Original Article

The Effects of Cognitive-Behavioral Stress Management on Nurses' Job Stress

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Abstract

Background: Job stress is a prevalent and costly problem in different working conditions. Stress can degrade care quality in nurses and elevate their willingness to leave the job. This study aimed to determine the effects of cognitive-behavioral stress management on nurses' job stress. **Materials and Methods:** In this quasi-experimental study with a control group, 40 nurses from the educational hospitals in Birjand who had completed a job stress questionnaire with a score of more than 100 were selected and randomly allocated to two groups. The intervention group underwent eight 2-hour sessions training of cognitive-behavioral stress management (one session per week), whereas the control group had no such training. Two months after the training, the two groups completed the hospital job stress questionnaire again. The data were analyzed using Statistical Package for the Social Sciences (version 19) by Chi-square, Fisher exact test, independent *t*-test, and paired *t*-tests at 0.05 significance level. **Results:** Stress mean score and standard deviation before and after the intervention were 3.48 (0.22) and 2.8 (0.2) in the intervention group and 3.48 (0.21) and 3.56 (0.2) in the control group, respectively. In the intervention group, the overall mean scores of stress and its dimensions significantly decreased after the intervention ($P < 0.05$). **Conclusions:** Given the significant decrease in the nurses' stress using cognitive-behavioral stress management, this approach can be suggested to be taught to nurses in hospitals in order to decrease their stress and increase their efficiency.

Keywords: *Cognitive behavior therapy, Iran, job stress, nurses*

Introduction

As the prevalent disease of the 21st century,[1] stress is inseparable from anyone.[2] Stress arising from daily events can gradually weaken and control the immune system activities,[3] predisposing the individual to physical and mental illnesses. Stress increases blood pressure and heart beats, changes heart rate, and can even lead to behaviors such as fatigue, insomnia, anxiety, and depression.[2] A source of stress to anyone is job stressors[4] making jobs a major causes of stress in life.[5] Several studies emphasize that job stress can have harmful effects on both physical and mental health.[6] Stress has a significant correlation with job satisfaction and performance, and is an effective factor in the health, security, and comfort of individuals.[7] Job stress occurs when there is a mismatch between job requirements and the abilities, potentials, and ambitions of an individual,[8,9] and when the psychological demand is high but control or the decision-making possibility is at a low level.[10] Job stress has been introduced as the strongest factor contributing to psychological consequences, especially depression.[11]

The health-care sector is closely and directly related with the health of the humankind and is considered as a main area of stable development in societies. Stable development, however, demands healthy, lively, and motivated personnel among whom are nurses working in hospitals.[10] Nurses are among the most vulnerable working groups whose health and personal and professional equilibrium are highly correlated with occupational variables.[12] Research indicates that lengthened and continued stress can result in resignation, frequent absences, reduced energy and efficiency, decreased creativity, conflict with colleagues, decreased job satisfaction and care quality, failure in correct and timely decisions, decline in employees' ability and commitment, sense

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of inefficacy, depression, decline in professional values, hatred and tiredness of the job, and eventually, emergence of job burnout syndrome.[12,13]

Although job stress exists in any job, it is of more significance and frequency in professions related to human health.[14] Given the sensitive nature of the nursing profession, nurses are continuously exposed to stress,[15] whereby several nurses begin to feel tired in the face of stresses and are even willing to leave their jobs.[16] The Institution of Occupational Safety and Health, which investigated the relationship between job stress and occurrence of psychological diseases, reported that among the 130 professions under their study, nursing was the 27th in terms of occurrence of professional psychological problems.[17] According to previous research, 7.4% of nurses remain absent from their workplace because of burnout or disability arising from stress 80% more than other working groups.[10]

