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The psychological impact of Ney music

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ABSTRACT

The current study investigated whether music therapy carried with the Ney (a wind instrument used in classical Turkish music) has a positive effect on decreasing people's anger and psychological symptoms. The Ney is a Turkish folk instrument and known as a great symbol of Sufi music. In Mevlana philosophy, the Ney makes people feel at ease, and make them feel closer to God. The participants were 14 university students, who were randomly assigned to two groups. This experimental group received music therapy sessions twice a week during 7 weeks, resulting in a total of 14 sessions. The control group did not receive any therapy. The research instruments were administered as a pre-test, a post-test, and a follow-up test. The findings revealed that music therapy carried with Ney music has a considerable long term effect on reducing the participants' anger and psychological symptoms.

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Introduction

Music therapy has been used frequently as a therapeutic tool to improve psychological problems (Ferguson & Voll, 2004; Groen, 2007; Juslin & Laukka, 2004; Knight & Rickard, 2001; Kreutz, Ott, Teichmann, Osawa, & Vaitl, 2008; McCaffrey, 2004; Nicol, 2010; Robarts, 2006; Svonsdottir & Snaedal, 2006; Thaut & Davis, 1993; Toolan & Coleman, 1995; Wigram & Lawrence, 2005). Research studies revealed that music therapy has an effect on increasing cognitive performance (Ziv, Chaim, & Itamar, 2011), communication skills (Moreau, Goth, & Aldridge, 2010), socialization and decreasing anxiety (Hernandez, 2005; Knight & Rickard, 2001; Koga, 2005; On Kei, Chung, Chan, & Chan, 2005), and depression (Davies, 1995; Lai, 1999). For example, some research studies revealed the beneficial effects of musical exposure on cognitive performance (Aoun, Jones, Shaw, & Bodner, 2005; Ho, Mason, & Spence, 2007; Rauscher, Robinson, & Jens, 1998).

Music therapy also had a positive effect on communication skills and socialization (Christian, 2006; Hargreaves & North, 1997; Rickson & Watkins, 2003; Savarimuthu & Bunnell, 2002). A study conducted with young people who had aggressive attitudes revealed that they significantly improved their communication skills and became more sociable with the help of music therapy (Packer & Ballantyne, 2010; Rickson & Watkins, 2003). Similar results were found in studies involving people with learning disorders. For example, Savarimuthu and Bunnell (2002) found that music therapy increased communication abilities and had a positive effect on mental states. Christian (2006) reviewed studies on music's positive effects on people and stated that music enables one to relax, has an impact on making peace with oneself and positively affects one's communication with his/her environment. Hargreaves and North (1997) found that music therapy contributes to the development of social identity.

In addition to its positive influence on cognitive performance and communication skills, music therapy was found to be useful in decreasing stress (Field, 1998; Szmedra & Bacharach, 1998; Wu, 2002), anxiety (Hernandez, 2005; Knight & Rickard, 2001; On Kei et al., 2005), and depression (Davies, 1995; Lai, 1999). Scheufele (2000) found that classical music had a positive influence on reducing stress and improving relaxation and the level of concentration. Lai (1999) found that music therapy significantly decreases women's depression. Hsu and Lai (2004) found the positive influences of music therapy on both men's and women's depression.

Besides other countries, music and music therapy has been used to solve people's psychological problems in Turkish history. For example, influential Turkish scholars and doctors like Zekeriya ErRazi, Farabi, and İbni Sina made significant contributions to the benefits of Turkish music on psychological problems (Çoban, 2005). In addition, music has been used for the treatment of mental disorders in some hospitals in the time of Ottoman Empire (Bayraktar, 1998). According to Farabi, Turkish folk music gives a feeling of pleasure, serenity, sense of confidence, calmness, courage and modesty (Ak, 1997). Moreover, İbni Sina stated that sounds can make very deep impressions on human spirit (Somakcı, 2003).

