

## FACTORS AFFECTING EFFECTIVENESS OF THE ACTIVE AGING PROGRAM FOR OLDER PERSONS IN THAILAND

Nattapat Sarobol<sup>1</sup>

### Abstract

The objective of this research was to investigate the effective factors influencing the outcome of the active aging program for older persons in Thailand. The data were collected by using the questionnaire which was designed from the result of the previous qualitative study conducted by the researcher with the health programs in Japan and Thailand. In addition, the literature review revealed that the board concept of the “Logic Model” and “Ecological Theory” were also applicable to this study. The samples were 250 respondents working in municipalities in the central part of Thailand. All of the respondents were staff in charge of a program for developing the quality of life for older persons in each community. The quantitative data were analyzed by using Structural Equation Model (SEM). The findings revealed that the proposed model had a good fit index:  $\chi^2(21, N=250) = 26.849, p = .176, \chi^2/df = 1.279, CFI = .999, TLI = .996, RMSEA = .033, SRMR = .018$ . Besides, it was found that process and activities factor directly influenced the outcome at the effect size equivalent to  $(\beta) = 0.779$  ( $t = 7.300$ ) and the indicators included 1) operation team 2) activity design 3) self-participation 4) family participation and 5) community participation. In addition, resources support indirectly influenced the outcome through the variables of process and activities at the effect size equivalent to  $(\beta) = 1.054 * 0.779 = 0.821$ . It can be concluded that five indicators of the process and activities were significant factors affecting the outcome of the active aging program for older persons in the community in Thailand. This conclusion was supported by the “Logic Model” approach which was applied in this study. Regarding the management of the program, it is suggested that municipalities should adjust their activities to encourage participation, knowledge exchange, building relationships and activities involving older persons, their families, and other older people in the community. They should also aim to equip staff with specific expertise based on their interests in specific areas involving program provision or they should promote staff to specialized tasks.

**Keywords:** Effective Factors, Health Promotion Program, Active Aging, Logic Model

### Introduction

The population aged 80 years or over is growing faster than any younger age group within the older population. The population of centenarians, those aged 100 years or over, is growing fastest (UNFPA, 2012). The number of

centenarians in the world is projected to increase from fewer than 316,600 in 2011 to 3.2 million in 2050. In Japan, there are already 49,500 centenarians and by 2050, this number is expected to increase to 617,000, of whom 500,000 will be women. This means that nearly 1 per cent of

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<sup>1</sup> Assistant Professor Dr., Faculty of Social Administration, Thammasat University, Bangkok, Thailand.

E-mail : familypooh@hotmail.com, corresponding author

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Japan's population will be aged 100 years or over by mid-century (UNFPA, 2012). In Thailand, the apparent number of centenarians decreased by nearly two-thirds to 11,905 in 2016. This sudden reduction was due to periodic purging of deceased persons from the population register. Later, in 2019, it reached to 26,711 (Chuanwan & Prasartkul, 2020). However, it is believed that healthy life expectancy is more important than life expectancy. How can older persons live longer with good quality of life and be healthy?

Healthy life expectancy means "Kenko-jumyo" (健康寿命) in Japanese. The Ministry of Public Health, Labour and Welfare, Japan defines it as the amount of time that you can carry on your daily life without being restricted by health problems. In other words, healthy life expectancy is not being chronically ill to the extent that you are unable to do anything comfortably on your own (Thiptiampong, 2018). People should have good health and be able to help themselves as long as they can in order not to become a burden on others. In Thailand, Thai men have average life expectancy of 77.5 years and healthy life expectancy of 67.9 years, while Thai women have average life expectancy of 77.5 years and healthy life expectancy of 72.4 years (International Health Policy Program Permanent Secretary Office, Ministry of Public Health, 2017). It can be seen that there is a difference between longevity and healthy aging. To address health life expectancy, a new Japanese system called "Community-Based Integrated Care Systems" was promoted by the Japanese Government in 2012. This system not only organizes service delivery but also initiates a

community-based social movement (Curry et al., 2018). The system was created also to prevent deterioration of older persons in Japan. The Japanese government encouraged persons over-65 without care needs (active aging group) to engage in community activities to reduce isolation and deterioration. According to the Ministry of Health, Labour and Welfare of Japan (2016), those older persons who are over-65 without care needs are called the "Not certified group". Many programs based on this policy and supported by the community were launched in Japan such as "Ten Million House in Musashino", "Dream Lake Village in Setagaya Ward" and "Shinagawa City of Tokyo" (Curry et al., 2018). They were programs for older persons to participate in social activities. Main activities include dancing, carving, photography, chorus, playing musical instruments and traditional music, exercising and social volunteer activities (Ministry of Health, Labor and Welfare of Japan, 2014).

However, in 2014, the Japanese Health Law was amended, and health care services were provided for all types of older person no matter how old they were or what kind of condition they were in. The service program was focused on activities among them. The aim of the program was not to cure disease or to treat illness in older persons but to lengthen one's lifespan, delay illness, to help improve one's quality of life and to develop the community (Ministry of Health, Labor and Welfare of Japan, 2017). In Japan, this kind of program, which was established in 2014 was called "Comprehensive Services for Long-term Care Prevention and Daily Life Support"<sup>2</sup> (介護予

<sup>2</sup> A Care Prevention Program in Japan in this article: A Care Prevention Program in Japan refers to the program promoting and preventing health problems of older person

in the community in Japan, which is called "Comprehensive Services for Long-term Care Prevention and Daily Life Support".

