

## Effects of music therapy on generalized anxiety in older adults

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### ABSTRACT

Music therapy and its intervention techniques are effective in lowering anxiety levels in older adults. Therefore, the objective of this study was to determine the effects of music therapy on generalized anxiety in older adults. The methodology employed was based on a quantitative, descriptive, bibliographic, and field approach. The method used was deductive, with a cross-sectional experimental design. The data collection techniques used were surveys and observation. The data collection instruments applied were the GAD-7, composed of seven questions, and a checklist. The population consisted of 14 older adults, and the sample, chosen non-probabilistically or by convenience sampling, consisted of five older adults. The results indicate that the older adults show symptoms of worry, tension, and restlessness, exhibiting mild to moderate levels of anxiety. Interactive, active, or creative techniques proved to be the most effective against anxiety levels in older adults, and these techniques produced well-being, reduced anxiety levels, and improved quality of life. It was concluded that music therapy has positive effects on generalized anxiety in older adults because it serves as recreation, release, expression, communication and channeling of the emotions of the older adult.

**KEYWORDS:** Music therapy; Effects of music therapy; Generalized anxiety disorder; Older adults.

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### INTRODUCTION

Music therapy is the use of music and its components as a strategy to achieve therapeutic goals that improve or restore mental and emotional health, leading to changes in behavior (Eizaguirre, 2021). It is important to note that this therapeutic method can only be used by trained professionals or specialists with specific knowledge of developing an action plan aimed at improvement, one that includes participation in activities related to the individual's or patient's specific problems.

Music therapy is a psychotherapeutic technique that uses sounds from live or recorded instruments—that is, from natural instrumental performance, natural singing, or listening to a recording. In this process, there is no need for verbal communication with the patient; rather, the aim is for the patient to use music and all that it entails to channel their emotions (Martínez et al., 2021). Music can be used passively by simply listening to a piece of music or actively by playing an instrument, an action that can be carried out individually or in a group (Rojas et al., 2018).

Music therapy should be led by a specialist or music therapist with the experience to bring about the relevant and necessary changes in the individual, helping them to better understand themselves and their own world, so that they can achieve better social adaptation and thus improve their physical and mental health (Rojas et al., 2018). The therapeutic purpose of music therapy is to establish an interrelationship between the individuals or patients who participate in it, facilitating and promoting communication, learning, mobilization, and organization, in order to satisfy physical, emotional, mental, social, and cognitive needs and thus influence health (Álvarez et al., 2020).

The effects produced by music therapy can be relaxing and calming, thus contributing to the harmonization of individuals' moods and exerting a notable influence on the regulation of psycho-emotional situations such as stress, depression, or anxiety, often proving more efficient and effective than conventional therapeutic exercises. "Music therapy represents a discipline that implements melodies with the aim of providing an emotional stimulus that allows synchronization between physiological and auditory factors, in order to control and moderate psychic and organic responses" (Rea et al., 2019).

In other words, generalized anxiety disorder is characterized by excessive and exaggerated worry, resulting in overthinking and heightened alertness without any valid reason. It is an apprehensive anticipation of future harm or misfortune, characterized by difficulty controlling these worrisome thoughts about daily routines, such as those related to health, work, or family (Villegas, 2021). This situation disrupts a person's normal functioning because it is invasive, pronounced, and distressing. In most cases, it appears without a clear trigger and is often accompanied by physical discomfort such as irritability, restlessness, fatigue, muscle tension, and difficulty concentrating or sleeping.

Generalized anxiety is common in older adults due to their exposure to a range of situations. Older adults are defined as those who have entered the final stage of the life cycle, known as the third age, which begins around 60 or 65 years of age and ends

with death (Ramos et al., 2019). During this stage, individuals experience a series of cognitive, physical, and emotional changes that tend to lead to an irreversible decline in their quality of life. The onset of illnesses due to the natural physiological deterioration associated with aging is also noticeable (WHO, 2022; Ministry of Health, 2024). Criteria for defining older adults include chronological age (measured in years), physical characteristics (which include changes in posture, gait, and physical features), and cognitive ability, which affects visual perception, memory, and sleep (Vélez et al., 2019).

