THE EFFECT OF RECEPTIVE PROGRESSIVE MUSCLE RELAXATION TECHNIQUES ON STRESS AND AGITATION

IN MILITARY VETERANS

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LILAH PITTMAN, B.M.

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DEDICATION

For my family. Thank you for supporting me in all I do.

ABSTRACT

LILAH PITTMAN

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Quite a bit of research exists about receptive progressive muscle relaxation techniques, music therapy with military veterans, and the effect of music therapy on stress. However, there is very little research that combines these three areas. This study explored the effect music-assisted relaxation has on stress and agitation in military veterans and what specific areas of stress and agitation are most affected by progressive muscle relaxation techniques in an aim to assist future studies on this topic. Participants (*n*=5) were recruited from students and their families and friends at Texas Woman's University. All participants were veterans between the ages of 18-65. This study measured participants' self-perceived stress and agitation using a pretest/posttest pre-experimental design with two Likert scales. Participants participated in a 20-minute receptive relaxation exercise with prerecorded music as the researcher verbally led them through a progressive muscle relaxation script. The mean changes in the stress and agitation pretest/posttest scores were -5 and -3, respectively. Implications and recommendations for future research are discussed.

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CHAPTER I

INTRODUCTION

Military veterans often experience high-stress situations during their time in the military. These situations could range from minor frustrations to life-altering events can be encountered immediately in boot camp and continue throughout various deployments. A severe amount of emotional stress may lead to post-traumatic stress disorder (PTSD) (National Institute of Mental Health [NIMH], 2016). Though only around 3.5% of the adult population in the United States experience PTSD and only 1.3% of cases are classified as "severe," this occurrence is much higher among military veterans (Kessler, Chiu, Demler, & Walters, 2005). In the most recent groups polled, around 11% to 20% of veterans of Operation Iraqi Freedom and Operation Enduring Freedom have experienced PTSD at some point in their lives (U.S. Department of Veteran Affairs, 2016). These data would suggest that the military has the potential to create a tense environment for soldiers. However, one does not need to have PTSD to experience high stress and agitation on a more chronic basis, especially if a soldier spends a career in a potentially straining environment. Continued stress for a long period of time not only is emotionally damaging, but also can lead to serious physical and physiological health problems (NIMH, n.d.).

As receptive relaxation methods in music therapy are designed to encourage relaxation in an individual (and thus potentially lowering stress and agitation), military

veterans might benefit from participating in such music therapy techniques (Grocke & Wigram, 2007). This pilot study explored the effect of music and progressive relaxation on stress and agitation in military veterans.

Related Literature

Health Concerns

With high levels of continuous stress for long periods of time, several health issues can develop. As mentioned above, extreme stress can lead to PTSD. The National Institute of Mental Health (2016) describes PTSD as a disorder that people can develop after a dangerous, stressful, or shocking experience. The institute describes the reaction that occurs in these types of situations as a "fight-or-flight" response and explains that while the symptoms of this type of response eventually go away, people with PTSD may continue to feel the effects of these symptoms well after the stressful situation has passed (NIMH, 2016).

Chronic exposure to less-extreme stressful situations also can create physical, mental, and behavioral health issues. Mayo Clinic (2016) reported that long-term stress can the following physical symptoms: cause high blood pressure, heart disease, sleep problems, headache, and muscle pain, to name a few. They went on to say that mentally, long-term stress could cause depression, agitation, anxiety, and lack of motivation. Finally, behaviorally, one might begin abusing alcohol, withdrawing socially, or become prone to angry outbursts.

The National Institute of Mental Health (n.d.) and Mayo Clinic (2016) recommended regular exercise, relaxing activities, and with more severe cases,

psychotherapy to treat stress. Yoga, meditation, tai chi, and deep breathing are all included under the umbrella of "relaxing activities," according to the National Institute of Mental Health (n.d.).

Music Therapy and Stress

Music has been shown to cause a reduction in stress (Knight & Rickard, 2001). A 2001 study conducted by Knight and Rickard examined the effect of relaxing music on stress-induced increases in anxiety, blood pressure, and heart rate in undergraduate students. In this study, the two researchers measured the effect of Pachelbel's *Canon in D major* on the above listed dependent variables. The researchers collected the participants' saliva, took the participants' blood pressure and heart rate, and had participants fill out the *State-Trait Anxiety Inventory* (STAI) before the experiment began and after it had ended. The experiment consisted of the participants being subjected to a stressor that was presented as a "task." The experimental groups were subjected to music during the task, while control groups completed the task in silence. It was found that music significantly reduced blood pressure and salivary levels, while also causing a reduction in the other dependent variables (Knight & Rickard, 2001). Knight and Rickard suggested that due to the findings of this study, relaxing music is capable of preventing increases in anxiety, blood pressure, and heart rate. Knight and Rickard also noted that the patients reported feeling less stressed when the relaxing music was present and therefore proposed that the more stress one experiences, the greater the stress-reduction effect of music (Knight & Rickard, 2001).