防・日常生活支援総合事業). The program consists of two types of services. The first type is Long-term Care Prevention Projects (介護予防・生活支援サービス事業), which include older person home care, day care center for older persons, and daily routine support service. The second type is services which cope with municipalities' needs (一般介護予防事業) (not covered by the long-term care insurance). These services include information for older persons and health care activities for them, consultation about primary health care for older persons to help change their attitudes and behaviors, promotion of activities for older persons in the community, assessment of the appropriateness of activities for older persons, and rehabilitation and physical therapy for older persons in the community. Comprehensive Services for Long-term Care Prevention and Daily Life Support was promoted in order to shift from high-risk approach to population approach. The population approach was mentioned in the paper of Tsuruta (2015), which stated that the future of long-term care prevention will enhance opportunities for residents to manage older persons through connections between people, participants and others, without distinguishing them according to their age or physical and mental conditions.

In the same way, in Thailand, the “Health Promotion Program”<sup>3</sup> which is a program in “Older Persons Quality of Life Development Centers” or in “Community Centers” was also created with the concept of a community-based approach. Nevertheless, the programs have faced many obstacles among the growing needs of the older

<sup>3</sup> Health promotion Program in Thailand refers to the program providing for older person in Thailand to participate in activities. The purpose of the program is to serve older persons in all dimensions including health, social,

population which is increasing rapidly in Thailand. Some centers experienced problems in organizing activities. Some centers were closed and others had only the committee structure without any activities or action (Yodphet, Sombat, Sarobol and Sakdaporn, 2015). From the pilot study of service-learning programs conducted by the researcher, it was found that the objectives of the program were unclear. There were no documents which identified program planning, implementation and evaluation. From the previous study, it was also found that 1) There were few older persons participating in the program. 2) Some programs were organized by sponsors and the cost was high. 3) The program was mistakenly run for politics, not for services. 4) There was a shortage of resource persons running the program. 5) The program encountered problems in management. (Yodphet, Sombat, Sarobol and Sakdaporn, 2015). In addition, some programs were run by implicit program theory or, as Weiss named it, a Tacit Theory (Rossi, Lipsey & Freeman, 2004.) Many programs had unclear specific process and conceptualization, which could not describe the nature of program. They were evaluated under situations which were often referred to as Black Box Evaluation (Rossi et al., 2004), and this situation occurred in several community programs in Thailand. Without well-planned programs, older persons could not enhance their abilities and achieve positive outcomes.

It can be seen that the Japanese Government started to focus on community-based services in providing programs for older persons in 2012, after having faced with many problems for over 12 years as it employed a long-term care

psychological and economics. The program also focuses on boosting incomes and providing appropriate jobs for older person.

insurance system. At the same time, Thailand had a long-term care system that was not insurance-based and focused on providing community-based services since the beginning. Therefore, at present, both Thailand and Japan are focusing on providing services under the same community-based concept. However, what's interesting is that the older person care service of the two countries explained in this work is not only about being community-based. According to a review of the situation, the longevity of older persons in Japan and the higher number of older persons who want to be registered in the long-term care insurance system with expenses increasing every year result in adjustment of the service model in order to focus on community participation in preventive care activities such as deterioration testing activities, dementia prevention activities, physical activities for longevity, oral health care activities, etc. It can be said that promoting non-isolation among older persons and slowing down their physical decline is not adequate. Indeed, it requires early sign to ensure preparedness in dealing with it whereas the community-based service delivery model in Thailand focuses on improving the quality of life in various dimensions, especially health, societal and economic dimensions rather than prevention. In addition, the study of many community-based service programs in Thailand faced several obstacles. As a result, older persons do not receive effective services described above. This paper thus presents an equation model that influences an efficient service management program. The initial modeling was developed from the results of the Care Prevention Program in Japan and the Health Promotion Program in Thailand.

For good preparation to become an aged society in Thailand, the development program for the model of active aging is important not only to challenge an individual's life but also to support the balance of community development and global issues. Therefore, the objective of this research was to investigate the effective factors influencing the outcome of the active aging program for older persons. This article is one part of the full PHD research entitled "*The Development of an Effective Program for Promoting the Model of Active Aging in Thailand Utilizing a Care Prevention Program from Japan*".

The full research contains three steps with different paradigms. However, only the result from the second step of the full research is presented in this article. The main purpose of this article is to report the effective factors affecting the active aging program; moreover, the audience could understand the relationship between input, process and outcome of the program. These factors were derived from the study of strong points of each factor from Japan and Thailand. Regarding the application, program staff can make use of the model proposed in this article. For the significance of the study, the stakeholder in this field, especially the health care and social welfare service for the older persons in Thailand can apply this knowledge for improvement of the Health Promotion Program in Thailand. In addition, the findings of the research will benefit the older persons in Thailand directly.

### **Materials and Methods**

This study displayed the results from the questionnaire in order to find out factors that influenced the effectiveness of the health promotion program by using Structural Equation Model (SEM). Variables for the identification model

were derived from the results of an interview and literature review in the first step of the full PHD research. In addition, the deductive method was implemented in this current research and the logic model was used as the default model. The hypothesis was determined before testing by using the questionnaire in this study.

The subjects in this study consisted of 250 respondents in charge of the health promotion programs in 220 municipalities of 25 provinces in the central part of Thailand. The sample size was estimated by using the Taro Yamane. The sampling-drawing procedure was conducted, giving 144 samples size areas, all of which were calculated based on area proportion for the questionnaire survey.

The period of study was from June to December 2020. The areas chosen for the study were only in the central region of Thailand and the Bangkok vicinity. Criteria method was used to recruit the respondents, according to the position and responsibility with the older persons' program in the community. For the pilot study, thirty copies of the questionnaire were distributed within the areas of study for 3 provinces, and by using Cronbach's alpha, it was found that the reliability of the questionnaire was at 0.74.

