Establishing activity centers for elderly people in metropolitan areas of Vietnam: preference and willingness-to-pay

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Purpose and aim: The activity center (AC), an effective model for health support and health-related quality of life improvements for older people, has been operating for many years worldwide. This study aimed to assess the necessity of and preference for attending AC and its desired functions and facilities in elderly people in Vietnam.

Subjects and methods: A cross-sectional study was conducted at parks and senior clubs, with 121 participants from 6 February to 20 April 2017, in Hanoi. The health status, preference, and willingness-to-pay for AC use of respondents were assessed.

Results: Over 75% of respondents agreed to establish an AC for older people. Among them, approximately 71.7% were willing to pay a monthly fee for this center. Elderly individuals who obtain regular physical examination when feeling pain/discomfort and who were participating in clubs for elder people were more likely to agree to establish and pay for an AC. Meanwhile, women who have to take care of grandchildren, people who were saving money and people who had children working in organizations or who were freelancers were less likely to agree to establish and pay for AC.

Conclusion: The results suggest the feasibility of establishment of ACs in Vietnam, with a high proportion of participants agreeing to such establishing and willing to pay for the AC.

Keywords: activity center, older people, elderly, Vietnam

Introduction

Vietnam’s population will enter the “aged phase” in the next two decades when its aging index rises from 35.5 in 2009 to more than 100 in 2032.\textsuperscript{1,2} In 2008, the total number of seniors in Vietnam amounted to 9.47 million, an estimated 11% of the total population.\textsuperscript{1} Besides this, by 2020, more than 12 million people in Vietnam will be counted as seniors.\textsuperscript{3} However, the health care system of Vietnam offers very few services or facilities that focus on and promote health-related quality of life of the elderly, which, in turn, increases life expectancy.\textsuperscript{1,4}

The first activity center (AC) was established in New York City in 1943.\textsuperscript{5} The AC is a great model for seniors who are retired, weak, living alone or who have free time to maintain mental and physical functions. The AC or daily care center is a facility that provides comprehensive health care programs for the elderly.\textsuperscript{6} It operates during daytime from Monday to Friday. Each month, there are many designed schedules that include activities or programs to promote physical and mental health.\textsuperscript{7} Ideally, an AC consists of many motor function and skill rooms, such as a gym, a library, a kitchen, a creative room or dance room. There are also specialized and trained staff on-site,
such as nurses, physiotherapists, occupational therapists, nutritionists and volunteers. They collaborate to develop useful programs and to improve the mobility and social skills of participants.\textsuperscript{5,7} Potentially, AC participation may lower the risk of disease-related disability. In one AC study, approximately 90% of participants reported their well-being to be the same or better than a few years previously.\textsuperscript{5} Some ASEAN countries such as Singapore,\textsuperscript{8} Malaysia\textsuperscript{9} and the Philippines\textsuperscript{10} have started establishing ACs for seniors. The establishment of AC is a health service that can bring good and comfortable caring to the older population.\textsuperscript{5,11}

Despite the evidence-based success stories of ACs, Vietnam has not adopted ACs. Additionally, Hanoi is the capital of Vietnam and a huge population lives here. Thus, this research was conducted to investigate the preference of establishing an AC for the elderly in Hanoi and to evaluate the factors associated with the preference of establishing an AC.

Subjects and methods

Subjects
People were interviewed if they met the following criteria: 1) over 60 years old; 2) live in Hanoi; and 3) accept to take part in the study. Those who were 1) under 60 years old; 2) had mental disorders; and 3) unable to join in this study were excluded from it.

Study design and sample
A cross-sectional study was performed, and the pool of subjects was chosen by a convenience sampling method. We approached the elderly who spend free time at the parks or senior clubs in the center of Hanoi from 6 February to 20 April 2017 and invited them to take part in the study. To prevent selection bias, we repeated the questionnaire three times then chose the answer that was repeated twice or more. Of 130 subjects, there were 121 eligible participants, and 9 people were excluded because they were under 60 years old. The 45-item questionnaire was constructed to measure demographic characteristics, daily activities, and common older people’s hobbies, activities of daily living (ADL), instrumental activities of daily living (IADL)\textsuperscript{12} and Mini Nutritional Assessment Short Form.\textsuperscript{13} Mini-Cog\textsuperscript{14} was used to assess cognitive impairment.