Because the psychological health of nurses correlates directly with their caring performance, reduced nursing stress through psychological and environmental interventions can play a fundamental role in elevating psychological health and in turn professional performance of nurses.[18] Cognitive-behavioral stress management is a set of techniques and methods applied to decrease the stress experienced by individuals or increase their ability to deal with their daily stresses.[19] In this intervention, the treatment is justified through showing the relationship between thinking, feeling, and behaving.[20] Konnert *et al*. suggest that it is a cost-effective approach for nurses prone to depression, adding that the stress-management program, as well as reduced negative thoughts and increased joyful occasions can considerably improve nurses who undergo the treatment.[21] Given the nature of the nursing profession, neglect from recognition and reduction of job stress can have reparable consequences. Empowering nurses against stressful factors can both contribute to the reduction and elimination of these factors and provide a calm environment as well as enhance the efficacy of patients.[22] A study by Shahabadi indicated that teaching cognitive-behavioral therapy techniques are effective in reducing nurses' stress; however, dissimilar working environments and stress measurement instruments can have different results.[23] Therefore, this study aims to investigate the effectiveness of cognitive-behavioral stress management as a method to reduce job stress in nurses working in educational hospitals of Birjand.

Materials and Methods

In this quasi-experimental study with a control group, permission was obtained from hospital heads. Assured of confidentiality of the data, 178 nurse (power: 80%, sig: 0.05) participants from the educational hospitals affiliated to Birjand University of Medical Sciences at 2014 provided informed consent and completed the hospital job stress questionnaire. The inclusion criteria consisted score above 100 from the job stress questionnaire, noninvolvement of nurses in psychotherapy or consumption of psychotropic drugs for at least a week prior to the onset of the study; not suffering from chronic stressful diseases such as cancer, asthma, or diabetes; not experiencing any major stressful event in the past six months (death of the spouse, separation from the spouse, imprisonment, death of a family member); and provision of at least 2 years of tenure and an informed consent. Among the nurses that met the inclusion criteria, forty were selected and randomly allocated to intervention and control groups (n = 20 in each group). The participants' scores at this stage were considered as their pretest score. The exclusion criteria included resignation from the study during the research and absence from classes for two sessions.

Those in the intervention group underwent 8 2-hour sessions training of cognitive-behavioral stress management (1 session per week). During the educational time-span, the nurses were given phone calls for any possible problem/question they may have had. Two months after the education, the job stress questionnaire was again administered in both groups. Cognitive-behavioral stress management classes were held in 8 2-hour sessions, and the contents were briefly as follows:

The first session provided orientation and introduction, gradual relaxation training, and assignment designation. The second session covered long-term consequences of stress, as well as the relationship between stress and self-awareness of one's thoughts. The third session was regarding the relationship between denial and emotions, and the training of diaphragm breathing. The fourth session covered mental imaging, negative thinking, and cognitive distortions. The fifth session taught self-education about heaviness and heat and replacement of rational thought for irrational thoughts. The sixth session taught efficient and inefficient coping strategies. The seventh session covered the techniques to make difficult stressors flexible and anger control. Finally, the eight session involved meditation and the training of expressiveness in order to better transfer emotions. The sessions were conducted by an individual with a master's degree in clinical psychology with sufficient expertise for the intervention group. It is noteworthy that relaxation and assignments were a fixed part of all the sessions. Follow-up was done by phone calls whereby participants' questions and problems were responded. Two months after the training, the hospital stress questionnaire was again completed by the groups.

The forty nurses under study were divided into two groups, 20 in the intervention group and 20 in the control group. One from each group left the study, so the final analyses included 38 individuals

The instrument included a demographic characteristics form (age, gender, marital status, tenure, type of work shift, and education level) and a hospital service

stress (HSS) scale. The HSS scale had 35 questions and 10 subscales including role overload, light workload, role conflict, role ambiguity, relation with superiors or colleagues, work shift, physical factors, chemical factors, and ergonomic factors. A Likert 5-point scale was used, ranging from the desirable (little stress) = 1 to undesirable status (heavy stress) = 5. The sum of each subscale scores was divided by the number of items for that subscale, yielding the mean score for that subscale, which ranged from 1 to 5. In addition, the sum of the subscales' scores was divided by the number of subscales to yield the total score of job stress. Higher scores were indicative of greater stress. The reliability and validity of this questionnaire is reported in Rejayi *et al*. to be calculated by Bedaghi through test–retest and Cronbach alpha as 0.84.[24] The data were analyzed using Statistical Package for the Social Sciences (version 19) by Chi-square, Fisher's exact test, independent *t*-test, and paired *t*-tests at the significance level of $P < 0.05$. The result of Kolmogorov–Smirnov test showed that distribution of data was normal.

