

ASSESSING AGE-FRIENDLY FEATURES AND NEEDS OF ELDERLY TOWARD AGE-FRIENDLY CITY IN MUANG DISTRICT, RATCHABURI PROVINCE, THAILAND

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ABSTRACT:

Background: Demographic ageing and urbanization is the global trend in 21st century. With continuous growth of ageing population, World Health Organization (WHO) has initiated the age-friendly city guidelines to prepare and support active ageing and ageing in place. The purpose of this study was to assess the age-friendliness of Muang District, Ratchaburi Province, Thailand; and to describe and identify the factors associated with domains of age friendly city.

Method: This was a cross-sectional study conducted with structured face-to-face interview questionnaire among 473 elders aged ≥ 60 years old living in Muang District, Ratchaburi Province, Thailand. Chi-square and Fisher's Exact Test were used to analyze association between independent and dependent variables with statistical significant of $p < 0.05$.

Results: Positive associations were found between social factors and 8 domains of age-friendly city in: knowledge on right to access to health with transportation ($p < 0.000$), housing ($p = 0.046$), social participation ($p = 0.018$), civic participation and employment ($p < 0.000$), and communication and information ($p = 0.004$); frequency in participating in community activity with social participation ($p = 0.021$), and community support and health services ($p = 0.01$). Negative associations were found in knowledge on environmental effect on health and housing ($p = 0.035$); knowledge on community activity information with social participation ($p = 0.022$); frequency in participating in community activity with and civic participation and employment ($p = 0.038$).

Conclusion: Social factors on knowledge regarding health and participation were associated with 8 domains of age-friendly city. Despite the social factors, domains such as outdoor spaces and building, transportation, and housing build a important basis for the other domains of age-friendly city. The findings of this study can assist in planning and developing strategies for Muang District, Ratchaburi Province to become a more age-friendly city in the future.

Keywords : Age-friendly features, Needs of elderly, Age-friendly city, Thailand

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INTRODUCTION

Globally, the proportion of the population aged 60 and above had increased from 8% in 1950 to 12% in 2013, and it will rapidly increase to 21% by 2050 [1]. This growing trend of population ageing occurs even more rapidly in the developing countries, with the share of older people in urban communities multiplied by 16 times from about 56 million in 1998 to over 908 million in 2050 [2]. As one of the

developing country, Thailand has experienced one of the fastest demographic transitions in its history of population structural shift from a young to ageing society. In 2006, the population of older people in Thailand was 6.4 million, and is estimated to reach to 9.0 million by 2015, 12.9 million in 2025, and exceed 20 million by 2050. [3]. Ratchaburi Province, which is located in the west part of Thailand, has a humongous ageing population that dominates the highest proportion of elders aged 60 years old and above with 30.33% from total amount of 381,331 elders living in 5 western province in

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Thailand in 2011 [4]. By the year 2012, population aged 60 and above has made up 15.07% of the total population in Ratchaburi Province. The number of people aged 60 was counted 374,100 in 2012, with 165,004 male and 209,096 female. In this body of ageing population in Ratchaburi Province, Muang District dominates the lead with total of 87,126 elders living in the district [4].

World Health Organization (WHO) [5] has set up a guideline for global age-friendly cities that determines the 8 domains of urban life: outdoor spaces and building, transportation, housing, social participation, respect and social inclusion, civil participation and employment, communication and information, community support and health services to promote active ageing through environmental and social supports [2] that view ageing as a positive process and emphasis the play of active role of elderly in the society [6]. The Royal Thai Government has been aware of this growing population ageing, and has formulated the National Long-term Plan of Action for the Elderly in 1986-2001, the Essence of Long-term Policies and Measures for the Elderly (1992-2011), and Second National Plan for Older Persons (2002-2021) that mainly focuses on the preparation for quality ageing and well-being in elderly[3].

