

Effect of health promotion intervention on Nurses' healthy lifestyle and health-promoting behaviors: RCT study

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ABSTRACT

Objectives: Health promoting behaviors (HPBs) are major criteria in determining lifestyle. The present study aimed to investigate the impact of health promotion interventions (HPI) on health-promoting behaviors of nurses. **Methods:** In this experimental study was conducted in 2016. A total of 80 nurses were randomly selected and divided into two groups of experimental and control. The data was collected using the demographic questionnaire, the Health-Promoting Lifestyle Profile II (HPLP II), the General Self-Efficacy Scale of Schwartz, the Standard Self-Esteem Scale of Rosenberg, and the Brief Self-Control Scale (BSCS) of Tangney. After collecting and analyzing the collected data, the HPI was designed and conducted in 6 sessions for the experimental group. A month and a half after the intervention, the data for both groups were collected and analyzed using SPSS VER 20. **Results:** Before the HPI, health promoting behaviors, self-efficacy, self-esteem, and self-control had no significant difference between the two groups. After the intervention, the mean scores of health promoting behaviors ($p < 0.001$), self-efficacy ($p < 0.001$), and self-esteem ($p < 0.001$) showed a significant difference between the two groups, but self-control score was not significant ($p > 0.05$). **Conclusion:** HPI changed HPBs in the nurses, and changes in HPBs will lead to a change in lifestyle. Therefore, it is recommended to use HPI as a comprehensive program to improve and modify lifestyle.

Keywords: Health promotion, behavior, intervention, lifestyle, Nurse

Introduction

Health promoting behavior is a major criterion for determining health and its ultimate goal is to make decisions regarding health and to prepare for desirable behaviors [1-6]. As an important health factor, health promotion is of the responsibility of individuals and can lead them to higher levels of health [2-4,7,8]. Health promoting lifestyle is a multi-causal and multi-dimensional phenomenon which is related to collective patterns of behavior and control, and consistency in doing a series of health-related behaviors is its essence [5,9-14]. Self-efficacy belief is a prediction index for a wide

range of health behaviors [6,15-19] and results in maintaining and improving health behaviors [7,20,21]. Self-efficacy refers to confidence and ability of individuals for performing normal behaviors to achieve a healthy lifestyle. People with higher levels of self-efficacy participate more actively in health promotion programs [8,22-29].

Self-efficacy in HPBs play a key role in the adoption of preventive behaviors through strengthening individual's effectiveness, increasing self-confidence, and personal control over the situation [9,30-35]. People who believe in the concept of self-efficacy feel that they "can" increase individual control in HPBs through boosting confidence [10,36-38]. Studies have shown that self-efficacy strengthens self-esteem which in turn influences motivation. Self-esteem is the main precondition of health through strengthening the power of saying no against risky behaviors [9-11]. Self-efficacy is an effective factor for successful performance of a behavior and communicates knowledge and action [12,39,40-47].

Self-control is one of the factors affecting HPBs and avoidance of unhealthy behaviors. Those without self-control act regardless of long-term benefits of their and others behavior and as a result, will likely perform unhealthy behaviors. Attention to the

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consequences of doing or not doing preventive behaviors can increase self-control [19,40,48-55]. Studies have shown that self-control skills can be taught to reduce unhealthy behaviors [13,41,56-63].

Health education is a process for empowering individuals and bridges their health information to performance to make changes in their lifestyle. As a result of these changes, individuals perform behaviors that are beneficial for health and avoid from behaviors that are harmful for health [14,42,64-69]. It should be noted that training of HPBs is more than listening, motivational interviewing, and health literacy, rather, it is a training which is intended to facilitate behavior change through motivation and change in belief [3,43,70]. HPI increases the person's sense of self-efficacy and empowerment [15,44,71]. Self-esteem and self-efficacy lead to self-control and preventive behaviors which are required for health promotion and lifestyle modification [16,45,72-74]. The results of studies have been showed that nurses menstrual disorders, neck pain, back pain and etc. are due to their unhealthy lifestyle [17,46], and also nurses do not perform the necessary activities for a healthy lifestyle and this can affect their performance and outcomes of patients [18,47]. As educators and guides of people in performance of HPBs and promotion of healthy lifestyle, nurses should have healthy behavior, otherwise undesirable behaviors may spread and impact public health [1, 19]. Studies have shown the limited amount of theoretical and practical training conducted on health promotion for nurses [20] thus, this study has investigated the effect of HPI on HPBs of nurses.

