

Investigating the Effect of Different Educational Methods in Preventing Disease in Elderly People: Review of Interventional Studies in Iran

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Abstract

Education is a dynamic and continuous process and requires the knowledge and learning of the most basic human needs. These needs created due to the changes that occur with increasing age in the learning system of the elderly people, are more evident at old age. It is important to select the appropriate educational method for learning in this age group. Hence, this review study investigates the effect of different educational methods in interventional studies on Iranian elderly people, considering the importance of lifelong learning. This study is a scoping review study. The reviewed studies were selected through the search in PubMed proquest, science direct, Google, Google scholar databases and with using the keywords of education, lifelong learning, learning and adult education. According to the studies reviewed, 115 articles related to different educational methods, 22 articles were consistent with research goals, the impact of face-to-face methods, group discussions, e-learning (video) and lectures on learning the elderly people of Iran. However, no study was found in the field of electronic studies using social networking software (Telegram, WhatsApp, Viber, etc.), Web-based and e-mail-based studies. Majority of these studies have investigated the effect of education on lifestyle and health promotion behaviors through traditional approaches. The results showed that studies that used education methods appropriate to elderly people, had a positive and significant effect on their learning. Further studies are recommended in the area of educational methods and comparison of these methods.

Keywords: Learning, Education, Aged, Focus Groups

Introduction

In the twentieth century, the population has undergone a change so that the population of elderly people has increased more than other groups. The world's population is rapidly aging, and the population aged 60 years and older is growing faster than any other age groups (1-4). In old age, major factors such as education and learning facilitate the participating in various activities and allow elderly people to enjoy high quality of life as they grow older. They also allow elderly people to cope with financial, technology and health changes (5).

Education refers to any kind of pre-planned activity or strategy that its goal is creating learning in the learner. Learning also involves making relatively stable changes in learner's potential behavior, provided that this change occurs as a result of the experience (6). Thus, learning is the goal and education is one of the tools or methods to achieve this goal (7). Given the age-related changes in aging, the ways of learning the elderly, the reason and manner of using these ways in the elderly people vary with those of young people. Using information about these ways, one can increase the level of learning in the elderly people. This movement directs us move towards

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a community, where all forms of learning are valuable (8-11). In this regard, the selection of an appropriate educational method is important. In selecting the educational method, attention should be paid to the cost, effectiveness, flexibility, ease of work, increasing the quality and availability (12). There are several methods for educating the people, including education through computer, group discussion, telephone, lecture, question and answer, use of demonstration, simulation, and role playing (13). The use of different educational technologies, improves knowledge, changes in behavior, and promotes the functions of learners due to the motivating the learning. It is also helpful in saving the time and human resources (14, 15). Studies on elderly people suggest that there are many interpersonal differences among the conditions and forms of life of the elderly people, especially the social dimensions of inequality, affecting the selection of education methods (8). Examining of various educational methods and techniques in Iranian elderly people has led to the identification of the desirable methods for this age group. Ensuring the quality and effectiveness of the education process in elderly people, it improves the health indicators of the elderly people health program of the Ministry of Health. It also might enhance the hope for life in this age group as one of the development indicators (16-18). Each of these methods has several applications, advantages, and disadvantages. It is required that the researchers to compare the results of studies conducted in this field using a variety of educational methods. According to Romeril *et al.* scoping review studies are commonly used rather than traditional review studies in many areas of medical and social sciences (19). The scoping research method provides a picture of the current state of studies in the studied area (20). Additionally, one of the common causes for conducting these review studies is the identification of research gaps (21). Unlike systematic review research, scoping review research is not seeking to assess the quality of the texts, synthesize them, or add the findings to each other, and increase the generalizability of the findings (22). The research is useful when no comprehensive review study has been conducted before. Various research plans have been applied (22) or large volumes of studies have been published (20). In addition, such studies are cost-effective (23). Arksey

and O'Malley published the first methodological framework for conducting scoping review research (20). The five steps proposed by them include identifying research questions, summarizing, summarizing and reporting the results. Considering the dispersion of the texts, this study was conducted with the aim of investigating the scope of the studies carried out in Iran in the area of elderly education. Given the knowledge of the authors of this article, this study can be the first scoping review study in the area of different educational methods with the aim of investigating the effect of these methods on the life and health aspects of Iranian elderly people.

Materials and Methods

This study used scoping review research, approved by the Ethics Committee of the Tehran University of Social Welfare and Rehabilitation under the code of IR (RUW.RU.1396.129). In addition, researcher observed all ethical codes and related publication codes. Based on the main purpose of the study, which was examined various educational methods, the related articles were selected through searching in English-language databases of Scopus, PubMed proquest, science direct, Google scholar with using the keywords of education, lifelong learning, face to face, e-Learning, discussion group, lecture, web-based, book, mail, and through searching the articles in Persian websites of sci, magiran Irandoc by using the words such as learning, adult education, group discussion, lecture, electronic methods, book and video. The inclusion criteria included all studies whose primary or secondary objectives were investigating the effectiveness of different educational methods. There is no specific limitation for the studied population (sanatorium and community), as well as for the elderly (nursing homes and normal population) and the state of elderly people (patient and healthy), but the age of the elderly people should be over 60 years and older. Those studies were selected that were conducted between 2006 and October 2017 and it was possible to access full text of them. Non-interventional studies were also excluded from this study. If the full text of the studies was not available, an email was sent to their author to receive the full texts. Duplicate articles were also excluded. Finally, 22 studies were examined (Table-1).

