

# ผลของโปรแกรมการเล่นดนตรีบำบัดร่วมกับการสนับสนุนทางสังคมต่อภาวะซึมเศร้า ในผู้สูงอายุในชุมชน Effects of An Active Music Therapy and Social Support Program on Depression Among Thai Community-dwelling Elderly

นิพนธ์ฉบับ

Original Article

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## บทคัดย่อ

**วัตถุประสงค์:** เพื่อศึกษาผลของโปรแกรมการเล่นดนตรีบำบัดร่วมกับการสนับสนุนทางสังคมต่อภาวะซึมเศร้าในผู้สูงอายุในชุมชน **วิธีการศึกษา:** การวิจัยกึ่งทดลอง แบบศึกษากลุ่มเดียว ตัวอย่างเป็นผู้สูงอายุที่มีคะแนนภาวะซึมเศร้าระดับเล็กน้อยถึงปานกลางจำนวน 50 คน คัดเลือกโดยการสุ่มแบบอย่างง่าย ดำเนินการทดลองเดือนพฤษภาคม-กรกฎาคม 2564 ได้รับโปรแกรมการเล่นดนตรีบำบัดโดยใช้อังกะลุงร่วมกับการสนับสนุนทางสังคม สัปดาห์ละ 3 ครั้ง ครั้งละ 1 – 1.50 ชั่วโมง ติดต่อกัน 12 สัปดาห์ รวบรวมข้อมูลโดยใช้แบบวัดภาวะซึมเศร้าในผู้สูงอายุของไทย ทดสอบความต่างของคะแนนภาวะซึมเศร้าก่อนและหลังโปรแกรมโดยใช้สถิติ paired t test **ผลการศึกษา:** ภายหลังเข้าร่วมโปรแกรมการเล่นดนตรีบำบัดร่วมกับการสนับสนุนทางสังคมพบว่าคะแนนเฉลี่ยภาวะซึมเศร้ามลดลงจาก 14.30 คะแนน เป็น 4.70 คะแนน อย่างมีนัยสำคัญทางสถิติ (P-value < 0.01) **สรุป:** โปรแกรมการเล่นดนตรีบำบัดร่วมกับการสนับสนุนทางสังคมสามารถลดภาวะซึมเศร้าในผู้สูงอายุในชุมชนได้

**คำสำคัญ:** ผู้สูงอายุ, โปรแกรมการเล่นดนตรีบำบัด, ภาวะซึมเศร้า

## Abstract

**Objective:** To determine effects of an active music therapy with social support program on depression scores among community-dwelling elderly people. **Methods:** In this quasi-experimental research, one-group pretest-posttest design was used. The participants were 50 elderly people who had Thai Geriatric Depression score of mild to moderate level selected by simple random sampling. The study was conducted from May to July 2021. The participants received an active music therapy and social support program to play angklung 3 sessions a week with 1 - 1.50 hours per session for 12 weeks. The instrument was Thai Geriatric Depression Scale. Scores of depression before and after the program were compared using paired t-test. **Result:** Scores of depression decreased from 14.30 points before the program to 4.70 points after the program significantly (P-value < 0.01). **Conclusion:** An active music therapy and social support program decreased depression scores in community-dwelling elderly people.

**Keywords:** elderly people, active music therapy, depression

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## Introduction

Depression is one of major mental health problems among the elderly. The problem is more obvious since more intense physiological deterioration and risk of chronic illnesses in the elderly. It has been known each individual older person has at least one chronic illness which could be detrimental to their physical capacity and ultimately activities of daily living. The limited physical roles and social activities could cause social isolation.<sup>1</sup> With a lack of social support and/or caregivers, the elderly could feel unhappy or worthless, which could further develop into depression.<sup>2</sup> With the limited usual activities especially those with others in the community, the elderly face a higher risk of depression.<sup>3</sup> Based on the health screening in the elderly and disabled in 2013, at least 33% of the elderly were depressed and 6% of community-dwelling elderly

expressed depression.<sup>4</sup> Depression is more prevalent by increasing age. In elderly men, prevalence of depression was 3.9%, 4.2% and 5.0% in those aged 60 - 69, 70 - 79, and 80 or older, respectively. In elderly women, it was even worse than the men counterpart with a two-time prevalence (7.7%) in those 60 - 69 years old. The prevalence increased to 8.5% in those 70 - 79 years old. For those 80 years old or older, prevalence in men was slightly higher than women.<sup>5</sup>

