Research article

Group music therapy impacts mood states of adolescents in a psychiatric hospital setting

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A B S T R A C T

Although Music Therapy, an allied health discipline, is often included in standard care for the treatment of children with mental health disorders, there is a lack of empirical evidence to support its contribution for the care of children and adolescents in mental health services. The goal of this retrospective research is to examine whether group music therapy affects mood states of adolescent inpatients in a psychiatric hospital service based within a large children’s hospital. A secondary aim was to understand if specific patient demographic predictors influenced the mood outcome. Participants included 352 predominately white, non-Hispanic patients (12–21 years old, with a mean age of 15.13 ± 1.88 years) who completed 596 mood measures between August 2010 and March 2013. Participants completed the Fast Assessment of Children’s Emotions (FACE) before and after a group music therapy session. Based on a binary outcome model of change or no change, the probability of a change in total mood score was high (probability of change 0.82 [95% CI 0.79, 0.85]). There were no significant associations between age, gender, or other specific demographics that were tested, nor changes in individual or total mood scores within this sample. This preliminary research documents the immediate impact of group music therapy sessions on mood of adolescent patients in this setting diagnosed with a range of psychiatric disorders.

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1. Introduction

Music therapy is defined as “the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional” (AMTA, 2015). Music therapy interventions include offering group sessions of listening to or creating music with other clients or one-on-one interactive sessions between a trained music therapist and a client. Music therapy has been shown to be helpful in the medical and rehabilitation fields, especially for pain and anxiety reduction (Evans, 2002).

In a review of music therapy for surgical patients (Nilsson, 2008), 42 randomized controlled trials that examined use of music therapy preoperatively (n = 10), intra-operatively (n = 9), postoperatively (n = 15) or at several times throughout surgical care (n = 8).

Anxiety was shown to be reduced in 50% of the studies; pain in 57%; and analgesic use in 47%. The majority of these studies utilized recorded music through headphones as the intervention, with a variety of control interventions. For example, Sendelbach, Halm, Doran, Miller, and Gaillard (2006) randomized 86 patients undergoing cardiac surgery to either resting or music therapy twice daily, for twenty minutes. Two days after surgery, patients in the music therapy group reported statistically significant declines in anxiety and opioid use for pain than those in the control group. While the quality of studies varies, music therapy appears to reduce pain and anxiety in the hospital setting, whether the patients undergo normal care or more intense situations, such as surgery. Evans (2002) reviewed 19 studies on music therapy in hospital settings and suggested that, because of the low cost of music therapy interventions, music therapy could easily be implemented in more treatment scenarios as an adjunct intervention.

Additionally, music therapy has been examined as a tool for physical rehabilitation. Two separate reviews of the effects of music therapy on rehabilitation (Paul & Ramsey, 2000; Weller & Baker, 2011) concluded that it increased the improvements that came
with regular and consistent physical therapy. In physical rehabilitation, music is used as a motivator to improve range of motion, gross motor skills, and fine motor coordination. For cardiac rehabilitation, music is used as a distracting and calming tool for patients dealing with high amounts of pain and discomfort. For patients with brain injuries, music can help with speech therapy, physical and occupational therapies; assisting with normalization of muscle tone, development of movement patterns, and socialization. Thus current research supports the adjunctive use of music and music therapy in medical and rehabilitation units.

Some of the benefits of music therapy may also be useful for patients with psychiatric disorders. Improved motivation, socialization, and ability to calm may all be useful in the treatment of patients in psychiatric care (McCaffrey, Edwards, & Fannon, 2011). A Cochrane review identified that four out of five randomized trials of music therapy for adults with depression significantly reduced depressive symptoms more than control groups (Maratos, Gold, Wang, & Crawford, 2008). For symptoms of anxiety, group music therapy may be an effective intervention when paired with other types of psychotherapy (Choi, Lee, & Lim, 2008; Alborno, 2011). In a quasi-randomized study examining individual music therapy’s effect on psychotic episodes in adults, participants completed the Brief Psychiatric Rating Scale before and after individual music therapy sessions. Ratings on all subscales were statistically different for pre to post treatment for the treatment group, supporting the use of music therapy as adjunctive to pharmacotherapy with this population (Morgan, Bartrop, Telfer, & Tennant, 2011).

