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The Effectiveness of Health-promoting lifestyle training on psychological well-being, hopefulness, and quality of life in patients with diabetes

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Abstract

Background: It is necessary to help people with diabetes to solve the problems related to diabetes, recognizing the factors affecting their hope, psychological well-being, and quality of life that can be improved by using different approaches.
Objectives: This study aimed to determine health-promoting lifestyle education on psychological well-being, hope, and quality of life in patients with diabetes.
Methods: The present study was quasi-experimental study was pre-test-post-test and follow-up with the control group. The statistical population of the study includes patients with type 2 diabetes referred to medical centers and diabetes associations in Tehran. The participants were selected by convenience sampling method and assigned to two groups of health-promoting lifestyle training (n=15) and control group (n=15) using simple randomization method. Data were obtained using the Ryff Psychological Well-Being Scale (RSPWB), World Health Organization Quality of Life Questionnaire, Snyder Hope Scale (SHS). The health-promoting lifestyle training was performed in 10 sessions (one session per week) for 90 minutes. Data were analyzed using the time seriese method and SPSS.22 software.
Results: The results showed that health-promoting lifestyle education is effective on psychological well-being ($p<0.001$), hope ($p<0.001$), and quality of life ($p<0.001$) in patients with diabetes.
Conclusion: According to results, it can be said that health-promoting lifestyle education is effective on psychological well-being, hope, and quality of life in patients with diabetes.

Keywords: Health lifestyle, Hope, Quality of life, Diabetes Mellitus.

Introduction

Diabetes is one of the chronic conditions and one of the most important causes of death and inability around the world. According to the latest available statistics, about 135 million people worldwide suffer from this disease and it is estimated that this figure will reach 300 million in 2025. Existing statistics show that in 2001 out of 800,000 patients diagnosed with diabetes, 200,000 of them died in the first year after diagnosis. According to the American Diabetes Association in the United States, the government spends more than $100 billion per year on diabetic patients, much of which is spent on treating the complications of diabetes (1). Progressive increase in incidence and prevalence of chronic diseases around the world and high mortality rate and increasing costs of care for these patients, especially the integral role of psychological factors in initiation, continuity, and exacerbation of symptoms of these patients has led to more emphasis on psychological aspects (2). Stress is one of the factors that has been studied in many study on diabetes (3). Diabetes, on the other hand, is a source of anxiety for those who suffer from it. In addition to the medical consequences, diabetes-induced stress has a poor psychological impact. One of the most common side effects is depression. Anorexia, dietary abnormalities, and patient rejection of insulin injections have all been linked to depression in diabetic patients, making it difficult to manage and maintain diabetes. (4). This condition, as part of a cycle of flaws, exacerbates emotional issues like stress, despair, and anxiety. As a result, identifying these patients' psychological issues, fixing or minimizing these issues, and offering training to improve their quality of life is an important aspect of comprehensive diabetes treatment (5). The World Health Organization defines the quality of life of the individual's thoughts about his or her life situation according to the culture and value system in which he lives and the relationship between these intakes and his goals, expectations, standards, and priorities (6). Despite different definitions, there is still no definition that covers different aspects of this concept, but experts are unanimous that quality of life is a multidimensional, subjective and dynamic

concept. Diabetes can have negative effects on physical functioning, development of complications, mental status, and personal, family, and social relationships. For example, severe dietary restrictions and oral or injectable antidiabetic drugs have incompatible effects on the quality of life of diabetic patients (7).

Life expectancy is another component that is affected by cardiovascular disease. Hope and expectation activate the brain circuits and release endorphins, thus reducing pain in the body. In Seligman's view, hopelessness causes physical and mental illnesses (8). Schneider et.al (9) consider hope as a "cognitive set based on success resulting from various sources (goal-oriented decisions) and pathways (selected ways to achieve its goals". Hope is a better feeling than the future, hope stimulates the system of activity with its penetrating force so that the system can gain its experiences. And create new forces in the organism, and as a result, hope brings man to diligence and brings him closer to a high level of psychological and behavioral functions. Hope cannot be experienced consciously, but when a person is subjected to unusual pressures and the tortuous and dark ways of life, the feeling of hope in the hopeful person soon appears and it is hope and hope that after crises bring the person back to peace and as a result, depression is less seen in these people (10).

