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Essential factors and key features in designing active aging programs and their outcomes: A narrative review study

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Abstract:

With an increase in the older adult population, many countries have designed programs to promote active aging. Thus, knowledge of the factors and features of these programs is necessary to design a comprehensive active aging program. This study aimed to review the active aging programs focusing on the extraction of essential factors, key features, and outcomes of these programs. This narrative review was carried out to examine the conducted active aging programs. Through systematic searches of databases within the time limit of 2002–2021, articles were identified and assessed against inclusion and exclusion criteria. Using the findings, three sections were developed: (1) essential factors in designing programs that consist of older adults' participation, health maintenance and, promotion, leisure time, and technology use; (2) key features of the program, include affordability, voluntary participation, intergenerational consideration, social networks and government support, lifelong learning and teaching, cross-sectoral and inter-professional collaboration, and an enabling-supportive environment; (3) the program outcomes, include increasing awareness and knowledge, activities and participation, quality of life, life satisfaction in various psychological dimensions of well-being, and physical, mental, cognitive, and behavioral health in older adults. Some gaps were identified. Consequently, future planners are recommended to address older adults' sexual health, community culture, and gender in addition to other key features and essential factors in designing active aging programs to promote older adults' health.

Keywords:

Active aging, health promotion, older adults, program, review

Introduction

Globally, the population of older adults is increasing due to an increase in life expectancy and a decline in mortality rates. Statistics show that 727 million people in the world had 65 years of age or older in 2020. The number is expected to reach 1.5 billion or higher by 2050.^[1]

This increase in the population of older adults represents a human achievement in medical advancements, socio-economic

developments, and efficient health policies, such as fertility reduction and improving health services.^[2] However, this rate of population aging can lead to some consequences, such as an increased number of people at risk of chronic diseases,^[3] physical frailty, loneliness, isolation, decreased social support, reduced ability to perform activities of daily living, decreased ability to communicate with others, reduced active participation in society, and reduced social roles. Consequently, these problems disrupt social growth and health,^[4-7] imposing high costs and financial burdens on older adults,

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their families, and the health care system.^[8] According to a related study, 23% of the total burden of diseases is related to disorders in people ≥ 60 years old.^[9]

Respecting this challenge, most countries have been trying to make the older adult period more active by reducing the adverse effects of demographic changes.^[10] Active aging is a determining factor in reducing the prevalence of disability and morbidity in older people.^[11] The World Health Organization (WHO) defined active aging as optimizing opportunities for older adults' health, participation, and safety to improve their quality of life.^[12] This definition of active aging has been accepted by many governments, so they have developed their aging policies in line with these recommendations.^[13]

Given the socio-economic dimensions associated with aging and the rising cost of care, many countries have realized the necessity of providing such services for older adults and established plans to maintain the older adults' independence. Similarly, developed countries have illuminated the goals, needs, and priorities of older adults and executed codified programs associated with the requirements of this population. These countries have made continuous efforts to implement these programs and provided the required social support to meet the older adults' natural needs through the process of aging.^[14,15]

Various researchers have implemented and investigated active aging programs such as the Active Aging Program in Nursing Homes in Spain,^[16] Facilitating an Active Old Age through Danish Co-Creation Initiatives in Denmark,^[17] Green Care the Informal Learning program in Italy,^[18] Vital Aging Program,^[19] Promotion of Active Aging through Interactive Artificial Agents in a Smart Environment in Portugal,^[20] and Development of a Videogame for the Promotion of Active Aging through Depression Prevention, Healthy Lifestyle Habits, and Cognitive Stimulation for Middle-to-Older Aged Adults in Spain.^[21] These programs are targeted at improving the well-being of older adults and examining factors and features related to active aging, which ended in physical and cognitive function, nutrition, and quality of life improvements.