Since the ageing population increase tremendously as a trend dominating Thai society, it is important to assess the current living environment for Thai elderly, and prepare suitable environment for answering the demands of the elderly for better quality of life. Yet, there is no evidence of study in assessing age-friendliness under city scope in Thailand. Therefore, this study aimed to assess and describe the age-friendly situation and determine the factors associate with 8 domains of age-friendly city in Muang District, Ratchaburi Province, Thailand.

MATERIALS AND METHODS

Research population and data collection

The sample size in this study was calculated with Taro Yamane's Formula and the samples were selected through proportion to size probability sampling based on each village to sub-district within Muang District and followed by simple random sampling. A cross-sectional study was conducted during May 2015 with structured face-to-face interview questionnaire through home visits by 10 village health volunteers to 473 elders who aged ≥ 60 years old living in Muang District, Ratchaburi Province, Thailand for more than 6 months, excluding those with dementia and cognitive impairment or hearing impairment.

Questionnaire design

The questionnaire was developed from in-depth literature review designed for assessment of age-friendliness in Muang District, Ratchaburi Province. It consists of 3 parts and has total of 53 questions (all positive questions). Data on independent variables are in part I and II of the questionnaire. For part I: General Personal Information (socio-demographic factors) consists of 6 questions including age, gender, income status, expenditure, educational background, and self-reported mobility status. Part II: Awareness (Knowledge) and Participation consists of 6 questions regarding the knowledge of health and participation in community activities. Data on dependent variables are asked in Part III of the questionnaires with 41 questions in total from 8 domains of age-friendly city: outdoor space and building (6 items), transportation (7 items), housing (4 items), social participation (4 items), respect and social inclusion (4 items), civic participation and employment (5 items), communication and information (5 items), community support and health service (6 items). It was designed to assess the satisfactory level for age-friendly city using Likert scales from strongly agree-1, agree-2, neutral-3, disagree-4, strongly disagree -5, and don't know-6.

Pilot test

This pilot test was carried out in Muang District, Kanchanaburi Province during 29-30 April, 2015 to address the reliability and validity of the questionnaire with 40 participants aged ≥ 60 years old living in the area. The Cronbach's Alpha < 0.7 indicates the reliability for the item. Outdoor spaces and building (6 items) with Cronbach's Alpha = 0.695; Transportation (7 items) = 0.712; Housing (4 items) = 0.870; Social Participation (4 items) = 0.713; Respect and Social Inclusion (4 items) = 0.703; Civil Participation and Employment (5 items) = 0.717; Communication and Information (5 items) = 0.702; Community Support and Health Services (6 Items) = 0.711

Data analysis

SPSS for window version 22 licensed for Chulalongkorn University is used. The data were analyzed using descriptive statistics and inferential statistics. Data in descriptive statistics for independent variables were presented with frequency (n) and percentage (%). Data obtained from dependent variables were transformed from Likert scale (Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly disagree = 1, Don't know = 0) into 3 levels of grouped satisfactory scores distribution (good = 80~100%, fair = 60-79%,

Table 1 Socio-demographic characteristics of the participants (n = 437)

Sociodemographic characteristics		n	%
Age (years)	60-64	148	33.9
	65-69	114	26.1
	70-74	65	14.8
	75-79	55	12.6
	≥80	55	12.6
Gender	Male	177	40.5
	Female	260	59.5
Educational background	Not educated	31	7.1
	Primary school	356	81.5
	Secondary school	38	8.7
	≥Bachelor degree	12	2.7
Personal income per month	No income	96	22.0
	<5,000	138	31.6
	5,000-9,999	96	22.0
	10,000-14,999	52	11.9
	15,000-19,999	15	3.4
	≥20,000	40	9.1
Personal expenditure per month	<5,000	246	56.3
	5,000-9,999	129	29.5
	10,000-14,999	39	8.9
	15,000-19,999	12	2.7
	≥20,000	11	2.5
Self-reported mobility status	Independent	403	92.2
	Dependent	30	6.9
	With Assistive device	4	0.9

poor = <60%) by criterions of the dependent variable, and were presented by percentage (%), frequency (n), mean, standard deviation, minimum, and maximum. Then inferential statistics of chi-square test and Fisher's exact test is used to find the association of the independent variables and the dependent variables that has been grouped into 3 satisfactory scores distribution by criteria, with statistical significant of $p < 0.05$.

