

# ผลของสมาธิเพื่อการเยียวยาของผู้สูงอายุที่เจ็บป่วยด้วยโรคไม่ติดต่อ ในกรุงเทพมหานครและสุราบายา

## The Effects of Meditation-Healing Exercise in Elderly Who are Living with Non-Communicable Disease in Bangkok and Surabaya

จินตนา อาจสันเทียะ\* นิปุต วูลาน เพอร์นามา สารี\*\*

JintanaArtsanthia<sup>1</sup> Ni Putu Wulan Purnama Sari<sup>2</sup>

<sup>1</sup>คณะพยาบาลศาสตร์ วิทยาลัยเซนต์หลุยส์ กรุงเทพฯ ประเทศไทย 10120

<sup>1</sup>Faculty of Nursing Saint Louis College, Bangkok Thailand 10120

<sup>2</sup>มหาวิทยาลัย Widya Mandala อินโดนีเซีย

<sup>2</sup>Widya Mandala nursing College, Indonesia

### บทคัดย่อ

ผลของสมาธิเพื่อการเยียวยาในผู้สูงอายุที่เจ็บป่วยด้วยโรคไม่ติดต่อนี้มีวัตถุประสงค์เพื่อศึกษาผลของสมาธิเพื่อการเยียวยาในโรคไม่ติดต่อ ผลต่อระดับน้ำตาลในเลือด ผลต่อระดับความดันโลหิต และคุณภาพชีวิต รวมถึงการสนับสนุนด้านจิตวิญญาณ ทักษะคิดของผู้สูงอายุ การวิจัยเป็นแบบกึ่งทดลองชนิดหนึ่งกลุ่มก่อนและหลัง กลุ่มตัวอย่างเป็นผู้สูงอายุที่เจ็บป่วยด้วยโรคไม่ติดต่อในชุมชน จำนวน 196 คน และอาศัยในกรุงเทพ และสุราบายา อินโดนีเซีย วิเคราะห์ข้อมูลด้วยสถิติเชิงพรรณนา และ Repeated measure ANOVA test ผลการวิจัยพบว่าผู้สูงอายุที่เจ็บป่วยด้วยโรคไม่ติดต่อในกรุงเทพ มีระดับความเครียดในระดับปานกลางจากระดับเริ่มศึกษา ที่ 36.9 และลดลงเป็น 31.75 เมื่อสิ้นสุดการศึกษา ผลต่อระดับความดันโลหิตและ ระดับน้ำตาลในเลือดมีความแตกต่างอย่างมีนัยสำคัญทางสถิติของการวัดแต่ละครั้งของทุกเดือน ผลวิจัยจากผู้สูงอายุที่เจ็บป่วยด้วยโรคไม่ติดต่อของสุราบายา อินโดนีเซีย พบว่าผู้สูงอายุมีระดับความเครียดจากระดับสูง ลดลงเป็นระดับกลาง ที่ 47.31 และลดลงเป็นค่าเฉลี่ยที่ 33.86 ผลการฝึกสมาธิเพื่อการเยียวยาต่อความดันโลหิตมีความแตกต่าง แต่ผลของระดับน้ำตาลในเลือดไม่แตกต่าง สำหรับด้านคุณภาพชีวิตของผู้สูงอายุในกรุงเทพและสุราบายา มีระดับคุณภาพชีวิตที่ระดับปานกลางจากแบบสอบถามของ WHOQOL-BREF ดังนั้นการปฏิบัติสมาธิเพื่อการเยียวยาของผู้สูงอายุที่เจ็บป่วยด้วยโรคไม่ติดต่อนี้มีผลต่อคุณภาพชีวิตในการทำใจให้มีความเข้มแข็งทางจิตวิญญาณ ทักษะคิด และ ความดันโลหิตที่เปลี่ยนแปลง จึงเป็นทางเลือกเสริมของการดูแลสุขภาพของผู้สูงอายุที่เจ็บป่วยด้วยโรคไม่ติดต่อที่ประหยัดได้ประสิทธิภาพ