An instrument called "Ney" was one of the musical instruments used to treat psychiatric patients (Arıkan et al., 1999) in Turkish history. The Ney is a reed flute played especially in Mevlevi (Sufi) music (Gölpınarlı, 2009). According to the philosophy of Mevlana, the Ney music makes people feel at ease and feel closer to God (Yöndemli,

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1997). Studies revealed that Sufi music had a positive influence on decreasing anxiety (Güvenç, 1985) and cognitive process (Arıkan et al., 1999).

The researcher of the current study failed to identify any study which examined the influence of Ney music on reducing anger. Anger, by definition, refers to an emotional state that involves displeasure and consists of subjective feelings that vary in intensity, from mild irritation or annoyance to intense fury and rage (Spielberger, Jacobs, Rusell, & Crane, 1983; Goozen, Fridja, Kindt, & Van de Poll, 1994). To reduce anger, researchers and psychologists put forth some counseling techniques such as relaxation and breathing exercise (Beck & Fernandez, 1998; Charlesworth, 2008). Although music therapy has been extensively used to reduce stress, depression, anxiety and other types of psychological symptoms (Davies, 1995; Field, 1998; Hernandez, 2005; Knight & Rickard, 2001; Lai, 1999; On Kei et al., 2005; Szmedra & Bacharach, 1998; Wu, 2002), it seems to have received no attention in the treatment of anger. To fill these gaps, the current study was conducted. If results support the positive influence of Ney music on reducing anger, this study will bring a different perspective to that clinical application of music therapy and will have practical value as it presents an application out of a non-western culture with implications for music therapy.

Methods

Participants

The participants included 14 undergraduate students (6 Male, 8 Female) representing five departments. Two instruments entitled "Brief Symptom Inventory" (Dragotis, 1992) and "State Trait Anger Scale" (Spielberger et al., 1983) were initially administered to 196 undergraduate students in Turkey to recruit participants for the current study. The researcher identified 14 students who received high scores in these research instruments and invited them to participate in this study. The participants' age ranged from 18 to 23 with the mean of 20.7 (SD = 1.48). All of the invited students agreed to be a participant in the current study.

Instruments

Two research instruments were used to collect data from the participants. The first instrument entitled "Brief Symptom Inventory" (Dragotis, 1992) consists of 9 sections and 53 items. The participants indicated their response on a five-point likert type scale ranging from 0 (never) to 4 (very often). Some of the scale items were: "feeling alone", "becoming angry very easily", "feeling guilty", "having pessimistic views about the future", "having difficulty when making a decision". Higher scores indicated higher level of psychological symptoms. Şahin and Durak (1994) translated this inventory to Turkish language and reported high level of internal consistency of each section in a study conducted with 719 patients.

The second research instrument entitled "State Trait Anger Scale" (Spielberger et al., 1983) is made up of 4 sections (Trait Anger, Anger-in, Anger-out, Anger control) with 44 items. The participants were asked to indicate the extent to which these items describe them on a four-point frequency scale ranging from 1 (almost never) to 4 (almost always). Some of the scale items were "I get angry easily", "When I get angry, I can't control my temper", "When I get angry, I discuss with other people". Higher scores in trait anger, anger-in, anger-out indicated higher levels of anger while higher scores in anger control indicated lower levels of anger and people's ability to control their anger. Özer (1994) translated this scale to Turkish language and reported high level of internal consistency of each section in a study conducted with 270 soldiers and 146 university students (Savaşır & Şahin, 1997).

Procedure

The researcher explained the importance of this study to the participants and asked them to read a consent form and to fill out the research instruments. All of the 14 participants signed the consent form and filled out the research instruments. Then, they were randomly assigned to two groups with 7 participants in each group. The control group did not receive any therapy during the study. The participants in the experimental group received music therapy with Ney for 7 weeks in 14 sessions. The experiment took place in a room which was furnished with cushions and pillows on which students could lie down. The room had a sound system and was dim. In all 14 sessions, students in this group listened to Ney music (sufi ney) for 40–45 min. After completing the sessions, all of the participants filled out the research instruments as a post-test. In order to understand if the Ney music reduces anger and psychological symptoms for a relatively long time, the research instruments were administered to the participants again one month after the Ney sessions.

