

THE CREATION OF FOLK-DANCE PERFORMANCE FOR EXERCISE IN THE ELDERLY WITH THE RISK OF OSTEOARTHRITIS

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ABSTRACT:

The objectives of this research are to create and study the effects before and after the use of folk dance performance for exercising the leg muscles and the muscles around the knees of the elderly who are at risk of osteoarthritis development. The assessment form on the severity of osteoarthritis of the Department of Health, Ministry of Public Health, is used. The research is conducted by creating a performance that has been certified by the experts and applied to the experimental group of 59 persons. It is found that, with the folk dance performance consisting of 8 dance gestures, the leg muscles and the muscles around the knees of the elderly can be improved at a very good level for 23 persons, at a good level for 33 persons, and without change for 3 persons.

Keywords:

Folk dance performance, elderly, osteoarthritis

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INTRODUCTION

The major social structural change in the 21st century is the increase of the elderly population. Many countries around the world are encountering the problem of rapid increase of the population of such groups, especially developed countries such as France, Japan, Singapore, etc. The factors are from economic and social continuity including the development of medical technology and public health leading to new breakthroughs and innovation that help treating serious illnesses and other diseases that kill people. Therefore, when people have better health, their lifespan can be extended. The Royal College of London presented the data from the study together with the World Health Organization (WHO) (Kontis, V., Bennett, JE, Mathers, CD, Foreman, K., & Ezzati, M., 2017). The study is on the age range of the world's population from 35 developed countries. It is found that by 2030 the world population will live longer. Men and women will live till the same age. However, women will live a little longer. The study report also finds that Korean women born in 2030 will be the first population aged over 90 years in the next 13 years. The possibility rate is up to 50 percent. The population structure change due to the aging society is the change occurring all

over the world. For the aging society in Thailand, according to the UN report, the tendency is in line with the National Statistical Office (National Statistical Office, 2011). It is expected that Thai society will become the Aged Society in 2021 and will be the Super-aged Society in 2035. The preparation for dealing with the aging society is therefore another problem that all parties must cooperate in dealing with social conditions in the future. In Uttaradit Province, the elderly people in the area are found to have problem of being the risky group for osteoarthritis calculated as 6.09%. 1 elderly person is possibly at risk of more than 1 disease. In Namrit Sub-district, Muang District, Uttaradit Province, there are 10 villages. It is the sub-district with elderly people at risk of developing various diseases.

Creating a set of performance for the elderly to have activities altogether among people of the same age is another way to help reducing various diseases which will occur with the elderly such as depression. Among various diseases related to the health of the elderly, osteoarthritis is another disease that often occurs in the elderly. However, some methods can extend the duration of such disease in the elderly. One method is to use northern Thai folk dance with the leg movements.

This is related to the development of leg muscles and muscles around the knees of the elderly. The northern folk dance is an art that creates aesthetics in mind and emotions for people in the society. The roles and importance of the northern folk dance to society are varied such as the role in preserving and disseminating national identity and the role in promoting good health.

A set of northern folk dance performance for the elderly who are at risk of osteoarthritis to exercise was created from the concept of the folk dance principles with the theory of exercise and the unique aspects of northern folk dance. The objective is to create and study the effects before and after the use of folk dance performances for exercising the leg muscles and the muscles around the knees of the elderly who are at risk of developing osteoarthritis.

LITERATURE REVIEW

According to Theerawat Changsan (2010), choreography means the new invention that is created in a way of dance which can create satisfaction, pleasure, and enjoyment of emotion. This is possibly natural invention that exists such as art, culture, tradition, or other surroundings, and it is possibly a set of performance created beyond the rules of nature without conflicting the reality appearing in the human world.

Suraphon Wiroomrak (2000: 225) defines that choreography refers to the thinking, design, and creation of concepts, styles, and strategies of a set of dance arts shown by one or more actors. This includes the past performance improvement. Therefore, choreography is a work that covers philosophy, content, meaning, dance, move, line arrangement, solo performance, group performance, music assignment, music, costumes, scenes, and other elements which are important in making one performance complete as intended.