Table 1. Inclusion and exclusion criteria of the studies

Exclusion criteria	Inclusion criteria
Lack of access to the full text of the articles	Studies published in Persian language
No publication of the articles between 2006-2017	Studies whose full-text is available
	Studies that studied only the elderly group of people

Result

Based on the explanations provided in the first step, 115 articles related to different educational methods were found. Of 115, 50 articles were excluded as they were duplicated. Finally, 65 articles remained and the abstract of all of them was reviewed; Out of which, 25 were excluded due to non-relevance. In the second step, the full text of the remaining 35 articles was reviewed. Out of them, 13 articles were excluded because of non-relevance, considering age below 60 years old for the elderly and the lack of writing of the educational method. Finally, 22 papers were used in this study (Figure-1). Review of 22 studies revealed that three studies used face-to-face method to change the behavior in a healthy lifestyle, 17 studies used group discussion method to discuss on the shared interests of participants in area of promoting the health behaviors and health education. Nine studies used e-learning methodology to interact the participants' experience in increasing their life expectancy, happiness and depression, and 10 studies used lecture method to transfer information from teacher to participants in the area of self-care. It should be noted that in some of these studies, several methods were used and compared simultaneously. They are listed in Table-2.

Discussion

The objective of this review study is to evaluate the effect of different educational methods in interventional studies on the learning of elderly people in Iran. For this purpose, 22 articles were extracted after reviewing the

related databases. Limited types of various educational methods were reported in different regions of Iran. The results of this study showed that several educational methods are used among elderly people. In this regard, group discussion method (17 studies) has the highest rate in domestic studies (Iran), followed by educational methods of lectures (10 studies), e-learning (video) (9 studies) and face to face methods (3 studies). The studies focused more on healthy lifestyle (25, 33-35, 37-41, 43, 44), health promotion behaviors and health education (24, 26, 29, 33, 36), self-care (30) and increased life expectancy, happiness and depression (27, 28, 41, 42). The population studied in these studies was more elderly people in the community (25, 29, 33-35, 37, 40, 41) and few studies were conducted in the nursing homes (26-28). Moreover, the results of studies conducted by Alizadeh *et al.* (35) and other studies (29-32, 35, 38, 39) on the use of e-learning in the area of health in elderly people are in line with the study conducted by Tatiana in 2017, which showed that using e-learning in the elderly people increases the lifespan of elderly people by creating confidence, creativity and using skills and sharing the experiences (46). However, in the study conducted by Detroyer in 2018, the results showed that e-learning had no effect on reducing the Delirium symptoms in the elderly people (47). The results of study conducted by Shamsi *et al.* (31) and other studies (26-40) on the use of group education on health promotion and health education were consistent with the results of the research conducted by Ferreira in 2018, which showed that group education reduced the symptoms of anxiety and the quality of life of Parkinson patients (48). However, in