Given the exponential rate of the aging process in different countries and its ensuing problems, knowledge of the factors and features of active aging programs is necessary to design these programs and promote health and active aging in older people. Because this awareness can help to align the programs with the desired goals as much as possible, which will ultimately bring significant results in improving the condition and improving the quality of life of the elderly.^[22] To the best of our knowledge

and based on the research conducted through other databases, no study has ever reviewed these programs in different countries to provide a comprehensive description of the factors and features of these programs. Thus, this investigation aimed to review the active aging programs focusing on the extraction of essential factors, key features, and outcomes of these programs in research articles. This review provides evidence for inclusion in planning to promote active aging and policy, clinical, and research decisions for policymakers and stakeholders, by collecting information in a single and accessible document.

Materials and Methods

This narrative review was carried out to examine the conducted active aging programs.

Search strategy

At first, specific keywords and their synonyms were identified using the MeSH, EMtree, and related literature. Then, a systematic search was conducted in the electronic database including PubMed, Cochrane, Scopus, Web of Science, ProQuest, Science Direct, Magiran, Scientific Information Database (SID), and Islamic Science Citation databases (ISC) within the time limit of 2002-2021. This period time was selected because the WHO introduced and defined active aging in 2002 formally. The search was performed by the first researcher on August 29-30, 2021, followed by consulting with an expert (Ph.D.) in the medical library and information sciences. The search strategy of PubMed is presented below:

("Active Aging"[tiab] OR "Active Ageing"[tiab] OR "Active elderly"[tiab] OR "Active old"[tiab] OR "Active senior"[tiab] OR "Active age*"[tiab] OR "healthy Aging"[tiab] OR "healthy Ageing"[tiab] OR "healthy elderly" OR "healthy old"[tiab] OR "healthy senior"[tiab] OR "healthy age*"[tiab] OR "successful Aging"[tiab] OR "successful Ageing"[tiab] OR "successful elderly"[tiab] OR "successful old"[tiab] OR "successful senior"[tiab] OR "successful age*"[tiab] OR "productive Aging"[tiab] OR "productive Ageing"[tiab] OR "productive elderly"[tiab] OR "productive old"[tiab] OR "productive senior"[tiab] OR "Productive age*"[tiab] OR "competent Aging"[tiab] OR "competent Ageing"[tiab] OR "competent elderly"[tiab] OR "competent old"[tiab] OR "competent senior"[tiab] OR "Competent age*"[tiab] OR "Well Aging"[tiab] OR "Well Ageing"[tiab] OR "Well elderly" OR "Well old" OR "Well senior"[tiab] OR "Well age*"[tiab] OR "healthful Aging"[tiab] OR "healthful Ageing"[tiab] OR "healthful elderly"[tiab] OR "healthful old"[tiab] OR "healthful senior"[tiab] OR "healthful age*"[tiab]) AND (Program*[tiab]) AND (2002/01/01:2021/07/31[DP]) furthermore, after

identifying the final sources, their references were reviewed for further relevant studies.

Eligibility criteria

Inclusion criteria were:

1. Original articles included quantitative, qualitative, or mixed methods;
2. Original articles in English and Farsi;
3. Original articles that contain active aging programs (not just interventional studies).

In the case that the full text of a study was not available, the corresponding author was contacted twice by E-mail. If no response was received, the whole research was removed from the review.

Select studies

The search results were entered into the EndNote X9. Database and manual searches identified 13755 sources. After removing duplicates and unrelated languages, 8645 sources remained. After screening the title/abstract based on the objectives of the study and eligibility criteria, 133 sources remained. After a review of 133 full texts, 38 studies were selected. Finally, reference lists of the finally selected articles were reviewed manually to find any possibly related studies. Consequently, two studies were added to the initially retrieved articles and a total of 40 publications were reviewed. Two reviewers did the resource selection

independently and disagreements were resolved by consensus. The review process of the articles is represented in Figure 1.

