

Effects of Coloring Mandalas on Test Anxiety

¹ **Başaran GENÇDOĞAN**

Prof. Dr, Atatürk University

² **Semanur KODAN ÇETİNKAYA**

Doctoral Student, Ataturk University

³ **Esra GÜMÜŞ**

Teacher, Yıldızkent İMKB İlköğretim Okulu

Abstract

The aim of this study is to examine the effect of the coloring mandalas on reducing test anxiety of university students. To determine participants among university student, the Spielberger test anxiety inventory was applied. According to the results of the inventory, the participants were randomly assigned to the test group and the control group. While control group listened to calming music, the test group colored different types of pre-shaped mandalas. To determine the effect of coloring mandalas on reducing anxiety, the Spielberger test anxiety inventory (TAI) was reapplied at the end of the 5th week. The mean score of the TAI significantly decreased between the pre-test and the pro-test in the both groups (the test group and the control group). Surprisingly the mean score of the TAI of the control group was significantly lower than the test group. The findings show that coloring mandalas can significantly reduce the level of anxiety, however it is less effective than listening music.

Keywords: Test Anxiety, coloring mandalas, university students



Inönü University
Journal of the Faculty of Education
Vol 19, No 1, 2018
pp. 221-229
DOI: 10.17679/inuefd.415982

Received : 07.12.2016
Accepted : 17.12.2017

Suggested Citation

Gençdoğan, B., Çetinkaya, S. K., Gümüş, E. (2018). Effects of Coloring Mandalas on Test Anxiety, *Inonu University Journal of the Faculty of Education*, 19(1), 221-229. DOI: 10.17679/inuefd.415982

Mandala'nın Sınav Kaygısı Üzerindeki Etkisi

¹ **Başaran GENÇDOĞAN**

Prof. Dr, Atatürk Üniversitesi

² **Semanur KODAN ÇETİNKAYA**

Doktora öğrencisi, Atatürk Üniversitesi

³ **Esra GÜMÜŞ**

Öğretmen, Yıldızkent İMKB İlköğretim Okulu

Öz

Bu araştırmada üniversite öğrencilerinin sınav kaygısını azaltmada mandala boyamanın etkisi araştırılmak istenmiştir. Kaygı düzeyi yüksek öğrencileri belirlemek amacıyla Spielberger Sınav Kaygısı Envanteri kullanılmıştır. Spielberger Sınav Kaygısı Envanteri sonuçları dikkate alınarak kaygı düzeyi en yüksek 20 öğrenci deney ve kontrol grubuna seçilmişlerdir. Beş hafta boyunca, haftada bir saat deney grubu mandala boyarken kontrol grubu sadece rahatlatıcı müzik dinlemiştir. Beş haftanın sonunda kaygı düzeyilerindeki değişimi ölçmek için Spielberger Sınav Kaygısı Envanteri tekrar uygulanmıştır. Araştırmanın sonunda hem müzik dinlemenin hem de mandala boyamanın kaygı düzeyini azaltmada etkili olduğu bulunmuştur. Ancak beklenilenin aksine kaygıyı azaltmada müzik dinlemenin mandala boyamaya göre etkisinin daha fazla olduğu bulunmuştur.

Anahtar Kelimeler:Sınav kaygısı, mandala boyama, üniversite öğrencileri.



İnönü Üniversitesi
Eğitim Fakültesi Dergisi
Cilt 19, Sayı 1, 2018
ss. 221-229
DOI: 10.17679/inuefd.415982

Gönderim Tarihi : 07.12.2016
Kabul Tarihi : 17.12.2017

Önerilen Atıf

Gençdoğan, B., Çetinkaya, S. K., Gümüő, E. (2018). Mandala'nın Sınav Kaygısı Üzerindeki Etkisi. *İnönü Üniversitesi Eğitim Fakültesi Dergisi*, 19(1), 221-229. DOI: 10.17679/inuefd.415982

INTRODUCTION

Art therapy, as a useful instrument for self-expression, healing and well-being, has been used in the field of clinics and rehabilitations (Alyami, 2015). The close relationship between the art, healing and well-being and the therapeutic power of the arts has been recognized around the world for a long time. In line of developments in the mental health since mid-twentieth century, art has been much appreciated as an important tool both for diagnosis and therapy (Kuban, 2015).

