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EFFECTS OF TAI CHAI EXERCISE ON PSYCHOLOGICAL HEALTH ON SENIOR CITIZENS

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Keywords

Senior Citizens, Tai Chai exercise, Stress.

Abstract

Background; Stress is one of the core psychological health issues that affects a significant percentage (10-55%) of the senior population worldwide, with mental problems accounting for 15% of the old age population. Tai chi, moreover recognized as Tai Chi-chuan, is an ancient Chinese form of meditation that is practiced as a set of exercises. Aim: To assess the efficiency of Tai Chi exercise on stress amongst elderly persons at selected senior citizen homes. Pre-experimental one-group pretest and posttest research design with quantitative approach was utilized. Samples were selected based on sample selection criteria. There were 30 samples selected with the purposive sampling technique. The tool used for data collection was the Modified Perceived Stress Scale to assess the level of stress among the elderly after obtained informed consent. The Tai Chi exercise was given for 15-20 minutes for a one-week duration, and on the 7th day, posttest data was collected from the elderly persons with the same tool. Modified Perceived Stress Scale was utilized to monitor the stress. The findings indicated that the pretest level of stress for the majority of elderly persons, 28 (93.3%), had medium stress, and 2 (6.66%) had severe stress levels, and in the posttest level of stress, it shows that the majority, 25 (83.3%), of elderly had moderate stress and 5 (16.6%) had mild stress. The pretest level of stress mean score was 21.43 with the standard deviation of 2.95, and in the posttest, the mean score was 15.86 with the standard deviation of 2.42. The paired' t-test value of t = 0.78 shows a statistically significant difference between pretest and posttest values ($p < 0.05$ level). Which

	proved that Tai Chi exercise was in effect to reducing the stress level among elderly persons. Conclusion: The study determined that exercises of Tai Chi remained an innovative therapeutic approach and also very effective, technique in establishing, maintaining, and promoting a good sense of psychological well-being among elderly people. Posttest values ($p < 0.05$ level). Which proved that Tai Chi exercise was effective in reducing the level of stress among aging persons.

[1] INTRODUCTION

Global living standards have improved, and as a result, the average life expectancy, the number of old-age people, and the percentage of the population with old age are all trending upward. The population is aging in an increasing number of nations (Rudnicka). Older persons suffer difficulties managing physical restrictions, disabilities, or other physical issues resulting from a deterioration in physiological functioning due to the fast-paced nature of life and the mounting societal pressures. Decreased physical activity, such as sedentary behavior, can result in problems like inflammation, aging, and cognitive impairment. (You. 2023).

Improving health as people age is becoming a key objective in the fight against age-related death and morbidity. It is well established that encouraging physical exercise in particular can lower cardiovascular risk factors and related mortality while also improving overall health. (Blake H, 2022). Exercise is a generic strategy that has been shown to provide physiological and psychosocial advantages for people of all ages, including older individuals. According to the Sports Medicine in American college (ACSM), exercise for healthy aging should involve a variety of aerobic, strength and flexibility exercises. Tai Chi, a coordination exercise with moderate pace, minimal impact, and a high degree of interest that also gives a good training effect, is considered acceptable for older persons. (Zhang 2021).

Exercise is a generic intervention which has demonstrated physiological and psychosocial benefits for all age groups including older adults. The American College of Sports Medicine (ACSM) position stand (July, 2009) states that exercise for healthy aging should include a combination of aerobic, strengthening, and flexibility exercises. Coordination exercise such as Tai Chi, with low velocity, low impact, and a high interest level, which also provides a good training effect, is viewed as appropriate for most older people [14

Additionally, psychological health issues are more prone to arise in this circumstance. The World Health Organization reported in 2017 that among individuals 60 and older, the incidence of anxiety disorder and depression is 3.8 and 7%, respectively (7), and that these conditions are now among the leading causes of disability globally. Managing physical restrictions, disabilities, or other physical concerns resulting from a decline in bodily functions can be difficult for older persons due to the fast- paced nature of life and the mounting societal expectations. Sedentary lifestyles and other forms of inactivity can cause problems like inflammation, aging, and cognitive loss. (Wang).

Tai chi is a widespread somatic and psychological workout that combines cardiovascular exercise, belly breathing, and positive thinking. Tai chi is frequently used to control physical health as well as to prevent and manage negative emotions. Tai Chi's slow, soft motions are good for balancing yin and yang, cleaning the meridians, and calming the blood. (Yao Y) Tai

Chi has many health assistances for the elderly, and research on how Tai Chi affects older people's quality of life can help promote Tai Chi among the ageing, progress people's excellence of lifespan, increase individual well-being, and achieve "healthy aging."