Another component that is affected by diabetes is psychological well-being. Psychological well-being is a psychological component of quality of life that is defined as people's perception of their own lives in the domain of emotional behaviors and mental functions and dimensions of mental health and includes two components. The first component includes a cognitive judgment about how people are progressing in their lives. If the second component includes a level of a pleasant experience. Some researchers conceptualize psychological well-being in terms of specific components or processes such as emotional processes (11). Patients with diabetes experience low psychological well-being due to diabetes-imposed problems such as diet, activity restriction, aggressive monitoring of blood sugar, daily insulin injection, chronic physical complications, hospitalization, and low psychological well-being (12).

Various strategies have been proposed to improve psychological well-being, hope, and quality of life in patients with diabetes, including health-promoting behaviors (13). These behaviors include actions that empower individuals to increase control over health and ultimately improve the health of the individual and society. Promoting the health of science and the art of lifestyle change to achieve perfection is desirable and includes behaviors in which a person is fed properly, exercise regularly, avoids destructive behaviors and improves performance despite illness, controlling emotions and emotions, and coping with stress and problems caused by illness and disease problems and independence and adaptation (14). As people's lifespan increases, the importance of health-promoting behaviors is also increasingly evident due to maintaining people's functioning and independence and increasing their quality of life (15).

Since health-promoting styles, education is an important concept for patients with diabetes, the aim of treatment of chronic diseases is not only to increase the lifespan of people but also to improve the quality of life of patients. Many treatments have been used to solve the problems of people with diabetes that have been developed over successive years. Having perceived social support, benefiting from group counseling programs, and especially training health-promoting styles, improve physical, emotional, and social performance, reduce fatigue and reduce the negative effects of this disease. These factors play a decisive role in coping with diabetes as well as different abilities of the individual, as this disease causes many psychological and medical effects. Considering the increasing number of patients with diabetes and their major problems in the field of psychological well-being, hope, and quality of life in patients with diabetes, it seems that many of these patients with diabetes do not have enough knowledge and skills to properly manage such problems. If a proper health-promoting lifestyle is taught to patients with diabetes, such problems can be reduced.

Objectives

This study aimed to determine health-promoting lifestyle education on psychological well-being, hope, and quality of life in patients with diabetes.

Methods

The current study was applied research, and the research approach was quasi-experimental research with a control group that included a pre-test, post-test, and follow-up. Patients with type 2 diabetes referred to medical centers and diabetes associations in Tehran make up the study's statistical population. The sample size of this study was determined by the effect size of 0.70, test power of 0.91, and a significant level of 0.05, it was found that the minimum sample size for each group was 15 people. The convenience sampling method was used and the patients assigned to two groups of health-promoting lifestyle training (n=15) and control group (n=15) using a simple randomization method. The method was performed before the start of the sessions and by obtaining informed consent, a glycosylated hemoglobin test was performed for the participants of the two groups. They also completed the psychological well-being,

hope, and quality of life questionnaire. Then, the experimental group (health-promoting lifestyle training) underwent weekly training in Tehran Diabetes Association. Data were obtained using the Ryff Psychological Well-Being Scale (RSPWB), World Health Organization Quality of Life Questionnaire, Schneider Hope Scale (SHS). The health-promoting lifestyle training protocol was performed in 10 sessions (one session per week) for 90 minutes. Inclusion criteria are: type 2 diabetes with the approval of a physician for at least one year, having a minimum age of 20 and a

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Ryff Psychological Well-Being Scale (RSPWB)

Ryff designed this scale in 1995. The main form had 120 questions, but in subsequent studies, a shorter form of 84 questions, 54 questions, and 18 questions were also suggested. Psychological well-being scales have six subscales of self-acceptance, positive relationship with others, autonomy, personal growth, and environmental dominance. The internal validity of the subtests and the Cronbach alpha obtained between 0.77 and 0.90 (17). The internal consistency of psychological well-being scales was between 0.82 and 0.90. The reliability of the Persian version of this questionnaire was 0.79 using Cronbach's alpha for the whole test and positive relationships with others, autonomy, mastery of the purposeful living environment and personal growth were 0.82, 0.85, 0.77, 0.79, 0.81, respectively (18).