Data were collected from a questionnaire consisting of five parts as follows: (1) Personnel Data of the Respondents including question number 1.1-1.7 (total 7 questions), (2) Program Input including question number 2.1-2.8 (Total 8 questions), (3) Process and Activities including question number 3.1 (3.1.1-3.1.8), 3.2 (3.2.1-3.2.6) and 3.3 (3.3.1-3.3.3) (total 17 questions), (4) Outcomes including question number 4.1-4.17 (total 17 questions) and (5) Suggestion for Developing the Effective Program to Promote the Model of Active Aging. Part 1-4 of

the questionnaire were closed-ended questions and Part 5 was open-ended questions.

In terms of analyzing the data, percentage was used to analyze the data in Part 1 of the questionnaire. From Part 2-4 of the questionnaire, the statistics used in these parts were percentiles, mean, standard deviation and normality test. This is the basic step before using the results of Part 2-4 to analyze the relationship among the variables. Then, the Confirmatory Factor Analysis (CFA) was used to categorize the variables in only Part 3. The relationship between input, process and outcome variables of the program from Part 2-4 were analyzed by using the correlation analysis and the Structural Equation Model (SEM) which is the pivotal to examine the model of effective program. The version 20 of the SPSS and M-plus version 7.4 were used for all analysis. However, this article focuses on reporting the result from using SEM analysis only.

#### **Ethical considerations**

The ethical considerations were approved by the research ethics committee of Japan College of Social Work. The questionnaire (number 19-1106, Date 31-10-2019) was approved for collecting the data in Thailand.

#### **Empirical**

##### **Demographic Analysis**

The result from the Part 1 of questionnaire (percentage), the researcher collected data from research samples which were 250 staff working at the municipalities and in charge of the older persons' program in Thailand. As shown in Table 1, it was found that most of the respondents were female (70.40%), whereas only 29.60 % of them were male. Among them, 48.80% of the

respondents were Municipal Officials, followed by Directors of the Older person Division/Center and Center/Project Committee at 10.40% and 9.20%, respectively. In terms of scope of work, most of them were associated with health promotion and

healthcare work, accounting for 31.20%, followed by working for empowering and strengthening older persons at 22.00%, and organizing activities within the center/project and communities at 16.40%.

**Table 1: Demographics of the Respondents**

Demographic (N=250)	Count	%
<b>Gender</b>		
Male	74	29.60
Female	176	70.40
<b>Position in the Center</b>		
Director of the Older person Division/Center	26	10.40
Center Manager or Project Manager	11	4.40
Center/Project Advisor	5	2.00
Center/Project Committee	23	9.20
Older person Club President	10	4.00
Municipal Officer	122	48.80
Assistant Recreation Officer	1	.40
Vice President of the Committee Center	1	.40
Social Worker, Professional Level	2	.80
Public Health Academic	2	.80
Physician	0	.00
Registered Nurse	5	2.00
Older person Home Care Volunteer	5	2.00
Sub-district Administration	13	5.20
Community Activist	3	1.20
Others/Not specified	21	8.40
<b>Scope of Work</b>		
Health promotion and healthcare work	78	31.20
Work that empowers and strengthens older person people	55	22.00
Center administration	38	15.20
Activities held at/in the center/project and communities	41	16.40
Others	38	15.20
<b>Total</b>	<b>250</b>	<b>100.00</b>

### Proposed Model Variables

As to the result from the qualitative study in the first step of the full PHD research. The result concluded that Care Prevention Program in Japan no longer classified the older person based on their physical and psychological conditions, but instead focused on taking *interpersonal interactions* by leading them do activities together. The key objective of this program was not only to encourage older persons to gather to do some exercising and activities; it was also to focus on *community development*. The program provided assistance, assigned medical teams to conduct health checkup services, and established *various professions*. The strong points of the program can be summarized as follows:

1) *The Structure of the Consultant System*; there was a consultant system of professionals who worked both inside and outside the community. This system empowered people to be confident in designing and implementing activities appropriate to their community. This system was initiated under the concept of cooperation and community support.

2) *Frailty Checking*; is a Japanese tool used as a measure to check the deterioration of adults in terms of physical, mental and social dimensions. If people under 65 wanted to be checked for frailty and deterioration, they could be included in the target of the program. It is noticeable that target group of the program was selected by the condition of the older person's health, not by their age.

3) *Volunteer System*; one of the municipalities created a volunteer system called the "supporter", responsible for encouraging older persons to participate in activities. Some volunteers look after older persons who live alone. From the result, it was shown that the

strong points of the Care Prevention Program in Japan were interpersonal interactions, community development, frailty checking and volunteer system.

Then, the researcher used the results for designing the variable in the quotation model with the literature review; the "Logic Model" was applied in this study with the empirical data. "Logic Model" was divided into two primary parts: the program components and the goals and effects of the program (Wholey, 1979, as cited in Chen, 2015). Chen (2015, p 59) explained about the relationship between inputs component and activities component in a logic model which is read as "if you have these resources as inputs, then you can use them to accomplish your planned activities". Similarly, the relationship between the activities component and outputs components is read as "if you accomplish your plan activities, then you will deliver these service products". The relationship between the outputs component and outcomes components is read as "if you accomplish your planed outputs, then your participant will experience these beneficial outcomes". With regards to outcome, it is important to point out that they can occur at different levels. The literature review revealed the board concept of the "Logic Model" and more details were gathered from the results of the program intervention from the interview with the staff in the program. This qualitative part of the research led to the hypothesis creation and relationship between factors and outcomes, which were used in the model. (Figure 1)

For this quantitative study, the SEM analysis was introduced to analyze results of the active aging model. Therefore, it is hypothesized that 1) inputs components including (individual

