Received: May, 2020.
Accepted: October, 2021.
UDK: 615.851: 364.444-053.9
DOI 10.3935/ljsr.v28i3.379

# POSSIBLE EFFECTS OF MUSIC THERAPY ON DEPRESSION AND ANXIETY SYMPTOMS, PERCEIVED STRESS AND SUBJECTIVE WELL-BEING IN NURSING HOME RESIDENTS

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## ABSTRACT

*Elderly people are faced with the usual consequences of aging, but also with the onset of difficulties and diseases related to mental health that are more common in older age. Evidence is beginning to emerge that music therapy can improve mental health. This study aimed to determine the effects of music therapy on certain components of mental health in nursing home residents. The study sample consisted of 26 elderly persons (5 men, 21 women), average age 81.96 years (SD = 7.40), who were living in a nursing home. The participants were subjected to a music therapy treatment for six weeks. The mental health aspects such as depression and anxiety symptoms, the level of perceived stress and subjective well-being were measured at baseline and after the end of intervention. The data were collected using the Hospital Anxiety and Depression Scale, the Perceived Stress Scale and the Short Subjective Well-being Scale. The results have shown that there is a significant decrease in the level of depression, anxiety and*

Key words:
anxiety, depression, music therapy, nursing home, well-being

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*perceived stress after music therapy treatment (t = 4.08, t = 4.28, t = 5.56, p < 0,01, respectively). Accordingly, the subjective well-being increased after the intervention period in the study group (t = -2.85, p < 0.01). Findings suggest that music therapy may decrease depression and anxiety symptoms and the level of stress in nursing home residents. The study results imply that music therapy may be an effective treatment strategy for mental health of the elderly in institutional care.*

## INTRODUCTION

Older adults are recognized in the welfare system as a particularly vulnerable user group. Older individuals face many limitations and difficulties such as impaired health and physical disabilities, cognitive and sensory deficits, social loss and change in social roles and relationships, loss of professional role and sense of social utility, unsatisfactory financial conditions due to declining income and lowered self-esteem. Due to the weakening of their functional and cognitive abilities and the inability to take care of themselves and to live independently, there is a need for institutionalization of older adults. However, living in a nursing home is one of the most important factors which can increase the risk of depression (Chow et al., 2004; Ajduković, Ručević and Majdenić, 2013). The depression risks of elderly people who are living in a nursing home have been reported 3 or 4 times more than for elderly people who are in society (Jongenelis et al., 2004).

Depression is one of the most important health problems in elderly people and it is one of the most frequent mental health problems during old age period (Seligman, Walker and Rosenhan, 2001; Mueller et. al., 2017). According to studies, 5% to 7% of the elderly suffer from clinical depression, and an additional 8% to 16% show clinically significant symptoms of depression (Seligman et al., 2001; Cole and Dendukuri, 2003). The reasons of depression in elderly people are the loss of health, spouse, relatives and the social security, sleeping problems and disabilities (Cole and Dendukuri, 2003).

In comorbidities with depression in older age, anxiety often occurs as a consequence of coping with declining cognitive and physical functions and other psychological stressors, or as a secondary symptom underlying poor general health. According to Mueller et al. (2017), anxiety disorders are present in one of twenty older adults and very often can be a presenting feature of dementia, depression, and physical illness. The anxious elderly are more dependent on someone else's help and are more burdensome to families, less disciplined in taking medications, have reduced life satisfaction, greater difficulties remembering and thinking, and are more likely to report feelings of loneliness (Bassil, Ghandour and Grossberg, 2011).

Older people face a series of specific stressful situations that their age brings. Due to the reduced physical, psychological and financial resources, even some seemingly harmless situations may be assessed as threatening and may lead to psychological stress more often. Institutionalization and living in nursing home represent a particular stress for the elderly and require adaptation to new and unusual situations, a new environment and new people. At the same time, stressors, by affecting negative affective states (such as anxiety and depression), increase the health risk (Cohen, Kamarck and Mermelstein, 1983).

One of the most important components in contemporary mental health models is psychological well-being (Jovanović, 2010). The results of a Croatian study conducted by Lovreković and Leutar (2010) showed that there is a moderately positive correlation between quality of life and satisfaction with nursing home services. The results showed that individuals who rated their quality of life as higher were also more satisfied with nursing home services. At the same time, nursing home services also included socializing and activities in the nursing home. Music therapy as a nursing home service allows socializing through music activities and provides social support for older people, what is very important in reducing depression, stress and control physiological parameters leading to a better physical health and mental well-being (Vanderark, Newman and Bell, 1983; Ugur et al., 2017).

