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Use of Music to Reduce Anxiety in Short Wait Periods for Patients Receiving Care in an Urgent Care Clinic

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Abstract

The concept of waiting has received limited attention in the world of research. In modern society, waiting has become a commonplace event, especially in healthcare. Although the waiting experience can produce anxiety, healthcare environments can be easily manipulated in order to increase human comfort and reduce situational anxiety. One such way of accomplishing this is to introduce music to an environment. This paper will discuss the findings related to short wait periods, anxiety, and music within the literature, and the findings within this research study. This study found listener-selected music to be statistically effective in reducing anxiety for patients waiting in the exam room to be seen by a primary healthcare provider in an urgent care clinic.

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Background and Significance

In modern healthcare, waiting is very commonplace, and is essentially unavoidable. The concept of waiting has been described as an indeterminate period of time with a definite expectation of something occurring, which can produce sensations of unease and apprehension (Gupton et al., 1997). The very theme of waiting for healthcare could easily be condensed into one word—unknown. It is unknown how long one will wait to be seen, what diagnoses or treatments may take place, and the potential effect that this might have on one's life. Additionally, these experiences take place in an environment that is very likely unfamiliar. In light of this, it is not surprising that many studies have determined that a sense of uncertainty and lack of control are predominant emotions among patients waiting for healthcare (Bresser et al., 1993; Gupton et al., 1997; Porter et al., 1991; Stainton et al., 1992). However, the experience of waiting may be improved by the environment it occurs in. Environment is one of the four paradigms of nursing, and comprises of physical surroundings, everyday realities, and social constructs (Thorne et al., 1998). Florence Nightingale was one of the first nurses to recognize that environment significantly influences health and wellbeing, for better or worse (Zborowsky, 2014). Many aspects of a healthcare environment can be altered to better suit the needs of those within it, and one such example is the presence of music. The aim of the literature review that follows is to examine the current state of literature in this area and provide a backdrop for the findings of my research.

Review of the Literature

This literature review was compiled using peer-reviewed research articles from the

Cumulative Index of Nursing and Allied Health Literature (CINAHL). Variations of the keywords music, anxiety, and waiting were used to search for desired research articles. Articles were then selected based on content and relevance. The literature review search occurred over a total period of three months. The findings of the literature search are as follows. Music, is perhaps as old as time itself, and has been an important part of human cultures and civilizations through the ages. The Greeks and Romans were some of the first civilizations to use music as a means of influencing human behavior (Rooke, 1985). Clinicians in the United States began to realize the value of music in the world of medicine back in World War I, when musicians came to hospitals to play for wounded veterans (Cooper & Foster, 2008). Much later, in a 1998 study, it was found that music was the preferred activity for patients awaiting surgery (Hyde, Bryden & Asbury). This finding served as a platform for a large body of research on this subject. In more recent times, several studies have been conducted that have proved music as a means of reducing anxiety in patients waiting for healthcare in a variety of settings.

Much research has shown that music is a viable means of reducing anxiety in surgery patients waiting in the pre-operative phase (Haun et al., 2001; Labrague & McEnroe-Petitte, 2016; Lee et al., 2012; Mohammadi et al., 2014; Ni, 2012; Thompson et al., 2014). Music has been proven an effective and inexpensive nursing intervention that helps soothe and distract patients (Cooper & Foster, 2008; Lee et al., 2012; Fenko & Loock, 2014). Music is also thought to reduce anxiety by influencing autonomic responses by activating the limbic system of the brain (Thoma et al., 2015). Studies have also been conducted in radiotherapy waiting rooms (Cooper & Foster, 2008; Fenko & Loock, 2014), a university dental clinic (Thoma et al., 2015), the emergency department (Parlar Kilic, 2015) and the waiting room of a plastic surgeon's office (Fenko & Loock, 2014) have revealed music to be an effective means of reducing anxiety for

patients waiting to be seen and treated. Regardless of the setting, the aims and methods of these studies bare much similarity. The aim throughout every study has been to determine the effects of music on anxiety levels of patients waiting to be seen and treated (Chen et al., 2013; Cooper & Foster, 2008; Fenko & Loock, 2014; Haun et al., 2001; Labrague & McEnroe-Petitte, 2016; Lee et al., 2012; Mohammadi et al., 2014; Ni et al., 2012; Parlar Kilic et al, 2015; Thoma et al., 2015; Thompson et al., 2014)