Treatment modalities for depression include drug therapy, psychotherapy, problem solving therapy, cognitive behavior therapy, and alternative therapy. A variety of alternative therapy have been proved to be effective in alleviating depression which include Buddhist psychology counseling,

music therapy, reminiscence therapy, art therapy, and exercise.<sup>6</sup>

Music therapy is a nonpharmacological alternative modality. Activities of music therapy could be categorized as receptive and active ones. Music therapy activities are for therapy, rehabilitation and improving emotions and cognition. With music therapy, rhythm, melody, tone and harmony were the attributes that could stimulate brain reward center of the limbic system. Music allows satisfaction, stimulates endorphin release, and reduces sympathetic stimulation resulting in less epinephrine and norepinephrine release. Music therapy could alleviate depression. Active music therapy allows individuals with no knowledge and skills in music to play musical instruments. Instruments with basic component of the music were used including those creating tempo, sound, melody, and tones to symbolize speaking language. Playing the instrument unfold the person's inner conflict which is the start of the process of cognitive and behavior adjustment back to normal daily life.<sup>6</sup>

Studies show music instruments playing and supplemental activities stimulate more endorphin release.<sup>7</sup> Playing angklung promotes physical function and nervous system coordination from shaking the instrument with the muscles of arms and wrists. The brain is trained to focus and concentrate on musical notes and promote relationships with other players since each angklung produces one note of sound. Each player is responsible for shaking angklung with the assigned note in harmony with the rhythm and melody. The whole song is performed by mandatory contribution of each player responsible for each assigned note. The song could not be performed by a few but many players. Thus, a tight-knitted understanding, trust and relationships are needed to perform music using angklung. Gathering for playing angklung allows for relationship forming. Studies show that angklung playing made the elderly proud in themselves in their musical capability and playing well with others. They were happy to meet others which brought them happiness, joy, and more connection. Their self-esteem was enhanced while depression was alleviated.<sup>8,9</sup> Based on literature review, playing the song successfully potentially changes emotion so that they are satisfied, the mood is elevated, and depression could be alleviated. Music therapy program starts to exert therapeutic effects from 4 weeks to 6 months with the intensity of attending the program 30 – 60 minutes for each session for 2 – 3 sessions per week.<sup>10</sup>

Social support makes the elderly feel welcome as a part of society. Social support could be in various forms including bond and affection, warmth, safe, helps in various forms and advice, confidence and self-esteem, social contribution, and benefits to others.<sup>11</sup> The elderly with social support could feel loved, cared, accepted, and valued which could positively affect their physical and mental health. They could face any threats to their lives effectively with emotional stamina. The elderly are motivated to solve problems and elevate their potential and quality of life.<sup>12,13</sup>

The elderly emotionally depend on encouragement, love, warmth, and care. Therefore, emotional support allows the elderly to feel emotionally trusted, loved, cared, well informed and advised about self-care.<sup>13</sup> Social support is one of the measures to help the elderly with chronic illnesses to be socially accepted, emotionally stable, and encouraged to live their life and face the problems effectively. With such success, depression could be prevented, cured, or alleviated. Literature review suggests that social support has a negative association with depression in the elderly.<sup>14</sup> Depressed elderly who are socially supported by helps and social interactions to respond to physical, emotional and social needs could adjust themselves better.<sup>15</sup>