Music therapy interventions for older adults are based on the notion that music elicits emotional responses and helps to retrieve memories (Koelsch, 2009). It has been defined as a systematic process of intervention wherein the therapist helps the client to promote health, using music experiences and the relationships developing through them as dynamic forces of change (Bruscia, 1998). In literature, it has been stated that music therapy decreases the depression level of elderly people (Castillo-Perez et al., 2010; Cooke et al., 2010; Chan et al., 2012; Chu et al., 2014; Hanser and Thompson, 1994) and modulates the mood and emotions (Aalbers et al., 2017). Meta-analysis also suggests that music therapy in combination with standard treatment has statistical significance in reducing depressive symptoms among older adults (Zhao et al., 2016). Short-term results of music therapy in the elderly are also evident in the field of cognitive skills, in reducing agitation and anxiety, in raising mood, lowering systolic blood pressure and in increasing quality of life (Yinger, 2018).

## AIM OF THE RESEARCH

The main aim of this study was to explore the effects of music therapy on depression and anxiety symptoms and on the level of perceived stress in nursing home residents. The next goal was to determinate the effect of music therapy on subjective well-being in elderly people living in a nursing home.

According to previous research, a positive effects of music therapy on depression and anxiety symptoms were expected, as well as on perceived stress. We also assumed that positive effects will be observed in subjective well-being.

# METHODS

## Participants

The study consisted of 26 elderly people who were living in nursing home and were referred to music therapy by the clinical staff. The eligibility criteria for the study were the ability to communicate and cooperate, stable comorbidities, ability to hear with or without assistive device, and no current psychiatric disorders.

The research participants suffered from various physical ailments typical for older age (hypertension, diabetes, locomotor system diseases, etc.), and two participants were in the wheelchairs (as a result of stroke). Two participants were visually impaired, and one participant was blind. During the music therapy intervention, the participants were not involved in any other group activities other than joint exercise.

## Study setting and design

The study was carried out in an elderly nursing home in a city of Poreč in early 2019. The founder of the institution is the city of Poreč. Music therapy intervention was performed within six weeks. The battery of the questionnaires was applied at baseline (week 0) and immediately after the termination of intervention (week 6).

The study was approved by the ethics committee of the Academy for Arts and Culture at the University of Osijek and conducted according to the ethical guidelines set out in the Declaration of Helsinki. Written approval was obtained from the nursing home ethical board. All participants were informed about the purpose and design of the study and were guaranteed anonymity and confidentiality. Written informed consent was obtained from all participants.

All participants were assigned codes and distributed a questionnaire battery at a baseline. On average, it took approximately 30 minutes to apply the entire battery. With participants in poor health or those who had difficulty understanding the questions, the interviewer asked and explained the questions in the questionnaire and recorded the participant's answers. In this part of the research, particular attention was paid to establishing relationships with the participants, emphasizing the confidentiality of their data and responses.

At the end of the intervention program (week 6), the same battery of questionnaires (retest) was performed to determine the effect of the music therapy treatment.

## Music therapy intervention

Participants were provided 6 weeks of music therapy for two times a week. Music therapy sessions ranged from 45 min to 1 h and were held in groups of six to ten people in a common room in the nursing home. Therapy sessions were based on individualized assessments that gathered resident demographics, historical musical preferences and need to address depression and anxiety symptoms.

Group music therapy focuses on affecting regulation through active, reciprocal music making with the use of singing and musical instruments. The content of the sessions is designed in order to meet the psychosocial needs of each individual resident, which in turn is thought to reduce depressive and anxiety symptoms, and to stimulate overall social and emotional well-being (McDermott, Orrell and Ridder, 2014.; Eickholt, Geretsegger and Gold, 2018). Group music therapy aims to work in the »here and now« by responding to participants' current emotional expressions, containing and incorporating them into meaningful musical expressions for therapeutic gain (Ridder, 2011).

Music therapy sessions were provided by a trained music therapist, who is registered with the appropriate professional association in Croatia.