Variables and data processing
The questionnaires were translated into Vietnamese by two translators and back-translation was done by a native English speaker and piloted in ten people. The participants were interviewed for 20–30 mins. In the questionnaire, the collected personal data of participants consisted of age (years), gender (male, female), educational attainment (illiterate, primary school, secondary school or higher level), marital status, living status (living with children, taking care of grandchildren), family, income status (dependence on children, have been working, saving money or monthly pension) and health condition (frequency for check-up, frequency of examinations, common diseases).

The common activities used to survey the participants included playing sports, doing exercise, dancing, doing yoga, going to picnics, listening to music, chatting, traveling, doing volunteer work, eating, playing musical instruments, playing chess, reading books and watching TV. These items used a 4-point scale to assess the preference of interviewees for each activity (1: dislike; 2: normal; 3: like; 4: strongly like). Then, answers like and strongly like were put in the preferred group to find out suitable programs for AC and to analyze factors associated with the preference for popular activities.

The preference for the establishment of an AC was defined by “Yes” or “No” answers to “Do you want to join this activity center if it were to open” after they listened to a description of AC programs. The item “how much time would you like to spend at an AC?” was used to assess how older people might spend time at an AC per week. There were five questions that explored willingness-to-pay for AC memberships including: “Would you be willing to pay a monthly fee for AC?”, “would you pay 200.000VND per month”, “would you pay 500.000VND per month”, “would you pay 800.000VND per month” and “What is the highest amount would you pay?” (1 USD=22,500 VND in 2017). To analyze factors associated with agreeing to establish AC and willingness- to-pay for AC, the variables were chosen to put in the multivariate model including: taking care of grandchildren, gender, education attainment, income status, children occupation, working in organizations or freelancer, frequency of health check-ups, feeling pain or discomfort, participate in elderly clubs, frequency of exercise and IADL score. These variables often happen and meet in the daily life of elderly people.

Process of data analysis
After collecting data, information was coded and entered to Epidata 3.1 software then analyzed and processed by Stata 12.0 software. Statistical significance was presented with $p$-value which is $<0.05$. Descriptive statistics
(frequency) were used to present demographic information. Multivariate logistic regression combined with step-wise backward selection strategies (with the p-value<0.2 of the likelihood as a threshold to select the variables).

**Ethical consideration**

The study was approved by the National Geriatric Hospital Research Ethics Committee (No. 81 NGH IRB). The purposes of the study were explained to eligible patients and they participated voluntarily in the research. Verbal informed consent was acceptable and approved by the National Geriatric Hospital Research Ethics Committee.

**Results**

Table 1 describes the demographic characteristics of the study population. 55.4% of participants (n=67) were female, and the ratio of female to male was 1:2.4. The majority of participants (48.8%) were between 60 and 70 years old, followed by the age group of 71–80. More than half of the participants had obtained post-secondary school level education and had a monthly pension. Moreover, the majority of participants were overweight, reported health check-ups more than twice a year and exercised daily. In addition, most of the participants (71.9%) lived with children, and 31.9% reported taking care of grandchildren.

The percentage of participants who favor AC establishment and are willingness-to-pay for AC membership is allocated in Table 2. 77.5% (n=93) of participants favored AC establishment, and 71.7% of those were willing to pay a monthly membership fee. In addition, 50% of people would be willing to pay over 500,000 VND per month. The majority of participants would be willing to spend 1–8 hrs a week at the AC.

Table 3 presents the percentage of preference level for popular activities. Watching TV, traveling and reading books or newspapers are the most favorable activities. On the other hand, yoga, playing chess and dancing were not viewed as favorable.

Table 4 shows that there was no difference in the agreement of establishing an AC by gender, age, educational attainment, income status, ADL score and IADL score. However, the proportion of people who were widowed and favored the establishment of an AC (21.5%) were lower than who living with a spouse. In addition, participants who were in elderly clubs showed strong agreement to establish an AC.

Factors associated with agreeing to establish AC and willingness-to-pay for AC are described in Table 5. The results showed that those who were female (OR=0.38, 95% CI: 0.15–0.98); had to take care of their grandchildren (OR=0.36, 95% CI: 0.11–1.19 and OR=0.19, 95% CI: 0.07–0.53); had savings (OR=0.16, 95% CI: 0.02–1.05); and had children working in organizations or freelancer (OR=0.22, 95% CI: 0.05–1.01) were less likely to agree to establish and pay for AC. On the

