ORIGINAL ARTICLE

Exercise selection for health to elderly after the COVID-19 outbreak

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ABSTRACT

Introduction: Exercise is an important activity for maintaining the health of the elderly after the COVID-19 outbreak. Objective: The research aimed to study was to determine reasons to exercise selection for health to elderly after the COVID-19 outbreak. Methods: Participants were 30 elderly individuals aged between 60 and 80 years, comprising 20 women and 10 men. All participants engaged in regular exercise at a public park within Buriram Municipality for at least three days per week. All participants signed informed consent forms prior to data collection. Data was collected through interviews, observations, and critical incident technique. Inductive analysis was employed, including data triangulation to ensure consistency and reliability. Results: The research findings identified two main themes related to the reasons why elderly individuals choose physical activities: the first theme pertains to the physical health benefits of exercise for the elderly, and the second theme focuses on the mental health benefits of exercise for this population. Conclusions: Elderly selected physical activities based on their unique physical conditions and health issues. Therefore, those involved in selecting appropriate exercise programs for the elderly post-COVID-19 can significantly contribute to both their physical and mental well-being. This is essential to ensure that seniors engage in activities that are tailored to their specific needs.

Keywords: Physical education, Exercise selection, Elderly, Health, COVID-19.

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INTRODUCTION

According to the United Nations (UN), populating the aging is an irreversible global trend: people are living longer and having smaller families. It has been projected 1 out of 6 people will be 65 year old or above globally in 2025 (Jee, 2024). It is well-know that the physiological functions of multiple organs progressively decline with age (Guo et al., 2022). Aging is significantly associated with a decline in the musculoskeletal system, impacting individuals' ability to perform daily activities (Frontera, 2017; Kim et al., 2021), both physical and mental health issues can significantly deteriorate the quality of life in the elderly (Murman, 2015; Shen et al., 2021). Consequently, lifestyle modifications such as dietary changes and increased physical activity are crucial for delaying the onset and progression of those conditions in elderly (Jinakote et al., 2024; Mattioli et al., 2022).

To date, exercise training is one of the powerful strategies to delay or prevent the progression of age-related diseases (Ciolac, 2013; Gronek et al., 2021). This is why medical researchers worldwide recommend regular exercise to maintain good health during the COVID-19 pandemic (Chen et al., 2020; Nontakhod et al., 2024). Similarly, during the COVID-19 outbreak, 19 exercise of varying intensity should be performance daily for at least 60 minutes (Cheung, 2019; Min et al., 2019). While hygiene and vaccines play a crucial role in preventing this virus, it's also widely recognized that building a robust immune defence system through regular exercise is of great importance (Walsh, 2018).

Regular physical activities has been implemented as one the strategies at the international level and has been shown to help prevent and treat noncommunicable diseases (NCDs), improve mental health, quality of life (Font-Jutgla, et al., 2020; Gallegos et al., 2019; Sanchez-Roa et al., 2024). Exercise has demonstrated improvements in both physical and mental health through psychological and physiological mechanisms (Ballmann, 2021; Terry et al., 2020). Helps improving body composition, muscle strength, and cardiorespiratory fitness, while its effects on muscle endurance, flexibility, and body composition (Bai et al., 2021; Gopal, 2014; Iqbal et al., 2024). It also positive effects on emotions and mood, leading to lower levels of stress, anxiety, and depression, and improving positive energy and vitality (Wang et al., 2022). Therefore, the elderly should choose forms of exercise that are suitable for them and gradually increase the intensity (Khoo et al., 2014; Supaporn, 2018), using FITT principle that stands for frequency, intensity, time and type of exercise (Reed and Pipe, 2014).

Previous research has not yet explored the approaches to selecting exercises for post-COVID-19 health, nor the other factors influencing exercise selection. Therefore, researchers are interested in conducting this study to benefit the elderly by helping them select appropriate exercise activities for maintaining their health. The findings of this study will be valuable to those providing care for the elderly post-outbreak.

MATERIAL AND METHODS

Participants

The participants were 30 elderly volunteers aged between 60 and 80 years**.** Among them, 20 were female (coded as "*Female Volunteers*" or "*FV*") and 10 were male (coded as "*Male Volunteers*" or "*MV*"). Participants were purposively selected from a public park in Buriram Municipality, with the inclusion criterion being regular exercise at the park for at least three days a week. All participants voluntarily agreed to participate in the study and signed informed consent forms. This qualitative research employed the following data collection methods:

1. Semi-structured interviews: Participants were interviewed using a semi-structured interview guide to gather in-depth information about their experiences and perspectives regarding physical exercise.
2. Non-participant observation: The researcher observed the participants' exercise behaviours at the park without actively engaging in the activities. Observations focused on the specific types of exercises chosen by each individual.
3. Critical incident technique: Participants were asked to describe specific instances or events that significantly influenced their decision to engage in physical exercise post-COVID-19. These narratives were audio-recorded, similar to the interviews.