**คำสำคัญ :** สมาธิเพื่อการเยียวยา (SKT), โรคไม่ติดต่อ, คุณภาพชีวิต, การสนับสนุนทางจิตวิญญาณ

### Abstract

The effects of meditation-healing exercise among elderly who lives with non-communicable disease. The purposes of the study were to determine the effects of meditation-healing exercise on non-communicable disease, blood glucose, blood pressure level, quality of life, psychological support, and attitude of elderly. The study utilized a one group pretest-posttest quasi-experimental research design among 196 elderly in selected communities in Bangkok, Thailand and Surabaya, Indonesia. Descriptive analysis and repeated

\* ผู้แต่งหลัก (Corresponding Author) e-mail: jintana.a@slc.ac.th,

measure ANOVA were utilized for data analysis of the study. In Bangkok, the effects of meditation-healing exercise on stress found that the elderly had moderate stress level (at 36.9 and decrease to 31.75), the blood pressure and blood sugar level were significantly different effect in the each measurement of every month. In Surabaya, the elderly reported a change from high to moderate mean scores (at 47.31 and decrease to 33.86) in the stress level. The result of the blood pressure showed significant effect, but the blood sugar level was not significant. Both Bangkok and Surabaya reported to have a moderate quality of life (QOL) level. In general, meditation-healing exercise affected the overall quality of life on psychological support, attitude and blood pressure level of the elderly in community. Thus, meditation-healing exercise is safe and effective method in health care.

**Keywords:** Meditation-healing exercise (SKT), non-communicable disease, quality of life, and psychological support.

## Introduction

Currently, non-communicable diseases (NCDs) started causing major problems in all countries. Population growth has declined which leads to increasing numbers and proportions of elderly. Thus, the emerging ageing population is a significant trend in many parts of the world<sup>1</sup>. Non communicable diseases (NCDs) kill 40 million people each year<sup>1</sup>. The unnecessary costs of NCDs like lengthy and expensive medical treatment forced millions of people into poverty annually. Other ways to reduce NCDs are high impact essential NCD interventions that can be delivered through a primary health-care approach to strengthen early detection and timely treatment. The study showed that such interventions were excellent economic investments because, if applied to patients early, can reduce the need for more expensive treatment. These measures can be implemented in various resource levels. The greatest impact can be achieved by creating healthy public policies that promote NCD prevention and control and reorienting health systems to address the needs of people with such diseases<sup>2</sup>.

The burden of disease in Thailand is gradually shifting from communicable diseases to non-communicable diseases, injuries and mental

health. Greatest public health benefits are gained through prevention of NCD<sup>3,4</sup>. These benefits can be achieved if risk factors are identified, mitigated and intervened. If NCDs are detected at an early stage and appropriate controls initiated, their severity can be significantly reduced<sup>5</sup>. In Indonesia, NCD burden has made phenomenal progress. At the same time, fertility has dropped dramatically, while life expectancy has increased steadily<sup>6</sup>.

Mindfulness meditation also appears to bring about favorable structural changes in the brain<sup>7,8</sup>. Another study describes how mindfulness-based interventions target neurocognitive mechanisms that affects attention, appraisal, and emotion<sup>9</sup>. A meta-analysis revealed that among 21 brain imaging studies, there were consistently differences on the region of pre frontal cortex and other brain regions associated with body awareness<sup>10</sup>. The SKT was a basic alternative medicine developed by Somporn K. Triamchaisri to promote independent role of nursing to increase quality of life, to support psychological aspects, to provide palliative care that reliefs suffering, and lastly to promote physical, psychosocial and spiritual care among elderly who are living with non-communicable disease<sup>11</sup>.

### The aims of this study were:

1. To study the effects of meditation healing exercise (SKT technique) on non-communicable disease in Surabaya and Thai elderly with DM and/or HT.
2. To study the efficacy of meditation healing exercise (SKT) for lowering blood glucose level and blood pressure in elderly with DM and/or HT.
3. To study the effect of meditation healing exercise (SKT) on psychological support, attitude in meditation healing exercise, Quality of life of elderly who living with non-communication disease.

### Assumptions:

1. Meditation-healing exercise (SKT technique<sup>1</sup>) affects QOL and stress level of elderly who living with NCD.
2. SKT technique<sup>1</sup> affects the blood pressure and blood sugar of the elderly who are living with NCD.

