

An Exploratory Study on the Effects of Music Therapy on Self-esteem and Stress Relief of the Elderly in Taiwan

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ABSTRACT

The aim of this study was to describe the effects of a music therapy program on the improvement of the self-esteem and stress relief in healthy older adults. A total of 12 female individuals and 2 caregivers voluntary enrolled in this study. The research was conducted primarily using the qualitative analysis that is accompanied by the quantitative method was applied to verify the quantitative data and the qualitative data mutually. The results of the study were derived from the semi-structured open questionnaire of qualitative research, and the Perceived Stress Scale (PSS) and Rosenberg Self-Esteem Scale (RSES) survey of quantitative research. The quantitative data analysis was used by Wilcoxon signed-rank test of nonparametric statistics. The 5 randomly selected interviewees included 4 older adults aged 65 years and above and 1 caregiver. After the sessions were completed, the results showed that that music therapy helped enhance self-esteem. No significant effects were found on stress reduction. All respondents explained that music, especially singing, plays an important role in stress reduction.

Keyword: aging, quality of life, self-esteem, stress reduction

I. Introduction

Population is one of basic elements of a nation's composition. Major demographic transitions are in progress worldwide and will determine the important future developments of countries. Remarkable demographic changes have raised a great deal of challenges. It is worth noting that the proportion of the elderly population worldwide is sharply increasing. Social and medical developments have resulted in reduced mortality rates year by year; moreover, the average life expectancy continues to increase. Thus, governments attach great importance to the aging society issue.

Globally, the number of older persons is growing faster than the numbers of people in any other age group. The rates of fertility and mortality continue to decline, leading to the decreasing ratio of the young population. Almost all countries are facing major aging population problems, as the ratio of the elderly population in comparison to the working-age population continues to increase. This situation is particularly apparent in developing countries. Worldwide, there were 901 million people aged 60 years or older in 2015. The percentage of the population aged 60 years or over increased from 8.6 per cent to 12 per cent between 1980 and 2014. The percentage of the population aged 65 or over is projected to grow by 56 per cent, increasing from 901 million to 1.4 billion between 2015 and 2030. By 2050, the percentage of the population will increase from 12 per cent to 22 per cent (United Nations 2013, 2014, 2015; WHO 2015).

According to the definition of the World Health Organization (WHO), Taiwan became an aging society at the end of 1993, which means that percentage of elderly over 65 years old reached 7% of the total population. In March of 2018, Taiwan officially became an aged society as the proportion of the elderly population exceeded 14%, and the elderly population (13.33%) surpassed the young population (13.31%) for the first time. It is estimated that in 2025, Taiwan will become a super-aged society, because the proportion of the elderly population will exceed 20%. The rate of population aging in Taiwan is faster many other countries. The data shows it will only take 25 years for Taiwan from an aging society to an aged society, compared with 127 years for France, 71 years for the United States, and 47 years for the United Kingdom. It will only take about 8 years for Taiwan to progress from the stages of an aged society to a super-aged society, compared with 29 years for France, 15 years for the United States, 51 years for the United Kingdom, and 11 years for Japan (National Development Council, 2015, 2016, 2018 ; The Ministry of the Interior, 2015 ; United Nations Population Fund, 2012).

The ratio of the elderly population is gradually increasing and this trend cannot be stopped. The period of time from when the elderly reach retirement age and leave the workplace until they come to the end of life is fairly long. Growing old is a complex developmental process that involves physical factors, social factors, including work and career, role changes, changes within family structures, psychological factors, including existential, religious and spiritual beliefs. With the aging of the population and social changes in Taiwan, the amount family care needed for elders has intensified, and the possibility of the elderly entering the long-term care institutes has increased. According to the Statistics Department of the Ministry of Health and Welfare (2019), the number of Taiwanese elders entering long-term care institutes from 2015 to 2018 increased from 46,297 to 49,575. When elderly people enter the care system, due to their own health problems and group life characteristics, most are likely to have negative effects on physical and psychological factors, such as reduced physical activity, reduced interpersonal interaction, social withdrawal, loneliness, abandonment, insecurity, depression, anxiety and low self-esteem. In particular, the care in care institutions emphasizes physical health issues and daily life assistance. The arrangement social activities is relatively insufficient. The absence of attention to the psychological and social needs of the elderly leads to the decline in physical and mental functions, affecting the quality and satisfaction with life, and ultimately affecting the finances of the family and the government. Governments need to establish actions and programs to contribute to the quality of life of the elderly. In this sense, many countries are working towards promoting an active and optimistic aging process (Fann, & Hsu, 2010; Huang, 2014; Huang, 2016).