Material and Methods

This study is an experimental study and performed in the hospitals of Babol University of Medical Sciences. The study population consisted of all nurses working in Babol University of Medical Sciences. The sample size was determined using means difference and variance in similar studies [14]. Taking into account the 15% loss, a total of 80 qualified nurses were selected by random sampling and divided into experimental and control groups. Written informed consent was obtained from nurses. Inclusion criteria included lack of mental illness, participation in 6 sessions, lack of chronic disease, and no participation in similar studies. Exclusion criteria were absence in more than two sessions of training and high score of health promoting behavior in pre-test. Nurses with new mental health problems and death of their relatives were excluded from the research.

To evaluate the ability of individuals to perform HPBs not only the diet, sleep, exercise and etc. but also self-esteem, self-efficacy and self-control must be evaluated [21].

The data were collected using 5 tools. The demographic questionnaire which includes age, gender, education, marital status, work experience, workplace ward, work shift, and hours of overtime per month. The Health-Promoting Lifestyle Profile II (HPLP II) is a 52-item questionnaire and measures the frequency of health promoting behaviors in six dimensions of health responsibility, physical activity, nutrition, spiritual growth, stress management, and interpersonal relations. There

are 4 options in front of each item: never (1), sometimes (2), often (3), and always (4). Total score range is 52-208 and the score of each dimension is calculated separately [20]. The General Self-Efficacy Scale of Schwartz was used to measure self-efficacy and consisted of 10 items scored with four-point Likert scale: not correct at all (1), less correct (2), partially correct (3), and absolutely correct (4) [22]. The Standard Self-Esteem Scale of Rosenberg includes 10 items or comment on people's true feelings and is scored as strongly agree = 4, agree = 3, disagree = 2, strongly disagree = 1; a score of 40 represents the maximum self-esteem [23]. And finally, the Brief Self-Control Scale (BSCS) of Tangney consisting of 13 items is scored based on 5-point Likert spectrum as never (1), partly (2), no idea (3), high (4), and very high (5). Items 2, 3, 4, 5, 7, 9, 10, 12, and 13 were scored inversely, and the total score ranged from 13 to 65 [24].

Validity and reliability of HPLP II have been approved in the study of Bahirae et al. and Taghdisi et al [4,25], and in the present study, Cronbach's alpha and correlation coefficient between the two tests were 0.94 and 0.98, respectively. Cronbach's alpha and correlation coefficient for the General Self-Efficacy Scale of Schwartz, the Standard Self-Esteem Scale of Rosenberg, and the Brief Self-Control Scale (BSCS) of Tangney were 0.83 and 0.98, 0.92 and 0.99, and 0.72 and 0.95, respectively. Validity and reliability of the Self-Efficacy, the Self-Esteem, and the Self-Control Scales were favorably appropriate in the study of Solhi et al. [23]. Sampling was performed from March 20 to June 20, 2016. After selecting the nurses, the tools were completed before the intervention.

Health Promotion Intervention

The content of health promotion intervention was designed based on learning objectives and analysis of results obtained from tools completed in the first phase. In addition, last updated website of Ministry of Health (April 2016) and the comments of specialists in health education and health promotion and community health nurses were also used. As a result, a content was designed and developed with the objects of dimensions of health promoting behaviors and nutrition, physical activity, responsibility for health, spiritual growth, interpersonal relations, and stress management, sentences with a positive sense to increase self-esteem, and emphasizing the experiences of others for self-efficacy and self-control. Training was held in 6 meetings during two weeks, 3 sessions per week and 30-40 minutes each session, based on an ongoing schedule [26]. Training was carried out for the intervention. To avoid disruption in services provided by nurses in the wards, it was tried to select the location, the training time, and the group sessions in coordination with nurses and head nurses. Health promotion intervention was performed through lecture, group discussion, question and answer, and educational slides. In addition, a number of educational messages relevant to health promotion intervention were prepared daily and sent via SMS to the experimental group. To inform the participants and avoid forgetting the classes, the time and place of the meetings were reminded by SMS the day before. The educational slides were

sent to persons absent at the sessions of health promotion intervention in the experimental group via electronic messages and those with more than two sessions absence were excluded. A month and a half after the health promotion intervention, the tools were completed again by both groups [23] and finally all trainings of the experimental group were provided to the control group as a CD.

