

The Effect of Educational Intervention Based on Model 5A Self-Management Theory on Life Quality in Hypertensive Patients

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Research

Keywords: self-management, quality of life, hypertension

Posted Date: December 10th, 2019

DOI: <https://doi.org/10.21203/rs.2.18395/v1>

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Abstract

Background: Hypertension is a major risk factor in heart failure, arterial aneurysms, peripheral arterial disease, chronic kidney disease, stroke and myocardial infarction.

Methods: This study was an experimental study. From patients with hypertension presenting to karaj Health Center, 90 patients were selected according to the eligibility criteria and were assigned randomly to two groups, the intervention group (45 patients) and the control group (45 patients). The data were collected through questionnaires. Educational intervention based on self-management theory was designed in 5A method and implemented in the intervention group. The data was collected in three times including before the intervention, 1 month after the intervention and 3 months after the educational intervention. data were analyzed using SPSS software and statistical methods number, percentage, mean, standard deviation and repeated measure test.

Results: The results showed that the mean score of various domains of life quality (physical domain, psychological domain, social domain, environmental domain) and total score of life quality in the intervention group increased significantly compared to the control group after the educational intervention.

Conclusion The results of the study showed that using self-management program is effective in improving the life quality of hypertensive patients.

Background

Hypertension is a major risk factor in heart failure, arterial aneurysms, peripheral arterial disease, chronic kidney disease, stroke and myocardial infarction [1]. According to the National Center for Health Statistics, hypertension was the leading cause of death for more than 41,000,000 American patients (1,100 deaths per day) in 2014, costing \$ 41.8 billion for health care services, antihypertensive drugs and lost working days of the patients [2]. According to the latest studies, the prevalence of hypertension in Iran is about 18% [3]. This disease is asymptomatic and the person may suffer from it for years unknowingly [4, 5]. Given the increasing number of hypertensive patients in Iran and in the world as well as the adverse effects of this disease on life quality, the life quality of this group of patients is of great significance [6, 7]. Health-based life quality refers to a condition where the patient is emotionally, socially, and physically satisfied [8]. The study used self-management theory to improve the life quality of hypertensive patients. The purpose of self-management theory is one's own empowerment, and in fact it is in such a way that one's own participation is essential [9]. Active involvement of the patients in taking care of themselves and increasing their responsibility help control the symptoms and complications of the disease and help the individuals maintain their independence to a large extent, thus reducing the patients' dependence on the medical staff and other family members that improves the quality of life of these people as well [10, 11]. Moreover, the cost of frequent hospitalization reduces, and the hospital beds are not occupied in vain, so that the person can work as a young workforce in the family and community

[12, 13]. From among the models and programs used in self-management, Model 5A, known as behavior change counseling, is an evidence-based approach appropriate for behavior modification and health promotion, which has five steps: Assess, Advise, Agree, Assist, and Arrange [14, 15]. Regarding this, the results of other studies have shown the effectiveness of 5A self-management program [16, 17]. As few studies have been done on 5A self-management in hypertensive patients and since achieving quality of life needs active participation of patients in their care, the study tried to examine the effect of self-management program on the quality of life of hypertensive patients to reduce hospital stay and improve the life quality of patients.

Methods

Study design

The study was an empirical study with control to determine the effect of educational intervention based on Model 5A self-management theory on life quality in hypertensive patients admitted to health centers in Karaj, Iran. The sample size was determined to be 90 according to field studies and previous examinations and also regarding the type of study and the use of relevant statistical formula. They were randomly divided into two groups of control ($n = 45$) and intervention ($n = 45$). The data were collected through 2 questionnaires. The first questionnaire was a demographic questionnaire. It included one item to examine the demographic variables such as sex, age, job, education, marital status, family history of disease and length of disease. The second questionnaire was the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF) (SF-26). It is a 26-item questionnaire assessing four aspects of physical health, mental health, social relationships, and environmental health with 24 questions. Each of the quality of life domains had 7, 6, 3, and 8 questions, respectively, and two questions that did not belong to any of the domains assessed the general health and quality of life. The questionnaire was in the form of a 5-point Likert scale. The validity and reliability of the quality of life questionnaire were also confirmed by correlation values and Cronbach's alpha of above 0.7 [18]. After necessary explanation on the goals and stages of the study, the questionnaires were given to the patients and they completed them. Using the data from the questionnaire, the life quality of the samples was evaluated and the educational intervention using self-management theory was done for intervention group in 5 stages. The intervention included running 5A self-management training program implemented for 3 months in 5 stages: 1. Assess stage: In this stage, the patient was assessed in terms of risk factors, disease history, drug use, nutrition, and physical activity through face-to-face interviews. 2. Advise stage: At this stage, according to the results of the assessments of previous stage, the identified health hazards were informed to the patient and the benefits of behavior change were emphasized. 3. Agree stage: An agree between patient and researcher on setting the goals; An agreement was reached between the patient and the researcher on patient performance and appropriate behavioral and goals were set in an agreement with patient and an action plan was designed for each of the goals and patients were asked to record their performance about each behavioral goal in daily basis. 4. Assist stage: Trainings such as blood pressure management, stress management, and so on were provided to patients. Patients were asked to perform them daily and