There is a paucity of literature to support music therapy with youth. However, the first meta-analysis on music therapy, which included eleven studies examining music therapy’s impact on children with varied psychopathology (developmental and behavioral problems), found that music therapy had a medium effect size ($d = 0.61$) on reducing behavioral problems and improving general development. These authors recommended that several music therapy approaches be combined to maximize outcomes (Gold, Voracek, & Wigam, 2004). One naturalistic research study of 75 children (ages 3.5–19 years of age) with a variety of psychiatric conditions (29% emotional disorders; 21% behavioral disorders and 50% developmental disorders) treated by 15 master’s-level music therapists used standardized parent and therapist assessments at the beginning and after the last music therapy or the 25th session (whichever came first). This study found that discipline specific techniques were more effective over non-specific techniques regardless of age or gender, and yielded a medium effect size in change in symptoms and improvement in adaptation (Gold, Wigam, & Voracek, 2007). Music therapy has also shown promise for symptoms of depression and autism. In a randomized controlled study of 19 adolescents receiving individual psychotherapy or group music therapy for 10 weeks in a school setting, depression scores, measured by the Beck Depression Inventory, were significantly lower for the music therapy group (Hendricks, Robinson, Bradley, & Davis, 1999). In a crossover comparison study of ten boys (mean age 51 months, SD = 12) diagnosed with autism spectrum disorders, music therapy and play therapy were both found to significantly improve joint attention after 12 weekly sessions on both the Early Social Communication Scales and observational session analysis. However, music therapy improved joint attention significantly more ($p = 0.001$) than the play therapy condition and eye contact was present more, yet did not reach significance, within the music condition (Kim, Wigram, & Gold, 2008).

In addition to music therapy’s effectiveness for general or specific clinical profiles, it is likely to improve communication for children and adolescents. The American Music Therapy Association (2015) asserts that music therapy can be a powerful tool for communication. A qualitative study of 16 non-hospitalized bereaving adolescents who participated in group music therapy found that the groups helped with resilience, identity formation, competence and connectedness, and also concluded that music therapy may be a powerful tool for communication (McFerran, Roberts, & O’Grady, 2010).

Like the use of music therapy in medical and rehabilitation settings, music therapy in psychiatric treatment settings is often an adjunct therapy embedded within a therapeutic milieu in which patients may also receive traditional psychotherapies and psychopharmacologic interventions. When used as such, it is difficult to assess the additive benefit of music therapy on such constructs as communication, emotion regulation, socialization, behavioral control and insight, as these outcomes are targeted by all of the therapies. Nonetheless, given the additive benefits for including music therapy in other health care settings, in 2005 the Department of Psychiatry within a large children’s hospital decided to add music therapy, as well as other Complementary and Alternative Medicine (CAM) modalities of art, dance, and yoga therapy, to the multi-disciplinary treatment of children and adolescents with acute psychiatric symptoms. Several of the immediate goals were to assist with acute behavioral control, to serve as a creative outlet for expressing authentic emotions, and to improve morale of milieu staff. Physicians, nurses, therapists and milieu staff on the unit perceived that integrating CAM into the treatment program positively impacted patient outcomes, especially in providing positive coping skills and relaxation. Clinicians reported that seclusions decreased after integrating CAM interventions. Additionally, milieu staff reported positive personal and professional benefits from participating in CAM therapy sessions alongside patients, providing evidence for improvement in morale (Kennedy, Reed, & Wamboldt, 2013).

We wished to further assess the impact of each CAM modality, as well as assess whether one modality, e.g., music therapy, would be better suited for certain types of patients than others. Given that this was a clinical setting, randomization was not possible, and documenting the impact of any one intervention within a fast-paced, multi-interventional, therapeutic milieu was difficult. We hypothesized that one of the ways in which music therapy may mediate improvement in psychiatric symptoms would be to have an impact on the acute mood states of the child. While many youth requiring psychiatric hospitalization have high levels of anger, sadness or anxiety, some also suffer from being cut off from their emotions. These youth often have psychosomatic disorders such as anorexia nervosa, but may also suffer from psychosis or dissociative disorders. Inducing an acute change in a mood state may be helpful in both teaching teens that music therapy could help them modulate a mood state, e.g., anger, as well as help them get in touch with underlying emotions and start to process them. Beginning in 2010, adolescent mood states were assessed in a standardized manner before and after each of these sessions as part of program evaluation.