Data extraction

The information from each source was extracted. The data obtained included the essential factors, key features, and outcomes of active aging programs. Two reviewers did the data extraction independently and disagreements were resolved by consensus.

Data synthesis and analysis

Data were combined and summarized by narrative methods.

Results

In the field of active aging programs, the majority of studies were conducted in Spain ($n = 6$),^[16,21,23-26] Mexico ($n = 4$),^[11,27-29] United States of America ($n = 3$),^[30-32] China ($n = 3$)^[33-35] and England ($n = 3$),^[36-38] respectively. Other countries carried out one or two studies in this area: Canada,^[39,40] Denmark,^[17,41] Australia,^[42,43] Italy,^[18,44] Portugal,^[20,45] Iran,^[22,46] Union Europe,^[47] the Republic of Tatarstan,^[48] Scotland,^[49] Chile,^[50] Germany,^[51] and Brazil.^[52] Most studies were conducted from 2015 onwards ($n = 32, 80\%$). In some studies, women participated in aging programs more than men.^[11,21,25,29,40,43,50,53]

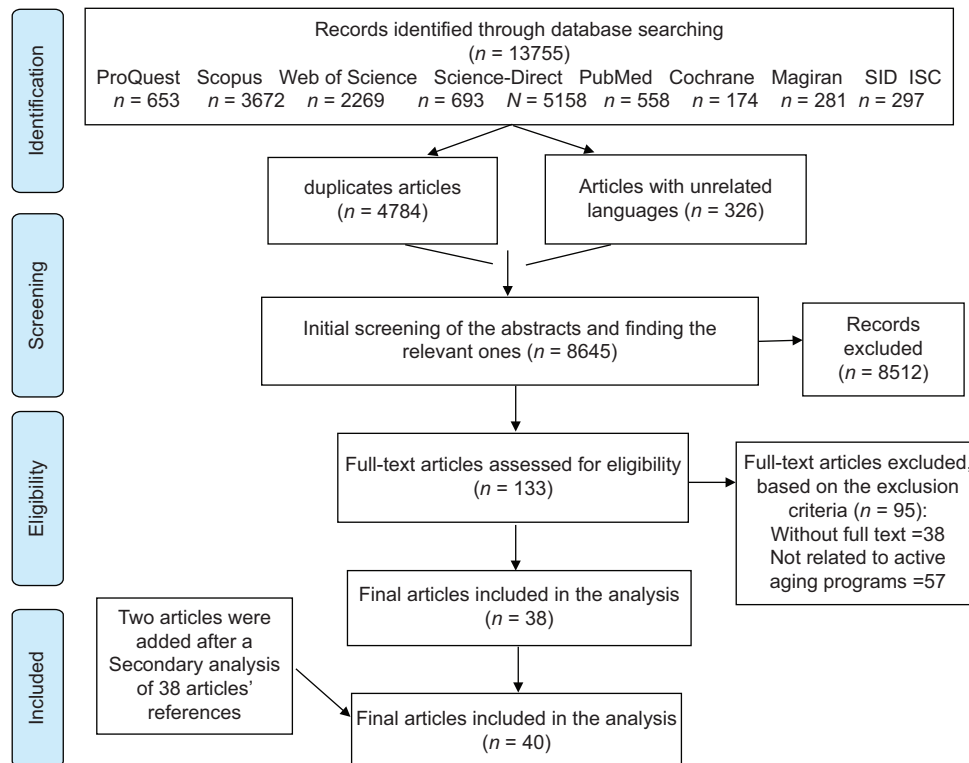


Figure 1: The review process

The information obtained from the studies was classified into three categories indicating the essential factors in designing active aging programs [Figure 2], key features of an active aging program [Figure 3], and outcomes of these programs. Essential factors in designing active aging programs must be considered in designing the programs; so that the absence of each factor will make the programs incomplete. However, all key features that can improve the programs' effectiveness to achieve the desired results may not be used in one program.