## Outcome measures

*Hospital Anxiety and Depression Scale* (HADS, Zigmond and Snaith, 1983) is an observer-assisted self-rating scale used as a screening method to detect and evaluate depression and anxiety symptoms. The HADS consists of seven items for anxiety (HADS-A) and seven for depression (HADS-D). The items scores are added, giving sub-scale scores defined as having answered at least five or seven items on both the HADS-A and HADS-D from zero to 21. A score below seven does not indicate depression/anxiety, a score between 8 and 10 indicates a borderline condition, and a score between 11 and 21 indicates depression or anxiety. The HAD scale is most commonly used as a reliable screening tool for anxiety and depression and can be used in the evaluation of treatment. It has been tested in the psychiatric and general population of adults and adolescents and has been translated into Croatian. Kenn et al. (1987) demonstrated the benefits of the HADS scale over other measures of depression in the elderly by reducing the impact of organic diseases and physical symptoms on measuring depression and anxiety. The concurrent validity of the HADS

compared to other questionnaires of anxiety and depression is described between 0.60 and 0.80 for both sub-scales (Bjelland et al., 2002; Snaith, 2003).

*Perceived Stress Scale – 10* (PSS, Cohen, Kamarck i Mermelstein, 1983) is the most widely used self-report measure of global perceived stress. The scale measures the degree to which life has been experienced as unpredictable, uncontrollable and overloaded in the past month. The PSS-10 scale consists of 10 items to which the participant responds on a 5-point Likert-type scale (0 – ever to 4 – very often). The total score is obtained by summing the responses where a higher score indicates a higher level of perceived stress. The scale was translated into Croatian and used on a Croatian sample (Hudek-Knežević, Kardum and Lesić, 1999).

*Short subjective well-being scale* (*Kratka skala subjektivnog blagostanja*, KSB, Jovanović and Novović, 2008) is a global assessment of the affective and cognitive component of subjective well-being. It consists of 8 items with high internal consistency ($\alpha = 0.86$). The answers are given on a 5-point Likert-type scale. The affective dimension is assessed using the Positive Affectivity subscale, which contains items related to experiencing pleasant emotions, while the cognitive aspect of subjective well-being is assessed by the Positive Attitude towards Life subscale, which is operationalized through items related to positive life evaluation and optimistic attitude toward life.

## Data analysis

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS, Chicago, IL) for windows, version 23.0. The data were screened to confirm normality of distributions. Changes in depression and anxiety levels and in perceived stress and well-being were compared within the group at baseline (week 0) and at the end of intervention period (week 6), using paired sample-test. The statistical significance was accepted as $p < 0.05$ in the study.

## RESULTS

The demographic characteristics of participants are presented in Table 1. The average age of participants for this study was 81.96 ± 7.40. The sample consisted of 5 (19.2%) male participants and 21 (80.8%) female participants. In the study population, 70% of participants were widowed. The average length of stay in the nursing home was 4.5 years.

**Table 1.** Demographic characteristic of the participants

| Characteristic | | N | % |
|---|---|---|---|
| Age (years) [mean (SD)] | 81.96 ± 7,40<br>(Min: 60; Max: 92) | | |
| Gender | Female | 21 | 80.8 |
| | Male | 5 | 19.2 |
| Education status | Primary school | 20 | 76.9 |
| | High school | 2 | 7.7 |
| | University | 4 | 15.4 |
| Marital status | Single | 2 | 7.7 |
| | Married | 4 | 15.3 |
| | Divorced | 2 | 7.7 |
| | Widowed | 18 | 69.2 |
| Number of children | 0 | 4 | 15.4 |
| | 1 | 4 | 15.4 |
| | 2 | 10 | 38.5 |
| | 3 | 5 | 19.2 |
| | 4 | 2 | 7.7 |
| | 5 | 1 | 3.8 |

Paired sampled t-test demonstrated a significant difference in measured components of mental health before and after music therapy intervention. The results show that there is a significant difference between baseline and repeated measures across all variables: anxiety, depression, perceived stress, and subjective well-being. The results showed a significant declined in anxiety ($t = 4.08$, $p < 0.01$, $r = 0.63$) and depression symptoms. ($t = 4.28$, $p < 0.01$, $r = 0.65$). It was also determined that the mean scores of pre-test and post-test PSS-10 was significantly decreased ($t = 5.56$, $p < 0.01$, $r = 0.74$). Subjective well-being significantly improved in residents ($t = -2.85$, $p < 0.01$, $r = 0.49$) after music therapy compared to baseline (Table 2). The effect sizes for all variables are large.