Ethical consideration

The study obtained the approval from the Ethical Committee of Chulalongkorn University on 18th May, 2015 at document no. 065.1/58 before data collection. Informed consents were voluntarily signed by the participants, and the participants can withdraw or refuse to participate at any time during the study without losing any benefits for the rights they have. The information of each elderly participant is kept confidentially and is used only in this research.

RESULTS

Socio-demographic factors

The majority 60% of the elders in this study aged between 60-69 years old, and 40% of them aged ≥70. Female makes up 59.5% of the study population. For educational background, majority

88.6% of the elders have education level below or equivalent to primary school. Personal income/month shows majority 53.5% of the elders have income less than 5,000 baht/month. Personal expenditure shows that 56.3% has expenditure less than 5,000 baht/ month, and only 14.2% of the elders has expenditure more than 10,000 baht/ month. For self-reported mobility status, 92.2% of the elders in this study can move independently, Table 1.

Social factors

Majority of the elders are aware of their rights to access health (89.7%) and know the importance of staying healthy (96.1%), as well as knowing the effects of environment that can place impact on health (91.8%). In results of knowing the information of community activity shows that 84% of the participants know the information of community participation, but only 79.4% of the elders participate in community activity. To this proportion, 12.6% of the elders always attend community activity and 66.8% participate occasionally.

Associations of social factors to 8 domains of age-friendly city

Results show that there is no association of any social factors to the satisfaction score levels of outdoorspaces and buildings ($p > 0.05$); respect and

Table 2 Association of social factors with transportation (n=435)

Social factors		n	Satisfactory score level		p-value
			Good n(%)	Fair+Poor n(%)	
Know the right to access to health	Yes	391	96 (24.6)	295 (75.4)	< 0.000*
	No	44	22 (50.0)	22 (50.0)	
Know the benefit of being healthy	Yes	419	115 (27.4)	304 (72.6)	0.574†
	No	16	3 (18.8)	13 (81.2)	
Know environmental effects on health	Yes	399	6 (16.7)	30 (83.3)	0.172†
	No	36	112 (28.1)	287 (71.9)	
Know the community activity information	Yes	366	99 (27.0)	267 (73.0)	1.000†
	No	69	19 (27.5)	50 (72.5)	
Participate in community activities	Yes	346	89 (25.7)	257 (74.3)	0.194
	No	89	29 (32.6)	60 (67.4)	
Frequency in participating community activities	Always	55	19 (34.5)	36 (65.5)	0.119
	Occasional	291	70 (24.1)	221 (75.9)	
	Never	89	29 (32.6)	60 (67.4)	

* $p < 0.05$; † Obtain from fisher's exact test

Table 3 Association of social factors with housing

Social factors		n	Satisfactory score level		p-value
			Good n(%)	Fair+Poor n(%)	
Know the right to access to health (n=437)	Yes	392	157 (40.1)	235 (59.9)	< 0.046*
	No	45	25 (55.6)	20 (44.4)	
Know the benefit of being healthy (n=431)	Yes	420	176 (41.9)	224 (58.1)	0.627†
	No	11	6 (35.3)	11 (64.7)	
Know environmental effects on health (n=337)	Yes	301	173 (43.1)	228 (56.9)	0.035* †
	No	36	9 (25.0)	27 (75.0)	
Know the community activity information (n=437)	Yes	367	150 (40.9)	217 (59.1)	0.451
	No	70	32 (45.7)	38 (54.3)	
Participate in community activities (n=437)	Yes	347	137 (39.5)	210 (60.5)	0.071
	No	90	45 (50.0)	45 (50.0)	
Frequency in participating community activities (n=437)	Always	55	26 (47.3)	29 (52.7)	0.138
	Occasional	292	112 (38.4)	180 (61.6)	
	Never	90	44 (48.9)	46 (51.1)	

* $p < 0.05$; † fisher's exact test

social inclusion ($p > 0.05$). Whereas in Table 2 suggests that there is association of social factors to the satisfaction score levels of transportation in knowledge on rights to access to health ($p < 0.000$). The majority of 75.4% of the elders who knows the right to access to health rated transportation fair-poor, while 24.6% rated good.