Aging also has an effect on their psychological health status and societal adjustment Zhao XF (2014). Tai Chi, which assimilates toning the breath, "toning the body, and toning the mind", stresses the integration of mind and body, meditation, and natural breathing. Exercise that incorporates tai chi helps lower stress-related hormones, which can enhance mood, subjective well-being, anxiety and melancholy, and issues related to pain, anger, fear, and exhaustion. Social factors are also a major factor in seniors' willingness to engage in physical activity. Social integration and the growth and maintenance of social networks are two benefits of group sports like Tai Chi. Peer support and movement training can help boost self-esteem and confidence. Ferrara P E (2019).

Tai chi is an excellent intervention for reducing balance and strength decline because it combines mental and physical activities that enhance muscle coordination and general physical stability. (Chen et al., 2023). In fact, consistent Tai Chi practice has been demonstrated to improve wellness in older populations and dramatically boost lower body strength, which is crucial for preserving balance and preventing falls. (Wang et al., 2020)

Few studies have explicitly compared Tai Chi to other stress-reduction strategies, such as exercise, relaxation, or meditation. Tai Chi has remained categorized as a type of relaxation, and exercise. Research designs must learn from more explored and related fields. Tai Chi as a moderate form of exercise that may not be appropriate for reaching cardiovascular fitness but can improve flexibility and psychological well-being in general (Jin,P. (1991).

Jinyan Lan (2022) conducted a research study regarding to investigate the outcome of Tai Chi exercise of old age about their quality of life. The study result shows that practicing Tai Chi Chuan can progress the excellence of life of seniors, but the result is predisposed by sex and the frequency and length of exercise.

Tai Chi exercise has numerous health profits for the ageing, and research on how it affects their quality of life can help promote Tai Chi exercise among the elderly to improve people's subjective well-being, and achieve "healthy aging". So, the investigator selected this research.

[2] METHODOLOGY

Quantitative research method was adopted with pre experimental one group pretest posttest. Administration of Tai chi Exercise daily for one week. Assessment of posttest level of stress among elderly using the same tool. The Independent Variable of the research study was Tai Chi exercise and the dependent variables was level of stress among elderly. The study was done in little drops old age. Study population comprise of elderly people. The target population comprised of both sex above 60 years and the accessible population is the aggregate of information to the investigator has chosen to perform study. In this study, the accessible population was elderly above the age of 60 years who are able to participate in Tai chi exercise. There were 30 elderly people were designated for the study and non-probability purposive sampling technique. The criteria for the sample selection includes those who are in the age group of above 60 years and also the senior citizens available in the home. The exclusion criteria

were includes the patients with aggressiveness and also those who have the history of memory loss, Elderly people who are not cooperative.

Description of research tool

The study tool consist of 2 parts: Demographic variable such as age, gender, native place, marital status, education, previous occupation, religion, hobbies, physical exercises, mode of admission and duration of stay among elderly. Part- II: Modified perceived stress scale .The scale was developed in 1983 and is most widely used to comprehend how diverse circumstances disturb moods and perceived stress. The scale consists of 10 items which is answered on a four point Likert scale. The scale ranges from 0-40. The interpretation of the score as those who scored 0-13 considered as Mild stress and those who scored 14-26 as moderate stress and 27-40 scored as severe stress.

Validity of the tool;

The tool was authenticated by professionals from nursing field and also other experts from psychology, their correlations and suggestions were made.

Ethical consideration;

Study was conducted after approval from research committee and also after approval from secretary and administrative officer of the institution. The study was conducted after consent from the elderly.

Data Collection Procedure;

Information was collected after obtained written approval from the director of the home and also the principal. The study was directed particular old age home in chennai from 25/04/22 to 01/05/22 among 30 elderly and samples were selected using purposive sampling technique those who met the inclusion criteria. The purpose of the study was explained and informed consent was obtained. The pretest level of stress was assessed by the Modified Perceived Stress Scale which took around 20 minutes for each person. Then the Tai chi Exercise was taught and administered for 7 days about 15 minutes daily. The posttest level of stress was assessed with the same tool on the 7th day.

