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Active aging education: an effective tool for enhancing knowledge and attitudes of health volunteers: a clinical trial study



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Abstract

Background Effective education for health volunteers plays a pivotal role, considering their contribution to promoting community health. Given the aging population and its associated challenges, it is crucial to develop effective and low-cost programs to enhance the knowledge and attitudes of health volunteers and improve the quality of life for older adults.

Aim This study investigated the effect of active aging education on the knowledge and attitudes of health volunteers.

Methods This study was conducted from November 2023 to February 2024 on 86 health volunteers at comprehensive health centers in Shiraz City. The volunteers were randomly divided into two groups: intervention and control. The data collection tool was a questionnaire. Following the pre-test, the content was delivered in six training sessions. Post-tests were administered to both groups immediately after the intervention and two months later. The data were analyzed using SPSS version 23, employing frequency analysis, the Chi-square test, the t-test, and repeated measures tests. A significance level of 0.05 was considered.

Results The findings revealed that health volunteers' knowledge significantly increased after the educational intervention. There was a statistically significant difference in the mean knowledge score in the intervention group at the three-time points (before, immediately after, and two months after the intervention) based on the repeated measures test (P < 0.001). Additionally, the attitude of health volunteers improved significantly following the educational intervention (P < 0.001).

Conclusion Trained volunteers can effectively convey critical health and cultural messages, make informed decisions, and enhance the local population's access to primary healthcare. The results of this study demonstrate that the active aging educational intervention improved the knowledge and attitudes of health volunteers. Therefore, leveraging the potential of health volunteers to teach active aging can improve the health and well-being of the elderly population.

Keywords Aging, Attitude, Education, Health, Knowledge, Volunteers

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Background

Aging represents one of the most significant demographic and welfare challenges in many countries worldwide during the first half of the twenty-first century [1]. For the first time globally, in 2019, the number of older adults exceeded that of children under five. By 2050, the population of individuals aged 60 and above is projected to double, while the number of those aged 80 and above is expected to triple globally [2].

Although less than 10 percent of Iran's population comprises people aged 60 and above, this ratio is expected to increase dramatically, especially from 2030 onwards, and reach about one-third of the country's population by 2050 [3]. In the twenty-first century, especially in its second decade, a paradigm shift occurred in how aging is conceptualized and experienced. It can be defined as a time to take advantage of life's opportunities and ensure quality of life. Accordingly, in this new paradigm, concepts such as healthy, prosperous, productive, and active aging emerge [4]. This increase is a strong reason to pay attention to the health aspects of older people and promote active aging.

Without a strategic solution, population aging can be a significant threat, especially for developing societies. In this regard, various institutions have considered different strategies to manage and control the negative consequences of population aging, especially its effects on the labor market and the level of welfare and quality of life of individuals. One of these strategies is the "Active Aging" strategy [5]. The World Health Organization defined active aging in 2002 as "a process that maximizes opportunities for health, participation, and security to enhance the quality of life of the elderly" [6].

This perspective's "health" aspect emphasizes preserving and promoting a healthy lifestyle at all stages of life while reducing environmental risk factors. It encompasses physical, mental, and social well-being. The second aspect, "participation," focuses on optimizing opportunities in social domains such as employment, politics, education, art, culture, and religion. Participation significantly contributes to older adults' mental health and vitality, fostering a sense of purpose and engagement.

The "security" aspect pertains to activities that ensure protection, dignity, and attention to the physical, social, and financial needs and rights of older adults who cannot safeguard or support themselves [7]. This concept should also be considered multidimensional and applicable simultaneously at individual and policymaking levels [6].

In this context, the active and sustained involvement of health volunteers is a critical factor, contributing to the continuous promotion of health and enhancing the quality of life for older adults [8]. Health volunteers in Iran are women who reside in various geographical areas covered by a health center or health house and are interested in helping improve the health status of their communities. Familiar with the culture and customs of the people in their areas, these volunteers effectively liaise between the health system and the community [9].