The WHO quality of life (WHOQOL) questionnaire (2001)

Who's Quality of Life Questionnaire has 26 questions that assess four domains of people's quality of life including physical health, mental health, relationships with others, and living environment. Each ball is scored in a range of (1 to 5) (at all, low, medium, high, and completely), or (I am very unhappy, I am not satisfied, relatively unhappy, satisfied, completely satisfied) (19). The WHOQOL-BREF physical domain had a higher than 0.5 correlation with the SF-36 social functioning, mental health, and emotional role subscales. The ICCs for the four domains were all within acceptable ranges in a test-retest study (physical health = 0.77; psychological health = 0.77; social relationships = 0.75; and environmental health = 0.84). The overall QOL and general health items had an ICC of 0.69. Each item's ICC ranged from 0.51 to maximum of 50 years (According to age statistics, the highest number of patients referred to medical centers with diabetes), having a minimum of cycle education, not receiving psychological treatments since diagnosis, and the occurrence of major stresses caused by unforeseen events were also considered as exclusion criteria. Before starting the sessions and obtaining informed consent, a glycosylated hemoglobin test was performed for participants of both groups. They also completed the psychological well-being, hope, and quality of life questionnaire. Hormozgan University of 0.74, with a median of 0.61. (20). Also, the reliability of the quality of life scale and Cronbach's alpha coefficient for the whole scale was 0.88, for physical health was 0.70, for mental health was 0.77 and for social relations was 0.65 and for the quality of the living environment was 0.77 (20).

Snyder Hope Scale (SHS)

Snyder et al. created Snyder's Hope Scale in 1991 to measure hope. It comprises 12 sentences and is used as a self-assessment. Four of these phrases are used to assess factor thinking, four are used to assess strategic thinking, and four are used to assess deviant expressions. Therefore, this questionnaire covers two subscales: factor and strategy. Many pieces of research support the reliability and validity of this hope measurement scale (21). The internal consistency of this test ranges between 0.74 and 0.84 and its test-retest reliability is 0.80 while for longer periods of 8 to 10 weeks it could be higher. Internal consistency for operational dimension ranges from 0.71 to 0.76 and for strategic dimension it ranges from 0.63 to 0.80. Moreover, there are much data about simultaneous validity and its predictions. As an instance, its correlation with optimism, achievement of goals, and self-esteem questionnaires range from 0.50 to 0.60. The internal consistency of the whole test was 0.74 to 0.84 and the test reliability, 0.80 test open and periods more than 8 to 10 weeks were higher (21). The internal consistency of the subscale was factorial 0.71 to 0.76 and the strategic subscale was 0.63 to 0.80 (22).

In the descriptive statistics section, such as mean and standard deviation were used. In the inferential statistics section, to inferential analysis, the repeated measure analysis of variance was used. The above analyses were performed using SPSS.22 software.

Results

The mean age (standard deviation) was 41.70 (8.96) in the experimental group and 43.53 (10.11) in the control group. There was no significant difference between the two groups in terms of age.

Table 1. The mean and standard deviation of the scores of the research variables in the experimental and control groups

Variable	Group	Pre-test		Post-test		Follow-up	
		M	SD	M	SD	M	SD
Quality of life	Experimental	60.26	4.83	65.80	4.07	65.00	4.00
	Control	60.00	4.59	60.53	4.70	60.46	4.77
Psychological Well-being	Experimental	27.86	4.25	31.73	4.26	31.06	4.38
	Control	30.60	4.13	31.26	4.00	31.46	3.96
Hopefulness	Experimental	13.60	2.26	16.53	2.16	16.86	2.19
	Control	13.46	1.99	13.80	1.97	13.93	1.86

The experimental group's mean scores in the variables of quality of life, psychological well-being, and hope increased in the post-test stage, as shown in Table 1, but the control group's mean scores did not change significantly. To assess the findings of the univariate test for within-subject group effects and interactions, the Greenhouse Geiser test was performed. Furthermore, the Wilkes Lambda test revealed a significant difference in the effectiveness of lifestyle education on improving psychological well-being, quality of life, and hope in both the experimental and control groups, indicating that the mean of tests had a significant difference in terms of the effectiveness of lifestyle education on research variables.