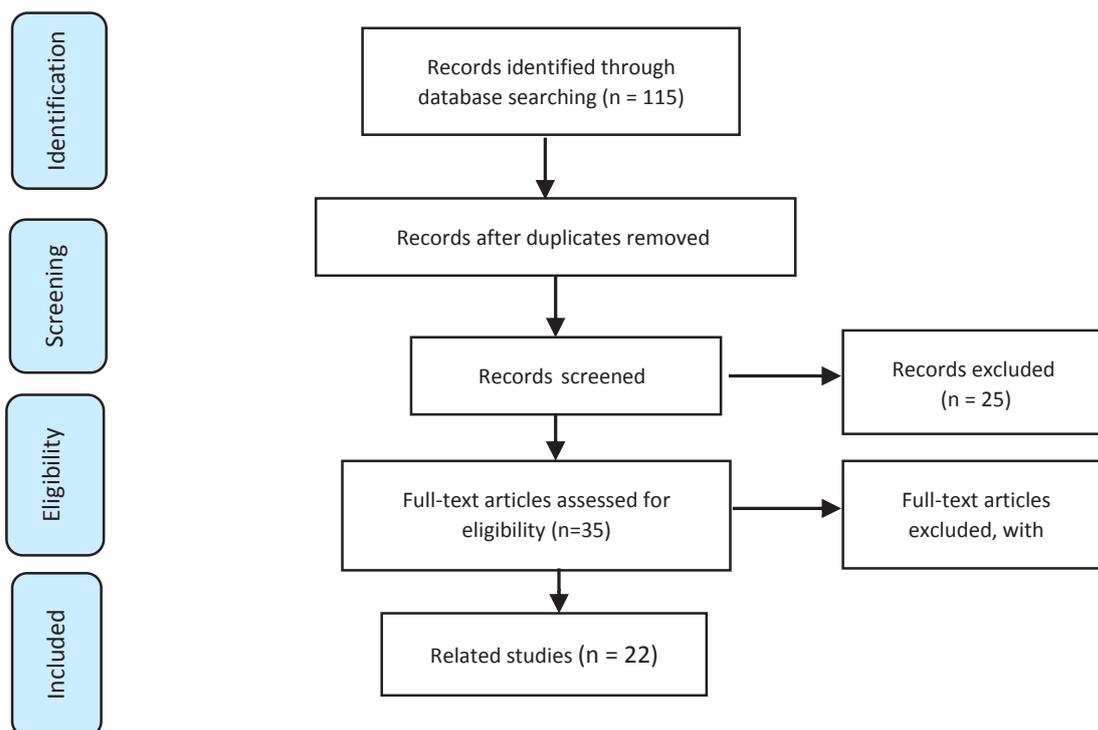


Figure 1. Prisma flow diagram of the review of Studies obtained about type of education methods

the study conducted by LicA in 2018, group education did not have any effect on their quality of life of the elderly people (49). Moreover, the results of the research conducted by Anaraki *et al.* (25), Malek Afzali (33) and Moridani (43) on face-to-face type of lecture method were consistent with those of research conducted by Chesser in 2016 in the area of self-care methods (50). In addition to using educational methods, nowadays, one of the important issues in education and health promotion is intervention in health promotion environments. These environments are important as they have particular channels and communication systems for providing and publication of the programs, provide the conditions to access to special groups, and play facilitating role to develop policies and organizational changes to support the healthy behaviors (46). The sample in most studies included both female and male genders (30, 31, 33-35,

37, 38, 40, 41, 43, 44). Several studies used various health models, including the Health Belief Model (36), Precede-Proceed (38, 41, 42), BASNEF (37, 39), and the Metatheoretical Model (45). Most of the studies on the different educational methods of elderly people of Iran were quasi-experimental. Other educational methods including role-playing, phone follow-up, holding workshop and other educations including web-based educations (e-mail) and social networking software (Telegram, WhatsApp, Viber, etc.) were not used in any study. In Iran, most organizations suffer from restriction in the use of tools and infrastructure for their e-learning. The number of people developing e-learning content is limited. Paying attention to e-learning, as a new educational approach, is a part of the educational needs of different organizations of the country. It increases the quality and effectiveness of education in some educa-

Table 2. List of studies conducted on the effect of different educational methods on elderly people with a detailed description of each of them

Author	Year	Place of study	Type of study	Sample size	Results	Educational method	Strength	Weakness
Mohaddesi <i>et al.</i> (24)	2011	Urmia	Quasi-experimental	200	The effect of health education on increasing the mean of knowledge, attitude and practice of the subjects was confirmed. The score of retired people was higher than that of the housewives at the pre-test and post -test, and with the increase in literacy level, the mean score increased.	Group discussion		Less education time
Anaraki (25)	2007	Bushehr	Quasi-experimental	941	In general, the mean score before education was 74%, which significantly increased to 86% after the education (P-value <0.05)	Face-to-face		
Hejazi <i>et al.</i> (26)	2009	Tehran	Quasi-experimental	87	The mean score of knowledge in general and in all domains, after education compared to that before the education, showed a significant increase, so that the total score of knowledge after education increased from 62.5 ± 9.1 to 85.8 ± 8.6 (P-value <0.001)	Group-discussion-lecture	The theoretical nature of this study and applying the model	The lack of cooperation of the elderly during the intervention - the small sample size

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Firouzeh Mogaddam <i>et al.</i> (27)	2013	Mashhad	Quasi-experimental	24	Comparison of the subjects' scores in the experimental group in the post-test and follow-up stages through correlated t-test showed that the means were not different in the hope variable.	Group discussion	The lack of cooperation of the elderly during the intervention - the small sample size
Ghomam Mohammadi <i>et al.</i> (28)	2013	Tehran	Quasi-experimental	150	The results of the covariance analysis showed the effectiveness of religious teachings on the meaning of life and its domains in the intervention group after intervention (P-value <0.001). However, this effect was not significant in comparison with the control group (P-value <0.005).	Group discussion	Not measuring the level of knowledge of religious teachings before and after intervention - Not investigating the religious orientation of the subjects before intervention
Shojaee Zadeh <i>et al.</i> (29)	2014	Eslamshahr	Quasi-experimental	80	Three months after the intervention, the mean of perceived sensitivity was statistically significant (P-value <0.001). The mean of perceived severity was significant (P-value = 0.002). The mean of perceived barriers and perceived benefits in two groups was significant (P-value <0.001). Moreover, self-efficacy and guidelines for practice three months after training showed a significant difference (P-value <0.001).	Group-discussion-E-learning	The theoretical nature of this study and applying the model The lack of cooperation of the elderly during the intervention - the small sample size
Maddah <i>et al.</i> (30)	2016	Esfahan	Quasi-experimental	64	The results showed that there was a significant difference between elderly people and diabetes in terms of quality of life after the intervention (P-value <0.001), but this difference was not significant in the control group. After intervention, the mean score of HbA1c in the intervention group was significantly lower than that of the control group (P-value <0.001).	Group-discussion-E-learning-lecture	The limitation of this study was participation of diabetic elderly people treated with insulin