Art therapy offers individuals a safe harbor in order to stay away from past experiences and hardships, which are not harmful anymore (Alyami, 2015). In this context, it is possible to refer numerous studies which underscored effect of art therapy on psychological disorders such as healing trauma (Kuban, 2015; Westrhenen & Fritz, 2014), death anxiety and burnout (Potash, Hy-Ho, Chan, Lu Wang & Cheng, 2014), substance abuse (Aletraris, Edmond & Roman, 2014) and anxiety (Ali, Gammidge & Waller, 2014). Aforementioned studies indicate that art therapy can be used as an alternative therapy for emotional regulations and treatment of psychological disorders.

In the views of art psychotherapists coloring mandalas is among the basic means of the other art psychotherapeutic techniques that focus on healing (Slegelis, 1987). Effect of coloring mandalas on calming and healing is evident in Jung's personal experiences and observations (Henderson, Rosen & Mascaro, 2007). In other words, Jung developed coloring mandalas as a tool for psychological support (Mulcahy, 2013) and a source of healing (Goodwin, 1993). By making connection between consciousness, unconsciousness and reality, Jung assumed that mandala, as a universal archetype, can be used as an effective method for treatment of some diseases (Huh, 2010). In order to deepen his observations Jung, traveled all around the world and examined the meaning of mandala in many cultures (Slegelis, 1987). In this respect, religious background of mandala is remarkable. In Buddhism it is a circle which denotes infinity, and both in Hinduism and Buddhism it has a concise form which is called "sacred space" for the gods (Çakmakçı, 2010). Mandala is a product of creative imagination of a Buddhist and so has profound religious, philosophical, psychological and aesthetical meanings. Jung articulated this intense meaning of mandala and its importance in terms of the psychological integrity. He moreover proposed that mandala is an archetype of psychological integrity (Liang, 2012).

Mandala, as a universal archetype, helps spontaneous expression of the unconscious and becomes a source for healing, meditation and relaxation (Goodwin, 1993). According to Fincher (2009), the symbolic images of coloring mandalas can help a person to express his/her sensitivity. The studies conducted by Sandmire, Gorham, Rankin & Grimm (2012) should be given a significant place terms of reconsidering the importance of mandala art therapy. They found that art production activities such as painting, coloring pre-designed mandala, free painting, collage making, still life drawing and modeling with clay significantly reduce anxiety. Moreover, Bonny and Kellogg (1977) stated that mandala art therapy could be effective on anxiety, feelings of guilt, disability, instability and diseases including mood changes. Furthermore, special art therapy activities including coloring mandalas is effective means in terms of reducing anxiety (as cited in Schrade, Tronsky & Kaiser, 2011).

Anxiety is an inborn and universal feeling that everyone experiences it somehow (Aslan, 2005). It is defined as an emotional experience that includes unpleasant emotions such as panic, fear and horror (Burger, 2006). It is moreover a factor that human being faces from birth to death (Gençdoğan, 2006). Intense anxiety prevents individuals from use of their knowledge, so at school context high text anxiety may lead to feel of being unsuccessful (Aslan, 2005). Therefore, it could be concluded that high text anxiety adversely affects normal behavior, school performance and academic achievement (Ndirangu, Muola, Kithuka & Nassiuma, 2009).

The relationship between the level of anxiety and the effect of coloring mandalas on reducing anxiety have led scholars to conduct researches about evidences that would support to this relationship. Carsley, Heath & Fajnevora (2015) found that coloring activity (a structured mandala or a free coloring condition) reduces anxiety. Results from the standardized anxiety measure revealed that there was a significant decrease in anxiety for both groups. Curry and Kaiser (2005), who conducted one of the specific studies about mandala, articulated that coloring a structured mandala or structured plaid forms was more effective than the free unstructured-coloring in terms of reducing anxiety.