Table 2. The effect of time and group on quality of life, psychological well-being, and hope

Variables	Source Effect	F	P	Eta
Quality of life	Time	139.17	0.001	0.83
	Time*Group	94.24	0.001	0.77
	Group	4.23	0.049	0.13
Psychological Well-being	Time	212.12	0.001	0.88
	Time*Group	93.45	0.001	0.76
	Group	5.34	0.025	0.15
Hopefulness	Time	162.92	0.001	0.85
	Time*Group	96.07	0.001	0.77
	Group	6.66	0.015	0.19

Table 2 shows that analysis of variance of quality of life for intragroup factor (time) ($p<0.001$) and intergroup ($p=0.045$) is significant, as is analysis of variance of psychological well-being for intragroup factor (time) ($p<0.001$) and Intergroup ($p=0.019$), as well as analysis of variance of hope for intragroup factor (time) ($p<0.001$) and intergroup ($p<0.001$), implying that quality of life is significant in all three variables. During the research phases, there is a substantial difference between the experimental and control groups, confirming the intervention's effect. The results of the Bonferroni posthoc test were used to explore the differences in pre-test, post-test, and follow-up stages in each component, and they can be seen in Table 3.

Table 3. The results of Bonferroni's follow-up test for comparing two to two average times of measuring research variables

Variables			Mean Diff.	Std. Error	P-value
Quality of life	Pretest	Posttest	-4.83	1.11	0.001
		Follow up	-4.30	1.11	0.001
	Post-test	Follow-up	0.53	0.59	0.105
Psychological Well-being	Pretest	Posttest	-3.16	0.51	0.001
		Follow up	-2.90	0.51	0.001
	Post-test	Follow-up	0.26	0.53	0.804
Hopefulness	Pretest	Posttest	-2.43	0.51	0.001
		Follow up	-2.60	0.51	0.001
	Post-test	Follow-up	-0.16	0.53	0.804

Table 3 shows that the health-promoting lifestyle education in the post-test stage have greater quality of life, hope and psychological well-being scores than the pre-test stage ($p<0.001$), and the quality of life, hope and psychological well-being in the follow-up stage is significantly different from the pre-test stage ($p<0.001$). The post-test and follow-up stages showed no significant differences.

Discussion

This study aimed to determine health-promoting lifestyle education on psychological well-being, hope, and quality of life in patients with diabetes. The results showed that health-promoting lifestyle education has an impact on psychological well-being, hope, and quality of life in patients with diabetes. The results of Khalila and Litvin's (23) study on changes in health behaviors and their relationship with depression symptoms among Israelis over 50 years and the results of Nilsaz et al. (24) research on health-promoting behaviors and lifestyle in students of Dezful universities. The findings of this study weren't in line with Alpar et.al (25) research.

In explaining health-promoting lifestyle training on the psychological well-being of patients with diabetes, it can be said that one of the most important factors in lifestyle education in the process of diabetes treatment as well as increasing the vibe, pleasure, and social adaptation is effective. It was appropriate nutrition education and sufficient exercise in lifestyle promoting health (26). Besides, training of psychological aspects of lifestyle such as stress management and social relationships as well as responsibility for health played a very important and profound role in increasing social life, pleasure, and adaptability. Following increased vibe and adaptability, subjects were involved in choosing a good food and exercise program and staying steady in the lives of the subjects (19). So that all the subjects received medical advice about proper nutrition and exercise, but acting on these items and becoming considered as behavior is a very important issue. The educational program of the lifestyle of the intervention group is slowly applied to changing different aspects of their lifestyle with their families, which leads to an increase in their temperament, pleasure, and social adaptation. It is not possible to make medical recommendations without a healthy lifestyle and if it is, it will not last long. It seems that lifestyle group training programs, especially exercise in groups, have been involved in increasing the psychological well-being of the experimental group (20).