Statistical Analysis

Descriptive statistics was used to determine the frequency, mean, and standard deviation of variables, Independent Sample T-Test, Mann-Whitney, Paired Sample T-Test and Wilcoxon, to compare the mean scores of self-efficacy, self-esteem, self-control, and health promoting lifestyle, as well as each relevant subgroup before and after the intervention and a month and a half after the intervention, and independent t-test and chi square test to compare the demographic variables. All statistical evaluations were performed at a significance level 0.05.

Results

The underlying characteristics of people (age, sex, education, work shift, work experience, workplace ward, marital status, and overtime hours) are shown in Table 1. In this regard, the comparison of the two groups resulted in p-values greater than 0.05, indicating no statistically significant difference between the two groups. The groups were matched in terms of underlying variables.

Table 1: Comparison of the underlying variables between the two groups

		Experimental group	Control group	p-value
Age (years)		34.40	33.43	p>0.05
Gender, number (%)	Male	14 (35)	9 (22.5)	p>0.05
	Female	26 (65)	31 (77.5)	
Education, number (%)	Bachelor	39 (97.5)	37 (92.5)	p>0.05
	Master Degree	1 (2.5)	3 (7.5)	
Marital Status, number (%)	Single	10 (25)	6 (15)	p>0.05
	Married	29 (72.5)	32 (80)	
	Divorced or Widowed	1 (2.5)	2 (5)	
Work Experience (years)		9.98	8.5	p>0.05
Workplace Ward, number (%)	Special	9 (22.5)	8 (20)	p>0.05
	Non-Special	31 (77.5)	32 (80)	
Work Shift, number (%)	Constant	3 (77.5)	4 (10)	p>0.05
	Rotation	37 (92.5)	36 (90)	
Time-Over Hours (Hours)		113.75	103.13	p>0.05

The parametric and nonparametric tests were used to compare the mean score of health promoting behaviors, self-efficacy, self-esteem, and self-control in the experimental and control groups before and after the intervention. Except for self-control variable (p>0.05), the remaining tests were significant (p<0.05). Mann-Whitney and independent sample t-test were used for comparison of the two groups before the intervention. The results showed no significant relationship between the two groups in terms of the studied variables before the intervention (p>0.05) (Table 2).

Independent sample t-test and Mann-Whitney test were used to investigate the association between the two groups of

experimental and control after the intervention. The results showed a significant relationship between the two groups regard the health promoting behaviors, self-efficacy and self-esteem variables (p>0.05). There was no statistically significant difference in self-control variable between the two groups (p>0.05) (Table 2).

Table 2: Results of variables of health promoting behaviors, self-efficacy, self-esteem, and self-control in the studied nurses before and after the intervention.

Variable	Group	Before Intervention			After Intervention		
		Mean	SD	p-value	Mean	SD	p-value
Health Promoting Behaviors	Experimental	150.43	21.66	p>0.05*	170.18	20.34	p<0.001*
	Control	149.43	18.70		153.05	21.04	
Self-efficacy	Experimental	26.48	6.34	p>0.05*	32.53	5.43	p<0.001*
	Control	28.43	6.14		27.45	5.01	
Self-esteem	Experimental	30.68	4.05	p>0.05**	33.85	4.04	p<0.001**
	Control	30.83	2.99		30.15	2.65	
Self-control	Experimental	46.15	4.57	p>0.05*	48.08	5.59	p>0.05*
	Control	45.15	5.96		46.58	5.06	

*Independent Samples T-Test
** Mann-Whitney

Paired sample t-test and Wilcoxon were used to investigate the relationship between health promoting behaviors, self-efficacy, self-esteem, and self-control in the experimental and control groups before and after the health promotion intervention. The results showed significant correlation between the experimental group before and after the intervention (p<0.05). There was no statistically significant difference between the control group before and after the intervention (p>0.05) (Table 3).