Similarly, Vennet and Serice (2012) showed that coloring mandalas demonstrates a greater degree of reduction in anxiety other than coloring on a plaid design or coloring on a blank paper. Although these studies have articulated that coloring mandalas reduces anxiety, there is still need for further studies which would evaluate specific effects of mandala on anxiety, especially on test anxiety. Hence the present study aims to examine how coloring mandalas could impact on reducing test anxiety of university students. Followings are the hypotheses of the study:

1. Coloring mandalas reduces the level of test anxiety of university students.

2. Music therapy reduces the level of test anxiety of university students.
3. Coloring mandalas is more effective than music therapy in reducing test anxiety of university students.

METHOD

Model

A 2X2 split pattern was used in this study. Pre-test and pro-test control group design was applied. At the beginning of the study the test anxiety inventory was applied to both of the groups. The groups were randomly allocated to the experimental and the control group.

Before the application, the data obtained from the coloring mandalas group was compared to the control group and then essential analysis was conducted. Comparison of the experimental and the control group at beginning of the research is shown below in Table 1.

Table 1

Pre-test scores of the experimental and control group

Group	n	\bar{x}	SS	U	p
Experimental	8	51.50	7.83	34.00	.846
Control	9	52.60	8.58		

According to Table 1, arithmetic mean of the experimental group ($= 55.75$) is close to the arithmetic mean of the control group ($= 56.00$). The pre-test scores show that there is no significant difference between the experimental and the control group, which indicates that both groups were balanced.

Sample

Test anxiety of university students usually begins with the university entrance exam and continues during university education because of the fact that students want to become successful in classes, make plans about future and finding a good job after graduation (Erözkan, 2004). In this regard, some studies have showed that during first year of the university education students display higher level of anxiety than upper class students (Aysan, Thompson & Hamarat, 2001; Çakmak & Hevedanlı, 2005; Wong, Cheung, Chan, Ma & Tang, 2006; Bayram & Bilgel, 2008; Yılmaz & Ocağcı, 2010). High level of anxiety during first year of university can be related with following factors; being away from home, adolescence psychology, new social environment and friends (Çakmak & Hevedanlı, 2005), and using less effective coping strategies (Aysan et al., 2001). Because of their higher level of anxiety, freshman university students from various departments were selected for this research.

The Spielberger Examination Anxiety Inventory was applied to the first grade students at the Department of Guidance and Psychological Counseling and Department of Theology. The fact that these students had entered to the university with high university examination score were influential in selection of them to the study. After the pre-test applied to 100 students, they were ranked according to their scores on the test anxiety scale. 20 of the students with high test anxiety were selected randomly; 10 of them to the experimental group and 10 students to the control group.

Procedure

In order to determine structure of the group, firstly, an announcement was made about the research, and the aim of the study was expounded to students. Then, TAI was conducted on the freshman students from different departments for selecting participants who were later asked to write their names and departments. After implementation of the pre-test, 20 high-anxious students were selected; 10 of them were randomly assigned to the experimental group and the rest to the control group. However, during the research, some students did not continue. As a result, 8 students participated in the experimental group and 9 students in the control group. Therefore, the research was performed with 17 university students who had high level of anxiety.

Students were interviewed face to face and informed about the process of sessions before beginning of the study. Sessions were conducted in the university's consultation room. In the first session, both groups were informed about the ethical issues such as confidentiality and continuity. All students were warned not to share anything about the sessions. All sessions were accompanied by the supervisor.

After determination of the groups, the control group was asked to listen to the mystical music. And the experimental group colored the mandalas one session each week. The study was conducted with 5 sessions in a weekday, which ended in five weeks. At the beginning it was determined to be completed in 8 sessions, however due the facts that students had exams and need to visit their families afterwards it was formed to be in 5 sessions.