Data analysis

Due to the small size of the current study, non-parametric tests were used for data analysis. Mann Whitney *U*-test was conducted to compare the participants' anger and psychological symptom scores in experimental and control groups at the beginning of the study. Wilcoxon signed-rank test was used to compare the participants' scores in pre-test, post-test and follow-up test.

Results

Results of Mann Whitney *U*-test presented in Table 1 revealed a significant difference between control and experimental groups in trait anger and anger-in at the beginning of the study. The experimental group participants' trait anger ($M = 10.21$) and anger-in scores ($M = 10.07$) were found to be higher than the control group participants' trait anger ($M = 4.79$) and anger-in ($M = 4.93$) scores. No significant difference between two groups existed in anger-out ($U = 11.5$, $p < 0.05$) and anger control ($U = 18$, $p < 0.05$).

Results of Wilcoxon test presented in Table 2 revealed no significant difference between pre-test and post-test scores of participants in the control group. In other words, the participants' anger scores in the control group did not significantly change during the study; however, there was a significant difference between pre-test and post-test scores of participants in the experiment group except for anger out. The experimental group participants' anger scores significantly reduced from 27.28 to 19.28 in trait anger ($z = -2.37$, $p < 0.05$), 23.85 to 14.85 in anger-in ($z = -2.20$, $p < 0.05$) and increased from 17.42 to 21.42 in anger control ($z = -2.12$, $p < 0.05$). This result suggests that the participants' anger significantly reduced after the Ney sessions. It is important to note that there was no significant change in the experiment group participants' anger scores one month after the Ney sessions, which suggests that the Ney sessions had a relatively long term effect on reducing anger.

In terms of psychological symptoms, results of Mann Whitney *U*-test presented in Table 3 revealed no significant difference between control group ($M = 6.93$) and experimental group ($M = 8.07$) at the beginning of the study ($U = 20.5$, $p > 0.05$).

A close examination of Table 4 revealed that there was no statistically difference among the control group participants' pre-test, post-test and follow-up test. This result indicated that the control group participants' psychological symptom scores did

Table 1
The participants' anger scores in the pre-test.

Sub-scale	Groups	Mean rank	Sum of ranks	*U*	*p*
Trait anger	Experiment	10.21	71.50	5.5	0.01*
	Control	4.79	33.50		
Anger-in	Experiment	10.07	70.50	6.5	0.02*
	Control	4.93	34.50		
Anger-out	Experiment	9.36	65.50	11.5	0.09
	Control	5.64	39.50		
Anger control	Experiment	6.57	46	18	0.40
	Control	8.43	59		

* $p < 0.05$.

Table 2
Changes in participants' anger scores throughout the study.

Sub-scale	Groups	Test type	*M*	SD	*z*	*p*
Trait anger	Experiment	Pre-test	27.28	2.81	−2.37	0.01*
		Post-test	19.28	4.34		
	Control	Pre-test	22	3.26	−0.137	0.89
		Post-test	21.14	4.48		
	Experiment	Post-test	19.28	4.34	−0.768	0.44
		Follow-up test	18.14	4.48		
	Control	Post-test	21.14	4.48	−0.877	0.38
		Follow-up test	21.71	4.19		
Anger-in	Experiment	Pre-test	23.85	4.59	−2.20	0.02*
		Post-test	14.85	3.93		
	Control	Pre-test	17.71	3.63	0.000	1
		Post-test	17.71	1.97		
	Experiment	Post-test	14.85	3.93	−0.862	0.38
		Follow-up test	14.14	3.53		
	Control	Post-test	17.71	1.97	−1.22	0.22
		Follow-up test	18.42	1.98		
Anger-out	Experiment	Pre-test	17.42	3.95	−1.36	0.17
		Post-test	14.14	3.67		
	Control	Pre-test	13.85	3.23	−1.85	0.06
		Post-test	15	2.88		
	Experiment	Post-test	14.14	3.67	−1.78	0.07
		Follow-up test	11.85	2.73		
	Control	Post-test	15	2.88	−1.99	0.40
		Follow-up test	16.14	2.91		
Anger control	Experiment	Pre-test	17.42	2.63	−2.12	0.03*
		Post-test	21.42	4.92		
	Control	Pre-test	19.14	4.22	−0.272	0.78
		Post-test	20.57	3.55		
	Experiment	Post-test	21.42	4.92	−0.512	0.60
		Follow-up test	22	7.18		
	Control	Post-test	20.57	3.55	−0.647	0.51
		Follow-up test	21.14	3.59		