| Table 1 Demographic characteristics of patients (n=121) |
|---|---|---|
| Characteristics | Frequency (n=121) | Percentage |
| Gender | | |
| Male | 54 | 44.6 |
| Female | 67 | 55.4 |
| Age groups | | |
| 60–70 | 59 | 48.8 |
| 71–80 | 41 | 33.9 |
| 81–90 | 19 | 15.6 |
| >90 | 2 | 1.7 |
| Educational attainment | | |
| Illiterate | 7 | 5.8 |
| Primary school | 17 | 14.1 |
| Secondary school | 28 | 23.1 |
| ≥High school | 69 | 57.0 |
| Income status | | |
| Depend on children | 31 | 25.6 |
| working | 16 | 13.2 |
| savings | 11 | 9.1 |
| Monthly pension | 63 | 52.1 |
| BMI group | | |
| Underweight | 3 | 2.5 |
| Normal | 58 | 47.9 |
| Overweight/obesity | 60 | 49.6 |
| Living with children | | |
| Yes | 87 | 71.9 |
| No | 34 | 28.1 |
| Taking care of grandchildren | | |
| Yes | 37 | 31.9 |
| No | 79 | 68.1 |
| Frequency of health check-ups | | |
| Never | 5 | 4.1 |
| Feel pain or discomfort | 38 | 31.4 |
| Several years | 4 | 3.3 |
| More than twice per year | 74 | 61.2 |
| Frequency of doing exercise | | |
| Never | 8 | 6.6 |
| Rarely, few times per month | 8 | 6.6 |
| Few times per week | 15 | 12.4 |
| Every day | 90 | 74.4 |

Abbreviation: BMI, body mass index.
The findings indicate that the elderly preferred establishing an AC in Hanoi and were willing to pay a fee for participation. Moreover, many of the older persons wanted to read books, watch TV at the AC and travel with others.

The study found that seniors in Hanoi frequently visited doctors for a check-up, which is an indication that they are concerned about their health. Those who had a monthly pension might be financially independent. The main difference between a European family and a Vietnamese family is the number of generations living together. In Vietnam, children and grandchildren are responsible for taking care of their parents. Participants who did not need to take care of their children daily are likely to have more free time to be involved in social events or to enjoy their hobbies at ACs.

Additionally, we found that the overweight population has increased. Our results also highlight the preference for exercising among the elderly which suggests that it would be beneficial to have a gym in an AC. Exercising can help to control weight and lower the risks of cardiovascular diseases. However, the risks of falling and other exercise-related problems should be taken into consideration when building a gym for the older adults. The gym should avoid heavy workout machines and should be managed by physiotherapists or occupational therapists. It may be also beneficial for participants to have a nutritionist at the AC to improve their nutritional knowledge and to help plan meals for the elderly. In the study of Le Van Hoi, it was found that the number of people who want to use a nursing center was the lowest percentage. Otherwise, households are willing to pay for nursing and day care centers more than the older persons are. There are some limitations of this study which include the implementation programs, mobile teams and community-centric areas which are rare in Vietnam and some methodological problems.

### Table 2 The percentage of participants agreeing to establish an AC and pay monthly fees

| Characteristics          | Frequency | Percentage |
|--------------------------|-----------|------------|
|                          | (n)       | (%)        |
| Establish an AC          |           |            |
| Yes                      | 93        | 77.5       |
| No                       | 28        | 22.5       |
| Pay monthly fees         |           |            |
| Yes                      | 66        | 71.7       |
| No                       | 26        | 28.3       |
| Amount of payment to participate in AC | | |
| ≥500.000 VND             | 14        | 50         |
| <500.000 VND             | 14        | 50         |
| Time spending at AC      |           |            |
| 1–8 hrs per week         | 54        | 58.1       |
| >8 hrs per week          | 39        | 41.9       |

Abbreviation: AC, activity center.