Table 3: Results of variables of health promoting behaviors, self-efficacy, self-esteem, and self-control in the experimental and control groups before and after the intervention.

Variable	Group	Before Intervention		After Intervention		p-value
		Mean	SD	Mean	SD	
Health Promoting Behaviors	Experimental	150.43	21.66	170.18	20.34	p<0.001*
	Control	149.43	18.70	153.05	21.04	
Self-Efficacy	Experimental	26.48	6.34	32.53	5.43	p<0.001*
	Control	28.43	6.14	27.45	5.01	
Self-Esteem	Experimental	30.68	4.05	33.85	4.04	p<0.001**
	Control	30.83	2.99	30.15	2.65	
Self-Control	Experimental	46.15	4.57	48.08	5.59	p<0.05*
	Control	45.15	5.96	46.58	5.06	

* Paired Sample T-Test
** Wilcoxon

Discussion

This study was carried out to determine the effectiveness of HPI on HPBs in nurses. The findings showed that although the mean scores of HPBs, self-efficacy, self-esteem, and self-control had no significant difference between the two groups before the HPI, the difference became significant after the intervention. In this study, there was no significant difference between the experimental and control groups before HPI in terms of health promoting behaviors in the majority of nurses (p>0.05), but after the HPI, the difference became significant (p<0.001). In a study by Tsai and Liu, a significant increase was observed in the lifestyle score of nurses after the electronic training intervention

^[14]. In the study of Ghasemi, the empowerment-based training intervention increased and improved the lifestyle of metanephric consumers and their families ^[48]. It was also shown in the study of Heidari et al. that a supportive program on health promotion had a positive effect on the lifestyle of menopausal teachers ^[49]. In a study by Shaher et al., the training intervention led to changes in lifestyle-related behaviors in health care providers after 6 months through change in attitude ^[50]. These findings refer to the increasing effect of the used intervention on healthy lifestyle behaviors.

The mean score of nurses' self-efficacy in the experimental and control groups had no significant difference before intervention ($p>0.05$). After intervention, the mean score increased in the experimental group and the difference became significant ($p<0.001$), indicating the positive impact of HPI on self-efficacy; this is consistent with the study of Taghdisi et al. about the effect of training intervention on increased self-efficacy and awareness of women for the prevention of domestic violence ^[51]. Self-efficacy has been named as a contributing factor in behavior change and empowerment of individuals in several studies ^[23, 52, 53]. In the study of Sin et al. training intervention improved self-efficacy and led to adoption of healthy lifestyle in the study subjects ^[54].

The mean score of nurses' self-esteem in the experimental and control groups had no significant difference before intervention ($p>0.05$), but the mean increased after intervention in the intervention group and the difference became significant ($p<0.001$), indicating the positive impact of health promotion intervention on self-esteem of the participants; this is in line with the study of Afkari et al, Solhi et al, and Babazadeh et al ^[22, 23, 55]. In a study in 2015, Aghajari et al. investigated the positive impact of training intervention on self-esteem of nursing students ^[56].

The mean score of self-control in the experimental and control groups were 46.15 and 45.15, respectively, with no statistically significant difference ($p>0.05$), and difference did not become significant after the intervention ($p>0.05$). Despite a slight change in the means before and after intervention, self-control was not significant, which indicates ineffectiveness of training on self-control of HPBs and healthy lifestyle. Since self-control for changing self-responses plays a major role in reaching demands and long-term goals in the mental and behavioral health ^[57] and given that self-control is a learnable skill ^[58], no significant change was occurred in self-control of the nurses in this study due to the short time.

This study is one of the few interventions that have been carried out on the lifestyle of nurses in Iran. Limitation of this study can be outlined as follows: small sample size, limited to the two hospitals, the time (a month and a half) of the study.

Conclusion

Health promotion intervention can change health promoting behaviors in nurses and changes in health promoting behaviors will lead to lifestyle changes. Therefore, it is recommended to use health promotion interventions as a comprehensive program to improve and modify lifestyle. Focusing on the lifestyle

dimensions of nurses and improving their quality can be an effective step to improve the health care system.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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