, stress and anxiety levels of females in substance abuse rehabilitation. Even though the results showed no significant difference between interventions, the data collected immediately pre and post sessions indicated individuals reported a decrease in depression, stress, and anxiety. Smith and Joyce (2004) found music listening of Mozart classical and New Age music increased psychological relaxed states in participants compared to recreational pleasure reading; participants listening to Mozart reported higher relaxation states than New Age music.

Many studies also provide support for the use of music therapy interventions to reduce anxiety for undergoing medical procedures. Fernell (2002) measured the effect of passive listening to music before and after ophthalmic surgery and found participants reported less anxiety when music was present compared to no music intervention. The effects of music with a combination of PMR, imagery and passive listening in paediatric patients undergoing surgery was researched with music combined with PMR shown to be the best intervention for decreasing anxiety (Clark, McCorkle, & Williams, 1981). Even though this research was conducted with paediatric patients, the results have been replicated in adults (Hamel, 2001; Liebman & MacLaren, 1991; Pelletier, 2004; Robb, Nichols, Rutan, Bishop, & Parker, 1995; Silverman, 2003).

Pelletier (2004) conducted a meta-analytic review of more recent music therapy studies, investigating the use of music to decrease arousal due to stress. Studies in the review included investigations focusing on quantitative data collection in a variety of settings including clinical, universities and occupational settings. In support with previous research, results demonstrated that music alone and music assisted relaxation techniques significantly decreased arousal (Smith, 2002; Liebman, & MacLaren, 1991). Further analysis revealed that music assisted relaxation techniques and music combined with PMR, showed greatest effects for reducing arousal due to stress.
An interesting finding in Pelletier’s (2004) meta-analysis revealed that music chosen by the researcher showed greater decrease in stress levels than participant preferred music. Explanations for this finding found participant-preferred music is often a distraction and certain musical elements, including timbre and instrument selection, promoting relaxation are often not found in participant-preferred music (Pelletier, 2004). Participant selection of music is still important, as discussed earlier, and so researchers can provide a selection of music for participants to nominate preference.

Music Relaxation Interventions

Interventions such as music listening and music combined with meditation and progressive muscle relaxation (PMR) have successfully reduced anxiety levels in different populations including children and adults awaiting medical procedures, adults with psychiatric illness and healthy adults (Bolwer, 1990; Grocke & Wigram, 2007; Hamel, 2001; Hirokawa & Ohira, 2003; Robb et al., 1995; Silverman, 2003; Watanabe, 2001). Conrad and Roth (2007) define PMR as first tensing a muscle and then releasing that tension. The therapeutic benefits of PMR indicate that tense, stressed and anxious people can find relief from their distress and its physiological accompaniments by learning to reduce muscle tension. The theory behind PMR explains that relaxation inhibits the generation of thoughts and emotions, and undoes the effects of neuromuscular hypertension in the body. People practicing releasing a muscle group recognize the feeling of even the slightest contraction, and then release it (Jacobson, 1938; Conrad & Roth, 2007). Combining PMR and music listening offers stressed and anxious people a multi-faceted intervention to decreasing anxiety through both physical and emotional outlets; research shows music combined with PMR effectively decreases anxiety levels (Conrad & Roth, 2007; Grocke & Wigram, 2007; Pelletier, 2004; Robb, 2000; Watanabe, 2001).

Limitations in Music Therapy Research

Research on the effects of music therapy interventions have produced mixed results over recent years. In a comprehensive literature review, Hanser (1985) identified different theories of stress, coping models for decreasing stress, and how these concepts have been applied in music therapy practice and research. Although this was written more than 20 years ago, the issues Hanser (1985) raised in regards to assessment and measurement procedures still exists in more recent investigations. Hanser (1985) indicated many methodological problems in the research, including the variety of musical selections, experimental procedures, and
measurement methods. However, the effects of music on relaxation are still difficult to identify based on the large number of relaxation techniques combined with differing musical selections, the application of music therapy within various populations, different forms and levels of stress, and variation in measurement procedures. More research is still required to identify the specific way in which music interventions decrease anxiety levels in different populations.