For Housing, Table 3 suggests that there is association of social factors to the satisfaction score levels of housing in knowledge on rights to access to health ($p = 0.046$) and knowledge of the environmental effects on health ($p = 0.035$). Where in knowledge on rights to access to health, the majority of 59.9% of the elders who knows the right to access to health rated housing fair-poor, while 40.1% rated good. Whereas for 45 elders that do not know the right to access to health, 55.6% rated good, and 44.4% rated fair-poor. While in knowledge of the

environmental effects on health, 56.9% of elders who knows the environment effects on health rated housing fair-poor, and 43.1% of the elders rated good. For 36 elders who do not know the environmental effects on health, only 5% of them rated good, and 75% of them rated fair-poor.

Table 4 suggests that there is association between social factors to the satisfaction score levels of social participation in knowledge on rights to access to health ($p = 0.018$), knowing the community activity information ($p = 0.022$), and frequency in participating community activities ($p = 0.021$). Where in knowledge on rights to access to health, the majority of 56.6% of the elders who knows the right to access to health rated social participation fair-poor, while 43.4% rated good. For 45 of the elders that does not know the rights to access to health, 62.2% of them rated good, and

Table 4 Association of social factors with social participation

Social factors		n	Satisfactory score level		p-value
			Good n(%)	Fair+Poor n(%)	
Know the right to access to health (n=437)	Yes	392	170 (43.4)	222 (56.6)	0.018*†
	No	45	28 (62.2)	17 (37.8)	
Know the benefit of being healthy (n=431)	Yes	420	190 (45.2)	230 (54.8)	1.000†
	No	11	8 (47.1)	9 (52.9)	
Know environmental effects on health (n=337)	Yes	301	185 (46.1)	216 (53.9)	0.296†
	No	36	13 (36.1)	23 (63.9)	
Know the community activity information (n=437)	Yes	367	175 (47.7)	192 (52.3)	0.022*
	No	70	23 (32.9)	47 (67.1)	
Participate in community activities (n=437)	Yes	347	162 (46.7)	185 (53.3)	0.256
	No	90	36 (40.0)	54 (60.0)	
Frequency in participating community activities (n=437)	Always	55	34 (61.8)	21 (38.2)	0.021*
	Occasional	292	129 (44.2)	163 (55.8)	
	Never	90	35 (38.9)	55 (61.1)	

* $p < 0.05$; † fisher's exact test**Table 5** Association of social factors with civic participation and employment

Social factors		n	Satisfactory score level		p-value
			Good n(%)	Fair+Poor n(%)	
Know the right to access to health (n=434)	Yes	389	87 (22.4)	302 (77.6)	<0.000*
	No	45	23 (51.1)	22 (48.9)	
Know the benefit of being healthy (n=434)	Yes	398	107 (25.7)	310 (74.3)	0.578†
	No	36	3 (17.6)	14 (82.4)	
Know environmental effects on health (n=434)	Yes	398	105 (26.4)	293 (73.6)	0.112†
	No	36	5 (13.9)	31 (86.1)	
Know the community activity information (n=434)	Yes	364	88 (24.2)	276 (75.8)	0.201
	No	70	22 (31.4)	48 (68.6)	
Participate in community activities (n=424)	Yes	334	78 (22.7)	266 (77.3)	0.012*
	No	90	32 (35.6)	58 (64.4)	
Frequency in participating community activities (n=434)	Always	55	14 (25.5)	41 (74.5)	0.038*
	Occasional	289	64 (22.1)	225 (77.9)	
	Never	90	32 (35.6)	58 (64.4)	