Numerous studies on the activities of health volunteers have demonstrated that continuous participation enhances their knowledge and attitudes while addressing various needs of older adults, such as establishing communication and support networks [10, 11]. Additionally, multiple articles have highlighted the positive impact of education on health volunteers, particularly in improving their caregiving skills and promoting the health and quality of life of community members, including older adults [12–16].

Given the vital role of health volunteers in society, increasing and improving their knowledge and attitudes can significantly contribute to planning and promoting the health of older adults. This research aimed to examine the effect of active aging education on the knowledge and attitudes of health volunteers.

Methods

Design

This study was a single-masked, parallel clinical trial with intervention and control groups. The clinical trial code was IRCT20160404027216N10, and the registration date was 2023–10–14.

Figure 1 illustrates the sampling stages based on the CONSORT guidelines.

Participants and setting

Sabzevari et al. [17] used a similar study to determine the sample size [17]. Considering $\alpha = 0.05$ (type I error) and $\beta = 0.10$ (type II error), with a confidence level of 95% and a power of 90%, the sample size was calculated using G*Power3 software (Cohen's effect size = 0.55, effect size f=0.275) and a correlation of 0.3 between measurement times. The total sample size was determined to be 78 participants. To account for an approximate 10% attrition rate, the final sample size was adjusted to 86 participants.

The sample allocation was performed using a simple randomization method. Four comprehensive health centers in Shiraz City were selected by drawing lots, with two centers allocated to the intervention group and two to the control group. All health volunteers from the four chosen centers who met the inclusion criteria were invited to participate. Using a lottery method based on the last digit of their files, the volunteers were randomly divided into two groups of 43 participants each.



Fig. 1 CONSORT process

The study's inclusion criteria were literacy in reading and writing and a willingness to participate in the research. The exclusion criteria included absence from more than two active aging education classes, incomplete questionnaire completion, death, developing a specific disease that prevented attendance, relocation to another city or neighborhood that made participation unfeasible, and involvement in similar research. Sampling was conducted from November 2023 to February 2024.

Data collection tools

The data were collected using the following three questionnaires:

- a) *Demographic Information Questionnaire:* This questionnaire included items on the health volunteer's age, marital status, number of children, educational level, and demographic characteristics of the spouse (age, occupation, and education).
- b) Active Aging Knowledge Questionnaire: This questionnaire consisted of 31 true/false/I don't know questions regarding active aging and its various dimensions. Scores ranged from 0 to 31. The researcher confirmed the validity and reliability of

this questionnaire, reporting a Cronbach's alpha of 0.97 and a content validity coefficient of 0.79.

c) Active Aging Attitude Questionnaire: This questionnaire included 20 items assessing the attitudes of health volunteers toward active aging, scored on a 5-point Likert scale (I completely agree, I agree, I have no opinion, I disagree, I completely disagree). Each response was scored from 0 to 4. The researcher verified the validity and reliability of this questionnaire, with a Cronbach's alpha of 0.97 and a content validity coefficient of 0.79.

Intervention

All participants in both groups were initially asked to complete the pre-test. The training sessions were held at the comprehensive health center. Typically, comprehensive health centers have dedicated rooms for volunteer training or other group activities, such as sessions for pregnant mothers, which are equipped with the necessary facilities. Some essential equipment, such as blood sugar and blood pressure measuring devices, was used with the staff's permission. The intervention group then participated in six sessions of active aging education. The classes were conducted face-to-face using collaborative methods, including educational workshops, group discussions, volunteer roleplaying, and question-and-answer sessions. Additionally, PowerPoint presentations, photos, and short videos were incorporated based on the content for each session.

Both groups completed the post-test immediately after the intervention and again two months later. The six educational sessions, lasting 40–60 min each, were conducted as lectures at the comprehensive health centers, followed by Q&A sessions.