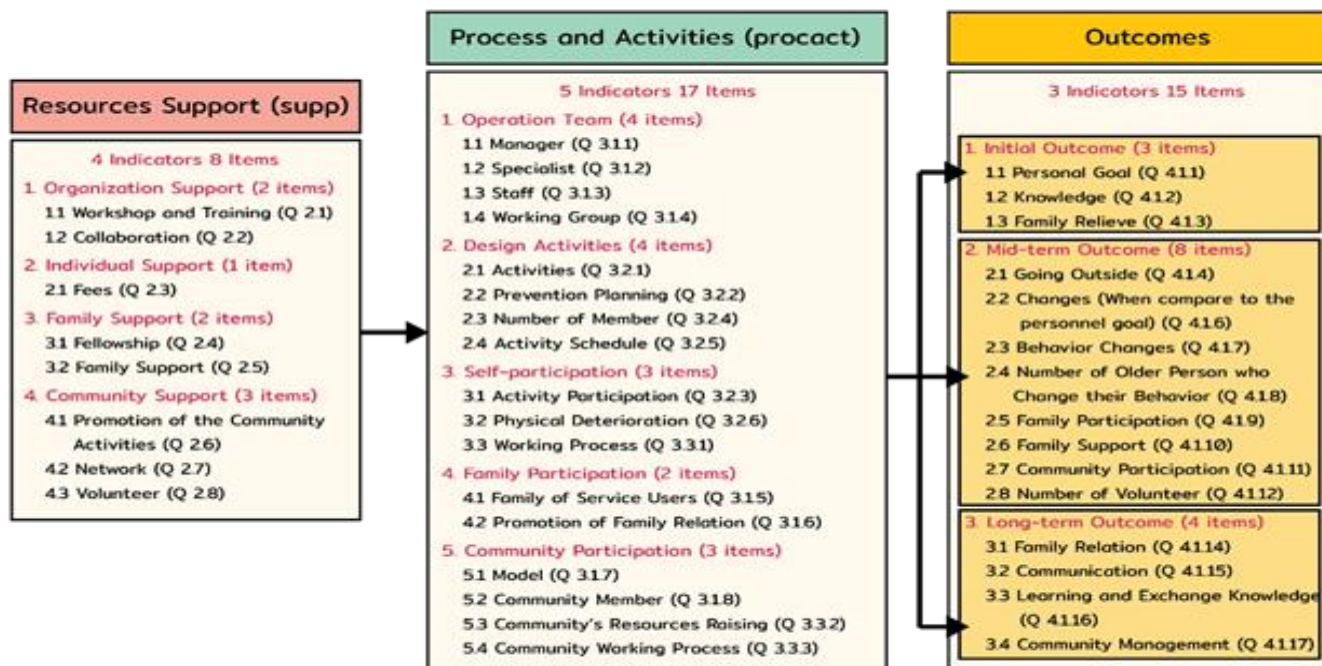
support, organizational support, family support and community support) in the program have a relationship with the 2) activities components including operation team, design activities, self-participation, family participation and community participation in the program and have a relationship with the outcome in the initial, mid-term and long-term level.

From Part 2 of the questionnaire (percentage, mean, standard deviation), there were 4 indicators, 8 items with the “Resources Support” as follows: “Organizational Support” (consisting of 2 items), “Individual Support” (consisting of 1 item), “Family Support” (consisting of 2 items), “Community Support” (consisting of 3 items). It was found that the resources support in the aspect of organization support and individual support at the moderate level of opinion. However, they perceived the resources support in the aspects of family and community support at the high level of opinion. The overall mean score was  $M = 3.71$ , which was considered at the high level of opinion and part 3 of the questionnaire, there were 17 items of questions in the “Process and Activities”. “Process and Activities” came from the comprehensive literature review and were confirmed by using the confirmation factor analysis (CFA). In this latent variable, there were 5 indicators as follows: “Operation Team” (consisting of 4 items) “Design Activities” (consisting of 4 items) “Self-

participation” (consisting of 3 items) “Family Participation” (consisting of 2 items) and “Community Participation” (consisting of 4 items). It was found that the subjects perceived the matters associated with the operation team, design activities, self-participation, family participation and community participation in all aspect at the high level of opinion. The overall mean score was  $M = 4.20$ . However, the confirmatory factor analysis in the initial model revealed an inconsistency with empirical data in Item 17 (Community Working Process) of “Process and Activities”. This means that field visits to interact with the older persons in risk situations and homebodies promoted an effective ageing society in the indicator of Community Participation. From the results, the factor loading in Item 17 was lower than 0.10; therefore, this item (No. 17) was deleted and the confirmatory factor was done again. So, there were only 16 items in the last indicator (Community Participation), as can be seen in Figure 1. Regarding the “Outcome” in part 4 of the questionnaire, it was divided into three different levels: Initial Outcome (consisting of 3 items), Mid-term Outcome (consisting of 8 items) and Long-term Outcome (consisting of 4 items). The initial and long-term outcome were considered as the high level of opinion ( $M = 3.73, 3.80$  respectively), whereas the mid-term outcome was considered as the moderate level of opinion ( $M = 3.52$ ).



Figure 1: Analytical Framework for the Relationship between Input, Process and Outcome



The result from the Part 3 of the questionnaire: Regarding the confirmatory factor analysis, it was found that the “Process and Activities” variable measurement model corresponded to the empirical data. The significant goodness of fit test was  $\chi^2 (87, N=250) = 105.71, p = .08, \chi^2/df = 1.21, CFI (comparative fit index) = .99, TLI (Tucker-Lewis’s index) = .99, SRMR (standardized root mean square residual) = .03$  and  $RMSEA (root mean square error of approximation) = .03$ . When

considering the factor loads of indicators in the model, it was found that the factor loads of the five indicators such as “Operation Team”, “Design Activities”, “Self-participation”, “Family Participation” and “Community Participation” presented in Table 2 were statistically significant ( $p < .01$ ). The factor loads in the STDYX standardization were between .82 - .97 with the forecast coefficient ( $R^2$ ) between .67 - .95.