Similarly, another study on music and stress reduction examined the effects of progressive muscle relaxation and guided imagery on adrenal corticosteroids, also known as stress hormones (Rider, Floyd, & Kirkpatrick, 1985). For this study, prerecorded pieces by Debussy and McLaughlin were played for the experimental group as they were led through Jacobsen's progressive muscle relaxation script with a voice dub over the music. Between the instructions of tension and relaxation for each of the eight muscle groups, participants were guided through specific imagery. Participants were then instructed to listen to the tape of the combined music and script five days a week for three weeks. Participants in the control group did not receive the tapes. Urine samples were collected three times during the study, once at the beginning and twice during the study (Rider et al., 1985). The researchers found that, though not statistically significant, there was more of a decrease in the corticosteroid levels of the experimental group when compared to the control group. Rider et al. also found that four of the subjects in the experimental group experienced a significant decrease in their own corticosteroid levels. The researchers concluded that receptive relaxation music therapy techniques could help to lower stress (Rider et al., 1985).

Music Therapy and PTSD in Adult Civilians

Music therapy research has also been conducted on more chronic forms of stress. A review of music therapy practices with adults with PTSD provided evidence that music therapy is useful in reducing symptoms of stress and improving affect regulation (Landis-Shack, Keinz, & Bonn-Miller, 2017). The review argued that not only has music therapy reduced stress and anxiety in populations without PTSD, but it also offers a more

accessible and less stigmatized option for the treatment of PTSD (Landis-Shack et al., 2017). The review showed how different interventions were commonly employed to work with multiple symptoms of PTSD. It was found that recreative interventions were most often used for work with cognition and mood (Landis-Shack et al., 2017). The researchers concluded that more research needed to be done on music therapy and PTSD as a valid and reliable treatment option (Landis-Shack et al., 2017).

Music Therapy and Military Veterans

Just as there have been studies exploring the effects of music therapy with civilians with PTSD, studies centered around music therapy with veterans with PTSD have been conducted. An Israeli study showed the effects of group music therapy on veterans with PTSD (Bensimon, Amir, & Wolf, 2012). The researchers found that group music therapy decreased expression of traumatic feelings and increased expression of non-traumatic feelings among veterans with PTSD. The musical intervention resulted in stronger communal connections and enhanced psychosocial skills (Bensimon et al., 2012).

In a similar study, Burt (1995) gave anecdotal evidence of how group improvisations in the form of drum circles were beneficial to veterans of the Vietnam War. Burt explained that the drumming could be used to help veterans with PTSD to mediate their unrecognized or exaggerated emotions. He stated that rage must first be expressed through the beating of the drums before fear surfaces and the individuals can begin to work through their PTSD. He theorized that giving the veterans control over musical elements such as dynamics and tempo allowed them to exercise control over

their own misplaced sense of power and thus lead to healing from the PTSD. Finally, he explained that the drum circles created a sense of community among the veterans (Burt, 1995).

In a similar study, receptive relaxation music therapy techniques were used to decrease respiration rate and perception of relaxation in veterans of the Vietnam War (Garrison, 2016). The experiment took place in one session with each individual acting as their own control. Respiration rate was measured pre- and post-intervention. The participants were then asked to complete a self-evaluation survey. Though the researcher did not find a significant difference between respiration rates before and after the relaxation exercise, the mean respiratory rate of the participants was lower after the relaxation exercise. However, the researcher explained that it has been shown that relaxation techniques are most effective when implemented across time rather than in a one-time intervention, and theorized that statistical significance may have been achieved had the study been longer (Garrison, 2016). Additionally, the researcher found that the participants unanimously found the music therapy beneficial and would use it again in the future. The researcher recommended that more research spanning a longer length of time should be done in this area (Garrison, 2016).

The above research indicates that music therapy can decrease both acute and chronic stress. However, a paucity of research has been done on receptive relaxation methods with military veterans. Because of this, more research is needed. The purpose of this study was to examine the effects of receptive relaxation techniques on self-perceived stress and agitation in military veterans. The researcher asked four research questions: (1)

What effect do receptive relaxation exercises have on self-perceived stress in military veterans? (2) What effect do receptive relaxation exercises have on self-perceived agitation in military veterans? (3) What generalized area of stress is most effected by receptive relaxation techniques? (4) What generalized area of agitation is most effected by receptive relaxation techniques?

Method

Participants

Participants in this study were military veterans living in the Denton, Texas area and were gathered through a convenience sample. The participants were required to be between the ages of 18 and 65 in order to avoid working with minors and to help avoid the possibility of dementia being a confounding variable. Recruitment was done through a Listserv email sent to Texas Woman's University (TWU) students inviting them (if they were military veterans themselves,) or any friends and relatives who were military veterans to participate in the study. For the sake of this study, a military veteran was classified as someone who had served in the armed forces and was either retired or was honorably discharged. Participants were asked to contact the researcher through email if they desired to participate. The researcher then sent a document containing additional information about the study to the potential participants and a list of potential times for the study to take place to gather participant availability (see Appendix B for informational document). This study included five participants: two males and three females. Three of the participants were between the ages of 18-35 while the other two

participants were between the ages of 60-65. TWU's Institutional Review Board approved the research.