Essential factors in designing active aging programs

Older adults' participation

Older adults' participation in active aging programs is a critical factor, which was defined as having active social participation in the community and family,^[17,19,24,27-29,31,34-38,41,42,46,49] sharing information based on their experience and knowledge,^[18,28,36,47] talking about the news of the day, taking part in press workshops,^[16] exchanging information as well as attending discussion groups and group-talking workshops on various topics,^[19,48] involving virtual sports games and avatars^[43] and taking roles in caring for other older adults.^[33,48]

Health maintenance and promotion

This factor included four dimensions of physical, mental, cognitive, and behavioral health in designing the programs.

Physical health: Paying attention to older adults' physical health was one of the most important factors in designing active aging programs, which included promotion and maintenance of the older adults' physical health in terms of physical activity,^[11,17,18,20,23-27,29-31,33-35,38,40,42-45,48,49,52-54] education about healthy lifestyle,^[24,28,32,33,35] proper diet,^[11,22,31,33,34] prevention and control of common diseases in older adults,^[28,33] prevention of accidents, such as falls and fractures,^[31,33] health basics^[32] and

self-care strategies^[28,29] among older adults. [Details in Table 1].

Mental health: The next factor was associated with mental health, which included identifying, preventing, and dealing with abuse in older people,^[33] learning psychometrics activities and relaxation techniques,^[16] honoring and promoting the older adults' dignity,^[46] and holding courses to reduce the level of aggression and overcome the rates of depression^[48] and suicide,^[34] coping with isolation and loneliness in older people,^[40] conducting classes on daily life psychology, psychology of characteristics, and myths,^[24] arranging courses in psychotherapy^[29] and paying general attention to mental health.^[18,22,25,26,28,35]

Cognitive health: This factor included a variety of subscales mentioned in the literature: improving cognitive function^[11,27,29] by holding music sessions,^[16,17,24] improving memory and processing speed,^[11,19,23] learning orientation techniques about time, place, and person,^[11,23] creating mental stimulation by calculation, attention, and reasoning; linguistic-factors related exercises, planning and categorization tasks, and collecting information on healthy habits,^[23] reading and writing creatively,^[24] developing self-efficacy,^[19,31] practicing positive thinking; coping with stress and death,^[19] regulating and controlling positive emotions,^[27] strengthening motivation and excitement,^[47] adapting quickly to new social and economic conditions,^[48] learning about the recent demography and economics,^[24] being aware of financial fraud^[31] and being alert about the values of a democratic society.^[48]