In psychiatry and psychology, significant work has concentrated on emotion and mood in childhood and adolescence. Regulating emotions is a critical skill for successful child development (Eisenberg et al., 1996) and a primary goal for music therapy (Moore, 2013). Understanding mood and its effects on learning and quality of life is becoming increasingly important; current literature suggests that mood impacts people differently than overall affect, as mood is shorter and more subjectively experienced (Schwarz, 1987). Between both learning disabled and non-learning disabled middle school students (N = 66), positive moods were shown to improve learning ability and retention (Bryan, Mathur, & Sullivan, 1996). Students completed a standardized learning task involving nouns, verbs, and sentence construction in a novel foreign language. The experimental group experienced self-induced positive moods by thinking of happy things for 45 s while the control group was asked to count as high as they could in 45 s; students
were scored on how well they completed the language tasks and were re-tested two weeks later to evaluate retention. The learning disabled students showed the most striking results, with the experimental group scoring significantly higher on both initial and delayed testing; the non learning disabled group showed improved test scores with self-induced positive moods on the initial test only, with no significant difference in delayed test scores. In an article examining the effects of negative mood on transfer and learning, two experiments (first experiment N = 54 male students; second experiment N = 84 students, 45 females and 39 males) were performed to investigate how an induced negative mood might affect learning ability (Brand, Reimer, & Opwis, 2007). In both experiments, inducing a negative mood was only partially successful, as this process was affected by the participant’s initial mood; if the participant reported a positive mood initially, they were less likely to successfully induce a negative mood state as opposed to a participant with an initially negative mood. Regardless, the results of both experiments showed a significant decrease in the transfer learning abilities of participants with successfully induced negative moods (p < 0.05). Conversely, in an experiment with undergraduates (N = 109) examining the effect of mood, cognitive style, and cognitive ability on implicit learning, negative mood significantly facilitated learning on Artificial Grammar tasks (p = 0.004) (Pretz, Totz, & Kaufman, 2010). These findings both support and contradict other research in that negative mood did improve learning, but only on specific tasks that are easier with bottom-up processing. Mood also affects perception of stimuli and subsequent retention of related materials; in an experiment with college students (N = 105), mood changed how students perceived various stimuli, which affected what students retained at a later time (Hettena & Ballif, 1981). Students with positive moods tended to rate all of the sentences higher than students with depressed moods, and students with positive moods liked the positive sentences more than the negative sentences; this second trend was not seen in the students with depressed moods. Students then studied the sentences and were asked to recall them at a later time; those who had reported positive moods learned significantly more material than those with depressed moods (p < 0.05), suggesting that positive mood states help with retention. These studies highlight the importance of mood in learning and perception – two important aspects of treatment goals for psychiatric patients. Therefore, mood could be an indicator of effectiveness when assessing various forms of treatment.

Despite the importance of music therapy as a treatment for illnesses, much of the research on music therapy with adolescents does not evaluate mood change; this illustrates the need for both qualitative and quantitative research on mood changes of adolescent patients who participate in music therapy.

2. Aims

The primary aim of this research was to examine changes in mood states of adolescents who participated in music therapy groups as a brief therapeutic intervention during a psychiatric hospitalization. The secondary aim was to examine whether particular patients described more mood changes from the group music therapy intervention than others.

3. Methods

This study consisted of retrospective analysis of data collected for program evaluation, and received approval from the appropriate Institutional Review Board.

3.1. Participants

Patients consist of children and adolescents, ages 12–21 years, from three psychiatric units in a large children’s hospital who participated in at least one group music therapy session between August 2010 and March 2013, and completed a standardized mood assessment before and after the group. The dataset consists of 596 records from 352 patients.