Setting

This study took place in a faculty office on the second floor of the TWU music building on a Monday morning and a Friday morning and afternoon. At the time of the study, there were no classes occurring in the TWU music building. In lieu of the room's florescent lighting, natural lighting from the window was used. The area outside of the office itself featured low noise levels and minimal foot traffic, but an issue with the air vent inside of the room caused the vent to rattle at a low but noticeable noise level for the duration of the study.

Design

This was a small *n* study that featured a pre-test/posttest pre-experimental design as each participant served as their own control. The independent variable was the receptive relaxation while the two dependent variables being measured before and after the music relaxation intervention were stress and agitation.

Procedure

This study consisted of one 20-minute relaxation session. Each participant was assigned an ID number to protect confidentiality. Before the beginning of the session, the researcher had each participant fill out two short self-assessment scales after informed consent had been granted. The researcher then verbally led the participants through a progressive muscle relaxation script while recorded music simultaneously played (see Appendix D for the relaxation script).

The music used for this study was *Timeless Motion* (Kobialka, 1982b, track 2), *Lullaby* (Kobialka, 1982a, track 3), and *The Future is Beautiful* (Kobialka, 1988, track 8). These particular pieces of music were chosen for their "small container" qualities- these qualities being that the pieces are slow moving, small in dynamic range, not generally evocative of imagery, predictable, and absent of dissonance or tension. Prerecorded music (as opposed to live music) was used so that the researcher was more readily available to any needs a participant might have had and to ensure that each participant experienced the exact same music with no variability in musical elements such as tempo and dynamics.

At the end of the session, the participants were instructed to fill out a second copy of the two self-assessment scales completed at the beginning of the session. The researcher then debriefed the participants. A Licensed Professional Counselor (LPC) was also present for the duration of the study in case any emotional concerns emerged for the participants. Participants were offered a cupcake upon completion of the study. Participation was voluntary, and participants were free to withdraw from the study at any time without penalty.

Data Collection

Data collection occurred through the *Brief Agitation Measure* scale and an adaptation of the *Hamilton Anxiety Rating Scale* (see Appendices E and F for scales). Both of these Likert Scale assessments were given before and after the relaxation session as a pretest and posttest. The *Brief Agitation Measure* is a short self-assessment that focuses on the immediate state of the person and has been proven to have an acceptable

level of interrater reliability (Ribeiro, Bender, Selby, Hames, & Joiner, 2011). The scale consisted of three questions. The lowest score a participant could get was 0 and the highest score was 18. A score of 15 or greater would indicate moderate to severe symptoms of agitation. The *Hamilton Anxiety Rating Scale* measures the severity of anxiety symptoms and has also been proven to have an acceptable level of interrater reliability (Hamilton, 1959). For this study, the rating scale was adapted by the researcher by removing a few questions and, more importantly, simplifying symptom descriptions into layman's terms. It consisted of nine questions. The lowest score a participant could get was 0 and the highest score was 36. A score of 25 or greater would indicate moderate to severe symptoms of anxiety.

Data Analysis

Because this study featured such a small sample size, statistical significance in the results was highly improbable. Due to this, nonparametric sign tests were calculated, and the differences between the means of the aggregate scores from the pretest and posttest were measured instead of a *t*-test being employed. This study served as an exploratory or pilot study for future research.

CHAPTER II

RESULTS

There were five participants ($n = 5$) in this study. All participants were military veterans. Three participants were female and two were male. Three of the participants were between the ages of 18-35 while two of the participants were between the ages of 60-65. Participants served as their own control as they filled out the two Likert scales before the relaxation exercise and then again after the relaxation exercise. One participant disclosed having arthritis. Two different participants disclosed that they currently take anxiety medication.

Outcomes

Effect of Receptive Relaxation on Stress

Stress was measured using the *Hamilton Anxiety Rating Scale,* which featured nine questions answered using a Likert scale. The higher the aggregate score from these questions, the stronger the effects of stress. With the exception of Participant 2 who did not answer one question during the pretest, the highest score one could get on this scale is 36. A score greater than or equal to 25 ($X \geq 25$) would indicate moderate to severe symptoms of anxiety. Table 1 shows the pretest and posttest scores of each participant as well as the difference between the two scores.

Table 1

Hamilton Anxiety Rating Scale (Adapted) Scores

Participant	**Pretest**	**Posttest**	**Change in Score**
Participant 1	15	5	-10
Participant 2	6	1	-5
Participant 3	7	5	-2
Participant 4	17	22	+5
Participant 5	16	3	-13

The pretest scores ranged from 6 to 17 while the median score was 15 *(SD* = 5.26). The posttest scores ranged from 1 to 22 while the median score was 5 *(SD* = 8.44). Participant 4's score was a deviance from the trend of the rest of the group as their score increased when all other participant scores went down. Participant 5 experienced the greatest change in pretest to posttest as their score decreased by -13 while Participant 4 experienced the smallest change as their score decreased by -2. As Table 2 shows, the mean difference for all participants between the pretest and the posttest is $\overline{x} = -5$.