**Table 2.** The comparison of mean scores of mental health components before and after music therapy intervention

| | Mean ± SD | | *t* | *p* | *R* |
|---|---|---|---|---|---|
| | **Pre-test** | **Post-test** | | | |
| HAD – Anxiety | 16.73 (5.47) | 1365 (5.47) | 4.08 | 0.000 | 0.63 |
| HAD – Depression | 15.46 (3.31) | 12.77 (1.84) | 4.28 | 0.000 | 0.65 |
| Perceived stress | 14.85 (8.04) | 8.38 (8.34) | 5.56 | 0.000 | 0.74 |
| Subjective well-being | 32.85 (5.57) | 35.85 (4.82) | -2.85 | 0.009 | 0.49 |

*R* – effect size

# DISCUSSION

The aim of the presented research was to measure the effectiveness of a music therapy intervention on anxiety and depression symptoms, and on perceived stress in nursing home residents. Further goal was to measure the effect of group music therapy on subjective well-being. We found that music therapy significantly decreased anxiety and depression symptoms and perceived stress. The results have also shown increased subjective well-being after music therapy for six weeks.

In our study group, the anxiety and depression levels decreased compared to the pre-test values. Similarly, Cooke et al. (2010) reported that music therapy, which was applied to older people for 40 minutes for eight weeks, decreased depressive symptoms over time. Similar findings were noted in other studies exploring the effect of music therapy in patients with depression and dementia (Hsu and Lai, 2004; Castillo-Perez et al., 2010; Raglio et al., 2010; Chan et al., 2012).

The most commonly used treatment in this study was the active form of music therapy, and the treatment was performed in groups. Within active music therapy, active doing is precisely a characteristic that is associated with meaningful ways of solving problems related to depression. There are three interrelated dimensions of active music making; aesthetic, physical and relational (Maratos, Crawford and Procter, 2011). Musical experiences have their aesthetic value through which it is possible to experience a kind of catharsis, but they also open up the opportunity for discussion and insight. The therapist and the client, and the clients with each other, meet and create something meaningful through the musical creation. At the same time, music making provides a feeling of satisfaction (Hsu and Lai, 2004), and the onset of depression is linked precisely to the lack of pleasure and meaning. Furthermore, active music playing also requires a goal-directed physical movement, and the role of physical activity in eliminating depression and alleviating its effects is

well known. Through active musicianship, the individual becomes aware of oneself as a physical being. By observing others, who for example are swinging in the same rhythm, the client feels oneself in the context of shared experience what gives a strong sense of participation and engagement in a meaningful activity »here and now«. The relational dimension of active music playing represents the relationship that a client creates through musical experiences with others (the therapist and other group members). The therapist facilitates this relationship and facilitates the client's process of discovering oneself in relation to others, which includes the opportunity to experience meaning and satisfaction.

Engaging in music activities can stimulate conversations about the worries and negative thoughts a person encounters, what allows a more realistic processing of those thoughts and encourages memories of some similar situations from the past that the person has successfully dealt with (e.g., through reminiscence). The group can provide help and support the individual in solving problems. At the same time, engaging in music activities can sometimes serve as a distraction from the negative thoughts, and facilitate the coping with the pain and consequences of aging. By using music, we can divert attention from the sources of stress or negative states and reduce anxiety and fear, while also acting on affect by maintaining a positive mood, improving it, or controlling it (Thoma et al., 2012).

Institutionalization and life in nursing home represents a great deal of stress for the elderly. Participation in music activities can make it easier for a person to cope with stress or to develop certain coping mechanism, which enable the perception of the same stressor as less threatening. Our study participants often stated the financial concerns (financial dependency on others), concerns about health and health services and burdens related to relations to other nursing home residents or nursing home staff. As in our study the mean scores of PSS-10 were significantly lower after music therapy treatment, we assume that music making facilitated and enhanced the resilience in the participants. Engagement in music activities, especially when performed in a group, gives the opportunity to speak about and share the concerns, while receiving support through mutual music experience. This kind of social support is very important in reducing stress (Galić and Tomasović Mrčela, 2013).

Our results have also shown that there was a significant increase in subjective well-being after music therapy intervention. Participants in the study reported the higher level of satisfaction with life and they experienced more positive emotions. The impact of engaging in music therapy activities on subjective well-being can be explained by its impact on indirect factors that influence the well-being of the individual. Music making plays an important role in building and strengthening one's identity and sense of self, it may improve social communication and peer identification and provide comfort and reduce feelings of loneliness (Stige et al., 2010). At the same

time, music is related to the issues of control, ability, achievement and self-esteem. All this suggests that music is related to functions that affect the personal well-being. By self-expression through music making, the client rebuilds the identity and the sense of belonging. Those are fundamental psychological needs and their fulfilment is an essential precondition for psychological well-being (Laukka, 2007).

