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Comparison of the Effects of Healthy Lifestyle Education Program Implemented by Peers and Community Health Nurses on the Quality of Life of Elderly Patients with Hypertension

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Abstract

Background: Considering the global rise in the elderly population and the common complications of this group (especially chronic diseases), significant attention is being paid to improving their quality of life (QOL).

Aim: This study aimed to compare the effectiveness of a healthy lifestyle education program, implemented by peers and community health nurses in improving QOL among elderly patients with hypertension, who were referred to healthcare centers of Mashhad, Iran in 2014.

Method: This experimental study was conducted on 60 elderly patients with hypertension, referring to healthcare centers of Mashhad, Iran in 2014. The subjects were selected via random cluster sampling. The control group does not receive any intervention at all, while the two other intervention groups received healthy lifestyle education by their peers or community health nurses for one month; the subjects were followed-up for one month after the intervention. Data were collected by the 36-item short-form health survey (SF-36) questionnaire and analyzed, using SPSS version 16.0.

Results: No significant difference was observed between three groups in overall QOL score and its domains before the intervention ($P=.91$). After intervention, a statistically significant difference was observed in the overall QOL score between three groups ($P<.05$). The results of one-way ANOVA revealed significant differences among groups in terms of role limitations due to physical health ($p=.04$), physical functioning ($p<.001$), bodily pain ($p<.03$), role limitations due to emotional problems ($p=.01$), and emotional well-being ($p<.04$) after intervention. Post-hoc test showed that there was no significant difference between the nurse and peer groups ($p=1.00$), but the difference between the nurse and control groups ($p=.04$) and peer and control groups ($p=.04$) was statistically significant.

Implications for Practice: Based on the findings, education by peers and healthcare workers plays an important role in the adaptation of elderly patients to a healthy lifestyle. Therefore, it seems that using these two strategies can improve the overall health status as well as QOL for older adults.

Keywords: Healthy lifestyle education, Peer, Community health nurse, Elderly, Quality of life

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Introduction

Today, considering the increased life expectancy and reduced fertility rate, the elderly population is growing, worldwide. Consequently, aging of the population has become one of the most important public health concerns (1). According to a report by the United Nations in 2009, the number of individuals, aged 60 years or above was estimated at 737 million, worldwide. The elderly population is expected to increase to two billion by 2050, with developing countries accounting for two-thirds of this population (2).

In Iran, studies and statistical indicators have highlighted the rapid growth in the elderly population. In fact, the annual growth rate in the country is nearly 1.7%, and the growth rate in the population over 60 years of age is estimated at 2.5% (3). Based on the National Census of Population and Housing, nearly 8.2% of the population was over 60 years in 2012.

Advancing age is associated with the increased risk of developing chronic diseases. Hypertension is among the most common chronic diseases, associated with aging. This condition is regarded as the most important public health concern in many countries (5). Based on previous reports, about 1.2 billion people suffered from high blood pressure by 2010, worldwide. Moreover, it has been estimated that 1.56 billion individuals will present with hypertension by 2025 (6).

Hypertension, similar to other chronic diseases, is closely associated with lifestyle, mental health, and QOL. If this condition is not promptly and properly managed, it can lead to various unpleasant side-effects (7). High blood pressure is certainly an important cause of disorders such as stroke, renal failure, major disabilities, reduced productivity, and ultimately reduced QOL (8).

Today, considering the multiple dimensions of health, various definitions have been proposed for QOL in health assessment. The World Health Organization (WHO) defines QOL as an individual's perception of his/her position in life in the context of culture and value systems in which he/she lives (9, 10). One of the major goals of WHO is to promote healthy lifestyle in different communities by 2020. Therefore, countries should implement effective strategies to improve individuals' personal and social life (10) and diminish factors which promote unhealthy lifestyle such as inadequate physical activity, poor nutrition, and substance abuse (11).

According to the literature, hypertensive patients have a lower QOL, compared to normotensive individuals due to various dietary restrictions and changes in daily physical activity and recreational sport activities. In addition, lack of treatment for hypertension and need for adherence to a regular, long-term diet can impose a substantial psychological burden on patients and induce negative impacts on QOL (12); therefore, proper and effective measures should be taken in this regard.