Ethical considerations

The research study was explained to participant and voluntary informed consent was obtained from subjects participating in research in the study.

Results

Results indicate that there was no significant difference between the two groups in terms of demographic characteristics [Table 1].

T-test indicated that the total mean score of stress and its dimensions decreased significantly in the intervention group after the intervention ($P < 0.05$), and that the total mean score of stress along with role overload and work shift dimensions increased significantly in the controls but not in other dimensions ($P < 0.05$) [Table 2].

Independent *t*-test indicated that the total mean score changes of stress and its dimensions in the intervention group were significantly more than the control group except for the chemical dimension ($P < 0.05$).

Table 1: Comparison of demographic characteristic in intervention and control groups

Variables	Mean (SD) or number (%)		*P*
	Intervention group	Control group	
Age (%)			
≤30	10 (52.6)	8 (42.1)	0.5**
>30	9 (47.4)	11 (57.9)	
Sex (%)			
Male	5 (26.3)	4 (21.2)	1.00*
Female	14 (73.7)	15 (78.9)	
Marital status (%)			
Married	14 (73.7)	15 (78.9)	0.7**
Single	5 (26.3)	4 (21.1)	
Work shift (%)			
Fixed	3 (15.8)	3 (15.8)	1.0**
Rotation	16 (84.2)	16 (84.2)	
Age (year)			
Mean (SD)	30.7 (3.2)	31.1 (2.8)	0.7***
Work history (year)			
Mean (SD)	6.6 (3.1)	7.1 (2.9)	0.6***

*Fisher exact test, ** chi-square, *** Independent t test

Discussion

The overall aim of the present study was to investigate the influence of cognitive-behavioral stress management on nurses' job stress. Results indicated that the total score of stress and its dimensions changed significantly, and that stress decreased significantly after the intervention. It was only in the chemical dimension that stress score did not have a significant change because stress score in this dimension was significantly different before the intervention. Stress total score, role overload, and work shift dimensions in the control group increased significantly. Results indicate that the intervention significantly decreased nurses' job stress. Results from the current study are in line with those of Jabal-Ameli *et al*. regarding the effectiveness of this intervention on the quality of life and blood pressure of women with blood pressure,[25] Shahabadi *et al*.[23] on nurses' stress, and Kamphuis[26] on problems and diseases arising from job stress. They all confirm the effectiveness of cognitive-behavioral stress management. However, studies by Anderson *et al*.[27] and Nasri *et al*.[28] have some contradictions to offer. They may arise from the manner in which the intervention was provided and taught through recorded cassettes in the study by Anderson *et al*. study or the difference in the population which included nurses with chronic fatigue symptoms in the study by Nasri *et al*.

The process by which individuals adapt to stress can be facilitated through identification of useful coping skills and their presentation in educational treatment programs. The cognitive-behavioral stress management program mixes different types of relaxation, imaging, and other techniques for decreasing stress with the common cognitive-behavioral approaches such as cognitive reconstruction, education of coping effectiveness, expressiveness, and anger management, which can be effective in reducing stress and its symptoms. In addition, one main source of stress in individuals is insufficient recognition of stressful situations and lack of control over them. Thus, cognitive-behavioral stress management classes can be doubly useful because such classes not only try to modify cognitive methods but they also introduce stressful situations and stressful factors in terms of duration, intensity, predictability, controllability, and unexpected onset. The required preparedness for these situations, rational adaptation and coping with any possible problem or shortcomings, and proper response can be achievable by attending these classes,

Table 2: Comparison of total stress and its dimension before and after intervention in intervention and Control groups

