

Investigation of the Effects of Music Therapy on Participation in Daily Living Activities and Quality of Life in Males Diagnosed with Schizophrenia*

Hülya YAMAN**, Başar ÖZTÜRK***

Abstract

Aim: This study was created to increase the scope of music therapy for daily life, quality of life and functionality of individuals with schizophrenia.

Method: The study included 25 individuals between the ages of 25-75 who were diagnosed with schizophrenia, and living in a disability-free living center in the province of Istanbul. Selected individuals listened to Bûselik maqam music, which was recorded in advance, for 30 minutes, in a total of 6 sessions once a week in the morning, in the special area reserved for music therapy. Sociodemographic information form, KATZ Activities of Daily Living Scale, Life Satisfaction Questionnaire, Lawton and Brody's Auxiliary Activities of Daily Living Scale, Brief Selectivity Assessment Scale, and Brief Psychiatric Rating Scale are used in the study. Wilcoxon Signed Ranks analysis was used for intragroup comparisons.

Results: As a result of the study, no significant difference was detected in the intervals in daily living activities, quality of life and functionality of music therapy before and after the intervention ($p>0.05$).

Conclusion: Regarding this study, receptive music therapy alone is not effective in individuals with schizophrenia. We think that leisure activity training under the leadership of occupational therapists during receptive music therapy will produce healthy results. In this way, we foresee that the intervention programs prepared by occupational therapists in a person-centered manner will increase the social functionality and range of patients and lead to positive results in society.

Keywords: Occupational therapy, music therapy, schizophrenia

Özgün Araştırma Makalesi (Original Research Article)

Geliş / Received: 31.05.2023 & **Kabul / Accepted:** 06.12.2023

DOI: <https://doi.org/10.38079/igusabder.1307721>

* This study was carried out by Hülya YAMAN, under the supervision of Assist. Prof. Basar OZTURK, in the "Investigation of the Effects of Music Therapy on Participation in Daily Living Activities and Quality of Life in Individuals Diagnosed" prepared in 2023 at Biruni University, Graduate Education Institute, Department of Occupational Therapy. with Schizophrenia".

** Res. Assist., Istanbul Gelisim University, Department of Occupational Therapy, Istanbul, Türkiye.

E-mail: hulyaman@gelisim.edu.tr [ORCID https://orcid.org/0000-0002-8521-2445](https://orcid.org/0000-0002-8521-2445)

*** Assist. Prof., Biruni University, Faculty of Health Sciences, Department of Occupational Therapy, Istanbul, Türkiye.

E-mail: fztbasarozturk@gmail.com [ORCID https://orcid.org/0000-0001-5763-6008](https://orcid.org/0000-0001-5763-6008)

ETHICAL STATEMENT: Ethical permission, Decision No: 2015- KAEK-71-22-09, was obtained from Biruni University Clinical Research on 26.10.22.

Müzik Terapinin Şizofreni Tanılı Erkeklerde Günlük Yaşam Aktivitelerine Katılımlarına ve Yaşam Kalitelerine Etkisinin İncelenmesi

Öz

Amaç: Bu çalışma, müzik terapinin şizofrenili bireyler üzerindeki günlük yaşam, yaşam kalitesi ve işlevselliğe olan etkisi incelemek amacıyla yapılmıştır.

Yöntem: Çalışmaya engelsiz yaşam merkezinde yaşayan şizofreni tanısı almış 25-75 yaş aralığında olan 25 birey alınmıştır. Bireylere haftada bir gün sabah toplam 6 seans ve her seansta 30 dakika Büselik makamı dinletilmiştir. Çalışmada sosyodemografik bilgi formu, KATZ Günlük Yaşam Aktiviteleri Ölçeği, Yaşam Memnuniyet Anketi, Lawton ve Brody'nin Yardımcı Günlük Yaşam Aktiviteleri Ölçeği, Kısa İşlevsellik Değerlendirme Ölçeği ve Kısa Psikiyatrik Derecelendirme Ölçeği kullanılmıştır. Grup içi karşılaştırmalarda Wilcoxon Signed Ranks analizi kullanıldı.

Bulgular: Çalışma sonucunda müzik terapinin günlük yaşam aktivitelerinde bağımsızlıkta, yaşam kalitesi ve işlevsellikte müdahale öncesi ve sonrası anlamlı bir fark saptanmadı ($p>0.05$).