Table 2

Mean Scores

Scale	Pretest $\bar{x}$	Posttest $\bar{x}$	Change in $\bar{x}$
Hamilton Anxiety Rating Scale (Adapted)	12.2	7.2	-5
Brief Agitation Measure	6	3	-3

Effect of Receptive Relaxation on Agitation

Agitation was measured using the *Brief Agitation Measure,* which featured three questions answered using a Likert scale. Like with the *Hamilton Anxiety Rating Scale,* the higher the aggregate score from these questions, the stronger the effects of agitation. The highest score one could get on this scale is 18. A score that is greater than or equal to 15 ($X \geq 15$) would indicate moderate to severe symptoms of agitation. Table 3 shows the pretest and posttest scores of each participant as well as the difference between the two scores.

Table 3

Brief Agitation Measure Scores

Participant	Pretest	Posttest	Change
Participant 1	4	3	-1
Participant 2	3	0	-3
Participant 3	5	0	-5
Participant 4	11	11	0
Participant 5	7	1	-6

The pretest scores ranged from 3 to 11 while the median score was 5 (*SD* = 3.16). The posttest scores ranged from 0 to 11 while the median score was 1 (*SD* = 4.64). Participant 4's score was again a deviance from the trend of the rest of the group, as their score did not change when all other participant scores decreased. Participant 5 experienced the greatest change in pretest to posttest as their score decreased by -6; while Participant 4 experienced the smallest change as their score did not change. As Table 2 shows, the mean difference between the pretest and the posttest for all participants difference was $\bar{x} = -3$.

CHAPTER III

DISCUSSION

The researcher asked four questions of the study: (1) What effect do receptive relaxation exercises have on self-perceived stress in military veterans, (2) What effect do receptive relaxation exercises have on self-perceived agitation in military veterans, (3) What generalized area of anxiety is most effected by receptive relaxation techniques and (4) What generalized area of agitation is most effected by receptive relaxation techniques?

Though the sample size is too small for the results to be generalizable to the population of military veterans as a whole, the trend from this study suggests that receptive relaxation exercises generally lower the levels of self-perceived stress in military veterans. Four of the five participants in this study experienced a decrease in stress due to the relaxation session.

This study also suggests receptive relaxation exercises generally lower the levels of self-perceived agitation in military veterans. The four previously mentioned participants also experienced a decrease in agitation due to the relaxation session. After the relaxation session, three of these four participants showed physical changes between the pretest and the posttest: their shoulders dropped, their speech was slower, and the tension in their faces lessened.

To answer the question of which area of stress was most affected by receptive relaxation exercises, the researcher examined participant ratings for each question of the *Hamilton Anxiety Rating Scale*. Table 4 shows the mean responses to each question during both the pretest and posttest, as well as the mean change between the two tests. It should be noted that the means from Question 2 were only measured among four participant values, as one participant did not answer Question 2 in the pretest so their data for Question 2 were eliminated.

Table 4

Hamilton Anxiety Rating Scale Question Mean Scores

Question categories	**Pretest**	**Posttest**	**Change**
Question 1: Anxious Mood	2	0.8	-1.2
Question 2: Tension	2.25	0.75	-1.5
Question 3: Intellectual	3	1.8	-1.2
Question 4: Depressed Mood	1.8	1.4	-0.4
Question 5: Somatic (Muscular)	1.6	1	-0.6
Question 6: Somatic (sensory)	1	0.6	-0.4
Question 7: Cardiovascular	0	0	0
Question 8: Respiratory	0.6	0.2	-0.4
Question 9: Autonomic	0.4	0.8	+0.4

The area of stress that saw the greatest change among all participants between the pretest and posttest was tension. This may be due to the nature of the relaxation exercise. This particular relaxation exercise asks that participants tighten and release different muscle groups and often reiterates, “feel the tension leave your body” throughout the script.

To answer the question of which area of stress was most affected by receptive relaxation exercises, the researcher examined participant ratings for each question of the *Brief Agitation Measure*. Table 5 shows the mean responses to each question during both the pretest and posttest, as well as the mean change between the two tests.

Table 5

Brief Agitation Measure Question Mean Scores

Question categories	**Pretest**	**Posttest**	**Change**
Question 1: Restlessness	1	.8	-0.2
Question 2: Feeling on Edge	2.4	1.2	-1.2
Question 3: Emotional Turmoil	2.6	1	-1.6

The area of agitation that saw the greatest change among all participants between the pretest and posttest was emotional turmoil. This could also be due to the nature of the script having a heavy focus on deep breathing, and deep breathing has been shown to be effective in emotional regulation (Arch & Craske, 2006).

Participant 4's scores are the anomaly to the trend of the rest of the participants' scores. The difference in Participant 4's score could be attributed to his self-reported arthritis. He participated through the duration of the session, then remarked that it was stressful and frustrating that the movements the relaxation script called for caused him pain. Participant 4 also mentioned that he had participated in similar relaxation exercises

without music in the past, but none had ever benefited them. The fact that Participant 4 believed this relaxation exercise to had also not been beneficial to him could have potentially added to his frustration. These findings raise the question of whether progressive muscle relaxation techniques should be contraindicated entirely to those with arthritis, rather than them participating in what movements they can do without experiencing pain.