* $p < 0.05$.

not change significantly throughout the study. On the other hand, the experimental group participants' psychological symptom scores significantly decreased from pre-test ($M = 1.67$, SD = 0.84) to post-test ($M = 0.80$, SD = 0.51) ($z = -2.19$, $p < 0.05$), which showed the positive influence of Ney music on alleviating psychological symptoms. It is important to note that the experimental group participants' psychological symptoms remained statistically the same ($z = -0.33$, $p > 0.05$) in the follow-up test ($M = 0.93$ SD = 1.15) taken one month after the post-test ($M = 0.80$, SD = 0.51), which suggested that the Ney sessions had a relatively long term effect on alleviating psychological symptoms as well as reducing anger.

Table 3
The participants' psychological symptom scores in the pre-test.

Groups	Mean rank	Sum of ranks	*U*	*p*
Experiment	8.07	56.50	20.5	0.60
Control	6.93	48.50		

Discussion

The main purpose of the current study was to examine the influence of Ney music on reducing anger and psychological symptoms. The results revealed that Ney music had a considerably positive influence on reducing people's anger and psychological symptoms. It should be noted that the sample size of the current study was

Table 4
Changes in participants' psychological symptoms scores throughout the study.

Groups	Test type	*M*	SD	*z*	*p*
Experiment	Pre-test	1.67	0.84	−2.19	0.02*
	Post-test	0.80	0.51		
Control	Pre-test	1.48	0.55	−0.507	0.61
	Post-test	1.44	0.42		
Experiment	Post-test	0.80	0.51	−0.339	0.73
	Follow-up test	0.93	1.15		
Control	Post-test	1.44	0.42	−1.95	0.51
	Follow-up test	1.49	0.39		

* $p < 0.05$.

small. Thus, it is not easy to draw strong conclusions regarding the extent to which Ney music alleviates anger and psychological symptoms and to generalize the findings of the current study to other populations. Future researchers may use more groups to examine the influence of Ney music on reducing anger and psychological symptoms. Despite this limitation, the researcher believes that current study opened new doors and proposed a different and helpful perspective for the treatment of anger and psychological symptoms.

To begin with, Ney music was commonly used to solve people's psychological problems in Turkish history. However, there was a lack of scientific evidence regarding its influence on healing people's psychological problems. Some researchers in Turkey made some efforts to examine the positive influence of Ney music on anxiety (Güvenç, 1985) and cognitive process (Arıkan et al., 1999). Arıkan et al. (1999) claimed that Ney music has electromagnetic effects on the human brain. Güvenç (1985) demonstrated the positive influence of reducing anxiety. The current study extends this line of research by showing the benefits of Ney on reducing anger and psychological symptoms.