All these changes that occur in older adults can lead them to experience generalized anxiety. Anxiety in older adults can manifest at different levels, each with certain characteristics: mild anxiety can arise from everyday situations and is characterized by heightened alertness; moderate anxiety is triggered by immediate worry that diminishes sensory capacity and is characterized by blocking certain areas; severe anxiety is usually caused by specific situations that become the absolute focus, leading to a loss of sensory capacity and resulting in disoriented behavior, fatigue, sleep disturbances, sweating, hypertension, muscle tension, and difficulty concentrating (Córdova & Santa María, 2018).

This situation arises within an institution that provides care for elderly adults and serves as a home for them. Some residents receive occasional visits from their families, others very sporadic visits, and still others have been completely abandoned. There, they experience moments of great tension caused by loneliness, fear of death, illness, and unemployment, a situation that has led to the emergence of generalized anxiety disorder in these seniors.

Given this scenario, identifying generalized anxiety in older adults has proven beneficial for developing an action and intervention plan to promote their well-being through the implementation of active and passive music therapy techniques. Therefore, the general objective of this study is to determine the effects of music therapy on generalized anxiety in older adults. The specific objectives are: a) to identify the symptoms of generalized anxiety in older adults; b) to identify the most effective music therapy techniques for intervention in generalized anxiety in older adults; and c) to explain the effects of music therapy techniques on generalized anxiety in older adults during the intervention process.

## METHODOLOGY

This study employed a quantitative approach, which is identified as a sequential and confirmatory process in which data is collected to test a hypothesis through numerical measurement and statistical analysis. This process establishes behavioral norms within which to test these theories (Mendoza & Monroy, 2018). This approach was chosen because it allows for the collection of relevant information to determine the effectiveness of music therapy as a treatment for anxiety in older adults.

For the development of this study, an experimental design was adopted. Here, the study population is not chosen randomly, as the researcher has a pre-established group, and the objective is to identify a causal hypothesis in which one or more variables are manipulated. The research design is a strategy employed to answer the question that gives meaning to the research. It constitutes an organizational and planning mechanism that is implemented with the intention of obtaining information related to the course and objectives proposed for the achievement of the research ( Torracchi , 2019).

The type of research chosen for this study was descriptive-explanatory, bibliographic, and field-based. Descriptive research is carried out when the aim is to detail the main components of a situation or reality. Likewise, they state that explanatory research seeks to reveal the causal relationship; that is, it not only outlines the details of a problem but also identifies its causes (Alban et al., 2020).

The data collection techniques used in this study were surveys and observation. Through structured checklists, observation allowed for the collection of information about the music therapy techniques that proved most effective in the intervention process and the positive or negative effects these techniques produced in older adults. Direct observation aims to gather qualitative information about the behavior of the individuals observed; however, this information can be coded to give it a numerical character and values that suggest quantities (Anguera et al., 2020).

For this research, the instrument called Generalized was applied. Anxiety Generalized Anxiety Disorder (GAD). There are two versions of this instrument: a long version consisting of seven [7] items or questions and a short version consisting of two [2] items.

On the other hand, the checklist was another instrument used in this research. In this case, two checklists were applied: one for the music therapy techniques that proved most effective in the intervention process, consisting of five indicators for interactive, active, or creative techniques and two indicators for receptive or passive techniques; the other to verify the effects produced by the music therapy techniques, composed of three indicators for positive effects and two indicators for negative effects. “A checklist is a structured and dichotomous assessment instrument that records the presence or absence of a trait, behavior, or sequence of actions” ( Morales et al., 2020).