Studies in this area vary between experimental design (Fenko & Loock, 2014; Labrague & McEnroe-Petitte, 2016; Parlar Kilic et al., 2015), quasi-experimental design (Chen et al., 2013; Haun et al., 2001; Thompson et al., 2014), randomized quasi-experimental design (Mohammadi et al., 2014), and randomized controlled trials (Lee et al., 2012; Ni et al., 2012; Thoma et al., 2015). Essentially, these studies each consist of a control group, and at least one experimental group. In addition, some studies utilized randomization (Fenko & Loock, 2014; Labrague & McEnroe-Petitte, 2016; Lee et al., 2012; Mohammadi et al., 2014; Ni et al., 2012; Parlar Kilic et al., 2015; Thoma et al., 2015), while others did not (Chen et al., 2013; Haun et al., 2001; Thorne et al., 1998). Sample populations within the literature varied anywhere from twenty (Haun et al., 2001) to two-hundred (Parlar Kilic et al., 2015) participants total. Participant groupings in the studies included cancer patients (Chen et al., 2013; Cooper & Foster 2008), surgical patients (Fenko & Loock, 2014; Haun et al., 2001; Labrague & McEnroe-Petitte, 2016; Lee et al., 2012; Mohammadi et al.,2014; Ni et al., 2012; Thompson et al., 2014), dental patients (Thoma et al., 2015) and patients waiting in the emergency department (Parlar Kilic et al., 2015).

Most researchers used Spielberger's State-Trait Anxiety Inventory (STAI), which has been well-established as a tool within the literature. Spielberger's STAI is a forty-item questionnaire that allows participants to respond to statements related to state and trait anxiety on a four-point

Likert type scale (Spielberger, 1983). This tool measures anxiety in two differentiated subtypes—state anxiety (transient) and trait anxiety (perpetual). Most researchers also measured physiological signs—blood pressure, heart rate and respiratory rate—along with Spielberger's STAI or the Visual Analogue Scale for Anxiety.

The second most predominant instrument was the Visual Analog Scale for Anxiety (VAS)—a simple tool that uses the participant's subjective report of anxiety (Thoma et al., 2015). Within the literature, the VAS was often used alone, or in conjunction with the physiological signs of blood pressure, heart rate and respiratory rate. Two studies within the literature mixed parts of multiple different instruments to measure anxiety (Fenko & Loock, 2014; Thoma et al., 2015), which is a limitation. Thoma et al. (2015) used Spielberger's State-Trait Anxiety Inventory, the Visual Analogue Scale for Anxiety (VAS), and the Multidimensional Mood State Questionnaire, and Fenko et al. (2014) used parts of Spielberger's State-Trait Anxiety Inventory, the Hospital Anxiety and Depression Scale, as well as the Physical Environment Quality Scale which examined the patient's perception of the environment. Thoma et al. (2015) used multiple tools because of the context of the study, which tested more factors beyond anxiety.

Music selection varied greatly in the literature. Many researchers allowed participants to choose amongst a variety of pre-selected genres of music (Chen et al., 2013; Haun et al., 2001; Labrague & McEnroe-Petitte, 2016; Lee et al., 2012; Ni et al., 2012), while other researchers selected a standard type of music (Mohammadi et al., 2014; Parlar Kilic et al., 2015; Thoma et al., 2015; Thompson et al., 2014). The researcher-selected music was either classical or relaxing in nature, and the pre-selected genres offered a variety of music which participants could choose from—country, easy listening, classical, etc. (Chen et al., 2013; Haun et al., 2001; Labrague & McEnroe-Petitte, 2016; Lee et al., 2012; Ni et al., 2012). In the majority of studies, the music

was delivered via headphones (Chen et al., 2013; Haun et al., 2001; Labrague & McEnroe-Petitte, 2016; Lee et al., 2012; Mohammadi et al., 2014; Ni et al., 2012; Thoma et al., 2015), whereas some researchers chose for the music to be delivered via speakers (Fenko & Loock, 2014; Parlar Kilic et al., 2015; Thompson et al., 2014). The two interventions have very different effects. Headphones block outside noise and allow the patient to be in their own world, while speakers do not.

In almost all the studies, anxiety was measured before and after the period of time where the experimental group received the intervention, and the control group received standard care. This detail is important to note, because if anxiety was only measured after the intervention and standard care, comparisons between the two groups could still be drawn. However, it would be impossible to tell how much anxiety levels changed on the individual level. Essentially, it would be difficult to determine if an individual had low anxiety levels due to the music, or simply due to their own nature of being.