It is important to note that music therapy is not a new idea to solve people's psychological problems. Many researchers demonstrated the positive influence of music therapy on reducing anxiety, depression, stress, aggression, emotional and behavioral disorders, communication abilities, mental states and some psychological problems (Aldridge, Schmid, Kaeder, Schmidt, & Ostermann, 2005; Ashida, 2000; Barber & Barber, 2005; Cevasco, Kennedy, & Generally, 2005; Davies, 1995; Grene, 2006; Güner, 1995; Hammer, 1996; Hsu & Lai, 2004; Koga, 2005; Lai, 1999; Kinney, Antoni, Kumar, Tims, & McCabe, 1997; Muller-Busch & Hoffmann, 1997; Ovayolu et al., 2006; Raloff, 2006; Rickson & Watkins, 2003; Sausser & Waller, 2006; Savarimuthu & Bunnell, 2002; Wu, 2002). It seems that music therapy has not been used to reduce anger. Thus, the current study has value since it filled this gap in the literature. In addition, through introducing a new application of Ney music from non-western culture, the current study proposes a different method for the treatment of anger in the field of music therapy. It is hoped that through future studies, the benefits of Ney music on solving people's psychological problems will be realized better and more clearly.

References

Ak, A. Ş. (1997). *Europe and the Turkish-Islamic civilization music therapy, history, development and application*. İstanbul: Öz Eğitim Basın Yayın Dağıtım.

Aldridge, D., Schmid, W., Kaeder, M., Schmidt, C., & Ostermann, T. (2005). Functionality or aesthetics? A pilot study of music therapy in the treatment of multiple sclerosis patients. *Complementary Therapies in Medicine*, *13*(1), 25–33.

Aoun, P., Jones, T., Shaw, G. L., & Bodner, M. (2005). Long-term enhancement of maze learning in mice via a generalized Mozart effect. *Neurological Research*, *27*(8), 791–796.

Arıkan, M. K., Devrim, M., Oran, Ö., İnan, S., Elhih, M., & Demiralp, T. (1999). Music effects on event-related potentials of humans on the basis of cultural environment. *Neuroscience Letters*, *268*, 21–24.

Ashida, S. (2000). The effect of reminiscence music therapy sessions on changes in depressive symptoms in elderly persons with dementia. *Journal of Music Therapy*, *37*(3), 170–182.

Barber, N. L., & Barber, J. L. (2005). Jazz for success: Alternative music therapy to enhance student development in college. *Journal of College and University Student Housing*, *33*(2).

Bayraktar, H. (1998, May). World's first medical school Gevher Nesibe. *Yeni Dünya Dergisi*.

Beck, R., & Fernandez, E. (1998). Cognitive-behavioral therapy in the treatment of anger: A meta-analysis. *Cognitive Therapy and Research*, *22*(1), 63–74.

Cevasco, A. M., Kennedy, R., & Generally, N. R. (2005). Comparison of movement-to-music, rhythm activities, and competitive games on depression, stress, anxiety, and anger of females in substance abuse rehabilitation. *Journal of Music Therapy*, *42*(1), 64–80.

Charlesworth, J. R. (2008). *Helping adolescents manage anger (ACAPCD-22)*. Alexandria, VA: American Counseling Association.

Christian, M. A. (2006). The positive power of music. *Jet (Magazine/Journal)*, *109*(14), 32–44.

Çoban, A. (2005). *Music therapy music therapy for mental health*. İstanbul: Timaş Yayınları.

Davies, A. (1995). The acknowledgement of loss working through depression. *British Journal of Music Therapy*, *9*(1), 11–16.

Dragotis, L. R. (1992). *The brief symptom inventory (BSI) administration scoring and procedures manual, II*. New York: Clinical Psychometric Research Inc.

Ferguson, S. L., & Voll, K. V. (2004). Burn pain and anxiety: The use of music relaxation during rehabilitation. *Journal of Burn Care & Rehabilitation*, *25*(1), 8–14.

Field, T. (1998). Maternal depression effects on infants and early interventions. *Preventive Medicine*, *27*, 200–203.

Gölpınarlı, A. (2009). *After Mevlana Mevlevism*. İstanbul: İnkılap Kitabevi.

Grene, J. (2006). Sounds good: Hospital uses music to calm nervous patients, health facilities management. *Health & Medical Complete*, *19*(1), 3.