record their performance. 5. Arrange stage: During this stage, patients' performance was followed-up by telephone and in person for 3 months to remind the action plan. Moreover, the status of patients' progress was monitored monthly, with an agreed practice plan, and a patient self-report booklet was reviewed to make the necessary changes in goals or action plans if needed. One month and three months after the intervention, the questionnaires were re-completed and data were collected. After collecting the questionnaires, data were analyzed using SPSS software and statistical methods number, percentage, mean, standard deviation and repeated measure test.

Results

As shown in Table 1, most participants were male, so that 66.7% and 62.2%, of the patients were male in the control and intervention groups, respectively. 100% of the patients in all tow groups were married. Concerning the education level in control group, the highest frequency was in illiteracy (28.9%) and the lowest was in academic literacy (8.9%). In the intervention group, the highest frequency was related to guidance school level (28.9%) and the least to academic literacy (6.7%). In terms of occupational status in the control group, the highest frequency was related to housewife (31.1%) and self-employed (31.1%) and the lowest to unemployed (4.4%). In the intervention group, the highest frequency was related to self-employed jobs (28.9%) and the lowest to employee (2.2%). With regard to family history of hypertension, in the control group, 57.8% of patients had family history of hypertension, in the intervention group, 53.3% had family history of hypertension.

Table 1

Demographic characteristics of hypertensive patients based on gender, marital status, education level, job and Family history of hypertension in control and intervention groups

Demographic Characteristics		Control group		Intervention group	
		Frequency	Percentage	Frequency	Percentage
Gender	male	30	66.7	28	62.2
	female	15	33.3	17	37.8
	total	45	100	45	100
Marital Status	single	0	0	0	0
	married	45	100	45	100
	total	45	100	45	100
Education Level	illiterate	13	28.9	9	20
	elementary	9	20	11	24.4
	guidance	8	17.8	13	28.9
	High school	11	24.4	9	20
	university	4	8.9	3	6.7
	total	45	100	45	100
Job	unemployed	2	4.4	4	8.9
	housewives	14	31.1	12	26.7
	worker	7	15.6	6	13.3
	Self employed	14	31.1	13	28.9
	employee	3	6.7	1	2.2
	retired	5	11.1	9	20
	total	45	100	45	100
Family History of Hypertension	yes	26	57.8	24	53.3
	no	19	42.2	21	46.7
	total	45	100	45	100

the results of the present study showed that the mean age of patients in the control group was 51.44 years, in the intervention group, it was 52.77 years. the mean duration of hypertension was 3.35 years in the control group, 3.93 years in the intervention group.

Table 2

Results of repeated measure test to compare various domains of life quality in control and intervention groups, prior to intervention, 1 month after intervention and 3 months after educational intervention

Quality of Life domains	Time	Control group			Intervention group		
		Mean	SE	Confidence interval 95%	Mean	SE	Confidence interval 95%
physical domain	Pre intervention	18.86	0.346	19.55–18.18	18.77	0.346	19.46–18.09
	1month after intervention	18.84	0.346	19.53–18.16	24.28	0.239	24.76–23.81
	3month after intervention	17.85	0.338	18.52–17.18	23.62	0.265	24.14–23.09
Psychological Domain	Pre intervention	14.55	0.280	15.10–13.99	15.13	0.286	15.69–14.56
	1month after intervention	15.57	0.286	16.14–15.01	21.04	0.216	21.47–20.61
	3month after intervention	15.53	0.286	16.11–14.95	20.04	0.216	20.47 – 19.61
Social Domain	Pre intervention	6.85	0.194	7.23–6.46	7.40	0.199	7.79–7
	1month after intervention	7.51	0.199	7.90–7.11	9.57	0.144	9.86–9.29
	3month after intervention	7.44	0.199	7.58–7.09	9.57	0.144	9.86–9.29
Environmental Domain	Pre intervention	19.46	0.458	20.37–18.56	18.73	0.458	19.64–17.82
	1month after intervention	19.13	0.458	19.95–18.32	24.71	0.367	25.43–23.98
	3month after intervention	18.73	0.458	19.64–17.82	25.66	0.356	26.37–24.96
Total Score of Quality of Life	Pre intervention	66.82	1.20	69.20–64.43	65.24	1.20	67.62–62.86
	1month after intervention	66.45	1.20	68.90–64.01	86.84	0.801	88.43–85.25
	3month after intervention	65.31	1.20	68.61–63.01	84.06	0.871	85.78–82.34