The content of the training sessions is as follows:

Meetings	Educational content
First session	Expressing goals, obtaining informed consent, defining active aging and its importance, honor- ing older people, and old age, improving their social and spiritual relationships
Second session	High blood pressure, high blood sugar
Third session	Osteoporosis, falling, inactivity, and common musculoskeletal disor- ders in the elderly
Fourth session	Constipation and urinary incon- tinence problems, cancers, and asthma
The fifth session	Heart attack and stroke
The sixth session	Mental disorders: depression, stress, Alzheimer's disease and sleep hygiene

It should be noted that from the second session onward, health volunteers' questions about the content of previous sessions were addressed at the beginning of each session, and a summary of the content was reviewed at the end of each session. A booklet containing the training content was provided to the control group after the study to maintain ethical standards.

Data collection and analysis

Data analysis was conducted using SPSS software version 23. The tests applied included the Shapiro–Wilk test to examine the data's normality, the Chi-square, t-test, and repeated measures analysis. The significance level was set at 0.05.

Results

Of the 86 participants in this study, 43 were in the intervention group, and 43 were in the control group. The average age of health volunteers in the intervention group was 43.41 ± 9.31 years, while in the control group, it was 40.27 ± 8.09 years. The average age of the spouses of health volunteers in the intervention group was

Table 1	Comparison of the distribution of the participants'
quantita	tive demographic features

Group Statistic	Control (n=43) Mean±SD	Intervention(<i>n</i> =43) Mean±SD	P value	
Variable				
Age	40.27±8.09	43.41±9.31	0.99	
Husband's age	43.65±9.83	46.51±5.51	0.126	

 46.51 ± 5.51 years; in the control group, it was 43.65 ± 9.83 years.

Using the t-test, the intervention and control groups were compared. There was no statistically significant difference in the quantitative demographic variables between the two groups (p > 0.05). Therefore, the two groups were similar in terms of the age of both health volunteers and their spouses and were considered homogeneous (Table 1).

Additionally, 41 volunteers in the intervention group (95.3%) and 36 in the control group (83.7%) were married. Regarding the number of children, 17 volunteers in the intervention group (39.5%) had more than two children, while 34 volunteers in the control group (79.1%) had two or fewer children. Nine volunteers (20.9%) in the control group had more than two children.

The education level of 38 volunteers in the intervention group (88.4%) and 37 in the control group (86.0%) was at or below the diploma level. The education level of the spouses of 30 volunteers in the intervention group (73.2%) and 23 in the control group (79.3%) was also at or below the diploma level. The occupation of the spouse of 23 volunteers in the intervention group (56.1%) and 19 volunteers in the control group (65.5%) was categorized as "free occupation."

When the intervention and control groups were compared using the Chi-square test, there was no statistically significant difference in the qualitative demographic characteristics (p > 0.05). Consequently, the two groups were similar regarding qualitative demographic characteristics (Table 2).

The repeated measures test revealed a statistically significant difference (P < 0.001) in the average knowledge score in the intervention group across the three-time points (before, immediately after, and two months after the intervention). The average knowledge score of health volunteers in the intervention group increased immediately following the educational intervention. However, there was a slight decrease in the average knowledge score two months after the intervention.

The repeated measures test did not reveal a statistically significant difference (P=0.288) in the average knowledge score of the control group across the

Table 2	Comparison	of the frequency	distribution	of the p	articipants'	qualitative	demographic o	characteristics
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Group	Control (n=43)	Intervention (n=43)	<i>P</i> value
Frequency	Percent	Number	Percent	Number	
Variable					
Marital status					
Single	16.3	7	4.7	2	0.156
Married	83.7	36	95.3	41	
Number of children					
Two children and less than two children	79.1	34	60.5	26	0.06
More than two children	20.9	9	39.5	17	
The education level of health volunteers	i				
Sub-diploma and diploma	86	37	88.4	38	0.747
Above diploma	14	6	11.6	5	
Husband's education level of health volu	inteers				
Sub-diploma and diploma	79.3	23	73.2	30	0.504
Above diploma	20.7	6	26.8	11	
Husband's job					
Free job	65.5	19	56.1	23	0.428
Employee job	34.5	10	43.9	18	

Table 3 Comparison of average knowledge scores of health volunteers- within and between groups- in the intervention and control groups at three time points (Before, Immediately After, and Two Months After the Intervention)