3.2. Music therapy intervention

As part of standard psychiatric care in a large children’s hospital, group music therapy (60–90 min in duration) was provided to patients on each of three units: Psychiatric Day Treatment (PDT), Adolescent Psychiatric Inpatient Unit (APU) and Eating Disorders Unit (EDU). As part of ongoing clinical care, patients completed the FACE measure before and after each music therapy group, responding to the prompts: “How do you feel right now?” and “How did you feel during group?” In a group setting, music therapy interventions are tailored to suit the broad diagnostic categories of each unit, as well as the day-to-day variance in cohorts within a single unit. Adolescent Psychiatry Inpatient Unit (APU): Adolescents on the inpatient unit have been assessed to be a risk to themselves, a risk to others, or gravely disabled. Common presentations in this group include, but are not limited to, recent suicide attempts and/or self-harm, acute anxiety symptoms, active psychotic processes, personality disorders, and social-adaptation issues that have serious psychosocial effects. This unit has an average length of stay of about seven days, and all patients are in acute psychological distress. Teens within this program typically present with high levels of anger, aggression, inability to connect with others, and social withdrawal. Within this variety of presentations, and the short-term contact with patients, music therapy directives tend to be general in their applicability. A common intervention is simply letting patients choose a song that they’d like to listen to, and using internet-based applications to play any song requested. This open-ended directive can be adapted in a number of ways. Music listening can be developed as a coping skill, shared themes among group members might be explored, or patients might practice making validating statements about each other’s references.

Psychiatric Day Treatment (PDT): This unit serves a similar population to the inpatient unit, but these patients tend to be less acute in their presentation. In this phase of treatment, a teen patient is working to gain perspective on their life, illness, and other challenges. The lower acuity of patients allows for more uniform programming. A drum circle, for example, is a common intervention. In general, a drum group encourages the participation of every individual, while compelling them to attend to others as well. The purposeful activity involved builds social cohesion and encourages self-expression, while rhythmic entrainment with a beat tends to induce a state of calm attention.

Eating Disorders Unit (EDU): A patient on the eating disorder unit might be working on a number of goals: re-feeding, increasing parental control over meals, and patients’ intra-psyche process of dis-identifying from their eating-disordered “voice.” Because this population tends to display a unique combination of high intelligence with low expressivity, the music therapist’s challenge is to create a safe space for self-expression, while also providing a structured means for patients to articulate their perspectives. An intervention typical to this unit is structured music improvisation. To explore relational dynamics, the music therapist might structure patients to play together in a number of impromptu ways to practice identifying habits of communication, nonverbal aspects of communication, and/or new ways of interacting. The nonverbal qualities of these interventions often allow group members to
Table 1
Participant demographics by unit.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall</th>
<th>APU</th>
<th>PDT</th>
<th>EDU</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Age (M ± SD)</td>
<td>596</td>
<td>100%</td>
<td>164</td>
<td>27.50%</td>
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<tr>
<td>Male</td>
<td>175</td>
<td>29.4%</td>
<td>47</td>
<td>40.9%</td>
</tr>
<tr>
<td>Female</td>
<td>421</td>
<td>70.6%</td>
<td>117</td>
<td>59.1%</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>70</td>
<td>11.7%</td>
<td>23</td>
<td>14%</td>
</tr>
<tr>
<td>Non-Hispanic/Latino</td>
<td>526</td>
<td>88.3%</td>
<td>141</td>
<td>86%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>482</td>
<td>80.9%</td>
<td>117</td>
<td>71.3%</td>
</tr>
<tr>
<td>Asian</td>
<td>22</td>
<td>3.7%</td>
<td>10</td>
<td>6.1%</td>
</tr>
<tr>
<td>Black/African American</td>
<td>27</td>
<td>4.5%</td>
<td>22</td>
<td>13.4%</td>
</tr>
<tr>
<td>More Than One</td>
<td>27</td>
<td>4.5%</td>
<td>3</td>
<td>1.8%</td>
</tr>
<tr>
<td>Other</td>
<td>38</td>
<td>6.4%</td>
<td>12</td>
<td>7.3%</td>
</tr>
<tr>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>322</td>
<td>54.0%</td>
<td>84</td>
<td>51.2%</td>
</tr>
<tr>
<td>Medicaid</td>
<td>17</td>
<td>2.9%</td>
<td>12</td>
<td>7.3%</td>
</tr>
<tr>
<td>State/Federal</td>
<td>243</td>
<td>40.8%</td>
<td>61</td>
<td>37.2%</td>
</tr>
<tr>
<td>Charity</td>
<td>14</td>
<td>2.3%</td>
<td>7</td>
<td>4.3%</td>
</tr>
<tr>
<td>Primary Diagnosis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety Disorders</td>
<td>23</td>
<td>3.9%</td>
<td>3</td>
<td>1.8%</td>
</tr>
<tr>
<td>Attention and Behavior Disorders</td>
<td>6</td>
<td>1.0%</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td>Eating Disorder</td>
<td>237</td>
<td>39.8%</td>
<td>3</td>
<td>1.8%</td>
</tr>
<tr>
<td>Mood Disorder</td>
<td>289</td>
<td>48.5%</td>
<td>138</td>
<td>84.1%</td>
</tr>
<tr>
<td>Psychotic Disorder</td>
<td>31</td>
<td>5.2%</td>
<td>18</td>
<td>11.0%</td>
</tr>
<tr>
<td>Self-harm</td>
<td>1</td>
<td>0.2%</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td>Non-Psychological</td>
<td>3</td>
<td>0.5%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Other Psychological</td>
<td>6</td>
<td>1.0%</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