### Operational definitions:

Meditation-healing exercise or better known as Somporn Kantrara Dussadee Triamchaisri (SKT) technique is a technique practiced by people living with DM and HT. Step in SKT<sup>1</sup> practice: Give and take relax position by sitting or lying, Close the eyes, Deep breath and hold breathing while count in the mind with <sup>1,2,3</sup> then exhale through the mouth slowly, and follow the same steps again for 30 times. It took 10-15 minutes. The participant practiced meditation-healing exercise (SKT technique 1) is done 2 times per day.

Elderly who are living with DM and HT means to elderly who were diagnosis of diabetes mellitus only, hypertension only, and diabetes mellitus and hypertension only who take medicine to treat the diseases and prefer to practice SKT technique.

Non-communicable disease pertains to the disease of hypertension only, diabetes mellitus only or hypertension and diabetes mellitus.

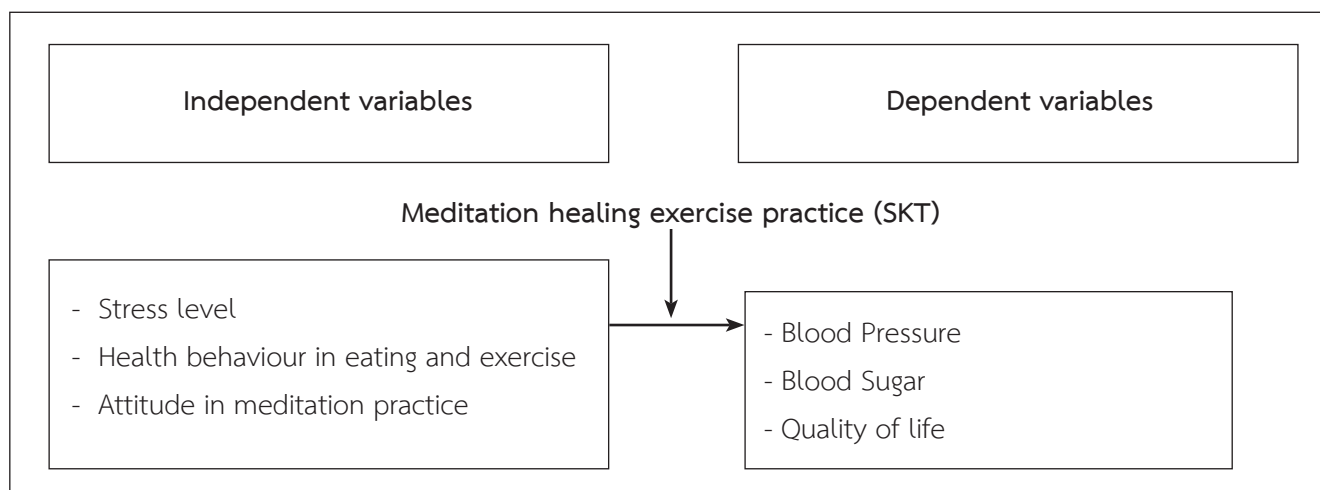
Health behavior refers to the behavior of patients in consuming foods according to one's taste, healthiness (vegetable, fruit), and types of cooking (fry, boil, and steam). It also indicates behavior towards often exercise.

Attitude in meditation practice refers to the attitude of people living with chronic illness related to meditation practices' attitude, belief, feeling, and preference.

Quality of life pertains to the quality of life of patients living with chronic illness (hypertension only, diabetes mellitus only and hypertension with diabetes mellitus). This can be measured using the WHOQOL-BREF tool. The said QOL tool is composed of 26 questions that pertains to 4 dimensions (physical, mental, social, and psychological). Accordingly, if the score falls from 26-60 it implies poor QOL, 61-95 means moderate QOL, and 96-130 score indicates good QOL.

Stress level refers to the stress of the elderly who are living with NCD that was be measured using the stress test of the Suan Prung Stress Test-2012. The result of the said test will be determined by Warren and Toll criteria which implies 0 – 23 for mild stress, 24 – 41 for moderate stress, 42 – 61 for high stress, and 62 for severe stress.

## Conceptual framework



### Research Approach:

**Population:** The population in the study was comprised of non-communicable disease in selected communities in Bangkok, Thailand and Surabaya, Indonesia.