### Table 3 Percentage of preference’s level with popular activities

| Activities               | Dislike | Normal | Like | Extremely like |
|--------------------------|---------|--------|------|----------------|
|                          | n       | %      | n    | %             | n    | %      |
| Playing sports           | 60      | 49.5   | 10   | 8.3           | 17   | 14     | 34   | 28.1 |
| Dance                    | 28      | 59.6   | 2    | 4.2           | 4    | 8.5    | 13   | 27.7 |
| Yoga                     | 33      | 68.8   | 1    | 2.1           | 0    | 0      | 14   | 29.2 |
| Traveling                | 30      | 25     | 13   | 10.8          | 36   | 30     | 41   | 34.2 |
| Sing folk music          | 46      | 38     | 15   | 12.4          | 25   | 20.7   | 35   | 28.9 |
| Chatting                 | 18      | 14.9   | 23   | 19            | 54   | 44.6   | 26   | 21.5 |
| Volunteer                | 20      | 16.7   | 22   | 18.3          | 41   | 34.2   | 37   | 30.8 |
| Eating with friend       | 35      | 29.2   | 24   | 20            | 36   | 30     | 25   | 20.8 |
| Playing musical instrument| 15      | 30.6   | 8    | 16.3          | 10   | 20.4   | 16   | 32.7 |
| Playing chess, cards      | 73      | 61.3   | 8    | 6.7           | 10   | 8.4    | 28   | 23.5 |
| Reading book, newspaper  | 29      | 25     | 11   | 9.5           | 26   | 22.4   | 50   | 43.1 |
| Watching television      | 1       | 2.1    | 2    | 4.2           | 6    | 12.5   | 39   | 81.3 |
Potentially, the AC could provide both physical and mental support for the seniors.\(^\text{20}\) We have acknowledged the advantages of nursing homes like the personalized health care services offered to older people and disadvantages, such as increasing sense of isolation and loneliness, losing freedom and reducing proximity to family.\(^\text{21}\) The AC allows participants to maintain family bonding unlike in nursing homes. The AC would open

| Characteristics                  | Agree to establish an AC | Total | \(p\)-Value |
|----------------------------------|--------------------------|-------|-------------|
|                                  | Yes   | No    | Yes   | No    |      |
| Gender                           |       |       |       |       | 0.51 |
| Male                             | 40    | 14    | 54    | 44.6  |     |
| Female                           | 53    | 14    | 67    | 55.4  |     |
| Age group                        |       |       |       |       | 0.67 |
| 60–70                            | 46    | 13    | 59    | 48.8  |     |
| 71–80                            | 29    | 12    | 41    | 33.9  |     |
| 81–90                            | 16    | 3     | 19    | 15.7  |     |
| >90                              | 2     | 0     | 2     | 1.7   |     |
| Educational attainment           |       |       |       |       | 0.81 |
| Illiterate                       | 6     | 1     | 7     | 5.8   |     |
| Primary school                   | 14    | 3     | 17    | 14.1  |     |
| Secondary school                 | 22    | 6     | 28    | 23.1  |     |
| ≥High school                     | 51    | 18    | 69    | 57.0  |     |
| Income status                    |       |       |       |       | 0.35 |
| Depend on children               | 23    | 8     | 31    | 25.6  |     |
| Working                          | 15    | 1     | 16    | 13.2  |     |
| Savings                          | 9     | 2     | 11    | 9.1   |     |
| Monthly pension                  | 46    | 17    | 63    | 52.1  |     |
| Marital status                   |       |       |       |       | 0.02 |
| Widowed                          | 20    | 14    | 34    | 28.1  |     |
| Divorced                         | 4     | 1     | 5     | 4.1   |     |
| Live with spouse                 | 59    | 13    | 72    | 59.5  |     |
| Separated                        | 10    | 0     | 10    | 8.3   |     |
| ADL score                        |       |       |       |       | 0.24 |
| 6                                | 17    | 2     | 19    | 15.7  |     |
| 6/6                              | 76    | 26    | 102   | 84.3  |     |
| IADL score                       |       |       |       |       | 0.78 |
| 8                                | 17    | 4     | 21    | 17.4  |     |
| 8/8                              | 76    | 24    | 100   | 82.6  |     |
| Occupation of children           |       |       |       |       | 0.24 |
| Farmer, unstable and unemployed  | 18    | 3     | 21    | 18.1  |     |
| Work in government, personnel or staff | 10    | 1     | 11    | 9.5   |     |
| Business                         | 11    | 2     | 13    | 11.2  |     |
| Work organizations or freelancer | 49    | 22    | 71    | 61.2  |     |
| Join in elderly clubs            |       |       |       |       | p<0.01 |
| No                               | 32    | 21    | 53    | 44.2  |     |
| Yes                              | 60    | 7     | 67    | 55.8  |     |

Abbreviations: AC, activity center; ADL, activities of daily living; IADL, instrumental activities of daily living.