Criteria for selecting research participants included participants were recruited among elderly individuals (aged 60-80 years) of both genders who regularly exercised at a public park in Buriram Municipality for a minimum of 3 and a maximum of 7 days per week. All participants provided written informed consent to participate in the study.

Study organization

The researchers collected data from participants of 30 elderly volunteers aged 60-80 years. The sample consisted of 20 females and 10 males. Participants were purposively selected from a public park in Buriram Municipality, with the inclusion criterion being regular exercise at the park for a minimum of three days per week. All participants provided informed consent prior to participating in the study.

Statistical analysis

This study employed constant comparison analysis to analyses the data. This involved categorizing data, identifying themes, subthemes, and interpreting the data. To ensure the reliability of the findings, triangulation was used to cross-check the consistency of data obtained from three data collection methods: semi-structured interviews, non-participant observation, and critical incident technique.

RESULTS

Elderly individuals select different types of exercise based on their individual physical conditions and health issues. Consequently, those involved in selecting appropriate exercises for the elderly, especially in the context of the COVID-19 outbreak, should prioritize both physical and mental health benefits. This ensures that the elderly can choose exercises that are suitable for their specific needs.

Analysing qualitative data collected through semi-structured interviews and participant observations, the outcomes of the research were presented in Table 1, which summarizes the sample's characteristics.

Table 1, the sample, coded as "*Participant 1*" (meaning the first participant), was aged between 60 and 85 years, with a mean age of 66.73 years. The mean weight was 58.50 kilograms, the mean height was 157.83 centimetres, and the mean Body Mass Index (BMI) was 23.44. Regarding health issues, the data indicated the presence of hypertension, allergies, and diabetes.

Table 2. Description: mean and standard deviation of basic physical characteristics for the experimental group, including age, weight, height, and body mass index.

Table 3. The research findings on the benefits of exercise for the health of the elderly after the COVID-19 outbreak can be summarized as follows: (1) physical health benefits and (2) mental health benefits.

Table 1. Characteristics of the participants.

Given name	Age (year)	Weight (kg)	Height (cm)	BMI (kg/m^2)	Health Problems
MV.1	84	64	165	23.51	No underlying disease
MV.2	80	71	165	26.08	Hypertension
MV.3	65	50	152	21.64	Hypertension
MV.4	67	49	160	19.14	No underlying disease
MV.5	61	81	161	31.25	No underlying disease
MV.6	66	45	151	19.74	Hypertension
MV.7	61	48	154	21.24	No underlying disease
MV.8	60	54	153	23.07	No underlying disease
MV.9	71	56	160	21.87	Hypertension
MV.10	69	57	154	24.03	No underlying disease
MV.11	67	60	156	24.65	Allergies
MV.12	70	56	150	24.89	Hypertension
MV.13	66	56	156	23.01	No underlying disease
MV.14	66	52	151	22.81	No underlying disease
MV.15	65	52	150	23.11	Hypertension
MV.16	60	49	160	19.14	No underlying disease
MV.17	68	73	163	27.48	Hypertension
MV.18	66	49	156	20.13	Diabetes
MV.19	70	65	165	23.88	Hypertension
MV.20	77	45	150	20.00	No underlying disease
MV.21	73	53	156	21.78	No underlying disease
MV.22	62	67	152	29.00	No underlying disease
MV.23	60	48	147	22.21	No underlying disease
MV.24	62	62	160	24.22	Hypertension
MV.25	60	64	165	23.51	Hypertension
MV.26	64	70	168	24.80	Hypertension
MV.27	65	60	160	23.44	No underlying disease
MV.28	65	62	156	25.48	Hypertension
MV.29	65	68	170	23.53	Hypertension
MV.30	67	70	169	24.51	Hypertension
$\bar{x}$	66.73	58.53	157.83	23.44	

Table 2. Baseline characteristics in the control and experimental groups.

Parameters	**EXG (*n* = 30)**
Age (year)	66.73 ± 5.82
Weight (kg.)	58.53 ± 0.926
Height (cm.)	157.83 ± 6.36
BMI(kg/m^2)	23.44 ± 2.73

Table 3. Summary of findings.