In recent years, with the sharp growth in the population of senior citizens, gerontology and health care have become important issues of social concern. Music therapy is seen as a simple, cost-beneficial and harmless care treatment. Mainly through the diversity of music and life, music therapy assesses each individual's needs and goals, and transforms music activities into therapeutic and meaningful interventions. Music therapy interventions include songwriting, therapeutic singing, listening, instrumental improvisation, lyric analysis and chatting about music. Soft, low-impact relaxation and movement systematically improve stress related problems such as muscular elasticity, stress level, blood pressure and insomnia (Ogba et al, 2019). Furthermore, Romo and Gifford (2007) indicted that music therapy activities improve pain management, decrease agitation, reduce disruptive behaviors and facilitate communication. The total financial cost to patients using music therapy was \$10,659, and that is US\$2,984 cheaper than the cost with stand care techniques. This shows that music therapy treatment helps health care teams Medicare's financial pressures. Music therapy has long been used for elders with needs, and "needs" are often defined as poor health, illness, or disability. In addition to helping elders in need, music therapy should be able to protect and maintain healthy functions, as well as enhance the quality of life of elderly people.

The primary goal of this study is to understand how music therapy affects and improves the quality of elderly life. Specifically, music therapy objectives are defined as follows: (i) to evaluate the relationship between music therapy and self-esteem among small groups of healthy adults; (ii) to examine the effects of music therapy on stress reduction among a small group of healthy adults; and, (iii) to understand how music therapy can help healthy elders improve their daily behavior.

II. Literature Review

A. Active Aging/ Quality of Life

Active aging is the process of optimizing opportunities for physical, cognitive, and social well-being throughout life with the objectives of healthy life expectancy, productivity and quality of life in older age (WHO 2002). It is important to offer the elderly the possibility to maintain physically active and opportunities to participate in social, cultural, and spiritual activities throughout later life.

Another optimistic aging process is successful aging. An exhaustive definition of successful aging combines three elements: avoidance of disease and disability, maintenance of high physical and cognitive function, and sustained engagement in social and productive activities (Rowe & Kahn, 1997). Lawton (1983) explained that “a good life” in old age includes four characteristics.

1. Behavior should contain several elements, such as health, perception, motor behavior, and cognition.
2. Psychological well-being should contain several elements, such as happiness, optimism, and congruence between desired and attained goals.
3. Perceived quality of life should include several factors, such as subjective assessment of family, friends, activities, work, income, and housing.
4. Objective environment includes several factors, such as realities of housing, neighborhood, income, work, activities, etc.

Rowe and Kahn (1997) have indicated there is no fixed pattern of successful aging, but there are two characteristics that should be considered:

1. A low probability of suffering diseases and disabilities associated with aging means the elderly should be healthy and capable during their rest of life.
2. A high level of physical and cognitive functions. An active implication and commitment towards life. The development of specific activities.

In fact, governments providing actions and programs for elderly to raise their quality of life should consider three major characteristics:

1. Low risk of disease and disease-related disability.
2. High mental and physical function.
3. Active engagement with life (Palmore, 2016).

B. The Relationship between Quality of Life and Self-esteem and Stress

When we discuss elderly quality of life, we have to mention self-esteem. Self-esteem is an opinion toward oneself and an evaluation of self-affirmation. People with healthy self-esteem status value themselves and their achievements. On the contrary, people lacking self-confidence or with low self-esteem may feel unhappy and unsatisfied with themselves much of the time. Perpetuating these negative feelings might cause problem relationships with friends and family, fear of trying new things, self-doubt, hopelessness, lack of self-care and even self-harming behaviors (Hawton, Rodham, Evans, & Weatherall, 2002).

The relationship between self-esteem and health issues like depression have been extensively studied over the past 20 years. Many studies have shown that the improvement of self-esteem has a positive effect on the quality of life of the elderly. People with low self-esteem fear judgments, are stressed around others and constantly avoid social activities. Another typical characteristic of low self-esteem is low resilience. People who have low self-esteem have a hard time to coping with challenges because they do not believe they are capable of handling situations (Galanakis, Palaiologou, Patsi, Velegraki, & Darviri, 2016; Kermode & MacLean, 2001; Orth & Robins, 2013; Sowislo & Orth, 2013; Steiger, Allemann, Robins, Fend, 2014; Trzesniewski, Donnellan, Moffitt, Robins, Poulton, & Caspi, 2006).

As indicated above, the relationship between self-esteem and stress is linked in many ways. Therefore, low self-esteem can lead severe levels of psychological and physical effects and harm. In other words, having healthy self-esteem and mental status significantly affects quality of life.

C. The Power of Music

What is music therapy? According to the American Music Therapy Association (2016), “Music therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program.” In brief, music therapy uses music as an element to make one’s life better. The functional goals music therapy emphasize a variety of areas such as social, behavioral, cognitive, physical, emotional and linguistic aspects. Music therapists are well trained on how to do deliver treatment in a therapeutic way. In other word, all music therapy activities are goal oriented and tailored to the individual. Therefore, the therapy must be designed and assessed by professional music therapist.

When music is used properly, it can be an incredibly powerful treatment tool. Music is fun, relaxing, and motivating. Moreover, it has a profound impact on our brains and bodies. A number of studies have investigated the effects of music engagement and listening on physiological functions. The evidence shows that music is a core function in our brains, and the body movement is entrained to the auditory rhythmic.