Sonuç: Yapılan çalışma sonucuna göre şizofrenili bireylerde reseptif müzik terapi tek başına etkili olmamaktadır. Reseptif müzik terapi sırasında ergoterapistlerin önderliğinde serbest zaman aktivite eğitimlerinin birlikte uygulanmasının etkili sonuçlar doğuracağı düşünülmektedir. Bu sayede ergoterapistlerin kişi merkezli olarak hazırladıkları müdahale programlarıyla hastaların sosyal işlevsellik ve bağımsızlık düzeyinde artış ve toplum bazında da olumlu sonuçlar doğuracağı ön görülmektedir.

Anahtar Sözcükler: Ergoterapi, müzik terapisi, şizofreni

Introduction

Schizophrenia is among the important mental health diseases in our country and the world. Schizophrenia negatively affects the individual's work and interpersonal relationships, self-care, and major functionality areas throughout the prognosis of the disease¹. Although schizophrenia begins at a young age, it is observed as a deterioration in emotions and thoughts, a distortion in the perception of reality, and a decrease in interaction with the environment. It is a mental illness whose etiology has not been determined and has varying subtypes². Its prevalence is accepted as 1% on average, although it varies according to each society and each geographical region. The incidence is equal in men and women. However, the initial symptoms and prognosis of schizophrenia differ between the two sexes. The prognosis is worse in male patients³.

There are recurrent exacerbations and remissions in the disease. Therefore, recurrent episodes make it difficult to participate in activities of daily living and cause a decrease in functionality. Studies show that individuals with schizophrenia rarely recover, and most of them experience cognitive and psychosocial problems throughout their lives⁴. Antiseptic drugs are used in different stages of schizophrenia treatment. Long-term antiseptic drug intake reduces the risk of exacerbation⁵. The conditions that limit the use of drugs for the disease are shown as side effects

and decreases in quality of life. Therefore, psychosocial treatment approaches should be supported by occupational therapy interventions and drug therapy.

Schizophrenia affects the individual physically, emotionally, cognitively, and spiritually; It is a mental health disease that impairs the individual's participation in activities in the areas of personal hygiene, work, productivity, and leisure performance^{6,7}. Individuals with schizophrenia primarily experience deterioration in personal hygiene, social isolation, and working performance. According to the International Classification of Functioning, Disability and Health (ICF), individuals diagnosed with schizophrenia experience difficulties in participation due to not being able to continue their education life, lack of work life, problems in the family and social relations, inability to do domestic activities, and cognitive impairment. In individuals with schizophrenia, the main goal should be to establish the individual's participation in activities, quality of life, independence, and occupational balance. The focal center in the treatment of schizophrenia is usually medical and psycho-educational. Studies aiming at activity participation are limited⁸. Studies have shown that occupational therapy-based approaches increase the activity level and activity participation positively in individuals with chronic schizophrenia⁹. According to a study, it was found that the regulation of activity performance in individuals with schizophrenia provides a positive increase in participation in meaningful and purposeful activities¹⁰.

Occupational therapy is a person-centered health profession that aims to improve the participation of individuals in social life, health, and well-being through activities. The activities, which are the main focus of occupational therapists, are multifaceted and should not be considered just as the actions we take in our daily lives. The purposes of these actions, what they mean to us personally, where they are done, when they are done, and how they affect our health and well-being are important^{11,12}. Activities have an important role in our understanding of ourselves, our goals, society, and culture. Therefore, the main purposes of treatment approaches in occupational therapy are listed as ensuring participation in activities and increasing the quality of life and functionality of the person. According to evidence-based studies, psychosocial-based treatments increase participation in daily living activities, social functionality, and quality of life in individuals with schizophrenia¹³⁻¹⁵.

The World Federation of Music Therapy (WFMT) first defined music therapy in 1996 and defined music therapy as 'the communication, relationship, learning, expression, mobilization, organization and other relevant therapeutic elements a person or group needs to meet their physical, emotional, social and cognitive needs. It is defined as the design and use of music and/or musical elements by a trained music therapist to improve and increase the volume¹⁶. Music therapy is applied for treatment in different disease groups. Due to the positive results of music in the field of mental health, this study aims to investigate the effect of music therapy on daily life, quality of life, and functionality in individuals with schizophrenia.

Material and Methods

Individuals diagnosed with schizophrenia in the age range of 25-75 years who were followed up in a Disabled Life and Rehabilitation Center affiliated with the Ministry of Family and Social Services were included in the study. According to the results of the analysis made with the Gpower analysis program, the number of people who will participate in the research was determined as 25 with a power of 85% and a standard deviation of 0.05.