**Sample:** The sample for the study was comprised of hypertensive patients, diabetes mellitus patients or both. These are samples who resides in selected communities in Bangkok, Thailand and Surabaya, Indonesia and those who fulfilled the inclusion criteria.

**Sample Size:** The sample size for this study was 196 patients. Among them, 60 diabetes mellitus patients, 68 hypertensive patients and 68 diabetes mellitus and hypertensive patients. The samples were selected to the experimental group pre and posttest. They spent the life as normal activity but increase activity of SKT technique 2 times per day.

### Sample selection criteria:

**Inclusion criteria:**

(1) Elderly who are living with diabetes mellitus or/and hypertension; (2) Samples, both male and female who are willing to practice meditation-healing exercise (SKT); (3) Follow treatment of medical doctor from hospital or health center.

**Exclusion criteria:**

(1) Elderly who have a severe medical condition affecting the heart. (2) Unable to communicate the language using Thai or Bahasa Indonesia. (3) Elderly with NCD who wants to withdraw from the study.

**Variables:**

**Independent variable:** Stress level, Health behavior in eating and exercise, Attitude in meditation practice.

**Dependent variable:** QOL, Blood pressure level, Blood sugar level.

**Extraneous Variable:** Age, gender, education, occupation, habits, monthly income, marital status.

**Data collection instruments:** The instruments were composed of 1) questionnaires to collect basic information of the elderly who living with non-communicable disease, Blood pressure monitor and DTX instruments, 2) Meditation healing exercise monitoring time, 3) WHOQOL-BREF questionnaire (Cronbach's alpha of 0.84), Quality of life index subscales were: physical subscale, (Cronbach's Alpha of 0.61), social subscale (Cronbach's Alpha of 0.59), Psychological subscale (Cronbach's Alpha of 0.82), and Environment subscale (Cronbach's Alpha of 0.64). 4) SPST questionnaire for stress level through the translation process followed the standard guidelines,

including forward translation, synthesis of the translation, back translation, and pre-testing. Overall Cronbach's Alpha of the tool was 0.94.

#### Ethics and consent:

1. The research procedures were approved by the Ethics Committee of Saint Louis College. E.038/2559 ISSUE 17 November 2016. Participants were given information on the purposes of the study, the method, and benefits of participating in the study. Also, written consent forms were obtained prior to conducting interviews from all participants.

2. The information was unexposed if the informants do not permit inform consent, anonymous participants, confidential record keeping. The participants had an opportunity to ask questions. The participants have given the opportunity to agree or decline to participate in the study. Those who agreed to participate were asked to sign a consent or to tape record their verbal consent.

3. Risk management of the project to protect the participants:

The participants who participated in the study was given health information. This project has reported no harm to the participants. The activities composed of interview and focus group discussion. If participants feel uncomfortable with the questions, then they could say "I don't want to answer this aspect".

#### Method of Data Collection:

1. Select the sample based on inclusion criteria,

2. Training of SKT technique in the communities of Bangkok and Surabaya among elderly and research team by the researcher.

3. Monitor and follow-up elderly to practice. Set meeting to be conducted at the beginning of

every month 3 months) for blood pressure taking, blood glucose reading.

4. In the process of data collection, the researcher and health volunteers reminded the elderly to practice meditation every day. Giving of rewards when the result of blood pressure and blood sugar levels decreased every month.

5. Promoted the technique of share and chatting in practicing meditation-healing exercise. Showing the cases who had the good result in order to motivate the elderly to practice meditation healing exercise, until they become stable.

#### Results:

Demographic characteristics of the samples: This section described the sample characteristics in terms of frequency and percentage. The characteristic of sample composed of 15.82% of male (31 persons) and 84.18% of female (165 persons). The education of sample in Bangkok, the most of people were at primary school (53%), while in Surabaya the most of people were at secondary school (64.58%). The income of sample in Bangkok was 43% at 2000-6000 Baht (60-170US\$) per month, the income of sample in Surabaya was 53.13% at less than IDR 800 thousand Rupiah (80 US\$) per month.

Quality of life (QOL) of elderly with non-communicable disease

The overall QOL mean scores of elderly with DM in Bangkok before and after the exercise had a score of X pretest = 89.23 and X posttest = 93.33. The overall QOL mean scores of elderly with DM in Surabaya before and after the exercise had a score of X pretest = 88.80 and X posttest = 92.20. Both sites had moderate level of quality of life as shown in table 1.

