

## **GAMELAN MUSIC THERAPY ON ANXIETY IN THE ELDERLY: A SYSTEMATIC REVIEW**

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### **Abstract**

All countries will experience population aging and this will continue to happen in the next few years. One of the psychological changes that often occur in the elderly is anxiety. The purpose of this study was to determine the effect of Javanese gamelan music therapy on anxiety in the elderly. The method used was a scoping review using the Google Scholar database. The keywords used were "elderly" AND "gamelan music therapy" OR "javanese gamelan music therapy" OR "balinese gamelan music" AND "anxiety". Inclusion criteria included full-text articles from 2019-2024 in Indonesian or English published from national or international journal. The types of articles were Randomized Controlled Trial (RCT), Quasi Experimental, and Case Study. Five articles met the inclusion criteria. After reviewing the articles, we conclude that there is an effect of gamelan music therapy on reducing anxiety in the elderly.

**Keywords:** anxiety; elderly; gamelan music therapy;

### **1 INTRODUCTION**

Elderly are people over 60 years old and have the same rights in society, state and nation (1). Elderly are the final stage in the life cycle with the appearance of signs of aging (2). All countries will experience population aging and this will continue to happen in the next few years. Developed countries are expected to enter a more advanced stage of population aging, with the proportion of the elderly population increasing from 20 percent in 2023 to 28 percent in 2050 (3). The global population aged >65 years increased to 6% in 1990. In 2019 the population increased to 9% and will increase to 16% in 2025 which means one sixth population of the world are aged over 65 years (4).

The elderly population in Indonesia in 2022 is estimated to be around 80 million people (1). The 2019 National Socio-Economic Survey (SUSENAS) stated that the number of people aged 60 years and over or elderly (lansia) in Indonesia reached 25.7 million people or around 9.6 percent of the total population (5). The number is estimated to increase to 74 million people or around 25 percent of the population in 2025 (6).

One of psychological changes that often occur in the elderly is anxiety (7). Anxiety is a psychological condition of an individual who is full of worry about something that is not certain will happen (8). The prevalence of anxiety is quite high based on data from the World Health Organization (WHO) in 2017 which stated that around 3.6% of the world's population experiences anxiety (9). The prevalence of anxiety in Indonesia at the age of 55-65 years is 6.9%, at the age of 65-75 years 9.7% and at the age of >75 years as much as 13.4% (10).

There are several types of relaxation techniques to overcome anxiety, namely deep breathing relaxation techniques, 5 finger relaxation, imagination and music therapy (11). Music therapy is an organized auditory stimulus consisting of melody, rhythm, harmony, timbre, form and style. Music that is applied as a therapy can restore and maintain the physical, mental, social and spiritual health of each individual. Music has the advantages of being fun, comfortable and structured (12). The most important part of music is rhythm (13).

Some things to consider besides the rhythm in providing music therapy are the types of music that will be listened to. Music choices that can be used as music therapy include classical music, instrumental music, and gamelan music. (14). Elderly people prefer traditional music. Javanese gamelan music is music created on Javanese gamelan which comes from a combination of the sounds of gongs, kenongs,

and other Javanese musical instruments. The rhythm of the music is generally soft and reflects the harmony of life as a principle of life adopted by Javanese society (7).

Enjoying Javanese gamelan music will create comfort for the soul, when the ears hear the soft sound of music it can slow down the work of breathing and ultimately comfort the soul (11). Music with a slow tempo has the characteristic of calming the soul, gamelan music is one type of music that has a calming characteristic for those who hear it (15).

The aim of this study was to determine the effect of gamelan music therapy on anxiety in the elderly.

## 2 METHODOLOGY

The five steps taken for a review are: 1) identifying research questions, 2) identifying relevant articles, 3) selecting relevant articles, 4) selecting literature related to the articles and data mining, and 5) compiling, summarizing, and reporting the results.

The researcher applied the *Population, Concept, Context (PCC)* format to manage and determine the focus of the review. In this study, P = elderly, C = gamelan music therapy, and C = anxiety. The question asked in this article is "How can gamelan music therapy overcome anxiety in the elderly?"

The literature search process was carried out through the Google Scholar database from 2019 - 2024, and using the Boolean operator. "OR" and AND". The following keywords were used in the searching process: "elderly" AND "gamelan music therapy" OR "javanese gamelan music therapy" OR "balinese gamelan music" AND "anxiety".

The inclusion criteria of the articles include full text articles published from 2019 -2024 in Indonesian or English from national or international journals. The types of articles are *Randomized Controlled Trial (RCT)*, *Quasy Experimental*, and *Case Study*. Exclusion criteria include literature study articles and articles from *repositories*.