Table 2: The Confirmatory Factor Analysis of the “Process and Activities”

Indicators	Factor loading ( $\beta$ )	Test Statistics (t)	<i>p</i> -value	R <sup>2</sup>
<b>First Order Confirmatory Factor Analysis</b>				
<b>Operation Team</b>				
q11	0.63	15.01**	<u>0.00</u>	0.40
q12	0.85	35.99**	<u>0.00</u>	0.72
q13	0.80	29.08**	<u>0.00</u>	0.64
q14	0.86	37.81**	<u>0.00</u>	0.73
<b><u>Design activities</u></b>				
q21	0.68	19.46**	<u>0.00</u>	0.46
q22	0.81	31.12**	<u>0.00</u>	0.65
q24	0.61	14.31**	<u>0.00</u>	0.38
q25	0.79	28.54**	<u>0.00</u>	0.62
<b><u>Self-participation</u></b>				
q23	0.78	27.20**	<u>0.00</u>	0.61
q26	0.81	30.53**	<u>0.00</u>	0.66
q31	0.78	27.00**	<u>0.00</u>	0.61
<b>Family Participation</b>				
q15	0.81	27.94**	0.00	0.66
q16	0.90	37.57**	0.00	0.80
<b>Community Participation</b>				
q19	0.81	31.63**	<u>0.00</u>	0.66
q110	0.82	29.32**	<u>0.00</u>	0.67
q114	0.74	21.75**	<u>0.00</u>	0.55
<b>Second Order Confirmatory Factor Analysis</b>				
<b>Process and Activities</b>				
Operation Team	0.82	27.47**	<u>0.00</u>	0.67
Design activities	0.95	107.61**	<u>0.00</u>	0.90
Self-participation	0.94	41.20**	<u>0.00</u>	0.87
Family Participation	0.86	30.65**	<u>0.00</u>	0.73
Community Participation	0.97	35.92**	<u>0.00</u>	0.95
<b>Goodness of fit index (GFI)</b>				
$\chi^2 = 105.71$	df = 87	$\chi^2 / df = 1.21$	<i>p</i> = .08	
CFI = .99	TLI = .99	SRMR = .03	RMSEA = .03	

\*\* At the significant level of .01

### Causal Model Analysis of the “Outcome” based on the Effective Program

The result from the relationship among variables is the main part of this article. “The SEM method gives researchers an opportunity to research or test whether collected data supports a model designed by the researcher or not. Also, SEM is a comprehensive methodology since it considers multiple relationships between factor structures. The SEM methodology contains two steps. In the first step, factor structures are tested with bidirectional impacts to reveal the reality of the relationships between factors. The structural model is the second step in which causal relationships between latent variables are investigated. In other words, a defined relationship in the measurement model is defined in the structural model. In the structural model, every relationship corresponds to a hypothesis” (Demirdöğen & Işık, 2021, p. 10725).

The Structural Equation Model (SEM) in this part was a verification of correlation of the causal correlation model of the “Outcome” based on the effective program, which was developed from an empirical result and theoretical principle. The result of the verification of correlation between the Causal Model was obtained based on theory and empirical data by using statistic package software of Mplus with the robust maximum likelihood estimate. Initially, it was found that the result of the modification made the causal correlation model of the outcome based on the effective program correlated with the empirical data. The statistical values indicated the correlation between the model and empirical data as follows:  $\chi^2(21, N=250) = 26.849, p = .176, \chi^2/df = 1.279, CFI = .999, TLI = .996, RMSEA = .033, SRMR = .018$  as shown in Table 3. Therefore, the followings presented the effect size of each variable in the model.

**Table 3: The Correlation Verification between the Model Based on Theory and Empirical Data and the Effect Size of the Causal Variables of the “Outcome” Based on the Effective Program**

Process and Activities							
Dependent Variables				Outcomes			
Independent Variables	DE	IE	TE	DE	IE	TE	
Process and Activities (procact)	-	-	-	.779**	-	.779**	
Resources (Supp)	Support	1.054**	-	1.054**	.176	.821	.997* (1.054x.779)
Goodness-of-fit Indices (GFI)							
$\chi^2$	Df	p-value	$\chi^2/df$	CFI	TLI	RMSEA	SRMR
26.849	21	.176	1.279	.999	.996	.033	.018

Process and Activities	
Dependent Variables	Outcomes
<b>Remarks</b>	
** At the statistical significance of .01	
DE	= Direct Effect
IE	= Indirect Effect
TE	= Total Effect

Regarding the result of the correlation verification of the Causal Model based on theory and empirical data, the result was divided into direct effects and indirect effects.

### 1) Direct Effects

According to the causal correlation model of the “Outcome” theoretically based on the effective program, it was found that only the Process and Activities (procact) affected the outcome at a statistically significant level of .01 with the effect size in a form of standardized beta coefficient ( $\beta$ ) = 0.779 ( $t = 7.300$ ), while Resources Support (supp) variable affected the outcome with no statistically significant level of .05 ( $\beta = 0.176$ ,  $t = 1.687$ ,  $p=0.092$ ).