Procedure for data analysis

Both descriptive and statistics were used to analyze the data. Frequency and percentage distribution used to analyze the demographic data of the elderly and the Mean and standard deviation used to assess the level of stress among elderly.

SECTION A: description of demographic variables among elderly.

Table - 1: Frequency and percentage distribution of demographic variables of elderly in selected old age home. N=30.

S. No.	Demographic variables	Frequency (n)	Percentage (%)
1.	**Age in years**		
	a.45-55	0	0
	b.56-65	13	43.3
		10	

	c.67-75 d.>75	7	33.3 23.3
2.	**Gender** a. Male b. Female	 17 13	 56.6 43.3
3.	**Native place** a. Tamil Nadu b. Kerala c. Andhra Pradesh d. Others	 27 2 0 1	 90 6.6 0 3.3%
4.	**Marital status** a. Married c. Unmarried	 26 4	 86.6 13.3
5.	**Education** a. Primary c. Higher Secondary d. Diploma e. Graduate	 23 4 1 2	 76.6 13.3 3.3 6.6
6.	**Previous occupation** a .Professionals b. Skilled c. Semiskilled d. Unemployed	 3 8 5 14	 10 26.6 16.6 46.6
7.	**Religion** a. Hindu b. Christian c. Muslim	 22 8 0	 73.3 26.6 0
8.	**Any hobbies** a. Reading newspaper b. Watching TV c. Gardening d. Others	 11 16 2 1	 36.6 53.3 6.6% 3.3%
9.	**Do you have the habits of doing physical exercises?** a. Yes b. No	 21 9	 70% 30%
10.	**Mode of admission to old age home** a. Volunteer b. Involuntary	 18 12	 60% 40%

11.	**Period of stay in the old age home?** a. Less than 1 year b.1-5years c.5-10years d. More than10 years	 11 11 4 4	 36.6% 36.6% 13.3% 13.3%

Table 1 shows that there were 13(43.3%) of them in the age group of 56-65 years and 10(33.3%) of them were between the age group of 67-75years and 7(23.3 %) of them were more than 75 years. Considering their Sex 17(56.6%) were males and 13(43.3%) were females.

With regards to native place 27(90%) were from Tamil Nadu and 2(6.6%) were from Kerala and only one person 1(3.3%) from other place. With regard to Marital status 26(86.6%) were married and 4 (13.3%) were unmarried. In regard to education 23(76.6%) were primary school and 4 (13.3%) were higher secondary school and 1 (3.3%) diploma and 2(6.6%) were graduates. Regarding to the previous occupation 3(10%) were professionals and 8(26.6%) were skilled workers and 5 (16.6%) were semiskilled workers and 14(46.6%) of them were unemployed. Regarding religion 22(73.3%) were Hindus and 8 (26.6%) were Christians. Regarding hobbies 11(36.6%) were reading newspapers and 16(53.3%) were watching TV and 2 (6.6%) were Gardening and 1(3.3) was others.

Regarding habits of doing physical exercise 21(70%) were doing exercise regularly and 9(30%) were not having the habit of doing physical exercise. Regarding approach of admission to old age home 18 (60%) were voluntary and 12(40%) were involuntary. In related to staying in the old age home 11(36.6%) were staying less than 1year and 11(36.6%)were 1-5 years and 4(13.3%) were 5-10 years and 4(13.3%) were staying more than 10 years.

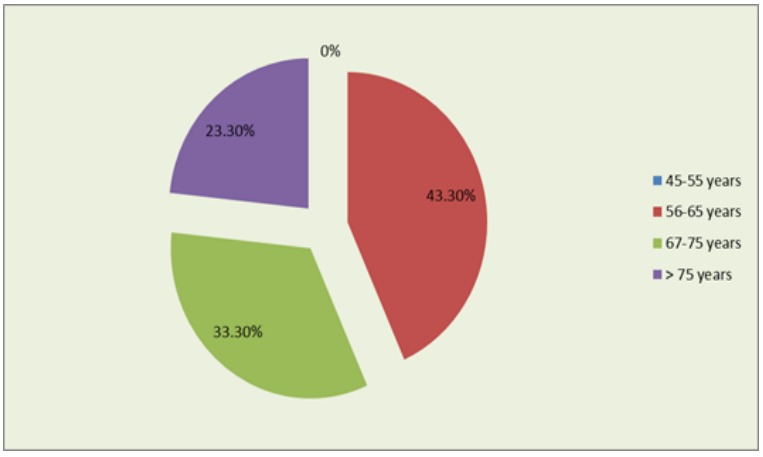

Fig: 1 Percentage distribution of age among elderly persons.