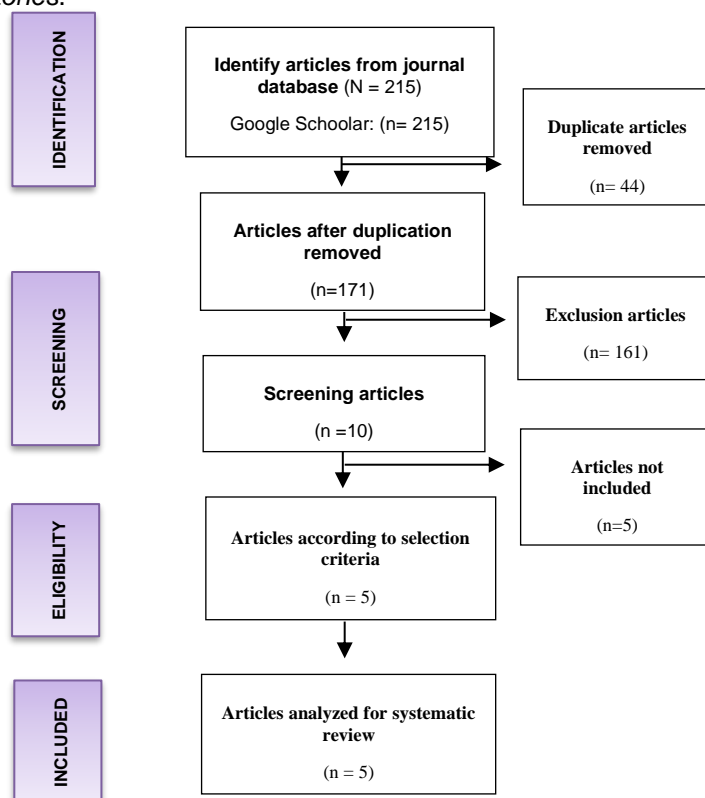


Figure 1. Article screening process

### 3 RESULTS

The results of the article screening obtained 5 articles (figure 1). Duplicate articles were then identified from two databases using the Mendeley application to facilitate the searching process. The researcher then screened the articles by reading the title and abstract based on the inclusion criteria. Finally, 5 articles were selected for analysis (table 1) as follows:

**Table 1.** Article Search Results

No.	Researchers, Years, and Countries	Methods (Design, Sample, and Instrument)	Implementation of Intervention	Results
1.	Choiriyah et al. (2023) Indonesia	Case study using nursing process approach in two elderly patients who were hospitalized in Lavender room at RSUD Ir Soekarno, Sukoharjo. The respondents were assessed using the Geriatric Anxiety Scale (GAS)	The respondents asked to listen to Javanese gamelan music three times in a day for three consecutive days. Each therapy session lasted for 30 minutes.	The anxiety level of respondents decreased after listening to Javanese gamelan music. So it can be concluded that Javanese gamelan can help reduce anxiety levels in elderly patients who were hospitalized in Lavender room at RSUD Ir Soekarno, Sukoharjo.
2.	(RN Sari & Suwanti (2023) Indonesia	This study used one group pretest and posttest design. The sample of this study are 30 elderly who live in Kramat Utara Village, Magelang using simple random sampling. The instrument used in this study is Pregnancy Anxiety Rating Scale (HARS)	The respondents were asked to listen to Javanese gamelan music for 15 minutes in three consecutive days.	there is a significant influence between Javanese gamelan music and the level of anxiety of the elderly in Kramat Utara Village, Magelang
3.	Yudhawati et al. (2022) Indonesia	This study used a pre-test post-test design. The sample of this study was 30 respondents. The instruments used were the Depression Anxiety Stress Scale (DASS), a set of tape compo with Javanese song/gending files.	The music therapy given is Javanese gending music. This study does not explain the implementation and duration of therapy given to respondents.	The level of anxiety in 27 elderly people before being given Javanese gending entertainment art, most of them had moderate anxiety category (90%) and 3 elderly people had mild anxiety category (10%). The decrease in anxiety in 28 elderly people after being