Group	Before the intervention	Immediately after the intervention	Two months after the intervention	<i>P</i> value
	Mean ± SD	Mean ± SD	Mean ± SD	
Control (<i>n</i> = 43)	24.90±2.92	25.65±3.0	25.18±3.78	0.288
Intervention (n = 43)	25.11 ± 3.43	30.81±0/66	30.72±0/62	< 0.001
P value	0.761	< 0.000	< 0.000	

three-time points (before, immediately after, and two months after the intervention). Although the average knowledge score of health volunteers in the control group showed a slight increase immediately following the educational intervention, it decreased slightly two months afterward.

Additionally, the t-test indicated no statistically significant difference (P=0.761) in the average knowledge score between the research units in the control and intervention groups before the intervention. This finding suggests that the two groups had similar levels of knowledge before the intervention.

In contrast, in the intervention group, the average knowledge score of the research units showed a statistically significant improvement compared to the control group immediately after the intervention and two months later (P < 0.001). Thus, the average knowledge of health volunteers in the intervention group increased significantly immediately and two months after the intervention (Table 3).

The repeated measures test revealed a statistically significant difference (P<0.001) in the average attitude score of the intervention group across the three-time points (before, immediately after, and two months after the intervention). The average attitude score of health volunteers in the intervention group demonstrated an increasing trend, with significant improvements immediately following the educational intervention and further increases two months afterward.

In contrast, the repeated measures test did not show a statistically significant difference (P=0.095) in the average attitude score of the control group across the three-time points. However, the average attitude score of health volunteers in the control group showed a slight increase immediately after the educational intervention and two months later.

Furthermore, the t-test indicated no statistically significant difference (P=0.091) in the average attitude score between the control and intervention groups before the intervention, suggesting that the two groups had similar attitudes.

Group	Before the intervention	Immediately after the intervention	Two months after the intervention	<i>P</i> value
	Mean ± SD	Mean ± SD	Mean±SD	
Control $(n = 43)$	78.93±6.25	80.74±6.95	81.39±8.18	0.095
Intervention (n = 43)	76.76 ± 5.45	89.18±6.92	96.51 ± 4.03	< 0.001
P value	0.091	< 0.000	< 0.000	

Table 4 Comparison of average attitude scores of health volunteers in the intervention and control groups at three time points (Before, Immediately After, and Two Months After the Intervention)

After the intervention, and two months later, the average attitude score in the intervention group showed a statistically significant improvement compared to the control group (P < 0.001). Thus, the average attitude of health volunteers in the intervention group increased significantly immediately after and two months following the intervention (Table 4).

Discussion

The present study investigated the effect of an active aging education program on the knowledge and attitude of health volunteers in comprehensive health centers in Shiraz City.

The results showed that active aging education significantly increased the knowledge of the intervention group compared to the control group, with a statistically significant difference (P < 0.001). This finding aligns with the outcomes of several similar studies.

Packpour et al. compared the knowledge of nursing students and nurses about aging and found that only the average knowledge score of students was statistically higher than that of nurses [18]. This discrepancy may stem from the lack of robust educational programs in universities and insufficient in-service training in hospitals, which fail to adequately enhance students' and nurses' knowledge of aging to a desirable level.

Zareipour et al. demonstrated that educational interventions targeting older adults effectively increased their knowledge and prevented falls, highlighting the value of such programs [19]. Similarly, Waelveerakup et al. implemented an educational intervention focused on primary life support knowledge for health volunteers, which resulted in significant improvements in volunteers' knowledge [20].

Shahraki et al. conducted a cross-sectional study titled "The Effect of the National Diabetes Prevention Program on the Level of Knowledge of the Elderly." Their findings indicated that the intervention effectively improved older adults' knowledge [21].

Additionally, Zenhari et al. conducted an educational intervention study targeting nursing home caregivers. The study revealed that storytelling sessions significantly enhanced caregivers' knowledge about aging and caring for older adults [22].

Finally, Wong et al. reported the effectiveness of educational interventions in improving oral health knowledge among healthcare providers [23].