Education, as a way of conveying concepts, new achievements, and scientific findings, plays an important role in learning and improving learners' performance in the scientific community (13). On the other hand, education is one of the major aspects of nursing activity, which can improve patient health and prevent complications.

Community health nurses are aware of the health needs of the elderly and help them achieve the highest possible level of health with their health-based perspective. The role of nurses in patient training is to help them cope with the disease and encourage their active, informed participation in the management and prevention of complications. Also, nurses can support the elderly and their family members in their effort to attain optimal health. Community health nurses can provide training, counseling, and care for the patients and help them understand their needs and solve their health problems. In other words, these nurses play an important role in improving QOL in the elderly by teaching self-care skills (14).

Today, different educational methods such as face-to-face training and group discussion are employed to train elderly patients with hypertension. However, based on the findings of several studies, elderly hypertensive patients have a low QOL; therefore, use of other teaching methods in this area is necessary for the patients.

Peer education is now viewed as an effective behavioral strategy (16). Peer refers to one that is of equal standing with another and belongs to the same societal group, especially in terms of age, sex, occupation, socioeconomic or health status, and other factors. Peer education is a process in which the recruited peer educators are trained on relevant health information and communication skills. Skillful peer educators engage their peers in conversations about the issue of concern, seeking to promote health-enhancing knowledge and skills. AIDS preventive education (17), diet (18), and breast self-examination (19) are among the topics, discussed in this context.

Contradictory findings have been reported on the impact of peer education, compared to other training strategies. To the best of our knowledge, no previous study has compared the effectiveness of a healthy lifestyle education program, implemented by peers and community health nurses in improving QOL among elderly patients with hypertension.

So far, the importance of education and benefits of peer education in meeting people's needs and increasing their independence have been highlighted. Given the economic and social benefits of peer education in health improvement, we conducted this study to compare the effects of peer education and nurse-guided education on QOL in elderly patients with hypertension.

Methods

This three-group experimental study was conducted on 60 elderly patients with hypertension, who were referred to healthcare centers of Mashhad, Iran in 2014. After obtaining informed consent patients were randomly divided into three groups. The inclusion criteria were as follows: age of 60 years or above, ability to speak Farsi, absence of visual or hearing impairments, mental disorders, debilitating diseases, and substance abuse. The exclusion criteria were hospitalization for acute diseases, 2) absence from more than one session of the educational course, and social and family conflicts at the time of study.

The subjects were selected via purposeful sampling and were randomly assigned to three groups: peer education, nurse-guided education, and control groups. The inclusion criteria for the peers were as follows: Iranian nationality, residing in Mashhad, telephone access, basic education, prior history of hypertension, and age of 60 years or above. The exclusion criteria for the peers were peer's absence from more than one educational session.

After explaining the study objectives to the participants and obtaining informed consents, 60 elderly patients, who met the inclusion criteria, were assigned to peer education (n=20), nurse-guided education (n=20), and control (n=20) groups. The training course by community health nurses entailed four 45-60 min sessions. The lesson plan included questions, answers, lectures, and group discussion.

For the selection of peer educators, five subjects, who met the criteria (i.e., hypertension, ability to run meetings, fewer disease symptoms, a minimum five-year history of hypertension, high educational level, and interest in leadership), were selected by the researcher to educate the patients in the study groups. Then, based on patient needs, the one-hour training course (five sessions) was held by the researcher for preparing the peer educators group. In these meetings, the peers discussed their experiences in terms of disease control strategies.

Peer educators' skills in training, supervision, and class management were evaluated. Over five sessions, the peers, who were approved by the researcher, were fully prepared to educate the participants. After holding the training course for peer educators, 20 subjects in the peer education group were allocated to five separate groups (four subjects per group), and the peer educators, who were trained by the researcher, were randomly allocated to a group. The content and implementation of the training program were similar for all the groups.

In collaboration with peer educators, four sessions of training and support were held (45-60 min) in the healthcare centers by the researcher as an observer. In the training course, the subjects were introduced to each other and the educator and shared their experiences on hypertension symptoms and problems (first session), definition of hypertension and its causes, symptoms, diagnosis, treatment, and measurement techniques (second session), and strategies for QOL improvement, e.g., nutrition, physical activity, and drug use (third and fourth sessions).