				given Javanese gending entertainment art with mild anxiety category (93.3%) and 2 elderly people with moderate anxiety category (6.7%). The results of statistical tests showed the influence of Javanese gending entertainment art on reducing anxiety in the elderly with a Willcoxon coefficient value of -5,000, with p (0.00) <0.05
4 .	Artana et al. (2020) Indonesia	Design: One group pre-post test Sample: 41 respondents Instrument: Hamilton Rating Scale for Anxiety (HARS)	The music therapy given was Selonding gamelan music given for 15 minutes. This study did not explain how many days the therapy was given.	The level of anxiety based on the HARS questionnaire before the intervention, the average level of anxiety in the elderly was at a moderate level (26.99) and after the intervention there was a decrease to a mild level (17.51). The results of the Wilcoxon Sign Rank test found p = 0.001, < 0 ,05
5 .	Yusli & Rachma (2019) Indonesia	One group pretest-post test design, 40 elderly who live in Pucang Gading Nursing Home in Semarang using purposive sampling technique. This study used the geriatric anxiety scale (GAS) instrument	Music therapy using Javenese gamelan with laras slendro tune three times a day, for three consecutive days. The duration for each therapy session is 20-35 minutes. For the elderly patients with specific health problems, the therapy session can be prolonged to 30-45 minutes	There is a significant difference in elderly anxiety score before and after listening to Javenese gamelan. Therefore Javanese gamelan can help reduce anxiety levels in elderly who live at Pucang Gading Nursing Home

Elderly people experience a decline in cognitive function as they age because each organ experiences more complex functions and affects each organ function (16). Individuals who are >60 years old have a higher risk factor for anxiety disorders due to the decline and weakness in their physical condition (18).

Elderly people experience anxiety due to physical and psychological changes as they age (16). Anxiety is an unpleasant subjective experience or a feeling and emotion of anxiety experienced by a person when facing an unclear scenario regarding their ability to face an object (19). Anxiety in elderly people living in nursing homes is caused by a decline in physical and mental conditions, increased exposure to death, and social support that slowly decreases because they are far from family (20).

Management to overcome anxiety in the elderly is pharmacological therapy and non-pharmacological therapy (17).

Pharmacological therapy for the elderly who experience anxiety in the form of sedative drugs and non-pharmacological therapy in the form of relaxation techniques and music therapy (11). The elderly are very interested in gamelan music therapy as one of the anxiety therapies because it can make them feel comfortable. When the elderly listen to gamelan music, their brain waves can be changed by music or sound. Listening to slow music can also provide comfort to the soul (7).

Elderly people experiencing anxiety that given therapy by listening to Javanese gamelan music for 3 times a day with a duration of 30 minutes for 3 consecutive days can reduce their anxiety levels from an anxiety score of 25 to 12 (7). Elderly who listened to Javanese gamelan music for 15 minutes in 3 consecutive days showed changes, including a cheerful facial expression, not tense, more relaxed and easy to express their feeling, so the anxiety in the elderly are decreased (16).

Javanese gending art is a type of music or rhythm. Gendinggiro, macapat, karawitan, campusari, and uyon-uyon are examples of Javanese music (21). Javanese gending entertainment provides an expressive picture of the elderly to increase motivation and can change the behavior of the elderly in facing the problems. Javanese gending entertainment plays a role in reducing anxiety levels, this condition is caused by the impact of entertainment arts that perform rhythmic tones and affect the psychological condition of the elderly (17).

Javanese gamelan music is a traditional music with a soft rhythm and has the characteristics of Javanese musical instruments. A happy and sincere music can make the listener calm, so that the body is able to tolerate music with a stable speed and calm. The calming mood of Javanese gamelan music will stimulate the sense of hearing which is transmitted to the limbic system by the thalamus. The amygdala and hypothalamus receive it next. The hypothalamus will control the main endocrine system and stimulate the release of endorphins and pineal body hormones while simultaneously inhibiting the production of adrenaline and cortisol by the adrenal glands. Regulation of these hormones produces feelings of relaxation, satisfaction, and comfort in the elderly which causes a decrease in anxiety (16). Gamelan music therapy besides Javanese gamelan music also includes Balinese gamelan music (22).

Selonding gamelan music is traditional Balinese music used in the Manusa Yadnya or Dewa Yadnya ceremonies which has a soft rhythm which is typical to Balinese instrumentals (22). Music therapy using Selonding gamelan music given for 15 minutes can provide a sense of calm if listened carefully (14).

The feeling of comfort that arises when listening to music is due to the endorphine released by the pituitary gland, so that electrical activity occurs that is spread across the brain region related to the limbic system and the autonomy control center (16). Listening to their favorite music make someone feel more relaxed and can ultimately reduce tension and anxiety towards the stressors faced. Another impact experienced by the elderly when listening to slendro gamelan music is the increased production of endorphins and dopamine which will stimulate the limbic system which is the center of emotional regulation to produce positive emotions, namely happiness and relaxation (11).

## 4 CONCLUSIONS

The results of five articles that have been systematically reviewed can be concluded that gamelan music therapy has an effect on reducing anxiety in the elderly.

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