Anukun Rojanasooksomboon (2006: 348-351) says that Lanna dance or dance performance in the north of Thailand has the unique cultural form. The dance covers 8 northern provinces including Chiang Mai, Lamphun, Lampang, Chiang Rai,

Phayao, Phrae, Nan, Mae Hong Son and the north of Thailand from Chiang Rung to Xishuangbanna in the east to Luang Prabang and in the south to Sukhothai. In this Lanna cultural group, there are some similar musical characteristics.

Siwanat Jaruphan (2011: 32) says that exercise means repeated body movement in order to increase or maintain the effective function of various organs in the body to strengthen the body.

Wilai Kupnirattisaikul (2000: 46) mentions the duration of exercise for the elderly. The duration of each exercise should be at least 15 minutes in order to be sufficient to benefit from exercise. To be the best, it should take about 30 minutes. However, for those who have never exercised before, it may not last for 15 minutes. The exercise should be started with very little. If it is done too long, the chance of injury to the musculoskeletal system possibly increases. For the appropriate frequency of exercise, it is found to be 3 times a week.

World Health Organization (2010: Journal) states that the duration of exercise for the elderly for at least 10 minutes per time and a total of not less than 75 minutes per week is considered sufficient and suitable for the elderly.

Song, Rhayun & Lee, Eun-Ok & Lam, Paul & Bae, Sang-Cheol (2003) studied the Effects of Tai Chi exercise on pain, balance, muscle strength, and perceived difficulties in physical functioning in older women with osteoarthritis: A randomized clinical trial. It can be summarized as the use of Tai Chi for the elderly with the problem of osteoarthritis. It is the Tai Chi exercise program. The duration is 12 weeks, 3 times each week, and 10 minutes per time. The results of study reveal that such exercise is efficient for improving the condition of the elderly participating in the program. It can also help reducing the pain from osteoarthritis.

Fransen, Marlene & McConnell, Sara & Harmer, Alison & Esch, Martin & Simic, Milena & Bennell, Kim (2015) studied the Exercise for osteoarthritis of the knee: A Cochrane systematic review. It can be summarized as the study on the

exercise for osteoarthritis of those who do not want to take the operation. The results of study reveal that after the exercise, the benefit is in preventing osteoarthritis. However, it is only in the short term. The duration used in exercising is 20-60 minutes, 2-3 times per week. The duration of exercise depends on each personal health. For optimizing the practice, it should be practiced at least 2-6 months.

From the above, the researchers have used the choreography theory and the identity of the folk dance to be developed together with the principles of exercise for the elderly originally created as a performance set for exercise in the elderly who are at risk of developing osteoarthritis.

RESEARCH METHODOLOGY

In this research, the researchers have divided the operations into 2 parts which are:

1. Creating a performance set from the unique northern folk dance styles, the choreography theory, the theory of exercise, and the unique northern Thai dance styles of Anukun Rojanasooksomboon.

2. Studying and comparing the results before and after the creation and the use of performance set from the unique northern folk dance styles.

Research population and sample group

The population used in this study is 69 elderly persons who are at risk of osteoarthritis in the elderly school in Namrit Sub-district, Muang District, Uttaradit Province. The researchers calculated the sample group by using the formula of Taro Yamane consisting of 59 persons through the screening from the severity assessment of Osteoarthritis of the Department of Health, Ministry of Public Health.

Data collection

1. The data was studied from documents, textbooks, manuals, and researches related to exercise in the elderly including studying the problems and obstacles in avoiding conducting the activities with the elderly.

2. The information, concepts and theories of choreography were studied in creating the performance and studying the unique characteristics of the northern Thai folk dance of Anukun Rojanasooksomboon in the development of exercise in the muscles of the legs and muscles around the knees of the elderly from books, textbooks and related researches in consistent and suitable for the elderly who participate in the activities.

Research duration

The researchers set a total of 24 sessions divided into 8 weeks, 3 times a week, 10 minutes each time, with a 5 minute rest. Then, the practice was begun for another 10 minutes (totally 75 minutes a week).

DATA ANALYSIS

1. The performance set was created through the expert evaluation as follows:

- 1.1 The researchers sent the dance evaluation form to the physical experts. The opinion was that every posture of dance moves used in this performance set was suitable. There was also suggestion that letting an elderly person to stand on one leg may have an effect on balance. In the 4th posture, the posture of cotton pulling, it could be developed. However, the posture should be slightly adjusted for the elderly to perform dancing more easily. The researchers have adjusted the practice to standing on one leg as before but counting only 4 steps and then changing the standing leg from originally standing on one leg of 8 steps.