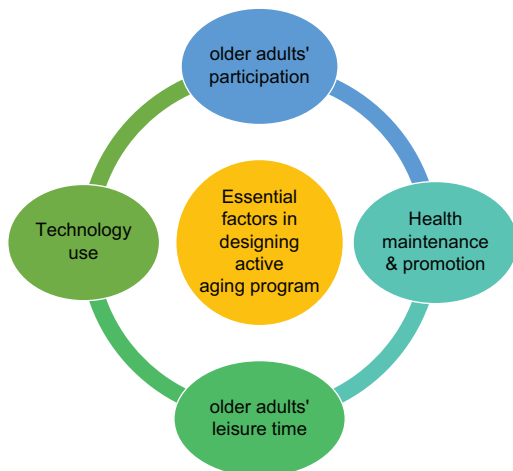


Figure 2: Essential factors in designing active aging programs



Figure 3: Key features of an active aging program

Table 1: Further information

Physical activity	Older adults' leisure time	Technology use
Physical activities recommended in the examined studies included: Sports and physical training ^[33,48] Fitness ^[30] Walking and cycling ^[17,38,42] Stretching and aerobic exercises ^[23,31,44,53] using exercise tools such as sticks and dumbbells ^[23,44] Strength, balance, and flexibility exercises ^[11,44,54] using elastic bands, balance platforms, soft mats, rehabilitation, and gymnastics balls ^[23,44] Aerobics and fitness ^[23,29] Skates ^[38] Yoga ^[38,54] Forming a football team ^[11,17,27,40] Daily activities ^[35] Holding sessions to discuss: basic concepts about the reality and imagination related to physical exercise and its benefits, types, and levels of intensity during exercise, preventive measures, and self-monitoring, ^[11,34] the benefits of physical activity, ^[18,49] mind-body involvement, ^[45] physical therapy to restore physical function and prevent possible injuries. ^[29]	The recommended activities for the older adults' leisure time included: Various table games, playground games, board games, theater, tea parties, dance ^[36,38] Bowling ^[38] Arts and crafts ^[23,36,38] Decoration of pottery, recycled objects, and jewelry making ^[23] Picnics and recreational activities ^[36,45,49] Production activities ^[25] Spiritual and religious ceremonies ^[45] Employment ^[22,30] Visiting museums and exhibitions ^[16,38,48] Periodic celebrations in villages ^[36] and nursing homes ^[16] Activities for encouraging active aging ^[50] Fun activities ^[19] Nature therapy workshops based on contact with nature, including activities such as creating urban gardens ^[16] Evolutionary biology and conversation with nature ^[24] Holding courses in different languages. ^[24,48]	The older adults' technology-based activities were: Information on how to use the Internet and websites related to the older adults' information world, working with E-mail ^[24,34,48] Working with personal computers ^[29,48] Using computer applications, new technologies, and video calls ^[16,33] Using virtual teachers ^[19] Attending video games-related interventions ^[26] Holding virtual exercise classes via active gaming technology and avatars ^[43] Designing an interactive multi-media online video game along with a supplemental smartphone application to promote active aging by preventing depression, developing healthy lifestyle habits, and increasing cognitive stimulation ^[21] Creating a software platform by focusing on cognitive, physical, social, and psychological parameters to promote active aging ^[51] Creating a multi-factor system consisting of a smart camera network, centralized planning agent, a virtual avatar trainer, and a robotic sports friend to promote regular physical activity habits among the older people ^[20] Designing a mobile application to encourage physical activity in low-income communities. ^[52]

Behavioral health: This factor refers to the behaviors encouraging good and active aging, life control, proper nutritional behaviors, responsibility,^[19,40] self-management and body management,^[19,49,53] consistent behaviors of regular exercise program,^[19] conscious decision making, protection of older adults' rights without harming the rights of others,^[48] self-regulation skills, self-awareness, and goal setting,^[31] coping skills,^[46] interactive, communicative, and emotional skills.^[19,33,38,48]

Older adults' leisure time

Another influential factor in designing active aging programs was holding educational courses and workshops in their spare time. These activities focused on promoting social interaction by participating in and enjoying group activities to maintain and improve manual skills and creativity^[16,19,22,23,25,29,30,36,45,48-50] [Details in Table 1].

Technology use

This factor was reported to familiarize older adults with the world of technology to use modern and online communication technologies and software through cyberspace using the information technology to promote the quality of their active aging^[16,19-21,24,26,29,33,34,42,43,47,48,51,52] [Details in Table 1].

Key features of an active aging program

Affordability

According to the life course perspective, the amount of money that older people pay to participate in these courses designed based on the WHO's Active Aging Framework for Health and Social Participation should be cost-effective in providing educational and learning opportunities to older people.^[33] Moreover, one of the key features that help older adults to remain active is the affordability of programs,^[39] which is mentioned in many studies.^[11,17,32,33,37-41,46,48,49]

Voluntary participation

Voluntary participation in programs was a feature addressed in many studies emphasizing that older people who participate in the program should have more opportunities for voluntary and independent choice of the program tasks by increasing access to activities. As a result, they can have more trust, broader choice, greater independence, and higher control in their lives. In this vein, providing voluntary opportunities in active aging programs leads the older adults to participate in social services actively.^[16,27,28,30,31,33,34,37,38,41,47-49]