### 2) Indirect Effects

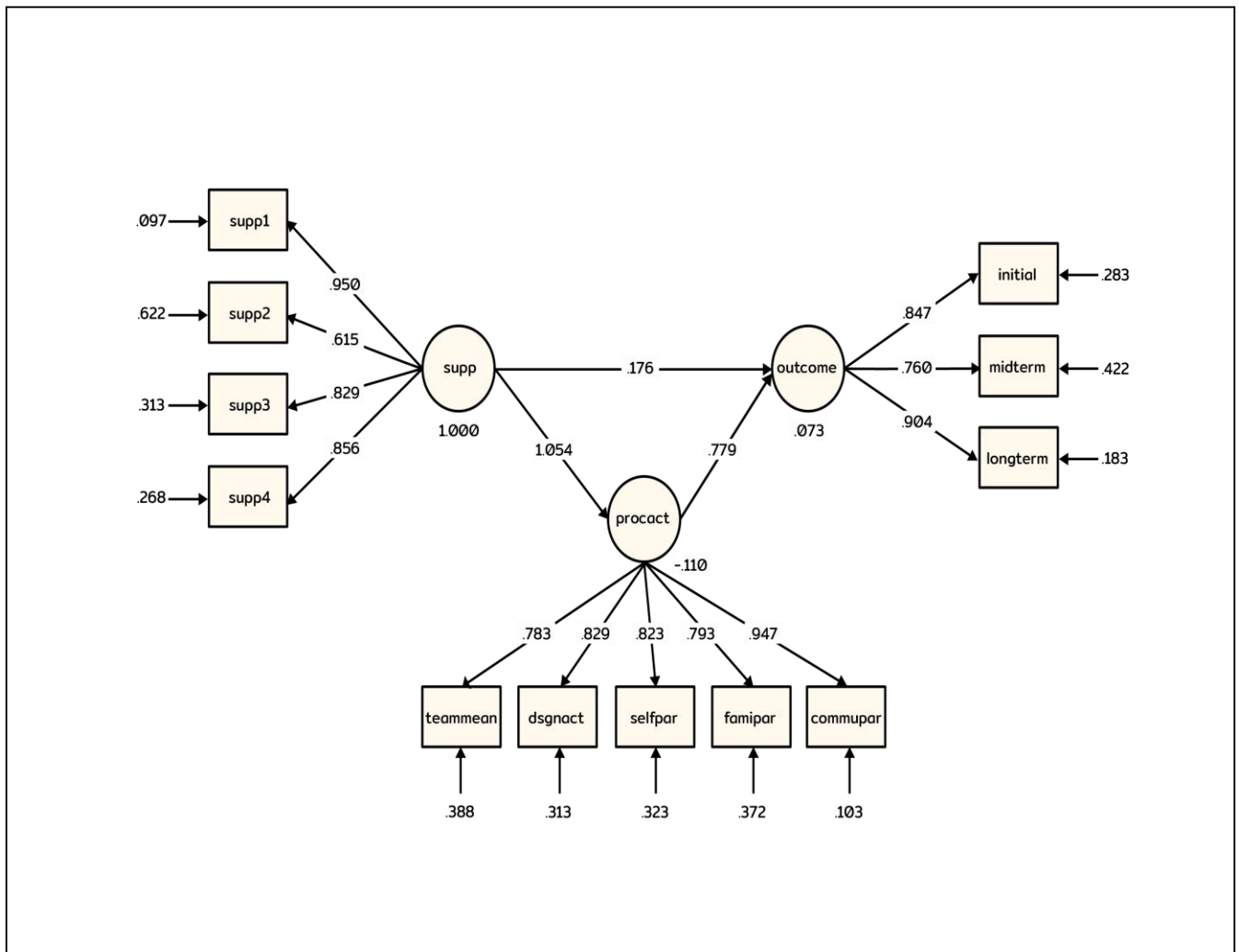
For the causal correlation model of the “Outcome”, according to the effective program, there was a route of indirect effects against the outcome with Process and Activities (procact) as the mediator: supp ---> procact--->outcome. The analysis of the indirect namely Resources Support influenced the outcome through the variables of Process and Activities at the effect size in a form of

standardized beta coefficient ( $\beta$ ), which is equivalent to (supp-->procact) \* (procact--->outcome) =  $1.054 * 0.779 = 0.821$

For the development of the Causal Model of the “Outcome”, according to the effective program, it is shown in Figure 2 that causal correlation model of the “Outcome” based on the effective program consisted of multiple latent variables, which were divided into three groups: Resources Support, Process and Activities and Outcome.

In summary, “resources support (supp)” consisting of organization support (supp1), individual support (supp2), family support (supp3) and community support (supp4) had an effect on process and activities. This “process and activities (procact)” consisting of operation team (teammean), design activities (dsgnact), self-participation (selfpar), family-participation (famipar) and community-participation (commupar) had an effect on outcomes in every level. All of the levels include initial outcomes (initial), mid-term outcomes (midterm) and long-term outcomes (longterm).

Figure 2: Causal Model Development of the “Outcome” Based on the Effective Program



**Discussion and Analysis**

According to the analysis of the measures of effective program and the indicators of the model of active aging, the path coefficient is  $\chi^2(21, N=250) = 26.849, p = .176, \chi^2/df = 1.279, CFI = .999, TLI = .996, RMSEA = .033, SRMR = .018$ . This shows that the relationship between the input, process and activities and the outcome is very strong. This relationship was certified by Rossi et al. (2004) in terms of investigating the evaluation of the success of the program. It can be classified into

three general types; input, process and outcome. The effective outcome requires a careful choice of indicators as well as careful interpretation of the data.

**The Measurement of the Model of Active Aging**

Regarding the resources support variable, it showed that there was no statistically significant level of .05 with the outcome, but it influenced the outcome through the variables of process and activities at the effect size equivalent to ( $\beta$ )

$=1.054 \times .779 = .821$ . However, from the model testing, the resources support was an indirect effect. According to the analysis, factor loadings of the structural model which affected the process and activities were found to be 0.950 for organization support, 0.615 for individual support, 0.829 for family support and 0.856 for community support which responded the first hypothesis. The findings showed compatibility with the study of WHO (2002) in that older person cannot maintain their independence without social support, so active aging should involve relevant parties- friends, work associates, neighbors and family members. However, from the current study, it was explained that only the support could not be affected directly to the outcome without the process and activities variable. Additionally, the relationship between the support or input and the process and activities were also confirmed by the study of Chen (2015, p 59), which explained that “the relationship between input component and activities component in a logic model is read as if you have these resources as inputs, then you can use them to accomplish your plan activities”.