Inclusion Criteria: Individuals between the ages of 25-75, being literate, diagnosed with schizophrenia, having no hearing and speech problems, and regularly continuing their medical treatment were recruited.

Exclusion Criteria: Individuals diagnosed with mental retardation and neurological disorders were not included.

Method: Individuals diagnosed with schizophrenia between the ages of 25 and 75 who were being followed up at an Obstacle-Free Living and Rehabilitation center affiliated with the Ministry of Family and Social Services were included in the study. Schizophrenia patients included in the institution walk during the day and attend professional development workshops in the afternoons. Patients take courses in tile art, ceramic painting, recycling product design and garden landscaping in professional development workshops. Apart from the professional development workshops held four days a week, museum visits that are held at least twice a month are planned by the staff of the institution. According to the analysis results made with the Gpower analysis program, the number of people who will participate in the research was determined as 25 with 85% power and 0.05 standard deviation value. Pre-recorded Bûselik maqam music for 30 minutes in each session, 6 sessions a week between 10.20-11.00 in the morning, in the special area reserved for music therapy in a Disabled Life and Rehabilitation Center affiliated with the Ministry of Family and Social Services for individuals with schizophrenia for the study. has been heard. The results were compared by applying the scales before and after the music therapy intervention.

Intervention Plan: The music therapy session consists of 3 houses. These are as follows: Warm Up-gathering, music recital of bûselik mode, and the ending part. It is shown in Table 1.

Table 1. Music therapy session stages

Warm Up	Music Concert	Ending
Patients come together. Talk about how they feel today and the changes in their lives. Thoughts are taken before music therapy.	Provides a dim environment Bûselik maqam is played Eyes can be open or closed.	Feedback questions are asked. These: How are you? How do you feel? Farewell

Data Collection Tools: Sociodemographic information protection, KATZ daily living activities scale, life satisfaction questionnaire, short functionality rating scale, and short psychiatric rating scale were used to collect data.

Socio-Demographic Information Form: In the socio-demographic Information Form, gender, age, and marital status were asked. No identification information is required in the form developed by the researcher.

KATZ Activities of Daily Living Scale: Katz et al. He developed this test in 1963^{17,18}. This test includes six sou's that include areas such as dressing, bathing, toilet, movement, and eating. In the evaluation, 0-6 points are interpreted as dependent, 7-12 points as semi-dependent, and 13-18 points as independent.

Life Satisfaction Questionnaire: The Life Satisfaction Index A-LSIA was developed by Neugarten and Havinghurst and was used by Köker in 1991 to assess life satisfaction¹⁹. This questionnaire consists of 20 questions and evaluates life satisfaction from different perspectives.

Short Functionality Evaluation Scale: It provides a fast and effective evaluation of functionality. It includes six dimensions that include areas such as autonomy, interpersonal interaction, occupational functioning, cognitive status, financial management, and leisure use. The Turkish validity and reliability study of the scale was carried out by Aydemir and Uykur²⁰.

Brief Psychiatric Rating Scale: It is a Likert-type, 18-item test used to evaluate the symptoms and severity of a psychiatric condition. It is generally used in schizophrenia and other psychiatric disorders²¹.

Statistical Analysis: The data obtained from the study were analyzed with the IBM SPSS Statistics 24 package program. The Kolmogorov-Smirnov test was used to test whether the data fit the normal distribution and the test result was determined as $p < 0.05$. Therefore, non-parametric tests were used. Mean, standard deviation and percentage distributions were given as descriptive statistics. Wilcoxon Signed Ranks analysis was used for intragroup comparisons. The results obtained ($p < 0.05$) were evaluated at the level of significance.

Ethical Aspect of the Study: This study was carried out with the approval of the ethics committee of Biruni University Clinical Research, dated 26.10.2022 and numbered 2015- KAEK-71-22-09. A signed subject consent form following the Declaration of Helsinki was obtained from each participant.

Results

It was determined that the mean age of the patients was 50.72 and the standard deviation was 8.28. The minimum age of the patients is 31 and the maximum age is 65 (Table 2).

Table 2. Distribution of the average ages of the patients

	n	Mean	SD	Min	Max
Age	25	50.7200	8.28412	31.00	65.00

In the study, it was determined that all the participants were male, single, and used the drugs given for treatment. When the substance use in the life history of the patients was examined, it was found that 12% had used it in the past and 88% had not used it in the past (Table 3).