Liana et al. [24] conducted a quasi-experimental study to investigate "the effect of implementing self-empowerment-based educational packages on the knowledge and health and cleanliness status of the mouth and teeth of the elderly in Indonesia." They found that the average knowledge score significantly increased after the educational intervention compared to before [24].

In the present study, active aging education for volunteers also led to a significant improvement in the attitude of the intervention group compared to the control group (P < 0.001). Similar studies have reported comparable findings:

Cheung et al. conducted a study to investigate the effect of training and providing services on volunteers' awareness and attitudes toward dementia. They also examined the relationship between knowledge, attitude, and motivation levels of volunteers. The results demonstrated a positive effect, with a significant improvement in volunteers' attitudes [25].

Sharafi et al. assessed the attitudes of employed nurses toward older adults, revealing that most nurses held positive attitudes [26].

BaniMahdi et al. compared the attitudes of occupational therapy students and graduates toward aging and found that occupational therapists generally maintained a positive attitude toward aging [27]. Similarly, Gholizadeh et al. showed that head nurses exhibited a more positive attitude compared to nurses regarding older adults and their care [28].

Furthermore, Asgari Dastenaei et al. investigated the effect of educating family members about the characteristics of older adults to change their attitudes. The results showed that this training positively impacted family members' attitudes [29]. Similarly, Asayesh et al. examined general practitioners' attitudes toward the aging phenomenon, finding that half of the doctors held relatively desirable attitudes [30]. This finding might be attributed to the challenges associated with working with older adults, which could influence healthcare staff's positive attitudes toward them.

Several other studies, including Wong et al. [23], Abbasi et al. [31], Olatona et al. [32], Moreira et al. [33], and Goel et al. [34] align with these results. These studies also emphasized the positive impact of education on the attitudes of older adults and various groups of caregivers.

However, the findings of some studies contrast with the present study, showing no significant impact of educational interventions on attitudes. For instance, Darban et al. conducted a study titled "Educating through multimedia messaging service: A solution to improve the attitude of health workers." This study found that such education did not improve workers' attitudes [35]. Similarly, Adib et al. investigated nursing students' attitudes toward aging and reported no significant difference following the intervention [36]. These discrepancies may be due to various factors, including differences in the age or cultural backgrounds of the study participants.

Additionally, the attitude of elderly caregivers in the Abbasi et al. study did not align with the present study's findings [31]. This discrepancy may be attributed to various factors, including the adequacy of the number of training sessions, differences in the target groups, or variations in the participants' values and beliefs. These factors could influence the effectiveness of educational interventions in changing or improving attitudes.

Conclusion

Health volunteers play a vital role in promoting community health. To maximize their potential, they must be carefully selected and provided with proper training. This study demonstrated that active aging educational interventions significantly improve the knowledge and attitudes of health volunteers. By leveraging the capabilities of health volunteers, elderly health managers and planners can enhance older adults' health and quality of life, fostering active aging within the community.

Study limitations

Due to time constraints, follow-up beyond two months was not feasible. This limitation arose because research participants needed to attend routine educational programs, collaborate with the health center, and manage household responsibilities as housewives.

Supplementary Information

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Supplementary Material 1. Supplementary Material 2.

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Authors' contributions

FV, FA, ZK, conceptualized and designed of the study, validated of the data and edited of original draft. FV administrated the project and supervised data interpretation. FA gathered, investigated, analysis and interpretated of data and written original draft. The final article has been reviewed and approved by all authors.

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Data availability

Upon request from the first author data is available (fateme78.as@gmail.com).

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee of Shiraz University of Medical Sciences (approval number: IR.SUMS.NUMIMG.REC.1402.064) and conducted following the principles of the Declaration of Helsinki (2013). Participants were provided complete verbal and written information about the study's purpose, nature, potential risk, and benefits. Written informed consent was obtained from all participants. Any protocol modifications affecting the study design, objectives, or patient safety required formal approval from the Ethics Committee and the Vice Chancellor of Research at Shiraz University of Medical Sciences.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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