Considerations

Areas for Future Research

Though the sample size is small, this study provides groundwork for future studies about receptive relaxation music therapy with military veterans. In the future, this study should be revisited with a much larger sample size and more homogenous sample. Although this exploratory study implies that receptive relaxation techniques could benefit military veterans, more research needs to be done on this topic.

As most of the participants scores went down between the pretest and the posttest for both stress and agitation, the effect receptive relaxation techniques have on cortisol levels should also be researched in the future. Additionally, this study raises the question of how receptive relaxation techniques would affect stress and agitation in military veterans with PTSD.

Implications

Chinese researchers found music therapy in the form of listening to preferred music on an MP3 player twice a day decreased anxiety in breast cancer patients (Li, Zhou, Yan, Wang, & Zhang, 2012). However, many would argue that this is not music

therapy due to the lack of therapeutic relationship, particularly, the intra-relationships between the music therapist and the music.

Hernández-Ruiz (2005) found progressive muscle receptive relaxation music therapy once a day for five days to be an effective way of reducing anxiety in her study of women who had experienced abuse. Though more research needs to be done, the findings of this study would suggest that individuals could experience a reduction in stress in as soon as one relaxation session.

There are several theories, philosophies, and models within music therapy that this study's findings may strengthen the music-assisted relaxation aspects. Thaut's model of neurologic music therapy categorized music as an "affective stimulus," and noted that music can mediate states such as depression, elation, and anxiety while also inducing relaxation (Thaut, 2012). This study has provided a further foundation for music functioning as a mediating stimulus.

Within the developmental-integrative model in music therapy, slow, methodical, and steady music is known to bring about relaxed and meditative states of being. Sekeles (2012) made her case for the relaxation-inducing power of music by drawing from examples of older cultures using steady and methodical music to induce ritualistic and hypnotic states. Scientifically speaking, music affects the reticular formation (a structure of brain matter) in a way that can influence alertness or encourage relaxed or hypnotic states, depending on the musical elements (Sekeles, 2012). This study suggests that it is this very type of music that invokes states of relaxation.

The psychotherapeutic model suggests that music-assisted relaxation techniques also improve physical health (Scovel & Gardstrom, 2012). Similarly, humanistic-existential theory explains that music can create relaxation and help one cope with stress. This is due to music allowing an individual to disassociate from negative thoughts and emotions and therefore have lessened anxiety and more bodily harmony (Ruud, 2012). As many of the questions on the two scales used for this study discussed the physical perception of stress and agitation, this study further adds to the argument that music-assisted relaxation could promote bodily harmony.

Finally, in his working definition of music therapy, Bruscia (2012) defined music relaxation as "the use of music listening: to reduce stress and tension, to reduce or counter condition anxiety, to induce body relaxation, or to facilitate entry into altered states of consciousness" (p. 214). This study has suggested that not only can receptive relaxation techniques reduce stress and tension, but also agitation.

All of these theories of music's abilities within these models of music therapy further evidence the fact that music, let alone receptive relaxation techniques, can be helpful in reducing stress and promoting overall wellness. This study and others that have preceded it help us to understand the more intricate details of the impact receptive relaxation music therapy has on individuals.

This study's findings suggest that music therapists could employ receptive relaxation methods in acute care, as opposed to strictly a long-term setting, and the veteran receiving music therapy could still benefit from it. It also opens the doors (again, more research with a larger sample is needed to accurately gauge how significant the

effect of receptive relaxation music therapy is on veterans) to more possibilities when working with military veterans.

Limitations

The primary limitation of this study was its small sample size. This was a convenience sample from students at TWU and their friends and families. If recruitment had come from a larger pool of people, the sample size might have increased. Had the sample size been larger, a more accurate generalization could have been made from this study. In the future, more participants would help lead to significance, but this study's results do bring forward information for further research on this topic.

A secondary limitation of this study was the lack of participant screening for potentially confounding variables. The age requirements set for this study were set to avoid working with minors and to help limit dementia as being a confounding variable. No other potential variables were delimited. This likely had an effect on the results of the study as Participant 4 noted having arthritis and his anxiety score was the only score to go up, while the participants that mentioned taking anxiety medication had some of the largest drops in scores on the anxiety rating scale. This would suggest that the use of prescription medication for anxiety could have been a confounding variable.

Conclusion

While there has been a sizable amount of research done on receptive relaxation techniques and their effect on stress, agitation, and mood in general, there has been limited research done on receptive relaxation techniques specifically with military veterans. It has been shown that receptive relaxation techniques (specifically progressive

muscle techniques) are effective in reducing stress and agitation, so it is important that more research be done in this area with this particular population. Though it features a small sample size, this study is successful in exploring how receptive relaxation techniques affect stress and agitation in military veterans and provides a foundation for future research in this area.

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APPENDIX A

Recruitment Email

Seeking Participants for a Music Relaxation Study!