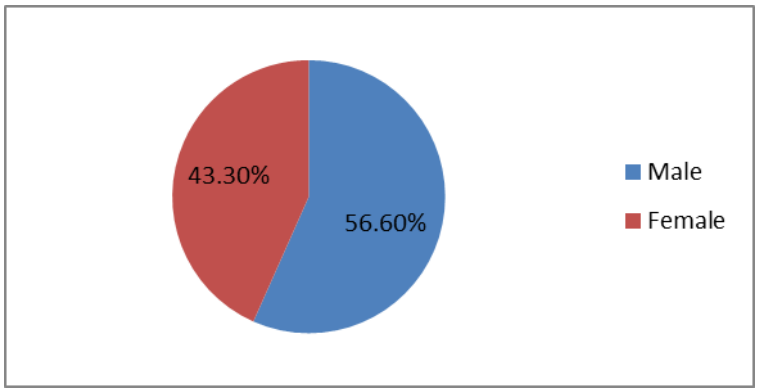

Fig: 2 Percentage distribution of Gender among elderly persons.

SECTION B: assessment of pretest and posttest level of stress among elderly persons.

Table 2: Frequency and percentage distribution of level of stress among elderly persons.

N=30

Level of stress	Pretest		Post test	
	No	**%**	**No**	**%**
Mild	**0**	**0**	5	16.6%
Moderate	28	93.3%	25	83.3%
Severe	2	6.66%	**0**	**0**

Table 2 findings indicated that the pretest level of stress majority of elderly persons 28(93.3%) were had moderate stress, 2(6.66%) were having severe stress level and in the posttest level of stress shows that majority 25(83.3%) of elderly had moderate stress and 5(16.6%) had mild stress.

Table 3: Mean and standard deviation of level of stress among elderly persons

Test	Mean	Standard Deviation
Pre test	21.43	2.95
Post test	15.86	2.42

The above table shows mean and standard deviation of pretest and posttest level of stress among elderly persons. The study revealed that pretest level of stress mean score was 21.43 with the standard deviation of 2.95 and in posttest the mean score was 15.86 with the standard deviation of 2.42.

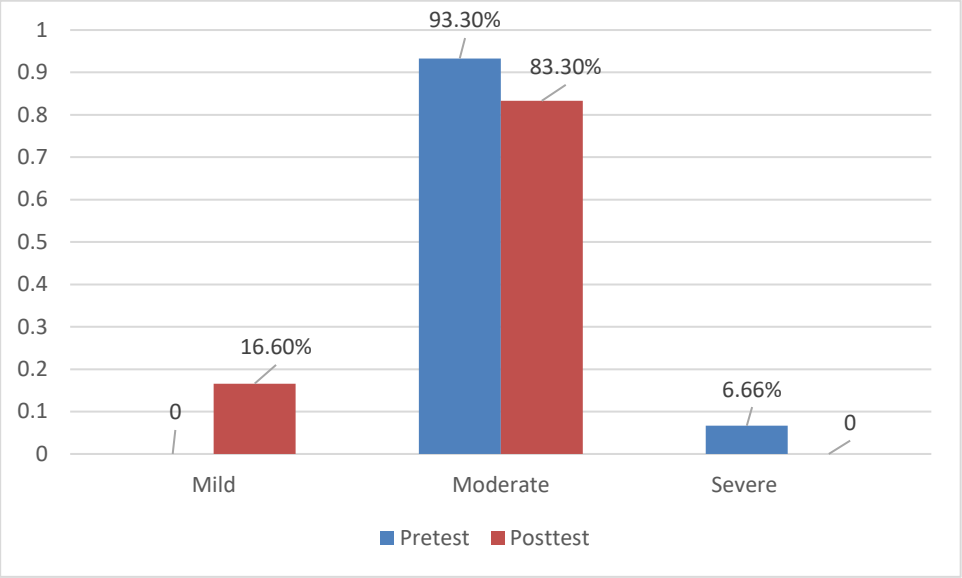

Fig .3: Percentage distribution of pretest and post level of stress among elderly persons.

SECTION C: Effectiveness of Tai chi exercise on level of stress among elderly persons.