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Shamsi <i>et al.</i> (31)	2013	Arak	Quasi-experimental	60	After educational intervention, the majority of samples were at a good level in the quality of life (38.3%) and excellent (45%). There was a significant difference before and after the educational intervention (P-value <0.001)	Group-discussion-E-learning-lecture	The theoretical nature of this study and applying the model	The limitations of this study are collecting data through self-reporting, so we should treat with caution in generalizing the results
Masoudi <i>et al.</i> (32)	2014	Zahedan	Quasi-experimental	128	After the intervention, the mean quality of life score increased from 47.72 to 58.90 only in the experimental group.	E-learning	The theoretical nature of this study and applying the model	The lack of cooperation of the elderly during the intervention
Malek Afzali <i>et al.</i> (33)	2010	Tehran	Quasi-experimental	200	According to the intervention, the priority of food changed from rice to vegetables in women (P-value = 0.05), but it did not change in other groups. Aerobic exercise increased in women after intervention (P-value = 0.01). Regarding mental health, life satisfaction in women was increased from 68% to 90% (P-value = 0.01). Feeling happiness increased from 53 to 83% in women and from 64 to 83% in men (P-value = 0.05).	Face-to-face		The lack of cooperation of the elderly during the intervention - the small sample size
Farhadi <i>et al.</i> (34)	2013	Bushehr	Quasi-experimental	79	Healthy lifestyle education improves the level of knowledge about healthy lifestyle and improves the quality of life of the elderly people in the intervention group (P-value <0.005). However, in the control group, quality of life decreased, although this decrease was not statistically significant and their lifestyle knowledge did not change significantly (P-value = 0.209).	Group discussion		The lack of cooperation of the elderly during the intervention

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Alizadeh <i>et al.</i> (35)	2013	Sari	Quasi-experimental	60	The mean score of the group educated with the video in area of increasing the knowledge was obtained 18.57 and the mean score of the group educated with the book was obtained 16.90. To measure satisfaction, the mean score of the group educated with video was obtained 59 and the mean score of the group educated with the book was obtained 35.73.	E-learning	Comparing the traditional and E-learning methods	The results of the comparison of the two methods were merely based on the content of nutrition education and the results cannot be generalized to other issues of healthy lifestyle of the elderly people. the samples were limited to elderly people of Retirement Center and lack of full participation in the education
Shojaee Zadeh <i>et al.</i> (36)	2014	Ardabil	Quasi-experimental	148	In the intervention group, the mean score of knowledge and components of the model increased significantly after intervention (P-value <0.001). The mean score of practice in the intervention group showed significant increase 3 months after training(P-value <0.001)	Group discussion-E-learning-lecture	The theoretical nature of this study and applying the model	Problems in inviting the elderly people-illiteracy or low literacy of the elderly people - old age and lack of willingness of some elderly people to participate in the classes
Hazavei <i>et al.</i> (37)	2016	Sananadaj	Quasi-experimental	110	Based on the findings of this study, after the educational intervention, the mean scores of knowledge, belief in evaluation of behavior, attitude toward behavior and abstract norms in the intervention group were significantly higher than those in the control group (P-value <0.05), but in the mean score of norm beliefs, enabling factors and behavioral intention of the two groups, significant difference was seen (P-value > 0.05).	E-learning - lecture	Randomly selection of samples, randomly assignment of samples into case and control studies, complete control on the implementation of the project	The relatively low sample size – using questionnaire and self-reporting for collecting information from the elderly people. The time interval between providing the educational intervention and follow-up