The results of Table 2 showed that in the control group and at the first measurement phase, 95% confidence interval for the mean score of quality of life in the physical domain was in the range of 18.18–19.55, and it was 13.99–15.10 for psychological domain, 6.46–7.23 for social domain, 18.56–20.37 for environmental domain, and 64.43–69.20 for total score of quality of life. one month after the first stage measurement, 95% confidence interval for the mean score of quality of life in the physical domain was in the range of 18.16–19.53, and it was 15.01–16.14 for psychological domain, 7.11–7.90 for social domain, 18.32–19.95 for environmental domain, and 64.01–68.90 for total score of quality of life. 3 months after the first stage measurement, 95% confidence interval for the mean score of quality of life in the physical domain was in the range of 17.18–18.52, and it was 14.95–16.11 for psychological domain, 7.09–7.58 for social domain, 17.82–19.64 for environmental domain, and 63.01–68.61 for total score of quality of life. As the confidence interval between the various domains of life quality and overall life quality score, overlap one month after the first stage measurement and 3 months after the first stage measurement relative to the first measurement phase, one can conclude that repeated measure test did not show any significant differences in the control group.

But in the intervention group before the educational intervention, 95% confidence interval for the mean score of quality of life in the physical domain was in the range of 18.09–19.46, and it was 14.56–15.69 for psychological domain, 7.77–7.79 for social domain, 17.82–19.64 for environmental domain, and 62.86–67.62 for total score of quality of life. one month after the educational intervention, 95% confidence interval for the mean score of quality of life in the physical domain was in the range of 23.81–24.76, and it was 20.61–21.47 for psychological domain, 9.29–9.86 for social domain, 23.98–25.43 for environmental domain, and 85.25–88.43 for total score of quality of life. three months after the educational intervention, 95% confidence interval for the mean score of quality of life in the physical domain was in the range of 23.09–24.14, and it was 19.61–20.47 for psychological domain, 9.29–9.86 for social domain, 24.96–26.37 for environmental domain, and 82.34–85.78 for total score of quality of life. As the confidence interval between the various domains of life quality and overall life quality score, did not overlap one month after the educational intervention and 3 months after the educational intervention relative to before the educational intervention, one can conclude that repeated measure test did show significant differences in the intervention group.

Discussion

Regarding the effect of self-management theory on life quality in hypertensive patients in the study, one can conclude that self-management program can improve and enhance the life quality in all its aspects, and can reduce the problems to some extent by empowering hypertensive patients regarding their disease management. The results showed that self-management interventions were effective in improving the life quality in hypertensive patients in all aspects of life quality. The results are consistent with those of Khezri et al. [19] and Ganji et al. [20]. The total score of life quality after the intervention did not change significantly in the control group. However, in the experimental group, one month and 3 months after the educational intervention, a significant difference was observed, which the mean score of total life quality was in line with Khazri et al. in Khazri et al. in the experimental group after the intervention was

significantly different from that before the intervention [19]. The results of Tung et al. on cardiac patients indicated that patients with better self-management would have a better life quality [21]. Scholars have used self-management theory to empower individuals to manage their disease and enhance their life quality, which has been effective. For instance, in his study, Tang dealt with empowering hypertensive people and showed significant changes in diastolic blood pressure and serum cholesterol following a healthy diet and blood glucose monitoring after 6 months and 12 months [22]. The results of the study by Shearer et al. indicated that empowerment intervention was effective for self-management of patients with heart failure, and self-management ability and health care decisions were increased in the patients under intervention, whereas they did not change in the control group [23]. The results of Bosworth et al. on “two self-management interventions to improve hypertension control” showed that self-management behavioral interventions improved hypertension control after 24 months of implementation [24]. The results of the present study are consistent with those of Harvey et al., who examined the effect of chronic self-management training on health behaviors and outcomes and found that self-management has a positive effect on improving health [25]. According to the results of the above studies, all of which showed the effect of self-management training on hypertension, using self-management theory can be an effective step in enhancing the life quality of hypertensive patients. Studies on the implementation of self-management programs in other chronic diseases have shown positive results, among which the studies by Bucknall et al. [26], Bourbeau and Van der Palen [27], Mirzai et al. [28], Kafami et al. [29], Salimi et al. [30], and Karimi et al. [31], can be cited. As the systematic running of self-management theory can enhance all aspects of life quality in hypertensive patients, this approach is a suitable strategy in care plans, and can enhance the life quality of patients.