As to the result from the SEM analysis, it was found that process and activities variable had significantly an effect on the outcome which responded the second hypothesis. According to the analysis, factor loadings of the structural model were found to be 0.783 for operation team, 0.829 for design activities, 0.823 for self-participation, 0.793 for family participation, and 0.947 for community participation, which have an effect on the outcome in every level. These findings were supported by the study of Chen (2015, p 59) in that “the relationship between the activities component and outputs components is read as if you can accomplish your plan activities, then you will deliver these service products. The relationship

between the outputs component and outcomes components is read as if you accomplished your planned outputs, then your participants will experience these beneficial outcomes”.

In addition, from the result, it can be seen that the self- participation of the older persons (activity participation, deterioration testing and participation in the working process), family participation (family of service users and promotion of family relations) and community participation (model, community member, community resources) were effective factors to the outcome. It showed affinity with the prior research by Hikichii, Kondo, Takeda and Kawachi (2017), which mentioned that social participation is important to reach active aging. This is also in line with the study of Nemoto, Saito, Kanamori, Tsuji, Shirai, Kikuchi, Maruo, Aro and Kondo (2017) which revealed that social participation in a community can reduce the risk of incident dementia.

Furthermore, the relationship between process and activities variables and outcome was described by the social constructionist theories which recognize how individuals actively participate in their everyday lives, create and maintain social meaning for themselves and those around them (Dannefer and Perlmutter, as cited in Vern, Elisabeth and Tonya, 1997). Also, the importance of participation in each level in the community was confirmed by social exchange theory by Danigelis and Fengler (as cited in Vern et al., 1997), which explained how people support each other and the functions of the intergeneration transfers and financial exchange. This perspective attempts to account for exchange behavior between individuals of different ages as a result of the shift in roles, skills, and resources that accompanies advantage of age and is given between generations. So, family

and community participation in the process are important factors.

Besides, the concept of the effective program development by National Minority AIDS Council, (n.d) stated that quality program development is supported by a well-thought out and documented plan of action. This manual provides a step-by-step outline of the planning process used by communities, groups or organization to develop successful programs. Additionally, the findings showed an agreement with the study of Jung and Rhee (2013, as cited in Kim, Lee, Cho, Park and Cho, 2020) that community capacity is also closely related to health and it is increasingly becoming an important strategy for health promotion. Community capacity can be categorized into individual, organizational, and community capacities. Also, it was stated in the study of Kittipimpanon, Amnatsatsue, Kerdmongkol, Maruo, and Nityasuddhi (2012) that community-based included family support which is a factor for an effective program and active life of older persons. It can be concluded that the participation from each level in the older persons' community is an effective factor for the outcome.

### **The Indicator of the Model of Active Aging**

The indicator of the Model of Active Aging was evaluated in terms of three factors with fifteen items. The factor loadings of these variables were found to be 0.847 for initial outcome, 0.760 for intermediate or mid-term outcome and 0.904 for long-term outcome and the item in each level was divided to three levels (individual outcome, family outcome and community outcome). The study showed that there is a positive correlation between process and activities and outcome in every level. The result of this research is consistent with the concept of Chen (2015) with regards to outcome. It

is important to point out that they can occur at different levels. It can also happen at the group, organization, or community level. The basic components of a logic model discussed above can expand the outcome component into short-term outcome and long-term outcome. Furthermore, the study results corroborated that there is a positive relationship between process and activities and short-term outcome. This finding was also consistent with the result of the study of Jette, Lachman and Giorgetti (1999, as cited in Fries, 2012) which found that programs based upon “active aging” concepts, most important exercise, have generally been effective although many such studies were small, short-term, and not well controlled. However, the result of outcome in this study was divided into three levels; each level was separated into individual outcome, family and community outcome by using the ecological theory. The findings were also confirmed by the study of Fertman & Allensworth (2010), which showed that the health promotion program plays a role in creating healthier individuals, families, communities, workplaces and organizations.

However, the findings were different from the results of the study by Fernandez-Ballesteros, Olmos, Santacreu, Bustillos and Molina (2017), which revealed that a four-domain model of active aging well level tested by Structural Equation Modeling (SEM) were presented as to the following aspects: 1) health and independence 2) physical and cognitive functioning 3) positive affect and control and 4) social engagement.

### **Factors Affecting Effective Older Person Service Programs in Thailand**

When considering older adult programs taking place in Thailand, when it comes to “resources support,” staff tend to focus on support,

costs, teams, equipment, event locations. When organizing activities, emphasis will be placed on the main target group, namely the older persons, explaining how the resources support is related to the processes and activities in that program, yet not focusing on equipment funding or locations. Nonetheless, the results of the study reflect that social support, especially from the families and communities in which the older persons live, is a very important factor in organizing a community-based program. Such programs especially aim to develop the potential of the older person. It is not just about changing behavior or getting healthier, but the target is that older persons are able to leverage their potential to benefit the society as well. As a result, in organizing programs or activities, it is important to take into account the resources of the family and community where the older persons live to support the activities. Also, if considering the elements of organizational support, it can be seen that the agencies that organize programs or activities focus on supporting and encouraging workers to have knowledge and competence. Promoting training and organizing workshops will affect the success of the program. Today, most of the organization's advocacy roles are focused on sourcing budget, location, equipment, and manpower. The results of this study help the organization to see clearer work direction in the development of knowledge and competence of personnel.