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Matin <i>et al.</i> (38)	2009	Tehran	Quasi-experimental	54	<p>There was a significant difference between the mean score of total quality of life in the elderly group in comparison with the control group before and after intervention (P-value <0.05). In addition, some educational components of the model including predisposing factors (attitude), enabling factors and behavioral factors had a significant effect on quality of life (P-value <0.05).</p>	Group discussion – E-learning-lecture	The theoretical nature of this study and applying the model	Low intervention time
Najimi <i>et al.</i> (39)	2011	Esfahan	Clinical trial	100	<p>The mean score of knowledge and variables of the components of the BASNEF model showed a significant improvement in the intervention group (P-value <0.001). In addition, the comparison of nutritional behaviors 3 months after the intervention showed a significant improvement in the intervention group. The mean of daily feed intake of fruits and vegetables in the intervention group increased (P-value <0.001). Comparison of fasting blood glucose and glycosylated hemoglobin in the intervention group showed a significant reduction (19.5 mg / dl and 0.36%).</p>	Group discussion-lecture	The theoretical nature of this study and applying the model	<p>Due to the problems of the elderly people, the number of educational sessions was limited. There was also a lack of follow up with other participants. Moreover, non-follow-up of the subjects was another limitation of the study.</p>
Najimi <i>et al.</i> (40)	2011	Esfahan	Clinical trial	100	<p>The results of the study showed a significant reduction in mean of weight (1.3 kg), body mass index (0.48 kg / m²), triglyceride (18.25 mg), fasting blood glucose (19.5 mg / ml) and glycosylated hemoglobin (0.36%). No significant difference was seen between the two groups in the level of light lipoprotein, heavy lipoprotein and blood pressure.</p>	Group discussion		<p>Lack of investigating the changes as one of the most important micronutrients in controlling blood pressure – lack of investigating the effect of long-term use of intervention</p>

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Hazavei <i>et al.</i> (41)	2008	Esfahan	Quasi-experimental	54	<p>After intervention, the mean score of depression group was 66.2 ± 22 in the intervention and it decreased to 89.8 ± 27.8 in the control group (P-value <0.001).</p> <p>After intervention, mean score of predisposing, enabling, reinforcing factors and preventive behaviors of depression in intervention group was significantly higher than those in the control group (P-value <0.001).</p>	Face-to-face -lecture	The theoretical nature of this study and applying the model	The lack of cooperation of the elderly during the intervention - the small sample size
Sharifi Rad <i>et al.</i> (42)	2011	Tehran	Quasi-experimental	94	<p>Significant differences were found between experimental group and control group in the mean scores of predisposing factors of knowledge (P-value <0.001) and attitude (P-value <0.001), enabling factors (P-value <0.001), predisposing factors (P-value <0.001) and practice especially performing breathing and relaxation skills (P-value <0.001). Mean scores and severity of stress (P-value <0.001) were also significant after intervention.</p>	Face-to-face -lecture	The theoretical nature of this study and applying the model	The lack of cooperation of the elderly during the intervention - the small sample size
Moridani <i>et al.</i> (43)	2015	Siahkal	Quasi-experimental	160	<p>After intervention, significant difference was seen (P-value <0.001). Paired t-test showed a significant difference only in the intervention group with regard to the structures of socio-cognitive theory and social security (P-value <0.001).</p>	Face-to-face -lecture	The theoretical nature of this study and applying the model	The lack of knowledge of the elderly of people to complete the questionnaire due to illiteracy

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Rabiei <i>et al.</i> (44)	2011	Esfahan	Quasi-experimental	64	<p>Paired-t test showed the effect of using family-centered empowerment model on increasing the quality of life in the experimental group compared to the control group (P-value <0.001). Independent t-test showed a significant difference between the two groups after the implementation of the program in the self-esteem score (P-value <0.001), but self-efficacy of the elderly people was not significant after the intervention (P-value = 0.07), in contrast to that before the intervention. Independent-t test did not show a significant difference between the two groups before the education in the area of self-efficacy, and this difference was not significant (P-value = 0.07), despite an increase in self-efficacy score after intervention.</p>	Group discussion	Performing the intervention in the form of family and its effect on empowerment of elderly people, the theoretical nature of this study and applying the model	The sampling method (convenient sampling due to problem of availability)
Sahaf <i>et al.</i> (45)	2015	Qom	Clinical trial	140	<p>The mean score of physical activity in the elderly people of the intervention group was significantly different before the education, one month after the education and six months after the education (P-value <0.001). In addition, the mean scores of the structures related to model-based questionnaire had a significant difference after the education in this group (P-value <0.05). There was no significant difference in physical activity and mean score of questionnaire structures in control group.</p>	Group discussion	The theoretical nature of this study and applying the model	The lack of cooperation of the elderly during the intervention - the small sample size

tional areas (51). If e-learning can provide high-speed and low-cost education, which its content appropriate for its users, the researchers will focus on combining this new educational approach with the existing methods (52, 53). The results of these studies suffer from some limitations, including low sample size and the location where the intervention was performed, since participants were not complete representatives of the target population, making it difficult to generalize them to whole population. Additionally, the lack of participation and cooperation of elderly people during interventions reduced the sample size of the intervention group and limited the comparison between the groups before and after the interventions. In addition, in these studies, data were collected through self-reporting, which could be used by both the interviewer and the elderly people. Other limitations include low literacy, lack of motivation and executive problems such as commuting and the limitation in implementation of recommendations due to financial pressures. All of these factors can reduce the accuracy of the results of these studies and the generalizability of the results. Moreover, in many of these studies, the long-term effect of interventions after its interruption was not studied, so future studies should address this issue. By examining the interventions, none of the 22 reviewed studies examined the creating change in organizational or public health policies or changes in the physical environment associated with the elderly people. These limitations are seen in previous studies. This issue should be considered in the interpretation of these studies and design of future studies. However, the present review study suffered some limitations. Some studies might have been conducted in Iran and published in Persian journals, which have not been indexed in the sought databases and not included in this review study. In the present review study, only the studies conducted in Iran were considered, so it is suggested that a study to be conducted in the future and consider the foreign studies.