At the end of each session, the subjects received a pertinent educational pamphlet. To follow-up the implementation of the program, QOL questionnaire was completed by the subjects a month following the intervention. It should be noted that the control group did not receive any interventions.

Data collection tools consisted of a demographic questionnaire (including data on demographic characteristics and disease) and 36-item short-form health survey (SF-36) for the assessment of QOL. SF-36 questionnaire includes 36 items and measures QOL across eight emotional and physical domains: physical functioning; role limitations due to physical health; role limitations due to emotional problems; vitality (energy/fatigue); emotional well-being; social functioning; bodily pain; general health."

In the SF-36 questionnaire, each item is scored from 0 to 10. The overall score is graded as follows: excellent: 80-100, very good: 60-79, good: 40-59, fair: 20-39, and poor: 0-19. The respondents rated questions 1, 2, 20, 22, and 32-36 using a five-point Likert scale, questions 3-12 using a three-point Likert scale, questions 13-19 using a two-point Likert scale, and questions 21 and 23-31 using a six-point Likert scale.

The validity of the demographic questionnaire and registration form of peer educator selection was determined via content validity. The content validity of SF-36 questionnaire was confirmed by seven faculty members of Mashhad University of Medical Sciences, and its reliability was confirmed, using Cronbach's alpha ($\alpha=.54-.92$). Since the demographic questionnaire and the registration form were unambiguous and adopted in various studies (prepared in consultation with supervisors), they were considered as reliable tools.

The required sample sizes were calculated according to the similar study (20) using the following formula for comparing means of two groups ($m_1=50.4$, $m_2=56.3$, $s_1=4.7$, $s_2=3.56$). At a level of $\alpha = 0.05$ with a power of 0.8, the sample size calculation was 11 in each groups; we therefore, recruited 60 patients (20 in each group) to account for any dropouts.

The obtained data before and after the intervention were analyzed, using paired t-test, t-test, and correlation tests. To compare the three groups in terms of QOL before and after the intervention, analysis of variance (Kruskal-Wallis test as its non-parametric equivalent) and Tukey's test (or Scheffe and Bonferroni methods) were employed. In order to compare QOL before and after the intervention in each group, paired t-test (Wilcoxon test as its non-parametric equivalent) was used. Mauchly's sphericity test was used to test for equality of variances. Also, for assessing the confounding and underlying variables, analysis of covariance, and two-way analysis of variance were applied. Statistical analysis was performed, using SPSS version 16. P-value less than .05 was considered statistically significant.

Results

Based on the results of this study, in the nurse-guided education group, the mean age of the subjects was 66.10(SD=3.6) years. Also, the mean age of the subjects was 66.35(SD=4.1) years in the peer education group and 67.10(SD=4.3) years in the control group, respectively; overall, the mean age of the subjects was 66.8(SD=4.0) years. The results showed that the majority of participants lived with their partners (40%).

The biggest frequency belongs to literate in the nurse-guided education group (35%). Most subjects had elementary school education ($n=10$) in the peer education group, and 40% had elementary school education in the control group. Moreover, the majority of participants in all groups were housewives (43.3%). Only 21.7% of the subjects had participated in a training course over the past six months, while 78.3% had not participated in any training courses within the same period. The three groups were not significantly different in terms of demographic characteristics. The demographic characteristics of the study sample are presented in Table 1.

Table 1: Comparison of subjects' demographic characteristics in the three groups

Variables		Peer education group	Nurse-guided education group	Control group	Test results	P-value
Gender	Male Number (%)	10 (50%)	14 (70%)	13 (65%)	$X^2= 1.83$ df=2	0.40
	Female Number (%)	10 (50%)	6 (30%)	7 (35%)		
Age Mean (SD)		66.35± 4.1	66.10±3.6	67.9±4.3	F= 1.12	0.33
History of formal education	Yes Number (%)	4(20%)	6(30%)	4(20%)	$X^2=.67$ df=2	0.56
	No Number (%)	16(80%)	14(70%)	16(80%)		

Based on the ANOVA test results the between-group comparison, no significant difference was found in terms of overall QOL scores before the intervention between the groups ($P=0.91$). After the intervention, the highest score in overall QOL was obtained in the nurse-guided education group, while the control group obtained the lowest score. According to ANOVA test results, the difference between the three groups was statistically significant in terms of overall QOL after the intervention ($P<0.05$) (Table 2). Moreover, regarding the intra-group comparison, the results showed that the overall QOL score increased in all groups. Also, paired t-test results showed that the increase in the mean score was statistically significant in two intervention groups ($P<0.001$) (Table 2).