The designated time for the intervention or standard care varied between studies, but averaged around thirty minutes, except for a few studies that allowed patients to listen to music until their healthcare provider came (Fenko & Loock, 2014; Labrague & McEnroe-Petitte, 2016; Parlar Kilic et al., Thompson et al., 2014). Administering a standard musical intervention time for all participants most likely adds consistency to a study, but could be difficult to regulate since every patient will wait for a unique amount of time.

The statistical findings of all the studies in the literature favored the hypothesis that patients who wait with music experience less anxiety than those who receive standard care. However, there are several limitations within the literature. Some of the studies contained small population samples and lacked standardization in interventions, randomization, and clarity in instruments

used to measure the dependent variable, anxiety. Further research is warranted to determine if the anxiety-reducing effects of music can be helpful in populations waiting for standard or routine care.

Purpose

The purpose of this study was to determine if patients who listen to music while waiting to be seen by a healthcare provider in a clinic setting experience less anxiety than those who receive standard care. It has already been established that music is a viable and inexpensive means of reducing anxiety for patients waiting for surgery and other invasive procedures. However, very little research has focused on reducing anxiety in a seemingly healthy population. In fact, no studies were found within the literature that would determine if music can reduce anxiety in patients waiting to be seen by a primary healthcare provider in a clinic setting. The overarching purpose of this study was to increase support for the validity of music interventions for anxiety reduction, promote autonomy and satisfaction in patients waiting to be seen by a healthcare provider, and provide more reason for music to be standard in clinics and other such places.

Research Question and Specific Aims

The research question was as follows: Will listener-selected music reduce anxiety in patients waiting in the exam room to be seen by a primary healthcare provider in a clinic setting? The specific aims of this study were to determine participant's desired music and the effect of that music on participant anxiety as related to pre- and post- six-item short-form STAI scores. This tool is derived from Spielberger's (1983) original STAI, and will be discussed further in the method section.

Definitions

In this study, the dependent variable is anxiety level in participants. Independent variables include music, environment, age, gender, reason for seeking care, first time vs. repeat visit. A dependent variable can be influenced by independent variables, but independent variables can never be influenced by a dependent variable.

Method

Study Design

The study was a quasi-experimental study with a control group and an experimental group. The first participant was assigned to the control group, the second to the experimental group, and the cycle continued. Upon check-in, the receptionist handed each patient an informational pamphlet about the study and introduced the patient to the PI gave a brief overview of the study. The patient was also informed that participation in the study would put them in a drawing to win a free iPod shuffle. After the patient had a moment to glance over the brochure, most patients were interested in participation. The PI then led the patient into a private room to go over the details of the study and obtain informed consent. After obtaining informed consent, the PI also obtained the anonymous demographic questionnaire, the pre-appointment short form of Spielberger's STAI and gave detailed instructions for participation. Spielberger's short form STAI is a six-item self-administered questionnaire that gages participants' current level of anxiety (Tluczek et al., 2009). At this time, participants in the experimental group were asked to choose from four genres of music—county, instrumental, 70's easy listening, and Christian praise and worship music. They were then given an iPod shuffle with earbuds, and instructed in how to operate it. Patients were given a choice of music to promote autonomy and familiarity. Many studies have found that feelings of uncertainty and lack of control are

predominant emotions among patients waiting for healthcare (Bresser et al., 1993; Gupton et al., 1997; Porter et al., 1991; Stainton et al., 1992). Participants were instructed to listen to music during all wait periods in the exam room during their visit. Participants in the control group were instructed to just attend their appointment normally, and participants in both groups were informed that they would fill out another six-item short-form STAI form upon checkout. The whole period of consent and instruction usually took five minutes or less. After participation instruction, participants were then led back into the lobby to wait to be called. When each patient was called, the nurse took their vital signs in a triage room before leading them back to an exam room to wait for the healthcare provider. In the exam room, patients in the control group waited in silence (standard care), while patients in the experimental group listened to their preferred music in earbuds until the next staff member or healthcare provider arrived. When participants finished their appointment, and checked out, the PI obtained their post-appointment six-item short-form STAI, the iPod shuffle, and the earbuds.

IRB Approval

Approval for this study was obtained through the IRB at East Tennessee State University prior to the start of data collection. This research study is qualified as human subject research. An official copy of IRB approval is listed in Appendix C.