Table 3. Distribution of descriptive characteristics of the patients

Sociodemographic Characteristics		n	(%)
Gender	Woman	-	-
	Male	25	100%
Marital status	Married	-	-
	Single	22	100%
Substance Use	There is use in the past	3	12%
	No past use	22	88%
Treatment Compliance	Uses Medication	25	100%
	Does not use drugs	-	-

When the activity satisfaction results of individuals before and after music therapy were examined, a statistically significant difference was found ($p < 0.05$). There was also a significant difference in activity performance results ($p < 0.05$) (Table 4).

When the daily life activity results of individuals before and after music therapy were examined, no statistically significant difference was found ($p > 0.05$). No statistically significant difference was found in the life satisfaction survey results ($p > 0.05$). When the individuals' short psychiatric rating scale and brief functionality results before and after music therapy were examined, no significant difference was found in either test ($p > 0.05$) (Table 4).

Table 4. Comparison of results of scales

	Mean	SD	Min-Max	Z	p
Before Katz Scale	5.5200	.82260	3-6	-.333 ^b	0.739
Post Katz Scale	5.5600	1.04403	2-6		
Before Life Satisfaction Score	9.7200	2.11187	7-13	-.487 ^b	0.626
After Life Satisfaction Score	9.9600	3.24654	6-17		
Short Pre-Functional Evaluation	38.0800	16.96300	11-70	-.183 ^b	.855
Short Functionality After Evaluation	39.2800	17.61278	5-72		
Before the Brief Psychiatric Rating Scale	21.9600	11.63142	2-53	-.809 ^b	.418
Post Brief Psychiatric Rating Scale	23.4400	11.25492	6-52		

Discussion

This study was conducted with 25 schizophrenic patients in a disability-free living and care center in Istanbul. The effects of the songs selected from the Buselik makam on schizophrenia patients were evaluated. Evaluation of the effects of passive music therapy was made under three main headings as life satisfaction, participation in activities of daily living, and functionality.

The lifetime prevalence of schizophrenia is 1% and it is one of the most common mental disorders. According to research, the prevalence of schizophrenia is equal across gender, but the disease begins earlier in men^{2,22}. Since the prognosis in men is worse than in women and it begins at an earlier age, schizophrenia is diagnosed earlier than in women. In addition, the risk and prevalence of schizophrenia can be seen to be high in men. Due to the high prevalence in men, all schizophrenia patients in this study were selected as men. Similar to this study, in another study examining the effect of music therapy on individuals with schizophrenia, all participants were male²².

In this study, all schizophrenia patients were found to be single. Similarly, Fındıkoğlu et al. (2020) in their study examining music therapy in individuals with schizophrenia, 72.7% of their patients were single. Schizophrenia, one of the serious mental health diseases, greatly affects individuals' marriage and parenthood situations. Therefore, the prognosis of schizophrenia, which causes disruptions in the roles of parent or husband/wife, negatively affects the quality of life and brings about a feeling of loneliness. It is known that quantitative participation is directly related to life roles, and activity performance is affected by marriage, difficulties, restrictions, and interpersonal relationships²³. Occupational therapists aim to increase participation in activities and life

satisfaction in schizophrenia patients with impaired social life, thanks to preventive and intervention approaches. The high rate of disrupted life roles indicates the need for occupational therapists within a multidisciplinary team in the field of mental health.

In this study, it was determined that all schizophrenia patients used their medications regularly. Although patients' compliance with medication treatment plays a major role in psychiatric rehabilitation, it was found that the rate of schizophrenia patients who did not use medication regularly and in the required dose was 50%²⁴. Additionally, it is claimed that among discharged schizophrenia patients, 25.8% stopped taking medication after one year^{25,26}. Although problems are often observed in drug use in patients with schizophrenia, in this study the patients were regularly monitored by the institution's staff, so this result is expected.

In this study, the general average age of schizophrenia patients was determined to be 50.72. Lu et al. (2013) found that the average age of schizophrenia patients to whom they applied music therapy was 52; Tatsumi et al. (2011) in their study examining occupational therapy intervention in patients with schizophrenia, the average age was 57^{9,22}. In this regard, this study result is compatible with the literature. Schizophrenia patients in the institution where this study was conducted can stay in the institution with the special request of their guardians. Stating that the care burden has increased over the years, guardians stated that they could not care for their relatives with schizophrenia and requested them to stay in the institution. Therefore, it is expected that the average age of schizophrenia patients staying in the institution is high.