Table 2: Comparison of the mean scores of overall QOL before and after the intervention in the study groups

Group	Before the intervention Mean (SD)	After the intervention Mean (SD)	Intra-group comparison	Difference between the two stages of the study Mean (SD)
Nurse-guided education	49.7±16.0	6.9±12.1	T=8.39 P<0.001	11.2±6.0
Peer education	49.4±15.4	6.5±11.0	T=7.41 P<0.001	11.1±7.0
Control	51.3±16.0	56.1±14.6	T=4.63 P=0.07	4.8±4.6
Between-group comparison	F=0.10 P=0.91	F=0.90 P<0.05	-	F=7.9 P<0.01

There was no significant difference in all QOL domain scores before the intervention between the groups ($P>0.05$). But after intervention, the results of one-way ANOVA revealed significant differences among groups in terms of role limitations due to physical health ($p<0.006$), physical functioning ($p<0.001$), bodily pain ($p<0.03$), role limitations due to emotional problems ($p<0.01$), and emotional well-being ($p<0.006$). However there was no significant difference between groups with respect to general health ($p=0.80$), vitality (energy/fatigue) ($p=0.53$), and social functioning ($p=0.62$) (Table 3). Post-hoc test results showed that there was no significant difference between the nurse and peer groups ($p=1/00$), but the difference between the nurse and control groups ($p=0.04$) and peer and control groups ($p=0.04$) was statistically significant.

Table 3: Comparison of the mean scores of QOL domains before and after the intervention in the three groups

Groups	QOL domain score Mean (SD)															
	Role limitations due to physical health		Physical functioning		Role limitations due to emotional problems		Vitality (energy/fatigue)		Emotional well-being		Social functioning		Bodily pain		General health	
	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After	Before	After
Nurse-guided education	46.2(34.7)	76.3(17.2)	59.5(14.3)	71.5(13.0)	4.0(35.2)	6.0(27.8)	48.8(9.4)	52.8(6.6)	55.4(7.3)	54.5(4.3)	56.3(16.0)	62.5(9.1)	58.0(15.4)	67.0(12.1)	37.8(21.7)	48.5(19.5)
Peer education	43.7(33.3)	62.5(23.7)	6.0(18.4)	67.0(14.9)	31.7(33.3)	78.3(19.6)	51.3(7.6)	53.8(5.8)	55.6(4.1)	58.5(3.8)	54.3(13.0)	6.0(8.7)	57.2(17.0)	59.6(13.9)	4.2(22.2)	45.0(19.1)
Control	5.0(38.9)	52.5(25.5)	58.3(17.1)	61.8(15.3)	43.3(4.7)	53.3(31.3)	5.7(8.5)	51.2(8.4)	52.0(8.5)	52.6(7.7)	63.1(18.0)	63.8(17.1)	54.2(16.8)	54.9(16.6)	57.5(21.5)	44.8(2.0)
Between-group comparison results	F=.16 P=.86	F=5.67 P=.04	F=.06 p=.94	F=9.8 P<.001	F=.54 P=.59	F=4.70 P=.01	F=.48 P=.26	F=.64 P=.53	F=.73 P=.19	F=5.67 P=0.04	F=1.70 P=.19	F=.50 P=.62	F=.29 P=.75	F=3.64 P=0.03	F=1.07 P=.34	F=.23 P=.80

Discussion

In this study, we aimed to compare the effectiveness of healthy lifestyle education by peers and community health nurses in improving QOL of elderly patients with high blood pressure. The results of the present study showed an increase in QOL score after implementing the healthy lifestyle education program by peers and community health nurses. These findings were in line with the results reported by Hamidizadeh (2009), who evaluated the effect of group exercise on QOL in the elderly. In their study, the physical performance of individuals in the intervention group significantly improved (21).