Setting

The site of this study was a primary care/urgent care clinic in Greeneville, Tennessee. It is a private practice walk-in clinic where patients are seen for acute illness as well as primary care. Greeneville is a small town in northeast Tennessee with a population of about 15,000 residents.

Population and Sample

Participants were recruited for this study from a walk-in clinic in Greeneville, Tennessee. Participation was a one-time event, and participants participated the same day they were recruited. The total number of participants recruited was 27, with 14 participants in the control group, and 13 participants in the experimental group. Inclusion criteria was a minimum age of 18, and the ability to read, speak and write in English. Exclusion criteria excluded patients who had difficulty wearing earbuds, and minors under the age of 18. Data was collected on five days total.

Instrumentation

The chosen instrument to measure anxiety was the state scale of the six-item short-form of Spielberger's State-Trait Anxiety Inventory (Appendix B). Throughout this paper, this tool will sometimes simply be referred to as the STAI. The six-item form has been derived from Spielberger's original STAI (Spielberger, 1983) by Marteau & Bekker (1992), and has been established as a reliable instrument with high reliability and validity, despite being short and simple (Tluczek et al., 2009). The six items on this questionnaire relate directly to situational anxiety (state anxiety) but not chronic anxiety (trait anxiety). The six items included statements of "I am calm", "I am tense", "I feel upset", "I am relaxed", "I feel content", and "I am worried". The six items were recorded via pen and paper, and participants were asked to rate them on a 4-point Likert scale from "not at all", "somewhat", "moderately", and "very much". These six items are the identically the same on both the pre-STAI and post-STAI. Two different forms were used so that participants would not be influenced by their previous responses. The anonymous demographic questionnaire was created by the PI, and is listed under Appendix A. Other instruments used include four iPod shuffles, each downloaded with a designated genre of

music (country, instrumental, 70's easy listening, or Christian praise and worship). The PI selected current and popular country tracks that would appeal to a wide audience. The instrumental tracks were a relaxing mix of classical and Celtic music. The 70s easy listening tracks were popular songs from that decade, with an easy-going melody. Finally, the Christian praise and worship tracks were a mix of classic and contemporary songs with an uplifting message and melody. Each participant who listened to music was given a disposable pair of earbuds to listen through. Participants in the experimental group selected which genre of music they wanted to listen to. Fortunately, there was never a situation where two patients wanted to listen to the same iPod at the same time.

Data Collection

Data was collected on five total days at the clinic. Because finding a site was difficult, data collection time was limited to these five days. Data was collected via a short anonymous paper form that was completed by all the participants. Collected demographic data included age range, gender, first time or repeat visit, and type of visit such as annual physical, follow-up visit, new problem visit, or urgent care, etc. The purpose of using the demographic sheet was to eliminate the need to gain access into the patients' medical records. The PI also recorded the type of music that each participant selected. To measure anxiety, the six-item short-form of Spielberger's State-Trait Anxiety Inventory was used in paper form, and completed by all participants before and after their wait period of either musical intervention or standard care. No data was collected for experimental purposes on the informed consent form. Once each informed consent form was signed, it was placed in a large unmarked envelope, and kept totally separate from other data. The PI designated an individual envelope for each participant that contained a pre-STAI, post-STAI, and anonymous demographic questionnaire. These three documents were

labeled with the participant's designated participant enrollee number. The first participant's enrollee number was 1, the second was 2, and so forth.

Data Analysis

Within this study, the results of two groups of data were compared—data from the control group, and data from the experimental group. All data collected via Spielberger's six-item short-form STAI was compiled and scored per the instructions of Spielberger's official STAI Manual which was purchased from http://www.mindgarden.com/state-trait-anxiety-inventory-for-adults/29-staiad-manual.html. This data was then synthesized using the SPSS V22.0, a statistical software program by IBM. The data was statistically analyzed and interpreted using the Mann-Whitney U Test, a non-parametric test used to compare score difference (pre-post) between the control and intervention group. Parametric tests were not used in this study because they require that the data set meet certain specific parameters that the data from this study did not meet. Likewise, parametric T testing was not used due to the data not meeting test assumptions. Non-parametric tests do not require that the data set meet certain parameters, and that is why a non-parametric Mann-Whitney U Test was used instead of a parametric test. The results of the Mann-Whitney U Test helped the PI determine if the difference between the two groups truly statistically significant, or merely a product of chance. Essentially, the goal was to see if participants in the experimental group (who received the musical intervention) experienced less anxiety on average, then participants in the control group who received standard care. The data collected from the anonymous demographic questionnaire was also compiled and synthesized by the SPSS V22.0.