### Procedure for assessing the level of generalized anxiety

In the process of this investigation, the (GAD-7) version was applied, which has seven items that answer the question: In the last few days, how often have the following problems bothered you?, the items being the following: 1. Feeling nervous, anxious or very tense; 2. Being unable to stop worrying or to control worrying; 3. Worrying too much about different issues; 4. Having trouble relaxing; 5. Being so restless that it is difficult for you to remain seated; 6. Getting angry or irritated easily and, 7. Feeling afraid that something terrible may happen.

The frequency for measuring these items is subject to a nominal scale ranging from: 0 = Not at all; 1 = Some days; 2 = More than half the days; 3 = Almost every day, providing a severity score from 0 to 21. In the interpretation, the following scale is established: from 5 to 9 points is equal to Mild; from 10 to 14 points is equal to Moderate and, from 15 to 21 points is equal to Severe.

### Population and sample

The population refers to the total set of elements of interest or people who are the object of study in a research project. The population of this study consisted of 14 adults, of whom 9 of these older adults did not have a neurological condition (Castro, 2019).

The sample is a representative portion of a larger group, which is selected with the intention of studying certain particular characteristics that are of interest, which serve as a reference in determining the situation that affects the entire group and thus obtain a result relative to that generality (Otzen & Manterola, 2022).

The sample for this study was selected non-probabilistically or by convenience and corresponds to a group of 5 older adults, who were diagnosed as a result of the application of the GAD-7 instrument or test. A sample is non-probabilistically or by convenience when the selection is achieved according to the ease of access to the study group, in addition to the time, resources and capacity that they possess (Tone, 2020).

## RESULTS

This section presents the results of applying the Generalized Anxiety Scale (GAD-7), first as a diagnostic tool and then as a post-intervention measure. It also presents the sociodemographic data of the patients who participated in the intervention, their initial level of generalized anxiety, and the effectiveness of music therapy on the disorder after implementing the intervention plan.

**Table 1.**  
*Sociodemographic data*

Sex	F	%
Male	2	40%
Female	3	60%
Age range	F	%
70-75	3	60%
76-80	1	20%
81-85	1	20%
Family members	F	%
Yeah	4	80%
No	1	20%
Family visits	F	%
Always	3	60%
Sometimes	1	20%
Never	1	20%

**Note:** Grouping by sex and age range, relatives and family visits received by patients; f = frequency. % = percentage.

The sociodemographic form collected data related to sex, age range, and two questions regarding whether they have family members and whether those family members visit the elderly residents at any time. The data shows that the number of female patients is greater than the number of male patients; the predominant age range is between 70 and 75 years; family members visit the patients, and the frequency of these visits is always.

**Table 2.**  
*Diagnostic test (Pretest) applied to patients*

No.	Criteria	Responses and scores obtained by patients				
		P 1	P 2	P 3	P 4	P 5
1	Feeling nervous, anxious, or very tense	1	3	0	3	3
2	Being unable to stop worrying or to control worry	1	3	2	1	1
3	Worrying too much about different issues	2	2	2	3	2
4	Having trouble relaxing	2	1	2	1	3
5	To be so restless that it is difficult for them to remain seated	2	2	1	3	3
6	To get angry or irritated easily	0	2	0	2	0

7	To feel afraid that something terrible might happen	0	1	0	1	1
	<b>Total points</b>	6	14	7	13	13
	<b>Anxiety level</b>	Mild	Moderate	Mild	Moderate	Moderate

**Note:** Anxiety level detected in patients. P1 Mrs. AT, 70 years old; P2 Mr. LP, 75 years old; P3 Mr. RA, 74 years old; P4 Mrs. AF, 79 years old; P5 Mrs. CD, 81 years old.

By analyzing the data presented in this table, related to the scores assigned to each of the criteria, referring to the established symptoms and the total score obtained as a result of the general sum of these, it is estimated that patient 1 presents a mild level of generalized anxiety; patient 2 shows a moderate level; patient 3 shows signs of a mild level; patient 4 experiences a moderate level and patient 5 carries with her a moderate level.