Aftermath, the post-tests were applied. It was observed that most of the students enjoyed and relaxed with coloring mandalas. Moreover, almost all of the students used bright colors when coloring the pre-shaped

mandala depictions. All of the students in the control group also were relaxed while listening to the mystical music. At the end of the sessions, the students shared their feelings and thoughts about participating to the study.

Data Collection

Test Anxiety Inventory (TAI)

Text anxiety inventory was developed by Spielberger and others (1980) after five years of study. And in 1993 it was adapted into Turkish by Öner & Albayrak-Kaymak (1993). It is a four point Likert-type scale includes 20 items to measure anxiety and has two subscales; "worry" and "emotionality". It consists of two subscale scores and a total score. The possible maximum score of the scale is 80 and the possible minimum score is 20. High score shows high anxiety level, and low score indicates low anxiety level. The TAI is a self-applicable scale (Erkan, 1994). It can be easily applied individuals or groups (Sakızlıoğlu, 2003). The Test-retest Pearson Moments Multiplication Correlation Coefficient was found .80 for two weeks, and .62 for six months. Cronbach's alpha coefficients were found between .92 and .96 for the overall scale and for the subscales were named "worry" was .58 and .72 and was .61 and .69 "emotionality" (Denizli, 2004; Sakızlıoğlu, 2003). The original form of inventory was reliable and valid and internal consistency for the overall scale was found 0.87 (Öner, 2006). Test-retest Pearson Moments Multiplication Correlation Coefficient was found between 0.70 and 0.90 (as cited in Denizli, 2004). Due to the being most popular (Erkan, 1994) and being effective scale to evaluate the results of the treatment on the anxiety TAI was used in the study. The Cronbach alpha value for the internal consistency reliability of the researcher was found to be .76.

Data Analysis

The pre-test and post-test were applied to the experimental and control groups which were determined according to results of the Spielberger Test Inventory. Mann Whitney U and Z analysis were used on data from non-parametric statistical techniques. The obtained data was analyzed with SPSS program and $p < 0.05$ significance level was accepted in interpretation.

FINDINGS

Table 2

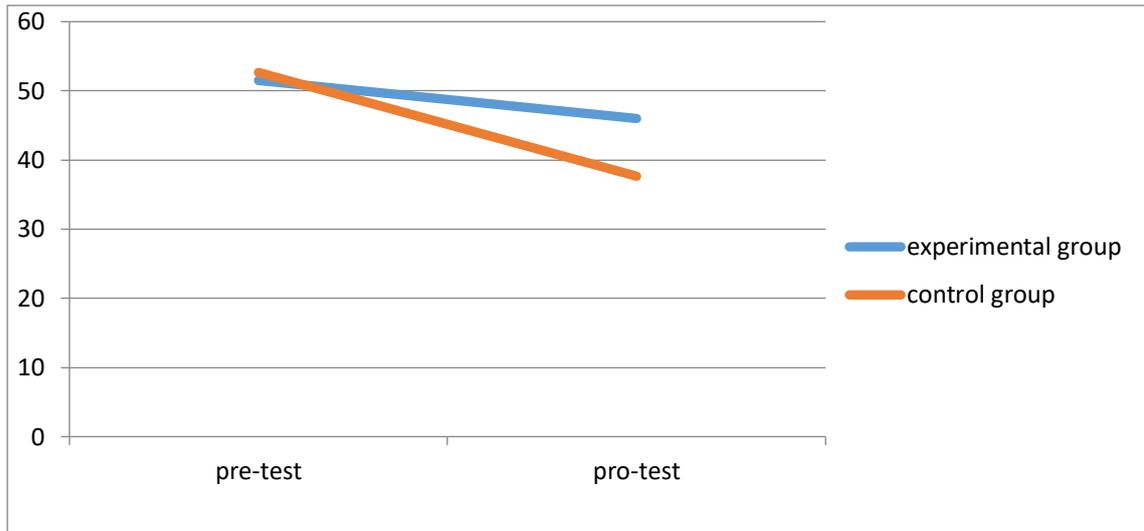
Results of Pre-test and Pro-test of the Students at the Experimental and the Control Groups