In the present study, by implementing the healthy lifestyle program in four sessions (45-60 min), the mean QOL score in the physical dimension improved. Given the fact that community health nurses are experts and familiar with the principles of patient education, QOL improvement through peer and nurse-guided education seems logical.

According to the results of several studies, physical activity can improve individuals' leisure time, improve their sleep pattern, enhance their mental performance, and improve the flexibility of the joints (especially among elderly patients) (22). The Ministry of Public Health has put great emphasis on promoting health, physical functioning, independence, and mobility in the elderly. In fact, physical activity has the potential to positively influence QOL.

Active aging is described as living life to the greatest extent for the longest time possible. Mental and physical health, mobility, hopefulness, family members, and friends can improve active aging (23). In the present study, improvement in physical health in the peer education group reflects the positive impact of peer education and shows the necessity of establishing supportive groups for elderly patients.

In general, group members have a sense of belonging and feel comfortable around each other, given the similarities in their problems and experiences. In this regard, Guallar et al. (2005) suggested that retirement can lead to the social isolation of the elderly. Therefore, they should be allowed to continue their activities by retirees, who still have the spirit and ability to meet their responsibilities (24).

In the present study, the mean QOL score in the mental dimension was reported to be higher in the peer education group, compared to other groups. Based on a study by Lieberman (2003), participation in the peer education program improved mental function in patients with breast cancer (25); this finding was consistent with the results of the current study.

Moreover, a study by Kumakech and colleagues (2009), which aimed to assess the impact of peer support on the mental health of children affected by AIDS, showed that this type of intervention could reduce psychosocial distress, particularly the symptoms of depression, anxiety, and nervousness in the experimental group; these findings were congruent with the results of the present study (26).

In a study by Kargar (2013), entitled "the effect of osteoporosis prevention education by peers and health personnel on self-efficacy of adolescents with nephrotic syndrome", it was concluded that peer education and healthcare training are equally effective (27). Moreover, in a study by Khalaj Abadi on AIDS prevention (2004), intervention for adults significantly increased the self-efficacy score in AIDS prevention, compared to the control group; however, no significant difference was observed between the two groups (28).

According to a study by Abbaspour and colleagues (2007), peer education was more effective than training by healthcare workers (29); on the contrary, the reported findings were not similar to the present study. The discrepancy between the findings reported in different studies may be attributed to peers' inability to transfer proper scientific content to the target group.

Overall, selection of an effective educator, who is accepted by others and has the ability to control the group, is an essential requirement for peer education; in fact, this might have resulted in discrepancy between the findings of different studies. Peers with the help of healthcare workers play an important role in identifying health hazards and helping clients choose a healthy lifestyle in the community; therefore, empowerment of this group can affect their efficiency and ultimately improve public health (30).

Implications for Practice

The results of the present study showed no significant relationship between QOL and age. This finding was in line with the results reported by Bani-Issa (2011), Habibi (2012), and Porogan (2012)

(31-33) and inconsistent with studies by Hellstrom (2004) and Mohammad Pour (2008) (34, 35), which reported a decline in QOL by advancing age.

In this study, there was no significant relationship between the mean score of QOL and gender, which was in line with the results reported in the study by Bani-Issa (2011) (31). Indeed, not only gender affects QOL, but also other gender-related factors have impacts on QOL. In a study by Lee et al. (2003), functional disability in women caused a decline in their QOL (36).

Low QOL in women may be due to their greater attention to their disease symptoms and health problems. Also, limitations in physical activity outside the house, oversensitivity to traumatic events, and onset of menopause are known as the major factors contributing to the difference in women's QOL (33). This finding was not quite in line with the results reported by Redekop (2002) (37), Alipoor (2008) (38), and Habibi (2012) (32).

In this study, both educational methods were reported to be effective in improving subjects' QOL. Peers with the help of healthcare workers play an important role in identifying health hazards and helping clients choose a healthy lifestyle in the community. Therefore, empowering this group can affect their efficiency and ultimately improve public health. According to the obtained results, it seems that the continuation of this program can stabilize the positive changes. Considering the fact that this study was conducted on elderly women and men in an informal training center, comparison of the effectiveness of these two methods (i.e., peer education and training by community health nurses) is distinctive.

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Conflict of interest

The authors declare that there is no conflict of interest.

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