Experiencing a positive affect is also associated with increased well-being. Positive affect can be defined as the pursuit of a good mood and the search for situations that will contribute to it (Musek, 2010). Group music therapy offers an opportunity to experience pleasant emotions and to deal with negative ones in a functional manner, what are the key emotional components of psychological well-being.

As our results suggest, music therapy in nursing home settings can provide significant support in maintaining and improving subjective well-being, which is a key component of mental health. As noted earlier, participating in music activities might have a positive effect on anxiety and depression level, it might reduce stress and unpleasant emotions, promote social relationship and provide social support, all of which affect the subjective well-being of the participants.

## Study limitations and future consideration

This study has several limitations. Primarily, the study was conducted in only one nursing home, and the study sample reflects only one area of Croatia. Therefore, our findings cannot be generalized to all elderly people living in nursing homes. Also, the research participants were not randomly selected, but the nursing home staff selected the elderly individuals who have a higher level of functionality and independence.

As the sample size was small and with no control group, we could consider our research as a preliminary study. Further randomized-controlled trial with a larger sample size is recommended to validate and generalize our findings. Careful consideration should also be given to which of the depression test scales to use in further research. However, these data support the use of music therapy interventions with older adults experiencing depression, anxiety, and distress within institutional care setting.

# CONCLUSION

This study explored the effects of music therapy on certain components of the mental health in nursing home residents. The results of presented research indicate the possible positive effects of music therapy on depression and anxiety symptoms and on the level of perceived stress in elderly persons. Furthermore, this positive effect was reflected in relation to subjective well-being.

Institutionalization of the elderly is a risk factor for the development of mental health problems. Engagement of nursing home residents in musical activities within music therapy program may reduce anxiety and depression symptoms, decrease stress level and consequently positively affect their sense of well-being. The results of this research should encourage the implementation of music therapy programs in nursing homes in the Republic of Croatia, as music therapy has proven to be highly applicable and extremely cost-effective in the clinical work with older adults.

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# *UČINAK MUZIKOTERAPIJE NA SIMPTOME DEPRESIVNOSTI I ANKSIOZNOSTI I SUBJEKTIVNO BLAGOSTANJE KOD KORISNIKA DOMOVA ZA STARIJE I NEMOĆNE OSOBE*

## *SAŽETAK*

*Starije se osobe suočavaju s uobičajenim posljedicama starenja, ali i s poteškoćama i bolestima vezanim za mentalno zdravlje koje su češće u starijoj dobi. Počinju se pojavljivati dokazi da muzikoterapija može poboljšati mentalno zdravlje. Cilj ovog istraživanja je utvrditi učinke muzikoterapije na određene komponente mentalnog zdravlja osoba starije životne dobi smještenih u domu za starije i nemoćne. U istraživanju je sudjelovalo 26 ispitanika (5 muškaraca i 21 žena), prosječne dobi 81,96 godina (SD = 7,40). Ispitanici su bili uključeni u program muzikoterapije dva dana u tjednu, tijekom šest tjedana. Aspekti mentalnog zdravlja poput depresije, anksioznosti, percipiranog stresa i subjektivnog blagostanja mjereni su neposredno prije i nakon završetka intervencije. Podaci su prikupljeni pomoću Skale bolničke anksioznosti i depresije, Skale percipiranog stresa i Kratke skale subjektivnog blagostanja. Rezultati su pokazali kako postoji značajno smanjenje razine depresije, tjeskobe i percipiranog stresa nakon primjene muzikoterapije ($t = 4,08$, $t = 4,28$, $t = 5,56$, $p<0,01$). U skladu s tim, utvrđeno je značajno poboljšanje subjektivnog blagostanja kod ispitanika ($t = -2,85$, $p < 0,01$). Rezultati upućuju kako muzikoterapija može umanjiti simptome depresije i anksioznosti te razinu stresa kod korisnika doma za starije osobe. Ishodi istraživanja sugeriraju kako muzikoterapija može biti učinkovita strategija u očuvanju i poboljšanju mentalnog zdravlja osoba starije životne dobi u okviru okruženja institucionalne skrbi.*

***Ključne riječi:*** *anksioznost; depresija; muzikoterapija; dom za starije osobe, blagostanje*