Variables	Group	Before intervention		2-month after intervention		*P*	Mean of differences		*P*
		Mean	SD	Mean	SD		Mean	SD	
Role overload	Intervention	3.56	0.44	2.94	0.46	<0.001	−0.62	0.41	<0.001
	Control	3.61	0.60	3.81	0.52	0.02	+0.20	0.35	
Light workload	Intervention	3.61	0.52	2.81	0.46	<0.001	−0.80	0.58	<0.001
	Control	3.65	0.71	3.85	0.59	0.14	+0.19	0.56	
Role conflict	Intervention	3.13	0.37	2.26	0.37	<0.001	−0.63	0.37	<0.001
	Control	2.90	0.57	2.85	0.32	0.68	−0.05	0.55	
Role ambiguity	Intervention	3.27	0.57	2.64	0.54	<0.001	−0.63	0.39	<0.001
	Control	3.32	0.82	3.31	0.68	0.88	−0.01	0.39	
Relation with superiors	Intervention	3.78	0.81	3.45	0.59	0.05	−0.33	0.72	0.03
	Control	3.94	0.62	4.03	0.56	0.41	+0.08	0.45	
Relation with colleagues	Intervention	3.24	0.55	2.49	0.50	<0.001	−0.75	0.39	<0.001
	Control	3.54	0.59	3.38	0.41	0.16	−0.15	0.47	
Relationship (total)	Intervention	3.51	0.44	2.97	0.38	<0.001	−0.54	0.27	<0.001
	Control	3.74	0.41	3.71	0.44	0.58	−0.03	0.27	
Work shift	Intervention	3.63	1.06	2.73	0.77	<0.001	−0.89	0.75	<0.001
	Control	3.60	0.92	4.07	0.62	0.01	+0.47	0.71	
Physical factors	Intervention	3.24	0.64	2.73	0.46	<0.001	−0.51	0.48	0.008
	Control	3.17	0.64	3.15	0.37	0.89	−0.01	0.59	
Chemical factors	Intervention	3.26	0.56	2.92	0.53	<0.001	−0.34	0.29	0.16
	Control	3.68	0.65	3.57	0.73	0.49	−0.11	0.65	
Biologic factors	Intervention	4.13	0.59	3.18	0.55	<0.001	−0.94	0.84	<0.001
	Control	3.78	0.75	4.02	0.75	0.18	+0.23	0.75	
Ergonomic factors	Intervention	3.66	0.56	2.96	0.51	<0.001	−0.70	0.60	<0.001
	Control	3.33	0.69	3.49	0.54	0.26	+0.15	0.60	
Stress (total)	Intervention	3.48	0.22	2.81	0.21	<0.001	−0.67	0.11	<0.001
	Control	3.48	0.21	3.56	0.20	<0.001	+0.07	0.04	

-Decrease mean of differences, + Increaes mean of differences

which can reduce the stress of the individual. Therefore, one may conclude from the findings of this study that the cognitive-behavioral stress management program is a safe and effective intervention that can be used by nurses or by nurses for those suffering from chronic diseases and stress. It is also suggested to study this intervention with regards to other high-stress jobs such as emergency medical services. The limitations included noncompletion of assignments at home, for which there was a review of assignments in the next session and phone call follow-up.

Conclusions

Given the significant decrease in the nurses' stress using cognitive-behavioral stress management, this approach can be suggested to be taught to nurses in hospitals in order to decrease their stress and increase their efficiency.

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Conflicts of interest

There are no conflicts of interest.

References

1. Gholamnejad H, Nikpeyma N. Occupational stressors in nursing. Iran Occup Health J 2009;6:22-7.
2. Taghiloo S. The Effect of the Holy Quran Reading Instruction on Stress Reduction in the Young and Adolescents. J Guilan Univ Med Sci 2009;18:72-81.
3. Hamid N. The effects of stress on the immune system of medical students in Tehran and Shahid Beheshti universities of medical sciences. Jundi Shapur J Health Sci 2003.37:14-21.
4. Clegg A. occupational stress in nursing: A Review of the literature. J Nurs Manag 2001;9:101-6.
5. Rahmani F, Behshid M, Zamanzadeh V, Rahmani F. Relationship between general health, occupational stress and burnout in critical care nurses of Tabriz teaching hospitals. Iran J Nurs 2010;23:54-63.
6. Addae HM, Wang X. Stress at work: Linear and curvilinear effects of psychological, job, and organization related factors: An exploratory study of Trinidad and Tobago. Int J Stress Manag 2006;13:476-93.