Groen, K. M. (2007). Pain assessment and management in end of life care: A survey of assessment and treatment practices of hospice music therapy and nursing professionals. *Journal of Music Therapy*, *44*(2), 90–112.

Güner, N. (1995). The effects of music to depression and aggression level of adolescents (Unpublished master's dissertation). Hacettepe Üniversitesi, Ankara.

Güvenç, O. R. (1985). History and current status of the Turks and the world with music therapy (Unpublished doctoral dissertation). İstanbul Üniversitesi, İstanbul.

Hammer, S. E. (1996). The effects of guided imagery through music on state and trait anxiety. *Journal of Music Therapy*, *33*(1), 47–70.

Hargreaves, D. J., & North, A. C. (Eds.). (1997). *The social psychology of music*. Oxford: Oxford University Press.

Hernandez, R. E. (2005). Effect of music therapy on the anxiety levels and sleep patterns of abused women in shelters. *Journal of Music Therapy*, *42*(2), 140–158.

Ho, C., Mason, O., & Spence, C. (2007). An investigation into the temporal dimension of the Mozart effect: Evidence from the intentional blink task. *Acta Psychologica*, *125*, 117–128.

Hsu, W. C., & Lai, H. L. (2004). Effects of music on major depression in psychiatric inpatients. *Archives of Psychiatric Nursing*, *18*(5), 193–199.

Juslin, P. N., & Laukka, P. (2004). Expression, perception, and induction of musical emotions: A review and a questionnaire study of everyday listening. *Journal of New Music Research*, *33*(3), 217–223.

Knight, W. E. J., & Rickard, N. S. (2001). Relaxing music prevents stress-induced increases in subjective anxiety, systolic blood pressure, and heart rate in healthy males and females. *Journal of Music Therapy*, *38*(4), 254–272.

Koga, M. (2005, October). *The music making and wellness project*. American Music Teacher.

Kreutz, G., Ott, U., Teichmann, D., Osawa, P., & Vaitl, D. (2008). Using music to induce emotions: Influences of musical preference and absorption. *Psychology of Music*, *36*(1), 101–126.

Lai, Y. M. (1999). Effects of music listening on depressed women in Taiwan. *Issues in Mental Health Nursing*, *20*, 229–246.

McCaffrey, R. (2004). Music therapy reduces pain. *Australian Nursing Journal*, *11*(7), 37.

McKinney, C. H., Antoni, M. H., Kumar, M., Tims, F. C., & McCabe, P. M. (1997). Effects of guided imagery and music (GIM) therapy on mood and cortisol in healthy adults. *Health Psychology*, *16*(4), 390–400.

Moreau, D., Goth, K., & Aldridge, D. (2010). Psychometric results of the music therapy scale (MAKS) for measuring expression and communication. *Music and Medicine*, *2*(1), 41–47.

Muller-Busch, H. C., & Hoffmann, P. (1997). Active music therapy for chronic pain: A prospective study. *Schmerz*, *11*(2), 91–100.

Nicol, J. J. (2010). Body, time, space and relationship in the music listening experiences of women with chronic illness. *Psychology of Music*, *38*(3), 351–367.

On Kei, A. L., Chung, Y. F. L., Chan, M. F., & Chan, W. M. (2005). Music and its effect on the physiological responses and anxiety levels of patients receiving mechanical ventilation: A pilot study. *Journal of Clinical Nursing*, *14*, 609.

Ovayolu, N., Uçan, Ö., Pehlivan, S., Pehlivan, Y., Büyükhatipoglu, H., Savaş, M. C., & Gülsen, M. T. (2006). Listening to Turkish classical music decreases patients' anxiety, pain, dissatisfaction and the dose of sedative and analgesic drugs during colonoscopy: A prospective randomized controlled trial. *World Journal of Gastroenterol*, *12*(46), 7532–7536.

Özer, A. K. (1994). Öfke, kaygı ve depresyon eğilimlerinin bilişsel alt yapısı ile ilgili bir çalışma. *Türk psikoloji Dergisi*, *9*(31), 12–25.