Benefits of exercise for health to elderly after the COVID-19 outbreak
(1) Physical health benefits
(2) Mental health benefits

The interview and observation could be described as following:

Physical health benefits

Elderly people have chosen to exercise to improve their health after the COVID-19 outbreak in order to strengthen their physical health and boost their immune system. For example, *MV 2. (80 years old)* said that she has been exercising regularly since the pandemic and has noticed a significant improvement in her overall health. She used to suffer from multiple health conditions, but now she only has high blood pressure, which is well-controlled due to her consistent exercise and health management. *MV 4. (67 years old)* explained that she has been exercising regularly both before and after the COVID-19 outbreak. This has helped her maintain good health, slow down the aging process, improve her mobility, and enhance her digestion and sleep. *MV 7. (61 year old)* shared that since starting her exercise routine, she has felt stronger and healthier. She experiences fewer illnesses, has a healthy heart, and has no muscle aches or pains. Her mobility and breathing have also improved significantly, and she no longer gets tired easily. *MV 10. (69 year old)* regular exercise has had a positive impact on my aunt's health. She reports feeling stronger, more flexible, and experiencing less fatigue. *MV 14. (66 year old)* My aunt has made a conscious effort to prioritize her health, especially after COVID-19. Her consistent exercise routine has significantly improved her physical well-being. She feels stronger, has no muscle soreness, and enjoys working out. *MV 17. (68 year old)* has been working hard to improve her health since recovering from COVID-19. She started slowly and has been making steady progress. Now, she's much stronger and more active. *MV 21. (73 year old)* since recovering from COVID-19, I've been exercising to improve my overall health and well-being. *MV 24 (62 year old)* to improve my health after COVID-19, I've been doing gentle exercises such as walking and stretching. It's a great way to relax. *MV 26 (64 year old)* I've made it a daily habit to exercise since recovering from COVID-19. Health is my top priority, and exercise is a great way to prevent diseases and stay healthy. *MV 28 (65 year old)* since recovering from COVID-19, my aunt has been prioritizing her health by exercising regularly. As a result, she's feeling stronger, healthier, and less prone to illness. Exercise has also improved her flexibility, joint health, and sleep quality.

Mental health benefits

There are various types of exercise suitable for seniors, tailored to their specific needs and interests. These activities not only benefit their physical health but also contribute to their mental well-being. *MV 1 (84 year old)* exercise has become a daily routine for me after COVID-19. It has significantly improved my physical and mental well-being. The feeling of relaxation and peace of mind motivates me to work out every day. *MV 3 (65 year old)* since I recovered from COVID-19, I've been making a conscious effort to take care of my health. Exercising not only keeps me physically fit but also provides a great way to unwind and have fun with friends. It's really helped improve my mental health and overall happiness. *MV 5 (61 year old)* Exercise has become a source of joy and relaxation for me. It helps me to unwind and feel good about myself. I love taking care of my body and mind. *MV 8 (60 year old)* since recovering from COVID-19, I've been focusing on maintaining a healthy lifestyle. Eating nutritious food and exercising regularly have significantly improved my physical and mental health, boosting my immune system. *MV 12 (70 year old)*. Exercise has greatly improved my cardiovascular health. I feel more energized and my mind is sharper. It's like my body and mind are working together in harmony. My blood circulation is better, and my memory has improved significantly. *MV 16 (60 year old)* regular exercise boosts your immune system, prevents muscle aches, and promotes relaxation. By combining a healthy diet with regular workouts, you can maintain optimal physical and mental health. *MV 19 (70 year old)* to strengthen your immune system and maintain good health post-COVID-19, it's essential to prioritize self-care. Regular exercise, a balanced diet, and adequate rest can significantly improve both your physical and mental health. *MV 22 (62 year old)* exercise not only benefits my physical health but also improves my mental well-being. It helps me relax, reduces stress, and even helps me make new friends. It's a great way to unwind and have fun. *MV 25 (60 year old)* walking with her friends has become a fun routine for my aunt. It's great exercise and helps her feel good both physically and mentally. *MV 29 (65 year*

old) regular exercise after recovering from COVID-19 is crucial for maintaining good health. It helps strengthen the lungs and heart, improves overall physical fitness, and promotes mental well-being.

Analysing the percentage of health problems (1) No underlying conditions (46.67%): This refers to a group of individuals who reported health problems but upon examination, no chronic or pre-existing conditions were found to be the cause. (2) Hypertension (46.67%): This refers to a group of individuals with health issues related to high blood pressure. (3) Allergies (3.33%): This refers to a group of individuals with health issues related to allergic reactions, such as allergies to pollen or food. (4) Diabetes (3.33%): This refers to a group of individuals with health problems related to diabetes.