Results

Most the patients were very receptive to participation, and there were no issues with

recruitment. Many of the participants were middle-aged females who were locals to the area. The sample population was overwhelmingly female (63%), and middle-aged, 40.7% of the participants fell in between the ages of 55 and 64 and 33.3% fell between the ages of 40 and 54. Only 7.4% of the participants had never been to the clinic before, and most the participants were being seen for a follow-up visit (40.7%). The type of music that participants listened to was also recorded. 70's easy listening (30.8%) and Country (30.8%) both tied for the most popular music choice.

Age

Age range		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-24	2	7.4	7.4	7.4
	25-39	3	11.1	11.1	18.5
	40-54	9	33.3	33.3	51.9
	55-64	11	40.7	40.7	92.6
	65+	2	7.4	7.4	100.0
	Total	27	100.0	100.0	

Sex

Sex		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	10	37.0	37.0	37.0
	Female	17	63.0	63.0	100.0
	Total	27	100.0	100.0	

Is this your first time at the clinic?

First time?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	2	7.4	7.4	7.4
	No	25	92.6	92.6	100.0
	Total	27	100.0	100.0	

What is your reason for being seen today?

Reason for visit		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	New problem visit	7	25.9	25.9	25.9
	Follow-up visit	11	40.7	40.7	66.7
	Flu or acute infection/illness	4	14.8	14.8	81.5
	Management of chronic condition	3	11.1	11.1	92.6
	Other	2	7.4	7.4	100.0
	Total	27	100.0	100.0	

Music Selection

Music		Frequency	Percent
Valid	Country	4	30.8
	Instrumental	3	23.1
	Christian praise and worship	2	15.4
	70s easy listening	4	30.8
	Total	13	100.0

The results of the pre-post six-item short-form STAI are listed in detail in Appendix D. The synthesized analysis of these results is listed in the tables below.

Control & Intervention pre-score mean

Group Statistics

Scoring	Group	N	Mean	Std. Deviation	Std. Error Mean
Pre-Total Score	Control group	14	10.36	4.717	1.261
	Intervention group	13	12.54	5.868	1.628

Control & Intervention post-score mean

Group Statistics					
Scoring	Group	N	Mean	Std. Deviation	Std. Error Mean
Post-Total Score	Control group	14	10.14	4.769	1.275
	Intervention group	13	9.31	3.683	1.021

Control & Intervention difference (post-pre) mean

Group Statistics					
Scoring	Group	N	Mean	Std. Deviation	Std. Error Mean
Difference between pre-total score and post-total score	Control group	14	-.2143	2.25929	.60382
	Intervention group	13	-3.2308	3.39494	.94159

Non-Parametric Tests: Mann-Whitney Test - compare score difference (post-pre) between control and intervention group

Test Statistics[a]			
Test	Pre-Total Score	Post Total Score	Difference between pre-total score and post total score
Mann-Whitney U	71.500	81.000	38.500
Wilcoxon W	176.500	172.000	129.500
Z	-.952	-.493	-2.596
Asymptotic. Sig. (2-tailed)	.341	.622	.009
Exact Sig. [2*(1-tailed Sig.)]	.350[b]	.650[b]	.009[b]

P-value=0.009<0.05. score difference (post-pre) is significant different between Control and Intervention group

Summary of Findings

The results of the study proved in favor of the hypothesis that patients who listened to music would experience less anxiety than those who received standard care. This is congruent with much of the existing literature on this subject. The data from this study showed that on average, participants in the intervention group had lower post-STAI anxiety scores than control group. The statistical significance of this finding was defended by the Mann-Whitney Test, which gave a *p*-value of 0.009. Because 0.009 is less than 0.05, it is considered statistically significant. Basically, this value indicates that the results of this study were not likely achieved by random chance, but are accurate and significant. Essentially, there is less than 5% probability that these results were reached by error or chance.

Discussion

During the data collection period, the PI received a good deal of positive verbal feedback from the participants. Almost all the patients were willing to participate, which could indicate that small clinics may be an untapped data collection site for future research. This study was important to complete, because it has not been done in this specific context before. Similar studies have been done with patients waiting for critical or emergent care, but no research has been done with populations waiting in an exam room to be seen by a primary healthcare provider. The PI selected the exam as an appropriate location for the musical intervention for several reasons. The nature of most standard exam rooms is not very welcoming or appealing. Furthermore, the exam room isolates the patient to wait in solitude, with very little means of passing the unpredictable amount of time it could take to be seen. Many exam rooms are small and boring, with white walls, an exam table and equipment. Some exam rooms may have magazines, brochures or posters, but it is not standard practice to provide music for patients.