Packer, J., & Ballantyne, J. (2010). The impact of music festival attendance on young people's psychological and social well-being. *Psychology of Music*, *39*(2), 164–181.

Raloff, J. (2006). Musical therapy for sounder sleeping, science news. *Academic Research Library*, *169*(2), 30.

Rauscher, F. H., Robinson, K. D., & Jens, J. J. (1998). Improved maze learning through early music exposure in rats. *Neurological Research*, *20*(5), 427–432.

Rickson, D. J., & Watkins, W. G. (2003). Music therapy to promote prosocial behaviors in aggressive adolescent boys-a pilot study. *Journal of Music Therapy*, *40*(4), 283–301.

Robarts, J. (2006). Music therapy with sexually abused children. *Clinical Child Psychology and Psychiatry Copyright Publications*, *11*(2), 249–269.

Şahin, N. H., & Durak, A. (1994). Brief symptom inventory: Adapted to Turkish youth. *Türk Psikoloji Dergisi*, *9*(31), 44–56.

Sausser, S., & Waller, R. J. (2006). A model for music therapy with students with emotional and behavioral disorders. *The Arts in Psychotherapy*, *33*, 1–10.

Savarimuthu, D., & Bunnell, T. (2002). The effects of music on clients with learning disabilities: A literature review. *Complement Therapy Nursing & Midwifery*, *8*(3), 160–165.

Savaşır, I., & Şahin, N. H. (1997). *Cognitive-behavioral therapy evaluation; favorite scales*. Ankara: Türk Psikologlar Derneği Yayınları.

Scheufele, P. M. (2000). Effects of progressive relaxation and classical music on measurements of attention, relaxation, and stress responses. *Journal of Behavioral Medicine*, *23*(2), 207–228.

Somakcı, P. (2003). Music therapy in Turks. *Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, *15*(2), 131–140.

Spielberger, C. D., Jacobs, G., Rusell, S. F., & Crane, R. S. (1983). Assessment of anger: The state-trait anger scale. In J. N. Butcher, & C. D. Spielberger (Eds.), *Advances in personality assessment* (pp. 112–134).

Svonsdottir, H. B., & Snaedal, J. (2006). Music therapy in moderate and severe dementia of Alzheimer's type: A case–control study. *International Psychogeriatrics*, *18*(4), 613–621.

Szmedra, L., & Bacharach, D. W. (1998). Effect of music on perceived exertion, plasma lactate, norepinephrine and cardiovascular hemodynamics during treadmill running. *International Journal of Sports Medicine*, *19*(1), 32–37.

Thaut, M. H., & Davis, W. B. (1993). The influence of subject-selected versus experimenter-chosen music on affect, anxiety, and relaxation. *Journal of Music Therapy*, *30*(4), 210–223.

Toolan, P., & Coleman, S. (1995). Music therapy, a description of process: Engagement and avoidance in five people with learning disabilities. *British Journal of Music Therapy*, *9*(1), 17–24.

Van Goozen, S. H., Fridja, N. C., Kindt, M., & Van de Poll, N. E. (1994). Anger proneness in women: Development and validation of the anger situation questionnaire. *Aggressive Behavior*, *20*(2), 79–100.

Wigram, T., & Lawrence, M. (2005). Music therapy as a tool for assessing hand use and communicativeness in children with RETT syndrome. *Brain and Development*, *27*(1), 95–96.

Wu, S. M. (2002). Effects of music therapy on anxiety, depression and self-esteem of undergraduates. *Psychologia*, *45*(2), 104–114.

Yöndemli, F. (1997). *Sema education at the Mevlevi*. Ankara: Gün Ofset, Atatürk Kültür Dil ve Tarih Yüksek Kurumu.

Ziv, N., Chaim, A. B., & Itamar, O. (2011). The effect of positive music and dispositional hope on state hope and affect. *Psychology of Music*, *39*(1), 3–17.