Intergenerational consideration

The promotion of intergenerational programs is an option for older people to enhance their active aging.^[36] On the one hand, these programs revitalize

the relationship between the older adults and the youth, older adults can identify new goals in life and improve their sense of accomplishment and self-confidence in the face of age-related changes. On the other hand, the youth interaction with the older adults advances their learning about the mechanisms and social tools of aging, which is emphasized in the literature.^[16,30,33,34,36,43,46,48,49]

Social networks and government support

Some studies reported that the development of local, international, and social support networks and associations among older adult citizens might play a role in promoting active aging programs. Given the declining support of modern and industrialized families for older adults today, the position of governmental and non-governmental organizations must be strengthened, which requires supportive networks. To this end, social activities and measures, such as networking with neighbors, maintaining social networking, developing age-friendly neighborhoods, as well as improving the supportive and transportation systems can be practical.^[17,28,29,32-34,37,38,40,41,46-49]

Lifelong learning and teaching

Educational programs can facilitate strengthening several determinants of active aging, such as mental and emotional well-being, social participation, and lifelong learning,^[18] which is one of the most significant features in lifelong active aging policy making.^[22] The education category in active aging programs should focus on older adults, families, and the community covering a wide range of activities to encourage lifelong learning and progress.^[16,18,19,22,24,27,28,30,32-35,38,40,45,47-50] Some examples of achieving this goal are the university programs and the Academy Plan for older people.^[24,33-35]

Cross-sectoral and inter-professional collaboration

Cross-sectoral collaborations, such as cooperation among schools, universities, religious groups, associations, and social welfare organizations, including social centers for older people, and inter-professional participation of individuals in designing active aging programs, strengthen the social relationships/values and improve the program's success.^[33,34] The reviewed studies highlighted that creating these programs should involve cooperation among various strata of the society, including the business sector; governmental, non-governmental, and other social organizations; universities; and research institutes to promote the welfare and participation of older adults. In addition to considering inter-professional categories, people from different disciplines, such as physicians, nurses, geriatricians, rehabilitation specialists, dentists, psychologists, social workers, nutritionists, physical education instructors, and information technology instructors,

should cooperate and participate in designing and implementing programs.^[16,18,29,32-34,41,48,49]

Enabling-supportive environment

According to the literature, creating an environment is among the most essential frameworks of active aging policies to increase older adults' social and civic participation. An appropriate setting can affect the older adults' opportunity to increase active aging and helps them to learn new practical and communication skills more effectively. Changes in the environment can be effective in the willingness or unwillingness of older adults to use the natural environment.^[18,19,22,32-34,39,42]

Outcomes of active aging programs

According to the literature review, older adults who participated in these programs reported positive outcomes, such as increasing the older adults' awareness and knowledge,^[18,31,32,34,39,43,49] activity and participation,^[18,19,24,27-29,33-36,38,54] quality of life,^[11,23,29,31,34,35,38,47,48,54] life satisfaction in various dimensions of welfare and psychology^[16,24,27,28,35,38,45,50] and promotion of physical health,^[11,18,19,24,29-31,35,38,53] mental health^[18,19,23,24,28-30,33,35,36,38,47] and cognitive-behavioral health.^[11,18,19,23,24,27,29,33,34,36,38,45,53] No adverse outcomes were reported for the active aging programs but two studies mentioned that these programs did not affect the rate of physical activity.^[27,44]

Discussion

The present study aimed to review active aging programs. The findings achieved from the review were reported in three sections: essential factors in designing programs, key features, and outcomes of active aging programs.