Table 4: Comparison of pretest and posttest level of stress among elderly persons. N=30

Test	Mean	Standard deviation	"t" Value
Pretest	21.43	2.95	0.78
Posttest	15.86	2.42	**S***

NS= Not significant. S= Significant, *p <0.05 level,** p< 0.01 level, *** p <0.001 level

The table 4 shows that the comparison of pretest and posttest level of stress shows the effectiveness of Tai chi exercise among elderly persons. In pretest level of stress mean score was 21.43 with the standard deviation of 2.95 and in posttest the mean score was 15.86 with the standard deviation of 2.42. The paired't'test value of t = 0.78 shows statistically significant difference between pretest and posttest value (p <0.05 level). which proved that Tai chi exercise was effective in reducing the stress level among elderly persons.

SECTION D: association of level of stress among elderly persons with their selected demographic variables.

Table 5: Association of the level of stress among elderly persons with their selected demographic variables. N=30

S. No	Demographic variables	Mild		Moderate		Severe		Chi square value
		(n)	(%)	(n)	(%)	(n)	(%)	
1.	**Age**							x^2 = 4.31
	a.45-55years	0	0	0	0	0	0	df= 4
	b.56-65years	3	10	10	33.3	0	0	p= 2.78

	c.67-75years	2	6.6	9	30	0	0	**N.S**
	d.>75	0	0	6	20	0	0	
2.	**Gender**							$x^2 = 0.66$
	a. Male	2	6.6	15	50	0	0	df=2
	b. Female	3	10	10	33.3	0	0	p=4.30
								N.S
3.	**Native place**							$x^2 = 8.70$
	a. Tamil Nadu	4	13.3	23	76.6	0	0	df=6
	b. Kerala	2	6.6	0	0	0	0	p=2.45
	c. Andhra Pradesh	0	0	0	0	0	0	**N.S**
	d. Others	0	0	1	3.3	0	0	
4	**Marital status**							$x^2 = 0.9$
	a. Married	5	16.6	21	70	0	0	df=2
	b. Unmarried	0	0	4	13.3	0	0	p=4.30
								N.S
5.	**Education**							$x^2= 0.52$
	a. Primary school	4	13.3	20	66.6	0	0	df=6
	c. Higher Secondary	1	3.3	3	10	0	0	p=2.45
	school	0	0	1	3.3	0	0	**N.S**
	d. Diploma	0	0	1	3.3	0	0	
	e. Graduate							
6.	**Previous**							$x^2 = 2.2$
	occupation	0	0	3	10	0	0	df= 6
	a. Professionals	2	6.6	6	20	0	0	p=2.45
	b. Skilled	0	0	5	16.6	0	0	**N.S**
	c. Semiskilled	3	10	11	36.6	0	0	
	d. Unemployed							
7.	**Religion**							$x^2 = 0.54$
	a. Hindu	3	10	19	63.3	0	0	df= 4
	b. Christian	2	6.6	6	20	0	0	p=2.78
	c. Muslim	0	0	0	0	0	0	**N.S**
8.	**Any hobbies**							$x^2 = 2.02$
	a. Reading	2	6.6 6.6	9	30	0	0	df=6
	newspaper	2	3.3	14	46.6	0	0	2.45
	b. Watching TV	1	0	1	3.3	0	0	**N.S**
	c. Gardening	0		1	3.3	0	0	
	d. Others							

9.	**Do you have the habits of doing physical exercises?** a. Yes b. No	3 2	10 6.6	18 7	60 23.3	0 0	0 0	x^2 = 0.27 df=2 4.30 **N.S**
10.	**Approach of admission** a. Volunteer b. Involuntary	3 2	10 6.6	15 10	50 33.3	0 0	0 0	x^2 = 0 df= 2 p=4.30 **N.S**
11.	**Duration of stay in the old age home?** a. Below 1 year b.1-5years c.5-10years d. More than10years	3 0 1 1	10 0 3.3 3.3	8 11 3 3	26.6 36.6 10 10	0 0 0 0	0 0 0 0	x^2 =3.48 df= 6 p=2.45 **N.S**

Table 5 shows that none of the demographic variables were found to be statistically significant. So, the hypothesis indicated that there is no substantial association between Tai chi exercise and level of stress among elderly with selected demographic variables was accepted.

[3] DISCUSSION

Assessing older adults' stress levels before and after the test was the first goal. In the present study the level of stress among elderly was assessed using Modified Perceived Stress Scale. The findings indicated that the pretest level of stress majority of elderly persons 28(93.3%) were had moderate stress, 2(6.66%) were having severe stress level and in the posttest level of stress shows that majority 25(83.3%) of elderly had moderate stress and 5(16.6%) had mild stress.