**Table 1** Comparative study the result of the effects of meditation healing exercise on quality of life (QOL) by using WHOQOL-BREF

Case	Domains	Bangkok (100)		Surabaya (96)	
		Before	After	Before	After
DM	Physical	22.83	24.5	24.53	25.43
	Psychological	21.63	23.4	21.63	21.90
	Social relationship	9.77	9.97	9.23	10.47
	Environment	21.67	22.67	26.63	26.50
	Overall QOL	89.23	93.33	88.80	92.20
	Physical	24.71	25.32	23.79	25.27
HT	Psychological	23.28	26.26	19.94	21.42
	Social relationship	10.51	11.08	9.79	9.97
	Environment	21.91	22.05	25.03	26.18
	Overall QOL	93.65	97.82	85.45	89.64
DM&HT	Physical	23.29	24.11	23.73	22.91
	Psychological	21.84	23.84	20.64	20.45
	Social relationship	10.16	10.16	9.82	9.91
	Environment	21.39	21.97	26.27	24.18
	Overall QOL	90.08	93.44	87.73	84.00

The effect of meditation-healing exercise on stress level. The study determined the effects of meditation-healing exercise on psychological support by using stress level questionnaire (SPST) before and after meditation-healing exercise. The elderly in Bangkok had moderate stress levels with a pretest

and posttest scores of ( $\bar{X}$  pretest 36.9;  $\bar{X}$  posttest 31.75). The elderly in Surabaya had the pretest score of  $\bar{X} = 47.31$  and pretest score of  $\bar{X} = 33.86$ . The stress level was reduced from of high to moderate level after meditation-healing exercise as shown in table 2.

**Table 2** Comparative study the result of the effects of meditation healing exercise on psychological support by using stress level questionnaire (SPST)

Case	Bangkok (100)				Surabaya (96)			
	Before	QI	After	QI	Before	QI	After	QI
DM	43.1	High stress	33.20	Moderate stress	45.97	High stress	33.17	Moderate stress
HT	33.05	Moderate stress	29.88	Moderate stress	49.31	High stress	33.60	Moderate stress
DM&HT	35.55	Moderate stress	32.34	Moderate stress	46.64	High stress	34.82	Moderate stress
Total	36.90	Moderate stress	31.75	Moderate stress	47.31	High stress	33.86	Moderate stress

The attitude of elderly in meditation healing exercise

The attitude had scale in the range from 1 as the least up to 5 being the highest. In Bangkok, the attitude of feeling good in practicing meditation-healing exercise has a scale of  $\bar{X}$  pretest = 3.41 and  $\bar{X}$  posttest = 4.41 before and after study, respectively. In Surabaya, the attitude in practicing meditation-healing exercise has a scale of  $\bar{X}$  pretest = 3.71 and  $\bar{X}$  posttest = 4.61 before and after study, respectively. The attitude of elderly in feeling good when practice meditation healing exercise  $\bar{X}$  pretest = 3.45 and  $\bar{X}$  posttest = 4.36 in Bangkok, and  $\bar{X}$  pretest = 3.76 and  $\bar{X}$  posttest = 4.68 in Surabaya, before and after study, respectively. The attitude of elderly in body and mind working cooperatively was  $\bar{X}$  pretest = 3.41 and  $\bar{X}$  posttest = 4.41 in Bangkok, while  $\bar{X}$  pretest = 3.79 and  $\bar{X}$  posttest = 4.63 in Surabaya, before and after study, respectively. For the attitude of wanting to practice meditation-

healing exercise  $\bar{X}$  pretest = 3.42 and  $\bar{X}$  posttest = 4.47 in Bangkok, while  $\bar{X}$  pretest = 3.55 and  $\bar{X}$  posttest = 4.52 in Surabaya, before and after study, respectively. Attitude in believing in the concept of meditation healing exercise to help improve immunity and heal the symptom  $\bar{X}$  pretest = 3.30 and  $\bar{X}$  posttest = 4.52 Bangkok, while  $\bar{X}$  pretest = 4.00 and  $\bar{X}$  posttest = 4.74 in Surabaya, before and after study, respectively.