Conclusion

The results showed that studies that used education methods appropriate with the elderly people showed a positive and significant effect on the learning of the elderly people. Additionally, the results of this study showed that several educational methods, including group discussion, lecture and e-learning through video are used among elderly people. The results of this review study suggest that adequate studies have not been conducted in Iran on the impact of different educational methods, including role-playing, phone follow-up, holding workshop and other e-learning methods, including web-based education (email) and social networking software (Telegram, WhatsApp, Viber, etc.) and there is not enough data to decide on the effectiveness of the various methods. Therefore, it is recommended

that detailed scientific studies to be carried out on the above-mentioned areas. The evidence suggests that providing education for the elderly people can have a positive impact on promoting healthy lifestyle, promoting healthy behaviors and health education, increasing life expectancy, happiness, and reducing depression. With regard to using diverse educational methods among the elderly people, enhancing the knowledge about education and learning methods promotes the educational process and the process of teaching and learning, using environmental factors in a desirable way and in line with individual learning and eliminating inappropriate practices. Educators should adopt their communication and educational methods with learning styles and learners' thinking in order to improve their learning. Lack of consistency between education style and learning of the elderly people with their culture and taste causes disappointment and failure in promoting the health. It is suggested that further studies to be conducted in this area in the future and different educational methods can be compared.

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Conflict of Interest

The authors of this study declare no conflict of interest for this article.

References

1. Hamedanizadeh F, Motahedian E, Sarhangi F, Zighimat F. Attitude of nurses toward care of elderly patients. *Kowsar Med J.* 2008; 13(3):253-8. [Persian]
2. Hashemlou P, Hemmati Maslakkpak M, Khalkhali HR. The effect of Orem self-care program performance on the self-care ability in elderly. *J Urmia Nurs Midwifery Fac.* 2013; 11(2): 119-26. [Persian]
3. Sanagoo A, Baziyar A, Chehrehgosha M, Gharanjic S, Noroozi M, Pakravan Far S, et al. People attitude toward elderly in Golestan province, 2009. *JGBFNM.* 2012; 8(2):24-9. [Persian]
4. Ramezankhani A, Mohammadi G, Akrami F, Zeinali M. Knowledge, attitude and practice of the elder residents of Tehran city about healthy lifestyle. *J Health in the Field.* 2013; 1(1). [Persian]
5. World Health Organization. Active ageing: A policy