Music Therapy in Occupational Settings

Music therapy research in occupational environments has only been investigated in the last few years, and, as such, yields only a few studies investigating the effects of music therapy to reduce anxiety levels. The limited studies demonstrate music therapy interventions to be an effective means to reducing work-related stress and anxiety levels in healthy adults. Knight and Rickard (2001) explored the effect of sedative music on participants’ subjective and physiological stress levels following a cognitive stressor involving preparation of a work-related presentation. Significant increases in physiological stress were reported for those who prepared the task without music, while the presence of music suppressed significant increases in subjective anxiety, systolic blood pressure, and heart rate. Guided Imagery through Music (GIM) was used in a study investigating perceived stress levels in staff members and residents in a chemical dependency program (Hammer, 1996). Results showed significantly lower levels of state anxiety as measured on the State Trait Anxiety Inventory.

Two other studies have been conducted investigating the effects of music interventions on decreasing occupational stress demonstrating essentially positive effects. Watanabe (2001) measured heart rate and collected self-report data from music assisted PMR in nurses. A decrease in anxiety levels was noted for both measures but a significant difference was found only in pulse rate and not in self-report data. Smith (2002) investigated the effects of improvised music combined with a relaxation technique on anxiety levels of adults in the workplace finding that the music intervention decreased anxiety levels. The results of that study do not provide statistical evidence that anxiety levels significantly decreased.

Summary, Aims and Hypotheses

Due to the limited research investigating the effects of music relaxation techniques to decrease anxiety in occupational environments, the current study aimed to provide evidence for the use of music therapy in this area. To date, there are no studies investigating the effects of a single music relaxation session on state anxiety levels in an occupational
environment. The present study aimed to investigate the immediate effects of music relaxation, specifically PMR, compared to a discussion group intervention on state anxiety levels after one session. It was hypothesized that the music relaxation intervention would produce a significant decrease in participants’ self-reported state anxiety measurement immediately after the intervention. A significant difference between the effects of the music relaxation intervention compared to the discussion would be found and participants in the discussion group intervention would experience a decrease in immediate state anxiety levels post intervention, but the decrease would not produce a significant result.

Method

Participants

Eighty telecommunications and pay-television customer service specialists (female = 40, male = 40) were recruited from a Queensland call center. The participants had a mean chronological age of 37.5 years ($SD = 1.9$, range $20–59$ years). The participants were full-time or part-time employees working a minimum of $32$ hours per week with an average of $1.2$ years work experience within the company. No participant reported past experiences in music therapy. The participants reported an average $1.9$ years former music education and an average $1.7$ hours daily listening to music. There was no known medical or psychiatric diagnoses reported from the participants. Ethical clearance was obtained from the School of Music, University of Queensland Ethic’s Committee. Participants were recruited after the investigation was given approval from call center management.

Procedure

A randomized controlled trial was conducted comparing the discussion group as the control condition to music relaxation as the experimental condition. A repeated measures t-test was used to assess the immediate effects of the music relaxation session and the discussion group intervention. The dependent measure (anxiety level) was obtained from participant self-report pre and post intervention measurements recorded on the State Trait Anxiety Inventory (STAI; Spielberger, 1983). The state portion of the STAI was used in order to identify whether the participants reported a change in anxiety level post intervention compared to pre intervention. The STAI was completed by participants immediately before and after the intervention.

Participants were recruited by the researcher via the internal email system of the call center inviting participation in the study. The first $80$ participants consenting to partake in the study were divided into two
groups according to gender (male and female) and were randomly assigned to either the experimental or control condition. For each condition, participants were divided into groups of three with a duration time of 15-minutes. All interventions were completed on three consecutive weekdays at varying times dependent on participant completion of their shift. The experimental condition received the music therapy intervention; the control condition discussed participant experiences of the shift, including distressing calls.