In this study, the number of patients with substance use disorder was found to be 12%. Substance use disorder is an increasingly important clinical problem among patients with schizophrenia²⁷. According to a study conducted on 100 schizophrenia patients in this country, it was determined that 14% of the patients experienced lifelong use disorder and 3% continued to use²⁸. In another study conducted on male schizophrenia patients, it was stated that 11 out of 100 patients had substance use disorder alone (11%)²⁹. The result of this study is compatible with the literature.

Studies on schizophrenia patients in the occupational therapy literature have focused on the effectiveness of individualized and group-based occupational therapy interventions. Additionally, occupational therapists have long been investigating the effectiveness of music therapy in patients with schizophrenia. It is claimed that attending music events makes new friends and increases life satisfaction by strengthening communication. Positive emotions increase people's cognitive activation, making them feel comfortable, happy and satisfied with life. In a study conducted to examine the effectiveness of music on positive emotions, individuals with mood disorders were divided into experimental and control groups, and varying rhythm-based group music therapy was applied to the experimental group in addition to standard treatment; As a result, no significant difference was observed between the two groups³⁰. In a study conducted in China, the effect of 4-month art-based and improvisational music therapy on positive emotions in children with mental disorders was examined. According to the results of the study, a difference was

observed before and after, but it was not significant³¹. In this study, passive music therapy was applied in addition to art-based approaches, and no significant results were found in life satisfaction. We think that one of the reasons for this is that the life satisfaction survey, which is the scale we applied, contains only 5 questions and does not allow a detailed evaluation. We recommend planning research on music therapy with different scales in terms of life satisfaction. In addition, an individual's emotions and reactions to the same piece of music vary significantly depending on their personal characteristics and their own life history³². For example, the melody or lyrics of the same song may make some people in the group feel happy, while others may show indifference due to different personal experiences. Therefore, we believe that before planning music therapy, people's musical tastes and experiences should be taken into consideration and groups should be planned accordingly. In this study, it was observed that the Buselik maqam, which is the predetermined maqam music, did not attract the attention of young schizophrenia patients. We think that this situation also affects the results of the research. Therefore, we believe that in future studies, patients should be informed about their musical tastes before music therapy and the therapy plan should be created accordingly.

Occupational therapists investigate the effects of music therapy in different disease groups. According to the meta-analysis study conducted, they found that the use of music in occupational therapy intervention in adults with dementia did not make a significant difference in terms of functionality³³. In the randomized controlled study of Raglio et al., it was stated that active or passive application of music therapy did not produce significant results in individuals with dementia³⁴. The existence of a correlation between musical deprivation and cortical thickness in patients with schizophrenia has been proven in previous studies and has been associated with low functionality and worse psychiatric symptoms³⁵. Shih et al. (2015) evaluated the effect of music on attention span in schizophrenia patients. In the study, in addition to occupational therapy sessions, classical and pop music were played as background music; It has been found that popular music positively affects attention³⁶. In a study conducted on schizophrenia patients in Taiwan, in addition to the rehabilitation program, the patients filled out a questionnaire about their music preferences before music therapy, and active participation in music therapy was applied with the music determined according to the survey results. It was stated that it may have positive effects on depression in the short term, but the long-term results were not significant²². The reason for this is that recurrent episodes in schizophrenia patients lead to limitations in motivation and social communication, dissatisfaction with life and a decrease in functionality, and long-term effects cannot be observed. Additionally, Chung et al. (2016) suggest that positive effects cannot be seen after music therapy is applied to schizophrenia patients, depending on their disease severity, and recommend that more studies be conducted in these disease groups. Additionally, it is claimed that the demographic situation also affects the patient and that meaningful and positive results will not occur with the middle-aged and elderly schizophrenia population³⁷. In this study, in addition to art-based approaches, passive music therapy was

applied to individuals with schizophrenia and no significant difference was observed in functionality. We think that the fact that most of the patients we worked with were not young, the negative prognosis due to the nature of the disease, and the high number of patients with severe disease severity affected the results negatively.