Limitations

Throughout this study, several limitations are present. Firstly, collecting data at only one clinic site limits the results it only reflects the results from a very specific single sample. In research, one can never assume complete generalization, because achieving favorable results within one sample does not mean it would happen in every sample. Sampling at multiple sites would strengthen the validity of the study. Also, only one healthcare provider works at the primary care/urgent care clinic in this study. This could be a limitation because the majority of the patients were regular patients and knew the provider they would be seeing—therefore they might be more relaxed to begin with. Another limitation in this study is the small number of participants. Because the IRB approval process was lengthy, and locating a site was difficult, the designated time for data collected had to be shortened to five days.

Another limitation lies within the method of measuring anxiety in this study. It is important to realize that anxiety can be caused or relieved by various factors. Essentially, the outcomes of participants' post-STAIs could have been negatively or positively influenced by events that occurred during their time with the healthcare provider. For example, they may have received good or bad news, had a painful procedure, etc., which could increase anxiety. On the other hand, they may have received good news, which could reduce anxiety. As shown in the methods section, the PI chose to collect participant's post-STAI scores at check-out. That means that after participants listened to music or waited in silence, they were seen by the healthcare provider, which could have changed their anxiety level. With that delay in collecting the post-STAI, other factors could have interfered to give the results we collected. Logistically, it worked best in this clinic to collect the data this way. It would have been a great challenge to collect the

post-STAI right after the participant listened to music. It would have interfered with the flow of the clinic.

Additionally, a few patients told the PI that they suffered from an anxiety disorder, which was not measured on the anonymous demographic questionnaire or the STAI. This study was only focused on measuring situational anxiety (state anxiety)—chronic anxiety (trait anxiety) was not taken into consideration. Various potential events could occur that would change the results.

Lastly, the length of time that that individuals listened to music was not collected. This is primarily related to the fact that there was no standard wait time for patients, no clocks present in the exam rooms, and no way for participants to measure time. This factor is a weakness because it does not allow the PI to determine ideal listening times for reaching the most favorable results. Measuring wait time as a factor could have potentially offered interesting and relevant insights. For example, it would help the PI determine if experimental group patients with longer wait times experience a greater reduction in anxiety than experimental group patients with shorter wait times.

Recommendations

For future recommendations, it is suggested to collect data at two or more clinic sites. This would give the PI a broader perspective on situational anxiety in clinic patients. We also suggest including an additional question on the anonymous demographic questionnaire that directly asks participants if they suffer from an anxiety disorder. This would help the PI better understand and interpret the results of the data. If possible, including vital signs such as blood pressure in the data collection may be of a benefit. Blood pressure can be an indicator of anxiety, and people who are relaxed usually have low blood pressure, while people experiencing anxiety

often have high blood pressure. Lastly, it could be suggested that the time of musical intervention be either measured, or standardized for all patients. This would allow further insight into the ideal amount of listening time needed to reduce anxiety.

Conclusion

Throughout this research study, and the literature, music has been identified as a means of reducing anxiety that is non-invasive, non-pharmacological, and relatively easy to implement. This study has proven music to be statistically beneficial in reducing anxiety in short wait periods for patients waiting to be seen by a primary healthcare provider in an urgent care clinic. This finding falls in line with the findings of previous studies that have examined music's effect on reducing anxiety in patients waiting for surgery, critical care, and other invasive treatments. Through this study, it can now be said that implementation of music could prove useful music in urgent care clinics, as well as other types of clinics or primary care settings.

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Appendices

Appendix A: Anonymous Demographic Questionnaire

Age:

1. 18-24
2. 25-39
3. 40-54
4. 55-64
5. 65+

Sex:

1. Male
2. Female

Is this your first visit to this clinic?

1. Yes
2. No

What is your reason for being seen today?