Also, learning methods of coping with psychological pressures and life problems is another consequence of health-promoting lifestyle education. This training empowers diabetic patients to cope with or cope with the difficulties and stresses of life, and currently, the main causes of death are what we call lifestyle diseases. Because infectious diseases can be treated with medication, but lifestyle-induced diseases can only be treated by changing the habits and behaviors that cause them (27). Although it is assumed that stress is not the direct cause of these illnesses, stress and stress weaken the physiological systems of the body and consequently advance the growth of the patient. The interpretation and interpretation of stressful events are more important than the event itself. (28). This determines people's ability to cope and adapt to stress. The researchers concluded that there are practically hundreds of ways to cope and be tolerant of stress. Each of these methods can be used alone, but most of the time several methods are used at the same time to be implemented more effectively against defensive stress. There are positive coping methods that a person can choose from. Actions such as cognitive reconstruction, dream therapy, art therapy, lectern therapy, creative solution, diary writing, assertiveness, social engineering, laughter therapy whose positive physiological effect on body safety has been proven (29).

In explaining health-promoting lifestyle education on the hope of patients with diabetes, it can also be said that one of the most important ways of managing and tolerating stress is changing unhealthy lifestyles to healthier and useful life-promoting habits. Health-promoting lifestyle education increases the individual's knowledge and awareness and changes the attitudes, habits, and behaviors of the individual, and familiarity with health-promoting behaviors can lead to creating or strengthening the health-promoting behaviors and habits. In this intervention group, these trainings were transferred to their families and this issue can have an impact on maintaining responsibility for the physical and psychological health of themselves and family members (30).

These patients usually lack social and communication skills and maladaptive coping styles due to avoidance of social relationships and excision lifestyle. Their avoidant lifestyle also comes from inefficient instructive beliefs and cognitive processing, not from emotional processing. Changing lifestyle and strengthening social and communication skills and changing intubation beliefs were avoidance and ability to positively interpret events were positive effects of this intervention. When a person becomes aware of the positive impact of healthy behaviors during training and practices them in practice and understands their role in creating freshness and freshness in life, this issue can create the grounds for healthy behaviors in the person, which results in positive emotions such as vitality and pleasure, followed by increased hope (31).

Also, in explaining health-promoting lifestyle education on the quality of life of patients with diabetes, it can be said that human behavior is a reflection of different factors, and recognition of this causal network to influence the factors affecting behavior is one of the most important issues that behavioral sciences experts have been looking for over the years. The scope of this network is so wide that it varies from human to human and from one group to another. Human behavior plays an important role in the prevention, control, treatment, and rehabilitation of most health-related problems. In this way, health education, which is the center of gravity of any health activity, needs to recognize the behavior and factors affecting it to change or adjust existing behaviors and to replace appropriate new behaviors, and here the role of behavioral study models and behavioral concepts in health education is determined (32). On the other hand, addressing the issue of health-promoting behaviors analysis among patients with diabetes is one of the main issues of educational systems and identifying the factors related to this issue among this group of population is one of the most important research priorities in this section. Health-promoting behaviors are one of the best ways that patients with diabetes can maintain and control their health and this increases their quality of life (26). The statistics provided about the main causes of mortality are related to lifestyle and unhealthy behaviors. Health-promoting behaviors are one of the main determinants of health that are directly related to these behaviors as an underlying factor in not having many diseases. By choosing a lifestyle to maintain and promote their health and preventing diseases, a person performs actions and activities such as observing proper diet, sleep, activity, and exercise, controlling body weight and not smoking and alcohol, and immunizing against diseases that make up this lifestyle. Health requires improving a healthy lifestyle. The importance of lifestyle is more important because it is effective in increasing emotion regulation and prevention of diseases. It is essential to maintain and promote health and correct and improve emotion regulation. Health promotion and the health of people is one of the most important pillars of the development of societies. The health profession, which previously focused on treating the disease, is now focusing on preventing and providing health by improving lifestyle and eliminating factors that somehow have a negative impact on human health. The application of positive behavioral patterns in life is effective in promoting individual health (18).

Conclusion

Based on the findings of this study, it can be said that health-promoting lifestyle education has an impact on psychological well-being, hope, and quality of life in patients with diabetes.