Psychosocial therapy especially behavioral therapy such as relaxation in addition to social support could be associated with the decreased depression.<sup>16</sup> This fact is also found in a previous work where caregivers aiding the elderly in all activities could alleviate depression.<sup>17</sup> More activities could help reduce depression even better. Music therapy with social support, especially emotional and resource support is effective in relieving depression in the elderly. In addition to active music therapy, receptive music therapy alone or in combination with other therapies such as singing, dancing and lyric writing could benefit the elderly with depression.<sup>10,17</sup> With the evidence suggesting benefits of music therapy and social support for depression, this present study aimed to test the benefit of music therapy with social support program on depression in the elderly. The setting was the municipality of Thamuang sub-district, Selaphum district, Ri Et province. Specifically, we aimed to compare depression scores before and after music therapy plus social support program. It was hypothesized that mean score of depression after the program was lower than that before the program. In conducting the program, community leaders and village health volunteers experienced in taking care of the elderly took part in caring,

supporting resource, and participating with the activities. This could allow for sustainable development in promoting health and quality of life among the elderly.

The study was conceptually framed based on physiological changes regarding depression, social support, and music therapy. Music could help reduce anxiety and promote relaxation by interconnection of three systems namely psychiatric and endocrinologic system, autonomic nervous system, and bone and muscle system. With music perception, the signal transmits to limbic system to stimulate the rewarding center to create satisfaction. As a result, endorphins are released to affect emotional changes, homeostasis, and reduce sympathetic stimulation resulting in less release of epinephrine and norepinephrine. This allows the body to relax and lessen depression.<sup>6</sup>

In terms of social support, Brandt and Weinert postulate that social support allows the person to feel part of the society with various kinds of support.<sup>11</sup> The support could be affection and bond which bring warmth, safety, help, advice, confidence, self-esteem, and benefits to others. Based on social support of Brandt and Weinert<sup>11</sup>, social support was provided by village health volunteers for help, advice, and encouragement to boost confidence, and determination in activity participation. This act was considered emotional support and resource support.

## Methods

In this quasi-experimental research, a one group pretest-posttest design was used. Study population was 765 eldermunicipality of Thamuang sub-district, Selaphum district, Ri Et province. The study sample was 76 elderly individuals with depression of a low to moderate level and met the inclusion criteria. To be eligible, they had to be 60 years old or older, scores of depression (13 – 24 points) indicating low-to-moderate level, have a good consciousness with speaking, listening, and seeing, and be willing to participate in the study. Those who had severe or life-threatening illnesses or had less than 80% attendance were excluded.

The sample size was estimated using the software program. An effect size of 0.50 based on a previous study in Thailand<sup>17</sup> and recommendations on nursing research for the effect size of 0.40 – 0.60.<sup>18</sup> With a type I error of 5%, and a power of 95%, a sample size of 45 participants were needed. To compensate for a drop-out rate of 10%, a total of 50

participants were required. A simple random sampling without replacement was used to select the eligible participants.

### Research instruments

The Thai Geriatric Depression Scale (TGDS) was used to screen for depression level for study eligibility and to assess for the scores before and after the intervention. TGDS was developed by the brain rehabilitation group<sup>19</sup> by modifying the original Geriatric Depression Screening (GDS) of Yesavage et al (1983)<sup>20</sup> and a Thai version of Leethongin.<sup>21</sup> TGDS has 30 questions asking how the participant feel in the past week. For 10 positive statements, a score of 0 was rewarded for “yes” and 1 for “no” answer. On the other hand, for 20 negative statements, a score of 1 was rewarded for “yes” and 0 for “no” answer. Levels of depression were categorized as normal, low, moderate, and severe depression (0 – 12, 13 – 18, 19 – 24, and 25 – 30 points, respectively).

The questionnaire also collected demographic characteristics of the participants including gender, age, education level, religion, marital status, working status, income sufficiency, underlying diseases, and type of primary caregiver.

For the **intervention**, an active music therapy with angklung and social support was a 12-week practical training with 3 sessions per week and 1 – 1.5 hours per session. An expert in angklung trained 11 village health volunteers and 20 community leaders to be trainers for the participants. We, the researchers, were also taught so that we could help advise the participants at their weekly training. The expert taught about parts, maintenance, and musical notes, and percussion for rhythm (cymbal and drum). Three songs were trained. Village health volunteers and community leaders trained the elderly participants with the three songs within 12 weeks. Village health volunteers and community leaders also acted as a source of social support. The researcher met the participants at the weekly sessions to help advise on angklung playing. The researcher also listened to the participants’ problems and concerns in the training. Advice, help and support were provided to the participants.