- 1.2 The researchers sent the dance posture evaluation form to the dance experts. The opinion was that the dance postures of northern folk dance in this performance set were correct due to the presentation of local uniqueness of the northern region. There was also suggestion on the 4th posture, the posture of cotton pulling. The opinion was similar to the physical experts that letting an elderly person to stand on one leg may have an effect on balance. It can be developed with slightly adjustment for the elderly to perform

dancing more easily. The researchers have adjusted the practice to standing on one leg as before but counting only 4 steps and then changing the standing leg from originally standing on one leg of 8 steps.

The researchers created and improved the dance postures according to the recommendations of the experts until getting the dance postures created as a performance set together with the music used. These were presented to the experts for the evaluation once more in order to evaluate the complete set of performance and the aesthetic. In evaluating northern folk dance performance in aesthetic for exercising the leg muscles and the muscles around the knees of the elderly who are at risk of osteoarthritis with all 3 dance experts, the scores were at a good level. 2. Regarding the results after using the performance set, the improvement of the elderly can be presented. The summary can be made according to the symptoms of the Osteoarthritis Assessment Form, Department of Health, Ministry of Public Health. The elderly have developed at a very good level for 38.98%, a good level for 55.93% and without change for 5.08%.

CONCLUSION ON THE RESEARCH RESULTS

The researcher summarized the research results as follows: The steps and methods in creating the performance set consist of 11 steps; 1) studying the information from relevant documents, textbooks, and researches, 2) creating a performance set for the northern folk dance for exercising the leg muscles and muscles around the knees of the elderly who are at risk of developing osteoarthritis, 3) choosing the music, 4) experimenting, 5) evaluating the performance set, 6) implementing, 7) evaluating the aesthetics, 8) choosing the costume, 9) applying the performance set to the sample group, 10) evaluating the aesthetics from the elderly, and 11) analyzing and drawing conclusion after the experiment.

The result of creation of the folk dance performance set consists of 8 unique dance postures including hand pulling, hand twisting, leg pushing, leg switching (alternating the front leg and back leg), hand lifting, cotton pulling, leg kicking, and elbow striking as follows:



Hand pulling



Alternating the front leg



Alternating the back leg



Hand lifting



Cotton pulling



Leg kicking



Hand twisting



Leg kicking



Elbow striking

Such dance postures have been evaluated for suitability and accuracy by experts in rehabilitation medicine and dance that are appropriate and safe. After that, it was tested with the Try Out similar to the sample group. The duration of the program was 4 weeks, 2 times a week, for a total of 8 times. The results revealed that the Try Out was able to perform the dance postures from the creation of folk dance performance sets efficiently.

The researchers applied this performance set to the sample group. The results after using the folk dance performance showed that the development of the leg muscles and muscles around the knees of the elderly were at very good level for 23 persons, good level for 33 persons, and undeveloped for 3 persons. For the aesthetic evaluation results from the experts in the performance design process, it was found that the experts said about the advantages of music choosing at the right pace for the exercise of the elderly and the used music representation of symbol of the northern people. When the sampling group performed the northern folk dance performance for exercise for the elderly at risk of developing osteoarthritis from questioning, observation and interview of the sample group about the issue of participating in this activity, they said about having fun after exercising in the activity. It was found that the elderly who participated in the activity were happy and enjoy. They could also do it at home by playing music that is used to exercise and practice at the same time.

The finding of the research was the creation of a set of northern folk dance performance for exercise of the elderly with a duration of only 10 minutes in the performance. The finding is that the performance set had a short duration to exercise causing the elderly who did not have time to exercise could use this set to exercise at home. It also helps the elderly develop muscles in the legs and muscles around the knees. It also promotes physical strength for the elderly and gives

aesthetics which will make the elderly fun and more enjoy.