**Table 3.**  
*Generalized anxiety level of older adults*

Level	No.	%
No anxiety is apparent	0	0%
Mild symptoms of anxiety are present.	2	40%
Moderate symptoms of anxiety are present.	3	60%
Severe symptoms of anxiety are present.	0	0%
<b>Total</b>	<b>5</b>	<b>100%</b>

**Note:** Generalized anxiety level extracted from the GAD-7 Scale applied as a diagnosis to older adults.

This table shows that almost half of the patients have mild symptoms of anxiety and more than half show moderate symptoms of anxiety.

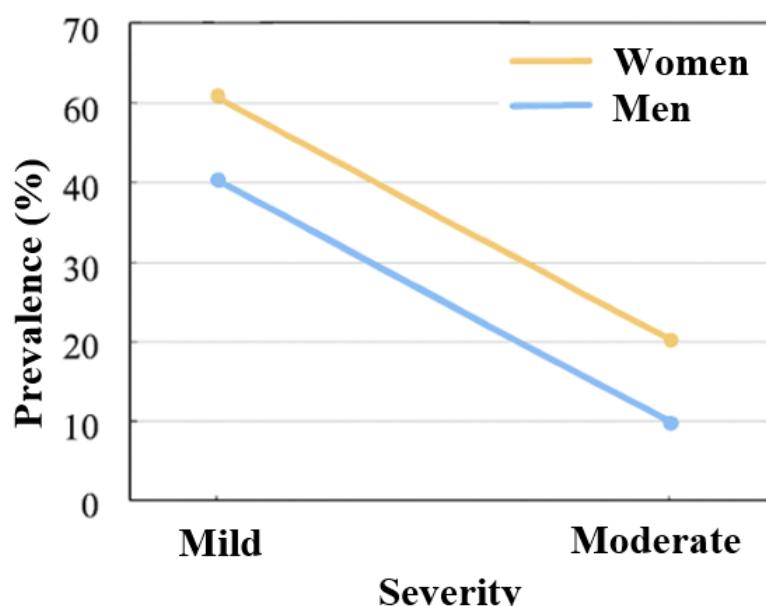
**Table 4.**  
*Correlation of anxiety level by sex*

Cluster	Patients	Total individual points	Average points	Cases of mild anxiety	Cases of moderate anxiety
Women	P1 (6), P4 (13), P5 (13)	6, 13, 13	10.67	1	2
Men	P2 (14), P3 (7)	14, 7	10.5	1	1

**Note.** P= Patients; ()= Score according to the GAD-7 Scale.

The table shows that the average anxiety level between both sexes is almost identical, indicating very similar levels. In women, moderate anxiety predominates, with 2 out of 3 women reporting it. In men, the distribution was more balanced, with 1 case showing mild anxiety and 1 moderate. The difference between the sexes is not significant at the average intensity level, but at the moderate intensity level, women show a slightly higher tendency.

**Figure 1.**  
*Comparison of anxiety levels between women and men*



**Note:** Data presented as a percentage scale and severity level.

The orange line, corresponding to women, shows a steeper decline from mild anxiety (60%) to moderate anxiety (30%). The blue line, corresponding to men, also decreases, though less sharply, from 40% to 20%.

**Table 5.**  
*Music therapy techniques that proved most effective*

Techniques	Indicators	Frequency of participation
Interactive, active or creative techniques	Participates in musical improvisations	5
	Participate in musical movement activities	5
	Participate in rhythmic-percussive activities	5
	Participate in musical games	5
	Recreate songs	3
Receptive or passive techniques	Participate in audio-music sessions	2
	Participate in musical relaxation sessions	2

**Note:** Frequency of patient participation in activities.

This table shows that the most popular and therefore most effective music therapy technique was the interactive, active, or creative one. It can be verified that patients were more interested in and participated in the activities of the interactive technique than in those of the receptive technique.