### Research instrument quality assurance

The TGDS was found to have a high internal consistency reliability with a Kuder-Richardson-20 (KR-20) coefficients of 0.91, 0.94, and 0.93 for in male elderly, female elderly, and both.<sup>12</sup> In this present study, TGDS was tested in individuals

with characteristics comparable to the participants and was found to have a high internal consistency reliability (KR-20 coefficient of 0.93).

The music therapy program with social support was examined for content validity by three experts specifically 2 professional nurses and public health nurse specialist. The program was revised according to the experts' suggestions.

#### Participant's protection for human right

This study was approved by the Ethics Committee for Human Study of Rajabhat Roi Et University (approval number: 011/2564; approval date: April 8, 2021). The participants were vulnerable individuals. The community leader was asked for permission for the approach. The researcher approached prospective participants to introduce themselves and provide objective, process, and voluntary nature of the study. Written informed consent was obtained.

#### Experiment and data collection procedure

After the permission, the researcher approached all relevant parties including director of sub-district health promoting hospitals in Thamuang sub-district, Selaphum district, Ri Et province, mayor of Thamuang sub-district, head of each village, chair of the elderly club, chair of village health volunteers to provide information about the study.

In the step of training the trainers, 11 village health volunteers and 20 community leaders were trained by an expert for 2 days with details mentioned above. The researcher was also trained.

For the experiment, the training sessions of the music therapy were held 3 sessions per week. Each session lasted about 1 – 1.5 hours. In each session, all 50 participants were trained with all village health volunteers and community leaders.

In the **first week**, participants were asked to complete the questionnaire. The village health volunteers, and community leaders taught the participants about parts, maintenance, and musical notes, and percussion for rhythm (cymbal and drum).

In the **second week**, the training continued with the first song introduced. The **third week** of training continued with the first song and the second song was introduced. In **week 4 to 11**, the first two songs were trained with the third song introduced. Each week, the researcher made a visit, advised, and supported the participants to play the angklung in the second and third week. Village health volunteers and community leaders were also supported by the researcher.

In **week 12**, the participants showcased their musical performance at various community ceremony events supervised by village health volunteers and community leaders. The researcher attained the shows for support and encouragement. Once the program was completed, the participants completed the questionnaire.

#### Data analysis

Descriptive statistics including frequency with percentage and mean with standard deviation (SD) were used to summarize demographic and clinical characteristics of the participants and depression scores. Scores of depression before and after the program were compared using paired t test or Wilcoxon signed rank test, as appropriate. Statistical significance was set a type I error of 5% or P-value < 0.05. All statistical analyses were performed using software program SPSS version 20.0.

## Results

Of the 50 participants, most of them were women (72.00%). They were in their 60 – 69 and 70 – 79 years of age equally (46.00% both). Majority were widowed (48.00%), not working (74.00%), with sufficient income (98.00%), with underlying diseases (84.00%), and with spouse as primary caregiver (40.00%) (Table 1).

**Table 1** Demographic and clinical characteristics (N = 50).

Characteristics	N	%
Sex		
Men	14	28.00
Women	36	72.00
Age (years)		
60 – 69	23	46.00
70 – 79	23	46.00
80 or older	4	8.00
Marital status		
Single	4	8.00
Married	22	44.00
Widowed	24	48.00
Working status		
Yes	13	26.00
No	37	74.00
Income sufficiency		
Sufficient	49	98.00
Insufficient	1	2.00
Underlying diseases		
Yes	42	84.00
No	8	16.00
Primary caregiver		
Self	4	8.00
Spouse	22	44.00
Offspring	20	40.00
Siblings	4	8.00

Depression scores decreased from 14.30 points before the program to 4.70 points after the program. The difference was statistically significant (P-value < 0.01) (Table 2).

**Table 2** Depression scores before and after the program (N = 50).

Depression score	mean	SD	t	P-value
Before the program (N = 50)	14.30	2.17	20.84	< 0.01
After the program (N = 50)	4.70	2.98		

## Discussions and Conclusion

This quasi-experimental study tested the benefit of music therapy with social support on alleviating depression among the elderly with mild to moderate depression. It was found that depression score after the program (4.70 points) was lower than that before the program (14.30 points) significantly (P-value < 0.01).