Groups	n	\bar{x}	SS		Mean rank	Sum of ranks.	z	p	
Experimental	pre test	8	51.50	7.83	Negative ranks	4.5	.36	-2.524	.012
	post test	8	37.87	3.35	Positive ranks	.00	.00		
Control	pre test	9	52.66	8.58	Negative ranks	5.0	.45	-2.666	.008
	post test	9	37.66	3.12	Positive ranks	.00	.00		

Table 2 shows that there is a significant difference between arithmetic means of the students at the experimental group before and after the study to be at $Z = 2.527$, $p < .05$ significance level. In addition, the results of the study indicate that there is a significant difference between average means of the students at the control group before and after the study to be at $Z = 2.673$, $p < .05$ significance level. In this context, it can be stated that both mandala and music therapy are effective in decreasing anxiety level of the students.

Figure 1

Pre- and post-test scores of the experimental and the control group



According to Figure 1, difference between the pre- and the pro-test scores of test anxiety level of the experimental ($p=0.12$) and the control group is found meaningful ($p=0.08$). These findings show that both mystical music and mandala have effects on reducing test anxiety. Unexpectedly, the graphics shows that mystical music is more effective than coloring mandalas in terms of reducing test anxiety. And due to decreasing level of test anxiety in the control group, a new training program was not considered for the control group.

DISCUSION AND FINDINGS

Art therapy is a significant means for improving positive emotions and reducing stress (De Petrillo & Winner, 2011). Studies showed that art therapy is an alternative therapy for stress reduction (Bell & Robbin, 2007; Henderson, 2007; Kapitan, 2012). Bell and Robbin (2007) also found that art production has an effect on reducing negative feelings. Some studies furthermore articulated that art making has an influence on reducing anxiety (Sandmire et al., 2012; Walsh, Chang, Schmidt & Yoepp, 2005; Walsh, Martin & Schmidt, 2004). Likewise, De Petrillo and Winner (2005) stated that art making improved positive emotions. These statements and findings show that art therapy has effect on reducing anxiety and stress, and improving positive emotions. Therefore, coloring mandalas, as a one of the form of art therapy, could also improve positive emotions/feelings (as cited in Mann, 2013). Drake et al. (2014) found that coloring pre-drawn patterns for reducing stress could be helpful. Several researches also indicated that the coloring mandalas could be used as an effective art therapy on reducing anxiety.

In the research, coloring mandalas was found to be effective on test anxiety. Similarly, Vennet and Serice (2012) have articulated that coloring mandalas was effective on reducing anxiety, which is also supported by this study. In another significant research conducted by Curry and Kaiser (2005) randomly selected eighty four students were asked to color a pre-drawn mandala and a plaid form or a blank sheet of paper in 20 minutes. As a result both coloring a mandala design and a plaid design have reduced anxiety. However, coloring a free-form did not reduce, which means coloring structured forms may reduce anxiety. Hence these studies clearly support the finding of this study (Curry & Kaiser, 2005).

The results of the study also indicate that music has also specific efficacy on reducing anxiety. There are several studies support findings of this study and provide evidences about the fact that music assists reducing anxiety, relaxing and improving being please (Bailey, 1983; Bailey, 1984; Krout, 2003; Moradipanah, Mohammadi & Mohammadil, 2009; Smith, Casey, Johnson, Gwede & Rigglin, 2001). Needless to say music is used throughout century for healing individuals and improving emotions (Gallagher, Lagman, Walsh, Davis & Legrand, 2006). Similarly, Smith (2008) found that music relaxation intervention is significantly related to reducing anxiety. Moreover, Labbe, Schdmith, Babin and Pharr (2007) indicated that listening relaxing music reduces negative feelings and increases positive emotions. These studies have showed that music has a positive effect on emotions of individuals (Sezer, 2011) and music is positively related to regulation of mood (Boothby & Robbin, 2011). These statements also support the findings of this study.