It is known that with the emergence of schizophrenia symptoms, individuals experience disruptions in their daily life activities, social functionality, personal hygiene, continuing their business life and interpersonal interaction³⁸. Occupational therapists use the models and theories that form the basic building blocks of occupational therapy to maintain and improve individuals' functionality and activity participation. Lack of independence in daily living activities, economic difficulties, unhealthy lifestyles, side effects of the medications they use, and stigma often affect the quality of life and functionality in schizophrenia patients³⁹. Decreased participation in daily living activities in schizophrenia patients may be related to the level of cognitive and social functionality⁴⁰. In this study, in addition to art-based approaches, the participation of music therapy in daily life activities was investigated by making schizophrenia patients listen to Buselik maqam music as a group. The KATZ Activities of Daily Living Scale and the Lawton Brody Auxiliary Activities of Daily Living scale were used to evaluate daily living activities before and after music therapy. In the study, no statistically significant results were found when the participation scores in daily living activities before and after music therapy were compared ($p > 0.005$). We believe that one of the reasons for this is that most of the questions in the surveys we used to collect data in this study could not be answered by patients. The caregivers working in the institution where we conducted the study told the patients that it provides basic and instrumental daily living activities such as food service, laundry, room cleaning, medication use, shopping and financial affairs. Patients are not provided with the necessary opportunities to participate in daily living activities. Therefore, it is expected that the results will be meaningless.

Studies in the literature have shown that occupational therapy interventions increase independence and functionality in daily living activities in the schizophrenia disease group. In their study, Akı et al. (2014) achieved independence in daily living activities with individual-centered activity-based intervention; Abaoğlu et al. (2019) found that life skills training increased functionality and independence in daily living activities^{23,41}. Kolit et al. (2019) examined the effect of relaxation training intervention on people suffering from mental disorders⁴². In a study conducted on occupational therapists, fifty-four percent of occupational therapists stated that they used music to improve the well-being of their clients, and most occupational therapists stated that using music as a therapeutic tool provided meaningful results on patients⁴³. Occupational therapists use music during, before and as an occupation to increase patients' occupational performance, participation in life and quality of life. When the results of the studies are examined, it is understood that occupational therapy interventions are needed in interdisciplinary rehabilitation for the areas of independence and functionality in ADL, which are the main goals

of occupational therapists. As a result of this study, no significant effect of passive music therapy was detected on functionality, ADL and life satisfaction. We believe that in further controlled studies, the integrated use of occupational therapy intervention and music therapy methods will positively affect the results.

The hypotheses we established in this study were confirmed, and no significant difference was found regarding the positive impact of music therapy on individuals diagnosed with schizophrenia on quality of life and functionality. We think that these findings can serve as an example for future research. This study investigated short-term and passive music therapy in addition to arts-based approaches in individuals with schizophrenia. We recommend that future studies be planned in the long term, including active music therapy methods along with occupational therapy interventions in different disease groups.

Ethical Aspect of the Study: Ethical permission, Decision No: 2015- KAEK-71-22-09, was obtained from Biruni University Clinical Research on 26.10.22.

Conclusion and Recommendations

In disability-free living and rehabilitation centers, the functionality, independence in daily living activities and life satisfaction of individuals with schizophrenia should be evaluated in a person-centered manner. Occupational therapists aim to provide functionality and independence in daily living activities by performing person-centered activity analysis. We recommend employing an occupational therapist in the institution where we work. In this way, we foresee that the intervention programs prepared by occupational therapists will increase the social functionality and independence level of patients and have positive results on a social basis. This study was carried out only with male individuals diagnosed with schizophrenia; therefore, the effect of schizophrenia on the female population could not be studied. The effect on both populations should be examined in future studies.

REFERENCES

1. Köroğlu E. *Dsm-5 Ruhsal Bozuklukların Tanısal ve Sayımsal Elkitabı*. 5. Baskı. Ankara: Hekimler Yayın Birliği Yayıncılık; 2013.
2. Karakuş G, Sert D, Kocal Y. Şizofreni: Etiyoloji, klinik özellikler ve tedavi. *Arşiv Kaynak Tarama Dergisi*. 2017;26(2):251-267.
3. Kaplan HI, Sadock BJ. *Klinik Psikiyatri*. 1. baskı. İstanbul: Nobel Kitabevleri; 2014.
4. Çelikbaş Z, Ergün S. Şizofrenide nörobilişsel bozukluklar ve işlevsellikle ilişkisi. *Journal Of Contemporary Medicine*. 2018;8(2):183-187.