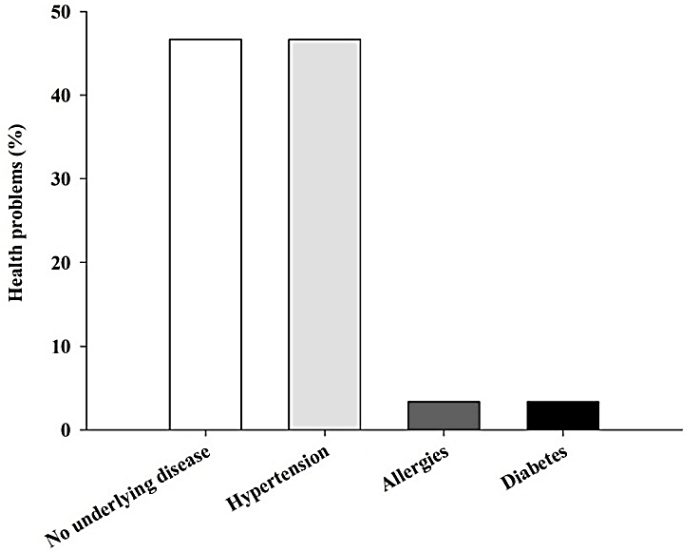

Figure 1. The percentage of health problems included no underlying disease (46.67%), hypertension (46.67%), allergies (3.33%), and diabetes (3.33%).

DISCUSSION

The study on exercise selection for health to elderly post-COVID-19 outbreak found that the elderly have become more aware of and prioritize the importance of selecting appropriate exercises to maintain both physical and mental health. Living a healthy and active lifestyle has been proven to prolong life expectancy (Chudasama et al., 2020; Limpens et al., 2022; Monma et al., 2019). Recently, the World Health Organization (WHO) declared 2020-2030 as the Decade of Healthy Aging, which aims to foster healthy aging and improve the lives of older people (World Health Organization, 2020). The WHO defines healthy aging as "*the process of developing and maintaining the functional ability that enables wellbeing in older age*" (Fallon and Karlawish, 2019; Michel and Sadana, 2017). Regular exercise is one or the ways to achieve a better quality of life in old age. Various sports and exercise can be regularly undertaken by the older adults, ether individually or in groups, to improve physical fitness (Syaukani et al., 2024). As stated by Suryadi et al., (2024) on their literature review, exercise such as yoga, aerobic sports, and resistance training is proved to have beneficial impact to older adults. Physical activities involve the use and combination of various forms of exercise, including Ruesi Dadton Qigong (RSD) and massage to improve body balance. Arm and leg muscle strength, flexibility, shoulder flexibility Cardiovascular system and respiratory system. The aim is to make the elderly have good physical fitness. (Nontakhod et al., 2022). Exercising regularly can maintain and improve immunity in the elderly (Lee et al., 2022b; Park et al., 2023). In light of the lasting effects of the recent coronavirus disease

2019 (COVID-19) pandemic, many elderly individuals have faced disruptions in their lives and health, the continuous practice of exercise is recommended to the older people (Maloir et al., 2018). Focusing on raising awareness of the health benefits of physical activity and its influence in keeping fit may help maintain or increase exercise practice during lockdown period (Suarez Fernandez and Garcia Villar, 2024). However, increased global life expectancy also indicate and accompany better health among overall aging population. With strong emphasis on the health management and well-being at older age, people are aging healthier than ever before (Jee, 2024).

CONCLUSION

Choosing the right exercise for older adult's post-COVID-19 outbreak has significant benefits for both physical and mental health. There are various types of exercises that older adults can engage in. These include walking, stretching, and rhythmic exercises. Therefore, regular physical activity is crucial for the elderly to boost their immune system, protect against diseases like COVID-19, and enhance their overall quality of life.

AUTHOR CONTRIBUTIONS

Kritpech Nontakhod: preparation and research design, data collection, statistical analysis, results interpretation, manuscript writing, supervision of the study, and review of the final version. Kanoot Ratchakit and Poorichaya Krobtong: data collection and reviewed the manuscript. Supamat Ketthaison and Chotika Sremsiri: manuscript writing and supervision of the study. Kampeeraphab Intanoo: review of the final version.

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DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

HUMAN RESEARCH ETHICS

This research was approved by the Human Research Ethics Committee of Buriram Rajabhat University (BRU: 011/2024).

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