1. Annual physical
2. New problem visit
3. Follow-up visit
4. Flu or acute infection/illness
5. Management of chronic condition
6. Urgent Care
7. Other

Appendix B: Six-Item Short-Form STAI Self-Evaluation Questionnaire

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you feel right now, that is, at this moment. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best. You will take this questionnaire before your appointment (pre) and after (post)

	Not at all	Somewhat	Moderately	Very Much
1. I am calm	4	3	2	1
2. I am tense	1	2	3	4
3. I feel upset	1	2	3	4
4. I am relaxed	4	3	2	1
5. I feel content	4	3	2	1
6. I am worried	1	2	3	4

Ver. 01/26/17

Appendix C: IRB Approval

EAST TENNESSEE STATE UNIVERSITY
Office for the Protection of Human Research Subjects • Box 70565 • Johnson City, Tennessee 37614-1707
Phone: (423) 439-6053 Fax: (423) 439-6060

IRB APPROVAL – Initial Expedited Review

February 20, 2017

Rebecca Parker

Re: Use of music to reduce anxiety in short wait periods for patients receiving care in an urgent care clinic
IRB#:0117.18s
ORSPA #:

The following items were reviewed and approved by an expedited process:

- New protocol submission xform, CV of PI, ICD version 1/26/17, Informational Pamphlet for Recruitment.pptx, Recruitment Script for PI, Support for the Reliability and Validity of a Six-Item State Anxiety Scale Derived From the State-Trait Anxiety Inventory, IPod Shuffle Pricing and Info, Purchasing Info for STAI, Article on the development of the six-item STAI, Anonymous Demographic Questionnaire, Pre and Post STAI, grant proposal, site permission letter,

On **February 19, 2017**, a final approval was granted for a period not to exceed 12 months and will expire on **February 18, 2018**. The expedited approval of the study will be reported to the convened board on the next agenda.

The following **enclosed stamped, approved Informed Consent Documents** have been stamped with the approval and expiration date and these documents must be copied and provided to each participant prior to participant enrollment:

- ICD version 1.26.17 stamped approved 2.19.2017

Federal regulations require that the original copy of the participant's consent be maintained in the principal investigator's files and that a copy is given to the subject at the time of consent.

Projects involving Mountain States Health Alliance must also be approved by MSHA following IRB approval prior to initiating the study.

Unanticipated Problems Involving Risks to Subjects or Others must be reported to the IRB (and VA R&D if applicable) within 10 working days.

Full AAHRPP Accreditation

Accredited Since December 2005

Appendix D: Six-Item Short-Form STAI Results (pre-post)

Control Group: Pre-data frequency

Frequency Table

I am calm					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Much	9	64.3	64.3	64.3
	Moderately	2	14.3	14.3	78.6
	Somewhat	2	14.3	14.3	92.9
	Not at all	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

I am tense					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	8	57.1	57.1	57.1
	Somewhat	4	28.6	28.6	85.7
	Moderately	1	7.1	7.1	92.9
	Very Much	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

I feel upset					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	11	78.6	78.6	78.6
	Somewhat	2	14.3	14.3	92.9
	Very Much	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

I am relaxed					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Much	6	42.9	42.9	42.9
	Moderately	4	28.6	28.6	71.4
	Somewhat	3	21.4	21.4	92.9
	Not at all	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

I feel content					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Much	5	35.7	35.7	35.7
	Moderately	4	28.6	28.6	64.3
	Somewhat	5	35.7	35.7	100.0
	Total	14	100.0	100.0	

I am worried					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	8	57.1	57.1	57.1
	Somewhat	2	14.3	14.3	71.4
	Moderately	3	21.4	21.4	92.9
	Very Much	1	7.1	7.1	100.0
	Total	14	100.0	100.0	