The results of Bince Varghese, Jubin Varghese et al. (2020), a descriptive study to measure the degree of anxiety among old age living in old age homes in Uttar Pradesh, lend credence to this study. In order to elite 30 elders with a quantitative research approach and non-experimental survey design. Results indicate that the majority of elderly residents in assisted living facilities.46.7%had moderate stress, followed by high stress (30%) and low stress (23.3%). There was a link was observed between the elderly's communication patterns with family members and their stress levels. Results found that the majority of senior citizens had a moderate degree of stress.

The effect of Tai Chi exercise on the level of stress among elderly. The comparison of pretest and posttest level of stress shows the effectiveness of Tai chi exercise among elderly persons. In pretest level of stress mean score was 21.43 with the standard deviation of 2.95 and in posttest the mean score was 15.86 with the standard deviation of 2.42. The paired‘t’ test value of t = 0.78 shows statistically substantial difference between pre and posttest value ($p < 0.05$ level) which proved that Tai chi exercise was effective in reducing the stress level among elderly persons.

The current study findings are similar to the research done by Kuang, X., (2022) regarding the effect of tai chi exercises among elderly. The findings suggest that Tai Chi can help elderly people reduce their

anxiety and depression symptoms. In particular, an analysis of different TaiChi intervention types revealed that TaiChi exercise programs were more effective at reducing depressive symptoms while Yang-style Tai Chi was more effective at treating anxiety symptoms. This study is supported by the findings of Abinav Mukund (2011), who conducted a study to investigate the effects of Tai Chi activities on stress among non- professional college students in Gandhinagar, Gujarat. The study's goal was to examine stress levels in college students. A quasi-experimental research design. There were 80 samples between the ages of 18 and 22. Stress was evaluated using a 20-item Perceived Stress Scale. 70 of the 80 samples were completed both before and after the exam. The students were taught Tai Chi exercises on a regular basis for one month. Participants reported a lower level of stress after learning to conduct Tai chi exercises.

The third goal was to relationship the posttest level of stress in elderly people to their demographic characteristics.

Chi- square analysis was calculated to associate the mean difference score on the level of stress with selected demographic variables. The findings revealed that the none of the demographic variables were statistically significant. So, the hypothesis stated that there is no significant association between Tai chi exercise and level of stress among elderly with selected demographic variables was accepted.

Kabiri Dinani S (2019) determined that Tai Chi significantly improved the intended nursing students' self-confidence while lowering their levels of stress, anxiety, and despair. Additionally, Tai Chi is suggested as an easy and affordable method to help students feel less stressed, anxious, and depressed while also boosting their confidence. The current study results also similar to the effectiveness of tai chi to reduce the stress among elderly.

[4] CONCLUSION

The outcomes of the research study show that Tai Chi training has an important and positive effect on the reduction on stress among elderly. However, in order to properly pick a suitable exercise plan, healthcare providers must consider individual patient variances. As a result, this study provides healthcare practitioners with useful evidence and suggestions on nonpharmacological therapy alternatives that can improve the well-being of elderly people suffering from anxiety and depression. The study concludes that there was a relationship between taichi exercises and stress among elderly.

[5] AUTHOR(S) CONTRIBUTION

Dr. Zealous Mary comprehended and conducted the study, as well as evaluated and interpreted the results. Dr. Vathana wrote and updated the main manuscript. All authors read and approved the final version of the manuscript.

[6] LIMITATIONS

The size of the sample was very small.
The study was completely conducted on senior citizens.

[7] RECOMMENDATIONS

Needs to conduct in Tai-chi exercise to assess the physical problems in old age people. Comparison research may be done to discover changes in adults and old age. Recommend to do this study as

qualitative research.

[8] ACKNOWLEDGEMENT

Individuals / resources participated in the work are acknowledged properly.

[9] SOURCES OF FUNDING

The authors received no financial aid to support the study.

[10] PLAGIARISM POLICY

The authors declare that any kind of violation of plagiarism, copyright, and ethical matters will be handled by all authors. Journalists and editors are not liable for the aforesaid matters.

[11] CONFLICT OF INTEREST

The authors declared that no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

[12] PROTECTION OF RESEARCH PARTICIPANTS

This study do not involve any such criteria or condition.

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