reflect on their own and others’ behavior in ways that are non-threatening to this often self-conscious population.

3.3. Measures

The Fast Assessment of Child Emotions (FACE) is a pictorial measure that assesses 6 distinct mood states: angry, confused, sad, energetic, anxious and tired. Each mood item is represented by both words associated with that mood and a recognizable emotion. (Kennedy, Umnithan, & Wamboldt, 2015). The FACE measure was developed based off of the Profile of Mood States (POMS), which has been shown to be a valid and reliable measure of fluctuations in mood of psychiatric and normal adults (McNair, Lorr, & Droppleman, 1971). Patients are asked to record their mood state at the beginning and end of each music therapy session. All moods are rated on a three-point scale: ("not at all"=0, "a little"=1 or "a lot"=2); the activity item is reverse scored. The Total Mood Score (TMS) is calculated by adding all of the six mood states. The measure has shown good validity and reliability (Kennedy et al., 2015).

3.4. Data collection

All completed FACE surveys from the participants of group music therapy between August 2010 and March 2013 were cleaned and moved to a Research Electronic Data Capture (REDCap), an electronic data capture tool hosted at the University of Colorado Denver. REDCap is a secure, web-based application designed to support data capture for research studies, providing: (1) an intuitive interface for validated data entry; (2) audit trails for tracking data manipulation and export procedures; (3) automated export procedures for seamless data downloads to common statistical packages; and (4) procedures for importing data from external sources (Harris et al., 2009).

From this dataset, Medical Record Numbers (MRNs) were sent to a Clinical Information Resource Specialist who obtained information from the Electronic Medical Record for patient characteristics of each MRN. Patient characteristics included: age, gender, race, ethnicity, length of psychiatric hospitalization, psychiatric diagnosis (up to three), psychiatric medications (up to three), insurance payer type, and treatment unit (APU, ADT, or EDU). In REDCap, FACE data was linked to the compiled patient characteristic information by MRN. Once demographic information for a patient was linked to the appropriate FACE survey(s), the data was de-identified for analysis.

3.5. Data analyses

Observed data was summarized via summary statistics at both the patient level and the session level. The primary research goal, estimation of the probability of change in a mood scale, was answered using the Generalized Estimating Equations (GEEs) to fit logistic regression models. Analysis was performed on the log odds scale and transformed to the probability scale to provide interpretable results in this manuscript. GEEs account for the multiple FACE sheets from one patient and provided marginal inference, i.e., population level inference. Statistical analysis was done using R version 3.0.2 (2013-09-25) (Halekoh, Hojsgaard, & Yan, 2006). Statistical significance was set at the 0.05 level.

4. Results

The participants were primarily White, female, and non-Hispanic, consistent with the demographics of the patient population in the clinic. There were more females in the EDU program than the other programs, consistent with the fact that eating disorders are more prevalent in females than males. Most common diagnoses were mood disorders and eating disorders. Table 1 contains a summary of the participants, broken up by unit and patient demographics.
One of the primary aims of the study was to see if adolescents report a change in their mood states following a group music therapy intervention. Table 2 illustrates the percentages of change or no change for each mood state, broken up by pre scores.