RESULT DISCUSSION

The creation of costumes for folk dance is for exercise of the elderly who are at risk for osteoarthritis. The researcher used the choreography theory of Suraphon Wirunrak (2000, Page 225), Peeraphong Sensai (2003, Page 2-3), and Theerawat Changsan (2010) using the idea of folk dance identity of Northern region of Anukun Rojanasooksomboon (2006). The idea of Lanna dance theory using various physical movement such as using the head, torso, hands, arms, legs and feet which indicate the uniqueness of the northern folklore. The use of choreography theory and the mentioned ideas have consistency in the creation of the dance to create satisfaction and enjoyment. However, as the creation of this set of northern folk dance show was created to exercise the leg muscles and the muscles around the knees of the elderly, there are some precautions taking into account the exercise of the elderly. Therefore, some additional steps are required consisting of the unique northern Thai dance postures developed in conjunction with the principles of exercise in the elderly of the Department of Medical Services, Ministry of Public Health (2005). The processes are as follows:

- 1) Warm up for 5-10 minutes.
- 2) For exercising, the show has a duration of 10 minutes. The result of the experiment is consistent with this research that is the exercise by unique dance and folk dance combined with exercise principles causing the elderly to have more strength in the arms and legs as well as helping encouraging the elderly to exercise, strengthen the muscles in the legs and muscles around the knees, and slow down the decline of physical fitness. It also conforms to the principles of exercise of Sivanart Jaruphan (2011, p. 37) saying that the Exercise Phase for whichever method must be suitable for each person's physical condition. This

will benefit the body and help the heart and lungs increase the work efficiency. This phase will take 15-20 minutes for the elderly with low physical activity. Just 10 minutes is enough (during the exercise phase). Wandee Pokhakun (2002, p. 4-26, cited in Narisara Areerak, 2014, p. 29) mentioned the endurance of muscles. These include exercises such as pulling, bending, rising, or sitting with fully flexed muscles and keep them for 6-10 minutes. If continuing, there must be a minimum of 1 minute rest between one time of stretching and the next time.

The researchers designed to have the cooldown phase according to the principles of exercise already in this show as the researchers considered the precautions, limitations, and problems possibly occurring to the elderly. This is consistent with Wilai Kupnirattisaikul (2000, p. 48) saying not to stop exercising immediately. During the exercise, there will be 4-5 times more blood pumping to the arm and leg muscles. When stopping exercising immediately, the reflex vasodilatation has not yet returned to normal with the lack of muscle contractions to drive blood back to the heart. This causes venous return to temporarily decrease affecting the cardiac output. The blood pressure will drop and the blood that goes to the brain is therefore temporarily reduced. It causes stupor dizziness in people with partial coronary artery disease. It can also cause angina or a heart attack. This is in accordance with the World Health Organization (2010) saying that the duration of exercise for the elderly at least 10 minutes per time then rest for 5 minutes and start to practice again for another 10 minutes (including 75 minutes a week) is considered sufficient and appropriate for elderly people. This also agrees with Song, Rhayun & Lee, Eun-Ok & Lam, Paul & Bae, Sang-Cheol (2003) with the use of Tai Chi dancing in the exercise of the elderly. The duration of the program is 12 weeks, 3 times a week, 10 minutes each time. The results show that after using this Tai Chi program, the elderly can be better improved and can help reducing the pain of osteoarthritis. It also corresponds with Fransen,

Marlene & McConnell, Sara & Harmer, Alison & Esch, Martin & Simic, Milena & Bennell, Kim (2015) studying the Exercise for osteoarthritis of the knee: A Cochrane systematic review. It is said that the exercise is useful in preventing osteoarthritis. The duration of exercise is 20-60 minutes to be practiced 2-3 times a week. The duration of each exercise depends on the individual's health. In performing effectively, it should be practiced at least 2-6 months.

Regarding the creative elements about costumes for this performance, there are some differences from the costumes of dance whose basic designs are mostly from traditional Thai costumes. However, in this performance, the costume is a T-shirt, warm pants or comfortable pants suitable for exercise. The researchers got the idea of costumes in this exercise from Konkarn Pomboonmee (1995, p. 24-25, referred to in Mayuree Thanomsuk, 2015, p. 42) saying that the costumes should be chosen in the type that provides agility in movement with the ability to ventilate heat and sweat well.