The result was an overview of blood pressure levels in Bangkok and Surabaya. Overall, the study was composed of 196 samples. Using Mauchly's test, the significant value was .00 which was less than 0.05. The study revealed that there was a significant difference in the variances between blood pressure levels with  $p=.00$ . On the other hand, the assumption of sphericity had been violated,  $\chi^2 (27) = 730.83$ ,  $p = .00$ . Therefore, the degree of freedom were corrected using Greenhouse – Geisser estimated of sphericity ( $\chi = .45$ ) as shown in table 3.



**Table 3** Blood Pressure (BP) and Blood Sugar (BS) level of the sample before and after practicing meditation-healing exercise at 1,2,3 month of both sites.

Item	Bangkok (100)							
	Baseline		1 month		2 month		3 month	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
BP level	141.82/77.64	18.59/11.27	135.17/76.81	14.86/12.00	131.53/77.33	12.61/6.79	127.87/77.42	10.38/6.07
BS level	155.62	65.71	141.48	42.80	138.53	37.77	134.36	32.66

Item	Surabaya (96)							
	Baseline		1 month		2 month		3 month	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
BP level	138.56/81.95	22.95/10.60	137.99/77.07	14.11/10.73	134.19/81.21	9.14/7.05	130.31/79.45	9.37/6.44
BS level	137.90	49.34	140.86	59.46	135.75	31.76	127.04	27.31

The result of the study showed that the meditation-healing exercise had significant effect ( $F_{3,12}, 608.56 = 2.01; p = .00$ ) on the blood pressure in each elapsed time months.

The result was an overview of blood sugar level in Bangkok and Surabaya.

Using the Mauchly's test, the significant value was .00 which less than 0.05. The study showed that the result in the blood sugar level in Bangkok and Surabaya showed the significance difference with a  $p$ -value = .00. The variances of the differences between levels of blood sugar were significantly different ( $\chi^2_5 = 239.86; p$ -value = .00). The result of the study showed that the blood sugar level was a significant effect measure in each elapsed time months ( $F_{1,74}, 339.24 = 10.02; p = .00$ ).

## Discussion

Regarding blood pressure results, the meditation-healing exercise as an intervention is successful in lowering the systolic and diastolic pressure in Bangkok and Surabaya. This result is

congruent with the study in India. Accordingly, meditation decreased the heart rate, respiration rate, systolic and diastolic blood pressure<sup>13</sup>. The study found that meditation had reduced blood pressure, anxiety, addiction, and stress levels. In addition, relaxation response has been shown to decrease sympathetic nervous system activity, metabolism, pain, anxiety, depression, hostility, and stress<sup>14,15,16</sup>. The results of some study showed health promoting behaviors among elderly such as physical activities, attitude toward life can improve the well-being<sup>17</sup>. Moreover, the study found that meditation relieved stress, cultivate self-regulation skills, and improve ability to focus and concentrate<sup>18,19</sup>. In this study found the patient knew how to control blood pressure by following steps in SKT intervention. The results in Surabaya showed that there was no significant effect of meditation healing exercise towards BS level. This happened possibly due to psychological factors, stress experienced, non-optimal QOL<sup>20,21,22</sup> and other factors unidentified in this study. The results of SPST showed that samples in Surabaya showed



higher stress level before study compared in those living in Bangkok. After the study, the results showed that both experienced moderate stress level in those living in Surabaya and Bangkok. Thus, stress test has important role in nursing in order to promote health and to provide psychological support to patients<sup>23</sup>.

### Conclusion:

Meditation-healing exercise affects the blood pressure level, quality of life and psychological care. The study has positive impact on the physical body, the symptoms of disease was reduced once we decrease the stress and anxiety levels. Thus, this leads to an improved health status, happiness and improved quality of life of elderly in community.

### Recommendations:

1. Recommendation for nursing education and service

The opportunity for research in nursing education and service will be a guide to learn more in the next step in developing alternative medicine for promoting health and supporting psychological care in the community.

2. Recommendation for further nursing researcher The study would like to recommend further studies and future researchers to conduct more specific studies about the effects of meditation-healing exercise on other aspects in order to develop the independent role of caring.

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