Original Research Article

Effect of Nursing Intervention Program on Stress and Burnout among Preretirement Employee in Hospital at 10th of Ramadan City

Eman Shokry Abd Allah[1*], Samia Said Hassan Hussein[2], Hanaa kassem Farag[3], Mervat El-Shahat Ibrahim[3]

[1]Professor of Community Health Nursing, Faculty of Nursing, Zagazig University, Shaibet an Nakareyah, Markaz El-Zakazik, Ash Sharqia Governorate 44519, Egypt

[2]MSc of Family and Community Health Nursing, Faculty of Nursing, Suez Canal University, El Salam District، Ismailia, Ismailia Governorate, Egypt

[3]Lecturer of Family and Community Health Nursing, Faculty of Nursing, Suez Canal University, El Salam District، Ismailia, Ismailia Governorate, Egypt

Abstract

Background: Health care employees need stress reduction and burnout prevention more than ever thought. *Aim of study*: to evaluate the effect of an intervention program on job stressors and burnout among preretirement employees in Health Insurance Hospital at 10th of Ramadan city. *Subjects and Methods*: The study was carried out in the Health Insurance Hospital at 10th of Ramadan city using a quasi-experimental design with pre-post assessment on a convenience sample of 100 preretirement employees. A self-administered questionnaire was used in data collection with scales for assessment of job stress and strain, and burnout. The fieldwork was achieved from July to December 2017. *Results:* Participants were mostly females (67%), at 50-year age (45%). The highest job stressor was the clinic-related one (73%). In total, 63% had high stressors at pre-intervention phase, compared to 29% and 36% at post-and follow-up phases respectively (p<0.001). Also, 36% had high strains before the intervention, which significantly dropped to 20% after the intervention, and to 13% at follow-up. Overall, 29% had high burnout before the intervention, which significantly declined to 9% at post-intervention phase, but increased again to 36% at follow-up phase. In multivariate analysis, the intervention was the main significant independent negative predictor of employees' stress and strain scores, while the stress score was a significant positive predictor of the total burnout score. *Conclusion and Recommendations*: The intervention program is effective in reducing the levels of stress, strain, and burnout. It is recommended to implement it in the study settings and in similar ones, with improvements of its burnout aspects.
Keywords: Stress, Strain, Burnout, Pre-retirement the intervention program.

INTRODUCTION

The World Health Organization views stress as a worldwide epidemic because stress has recently been observed to be associated with 90% of visits to physicians [1]. The nursing profession is known to be stressful throughout the world and has detrimental effects on the physical and psychological wellbeing of an individual; nursing is emotionally, physically and psychologically demanding [2]. Studies have revealed also that stress is the most common health problem attributed to long work hours and the incidence of stress due to overwork is growing. The United Nations realized the magnitude of this problem as it has labeled job related stress as 20th Century disease [3].

Burnout is a psychological syndrome associated with job stressors and personal factors [4]. Nowadays, it has become one of the main problems in all health systems and is increasing day by day under the influence of different pressures in life and especially at work. Burnout not only leads to the appearance of negative effects on the physical and mental health of personnel, but also leads to reducing efficiency, reducing quality of nursing services, and increasing hospital costs [5].

Stress started to receive increased attention with the aim to explore the effects of burnout syndrome (BS) [6]. The nursing staff is more susceptible to the development of BS compared with other professions because of the characteristics of the work itself, which involves a great amount of responsibility for the life of patients and closeness with patients, for whom suffering is almost inevitable [7, 8]. The constant interaction between professional standards, integrity of the ego, and patient needs within the therapeutic relationship often leaves nursing workers vulnerable to stress, fatigue, and exhaustion [9].

Significance of the Study

Stress and burnout are very serious problems in any organization. The Hospital at the 10th of Ramadan city, as in many other settings, suffers the problem of shortage of employee leading to high workload, stress, and burnout. Hence, it is important for the organization to identify workplace stressors and the level of burnout in order to provide strategies for effective management. This would help in improving performance, care quality, and job satisfaction, and decreasing absenteeism and turnover.

Aim of the study

The aim of this study was to evaluate the effect of nursing intervention program on job stressors and burnout among preretirement employees in Health Insurance Hospital at 10th of Ramadan city. Through

- Identify job stressors and levels of burnout among preretirement employee;
- Examine relationship between job stressors and levels of burnout among preretirement employee;
- Designing and implementing nursing intervention program for preretirement employee.
- Evaluating the effect of nursing intervention program on job stressors and burnout among preretirement employee and enhancing social support among preretirement employee.

Research Hypothesis

The educational program will relieve symptoms of stress and burnout among preretirement employee in health insurance hospital at 10th of Ramadan city.