The study was conducted in the same room for all condition groups. The layout of the room was to be of minimal distraction. Participants sat in a circle, with the researcher included in the circle, with ample space between each participant in order to allow room between bodies, taking into consideration the room required for PMR.

The researcher performed all interventions to ensure consistency and reliability of both interventions. The music relaxation intervention consisted of live improvised guitar music and PMR. All participants in the experimental condition chose live improvised guitar music after allocation to this condition. The PMR entailed tensing and releasing specific muscles in the body, beginning with the feet and working way up to the top of the head. Participants were verbally guided by the researcher to tighten/squeeze a particular muscle group, hold, and then release the tension. Participants were encouraged to take deep breaths throughout the intervention. The control condition involved a participant-led discussion regarding experiences and distressing calls encountered during the shift. The researcher facilitated the discussion and verbally joined on only where participants required help or asked questions. No music or relaxation intervention was employed in the control group. As such, all participants in the control group were offered the music relaxation at the conclusion of the study.

Data analysis

A repeated measures t-test was performed for both the music relaxation intervention and the discussion intervention to assess changes in anxiety measures. Effect sizes were calculated in order to find out whether changes in anxiety level post intervention were significant. No participants were excluded from the data analysis. Pre and post test comparisons for overall differences in the STAI between each condition were analyzed. Three individual scales from the state portion of the STAI was chosen by the researcher to be presented due the clinical relevance of the data, i.e., “I feel relaxed”, “I feel pleasant”, and “I feel tense”.
Results

Data Screening

Prior to analysing the data, missing data, implausible values, outliers, and assumptions of normality were checked for both the treatment sample and the control sample. Histograms, skewness and kurtosis statistics all indicated normal distribution. There were no significant outliers and no missing data. Overall, a total of 80 cases (40 experimental and 40 control cases) were included for the main analysis.

Quantitative data analysis

Two repeated measures t-tests were performed on both the music relaxation (experimental) condition and the discussion (control) condition to assess whether there had been a significant change for the two groups in level of state anxiety prior and post intervention. Descriptive statistics are reported for the two conditions in Table 1.

A repeated groups t-test comparing the difference in scores at pre-intervention for the discussion and music relaxation groups indicated scores were significantly different at baseline, $t(df) = 4.4(78)$, $p = .01$. Participants at baseline, prior to intervention for both conditions, were unequal in levels of state anxiety.

The repeated measures t-test revealed a significant reduction in scores at post assessment compared to pre assessment for the music relaxation group $t(df) = 16.8 (39)$, $p = .01$. The analysis revealed a 21 point reduction (CI = 18.5–23.5) in state anxiety level post intervention. There was no significant change in pre and post scores for the discussion group $t = ns$.

Table 1

Comparison Treatment Means between Discussion Group and Music Relaxation group

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
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<tbody>
<tr>
<td>Discussion Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre Intervention</td>
<td>40</td>
<td>48.7</td>
<td>5.3</td>
</tr>
<tr>
<td>Post Intervention</td>
<td>40</td>
<td>49.1</td>
<td>5.1</td>
</tr>
<tr>
<td>Music Relaxation Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre Intervention</td>
<td>40</td>
<td>55.6</td>
<td>8.5</td>
</tr>
<tr>
<td>Post Intervention</td>
<td>40</td>
<td>34.6</td>
<td>4.9</td>
</tr>
</tbody>
</table>

Further analyses of scores for pleasant, tense and relaxed ratings were conducted to assess whether there was a significant change in these measures for the music relaxation intervention. Repeated measures t-tests for all these measures indicated a significant decrease in ratings for the
tense rating, \( t(df)=12.0(39), p<.01 \), and significant increases in ratings for the pleasant and relaxed scales from pre to post, \( t(df)=-20.27(39), p<.01 \), and, \( t(df)=-16.2(39), p<.01 \), respectively. The negative \( t \)-score for the pleasant and relaxed scales indicates an increase in score pre intervention compared to post intervention. Table 2 shows differences in mean scores at pre and post assessment for the tense, pleasant and relaxed ratings for the music relaxation intervention.