It seems that there is a limited number of experimental stuides conducted on the mandala which was used as a therapy first time by Carl Jung. The studies have showed that mandala has a facilitating effect of

spiritual integrity (Patti, David & Nathann, 2007). There are also some studies that show that Mandala is an effective tool provides psychological balance and expresses their feelings (Potash, Hy-Ho, Chan, Lu Wang & Cheng, 2014). It is moreover also possible to state that Mandala can be an effective tool for relaxation and increasing positive feelings of individuals (Kovacs-Donaghy, 2013). Especially, it was found that the mandala has positive effects on the individuals with psychological disorders (Hiyejin, Summan, Kwisoon & Ji-su, 2017). In this regard, there is a need of studies that focus on impact of mandala on psychological well-being, psychological robustness, and emotional outburst.

Limitations of the study

The limited aspects of the research are; the study groups was consisting of limited number of students and there was a lack of follow-up works. Another limitation is the number of sessions made was shorter.

It may be advisable to repeat the study on larger groups with follow-up studies. Moreover, the same work can be done on a broader sample and the relationship between the coloring mandalas and life satisfaction or subjective well-being. Implementation of coloring mandalas by the elementary school teachers on their students can be disseminated.

REFERENCES

- Aletraris, L., Paino, M., Edmond, M. B., Roman, P. M., & Bride, B. E. (2014). The use of art and music therapy in substance abuse treatment programs. *Journal of Addictions Nursing*, 25(4), 190. Retrieved from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4268880>.
- Ali, K., Gammidge, T., & Waller, D. (2014). Fight like a ferret: a novel approach of using art therapy to reduce anxiety in stroke patients undergoing hospital rehabilitation. *Medical Humanities*, 40(1), 56-60.
- Alyami, A. M. (2015). The role of art therapy in counterterrorism: The Saudi experience. *The Arts in Psychotherapy*, 44, 1-10.
- Aslan, S.A. (2005). Ergenlerde ana-baba tutumu, sınav kaygısı, ders çalışma becerilerinin lise giriş sınavını yordama düzeyleri. Unpublished Master's Thesis, Mersin University, Mersin.
- Bailey, L. M. (1984). The use of songs in music therapy with cancer patients and their families. *Music Therapy*, 4(1), 5-17.
- Bailey, L.M. (1983). The effects of live music versus tape-recorded music on hospitalized cancer patients. *Music Therapy*, 3(1), 17-28.
- Bell, C. E., & Robbins, S. J. (2007). Effect of art production on negative mood: A randomized, controlled trial. *Art Therapy*, 24(2), 71-75.
- Bonny, H. L., & Kellogg, J. (1977). Mandalas as a Measure of Change In Psychotherapy: Mandalas Used In Conjunction With Music Therapy. *American Journal of Art Therapy*, 16(4), 126-128.
- Boothby, D. M., & Robbins, S. J. (2011). The effects of music listening and art production on negative mood: a randomized, controlled trial. *The Arts in Psychotherapy*, 38(3), 204-208.
- Burger, J.M. (2006). Kişilik.(Çev. İ.D. ErguvanSarioğlu). İstanbul: KaknüsYayınları.
- Carsley, D., Heath, N.L. & Fajnerova, S. (2015). Effectiveness of a classroom mindfulness coloring activity for test anxiety in children. *Journal of Applied School Psychology*, 31(3), 239-255.doi: 10.1080/15377903.2015.1056925.
- Curry, N.A. & Kasser, T. (2005). Can coloring mandalas reduce anxiety? *Art Therapy*, 22(2). 81-85. doi: 10.1080/07421656.2005.10129441
- Çakmak, Ö., & Hevedanlı, M. (2005). Eğitim ve fen-edebiyat fakülteleri biyoloji bölümü öğrencilerinin kaygı düzeylerinin çeşitli değişkenler açısından incelenmesi. *Elektronik Sosyal Bilimler Dergisi*, 14(14).
- Çakmakçı, H. (2010, 26-28 November). The Reflection In The Islamic Art of A Quranic Verse Which Emphasizing Different Kind Of Heavenly Rivers. Paper presented at the International Symposium, Samsun.
- De Petrillo, L., & Winner, E. (2005). Does art improve mood? A test of key assumptions underlying art therapy. *Art Therapy: Journal of the American Art Therapy Association*, 22(4), 205-212.
- Drake, C. R., Searight, H. R., & Olson-Pupek, K. (2014). The influence of art-making on negative mood states in university students. *American Journal of Applied Psychology*, 2(3), 69-72.
- Erkan, Z. (1994). Grup rehberliğinin yüksek sınav kaygısına yönelik deneysel bir çalışma. Unpublished Master's Thesis, Çukurova University, Adana.
- Erözkan A. (2004). Üniversite öğrencilerinin sınav kaygısı ve başa çıkma davranışları. *Muğla Üniversitesi SBE Dergisi*, 1(12), 13-38.
- Fincher, S. F. (2009). *The Mandala workbook: A creative guide for self-exploration, balance, and well-being*. Shambhala Publications.