SUBJECTS AND METHODS

The aim of this study was to evaluate the effect of nursing intervention program on job stressors and burnout among preretirement employees in Health Insurance Hospital at 10th of Ramadan city. The methodology pursued in conducting the study is presented under technical, operational, administrative, and statistical designs.

Research Design

A quasi-experimental one-group intervention design with pre-post assessment was used in carrying out the study.

Setting

The study was carried out in the Health Insurance Hospital at 10th of Ramadan city. It is a six-floor building hospital offering all specialties. The first floor hosts the general manager and administrative offices, security department, as well as the laboratory, X-ray, emergency and emergency surgery departments. The second floor is for ICUs, dialysis unit, and head nurse office. The third floor is for surgical department, the fourth for orthopedic department, and the fifth for labor department.

Target population

A convenience sample of all preretirement employees who agreed to participate in the study at time of data collection was selected. Their total number was 100 employees working in different departments. Since all available eligible employees in the setting were included, no sampling technique or estimation of sample size were applied.

Tool for Data Collection

A self-administered questionnaire (Appendix I) was used in data collection, It included scales for assessment of job stress and strain, and burnout, in addition to a part for socio-demographic data as following.

Part I: Socio-demographic data: This was for collecting employee's personal data as age, gender, education, marital status and number of children, residence, experience years, and monthly income. It also asked about some job-related data as specialties of hospital, working shifts, daily and weekly work hours, type of work, work organization and schedule, and supervisory role.

Part II: This consisted of the job stressors questionnaire developed by Abd El-Hady [10], based on Vroom and Spielberger [11]. It has 39 statements on a 4-point Likert scale: usually, sometimes, rarely, and never. They are divided into two sections measuring stressors (23 items), and strain or physiological response to stressors (16 items).

- Stressors: This section covers two types of stressors, namely personal and job stressors.
- Personal stressors: 7 items such as getting pregnant, parents' care, etc.
- Job stressors: 16 items covering:
- Clinic-related stressors: 4 items such as low salary, etc.
- Work-overload stressors: 4 items such as heavy workload affecting family needs, etc.
- Psychological stressors: 8 items such as lack of cooperation among nurses, risks of dealing with patients, feeling insecure in job, etc.
- Strains: This section covers two types of strains, namely physical and gastrointestinal as follows.
- Physical strains: 10 items such as fatigue, headache, etc.
- Gastrointestinal strains: 6 items such as loss of weight, increased appetite, etc.

Scoring: The items checked usually, sometimes, rarely, and never were scored from 3 to 0 respectively. For each area of stress/strain for the total scales, the scores of the items were summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into percent scores. The nurse was considered to have a high stress/strain if the percent score was 60% or more and low if less than 60%.

Part III: This was the Maslach Burnout Inventory Educator Survey (MBI-ES) developed by Maslach *et al.*, [12]. It was used to measure the burnout syndrome among the preretirement employees. The scale has 15 items with the response on a 7-point Likert scale: daily, sometimes weekly, once weekly, sometimes monthly, once monthly, sometimes yearly, and never. They are divided as follows.

- Emotional exhaustion: 5 items such as "I feel exhausted at the start of my workday," etc.
- Depersonalization: 3 items such as "I feel blame towards patients' problems," etc.
- Personal achievement: 7 items such as "I feel very active," etc.

Scoring: The items checked from "daily" to "never" were scored from 6 to 0 respectively. The scoring was reversed for positive items so that a higher score reflects more burnout. For each burnout dimension and for the total scale, the scores of the items were summed-up and the total divided by the number of the items, giving a mean score for the part. These scores were converted into percent scores. The nurse was considered to have a high burnout if the percent score was 60% or more and low if less than 60%.

Preparatory Phase

During this phase, the researcher reviewed local and international literature related to the study topic. This was done using various sources such as internet and manual search in scientific journals and textbooks. This helped to acquaint the researcher with strong background information about the study subject and in the selection of the data collection tool. Based on this, the preliminary form of the data collection tool was prepared. *Validity and reliability of the tool*: Once prepared in a preliminary form, the tool was presented to three experts in the field of Community Health Nursing at Suez Canal University Faculty of Nursing for face and content-validation. They revised the tool assessing its relevance, comprehensiveness, and clarity. The Maslach inventory has a known high validity and reliability [13]. Moreover, the reliability of the scales was assessed through measuring their internal consistency. They demonstrated good levels of reliability as indicated by Cronbach's Alpha (Stress scale= 0.852, Strain scale=0.766, and Burnout scale=0.862).