**Table 6.**  
*Post-action plan or intervention test applied to patients*

No.	Criteria	Responses and scores obtained by patients				
		P 1	P 2	P 3	P 4	P 5
1	Feeling nervous, anxious, or very tense	1	0	0	1	3
2	Being unable to stop worrying or to control worry	1	0	1	0	1
3	Worrying too much about different issues	1	0	2	1	3
4	Having trouble relaxing	0	1	1	0	1
5	To be so restless that it is difficult for them to remain seated	0	0	0	1	3
6	To get angry or irritated easily	0	0	0	0	1
7	To feel afraid that something terrible might happen	0	0	0	0	1
<b>Total points</b>		3	1	4	3	13
<b>Anxiety level</b>		Without Anxiety	Without Anxiety	Without Anxiety	Without Anxiety	Moderate

**Note:** Anxiety level detected in patients. P1 Mrs. AT, 70 years old; P2 Mr. LP, 75 years old; P3 Mr. RA, 74 years old; P4 Mrs. AF, 79 years old; P5 Mrs. CD, 81 years old.

By performing a thorough analysis of the data contained in this table, which are directly related to the scores given to each of the criteria or symptoms determined and the overall score obtained as a result of the total sum of said points, it is inferred that after participating in the music therapy activities carried out by the research team, patient 1 does not present symptoms of generalized anxiety; patient 2 does not present symptoms; patient 3 does not present symptoms; patient 4 does not present symptoms; however, patient 5 continues to present symptoms at a moderate level.

**Table 7.**  
*Effects produced by music therapy techniques*

Effects	Indicators	Yeah	No
Positive	Reduces anxiety levels	✓	
	It produces well-being	✓	
	It improves the quality of life.	✓	
Negative	It causes boredom		✓
	It increases anxiety levels.		✓

**Note:** Indicators that are met or not, in accordance with the effects of music therapy techniques.

This table shows the effects that music therapy can produce, including reducing anxiety levels, promoting well-being, and improving quality of life. These music therapy sessions never resulted in boredom or an increase in generalized anxiety levels.

## DISCUSSION

It is established that anxiety can present at levels ranging from mild to moderate to severe. As a result of the diagnostic test, it was determined that older adults were experiencing anxiety levels ranging from mild to moderate. It is worth noting that women had a higher prevalence of moderate anxiety than men, implying that anxiety is more common in women than in men; however, in this study, this result is not statistically significant because the sample size is very small and cannot be considered generalizable. According to Domínguez et al. (2024):

Anxiety disorders affect women more frequently than men, with the prevalence being almost twice as high in women. Specifically, 17.5% of women, compared to 9.5% of men, have experienced some form of anxiety disorder during their lifetime. (p. 2)

When interviewing each of the older adults, it became evident that there are a number of triggers that cause this emotional state, including recent losses of children, feelings of loneliness, feelings of abandonment, and fear of death (Córdoba & Santa María, 2018). Consequently, the older adults presented symptoms of nervousness, anxiety, worry, tension, restlessness, and fear. Worry is one of the prominent symptoms of anxiety that contributes to a diagnostic criterion for generalized anxiety disorder (Ching & Vera, 2021). Exaggerated and excessive worry, as well as hypervigilant thoughts, are also part of the symptoms of generalized anxiety (Villegas, 2021).

As a result of the intervention processes and during the music therapy sessions conducted with the older adults, a marked interest was observed in the activities associated with interactive, active, or creative techniques. They sang, danced, and played instruments with great enthusiasm. However, when it was time to carry out the activities associated with receptive or passive techniques, which were meant to be moments of listening and calm, they would get up from their seats and leave the session area. "This type of therapy provides older adults with a safe environment that facilitates the active expression of their emotional and social needs" (César, 2023). The interactive technique fosters an interaction between the patient and the music through dance, singing, and clapping, which promotes a cathartic release for the patient (Miró, 2021; Almaraz, 2022).