Musical training may change our senses and the motor neuroplasticity in the human brain. Neurological rehabilitation is an area in music therapy that is strongly substantiated by the sciences and research been carried out by scientists in and out of the field of music therapy (Davis, Gfeller, & Thaut, 2008, pp.266). Based on functional near infrared spectroscopy (fNIRS) studies of music, episodic encoding, and the dorsolateral prefrontal cortex (PFC), researchers have been able to monitor the entire lateral PFC during both encoding and retrieval of verbal material. In the study by Ferreri, Bigand, Bard, and Bugajska (2015) participants were asked to encode lists of words presented with either background music or silence and subsequently tested during a free recall task. Meanwhile, their PFC was monitored using a 48-channel fNIRS system. Behavior results showed greater chunking of words under the music condition. fNIRS results exhibited that music provided a less demanding way to modulate both episodic encoding and retrieval, with general decreased prefrontal activity with music versus under the silence condition. The researchers explained that music-related memory processes rely on specific neural mechanisms and that music can positively influence both episodic encoding and retrieval of verbal information. As we know, music therapy helps unhealthy elderly people maintain bodily functions. However, we also want to know how the healthy elderly respond to music activity. Researchers used 20-Hz vibrotactile stimuli to the index finger and the ring finger, recorded somatosensory steady-state responses with magnetoencephalography, and analyzed the cortical sources displaying oscillations synchronized with the external stimuli in two groups, healthy older adults and a chronic stroke patient with hemiparetic arm and hand problems, before and after musical training or without training (Jamali, Fujika, & Ross, 2014). In the above study, finger representation in the sensory cortex was assessed by brain activity synchronized to rhythmic vibrotactile stimuli. Music-supported therapy modified the brain organization. Source localizations and gamma synchrony changed after music training in healthy participants and a chronic stroke patient.

Several studies have examined the responses of adults to music activities in combination with cognitive-behavior strategies. There has been considerable interest in the power of music to maintain cognitive functions. The evaluation of the association between musical instrumental participation and cognitive aging had been conducted. One result demonstrate. One result show participants who were highly active musicians had better performance in nonverbal memory, naming, and executive processes in advanced age relative to non-musicians. A lot of results demonstrate the music therapy is improving emotional relaxation, cognitive processing abilities along with positive behavioral. (Chen, Lin, & Jane, 2009 ; Cigerci, Kisacik, Ozyurek , & Cevik, 2019 ; Hanna-Pladdy & MacKay, 2011 ; Kwon, Gang, & Oh. 2013).

A great deal of studies have considered the role of music in the lives of “well” older adults. Evidence suggests that older people experience positive emotions and increased relaxation through listening to music. Music plays an important role throughout the duration of people’s lives. The effect of music on the quality of life has been studied in elder adults. Four particularly important constructs of physical well-being include physical health, subjective health, psychological/emotional well-being and interpersonal relations. The most important

conclusion points out that music activities contribute positively to a more active and satisfactory aging process. Moreover, researchers have suggested that music therapy not only improves the quality of life among the elderly, but musical activities also expand social interaction and lead to acquisition of new knowledge (Solé & Gallego, 2010; Srinivasan, 2015). To understand general music-related experiences, personal motivations for musical engagement, musical preferences and the benefits of music, Lee (2013) studied 150 senior Taiwanese elderly people participating in music activities. The results showed that most participants emphasized the importance of maintaining a positive attitude and enjoyment of music motivated their desire to be musically active.

Music listening and music engagement can be viable parts of wellness programs to promote persistence in exercise, expression of emotions, relaxation, stress reduction, and social interaction. A great deal of studies report positive benefits are derived from music-making, which provides a great opportunity for the elderly. Music therapy wellness programs help the elderly help maintain quality of life by

1. Increasing motivation for and compliance with physical exercise.
2. Providing opportunities for meaningful interaction with peers, such as participation in band, choirs, and other music activities.
3. Providing an outlet for emotional expression, such as reducing anxiety and stress.
4. Stimulating cognitive function (Davis, Gfeller, & Thaut, 2008, pp.310).

In general, Music therapy has been implemented with various subjects in the fields of medical services and practical training. It has been shown that music therapy enhances not only the performance of reactive behaviors but also provides a useful alternative approach for patients with varying issues. The longer an individual life, the higher the chance of disability and disease, which can result in enormous burdens of medical care and costs. Promoting the health of the elderly can delay the disease and disability accompanied with aging, avoid prolonged bed rest, and increase physical function. Moreover, promoting health helps maintain the independent function of the elderly and improves quality of life. In order to delay the health problems, music therapy can play a very positive role in the care of the elderly. It is important to adopt music therapy to treat patients with special needs. In order to further explore the potential benefits of music therapy, we have evaluated the effects of music therapy on the quality of elderly life. Based on the above studies of the effects of music therapy on the self-esteem and stress relief, we focus on the following two questions about music therapy:

1. How can music be used to enhance self-esteem among a small group of healthy adult?
2. How can music be utilized to reduce stress among a small group of healthy adults?