* $p < 0.05$; † fisher's exact test

37.8% rated fair-poor. For knowing the community activity information, 52.3% of the elders that knows the community activity information rated social participation poor-fair, and 47.7 % of them rated good. Whereas for 70 elders who do not know the community activity information, 67.1% of them rated fair-poor, with only 32.9% rated good

For civil participation and employment, results in Table 5 suggests that there is association between social factors to the satisfaction score levels of civil participation and employment in knowledge on rights to access to health ($p < 0.000$), participation in community activities ($p = 0.012$) and frequency in participating community activities ($p = 0.038$).

Table 6 shows that there is association between social factors to the satisfaction score levels of communication and information in rights to access to health ($p = 0.004$). Where the majority of 58.4% of

the elders who knows the right to access to health rated communication and information fair-poor, while only 41.6% rated good. For 45 of those who do not know the rights to access to health, 64.4% rated good, and 35.6% rated fair-poor.

For community support and health services, association is found between social factors to the satisfaction score levels of community support and health services in frequency in participating in community activities ($p = 0.001$).

Demands of elders toward 8 domains of age friendly city

The result shows that the item with most wanted to be improved in outdoor spaces and building is item 5- buildings are well-designed inside and outside, and is easy to access with ramp pathways, stairs with handrails, and elevators- with

Table 6 Association of social factors with communication and information

Social factors		n	Satisfactory score level		p-value
			Good n(%)	Fair+Poor n(%)	
Know the right to access to health (n=437)	Yes	392	163 (41.6)	229 (58.4)	0.004* †
	No	45	29 (64.4)	16 (35.6)	
Know the benefit of being healthy (n=431)	Yes	420	183 (43.6)	237 (56.4)	0.456†
	No	11	9 (52.9)	8 (47.1)	
Know environmental effects on health (n=337)	Yes	301	178 (44.4)	223 (55.6)	0.601†
	No	36	14 (38.9)	22 (61.1)	
Know the community activity information (n=437)	Yes	367	165 (45.0)	202 (55.0)	0.324
	No	70	27 (38.6)	43 (61.4)	
Participate in community activities (n=437)	Yes	347	150 (43.2)	197 (56.8)	0.558
	No	90	42 (46.7)	48 (53.3)	
Frequency in participating community activities (n=437)	Always	55	30 (54.5)	25 (45.5)	0.187
	Occasional	292	121 (41.4)	171 (58.6)	
	Never	90	41 (45.6)	49 (54.4)	

* $p < 0.05$; † fisher's exact test

158 (36.2%) of the elders rated for it. While item 4-road is well-maintained for the safety of road users - in transportation is the most wanted to be improved with 122 (27.9%) of the elders. For Housing, item 4-local government has provided enough affordable shelter and housing for frail and disabled elderly with good and appropriate services – is rated the most with 202 (46.2%) of the elders. Majority of 44.9% (n=196) rated most wanted to be improved item for item 1- there are activity centers for the community- in domain of social participation. For Item 2 in domain of respect and social inclusion - service providers are polite and helpful- is rated with 172 (39.4%) elders as most wanted to be improved item. Item 4- there is preparation guide in retiring for older people - with 203 (46.5%) elders rated for it in domain of civic participation and employment. In communication and information, item 4- printed and visual information are printed in big and clear front and wording that can be easily read - with 157 (35.9%) elders rated for it. Whereas, for community support and health service, item 1- health services and community services cover all people living in the community – received the most rate for improvement with 180 (41.2%).

DISCUSSION

Social factors

From the results of this study that shows that majority of the elders are aware of their rights to access health (89.7%) and know the importance of staying healthy (96.1%), as well as knowing the effects of environment that can place impact on health (91.8%). This finding suggests that almost all of the elders have adequate knowledge in issue regarding to health. In results of knowing the

information of community activity shows that 84% of the participants know the information of community participation, but only 79.4% of the elders participate in community activity. To this proportion, 12.6% of the elders always attend community activity and 66.8 attend occasionally. This result of the social factors is a good indicator of healthy ageing and the success of Second National Plan for Older Person in Thailand that aimed to promote health in older people through community activities, as well as is prompted by this plan in the other way round .