Greetings Students!

My name is Lilah Gilmore and I am a music therapy graduate student at Texas Woman's University. I'm writing because you are invited to participate - if eligible - in a research study here at Texas Woman's University! The purpose of this study is to examine the effects of receptive relaxation music therapy on stress and agitation in military veterans.

Eligibility requirements for participants:

- You must be between ages 18 and 65
- You must have served in the armed forces and have either retired or been honorably discharged

The study will last one session and take approximately 40 minutes. It will take place in the TWU music building. It will consist of listening to 20 minutes of relaxing music accompanied by the verbal instruction of a relaxation exercise. This study is completely voluntary, and you are free to withdraw from this study at any time without penalty. There is a potential risk of loss of confidentiality in all email, downloading, electronic meetings, and internet transactions.

If you'd like to participate or have any questions about the study, please contact me at lgilmore4@twu.edu. The study's time and date will be decided based on participant availability.

Additionally, if you know of any individuals who meet the eligibility requirements for this study, please feel free to forward this email to them. Participants do not need to be students at TWU.

There will be free cupcakes offered upon the conclusion of this study.

Thank you for your time,
Lilah Gilmore

APPENDIX B

Informational Document

Thank you for your interest in this study!

This study is entitled “The Effect of Receptive Progressive Muscle Relaxation Techniques on Stress and Agitation in Military Veterans.”

Receptive relaxation in music therapy uses very simple, slow, quiet, and non-suggestive music as a backdrop to a verbally led relaxation exercise. In this case, the relaxation exercise would involve the tightening and releasing of tension from several muscle groups- called progressive muscle relaxation. I will demonstrate exactly what muscles are being tightened and released as we move through the exercise so there will be no confusion as to what to do. If you choose to participate, you will be asked to fill out two short assessment scales, (the *Brief Agitation Measure* and an adapted version of the *Hamilton Anxiety Rating*,) both before and after the relaxation exercise about where you perceive your levels of stress and agitation to currently be. The whole study will take approximately 40 minutes.

Receptive relaxation music therapy techniques have been proven to reduce cortisol levels and heart rate within previous studies, but not many studies have measured the individuals' self-perception of stress and agitation. You can potentially benefit from this study by learning a new technique to help with relaxation that you could perform on you own if you so wish. Additionally, you could benefit by experiencing relaxation directly from the session. At the end of the session, you will be welcome to a free cupcake. The induction of relaxation could potentially cause you to feel anxious and you are advised to immediately stop with the relaxation session if you begin to feel any discomfort. You are welcome to stop at any time and there is no penalty.

I will have a Licensed Professional Counselor (LPC) present with me in case any urgent needs arise. All participant information will remain confidential and all data will be labeled with numbers rather than participant names. The study will take place in the TWU music building.

Thank you for your consideration,
Lilah Gilmore

APPENDIX C

Consent Form

TEXAS WOMAN'S UNIVERSITY
CONSENT TO PARTICIPATE IN RESEARCH

Title: The Effect of Receptive Progressive Muscle Relaxation Techniques on Stress and Agitation in Military Veterans

Researcher: Lilah Gilmore
Email: lgilmore4@twu.edu

Research advisor: Michael Zanders, PhD
Email: mzanders@twu.edu

Summary and Key Information About the Study

You are being asked to participate in a research study conducted by Lilah Gilmore, a student at Texas Woman's University, as a part of her thesis. The purpose of this research is to determine how listening to music while participating in a progressive muscle relaxation affects stress and agitation within military veterans. You have been asked to participate in this study because you are a military veteran. As a participant, you will be asked to take part in a receptive relaxation session and fill out two Likert scales both before and after the session. You will be given a number that is not matched to your name to place on the scales in order to protect your confidentiality. The total time commitment for this study will be about 40 minutes. Following the completion of the study you will receive a cupcake for your participation. The greatest risks of this study include potential loss of confidentiality and emotional discomfort. We will discuss these risks and the rest of the study procedures in greater detail below.

Your participation in this study is completely voluntary. If you are interested in learning more about this study, please review this consent form carefully and take your time deciding whether or not you want to participate. Please feel free to ask the researcher any questions you have about the study at any time.

Description of Procedures

As a participant in this study you will be asked to fill out two scales- an adaptation of the Hamilton Anxiety Rating Scale and the Brief Agitation Measure scale- prior to the relaxation session. You will then be led through a progressive muscle relaxation by the researcher as music simultaneously plays. You will then fill out a second copy of the two scales filled out prior to the relaxation session. The time commitment is approximately forty minutes. In order to be a participant in this study, you must have served in the armed forces and either retired or were honorably discharged.

Potential Risks

The induction of relaxation could cause you to feel anxious. You are advised to immediately stop with the relaxation session if you begin to feel any discomfort. You are welcome to stop at any time and there is no penalty. Additionally, closing your eyes during the relaxation session could cause you to feel discomfort. It is not necessary to close your eyes and you may keep them open for the duration of the session or open them at any time. The researcher has been thoroughly trained in music and relaxation facilitation techniques and there will be a Licensed Professional Counselor (LPC) on site to assist if needed.