Control Group: Post-data frequency
Frequency Table

I am calm					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Very Much**	**9**	**64.3**	**64.3**	**64.3**
	Moderately	**2**	**14.3**	**14.3**	**78.6**
	Somewhat	**2**	**14.3**	**14.3**	**92.9**
	Not at all	**1**	**7.1**	**7.1**	**100.0**
	Total	**14**	**100.0**	**100.0**	
I am tense					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Not at all**	**8**	**57.1**	**57.1**	**57.1**
	Somewhat	**2**	**14.3**	**14.3**	**71.4**
	Moderately	**4**	**28.6**	**28.6**	**100.0**
	Total	**14**	**100.0**	**100.0**	
I feel upset					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Not at all**	**11**	**78.6**	**78.6**	**78.6**
	Somewhat	**2**	**14.3**	**14.3**	**92.9**
	Very Much	**1**	**7.1**	**7.1**	**100.0**
	Total	**14**	**100.0**	**100.0**	
I am relaxed					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Very Much**	**7**	**50.0**	**50.0**	**50.0**
	Moderately	**2**	**14.3**	**14.3**	**64.3**
	Somewhat	**4**	**28.6**	**28.6**	**92.9**
	Not at all	**1**	**7.1**	**7.1**	**100.0**
	Total	**14**	**100.0**	**100.0**	
I feel content					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Very Much**	**5**	**35.7**	**35.7**	**35.7**
	Moderately	**7**	**50.0**	**50.0**	**85.7**
	Somewhat	**1**	**7.1**	**7.1**	**92.9**
	Not at all	**1**	**7.1**	**7.1**	**100.0**
	Total	**14**	**100.0**	**100.0**	
I am worried					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Not at all**	**8**	**57.1**	**57.1**	**57.1**
	Somewhat	**4**	**28.6**	**28.6**	**85.7**
	Moderately	**1**	**7.1**	**7.1**	**92.9**
	Very Much	**1**	**7.1**	**7.1**	**100.0**
	Total	**14**	**100.0**	**100.0**	

Intervention Group: Post Data
Frequency Table

I am calm					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Very Much**	**6**	**46.2**	**46.2**	**46.2**
	Moderately	**3**	**23.1**	**23.1**	**69.2**
	Somewhat	**2**	**15.4**	**15.4**	**84.6**
	Not at all	**2**	**15.4**	**15.4**	**100.0**
	Total	**13**	**100.0**	**100.0**	
I am tense					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Not at all**	**5**	**38.5**	**38.5**	**38.5**
	Somewhat	**3**	**23.1**	**23.1**	**61.5**
	Moderately	**2**	**15.4**	**15.4**	**76.9**
	Very Much	**3**	**23.1**	**23.1**	**100.0**
	Total	**13**	**100.0**	**100.0**	
I feel upset					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Not at all**	**8**	**61.5**	**61.5**	**61.5**
	Somewhat	**2**	**15.4**	**15.4**	**76.9**
	Moderately	**1**	**7.7**	**7.7**	**84.6**
	Very Much	**2**	**15.4**	**15.4**	**100.0**
	Total	**13**	**100.0**	**100.0**	
I am relaxed					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Very Much**	**5**	**38.5**	**38.5**	**38.5**
	Moderately	**3**	**23.1**	**23.1**	**61.5**
	Somewhat	**3**	**23.1**	**23.1**	**84.6**
	Not at all	**2**	**15.4**	**15.4**	**100.0**
	Total	**13**	**100.0**	**100.0**	
I feel content					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Very Much**	**4**	**30.8**	**30.8**	**30.8**
	Moderately	**5**	**38.5**	**38.5**	**69.2**
	Somewhat	**3**	**23.1**	**23.1**	**92.3**
	Not at all	**1**	**7.7**	**7.7**	**100.0**
	Total	**13**	**100.0**	**100.0**	
I am worried					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	**Not at all**	**6**	**46.2**	**46.2**	**46.2**
	Somewhat	**1**	**7.7**	**7.7**	**53.8**
	Moderately	**2**	**15.4**	**15.4**	**69.2**
	Very Much	**4**	**30.8**	**30.8**	**100.0**
	Total	**13**	**100.0**	**100.0**	

Intervention Group: Post-Data

Frequency Table

I am calm					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Much	7	53.8	53.8	53.8
	Moderately	3	23.1	23.1	76.9
	Somewhat	3	23.1	23.1	100.0
	Total	13	100.0	100.0	
I am tense					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	9	69.2	69.2	69.2
	Somewhat	2	15.4	15.4	84.6
	Moderately	2	15.4	15.4	100.0
	Total	13	100.0	100.0	
I feel upset					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	10	76.9	76.9	76.9
	Somewhat	2	15.4	15.4	92.3
	Moderately	1	7.7	7.7	100.0
	Total	13	100.0	100.0	
I am relaxed					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Much	7	53.8	53.8	53.8
	Moderately	3	23.1	23.1	76.9
	Somewhat	3	23.1	23.1	100.0
	Total	13	100.0	100.0	
I feel content					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Much	6	46.2	46.2	46.2
	Moderately	5	38.5	38.5	84.6
	Somewhat	2	15.4	15.4	100.0
	Total	13	100.0	100.0	
I am worried					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	8	61.5	61.5	61.5
	Somewhat	4	30.8	30.8	92.3
	Moderately	1	7.7	7.7	100.0
	Total	13	100.0	100.0	