**Table 2**

Mean Scores of 3 Ratings for the Music Relaxation Group.

<table>
<thead>
<tr>
<th></th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
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<tbody>
<tr>
<td>Pleasant</td>
<td>1.45</td>
<td>3.68</td>
</tr>
<tr>
<td>Relaxed</td>
<td>1.4</td>
<td>3.4</td>
</tr>
<tr>
<td>Tense</td>
<td>3.25</td>
<td>1.65</td>
</tr>
</tbody>
</table>

**Discussion**

The results of the investigation revealed participants in the music relaxation intervention experienced a significant immediate decrease in state anxiety compared to the discussion group, where participants reported little change in state anxiety post intervention. These results support the hypotheses and provide support for the use of music relaxation in an occupational environment to decrease anxiety after one session.

The combination of the two relaxation tools (improvised music and PMR) provided participants both a physical and emotional release of tension. Call center employees experience both a physical and emotional increase in tension due to the nature of their employment. The lack of physical movement from sitting at a desk increases tension held in muscles, particularly neck, shoulders and back. The abusive nature of calls and pressure from the management to meet targets increases emotional anxiety. The combination of music and PMR provided a positive effect by targeting both the physical and emotional aspects of CSR tension and stress. These results also corresponded with the literature. Conrad and Roth (2007) explain PMR provides a tool for a physical release of tension held in muscles of the body; Laiho (2004), Pelletier (2004), and Smith (2002) discussed the effects of music to target the emotional states of participants, offering mood regulation, distraction from current mood state, and increased positive feelings in the room. In a call center environment, this multi-faceted experience for participants in the music relaxation intervention offered both a physical and emotional tool for decreasing anxiety and stress.

The use of improvised music appeared to act as an emotion regulator, where participants experienced an increase in positive feelings.
of relaxation and pleasantness. In this investigation, participants self-reported on the STAI relatively high feelings of anxiety, stress and tension pre intervention and experienced a mood regulation effect through the music relaxation intervention, where participants reported feelings of pleasantness and relaxation post intervention. Saarikallio and Erkkilä (2007) and Pelletier (2004) also discussed the use music as an effective emotion regulation tool. The results of this study indicated that the improvised music was able to achieve emotion regulation for participants as they reported a significant increase in positive feelings of relaxation and pleasantness, and a decrease in anxiety and tension.

The guitar used in the music relaxation intervention enabled the researcher to be connected to the group without an instrument physically blocking connectedness with the group. Sitting in the group allowed each group member, along with the researcher, to connect with each other and act as a support. Every person in the group, including the researcher, understood the difficulties of the day, including call resolutions and abused encountered from the customers. Everyone was able to empathize with each other and provide in the physical sense without words. In some sense, the music provided a connection and feeling of oneness amongst group members, as they listened to the music they had chosen. The connectedness in the room certainly was another vehicle for change among the participants and researcher were able to provide support for one another.

The PMR relaxation technique was chosen by the researcher as it provided the opportunity for participants to perform some small, physical movements. This is an important element for CSRs as their job requires them to be seated at a desk ready to be answering calls for their entire shift. Previous studies suggested that PMR provides the opportunity to release physical tension from muscles in the body (Conrad & Roth, 2007; Jacobson, 1938). PMR differs from an exercise workout or stretching exercise in that the aim of PMR is not to build muscle strength or develop flexibility, but to tense and release muscles in order to release tension. In a call center, this is very appropriate intervention for employees. Due to the lack of physical activity, it is relatively easy for participants to become stiff and hold tension in their bodies. It is necessary for employees to become aware of the tension held physically in their bodies and use interventions to help decrease the tension. PMR provided participants in the music relaxation intervention an effective method for tensing and releasing muscular tension from their bodies as indicated by the results of this study.
Issues Arising from the Music Relaxation Intervention

The researcher performed both interventions in the music relaxation condition, improvising on the guitar while verbally guiding participants through the PMR. To enhance skills to ensure the good enough ability to perform well, the researcher spent considerable time practicing improvising music on guitar while talking through PMR. In particular, the researcher spent time practicing matching the quality of the improvised music to the PMR, so that the music was more or less congruent to the PMR intervention. By providing music to complement the PMR intervention, the researcher aimed to direct participants’ attention to the building and releasing of muscular tension. Also, on an emotional level, the music provided a building and releasing of tension to match the PMR intervention.