References

1. American Diabetes Association. Executive summary: standards of medical care in diabetes—2014.
2. Domingueti CP, Dusse LM, das Graças Carvalho M, de Sousa LP, Gomes KB, Fernandes AP. Diabetes mellitus: the linkage between oxidative stress, inflammation, hypercoagulability and vascular complications. Journal of Diabetes and its Complications. 2016 May 1;30(4):738-45.
3. Nathan HJ, Poulin P, Wozny D, Taljaard M, Smyth C, Gilron I, Sorisky A, Lochnan H, Shergill Y. Randomized trial of the effect of mindfulness-based stress reduction on pain-related disability, pain intensity, health-related quality of life, and A1C in patients with painful diabetic peripheral neuropathy. Clinical Diabetes. 2017 Dec 1;35(5):294-304.
4. Rook KS, August KJ, Choi S, Franks MM, Stephens MA. Emotional reactivity to daily stress, spousal emotional support, and fasting blood glucose among patients with type 2 diabetes. Journal of health psychology. 2016 Nov;21(11):2538-49.
5. 5.Verma SK, Luo N, Subramaniam M, Sum CF, Stahl D, Liow PH, Chong SA. Impact of depression on health related quality of life in patients with diabetes. Annals Academy of Medicine Singapore. 2010 Dec 1;39(12):913.
6. Tomas-Carus P, Ortega-Alonso A, Pietilainen KH, Santos V, Goncalves H, Ramos J, Raimundo A. A randomized controlled trial on the effects of combined aerobic-resistance exercise on muscle strength and fatigue, glycemic control and health-related quality of life of type 2 diabetes patients. The Journal of sports medicine and physical fitness. 2016 May 1;56(5):572-8.
7. Anderson BJ, Laffel LM, Domenger C, Danne T, Phillip M, Mazza C, Hanas R, Waldron S, Beck RW, Calvi-Gries F, Mathieu C. Factors associated with diabetes-specific health-related quality of life in youth with type 1 diabetes: the Global TEENs Study. Diabetes Care. 2017 Aug 1;40(8):1002-9.
8. Livingstone SJ, Levin D, Looker HC, Lindsay RS, Wild SH, Joss N, Leese G, Leslie P, McCrimmon RJ, Metcalfe W, McKnight JA. Estimated life expectancy in a Scottish cohort with type 1 diabetes, 2008-2010. Jama. 2015 Jan 6;313(1):37-44.
9. Walker J, Colhoun H, Livingstone S, McCrimmon R, Petrie J, Sattar N, Wild S, Scottish Diabetes Research Network Epidemiology Group. Type 2 diabetes, socioeconomic status and life expectancy in Scotland (2012–2014): a population-based observational study. Diabetologia. 2018 Jan 1;61(1):108-16.
10. Sussman JB, Kerr EA, Saini SD, Holleman RG, Klamerus ML, Min LC, Vijan S, Hofer TP. Rates of deintensification of blood pressure and glycemic medication treatment based on levels of control and life expectancy in older patients with diabetes