_____
Initials

The music used for the relaxation session could also cause emotional discomfort. Steps have been taken to minimize this risk. The music chosen for this study has been chosen based on its non-suggestive, stable, and predictable nature.

Completing the pre-test and posttest surveys could cause emotional discomfort. You are welcome to skip questions or stop with any of the surveys entirely if you begin to feel discomfort. The LPC will be available if you begin to feel emotional discomfort while filling out the surveys and need to speak with them.

Another risk in this study is loss of confidentiality. Confidentiality will be protected to the extent that is allowed by law. There is a potential risk of loss of confidentiality in all email, downloading, electronic meetings, and internet transactions. Any personal information collected for this study will not be used or distributed for future research even after the researchers remove your personal or identifiable information (e.g. your name, date of birth, contact information). The research will be held at a private location that you and the researcher have agreed upon. A code number, not your real name, will be used. No one but the researcher will know your name. All data collected will be shredded within 2 years after the study is finished. The results of the study will be reported in a student thesis, but your name or any other identifying information will not be included.

The researcher will try to prevent any problem that could happen because of this research. You should let the researcher know at once if there is a problem and they will help you. However, TWU does not provide medical services or financial assistance for injuries that might happen because you are taking part in this research.

Participation and Benefits

Your involvement in this study is completely voluntary and you may withdraw from the study at any time. Following the completion of the study you will be given your choice of cupcake for your participation. If you withdraw from the study during the session you will still be offered a cupcake. If you would like to know the results of this study I will email them to you.*

Questions Regarding the Study

You will be given a copy of this signed and dated consent form to keep. If you have any questions about the research study you should ask the researcher; her phone number is at the top of this form. If you have questions about your rights as a participant in this research or the way this study has been conducted, you may contact the Texas Woman's University Office of Research and Sponsored Programs at 940-898-3378 or via e-mail at IRB@twu.edu.

_____ _____

Signature of Participant Date

*If you would like to know the results of this study please provide an email where you want them to be sent:

Email: _____

APPENDIX D

Relaxation Script

Place your feet flat on the floor allow yourself to take a few moments to get comfortable. You may close your eyes if you wish, but it is also okay to keep them open. Take a few deep breaths… Now allow the music to join you.

Notice the sounds of the room around you. The music. The sound of my voice. Feel the chair beneath your body. Feel the support it has for you and know that it will continue to hold you up. Feel the floor beneath your feet. Feel the strong support it has for you, and know that it will continue to support you. Take a moment to notice your breathing.

Take a deep breath in. And out. In. And out. Make your right hand into a fist and squeeze. Hold it. And release. Feel the tension leave your right hand. Once again, make your right hand into a fist and squeeze. Hold it. And release. Feel the tension leave your right hand.

Take a deep breath in. And out. In. And out. Tense the muscles of your right arm. Hold it. And release. Feel the tension leave your right arm. Once again, tense the muscles of your right arm. Hold it. And release. Feel the tension leave your right arm.

Take a deep breath in. And out. In. And out. Make your left hand into a fist and squeeze. Hold it. And release. Feel the tension leave your right hand. Once again, make your left hand into a fist and squeeze. Hold it. And release. Feel the tension leave your left hand.

Take a deep breath in. And out. In. And out. Tense the muscles of your left arm. Hold it. And release. Feel the tension leave your left arm. Once again, tense the muscles of your left arm. Hold it. And release. Feel the tension leave your left arm.

Take a deep breath in. And out. In. And Out. Lift and tense the muscles of your shoulders. Hold it. And release. Feel the tension leave your shoulders. Once again, lift and tense the muscles of your shoulders. Hold it. And release. Feel the tension leave your shoulders.

Take a deep breath in. And out. In. And Out. Tense the muscles in your stomach. Hold it. And release. Feel the tension leave your stomach. Once again, tense the muscles of your stomach. Hold it. And release. Feel the tension leave your stomach.

Take a deep breath in. And out. In. And out. Tense the muscles of your right thigh. Hold it. And release. Feel the tension leave your right thigh. Once again, tense the muscles of your right thigh. Hold it. And release. Feel the tension leave your right thigh.

Take a deep breath in. And out. In. And out. Lift the toes of your right foot to the ceiling. Hold it. And release. Feel the tension leave your right shin. Once again, lift the toes of your right foot to the ceiling. Hold it. And release. Feel the tension leave your right shin.

Take a deep breath in. And out. In. And out. Lift your right heel to the ceiling. Hold it. And release. Feel the tension leave your right calf. Once again, lift your right heel to the ceiling. Hold it. And release. Feel the tension leave your right calf.

Take a deep breath in. And out. In. And out. Curl the toes of your right foot into a ball. Hold it. And release. Feel the tension leave your right foot. Once again, curl the toes of your right foot into a ball. Hold it. And release. Feel the tension leave your right foot.

Take a deep breath in. And out. In. And out. Tense the muscles of your left thigh. Hold it. And release. Feel the tension leave your left thigh. Once again, tense the muscles of your left thigh. Hold it. And release. Feel the tension leave your left thigh.