After the intervention process and music therapy sessions concluded, the effects of implementing the music therapy techniques and the underlying activities were examined. These effects can be summarized as a reduction in generalized anxiety levels, increased emotional well-being, and an improved quality of life for the older adults. No negative effects such as boredom, distress, despair, or physical discomfort were observed. Therefore, the use of music therapy techniques has the potential to improve the quality of life for older adults (Palau, 2018). Active music, as a technique, achieves positive effects on quality of life by promoting broad physical and mental well-being, reducing stress levels, slowing cognitive decline, evoking feelings of pleasure and enjoyment, maintaining social connections, and fostering creative self-expression (Sarfson & Larraz, 2017). Furthermore, the control and moderation of psychological and physical responses are among the effects produced by music therapy (Rea et al., 2019). Accordingly, music therapy can facilitate concentration, recharge energy, and alter emotions (Puerta, 2019).

## CONCLUSIONS

After completing the process of analysis and interpretation of the results of the GAD-7 Scale applied to older adults, the following conclusions are presented in accordance with the objectives that were established as the guiding principle of the research: Although the result of this study is not conclusive regarding the idea that women are more likely to present higher levels of anxiety than men, due to the small sample size, it does confirm the conclusions of other studies since the moderate level of anxiety, which is quite important, was the one that prevailed in both sexes and, above all, because women had a higher frequency than men.

The symptoms presented by the patients included worry, difficulty relaxing, and restlessness. They were quite anxious about various issues and unable to control their anxiety; likewise, they became tense and had trouble achieving a state of relaxation; finally, they were very restless, to the point that they found it difficult to remain seated in one place.

The most effective techniques used in this process were interactive, active, and creative, as the older adults participated openly and felt very comfortable taking part in musical improvisations, musical movement activities such as dancing, rhythmic-percussive activities like playing a set of percussion instruments, and recreating songs from their era. Music therapy techniques, especially interactive, active, and creative ones, produce positive effects on psycho-emotional, physical, and cognitive aspects, effectively reducing levels of generalized anxiety, producing a sense of well-being, and improving the quality of life of older adults.

It should be noted that one patient showed no improvement in her generalized anxiety levels. This was because, out of ten sessions, she only participated in the first and last, which explains why there were no positive effects for her. However, the other patients did experience positive effects since they participated in all sessions. Although the research did not focus on a comparative analysis between a control and an experimental group, this finding, albeit unintentionally, reaffirms that music therapy is a highly useful strategy for treating generalized anxiety in older adults. Among the effects produced by the intervention process with these

patients were:

*Reduction of anxiety levels:* The applied music therapy techniques had significant effects on reducing anxiety levels, as patients, after the interventions, appeared calmer, less tense, less worried, less distressed, and less restless.

*Production of well-being:* These music therapy techniques led patients to experience pleasure and feel motivated by participating in musical activities by playing, dancing and singing, these techniques serving as mental release and muscle relaxation for them.

*Improves quality of life:* The techniques impacted various dimensions of the patients, such as the physical dimension, because they engaged in physical activity by dancing and entered into a process of energy expenditure that activates the entire system; the emotional dimension, since through participation in the activities they felt part of something, they felt loved and this led them to smile, to feel loved and important; the social dimension, this allowed them to come into contact with their peers and with other people when dancing, singing in chorus and playing instruments together.

Music therapy has positive effects on generalized anxiety in older adults, reducing anxiety levels, promoting well-being, and improving quality of life. Furthermore, it serves as recreation, release, catharsis, expression, communication, and a channeling of emotions, especially when interactive, active, or creative techniques are used, including musical improvisations, rhythmic-percussive activities, musical games, and the recreation of songs.

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José Luis Rosario Rodríguez: Conceptualization and systematization of ideas; formulation of objectives and theoretical and methodological foundations of the topic presented. Drafting of the original manuscript; preparation, creation and presentation of the work.

Anibelka del Carmen Torre Rodríguez: Data collection; application of statistical techniques to analyze or synthesize study data; conclusions. Drafting of the original manuscript.

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