In playing angklung, the elderly had to take responsibility on the assigned note of their angklung piece in harmony with the whole song's rhythm, melody and tone. Since each angklung could produce only one note, individual elderly had to recognize when their note had to be played. Once they could do that, they were confident in their capability and proud of their musical success.

Playing angklung promotes precise coordination of cognitive system, nervous system, and joint and muscle system. They had to concentrate on memorizing the note and recognizing when the note they were responsible for was coming. Social interaction could allow the participants to play together. Our finding is consistent with previous studies where the elderly playing angklung were proud of their musical capability and their interaction with others.<sup>8,9</sup> They realized their importance that the song could not be completed if any note was missing. The interaction was repeated and realized. Acceptance, trust, confidence, and self-esteem among the elderly were strengthened. These positive psychological attributes could help alleviate depression.<sup>8,9</sup>

In this study, the elderly attended the music therapy program with social support 3 sessions per week with 1 – 1.5 hours per session. Playing angklung made the elderly satisfied with the stimulation of endorphin release, and sympathetic inhibition resulting in less epinephrine and norepinephrine release. These changes in neurotransmitters alleviate depression. This is consistent with the study of Dunbar et al<sup>7</sup>

showing that the combination of activities and music stimulates endorphin release. Music therapy allows the elderly to be proud of their capability to play the music piece and play with others. They had a chance to meet and interact with those in their age. They were happy and joyful from social interaction. They had more self-esteem. As a result, their depression was relieved.<sup>8,9</sup> When the song is played successfully, there is the potential to modify moods and further relieve depression. Music program usually starts to exert its depression reducing benefit from 4 weeks to 6 months of the 30 – 60 minutes sessions with 2 – 3 sessions per week.<sup>10</sup>

In this study, the elderly were supported with their emotion and resources needed. Village health volunteers and community leaders conducted the notes, provided music instruments including angklungs, cymbals and drums. Village health volunteers and community leaders also play instruments with the elderly. While the elderly playing, Village health volunteers and community leaders oversaw and advised the elderly. Help was offered at any time when needed. This also developed more social interaction. They were accepted, confident and realized their self-worth. They developed more self-esteem, had more happiness and joy, which could lead to less depression. Based on social support concept of Brandt and Weinert, social support allows the person to be part of the society.<sup>11</sup> Supports could be in various forms including affection which brings warmth and safety, helps, advice, self-esteem, and being part of the society and beneficial for others. This is consistent with previous studies showing that making the elderly to feel the trust, reliability, encouragement, love, and care from others could build self-esteem, emotional stability, and pride from being accepted from others. These could influence positively on the elderly physical and mental health, specifically depression.<sup>12,13</sup>

In this study, most participants were in their early and middle elderly (25) and had sufficient income (98%). Therefore, they were able to participate in this intensive 12-week program. With their almost perfect attendance, they experienced the benefit in reducing depression. This finding is consistent with various studies showing that music therapy improves psychological well-being, brain function, social interaction, physical and mental health, and livelihood.<sup>22-28</sup> Depression could then be improved which is also shown in a previous study.<sup>17</sup> Music therapy with social support from trainers and other responsible agents in all activities could further alleviate depression.

This study has certain limitations. Since it was a one-group, pre-test post-test study, bias associated with a lack of control is inevitable. Future research with control should be conducted. With the Covid-19 pandemic, social distancing during the training sessions could have results different from normal situation regarding capability to teach and learn, and to interact between the participants and the trainers and among participants. These circumstances could have affect their performance and psychological status including depression level. Future studies on normal situation could provide a more precise result. In addition, studies with musical instruments other than angklung should be conducted.

In terms of practical recommendations, music therapy sessions should be available for all elderly in their community with sufficient resources and training personnel. Instruments other than angklung and competent trainers should also be available.

In conclusion, music therapy using angklung with social support could relieve depression scores among the community-dwelling elderly.

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