As recommended by Grocke and Wigram (2007), the researcher also aimed to use a calm and relaxing tone of voice when verbally facilitating the PMR intervention. Purposeful speech in a quiet and confident voice, using the middle register with a congruent affect and vocal tone, encourages calm and relaxing feelings (Grocke & Wigram, 2007). More specifically, to vocally facilitate building and releasing of muscular tension, the researcher matched vocal tone and word use to help build and then release the tension.

Musical Selection

As indicated by Davis and Thaut (1989) in a previous study, participants were offered choice of music, as preference, familiarity or past experiences with the music can influence the effect of emotion regulation and behaviour change. On this basis, all participants were offered a range of musical selections to be used in the music relaxation intervention, including live or pre-recorded music; guitar, piano, voice or instrumental music; pre-composed songs; and improvised songs. From this list of choices, participants chose live improvised guitar music as their preference. The reason for this choice could be due to the timbre and sound quality of the guitar: the timbre of the acoustic guitar makes it an ideal instrument for accompaniment. Also, the guitar appears to be physically a non-threatening instrument: the size of the instrument is relatively small. The instrument has the inclusive, containing and interactive quality when used appropriately in a group setting, and is traditionally a group instrument. The tone and timbre of the sound of the acoustic guitar appeared to make it the instrument of choice for participants.
Participants chose improvised music over pre-composed, possibly to hear something new. Pre-composed songs can act as a distraction to some people as they are familiar songs: people tend to sing along and listen to the lyrics rather than listen for the instrumental qualities that support the lyric and vocal line. The participants also appeared to be attracted to the light, improvised melody and chord combination played on the guitar. The researcher combined broken chords, suspended notes and both major and minor sounding chords in the guitar improvisation to provide interesting music and keep distraction to minimum. The improvised music was played in such a way that it would not distract participants but encourage relaxation. The easy to follow, attention holding and pleasantness heard in the music could also explain the participants’ choice of improvised guitar music.

The Discussion Group Intervention

The discussion group provided a placebo group for which to compare the music relaxation intervention. Participants shared stories and experiences of the unpleasant calls that provided a summary of their day. Contrary to the music relaxation intervention, the feeling in the discussion groups appeared to be one of isolation. Even though the discussion group still ran in groups of three people, there was no sense of unity in the room. Each person had an understanding of other group members’ experiences, but there seemed to be no sense of relief or empathy as they shared and discussed the day’s events. These results indicate that participant-led verbal discussion is not effective in decreasing stress and anxiety, supporting the idea that verbal psycho-therapeutic interventions require more than verbal cathartic release (Khorana, 1983).

The researcher initially hypothesized that talking about the days events may decrease state anxiety, but the music relaxation intervention would be more effective. This was not the case. It appeared the participants were influenced by each other’s heightened anxiety. The 15-minute session may not have provided enough time for each participant to share details or resolve issues in order to experience a decrease in state anxiety.

Comparison of Results to the Literature

The results of this study correspond with some previous literature. Pelletier (2004) and Conrad and Roth (2007) found that PMR was a successful technique in reducing tension due to stress and anxiety. Pelletier (2004) went on to discuss the use of music and PMR as an effective intervention to decrease anxiety through his meta-analysis. The STAI has also been discussed in the literature as an effective measurement tool.
accurately reflecting The results of this study support Pelletier's (2004) and Conrad and Roth's (2007) findings revealing music and PMR is an effective intervention to decrease state anxiety levels.