Conclusion

The results of the study showed that using self-management program is effective in improving the life quality of hypertensive patients. Hence, one can take steps in improving the life quality of hypertensive patients by implementing self-management programs.

Abbreviations

EIB: Educational Intervention Based; MSMT: Model Self-Management Theory; LQHP: Life Quality in Hypertensive Patients

Declarations

Acknowledgments

This article was derived from a PHD dissertation on Health Education and Health Promotion under the ID code of IRCT20170814035698N2 approved by the Faculty of Health of Iran University of Medical Sciences. The researchers of this research thereby appreciated hypertension patients referred to Karaj health centers.

Authors'contributions

FCH, MS and JYL conceived and designed the study and finalized the methodology and tools used. FEFA, NAA, and AZ collected the data and analyzed and drafted the manuscript. All the authors made significant contributions in the manuscript writing and finalizing of the manuscript. The final manuscript has been read and approved by all the authors.

Funding

There was no source of funding.

Availability of data and materials

Authors report that the data supporting their findings can be publicly shared.

Ethics approval and consent to participate

This study was drawn from a research project (No. IR.IUMS.REC. 1395.9321108003) sponsored by the Deputy of Research and Technology at IUMS.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests

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References

1. Batani A. Providing a decision-making model for continuous monitoring of patient's hypertension using artificial neural network and quality control charts. *Razi J Med Sci.* 2018;25(166):46-57.
2. Arwood MJ, Cavallari LH, Duarte JD. Pharmacogenomics of hypertension and heart disease. *Current Hyper Reports.* 2015;17(9):76-82.
3. Kelishadi R, Ardalan G, Gheiratmand R, Majdzadeh R, Delavari A, Heshmat R, et al. Blood pressure and its influencing factors in a national representative sample of Iranian children and adolescents: the CASPIAN Study. *European J Cardio Prev Rehabilitation.* 2006;13(6):956-63.
4. Hećimović A, Heaney A, McKenna SP, Basara L, Jakopović M, Vukić Dugac A, et al. Adaptation and Validation of the Cambridge Pulmonary Hypertension Outcome Review (CAMPHOR) for Croatia. *Acta Clin Croatica.* 2019;58(1):3-11.
5. Ur Rehman A, Naeem F, Abbas S, Ashfaq F, Hassali MAA. Utilization of short message service (SMS) in non-pharmacological management of hypertension. A pilot study in an URBAN public hospital of Multan, Pakistan. *J Public Health.* 2019;27(5):561-7. <https://doi.org/10.1007/s10389-018-0982-9>.
6. Emami M, Askarizade G, Faziltpour M. Effectiveness of Cognitive–Behavioral Stress Management Group Therapy on Resilience and Hope in Women with Breast Cancer. 2017.
7. Al-Jabi SW, Sa'ed HZ, Sweileh WM, Wildali AH, Saleem HM, Aysa HA, et al. Assessment of health-related quality of life among hypertensive patients: a cross-sectional study from Palestine. *J Public Health.* 2014;22(3):277-86. <https://doi.org/10.1007/s10389-014-0613-z>.
8. Rueda J, Solà I, Pascual A, Subirana Casacuberta M. Non-invasive interventions for improving well-being and qual-ity of life in patients with lung cancer. status and date: Edited (no change to conclusions), published in. 2011(10).
9. Ravanipour M, Salehi S, Taleghani F, Abedi HA, Ishaghi SR, Schuurmans MJ, et al. Power resources of older people in Iran. *Int J Older People Nurs.* 2013;8(1):71-9.
10. Dadipoor S, Shahsavari S, Ghaffari M, Farshidi H, Alavi A, Safari-Moradabadi A. A case-control study on lifestyle-related factors of hypertension in Iran. *J Public Health.* 2019:1-6.
11. Kamal NN, Kamel EG, Eldessouki KH, Ahmed MG. Health-related quality of life among hemodialysis patients at El-Minia University Hospital, Egypt. *J Public Health.* 2013;21(2):193-200. <https://doi.org/10.1007/s10389-012-0538-3>.