III. Materials and Methodology

A. General Information about the Proposed Music Therapy Program

Healthy older adults who enrolled in the “Music Therapy” program at the Daliao Senior Citizens Learning Center (DSCLC), Taiwan, were asked to volunteer as participants. In total, 12 female individuals and 2 caregivers participated in this study. All participants took part in 12 sessions held once weekly for an hour each. The age range of the 12 female individuals was at 65 year-old and older. In the first week before the actual music therapy started, the 12 participants completed the PSS and RSES survey.

After completing 12 weeks of music therapy sessions, 4 respondents and 1 caregiver were randomly selected by researchers for the following analysis.

This study focused on qualitative observation and in-depth interviews, with the addition of supplemental quantitative measurement. The data of qualitative research were collected primarily through participant observations and interviews, including semi-structured interviews with open-ended questionnaires. The interview length was determined for each respondent. Interviews took about a half an hour and were conducted approximately one week following the completion of five “Music Therapy” courses of study. The researchers used non-directive and open-ended questions to encourage respondents to share their feelings and opinions based upon the corresponding experiences of the music therapy program. The quantitative questionnaire of this study was arranged according to one-group pretest-posttest design. The quantitative data analysis was used by Wilcoxon signed-rank test of nonparametric statistics. The p-value $<.05$ is considered statistically significant. Statistical analysis software is SPSS version 25.0. Before and after the 12 participants participated in the actual music therapy, the stress and "self-esteem" measurements were taken. The quantitative questionnaire included the Perceived Stress Scale (PSS) and Rosenberg Self-Esteem Scale (RSES) surveys.

Both researchers are certified music therapists (United States and Australia). The first researcher was in charge of leading and conducting the music therapy program. The second researcher observed and provided timely comments during the evaluation process. According to the interactions among participants, additional discussions were conducted after each session to provide adjustments in the next round of the program.

B. Evaluation Measurement

In this study, the three primary measurements of evaluation are: (i) Non-directive and semi-structured questions; (ii) quantitative questionnaires; (iii) recordings; and (iv) video analysis.

a. Non-directive and Semi-structured Questions

Non-directive and semi-structured questions allow a respondent to answer questions in his or her own words. The researcher also obtains the depth, richness, and texture of the experiences of the respondents. Kervin et al. (2006) noted that it is the richness of participants' responses that provides significant insight for researchers. In order to gain rich data, it is necessary for the researcher to explain the purpose of the interview, provide the open-ended questions in advance and then let the participants respond openly. In addition, the names of all participants and the 5 respondents have been changed to safeguard confidentiality.

b. Quantitative Questionnaires

In this study, two questionnaires proposed by Cohen, Kamarck and Mermelstein (1983) and Rosenberg (1965) were adopted to assess condition of daily pressure-management and the corresponding "self-esteem".

The Perceived Stress Scale (PSS) survey, developed by Cohen et al. (1983), measures the symptoms of stress in life in the past month, based on self-assessment. The full scale has a total of 10 questions in this survey. All items are answered using a 5-point Likert scale format to respond how respondents felt. The scale ranges from never to very often. After the test, all the scores were added. The highest score indicated the highest level of stress.

The Rosenberg Self-Esteem Scale (RSES) was proposed by Dr. Sosenberg (1965) to measure the self-esteem of individuals in a self-evaluation manner. This survey includes a total of 10 questions. All items are answered using a 5-point Likert scale format from strongly agree to strongly disagree. The scale ranges from 0 to 40. After the scores are summed, the higher the score, the higher the degree of self-esteem.

PSS and RSES were analyzed by the Wilcoxon signed-rank test of nonparametric statistics. In order to understand the effects of "Perceived Stress Scale (PSS)" and "Rosenberg Self-Esteem Scale (RSES)" before and after participation to determine whether the indicators are significantly different.

The questionnaires were written in English. Therefore, the questions were translated before being given to the respondents.

c. Recording

Recording is a great instrument to capture and collect qualitative data. While taking notes and writing down observations are important, the researcher may miss out on some details such as tone of voice, facial affects and body gesture. An audio recording of an interview also allows the researcher to refer back to the interview and take a fresh look at the interview data (Isaac, 2015).

d. Video Analysis

Video data help researchers analyze and measure the change of each participant during the experiment. The process may require writing descriptions of group activities and individual responses that include explaining specific behavior and the quality of each interaction. Moreover, video data help researchers observe and analyze the positive and negative responses or events that happen to each participant during the experiment.

Finally, through multi-dimensional data collection methods, including quantitative questionnaire measurement, music activity records, and in-depth interviews, the results are more objective and accurate, thereby increasing the reliability of the research.

C. Research Object Coding

This study does not disclose the names of the respondents. The registration method of the interview record is coded, and the code for each respondent consists of the word “Case” and an English letter to protect the privacy of the respondent. The letters are arranged in order of interviews, starting with the letter number A, i.e., Case A, Case B, and so on.