mellitus. JAMA internal medicine. 2015 Dec 1;175(12):1942-9.
11. Boehm JK, Trudel-Fitzgerald C, Kivimaki M, Kubzansky LD. The prospective association between positive psychological well-being and diabetes. Health Psychology. 2015 Oct;34(10):1013.
12. Hofmann M, Dack C, Barker C, Murray E. The impact of an internet-based self-management intervention (HeLP-diabetes) on the psychological well-being of adults with type 2 diabetes: a mixed-method cohort study. Journal of diabetes research. 2016 Jan 1;2016.
13. Huijg JM, Gebhardt WA, Verheijden MW, van der Zouwe N, de Vries JD, Middelkoop BJ, Crone MR. Factors influencing primary health care professionals' physical activity promotion behaviors: a systematic review. International journal of behavioral medicine. 2015 Feb 1;22(1):32-50.
14. Neville K, Cole DA. The relationships among health promotion behaviors, compassion fatigue, burnout, and compassion satisfaction in nurses practicing in a community medical center. JONA: The Journal of Nursing Administration. 2013 Jun 1;43(6):348-54.
15. Golden SD, Earp JA. Social ecological approaches to individuals and their contexts: twenty years of health education & behavior health promotion interventions. Health education & behavior. 2012 Jun;39(3):364-72.
16. Khalaila R, Litwin H. Changes in health behaviors and their associations with depressive symptoms among Israelis aged 50+. Journal of aging and health. 2014 Apr;26(3):401-21.
17. Ryff CD, Keyes CL. The structure of psychological well-being revisited. Journal of personality and social psychology. 1995 Oct;69(4):719.
18. Dadfar M, Momeni Safarabad N, Asgharnejad Farid AA, Nemati Shirzy M, Ghazie pour Abarghouie F. Reliability, validity, and factorial structure of the World Health Organization-5 Well-Being Index (WHO-5) in Iranian psychiatric outpatients. Trends in psychiatry and psychotherapy. 2018 Apr;40(2):79-84.
19. Whoqol Group. Development of the World Health Organization WHOQOL-BREF quality of life assessment. Psychological medicine. 1998 May;28(3):551-8.
20. Nedjat S, Montazeri A, Holakouie K, Mohammad K, Majdzadeh R. Psychometric properties of the Iranian interview-administered version of the World Health Organization's Quality of Life Questionnaire (WHOQOL-BREF): a population-based study. BMC health services research. 2008 Dec;8(1):1-7.
21. Snyder CR, Harris C, Anderson JR, Holleran SA, Irving LM, Sigmon ST, Yoshinobu L, Gibb J, Langelle C, Harney P. The will and the ways: development and validation of an individual-differences measure of hope. Journal of personality and social psychology. 1991 Apr;60(4):570.
22. Shahidi E, Aliakbari M, Yavari M. The Role of Personality traits in Prediction of Hope in Men with Cardiovascular Disease. Journal of Research & Health. 2019; 9(7):699-705.
23. Hua Y, Wang B, Wallen GR, Shao P, Ni C, Hua Q. Health-promoting lifestyles and depression in urban elderly Chinese. PloS one. 2015 Mar 17;10(3):e0117998.
24. nilsaz M, tavasoli E, mazaheri M, sohrabi F, khezeli M, ghazanfari Z. Study of Health-promotion behaviors and Life Style among students of Dezful universities. scientific journal of ilam university of medical sciences. 2013 Mar 1;20(5):168-75.
25. Mak YW, Kao AH, Tam LW, Virginia WC, Don TH, Leung DY. Health-promoting lifestyle and quality of life among Chinese nursing students. Primary health care research & development. 2018 Nov;19(6):629-36.
26. Kim HJ, Choi-Kwon S, Kim H, Park YH, Koh CK. Health-promoting lifestyle behaviors and psychological status among Arabs and Koreans in the United Arab Emirates. Research in nursing & health. 2015 Apr;38(2):133-41.
27. Fincham SM, Roomaney R, Kagee A. The relationship between worldview, self-efficacy, psychological distress, and a health-promoting lifestyle among a South African undergraduate university sample. South African Journal of Psychology. 2015 Dec;45(4):508-20.
28. Chuang SP, Wu JY, Wang CS, Pan LH. Health-promoting lifestyles and psychological distress associated with well-being in community adults. American Journal of Health Behavior. 2017 Jul 1;41(4):446-53.
29. Han KS, Yang CH. Relationship between Health-Promoting lifestyle and psychological Well-Being in obese Middle-Aged people. Indian Journal of Public Health Research & Development. 2018;9(9):1098-106.
30. Cheng J, Wang T, Li F, Xiao Y, Bi J, Chen J, Sun X, Wu L, Wu S, Liu Y, Luo R. Self-rated health status and subjective health complaints associated with health-promoting lifestyles among urban Chinese women: a cross-sectional study. PloS one. 2015 Feb 11;10(2):e0117940.
31. Chen MF, Wang RH, Hung SL. Predicting health-promoting self-care behaviors in people with pre-diabetes by applying Bandura social learning theory. Applied Nursing Research. 2015 Nov 1;28(4):299-304.
32. Vahedi H, Khosravi A, Sadeghi Z, Aliyari R, Shabankhamseh A, Mahdavian M, Binesh E, Amiri M. Health-promoting lifestyle in patients with and without diabetes in Iran. Health Scope. 2017 May;6(2).