12. Ravari A, Bazargan-Hejazi S, Ebadi A, Mirzaei T, Oshvandi K. Work values and job satisfaction: A qualitative study of Iranian nurses. *Nurs Ethics*. 2013;20(4):448-58.
13. Matalqah LM, Radaideh KM, Thabet RH. Impact of chronic disorders and obesity on quality of life in Northern Jordan. *J Public Health*. 2019:1-7. <https://doi.org/10.1007/s10389-019-01103-2>.
14. Moattari M, Ghobadi A, Beigi P, Pishdad G. Impact of self management on metabolic control indicators of diabetes patients. *J Diabet Metabol Disor*. 2012;11(1):6-11.
15. Thatthong N, Sranacharoenpong K, Praditsorn P, Churak P, Ponprachanuvut P, Srisangwan N, et al. Innovative tool for health promotion for at-risk Thai people with hypertension. *J Public Health*. 2019:1-7. <https://doi.org/10.1007/s10389-019-01028-w>.
16. Heidari M, Fayazi S, Borsi H, Moradbeigi K, Akbari Nassaji N. Effect of a self-management program based on 5A model on dyspnea and fatigue severity among patients with chronic obstructive pulmonary disease: a randomized clinical trial. *J Hayat*. 2015;20(4):89-99.
17. Lorig KR, Sobel DS, Ritter PL, Laurent D, Hobbs M. Effect of a self-management program on patients with chronic disease. *Effect Clin Pract*. 2001;4(6):256-62.
18. Nejat S, Montazeri A, Holakouie Naieni K, Mohammad K, Majdzadeh S. The World Health Organization quality of Life (WHOQOL-BREF) questionnaire: Translation and validation study of the Iranian version. *J School Public Health Instit Public Health Res*. 2006;4(4):1-12.
19. Khezri R, Ravanipour M, Motamed N. The effect of self-management empowerment model on ability condition of elderly patients with hypertention. *Nurs J Vulnerables*. 2014;1:1-16.
20. Gangi S, Peyman n, Meysami BS, Esmaily H. Effect of Self-Care Training Program on Quality of Life and Health Literacy in the Patients With Essential Hypertension. 2018.
21. Tung HH, Lin CY, Chen KY, Chang CJ, Lin YP, Chou CH. Self-management intervention to improve self-care and quality of life in heart failure patients. *Congest Heart Failure*. 2013;19(4):E9-E16.
22. Shearer NB, Cisar N, Greenberg EA. A telephone-delivered empowerment intervention with patients diagnosed with heart failure. *Heart & Lung: J Acute and Criti Care*. 2007;36(3):159-69.
23. Bosworth HB, Olsen MK, Grubber JM, Neary AM, Orr MM, Powers BJ, et al. Two self-management interventions to improve hypertension control: a randomized trial. *Ann Int Med*. 2009;151(10):687-95.
24. Harvey PW, Petkov JN, Misan G, Fuller J, Battersby MW, Cayetano TN, et al. Self-management support and training for patients with chronic and complex conditions improves health-related behaviour and health outcomes. *Australian Health Review*. 2008;32(2):330-8.
25. Bucknall C, Miller G, Lloyd S, Cleland J, McCluskey S, Cotton M, et al. Glasgow supported self-management trial (GSuST) for patients with moderate to severe COPD: randomised controlled trial. *BMJ*. 2012;344:e1060.
26. Bourbeau J, Van Der Palen J. Promoting effective self-management programmes to improve COPD. *Eur Respiratory Soc*; 2009.
27. Javanvash Z, Mojdekanlu M, Rastaghi S, Rad M. The effect of model-based self-management program 5A on quality of life of elderly patients with acute coronary syndrome. *J Sabzevar Univ*

Medical Sci. 2017;25(1):75-82.

28. Kafami F, Mohammadi F, Norouzi K, Rahgozar M. The effect of self-management program on the health status of multiple sclerosis patients. 2012.
29. Joffres M, Falaschetti E, Gillespie C, Robitaille C, Loustalot F, Poulter N, et al. Hypertension prevalence, awareness, treatment and control in national surveys from England, the USA and Canada, and correlation with stroke and ischaemic heart disease mortality: a cross-sectional study. *BMJ Open*. 2013;3(8):e003423.
30. Vanhoof JM, Delcroix M, Vandeveld E, Denhaerynck K, Wuyts W, Belge C, et al. Emotional symptoms and quality of life in patients with pulmonary arterial hypertension. *Journal Heart Lung Transplant*. 2014;33(8):800-8.
31. Majumdar A, Chinnakali P, Vinayagamoorthy V, Daya PA, Shidam UG, Roy G. Opportunistic screening for hypertension and selected cardiovascular risk factors among adults attending a primary health center in Puducherry, India. *Int J Prev Med*. 2014;5(12):1616.