IV. Operation Procedures

This study takes into account the rights of the research object and academic integrity. Researchers visited the Daliao Senior Citizens Learning Center (DSCLC), and provided an introduction and explained the program goal/objectives briefly one day before the operation. Interactions in each operation program were monitored via video to ensure quality. Most elderly participants were very interested in our program. On the other hand, associated program agreements were acquired via video since most elderly participants do not have sufficient reading and writing skills.

Participants declared that they understood the primary content of the operation and their personal rights verbally. Records of the program will only be used in this study. All qualitative data and the quantitative interview contents were kept confidential. The encoding and analysis of the recording files would always use a pseudonym. The research materials are stored in a safe place and destroyed after the research is completed. None of the content of the conducted program will be disclosed to the public before acquiring agreement from participants.

This experimental-music study consisted of a total of 12 weekly sessions, which took place at DSCLC. The sessions were conducted once a week for an hour. The 12 sessions included two introductory sessions, eight regular academic terms that included 2 main self-esteem and relaxation activities, other activities and two review sessions. The relaxation activity and goodbye song sang at the end of sessions were conducted throughout whole experimental session.

The first two weeks of the sessions were introduction sessions; the 14 female participants (including 2 caregivers) were asked to use a simple rhythmic improvisation game to introduce themselves. All the participants were encouraged to use a 4 beat rhythm to tell other participants their name, favorite food, color, etc. After that, a musical guided imagination intervention was implemented to encourage the participants to imagine things that might occur in certain environments. For instance, when the music therapist played a raining sound the participants were encourage to imagine anything that might appear on a raining day. During the small group percussion improvisation activity to promote self-esteem, the music therapist introduced a variety of percussion instruments such as big and small hand bells, egg shakers, wood blocks, castanets, and djembe drums to the group. Then the music therapist randomly selected a leader to lead the group in playing an ensemble. The leader decided in which sequences of the instruments should join in, and determined the dynamics, speed and texture of the music. The leader discussed and explained his/her perspective and arrangement afterwards.

Another music activity, “music assist body relaxation”, was carried out. All participants took a deep breath and raised both hands as high as they could. Then, the participants followed the music therapist’s voice, relaxed their body, inhaled, exhaled and made a big “Ah” sound at the same time. This whole activity was repeated a few times. After the relaxation activity, a “goodbye song” was introduced by the music therapist in the end of the session.

In the third to tenth the sessions, a small group percussion improvisation activity for promoting self-esteem was used. Specific directions for playing each instrument were introduced by the therapist, such as keeping the hands up when playing maracas was, or turning the hands downward when playing the egg shaker. The participant playing the wood block played 4 beats, and participant playing the djembe drum lead group. Each participant had one instrument, selected by the therapist, and a new instrument was added each week. The music therapist confirmed all the participants were familiar with the sounds of the instruments and the movements, and then moved to the next step. The participants could hold two different instruments and follow more directions. The group leaders used hand gestures to lead instrument playing and vocalization to express the volume and dynamics of the music. They then made hand gestures without vocalization. The music therapist also played different roles from demonstrate the activity and assisted the group by encouraging every participant to lead the group and make his/her own music or directions. The activity was similar the flag game “red and white flag.” The group leader decided which instruments should play, which instruments should stop and gave other directions. The other members followed the instructions and responded. One or two different activities were implemented in each weekly session, such as musical imagination, music facilitated physical movement, reminiscence, therapeutic singing, etc.

The small group percussion improvisation activity to promote self-esteem and the relaxation activity were continued in the last two weeks (week No. 11 and 12) of the sessions. Most of the activities became more flexible, challenging, and creative for all participants. For the small group percussion improvisation activity to promote self-esteem, each participant

randomly selected two instruments that could be the same or different. The way to play the instrument and directions were determined by the group leader, with minimal prompting or no prompts from the music therapist or caregiver. After 12 weeks of music therapy sessions, the participants made progress on the relaxation level as demonstrated more flexible and free body movements. In addition, other music therapy activities such as musical imagination and music facilitated physical movement also moved to the next level and became more challenging for all participants.

All participants were required to complete the whole 12 week music therapy program. Music therapists drew lots to decide who participated in this case study. Individual interviews were conducted the following week (week No.13). Each interview took a half hour per person. The observation data from caregivers were considered inclusively. Meanwhile, before and after the 12 participants participated in the actual music therapy, the stress and "self-esteem" measurements were taken. The quantitative questionnaire included the Perceived Stress Scale (PSS) and Rosenberg Self-Esteem Scale (RSES) surveys.

Table 1

Course Introduction

Activity title	Activity content	Timing	Instrument
Welcome song	Welcome the participants.	The time spent on each activity varied depending on the participants' responses.	Guitar and voice
Rhythmic improvisation	All the participants were encouraged use a 4 beat rhythm to tell other participants their name, favorite food, color, etc.		Clapping.
Imagination intervention	Participants were encouraged to imagine what kind of materials are used when engaging in certain environments by listening to music.		All kinds of music, nature sounds, sea sounds, etc.
Group percussion improvisation	<ol style="list-style-type: none"> 1. An activity for building self-esteem. 2. The music therapist introduced a variety of percussion instruments to the group. 3. The music therapist randomly selected a leader to lead the group in playing an ensemble. 4. The leader deciding the sequences in which the instruments should join in, and the dynamics, speed and texture of the music sound. 5. The leader discussed and explained her perspective and arrangement afterwards. 		Various percussion instrument, such as big and small hand bells, egg shakers, wood blocks, castanets, and djembe drums.