The results of the use of folk dance performance showed that the elderly had increased strength of the front leg muscles and the muscles around the knees. The elderly have increased physical fitness and flexibility in both arms and legs. It also helps slowing down the deterioration of physical performance. Using this set of folk dance is successful. It is consistent with the research of Suwanna Chanprasert et al. (2013, Abstract) saying that the exercise by the dance postures causes the elderly to have more muscular strength in arms and legs. Their flexibility can be increased in both arms and legs. This is also correspondent with Song, Rhayun & Lee, Eun-Ok & Lam, Paul & Bae, Sang-Cheol (2003) using Tai Chi dancing in the exercise of the elderly. After using this Tai Chi program, the elderly can be improved. It helps reducing the pain of osteoarthritis and also helps encouraging the elderly to exercise as well as strengthening the muscles in the legs and muscles around the knees to slow down the declination of physical fitness.

From studying the results after using the performance, it is found that the development of the muscles in the legs and muscles around the knees of the elderly are at the very good level for 23 persons, at the good level for 33 persons, and 3 persons without development accounted for 38.98% at the very good level, 55.93% at the good level, and 5.08% without development. This indicates that this performance is outstanding in the exercise of the muscles of the legs and muscles around the knees. Especially the leg kicking posture, it is the posture with the rhythm of walking while stepping the legs, lifting the legs up high, and bending the knees for allowing the heels to touch the bottom as much as possible. There is the movement on the knees and the front leg muscles. The researchers developed the dance postures taking into account the benefits of the elderly with carefulness in the exercise of the elderly. The assistance was given by the physicians at the Health Promotion Hospital, Village No. 5, Namrit Sub-district, Mueang District, Uttaradit Province, in coming to control and taking care during this activity.

The researchers found another research finding that this performance set has a short duration for exercise causing the elderly who do not have time to exercise to be able to use this exercise set at home. It also makes the elderly develop the muscles in the front leg and the muscles around the knees to become stronger. This also promotes the strength on the physical fitness of the elderly as well as giving aesthetics which will make the elderly fun and more enjoy. This agrees with the principles of exercise for the elderly and choreography theory leading to an aesthetic performance set. The researchers used exercise theory in exercising the muscles of the legs and muscles around the knees of the elderly including using exercise concepts in the elderly from research and study of the Department of Health, Ministry of Public Health. The principles of exercise are integrated with the folk dance design of the northern region and the music used. The researchers consider the avoidance and prevention

of accidents from exercising of the elderly. It must be suitable for the elderly to exercise by using folk northern dance performance set. This is consistent with the research of Uairat Srivibun (2003, Abstract) stating that the exercise can create fun, enjoyment, and happiness. It can make the exercise longer and is committed to exercising to the fullest for the benefit of the body as well.

RECOMMENDATIONS

The recommendations for the next researches are as follows:

1. The researchers have studied and analyzed the movement in this performance set and found that there are some main characteristics of legs. The researchers assume that if the number of practices are increased such as the frequency of the practice or the number of times in all 8 postures as well as the continuous practice, it could be used for further development to result in the elderly to have stronger muscles and better development.
2. There should be the development on the northern Thai folk dance in different parts of the body such as exercises in the muscles in the torso area, shoulders, etc. The time spent in exercising should be extended to increase the amount of exercise intensity of the elderly. The safety of the elderly should be considered primarily with medical supervision.

The recommendations for using research findings are as follows:

1. In applying this performance set, the practitioners should conduct the analytical study about the condition of the participants in the performance set in order to not affect the injury of the elderly and the use will be more effective in helping promoting the exercise for the elderly to reduce the occurrence of osteoarthritis.
2. There should be public relations for the elderly in the community to understand the problems possibly occurring regarding osteoarthritis and exercise awareness to prevent the occurrence of such diseases. This also promotes physical exercise to be consistent by bringing this performance set to disseminate to the elderly

school in the sub-district or other districts in the province to encourage the elderly to exercise and strengthen the body.

3. Regarding the northern folk dance performance for exercising of the elderly who are at risk of osteoarthritis, all of the interested elder persons can use this exercise during leisure time or use as the performance set by the community. However, this should be under the supervision of the local public health physicians in the service areas. In case of an accident occurring while exercising or rehearsing the performance, it will be able to give help in a timely manner.

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