In addition, based on the 5 components of the "process and activity" factors, it can be seen that each element has important items that the researchers would like to present in this work, namely: 1) specialist in component 1; 2) prevention planning in component 2; 3) physical deterioration in component 3; 4) promotion of family relation in component 4; and 5) model in component 5. The

findings from this study explain that in terms of the processes and activities to be achieved, bringing in experts from a variety of fields can help organize the process. Designing activities is an important factor. If the organizing agency is unable to have specialized personnel in its own unit, it is necessary to seek cooperation from outside or the community. In this regard, the prevention planning and physical deterioration factors are not widespread enough in Thailand to organize health promotion activities. Results of this study reflect the importance of the older persons of the active group, the semi-active group, or in the high-risk group. They require assessment of physical deterioration and provision of degenerative prevention plans. These plans affect the selection of activities that are appropriate according to their physical condition along with interest-based activities. In Thailand, most of the activities focus mainly on interests of older persons. In addition, most of the program's success assessments rarely addressed the factors of the relationship between the older person and their family. These are important factors that lead to behavioral changes such as encouragement, financial support, transportation, etc. Therefore, the program should focus on organizing activities that promote good relationships with the older persons and their families, not just focusing only on activities. This issue is supported by concept intergeneration and social exchange that was confirmed by social exchange theory of Danigelis and Fengler (as cited in Vern et al., 1997), which explained how people support each other and how the intergenerational transfers and financial exchange function. Under the same concept, the model factor, or friends of the same age who are role models, has a great influence on driving effective processes and activities, for example, to participate in an activity,



become friends, do activities together, cause lively participation and make older persons feel more comfortable with activities, all of which are driven by people of the same age.

In conclusion, it can be seen that the results of this study explain that it is more important to prioritize the environment and social context of older persons rather than focusing solely on the older persons themselves, especially for the community-based program.

### Conclusion

In this study, the causal model of capability of the older persons in accordance with the effective program contains 3 variables namely: Resources Support (8 items), Process and Activities (16 items), and Outcome (15 items).

Regarding the Causal Model analysis of the “Outcome” based on the effective program, the result showed that the causal correlation model of the outcome based on the effective program correlated with the empirical data. There was 1 route of indirect effects (Resources Support) against the outcome with process and activities (proact) as the mediator. Resources Support influenced the outcome through the variables of Process and Activities. This means that “Resources Support” is the key to make the process and activities work well and at the same time the Process and Activities directly influenced the outcome. Besides, the indicator of the Process and Activities showed the importance of participation in each level in the community. It was confirmed by social exchange theory which explained how people support each other in the process working and how functions of the intergeneration transfers between individuals of different ages. Therefore, planning and process working should be motivated among the participation in the community including the

integration of the community capacity which can be categorized into individual, organizational, and community capacities. Furthermore, SEM analysis was implemented to analyze model relationship between process and activities and outcome-level. In this context, the results showed that Process and Activities had an important effect on the outcome in every level and created healthier individuals, families, and communities.

(1) Organizations that organize programs, especially local governments, should adjust their activities to encourage participation, knowledge exchange, building relationships and doing activities together among older persons and their families, as well as with other older people in the community as follows:

1.1 The municipality should place importance on raising awareness and encouraging participation of older persons’ families and their community. Although the main target group of the program is older adults, only their attendance is no longer sufficient to drive the program to achieve success.

1.2 The municipality should organize activities that provide opportunities for older persons and other people of any age to talk and exchange their views and listen to opinions of others, or organize activities that allow people of other ages in the community to play a role in designing activities or volunteering in order to promote and benefit each other from different generations.

1.3 The municipality should assess the relationships between older persons and their families, especially of those who rarely attend social activities or attend irregularly. It is imperative that the municipality should send a team to follow up on home visits and assess family relationships, and organize activities, or render advice to improve

the relationships between older persons and their families.

1.4 Target groups should be expanded by providing services to those who are below 60 years old. It should not be limited to only persons aged over 60 years in order to promote participation of all generations.

(2) public agencies should facilitate and provide support

For older person

2.1 Provide easy and free access to physical deterioration checking and medical check-up for all older persons by local administrative organizations in order to build their motivation for self-care and self-participation in the program.

2.2 Promote older person role models among other older persons. For example, make videos to introduce healthy seniors and those who are volunteers for social works, or older persons who have knowledge in various fields.

2.3 Ensure there is a platform for the role models to take part in managing the program and expressing their potential; and promote the development of this group of older persons in order for them to continually improve themselves. For example, invite them as guest speakers, to provide training for knowledge and ability enhancement based on their skills, to provide careers based on their interest, to ensure freedom in program management, etc.

For Staff

2.4 The municipality should provide necessary training courses and programs that facilitate participation and self-development of staff working in the organization at least every three months.

2.5 The municipality should aim to equip staff with specific expertise based on their interests in a specific area that involves program provision or

to promote staff to be specialized in tasks that are in line with the context of needs within the area, such as physical therapy skills for older person with dementia, heart care skills, deterioration assessment tool usage skills, or individual prevention planning skills for older person, etc.

(3) The local administrative organizations should focus on the management of programs that promote efficiency for older persons by taking into account the following key issues:

3.1 Related parties should focus on adjusting the format of the program and activities that emphasize the integration of the program by taking into consideration the ecosystem in which older persons live, as well as diverse relationships of older persons at the family and community levels, mobilizing and managing a variety of resources rather than relying on organizational resources alone.

3.2 The local authority can no longer work alone, and it is not just only about having a large network, as they should primarily seek cooperation from the community and outside agencies, especially cooperation from experts of the fields that the local still lacks and where they are unable to develop their own personnel. In this regard, what should be focused on is not the number, but the expertise of staff from different sectors.

For further studies, in the future, it is recommended that a comparison study on administering the program in Japan and Thailand to thoroughly examine differences of program pattern and implementation should be done. The pattern of outcome or output of the program focusing on older persons participating in the program as a key primary source to explore on which aspects the outcomes have appeared, on what type of characters of older persons and on what timeframe should be investigated.

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