7. Hsu HY, Chen SH, Yu HY, Lou JH. Job stress, achievement motivation and occupational burnout among male nurses. J Adv Nurs 2010;66:1592-601.
8. Aghilinejad M, Mohammadi S, Afkari ME, Abbaszade Dizaji R. Surveying the association between occupational stress and mental health, personality and life stressful events in Tehran police officers. Pajouhesh Dar Pezeshki 2007;31:355-60.
9. Azadmarzabadi E. Stressor and their relative variables in militants. J Mil Med 2010;11:213-7.
10. Hosseini Z, Moeini B, Hazavehei SMM, Aghamollai T, Moghimbeigi A. Effect of educational stress management, based on Precede model, on job stress of nurses. Hormozgan Med J 2011;15:200-8.
11. Kawakami N, Haratani T. Epidemiology of job stress and health in Japan: Review of current evidence and future direction. Ind Health 1999;37:174-86.
12. Allipour Birgani S. The Relationship of Work Engagement and Work Stress with Satisfaction from Daily Lives of Nurses in Ahvaz Governmental Hospitals. Jentashapir 2013;4:141-9.
13. Zeighami Mohammadi SH, Asgharzadeh Haghighi S. Relation between Job Stress and Burnout among Nursing Staff. Sci J Hamadan Nurs Midwifery Fac 2011;19:42-9.
14. Hebrani P, Behdani F, Mobtaker M. Evaluation of stress factors in nurses of different hospital wards. J Fundam Ment Health 2008;10:231-7.
15. Hosseini MM. Fundamentals of nursing management. 1st ed. Tehran: Publication Boshra; 2007.
16. Esandiari GR. Survey of the rate of the rate of occupational burnout between nursing staff of Sanandaj Hospitals Affiliated to Kurdistan University of Medical Sciences in 2001. Sci J Kurdistan Univ Med Sci 2001;6:31-5.
17. Asad Zandi M, Sayari R, Ebadi A, Sanainasab H. Abundance of depression, anxiety and stress in militant Nurses. J Mil Med 2001;13:103-8.
18. Bigdeli I, Karimzade S. The study of relationship between the tension-making factors and mental health of Semnan nurses. Koomesh 2007;8:21-6.
19. Jabalameli SH, Heydari H, Mostafavi S. Effectiveness of cognitive-behavioral stress management interventions on general health among patients with heart disease. J Behav Sci 2011;9:475-80.
20. Hawton K, Salkovskis PM, Kirk J, Clark DM. Cognitive Behaviour Therapy for Psychiatric Problems. Translator, Ghasemzadeh H. 9th ed. Tehran: Arjmand Publication; 2012.
21. Konnert C, Dobson K, Stelmach L. The prevention of depression in nursing home residents: A randomized clinical trial of cognitive-behavioral therapy. Aging Ment Health 2009;13:288-99.
22. Koivula M, Paunonenm J, Laippala P. Burnout among nursing staff in two Finnish hospitals. J Nurs Manag 2000;8:149-58.
23. ShahAbadi SH, Kharamin SHA, Firozi MR, HoosiniMotlagh SA, Malekzadeh M. Determination of the Effect of Cognitive Behavioral Therapy on Stress among Nurses at Yasuj Shahid Beheshti Hospital in 2009. Armaghane-danesh 2010;14:58-64.
24. Rajaei M, Haghighi H, Dadipoor S, Fallaghi S, Salimi M, Sareghi Brojeni M, *et al*. Relationship between occupational stress and job satisfaction among Iranian obstetricians. Hormozgan Med J 2013;17:249-55.
25. Jabalameli SH, Neshat doost TH, Moulavi H. Efficacy of cognitive-behavioral stress management intervention on quality of life and blood pressure in female patients with hypertension. Sci J Kurdistan Univ Med Sci 2010;15:88-97.
26. de Vente W, Kamphuis JH, Emmelkamp PM, Blonk RW. Individual and group cognitive-behavioral treatment for work-related stress complaints and sickness absence: A randomized controlled trial. J Occup Health Psychol 2008;13:214-31.
27. Anderson KO, Cohen MZ, Mendoza TR, Guo H, Harle MT, Cleeland CS. Brief cognitive-behavioral audiotape interventions for cancer-related pain: Immediate but not long-term effectiveness. Cancer 2006;107:207-14.
28. Nasri S, Najarian B, Mehrabizadeh Honarmand M, Shokrkon H. Comparing the Effectiveness of two psychological approaches in the symptom improvement of chronic fatigue syndrome among Tehran female nurses. J Educ Psychol 2002;3:53-88.