As can be seen in Table 2, the majority of youth who reported that they were “not at all” angry, confused, sad or anxious at the start of music therapy did not change their ratings after the session. However, almost half of the youth who reported that they had no energy at the start of the session changed to having “a little” or “a lot” of energy after the session. Interestingly, of those who reported they were “not at all” tired at the beginning of the session, 30% rated themselves as more tired after the session. Conversely, of those who reported “a lot” of anger, confusion, sadness, and anxiety, between one third and one half of those reported less of those mood states after the music therapy intervention.

To test whether specific mood states changed over a music therapy session for the group as a whole, probability of change were calculated for each mood state, as well as for the Total Mood Score (TMS). Table 3 reports the estimated probability of a change in mood score along with 95% confidence intervals for the estimates. Each of the six individual mood scales have a low probability of a change, but the probability of a change in total mood score is estimated to be 0.82. The seemingly contradictory results reflect the nature of the mood measure; any change in any mood state contributes to a change in total mood score. These results suggest that group music therapy cannot predictably change in a specific mood for all the participants, but there is a very high chance that some mood state will change for most participants. Further, participant characteristics such as age, gender, length of stay, insurance status, and psychiatric unit did not significantly predict change, based on pre-session scores.

5. Discussion

The primary aim of this research was to assess whether group music therapy sessions had an impact on adolescent mood states. The 352 adolescents in this study were patients in inpatient or partial hospitalization settings for acute psychiatric conditions, and so were receiving multiple therapeutic interventions concurrently. It is difficult to evaluate the effectiveness of one therapy in the midst of many therapeutic interventions. Thus, this preliminary study could examine immediate changes in mood states as one measure of the impact of music therapy.

Since music therapy may be effective in either decreasing perceived negative mood states, or increasing awareness of these underlying emotional states, the investigators did not place a value judgment that mood states should change from a negative to a more positive direction. Understanding the direction of the change in mood was not the intended outcome of this research. The goal of music therapy is not simply symptom eradication but emotional state recognition, expression, and self-exploration (Baker, Gledhill, & Dingle, 2007; McCaffrey et al., 2011). Thus, the focus of this research was to investigate overall change in mood as a result of music therapy to assess one of the above goals.

With this population of highly acute adolescents with severe psychopathology, most of whom had a negative mood state at time of admission, the significant probability of a change of any mood is to be seen as clinically meaningful. Our previous research has already shown that CAM interventions are able to change mood significantly more than a neutral intervention (Kennedy et al., 2015). As an intervention within a therapeutic milieu, the ability to effect change in emotional states within a short span of time seems a benefit in terms of helping patients identify underlying emotions, as well as helping patients move out of, or through, problematic mood states. The generality of the FACE measure does not indicate which moods are reliably affected, but in diverse milieu groups, individual patient goals can be very divergent. Group goals tend to be more general, and the simple finding that mood tends to be affected suggests a baseline credibility to music therapy interventions, a credibility that, in terms of this measure, may now be further investigated.

Interestingly, of the individual mood items, fatigue and energy changed the most. The available research on music as therapeutic is supportive to the notion that listening to music can significantly impact both fatigue and anxiety (McCrate, Barrios-Choplin, Atkinson, & Tomasoni, 1998). Research with older adults supports music therapy decreasing fatigue (Ferrer, 2007; Burns, Hurbuz, Hucklebridge, & Bunt, 2001; Horne-Thompson & Grocke, 2008) and that music therapy can serve as an output for negative energy for children and adolescents (Jackson, 2003; Montello & Coons 1998).

The secondary aim of this study was to identify any patient demographics that were influenced more or less by music therapy, and to assess whether or not it affects any specific mood state more than others. Patient demographic variables of age, gender, diagnosis, length of hospital stay, psychiatric medication, insurance type, race, ethnicity, or treatment unit did not have a statistically significant effect on the odds of change in mood state. In this large sample of adolescents, evidence suggests that music therapy elicits changes in mood states for a diverse range of adolescents with acute psychiatric conditions.

5.1. Limitations

This was an open observational study, without a control group. Another consideration was that the surveys were self-report, which means the data was limited by the self-awareness and cooperation of the subjects. Using multi-method and multiple sources for data
References