- framework. Geneva: World Health Organization; 2002. Available at: http://whqlibdoc.who.int/hq/2002/WHO_NMH_NPH_02.8.pdf?ua=1
6. Seif AA. *Educational Psychology*. 7ed. Tehran: Payam Noor University Publications; 1390.
 7. Finger M, Asún JM. *Adult education at the crossroads: Learning our way out*. London; Zed Books; 2001.
 8. Boström AK. Intergenerational solidarity—and the need for lifelong and lifewide education to enhance community well-being. In: Krašovec SJ, Radovan M editors. *The Third conference of the ESREA network on education and learning of older adult: Intergenerational solidarity and older adults' education in community*. 2012 Sep 19-21; Ljubljana, Slovenia. Ljubljana: University of Ljubljana; 2012. P47-55.
 9. Papi S, Karimi Z, Ghaed Amini Harooni G, Nazarpour A, Shahry P. Determining the prevalence of sleep disorder and its predictors among elderly residents of nursing homes of Ahvaz city in 2017. *SIJA*. 2019; 13 (5) :576-587. Doi: org/10.32598/SIJA.13
 10. Boulton-Lewis GM, Buys L, Lovie-Kitchin J. Learning and active aging. *Educational gerontology*. 2006; 32(4):271-82.
 11. Afshar M, Madani S, Tarazoj AA, Papi S, Otroshi O, Gandomani HS, et al. Physical activity and types of cancer. *WCRJ*. 2018; 5(4):e1164.
 12. Hugenholtz NI, De Croon EM, Smits PB, Van Dijk FJ, Nieuwenhuijsen K. Effectiveness of e-learning in continuing medical education for occupational physicians. *Occup Med (Lond)*. 2008; 58(5):370-2. PMID: 18495676
 13. Saberian M. *Planning principles for patient education*. Tehran: Boshra Publications; 2006. [Persian]
 14. Shabani H. *Educational skills (methods, teaching techniques)*. Tehran: Samt Publications; 2016. [Persian]
 15. Hornik R. *Public health communication: Evidence for behavior change*. Abingdon: Routledge; 2002.
 16. Rezaei Rad M. Effective factors in resource management: E-learning processes. *Journal of Modern Thoughts in Education*. 2011; 6(2):82-69. [Persian]
 17. Hazavehei SMM, Emdadi S, Khezeli M. Models and theories of health education and health promotion in physical activity interventions for women: A systematic review. *J Educ Community Health*. 2014; 1(2):67-84. Doi: 10.20286/jech-010267
 18. Hazavehei SMM, Moradi A. The role of intervention models and theories of health education and health promotion in increasing physical activity in the elderly: A systematic review. *Qom Univ Med Sci J*. 2017; 11(6):82-94. [Persian]
 19. Rumrill PD, Fitzgerald SM, Merchant WR. Using scoping literature reviews as a means of understanding and interpreting existing literature. *Work*. 2010; 35(3):399-404. Doi: 10.3233/WOR-2010-0998
 20. Levac D, Colquhoun H, O'Brien KK. Scoping studies: Advancing the methodology. *Implement Sci*. 2010; 5(69):2-9. Doi: 10.1186/1748-5908-5-69
 21. Wagman P, Håkansson C, Jonsson H. Occupational balance: A scoping review of current research and identified knowledge gaps. *J Occup Sci*. 2014; 22(2):160-9.
 22. Arksey H, O'Malley L. Scoping studies: Towards a methodological framework. *Int J Soc Res Methodol*. 2005; 8(1):19-32.
 23. McKinstry C, Brown T, Gustafsson L. Scoping reviews in occupational therapy: The what, why, and how to. *Aust Occup Ther J*. 2014; 61(2):58-66. Doi: 10.1111/1440-1630.12080
 24. Nanbakhsh F, Mohaddesi H, Amirai A, Haji shafiha M, Broomand F, Bahadori F et al. The effect of health education on elderly weomen life quality. *Payavard*. 2011; 5(1):47-57. [Persian]
 25. Anaraki A. *Effect of healthy lifestyle education on elderly's knowledge in Bushehr province [Dissertation]*. Bushehr: Bushehr University of Medical Sciences; 2008. [Persian]
 26. Hejazi S, Sahbaiee F, Fesharaki M, Abdollahi A. The effect of education about health-promoting behaviors on the knowledge of the elderly in the geriatric nursing residences in Tehran (2009). *J Birjand Uni Med Sci*. 2012; 19(1):114-21. [Persian]
 27. Firoozeh Moghadam B, Sohrabi. The effectiveness of happening training to increase the hope in the elderly people. *SIJA*. 2014; 8(4):67-72. [Persian]
 28. Gholammohammadi H, Foroughan M, Bahrami F, Younesi S, Farzi M. The effectiveness of religious component training on meaning of life of elderly men resident in Sanatorium. *MEJDS*. 2013; 3(2):34-42. [Persian]
 29. Khavoshi N, Tol A, Shojaeizade D, Shamshiri A. Effect of educational intervention on the lifestyle of elderly people referred to clinical centers of Eslamshahr, Iran: application of health belief model. *JNE*. 2015; 3 (4) :19-28. [Persian]
 30. Mahdi H, Maddah S M B, Mahammadi F. The effectiveness of self-care training on quality of life among elderlies with diabetes. *IJRN*. 2016; 2(4):32-39. [Persian]
 31. Hekmatpou D, Shamsi M, Zamani M. The effect of healthy lifestyle educational programs on the quality of life of the elderly in Arak. *AMUJ*. 2013; 16(3):1-11. [Persian]
 32. Mazloomi Mahmoodabad S, Masoudy G, Fallahzadeh H, Jalili Z. Education based on precede-proceed on quality of life in elderly. *Global J of Health Sci*. 2014; 6(6):178. Doi:10.5539/gjhs.v6n6p178