Pilot study

A pilot study was carried out 10% of the subjects in the study sample to test the applicability and clarity of the tool. No modifications were done according to the results of the pilot study. Therefore, the pilot subjects were included in the main study sample.

Fieldwork

The fieldwork for the study was achieved through assessment, planning, implementation, and evaluation phases.

Assessment phase: After obtaining all required official permissions, the researcher visited the study settings and met with the director to explain the aim and procedures of the study, and to seek cooperation in data collection. Then, and met individually with the eligible subjects and invited them to participate after explaining the aim of the study. Those who gave their consent were handed the data collection tool, with instructions on how to fill it. The completed form was collected by the researcher to verify its completeness. The tool filling took 25-30 minutes from each employee. The researcher was present in the study setting daily, from 10: 00 AM to 1: 00 pm. This was considered as a pretest constituting a baseline for gauging program effectiveness.

Planning phase: The data collected during the assessment phase were analyzed in order to identify the learning needs of the participants. Based on this analysis, the researcher prepared the nursing intervention program with the main aim of reducing work stressors, strains, and burnout among pre-retirement employees. The program covered both theory and practice. It included topics as progressive muscle relaxation, breathing exercises, communication skills and solving problems technique, in addition to appropriate and preventive approaches for stressor symptoms. The researcher also prepared a guide booklet to help preretirement employee to gain knowledge about stressors and burnout.

Implementation phase: Once the program was ready, the researcher started its implementation on participants. This was done in small groups of attendants. It consisted of four sessions. The duration of each session was approximately one hour. The first session covered the definition of stress, its symptoms, stress, types, and process. The second session discussed the effects of stress covering personal as well as organizational effects. The third session was for the topic of stress management; it covered approaches as exercises, diet, smoking reduction, support groups and support networks, time management, relaxation technique, and breathing meditation for stress. The last session addressed the burnout definition, symptoms, causes, types, and management.

The training involved both theoretical and practical aspects. Adult learning principles were applied with more opportunity for active participation and open discussions. Various teaching media were used including power point presentations, posters, flipcharts, etc. A variety of teaching methods were also used such as role-playing, simulation, and demonstration-re-demonstration.

Evaluation phase: The effectiveness of the intervention program in reducing stress, strain, and burnout among participants was measured immediately

at the end of the program implementation, and after 3-month follow-up**.**

The fieldwork lasted for six months during the period from July to December 2017.

Administrative Design

An official permission was secured from the Director of the Health Insurance Hospital using proper channels of communication. This was through a letter from the Dean of the Faculty of Nursing, Suez Canal University explaining the study aim and procedures and asking for permission to conduct it and collect data.

Ethical Considerations

The study protocol was approved by the Research and Ethics committee at the Faculty of Nursing, Suez Canal University. A verbal informed consent was obtained from each subject before collecting any data. The researcher explained the aim of the study in a simple manner to each participant. They were informed about their rights to refuse or to withdraw from the study at any time without giving reason. Data were anonymous and were considered confidential and not be used outside this study without participant's approval. No actual or potential harms were expected from participation in the study.

Statistical Design

Data entry and statistical analysis were done using SPSS 20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the scales through their internal consistency. Qualitative categorical variables were compared using chi-square test. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to identify the independent predictors of the scores of stress, strain, and burnout, multiple linear regression analysis was used and analysis of variance for the full regression Models done Statistical significance was considered at p-value<0.05.

RESULTS

The study sample consisted of 100 employees, mostly females (67%), with age 50 years (45%) as presented in (Table-1). Approximately one-half of them (49%) were having basic education. The majority were married (70%) with children, and were residing in urban areas (62%). Their years of experience were mostly 21-25 (42%), and slightly more than a half of them (53%) considered their income insufficient.

Table-2 demonstrates the job stressors were higher in comparison with the personal stressors at the pre-intervention phase. The highest job stressor was the clinic-related one (73%). At the post-intervention phase, there were statistically significant decreases in all types of personal and job stressors. The improvements continued throughout the follow-up phase for the personal (p=0.001) and clinic-related (p<0.001) stressors. The psychological stressors showed a slight increase of stressors, but the level remained significantly lower in comparison with the pre-intervention level (p=0.003).

Concerning the strains experienced by employees in the study sample, (Table-3) shows that the headache, fatigue, and dizziness were the most commonly reported symptoms at the pre-intervention phase, whereas hypotension and urinary incontinence were the least reported. The symptoms of headache, tachycardia, hypertension, muscle stiffness, and tachypnea demonstrated statistically significant improvements at the post-intervention phase, and this was maintained during the follow-up phase. On the other hand, the symptoms of fatigue, dizziness, gastrointestinal, and hypotension did not show any statistically significant changes. Meanwhile, the symptoms of hyperphagia, general weakness, skin allergy, hyperglycemia, weight loss, hypoglycemia, and urinary incontinence exhibited statistically significant improvements only at the follow-up phase.