5. Gül E, Can D, Şahin E, Şahin Ş, Şimşek E. Kırıkkale toplum ruh sağlığı merkezinde takip edilen şizofreni hastalarının değerlendirilmesi. *Kırıkkale Üniversitesi Tıp Fakültesi Dergisi*. 2014;16(2):15-19.
6. Abaoğlu H, Mutlu E, Ak S, Akı E, Anıl Yağcıoğlu AE. The effect of life skills training on functioning in schizophrenia: A randomized controlled trial. *Türk Psikiyatri Derg*. 2020;31(1):48-56. doi:10.5080/u23723.
7. Van Wijngaarden B, Schene A, Koeter M, Becker T, Knapp M, Knudsen HC. People with schizophrenia in five countries: Conceptual similarities and intercultural differences in family caregiving. *Schizophr Bull*. 2003;29(3):573-586.
8. Strong S, Gruhl KR. Person-environment occupation model. Occupational therapy in mental health: A vision for participation Philadelphia: F.A. Davis Company. 2011:31-46.
9. Tatsumi E, Yotsumoto K, Nakamae T, Hashimoto T. Effects of occupational therapy on hospitalized chronic schizophrenia patients with severe negative symptoms. *Kobe J Med Sci*. 2011;57(4):145-154.
10. Katz N, Keren N. Effectiveness of occupational goal intervention for clients with schizophrenia. *Am J Occup Ther*. 2011;65(3):287-296.
11. Orton Y, Hocking C, Reed K. Oideas occupational therapists take up from the international literature. *New Zealand Journal of Occupational Therapy*. 2015;62(1):12-19.
12. Christiansen C, Baum CM, Bass-Haugen J. *Occupational Therapy: Performance, Participation, and Well-Being*. Thorofare NJ: Slack Incorporated; 2005.
13. Kumar B, Singh A. Efficacy of social skills training for the persons with chronic schizophrenia. *The Qualitative Report*. 2015;20(5):660-9. doi:10.46743/2160-3715/2015.2143.
14. Buchain PC, Vizzotto ADB, Henna Neto J, Elkis H. Randomized controlled trial of occupational therapy in patients with treatment-resistant schizophrenia. *Revista Brasileira De Psiquiatria*. 2003;25(1):26-30. doi:10.1590/s1516-44462003000100006 2003.
15. Yıldız M, Yüksel AG, Erol A. Şizofrenide ruhsal ve toplumsal beceri eğitimi uygulaması grup eğitimi deneyimleri. *Türkiye'de Psikiyatri*. 2005;7(1):25-32.
16. Birkan ZI. Müzikle tedavi, tarihi gelişimi ve uygulamaları. *Ankara Akupunktur ve Tamamlayıcı Tıp Dergisi*. 2014:37-49.
17. Law M, Steinwender S, Leclair L. Occupation, health and well-being. *Canadian Journal of Occupational Therapy / Revue Canadienne D'Ergothérapie*. 1998;65:81-91. doi:10.1177/000841749806500204.

18. Katz S, Ford A, Moskowitz R, Jackson B, Jaffe M. Studies of illness in the aged. The index of adl: A standardized measure of biological and psychosocial function. *JAMA*. 1963;185:914-919.
19. Köker S. Normal ve Sorunlu Ergenlerin Yaşam Doyumu Düzeylerinin Karşılaştırılması. [Yayımlanmamış yüksek lisans tezi]. Ankara Üniversitesi Sosyal Bilimler Enstitüsü. Ankara,1991.
20. Aydemir Ö, Uykur B. Reliability and validity study of the Turkish version of functioning assessment short test in bipolar disorder. *Türk Psikiyatri Dergisi*. 2012;23(3):193-200.
21. Soykan C. Institutional Differences and Case Typicality as Related to Diagnosis System Severity, Prognosis and Treatment. [Yayımlanmamış yüksek lisans tezi]. Ortadoğu Teknik Üniversitesi. Ankara,1989.
22. Lu SF, Lo CHK, Sung HC, et al. Effects of group music intervention on psychiatric symptoms and depression in patient with schizophrenia. *Complementary Therapies in Medicine*. 2013;21(6):682-688.
23. Abaoğlu H. Toplumsal katılım ve ergoterapi. *Ergoterapi ve Rehabilitasyon Dergisi*. 2019;7(3):195-200.
24. Uslu E, Buldukoğlu K. Şizofrenide ilaç tedavisine uyum ve psikiyatri hemşiresinin rolü. *Ankara Sağlık Bilimleri Dergisi*. 2018;7(1):61-72.
25. Fındıkoğlu S, Doğan S, Özbek H, Gidiş V. Şizofreni hastalarında müzik terapinin ruhsal durum üzerine etkileri. *Uluslararası Sanat ve Sanat Eğitimi Dergisi*. 2020;3(4):61-70.
26. Zhu Y, Li C, Huhn M, et al. How well do patients with a first episode of schizophrenia respond to antipsychotics: A systematic review and meta-analysis. *European Neuropsychopharmacology: The Journal of the European College of Neuropsychopharmacology*. 2017;27(9):835-844.
27. Khokhar JY, Dwiel LL, Henricks AM, et al. The link between schizophrenia and substance use disorder: A unifying hypothesis. *Schizophrenia Research, Addictions and Schizophrenia*. 2018;194:78-85.
28. Tekin Uludağ Y, Güleç G. Şizofreni tanısı almış hastalarda madde kullanım yaygınlığı. *Nöropsikiyatri Arşivi*. 2016;53(1):4-11.
29. Balaban ÖD, İpekçioğlu D, Eradamlar N, Depçe AA, Yazar M. S. Erkek şizofreni hastalarında alkol ve madde kullanım bozukluğu varlığının bakım veren yükü, yaşam kalitesi, anksiyete ve depresyon düzeyleri üzerine etkisi. *Anadolu Psikiyatri Dergisi*. 2017;18(1):5-12.