Based on the findings, essential factors in designing active aging programs included the older adults' participation, health maintenance and promotion, leisure time, and technology use. The literature also emphasized that the established active geriatric promotion services should consider the older adults as both consumers and producers of their active lifestyles, which can be fulfilled by strengthening their active participation in services.^[41] The active participation of older adults in society can lead to the distribution of time, energy, and experience for active citizens and help voluntary organizations, social groups, and families.^[47] Regarding the participation of older adults in active aging programs, some studies noted that women were more involved in adopting a healthy lifestyle^[28,35] and participating in aging programs than men.^[29,50] Similarly, attracting and retaining men in the programs were more complex than women.^[29] Therefore, authorities are necessarily required to take the ideas and needs of older men into account, identify

potential barriers, and implement strategies to improve their absorption and retention rates during interventions. Regarding maintaining and promoting health, despite the dimensions of physical, mental, cognitive, and behavioral health in the programs, sexual health should also be highlighted as a fundamental component of physical health and quality of life in older adults.^[55] Unfortunately, sexual health was addressed in only one study.^[19] So, paying attention to the sexual health of older adults can be effective in promoting the health factor in active aging promotion programs.

Key features of an active aging program include affordability, voluntary participation, intergenerational consideration, social networks and government support, lifelong learning and teaching, cross-sectoral and inter-professional collaboration, and an enabling-supportive environment. Although any promotion of activities in aging programs should take place in the light of communities' culture^[36] and the WHO has emphasized the impact of culture and context of each community on active aging,^[11] only a few studies have addressed culture.^[19,27,36,46,48] So, culture should be taken into consideration as another significant feature in designing active aging programs because the culture in which a person lives (cultural identity) is based on the ways through which people grow old. In other terms, factors affecting active aging are influential.^[46]

Examination of the outcomes achieved from the active aging programs indicated that despite their positive results, some programs did not impact physical activity.^[27,44] Considering that physical activity is a complex behavior and health promotion interventions seek to increase the level of physical activity by influencing personal and educational factors, the determinants and background of physical activity are diverse among individuals. These determinants that facilitate physical activity include awareness about physical activity and its benefits, attitudes, and intentions toward being active, and transpersonal factors, such as policies, environments, and cultural norms.^[27] Thus, considering these factors in programs can better promote physical activity because they are practices and facilitative factors to reach active aging. The effectiveness of interventions is probably limited by the short duration and low intensity of programs and good population performance at the beginning of the study.^[44]

Limitations and recommendations

Regarding the limitations of this study, the main problem was searching databases that were not accessible due to the political situation in the region. We tried to overcome this by using databases purchased by the university and Virtual Private Networks. In addition,

failure to access the full text of some articles despite contacting the authors was another limitation of this study. Therefore, we restricted the search language to Persian and English to meet this gap. In this case, future researchers are recommended to review the publications in other languages and compare their results with our findings. Given that the present findings were derived from the studies conducted in various countries and within different cultural backgrounds, designing active aging programs in each country should be based on the context and cultural conditions of that community.

Conclusions

The findings of this study can be employed in planning to promote active aging for countries and governments faced with the exponential increase of the inactive aging population. Furthermore, authorities can prevent the inactivation of this population at the appropriate time by taking the recommended suggestions into account. In designing active aging programs, researchers should not only consider the essential factors and key features of these programs but also pay special attention to older adults' sexual health, gender, and background culture. Given the growing population of older adults and the potential for increased social costs associated with appropriate care, treatment, and facilities, addressing all components and dimensions of active aging is of great significance. Furthermore, the defined criteria of active aging should be adopted comprehensively with inter-professional and inter-sectoral collaborations to design these programs. It is hoped that applying these results can facilitate the identification of more significant potential for informed decision-making on active aging and older adults' health promotion in different communities.

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Ethical consideration

The present study is part of the first author's doctoral thesis at Isfahan University of Medical Sciences (code number: 3400354) that was conducted and confirmed in the Research Ethics Committees of Nursing, Rehabilitation, and Management schools Isfahan University of Medical Sciences with Approval of ID: IR.MUI.NUREMA.REC.1400.131.

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Conflicts of interest

There are no conflicts of interest.

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