However, the results provide mixed support for Watanabe’s (2001) investigation. Music and PMR was used in Watanabe’s study and the overall results indicate that, although a decrease in anxiety levels was recorded through pulse rate, participant self-report data indicated no significant decrease in anxiety levels. Although no physiological measures of anxiety were recorded in the current study, participant self-report data in this study indicated a significant decrease in state anxiety levels. The main difference between the two investigations was participant occupation: nursing staff and call center staff. Different self-report measurement tools were used and could have influenced the results. Also, physiological measures for nursing staff may offer some familiarity as it part of their job description. This indicates the type of measurement tool when measuring anxiety is an important aspect to consider as it could influence the results. Hanser (1985) also raises this point and highlights the discrepancies of consistency where different measurement scales, including different physiological and self-report scales, have been used to measure the effects of music therapy interventions on anxiety levels. Although this current study provides support for the use of the STAI as an accurate self-report measure of state anxiety, more research needs to be completed investigating the types of measurement tools for anxiety measures.

**Limitations and Conclusions**

An issue arising from the statistical analyses raises one question as to the design of the investigation. A repeated group t-test was performed to compare the music relaxation and discussion groups pre-intervention to rule out any variances amongst scores. Despite randomization to the two conditions, the results indicate a significant difference between the two conditions pre-intervention, revealing participants in the discussion group reported a higher state anxiety rating than participants in the music relaxation group. Although this most likely would have had little impact on the overall results, it is possible that due to the higher state anxiety recorded pre-intervention, the discussion group may not have been an appropriate intervention to decrease anxiety levels. Matching participants to a group may overcome this problem in future studies.

Another issue of the study concerns the pre-established relationship with participants that the researcher had before the study took place. The researcher was previously employed at this call center and knew all the participants involved. Music therapy literature commonly discusses that the cause for change occurs in the therapeutic relationship. Participants
knew the researcher had an understanding and background of working in call center and possibly found comfort in the knowledge that the researcher did understand the type of stress they had dealt on the day and deal with on a daily basis. Interview results also suggest this was a positive of the study in that participants felt a therapeutic presence and understanding coming from the researcher as she had been and worked in the call center environment. This could also be seen from the opposite viewpoint: as the researcher had former relationship with the participants, so one cannot overlook that fact this may have a certain effect on the overall result of the present study. Participants may have wanted to do well on the self-report measures as there was a previous relationship with the researcher, resulting in an over-estimated report of the effects of the music relaxation intervention. However, it is unlikely that the total decrease in results can be attributed to this.

This study did not take into account the differences between male and female scores. Future studies could investigate any possible differences more thoroughly. The STAI does show some variability when looking at mean scores for pre and post interventions of state anxiety level differences between males and females. It also shows some variability between the intervention and experimental group, despite randomization of participants to a condition. Further investigation would be required to test if there was any significance between anxiety scores pre-intervention and also to see if females were more likely to respond to music over males or vice versa. Also, gender differences may also be a result of the type of music listened to with males able to relax to a specific genre of music compared to females. These implications could have important clinical utilization for effective relaxation treatment for future studies.

The purpose of this study was to measure the immediate effects of music relaxation on state anxiety. Trait and personality characteristics were not taken into consideration due to the purpose of the current study. Future studies could provide more in-depth investigation into the relationship between state and trait anxiety, the effects of immediate interventions verses long-term interventions, as well as the difference in gender responses to music relaxation techniques. Future studies could also replicate this study using music and imagery to see if there is any difference between the use of PMR and imagery. Also, replication of this study would provide more concrete evidence for the use of music relaxation in the workforce as an immediate decrease for state anxiety.

The present study supports the use of music relaxation to decrease state anxiety levels in an occupational environment after a single session. The results show that music relaxation significantly increased participant feelings of relaxation and pleasantness and significantly decreased participant feelings of tension. The results of this study indicate music
relaxation can be used effectively in different occupational environments, including those outside traditional clinical settings, where employees experience high anxiety levels in order to prevent stress and the associated medical complications.

References