- 30.** Li D. Music therapy in mental health and emotional diversion of primary and secondary school students. *Occupational Therapy International*. 2023;9893830.
- 31.** Cao W. The influence of Disney musical practice course on the mental health of chinese left-behind children from the perspective of art communication. *Occup Ther Int*. 2022;24:5738531. doi: 10.1155/2022/5738531.
- 32.** Zheng Q, Lam V. Influence of multiple music styles and composition styles on college students' mental health. *Occup Ther Int*. 2022;6167197. doi: 10.1155/2022/6167197.
- 33.** Dorris JL, Neely S, Terhorst L, VonVille HM, Rodakowski J. Effects of music participation for MCI and dementia: A systematic review and meta-analysis. *Journal of the American Geriatrics Society*. 2021;69(9):2659-2667.
- 34.** Raglio A, Bellandi D, Baiardi P, et al. Effect of active music therapy and individualized listening to music on dementia: A multicenter randomized controlled trial. *Journal of the American Geriatrics Society*. 2015;63(8):1534-1539.
- 35.** Fujito R, Mineo M, Hatada S, et al. Musical deficits and cortical thickness in people with schizophrenia. *Schizophrenia Research*. 2018;197:233-239.
- 36.** Shih YN, Chen CS, Chiang HY, Liu CH. Influence of background music on work attention in clients with chronic schizophrenia. *Work (Reading, Mass.)*. 2015;51(1):153-158.
- 37.** Chung J, Woods-Giscombe C. Influence of dosage and type of music therapy in symptom management and rehabilitation for individuals with schizophrenia. *Issues in Mental Health Nursing*. 2016;37(9):631-641.
- 38.** Katırcıbaşı G. Şizofreni Tanılı Bireylerde Serbest Zamanla İlişkili Ergoterapi Müdahalesinin Etkisinin İncelenmesi. [Yayımlanmamış doktora tezi]. Hacettepe Üniversitesi. Ankara. 2022.
- 39.** Costa R, Bastos T, Probst M, et al. Association of lifestyle-related factors and psychological factors on quality of life in people with schizophrenia. *Psychiatry Research*. 2018;267:382-393.
- 40.** Turunç S. Şizofreni Tanılı Bireylerde İçselleştirilmiş Damgalanma ve Aktivite Performansı İlişkisi. [Yüksek lisans tezi]. Hacettepe Üniversitesi. Ankara. 2021.
- 41.** Akı E, Tanrıverdi N, Şafak Y. Şizofrenili bireylerde birey merkezli ergoterapi programının günlük yaşam aktiviteleri katılımına etkisi. *Ergoterapi ve Rehabilitasyon Dergisi*. 2014;2(2):83-90.
- 42.** Kilit Z, Ekici G, Yağcıoğlu E. Ruhsal hastalıklarda gevşeme eğitiminin ağrı, yorgunluk ve uyku üzerine etkisinin incelenmesi. *Ergoterapi ve Rehabilitasyon Dergisi*. 2019;7(3):171-178. doi:10.30720/ered.535384.

- 43.** Sibley HA. Therapeutic Use of Music Within Occupational Therapy. [Unpublished master's thesis]. D'youville College, New York. 1995.