- Gallagher, L. M., Lagman, R., Walsh, D., Davis, M. P., & LeGrand, S. B. (2006). The clinical effects of music therapy in palliative medicine. *Supportive Care in Cancer*, 14, 859-866.
- Gençdoğan, B. (2006). Lise öğrencilerinin sınav kaygısı ile boyun eğicilik düzeyleri ve sosyal destek algısı arasındaki ilişkiler. *Sosyal Bilimler Enstitüsü Dergisi*, 7(1), 154-164.
- Goodwin, C.B. (1993). Meeting the mandala. Retrieved from http://www.soulfulliving.com/meeting_the_mandala.htm.
- Henderson, P., Rosen, D., & Mascaro, N. (2007). Empirical study of the healing nature of mandalas. [Abstract]. *Psychology of Aesthetics, Creativity, and the Arts*, 1(3). doi: <http://dx.doi.org/10.1037/1931-3896.1.3.148>.
- Huh, J.A. (2010). Mandala as telematic design. *Technoetic Arts*, 8(1), 19-30. Retrieved from <http://www.ingentaconnect.com/content/intellect/ta/2010/00000008/00000001/art00004>.
- Kapitan, L. (2012). Does art therapy work? Identifying the active ingredients of art therapy efficacy. *Art Therapy*, 29(2), 48-49.
- Kim, H., Kim, S., Choe, K., & Kim, J. S. (2017). Effects of Mandala art Therapy on Subjective Well-Being, Resilience, and Hope in Psychiatric Inpatients. *Archives of Psychiatric Nursing*. <https://doi.org/10.1016/j.apnu.2017.08.008>.
- Kovacs-Donaghy, I. (2013). The mandala offers relaxation to hospital staff: A convergent triangulation mixed methods study. Unpublished Doctoral dissertation, Walden University
- Krout, R. E. (2003). Music therapy with imminently dying hospice patients and their families: facilitating release near the time of death. *American Journal of Hospice & Palliative Care*, 20(2), 129-134.
- Kuban, C. (2015). Healing trauma through art. *Reclaiming Children and Youth*, 24(2), 18-20. Abstract obtained from ProQuest.
- Labbe, E., Schmidt, N., Babin, J. & Pharr, M. (2007). Coping with stress: the effectiveness of different types of music. *Applied Psychophysiology and Biofeedback*, 32, 163-168.
- Liang, H. (2012). Jung and Chinese religions: Buddhism and Taoism. *Pastoral Psychology*, 61(5-6), 747-758.
- Mann, A. (2013, April 20). Pre-Drawn Mandalas versus Constructed Mandalas versus Unconstructed Mandalas: Which Creates a Greater Reduction in Anxiety?. Paper presented at the Master's Level Graduate Research Conference.
- Moradipannah, F., Mohammadi, E. & Mohammadil, A.Z. (2009). Effect of music on anxiety, stress and depression levels in patients undergoing coronary angiography. *Eastern Mediterranean*
- Mulcahy, M. (2013). Mandala as a tool for transformation to enable flourishing: the influence of Carl Jung. *International Practice Development Journal*, 3(2), 1-4. Retrieved from http://www.fons.org/Resources/Documents/Journal/Vol3No2/IPDJ_0302_11.pdf.
- Westrhenen, N.V., & Fritz, E. (2014). Creative arts therapy as treatment for child trauma: An overview. *The Arts in Psychotherapy*, 41(5), 527-534.