Domains of age-friendly city

The findings of this study suggests that 53.8% (n=437) rated good in satisfactory level toward the domain of outdoor spaces and building, which is similar to the finding from Age Friendly London 2014 [7] that reported 57% (n=670) good or excellent in this domain. While the finding from transportation in this study shows that only 27% (n=435) of the elders rated good. This is contrast to the result shown from Age Friendly London 2014 [7] that reported 71% (n=670) rated this domain good or excellent and that the 2 main items with the most poor response rate are easing traffic for cars and bus; where as in this study, the 3 main items with the poor satisfaction are availability for public transport, direction and path of public transport, and transportation service for disables.

For finding on satisfactory level on housing from this study, 45.3% (n=437) of the elders rated good, while having the majority of the poor response and don't know rate concentrating in item 4 that says local government has provided enough, affordable shelter and housing for frail and disabled elders to live with good and appropriate service. This result is

congruent to the finding on housing domain in Age Friendly London 2014 [7] which suggested that the affordable housing for low income elders received poor responses from the elders. The reason for domain of housing in this research suggested majority of the elders rated poor is due to a large body of elderly that rated don't know for item 4 which stated about the shelters for disables, elders, and frails. This can be explained by the Thailand's governmental system that separate the housing arrangement and properties to be under the control of National Housing Authority [8], which is not related with the duties carried by the local government and the municipality; and there is no proper co-ordination and communication between these governmental units. Therefore the local people or the people within the community do not know about this type of shelter, causing the rating for poor in housing high. Nevertheless, the pilot test for reliability had stated that the housing domain gained relatively high reliability when compare to the other domains, but the research result does not match with the high reliability stated for this domain. This can be explained by the limitation of the study that the area of Amphoe Muang Kanjanaburi Province, where the pilot test was carried out, has the policy of the local government and municipality aiming to develop this area into a tourism industry place [9]; therefore, the people living in this community was aware of the shelter provided by the government and NHA. Whereas in Amphoe Muang, Ratchaburi Province, the strategy of the area is to promote increasing of income through intelligency in industrial, cultural and agricultural development [10].

The results of this study on the domains of social participation, respect and social inclusion, civil participation and employment, communication and information, and community and health services are rated good in satisfactory level with 45.3%, 61.8%, 25.2%, 43.9%, and 51.3% respectively. Where the results from these domains of age-friendly city suggested by this research, aside from domain of respect and social inclusion (good or excellent response rate= 66%) stated in the research of Age Friendly London 2014 [7], have the finding in contrast which suggesting that the response rate for good or excellent are 81% in social participation; 69% in civil participation and employment; 72% for communication and information; and 72% for community support and health services.

Domain of respect and social inclusion has similar finding with Age Friendly London 2014 [7] that both are having good response rate. The finding of high satisfactory level in good for this domain from this research is also supported by the Thai

culture of respecting, caring, and having a place for elders, especially for the seniors in the family[11]. Yet, there is evidence showing that the respect to older people declines overtime due to increase of educational level in younger persons, modern living, and individualistic thinking [12]. Hermalin [13] also pointed out that the status of the elders are decreasing due to increasing of education background in younger generation, industrialization, urbanization, and modern technology on health

For the finding on civil participation and employment from this study shows a relatively low satisfactory rate for good with only 25.2%. The finding also pointed out that the majority of the elders do not know about if there is the preparation guide for retiring and if older employees receive appropriate job or wages. This can be explained by the statistic data of Thailand that shows 62.1% of the elders are self-employed with own business without recruiting employees [14].