Activity title	Activity content	Timing	Instrument
Music facilitates physical movement	Participants moved their bodies by listening to different musical styles.		Various kinds music form different genre and styles. Recordings of music, i.e., piano, guitar, and voice
Reminiscence	Participants listened to the music from the past, evoked memories and told their personal life stories by listening to the music		Recordings of music, i.e., piano, guitar, and voice.
Music assisted body relaxation	1. All participants took a deep breath and raised both hands as high as they could. 2. The participants followed the music therapist's voice, relaxed their bodies, inhaled, exhaled and made big "Ah" sounds at the same time.		Recordings music, i.e., piano, guitar, and voice.

Notes:

1. All activities were conducted by a well-trained music therapist.
2. Activities were immediately changed and adjusted based on the participants' reactions.

V. Results

Five respondents (4 participants and 1 caregiver) completed the study. The findings showed that music therapy activities enhanced self-esteem and reduced stress in healthy older adults. The following sections discuss the ways in which music enhances self-esteem and reduces stress.

A. Music Therapy and Self-esteem

The respondents described the ways music played an important role in increasing self-esteem. The participants at DSCLC had a lot of performance opportunities. The participants often performed as a group, but did not have chances to perform as soloists. It is worthwhile to note that group and individual performance may build self-esteem in different ways.

In the beginning, the therapist demonstrated the music activity to the participants and encouraged them to volunteer to be group leader. Most of participants were introverted and continued to say "no" until the therapist or the caregiver stood behind them and gave verbal prompts and tips to lead the group. At this time, most of the instructions were short, and easy, and given one by one, such as "play the maracas" or "stop playing the egg shakers." The duration of each performance was less than 30 seconds and the leaders switched instructions quickly without enough time intervals for the group to play.

The participants made positive progress week by week. On the fourth week, some participants were able to give the group more complicated instructions than during the first two sessions, such as “play the maracas and hand bells”, “stop playing the maracas”, “play the egg shakers”, etc. As the instructions became more challengeable, the duration of each performance was still less than 30 seconds, but longer than in previous sessions. The leaders gradually gave a little extra time for each direction when conducting the group.

From the fifth to tenth session (weeks No.5, 6, 7, 8, 9, 10), the instructions for playing instruments became more adaptable and flexible than in previous sessions. The participants could decide which musical instructions they liked, either the previous directions from the music therapist or the new directions from the participants. Some participants liked the previous directions, while and some preferred to give new and creative directions for hand gestures. Moreover, few leaders began allow periods of silence during the music by giving clear directions. The duration of each performance was longer than 30 seconds and the leaders spent more time giving directions.

In the last two sessions (week No.11 and 12), the participants chose their preferred group leader. The music therapist increased the difficulty level of instructions compared to previous sessions. The switches from instrument to instrument got shorter and shorter. Most participants made more hand gestures to express the musical direction and used less vocalization. The volume and dynamics became more lively than in previous sessions. In addition, the duration of each performance surpassed one minute.

In addition, the relaxation activity was conducted throughout all of the experimental sessions. Most of participants only raised their elbows, not their hands, and were shy about making the big “Ah” sound during the first 4 weeks. On the fifth session, the participants raised both hands as high as they could and made the big “Ah” sound when the activity started. After eight sessions, some participants began to stand up, move their bodies more freely, take deep breaths with their calves raised and then exhale while making a big sound during the relaxation activity.

The 3 respondents and 1 care assistant explained that their self-esteem improved after participating in the “music therapy” program:

“...I feel more confidence standing in front of the group....”. Case A

“...I enjoyed this program. The first time I stood in front of the group, I was really nervous and did not know how to do it. After a few weeks, I knew how to do it and enjoyed standing in front of the group....”. Case B

“... the first time, I did not want to stand up because I never stood in front of the group on my own. Now, I enjoy it....”. Case C

“....after the music program, I felt that most of the participants’ self-esteem increased. For example, there was one participant who loved to sing but she hesitated to sing in front of the people. However, after 5 weeks of the music program, she sang in front of the people and told the others, they needed to give her a big hand when she finished singing. One of the participants made a huge improvement. Before attending the music sessions, she followed

orders and did anything we asked without giving any opinion. However, after the musical sessions, she began to give us some ideas when we asked what activities we should do, or how to arrange our small trips". The caregiver

However, one respondent explained that she did not feel that her self-esteem improved.

".... I often stand in front of groups and give speeches, so I was already pretty confidence to do it. However, I disliked the music instruction without order. I like it when there is one song to follow. I felt stressed when I needed to make my own music. However, I realized it was ok to challenge myself and leave my comfortable zone.... I need to say I still like everything to be in order". Case D

B. Music Therapy and Reducing Stress

The respondents described the ways music played an important role reducing stress, especially through singing.