- Ndirangu G.W., Muola J.M., Kithuka M.R. & Nassiuma D.K. (2009). An investigation of the relationship between test anxiety and academic performance in secondary schools in Nyeri District, Kenya. *Global Journal of Educational Research*, 8, 1-7.
- Potash, J. S., Chan, F., Ho, A. H. Y., Wang, X. L., & Cheng, C. (2014). Can art therapy reduce death anxiety and burnout in end-of-life care workers? A quasi-experimental study. *International Journal of Palliative Nursing*, 20(5), 233-240.
- Sandmire, D. A., Gorham, S. R., Rankin, N. E., & Grimm, D. R. (2012). The influence of art making on anxiety: A pilot study. *Art Therapy*, 29(2), 68-73.
- 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.
- Schrade, C., Tronsky, L., & Kaiser, D. H. (2011). Physiological effects of mandala making in adults with intellectual disability. *The Arts in Psychotherapy*, 38(2), 109-113.
- Sezer, F. (2009). Müzikle terapinin sınav kaygısı, öfke ve psikolojik belirtiler üzerindeki etkisi. Unpublished Doctoral Thesis, Atatürk University, Erzurum.
- Sezer, F. (2011). Öfke ve psikolojik belirtiler üzerine müziğin etkisi. *International Journal of Human Sciences*, 8(1), 1472-1493.
- Slegelis, M. H. (1987). A Study of Jung's Mandala and Its Relationship to Art Psychotherapy. *The Arts in Psychotherapy*, 14(4), 301-311. Abstract obtained from Elsevier.
- Smith, M. (2008). The effects of a single music relaxation session on state anxiety levels of adults in a workplace environment. *Australian Journal of Music Therapy*, 19, 45-66. Abstract obtained from Informit.
- Smith, M., Casey, L., Johnson, D., Gwede, C., & Riggan, O. Z. (2001). Music as a therapeutic intervention for anxiety in patients receiving radiation therapy. *In Oncology Nursing Forum*, 28(5).

- Stanton, H. E. (1975). Music and test anxiety: Further evidence for an interaction. *British Journal of Educational Psychology*, 45(1), 80–82. Abstract obtained from Wiley Online Library.
- Vennet, R.V.D.& Serice, S. (2012). Can coloring mandalas reduce anxiety? A replication study. *Art Therapy*, 29(2), 87-92. doi: 10.1080/07421656.2012.680047.
- Walsh, S. M., Chang, C. Y., Schmidt, L. A., &Yoepp, J. H. (2005). Lowering stress while teaching research: a creative arts intervention in the classroom. *Journal of Nursing Education*, 44(7), 330-333. Abstract obtained from ProQuest.
- Walsh, S.M., Martin, S.C, & Schmidt, L.A. (2004). Testing the efficacy of a creative-arts intervention with family caregivers of patients with cancer. *Journal of Nursing Scholarship*, 36(3), 214–219. Abstract obtained from Wiley Online Library.

İletişim/Correspondence

Prof. Dr. Başaran GENÇDOĞAN

basaran@atauni.edu.tr

Doktora öğrencisi, Semanur KODAN-ÇETİNKAYA

semanurkoda@hotmail.com

Öğretmen, Esra GÜMÜŞ

altunkasesra@hotmail.com