33. Malekafzali H, Eftekhari MB, Hejazi F, Khojasteh T, Noot RH, Falahat K, et al. The effectiveness of educational intervention in the health promotion in elderly people. *Iran J Public Health.* 2010; 39(2):18. PMID: 23113002
34. Farhadi A, Foroughan M, Mohammadi F, Sahranavard M. The effect of healthy lifestyle educational program on rural elderly's quality of life in Dashti district of Boushehr province. *SIJA.* 2013; 8(3):35-43. [Persian]
35. Abedi G, Naghibi A, Alizadeh M, Faghrzadeh H, Sharifi F, Rezaei Rad M, et al. Efficacy of the two educational methods: Traditional and electronic techniques in training of nutritional aspect to healthy life style in elderly. *IJDL.* 2013; 13(1):9-20. [Persian]
36. Nejaddadgar N, Shojaeizadeh D, Tol A, Hossaini SM, Amani F. Assessing the effect of blended educational program based on health belief model on adopting preventive behaviors in alzheimer among elders under covering Ardebil health care setting. *J Nurs Educ.* 2015; 3(10):19-28.
37. Hazavehei M M, Faghih Solaimani P, Moeini B, Soltanian A R. Evaluation of the educational nutrition intervention's effects on healthy nutritional behaviors promotion in elderly of Sanandaj: Application BASNEF model. *J Neyshabur Univ Med Sci.* 2017; 5(1):39-51. [Persian]
38. Matin H, Afkari M E, Taghdisi M H. The Effect of an educational intervention based on the PRECEDE model on quality of life improvement in the elderly affiliated with Tehran culture house for the aged-2009. *Iran J Health Educ Health Promot.* 2013; 1(1):21-33. [Persian]
39. Najimi A, Sharifirad G, Hasanzadeh A, Azadbakht L. Effect of nutrition education on nutritional behaviors and glycemic control indices based on BASNEF model among elderly with type 2 diabetes. *JIMS.* 2011; 29(155):1247-58. [Persian]
40. Najimi A, Azadbakht L, Hassanzadeh A, Sharifirad G R. The effect of nutrition education on risk factors of cardiovascular diseases in elderly patients with type 2 diabetes: A randomized controlled trial. *IJME.* 2011; 13(3):256-63.
41. Sabzmakan L, Hazavehei S, Morowati Sharifabad M, Hasanzadeh A, Rabiee K, Sadeqi M. The effect of PRECEDE Model-based educational program on depression level in patients with coronary artery bypass grafting. *Asian J Psychiatr.* 2010; 3(2):79-83. [Persian]
42. Sharifirad GR, Ghaffari M, Zanjani S, Hassanzadeh A. The effectiveness of educational intervention based on PRECEDE model on the level of stress among the elderly at elderly clubs. *JEHP.* 2013; 2(1):11-6. Doi: 10.4103/2277-9531.106641
43. Amini Moridani MR, Tol A, Sadeghi R, Mohebbi B, Azam K. Assessing the effect of family-based intervention education program on perceived social support among older adults with type 2 diabetes: Application of social cognitive theory. *J Nurs Educ.* 2015; 4(3):30-40. [Persian]
44. Rabiei L, Mostafavi F, Masoudi R, Hassanzadeh A. The effect of family-based intervention on empowerment of the elders. *J Edu Health Promot.* 2013; 2(1):24. Doi: 10.4103/2277-9531.112700.
45. Karimi Z, Majlesi F, Tol A, Rahimi Foroushani A, Sahaf R, Ali Gol M, et al. The effect of educational intervention on the promotion of physical activities of the elderly men in Qom city: Application of trans-theoretical model. *SIJA.* 2015; 10(3):182-91. [Persian]
46. Bekisheva TG, Kovalenko NA, Gasparyan GA. E-learning as a model of lifelong education for older adults. *EpSBS.* 2017; 19: 67-73. Doi: 10.15405-epsbs.2017.01.9
47. Detroyer E, Dobbels F, Teodorczuk A, Deschodt M, Depaifve Y, Joosten E, et al. Effect of an interactive E-learning tool for delirium on patient and nursing outcomes in a geriatric hospital setting: Findings of a before-after study. *BMC geriatrics.* 2018; 18(1):19. Doi: 10.1186/s12877-018-0715-5.
48. Ferreira RM, Alves WMGDC, Lima TA, Alves TGG, Alves Filho PAM, Pimentel CP, et al. The effect of resistance training on the anxiety symptoms and quality of life in elderly people with Parkinson's disease: A randomized controlled trial. *Arq Neuropsiquiatr.* 2018; 76(8):499-506. Doi: 10.1590/0004-282X20180071
49. Kallio EL, Öhman H, Hietanen M, Soini H, Strandberg TE, Kautiainen H, et al. Effects of cognitive training on cognition and quality of life of older persons with dementia. *J Am Geriatr Soc.* 2018; 66(4):664-70. Doi: 10.1111/jgs.15196
50. Chesser AK, Keene Woods N, Smothers K, Rogers N. Health literacy and older adults: A systematic review. *Gerontol Geriatr Med.* 2016; 2:1-13. Doi: 10.1177/2333721416630492
51. Botturi L, Cantoni L, Lepori B, Tardini S. Fast prototyping as a communication catalyst for e-learning design. Making the transition to e-learning: Strategies and issues; 2006. Doi: 10.4018/978-1-59140-950-2.ch016
52. Taran C. Enabling SMEs to deliver synchronous online training—practical guidelines. *Campus-Wide Information Systems.* 2006; 23(3):182-95. Doi: 10.1108/10650740610674193
53. Naderyan S, Sahaf R, Akbari Kamrani AA, Abolfathi Montaz Y, Ghasemzadeh H, Papi S. Physical activity among Iranian former sportsmen and athletes as possible evidence for continuity theory of aging. *IRJ.* 2019; 17 (2) :141-148. DOI: 10.32598/irj.17.2.141