"...I am a positive-thinking person.... I often forget unhappy things, so I do not have stress... I love singing. When I sing I feel happy and relaxed. Taking a deep breath and making big sound is really good way to relax". Case A

"...I forget it any unhappy things when I turn round. Although I always forget unhappiness, I enjoy singing. When I sing, I feel happy and relaxed. The relaxation activity is good way to relax. I enjoyed it". Case B

"...when I feel stressed, I love to singing. Although I try to not keep unhappy things in my mind.... the relaxation activity is good. I feel relax after that". Case C

".... after the relaxation activity I feel relaxed". Case D

"Most participants explained the relaxation activity is pretty fun and relaxing. I think this activity not only relaxes their minds but also helps their muscle, lungs and abdomens to exercise. This is a good activity". The caregiver

C. Perceived Stress Scale and Rosenberg Self-Esteem Scale

In order to understand the self-esteem and pressure-management of the participants, each elderly participant was asked to fill out the Perceived Stress Scale (PSS) and Rosenberg Self-Esteem Scale (RSES) forms. However, most of the elderly participants did not have sufficient skills in reading or writing. Assistance was required and provided by researchers to complete the survey.

a. Perceived Stress Scale (PSS)

A Wilcoxon signed-rank test showed that a 12-week music therapy session did not elicit a

statistically significant change in reduce stress in individual ($Z = -1.67, p = .10$). The music therapy activities did not help participants reduce stress. Indeed, according to the results of the PSS (Cohen et al., 1983), the subjects whose scores were below 14 points were in a low-pressure state. As the results showed that the stress experienced by the participants in this study was not too high (pre-test = 13.67, post-test = 13.25). (see Table 2.)

Table 2

The result of PSS

	N	Mean	Std		Z	P
			Deviation			
Pre-test	12	13.67	1.37		-1.67	.10
Post-test	12	13.25	1.29			

b. Rosenberg Self-Esteem Scale (RSES)

A Wilcoxon signed-rank test showed that a 12-week music therapy session elicited a significant improvement in self-esteem ($Z = -3.07, p = .00$). Music therapy activities can indeed help participants to improve their self-esteem. (see Table 3.)

Table 3

The result of RSES

	N	Mean	Std		Z	P
			Deviation			
Pre-test	12	38.75	1.2		-3.07	.00
Post-test	12	26.25	2.34			

In this study, differences can clearly be found before and after conducting the proposed program. In the beginning stage of this study, most participants did not actively make requests related to their personally needs, but simply followed the arranged routines. Later on, while the proposed program was conducted, participants began trying to explore themselves further by proposing some independent thoughts and ideas. In addition, more discussion was shared with a certain level of affirmation. In summary, music therapy and associated activities for elderly participants can enhance self-esteem and relieve pressure.

VI. Discussion

Changes with aging often vary from individual to individual. As individuals grow older, the differences between individuals becomes greater. This phenomenon occurs at different speeds in different life cycles and exerts varying influence. Older people may have different kinds of degradation or transformation due to the aging of physiological functions, and may maintain or enhance functions related to other aspects.

Senior citizen learning centers arrange a variety of activities and courses, often in conjunction with local industries, culture, art, the natural environment and other characteristics, such as community culture, monument tours, ecological conservation, cultural heritage, and so on. A variety issues can hinder or promote the physical, psychological, and social wellbeing of the elderly, such as health issues, drug safety, basic concepts of aging, lifelong learning, retirement preparation education, and family relationships. Courses can be planned based on the learning characteristics or interests of the elderly, including information technology, arts, health care, financial management, etc. (Li, 2018) Most lessons involve lectures or teachers leading older people to complete similar works. The main focus is on strengthening physical activity and stretching in most curriculum designs. Curriculum that is challenging and can activate the brain only accounts for a small portion of all the courses. Most music-related courses tend to emphasize singing karaoke. Music therapy interventions provide more structural procedure and emphasize therapeutic relationships. Music therapy can provide more benefits to the elderly, such as maintaining pleasure and vitality, relieving stress, facilitating emotional expression, and improving communication. Music therapists encounter a variety of design challenges when implementing musical activities. For healthy elders, the role of the music therapist should be converted from leader to assistant. With the designed music activities, music therapists assist the elderly participants to gradually participate more actively and eventually engage throughout the whole session voluntarily. After the experiment, the elders who participated in the music therapy course in this study were more likely to be willing to express their ideas than before attending the course, and were willing to step out of their comfort zones. The elders were more willing to try new things and generally agreed that these new things were not as bad as they expected. At times, they even learned from accepting new challenges and changed their ways of thinking. The therapy also helped to bridge the gap between different generations, and the elders became more willing to express their opinions with group members and share their own ideas.