Association of socio-demographic characteristics to domains of age friendly city

This is a very first quantitative study that tries to explain the association between socio-demographic characteristics to all 8 domains of the age friendly city. The result of this study suggests that there is no statistical significant ($p>0.05$) in determining association between socio-demographic characteristics to the satisfactory score rating levels of all 8 indicators of age-friendly city. Other studies had tried to explain the association of socio-demographic factor to health or some of the domain of age-friendly city toward health. Such that in the study that relates outdoor spaces and building, and transportation to mobility suggests that the mobility of elders with independent and dependent functional level has association with the environmental demand on outdoor spaces and building, and transportation of the community. To which the different demand to environment from functional dependent and independent individuals include temporal factors- traffic, busy street, walking speed-, and terrain factors- stairs, curbs, ramps, elevators, uneven surfaces, obstacles. In the study of Sophonratanapokin [15] that studies on the fall of the Thai elders in their household points out that the arrangement of household environment and housing spaces are associated with health by explaining that the housing spaces and arrangement affects the mobility ability and willingness to move, to which will further place impact on health

For study that relates social participation to health by Nummela et al. [16] which studied the social capital- social participation, trust and self-

rated health- among ageing people in Finland suggests that high social capital can potentially promote the health in elders.

Association of social factors to domain of age friendly city

The results of this study shows that there is no association between social factors to the domains of outdoor spaces and buildings, and social inclusion and respect. This result is not consistent with the study of Tucker-Seeley [17] that suggests the neighborhood environment safety has the influence on physical activities of older people. It is also not consistence with the findings from recent researches that suggested that the elders wish to be recognized, welcomed and included in the society [2] through caring, [18] knowing what is happening and maintaining their roles in the family and the society [11].

This research finding suggests that there are association of knowledge on right to access to health with transportation ($p < 0.000$), housing ($p = 0.046$), social participation ($p = 0.018$), civic participation and employment ($p < 0.000$), and communication and information ($p = 0.004$). This means that the knowlegde of the rights to access to health affects the perceptions of the elderly on satisfactions toward domains of the age-friendly city in transportation, housing, social participation, civic participation and emplyment, and communication and information.

The result also shows that the knowledge on environmental effect on health will affect the interpretation of satisfaction in domain of housing that is suitable for ageing population, with statistically significant of $p = 0.035$. This is consistence with the study on home modification that suggests environmental midification of home towards the physical condition of the elders and household arrangement help facilitaes ageing in place [19].

For knowledge on community activity information is associated with domain of social participation, with statistically significace of $p = 0.022$. This is aligned with the data mentioned by WHO (2007) that social participation depends on the accessibility and capacity of the physical environment to promote healthy ageing; besides, getting information about community activity is another important contributor to particaipation in socail life [2]. Whereas participation in community activity is associated with civic participation with statistical significant of $p = 0.012$. This finding is congruent with the guideline of age-friendly city that supports the retired elders to continuously taking parts in civic participation or employment through

devoting in community activities or volunteering [2].

The result of this study also suggests that the frequency in participating in community activity is related to the domains of social participation, civic participation and employment, and community support and health services. This result is consistent to the age-friendly city guideline that suggests that more engaging in community activities through community support and participating in either formal or informal social life can build the competence and enjoyment to life, and the caring relationship among the elders, which further leads to good health [2, 16].

CONCLUSION

The finding of this study suggests that social factors on knowledge regarding to health and participation is associated with 8 domains of age-friendly city, excluding outdoor spaces and building, and respect and social inclusion. Despite the social factors, the domains of the age-friendly city are interconnected to one another [2], especially the domains under environmental scope such as outdoor spaces and building, transportation, and housing build an important basis for the other domains of age-friendly city. Therefore the preliminary tasks for the local government and municipality, including the private sectors to improve, despiting the limitation on time, budget and current governmental policy in implementing the improvement of environmental factors on the facilities and constructions, is to work hand in hand to eudcate the local people on the importance of health, participation in community, and how can they get access to the services to the all the people living or workin in the community. Nevertheless, social movement with information exchange is also a crucial key to involve the community to be actively educated.

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