Take a deep breath in. And out. In. And out. In. And Out. Lift the toes of your left foot to the ceiling. Hold it. And release. Feel the tension leave your left shin. Once again, lift the toes of your left foot to the ceiling. Hold it. And release. Feel the tension leave your left shin.

Take a deep breath in. And out. In. And Out. Lift your left heel to the ceiling. Hold it. And release. Feel the tension leave your left calf. Once again, lift your left heel to the ceiling. Hold it. And release. Feel the tension leave your left calf.

Take a deep breath in. And out. In. And Out. Curl the toes of your left foot into a ball. Hold it. And release. Feel the tension leave your left foot. Once again, curl the toes of your left foot into a ball. Hold it. And release. Feel the tension leave your left foot.

Now take a moment to relax whatever muscles may still be tight, and listen to the music as it comes to an end.

The music has come to an end. Become aware of the floor beneath your feet and the chair beneath your body. Become aware of the sounds of the room around you, and the sound of my voice. Begin to wiggle your fingers and toes. And begin to stretch whatever may need to be stretched. And you may come back whenever you are ready.

APPENDIX E

Brief Agitation Measure

Brief Agitation Measure

Participant ID:_____

Instructions: Please read each item below an indicate to what extent you feel the statement describes you. Rate each statement on the scale below.

	Strongly Disagree (0)	Disagree (1)	Somewhat Disagree (2)	Neither Agree Nor Disagree (3)	Somewhat Agree (4)	Agree (5)
1. Recently, I want to crawl out of my skin.	0	1	2	3	4	5
2. Recently, I feel so stirred up inside I want to scream.	0	1	2	3	4	5
3. Recently, I feel a lot of emotional turmoil in my gut.	0	1	2	3	4	5

APPENDIX F

Hamilton Anxiety Rating Scale (Adapted)

Hamilton Anxiety Rating Scale (Adapted)

Participant ID:_____

Below is a list of phrases that describe certain feelings that people have. Rate yourself by finding the answer which best describes the extent to which you have these conditions. Select one of the five responses for each of the questions:

0= Not present 1= Mild 2= Moderate 3= Severe 4= Very severe

1. **Anxious mood** 0 1 2 3 4

Worries, anticipation of the worst, fearful anticipation, irritability.

2. Tension 0 1 2 3 4

Feelings of tension, startle response, trembling, feelings of restlessness, inability to relax.

3. **Intellectual** 0 1 2 3 4

Difficulty in concentration, poor memory.

4. **Depressed mood** 0 1 2 3 4

Loss of interest, lack of pleasure in hobbies, depression.

5. **Somatic (muscular)** 0 1 2 3 4

Pain and aches, twitching, stiffness, involuntary muscle spasms, grinding of teeth.

6. **Somatic (sensory)** 0 1 2 3 4

Ringing in ears, blurred vision, hot and cold flushes, feelings of weakness, pricking sensation.

7. **Cardiovascular symptoms** 0 1 2 3 4

Rapid heart rate, abnormally strong heartbeat, pain in chest, fainting feelings, missing beat.

8. **Respiratory symptoms** 0 1 2 3 4

Pressure or constriction in chest, choking feelings, shortness of breath.

9. **Autonomic symptoms** 0 1 2 3 4

Dry mouth, flushing, paleness, tendency to sweat, giddiness, tension headache, raised body hair.

APPENDIX G

IRB Approval Letter

Institutional Review Board
Office of Research and Sponsored Programs
P.O. Box 425619, Denton, TX 76204-5619
940-898-3378
email: IRB@twu.edu
https://www.twu.edu/institutional-review-board-irb/

DATE: March 11, 2019

TO: Ms. Lilah Gilmore
Music and Drama

FROM: Institutional Review Board (IRB) - Denton

Re: Approval for The Effect of Receptive Progressive Muscle Relaxation Techniques on Stress and Agitation in Military Veterans (Protocol #: 20383)

The above referenced study has been reviewed and approved by the Denton IRB (operating under FWA00000178) on 2/6/2019 using an expedited review procedure. This approval is valid for one year and expires on 2/6/2020. The IRB will send an email notification 45 days prior to the expiration date with instructions to extend or close the study. It is your responsibility to request an extension for the study if it is not yet complete, to close the protocol file when the study is complete, and to make certain that the study is not conducted beyond the expiration date.

If applicable, agency approval letters must be submitted to the IRB upon receipt prior to any data collection at that agency. A copy of the approved consent form with the IRB approval stamp is enclosed. Please use the consent form with the most recent approval date stamp when obtaining consent from your participants. A copy of the signed consent forms must be submitted with the request to close the study file at the completion of the study.

Any modifications to this study must be submitted for review to the IRB using the Modification Request Form. Additionally, the IRB must be notified immediately of any adverse events or unanticipated problems. All forms are located on the IRB website. If you have any questions, please contact the TWU IRB.

cc. Dr. Pamela Youngblood, Music and Drama
Dr. Michael Zanders, Music and Drama