It is generally believed that the elderly have low willingness to learn or cannot learn new knowledge because of brain degeneration, but empirical studies reject these views. The studies of the changes in brain structure during the learning process of the elderly show that the elderly still have potential to learn. When the elderly are uncertain about their answers, their awareness is enhanced and they are more likely to absorb new knowledge, correct their own wrong knowledge, and become enthusiastic about receiving new knowledge. Through continuous learning, elders not only maintain their vitality, but can also enhance and improve their quality of life (Chang, Shibata, Andersen, Sasaki, & Watanabe, 2014; Metcalfe, Casal-Roscum, Radin, & Friedman, 2015; Shibata et al. 2017). In the music therapy courses in this study, the music therapists typically used four basic techniques, support, imitation, reinforcement, and challenge, to perform impromptu interaction with the elderly. When the activity was intended to promote the health of elders, the "challenge" technique was the main basis activity design. For example, participants were asked to imagine they were in a forest. They were asked to stand in the same place, imitating what the previous people said, using nouns such as trees, birds, flowers, blue sky, and so on. Afterwards, they avoided describing the same items as the previous people, adding more body movements, describing the items more abundantly, and cooperating with others. In music and dance activities, no one lead the group, there were no designated actions, and the elderly were encouraged to swing their limbs according to the music. When the elders heard familiar music, they moved their bodies according to their memories, but when they heard unfamiliar music, they stood still, went into a trance, or walked around with the tempo. After that, the elders were able to relax and sway their bodies according to the changes in music, and even create their own body movements.

The study of music therapy for older adults is still dominated by therapy for elders with special needs. As the average life expectancy continues to grow, maintaining health and delaying health problems will become important issues. This study found that music therapy can help healthy elderly people maintain energy, stay healthy, relieve stress, express feelings, improve communication and promote quality of life. Future research can continue to explore how music therapy affects the lives of healthy elders.

VII. Conclusion and Limitations

Recently, many studies have reported that music is a useful therapeutic intervention that can improve quality of life for elder patients in different organizations (Creech, Hallam, McQueen, & Varavrigou, 2013; Solé & Gallego, 2010). Music therapy is designed to help improve the quality of life in different ways, such as managing pain, increasing relaxation, encouraging emotional expression, decreasing isolation, improving family interactions, providing a spiritual exit, improving self-esteem and reducing stress. Music therapy treatment can be adjusted and tailored according to the conditions and individual needs of each patient. There is no standard procedure in each session and the interventions are designed according to the needs of client. Each activity can be set up to achieve one or multiple therapeutic goals.

In this study, the music therapy interventions were implemented with 12 female individuals and 2 caregivers at DSCLC. The results indicated that music activities enhance self-esteem and reduce the stress for most older adults. The participants reported that throughout their lives music has been a pleasurable experience, and has provided a way for them to maintain a positive attitude. However, there are other factors that researchers should consider, due to the personalities, backgrounds, and life experiences of older adults. In this study, the results may have been slightly altered by different participants in terms of responses to music stimulation during the five weeks of therapy. Some participants were more receptive to music stimulation and activities more than others.

Quality of life is complex, and subjective, and it includes many aspects of a person's experiences. Music therapy may be able to provide a new way to improve the quality of life of healthy older elderly. When music activities are well-designed, music therapy can have many positive influences on older elderly, helping to improve physical issues, provide psychosocial support, and enhance quality of life.

Although the results of this study did not show significant changes in stress reduction, the relationship between therapeutic music singing and stress reduction requires further research. This study only conducted a few sessions and worked particularly with the vocalized "Ah" sound. Many different genres of music could be included in future studies. A personally preferred and self-selected song could be used after proving it significantly affects each individual. Furthermore, the participants were all female in this study. The gender difference between stress tolerance and emotion elicited by music might vary. Since the group setting lacked external validity, the results of this study cannot be generalized and further research is needed to evaluate the relationship between music and stress reduction in healthy older adults. Hence, music therapists and related medical professionals should continue to investigate the beneficial effects of music therapy on relaxation and stress management among healthy older adults in every part of the world.

In this study, the impacts of music therapy programs on healthy elderly participants were explored. Only one Senior Citizen Learning Center was selected due to the limitation of available financial resources. The given limitation could lead to sampling errors and other variables such as lack of skills in reading or writing, the environment, and so on may have limited our results. Therefore, additional research is needed to enhance the therapy program and further investigation should be done to make the conclusions more realistic.

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摘要

本研究目的是描述音樂治療在改善健康高齡者的自尊和減輕壓力及生活品質之影響。本研究共有 12 名女性長者和 2 名護理人員自願參加本研究。活動結束後，隨機選擇 5 名受訪者。本研究以質性探討為主，量化研究為輔，以質性訪談資料及量化數據相互驗證，並補充研究結果。研究結果來自質性研究的半結構訪談開放式問卷，及量化研究的壓力知覺量表及 Rosenber 自尊量表。量化研究所蒐集的測驗數據以無母數統計之 Wilcoxon 符號等級檢定。研究結果顯示音樂治療有助於提升自尊心，在減壓方面並沒有顯著變化。所有受訪者都表示唱歌在減壓方面發揮著重要作用。

關鍵字：老化、生活品質、自尊、減壓