Table 4 Characteristics of respondents agreeing and not agreeing to establish ACs
from Monday to Friday; hence, the participants still spend Saturday and Sunday with their children instead of staying at nursing homes all the time. Moreover, the AC provides health care and social programs that are designed by doctors, nurses, physiotherapists, occupational therapists or nutritionists. It might be more tailored to the elderly than a regular club or social organization. Each week, the participants first view the schedule and then register for the event(s) of interest. But it is important to have physiotherapists and occupational therapists. They support and play important roles in brain function and mobility of older people.22

Our results also suggest activities such as watching TV, reading books or magazines and traveling are most favored. In the questionnaire we used 4-point scale because of in view of seniors’ characteristics, it is better that they answer in exact words instead of giving numbers which could confuse participants. Therefore, establishing a library or a cozy living room, and organizing some short trips to rural areas would encourage the elderly to come to the AC. On the other hand, dancing reduces the risk of falling in community dwellings for older adults.23 In addition, doing community volunteer work, such as at handicap centers in Hanoi or poor areas, could be arranged several times a month. According to one study,24 the number of hours spent volunteering decreased the risk of hypertension and increased the well-being of elderly people. Thus, some cultural and religious activities should be incorporated into daily activities at the AC.

The study results suggest that participants with children who have good and stable occupations were most interested in joining an AC. Therefore, this finding suggests that older people who have children with good economic standing and occupations probably have sufficient free time to take part in AC and social activities.25 As the number of people living alone is increasing typically in urban areas,26 it will be beneficial to have an AC for those people.

On the other hand, this study also showed the relationship between age, sex, educational level, income status, living with children, taking care of grandchildren, ADL, IADL and wanting to join an AC. We found that participants who have a higher functional level and independence of income are more likely to value the establishment of an AC. Participants who had normal ADL and IADL ranges were more interested in joining an AC. Deterrents to joining an AC include weakness, retirement, not working, living alone, dependence and having free time. People with dementia or cognitive impairment would need special services that may not be available at an AC.4

### Table 5 Factors associated with agreeing to establish AC and willingness-to-pay for AC

| Characteristics                                                        | Agree to establish to AC | Willingness-to-pay for AC |
|------------------------------------------------------------------------|--------------------------|----------------------------|
|                                                                       | OR | 95% CI        | OR | 95% CI        |
| **Take care of grandchildren (yes vs no)**                           |    |               |    |               |
| Gender (male – ref)                                                   | 0.36* | 0.11; 1.19 | 0.19*** | 0.07; 0.53 |
| Female                                                                |    |               | 0.38*** | 0.15; 0.98  |
| **Education attainment (illiterate – ref)**                          |    |               |    |               |
| Secondary school                                                      | 0.32 | 0.07; 1.53  |    |               |
| **Income status (depend on children – ref)**                         |    |               |    |               |
| Have savings                                                          |    |               | 0.16* | 0.02; 1.05 |
| **Children occupation (farmer, unstable and unemployed – ref)**      |    |               |    |               |
| Working in organizations or freelancer                                | 0.22* | 0.05; 1.01  |    |               |
| **Frequency of health check-ups (never – ref)**                      |    |               |    |               |
| Feel pain or discomfort                                               | 10.28*** | 2.06; 51.35 | 6.67*** | 2.35; 18.88 |
| Participate in elderly clubs (yes vs no)                              | 9.95*** | 2.95; 33.64 |    |               |
| **Frequency of exercise (never – ref)**                              |    |               |    |               |
| Few times per month                                                   | 5.44 | 0.64; 46.19 | 1.33 | 0.92; 1.91 |
| IADL score                                                            |    |               |    |               |

**Notes:** *** P<0.01, ** P<0.05, * P<0.1.

**Abbreviations:** AC, activity center; IADL, instrumental activities of daily living.

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This is the first study in Vietnam to measure preference for the establishment of an AC for the elderly. Because of the purposes of this study were preference and willing to pay for establishing ACs; thus, we did not expect the neutral answer from respondents then we used 4-point scale and yes/no questions. On the other hand, this scale and question were simple and suitable for older adults. There are certain limitations when interpreting the results. The population studied was limited to urban seniors, which limits the ability to generalize the result. Future studies would need to consider geographic distribution and cultural representation. Moreover, the study was limited to descriptive analysis and did not provide an in-depth assessment of factors associated with the preference and willingness-to-pay for the service.

Conclusion
The study demonstrated the favorable attitude toward the establishment of an AC among elderly people in Hanoi and a willingness-to-pay a membership fee. In Vietnam, research and policies on the elderly are beginning to pay attention to the health-related quality of life and health considerations. Thus, an AC is a place which can create an environment for the elderly to improve their physical, mental and emotional health by socializing with others and participating in various activities. Our findings provide guidelines for caregivers to operate an AC and develop programs to offer good quality and professional health service to the older population.

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