Table-4 demonstrates that at the pre-intervention phase, the majority of the employees' in the study sample were having high emotional exhaustion and depersonalization, and low personal achievement. These demonstrated statistically significant improvements at the post-intervention phase, with decreases in the former two and increase in the last one. However, these improvements did not continue through the follow-up phase, although the levels were still better compared with the pre-intervention levels.

Table-5 demonstrates statistically significant moderate positive correlations between employees' scores of stress and each of the strain and burnout scores. It also shows a statistically significant small positive correlation between their scores of strain and burnout (r=0.382).

As regards the correlations with employees socio-demographic and job characteristics, (Table-6) shows that the scores of stress had statistically significant weak positive correlation with the number of children (r=0.167), and a negative correlation with income insufficiency (r=-0.155). As for the burnout scores, they had statistically significant weak positive correlation with their age, number of children, and the number of daily hours of work.

Table-1: Socio-demographic characteristics of employees in the study sample (n=100)

	Frequency	Percent
Age:		
50	45	45.0
51-50	38	38.0
55+	17	17.0
Gender:		
Male	33	33.0
Female	67	67.0
Education:		
Basic	49	49.0
Intermediate	34	34.0
High	17	17.0
Current marital status:		
Unmarried (single/divorced/widow)	30	30.0
Married	70	70.0
Number of children (excluding singles):		
0	9	9.4
1-2	23	24.0
4-3	40	41.7
5+	24	25.0
Residence:		
Urban	62	62.0
Rural	38	38.0
Experience years:		
<20	30	30.0
21-25	42	42.0
>25	28	28.0
Income:		
Insufficient	53	53.0
Sufficient	47	47.0

Table-2: Exposure to stressors among employees in the study sample throughout study phas (n=100)

Stressors	Phase						X^2 (p-value) Pre-post	X^2 (p-value) Pre-FU
	Pre		Post		FU			
	No.	%	No.	%	No.	%		
Personal:								
High (60%+)	39	39.0	26	26.0	18	18.0	3.85	10.82
Low (<60%)	61	61.0	74	74.0	82	82.0	(0.049*)	(0.001*)
Job stressors:								
Clinic-related:								
High	73	73.0	50	50.0	42	42.0	11.17	19.66
Low	27	27.0	50	50.0	58	58.0	(0.001*)	(<0.001*)
Work overload:								
High	71	71.0	51	51.0	69	69.0	8.41	0.10
Low	29	29.0	49	49.0	31	31.0	(0.004*)	(0.76)
Psychological:								
High	67	67.0	31	31.0	46	46.0	25.93	8.97
Low	33	33.0	69	69.0	54	54.0	(<0.001*)	(0.003*)

(*) Statistically significant at $p<0.05$

Table-3: Exposure to strains among employees in the study sample throughout study phases (n=100)

Strain Symptoms	Phase						X^2 (p-value) Pre-post	X^2 (p-value) Pre-FU
	Pre		Post		FU			
	No.	%	No.	%	No.	%		
Headache	90	90.0	79	79.0	80	80.0	4.62 (0.03*)	3.92 (0.048*)
Fatigue	83	83.0	74	74.0	86	86.0	2.40 (0.12)	0.34 (0.56)
Dizziness	82	82.0	71	71.0	80	80.0	3.37 (0.07)	0.13 (0.72)
Tachycardia	75	75.0	46	46.0	42	42.0	17.60 (<0.001*)	22.43 (<0.001*)
Hypertension	73	73.0	50	50.0	40	40.0	11.17 (0.001*)	22.15 (<0.001*)
Muscle stiffness	69	69.0	44	44.0	55	55.0	12.71 (<0.001*)	4.16 (0.04*)
Hyperphagia	66	66.0	57	57.0	45	45.0	1.71 (0.19)	8.93 (0.003*)
General weakness	63	63.0	70	70.0	78	78.0	1.10 (0.29)	5.41 (0.02*)
Tachypnea	61	61.0	43	43.0	42	42.0	6.49 (0.01*)	7.23 (0.007*)
Skin allergy	60	60.0	53	53.0	30	30.0	1.00 (0.32)	18.18 (<0.001*)
Hyperglycemia	57	57.0	45	45.0	33	33.0	2.88 (0.09)	11.64 (0.001*)
Weight loss	51	51.0	61	61.0	66	66.0	2.03 (0.15)	4.63 (0.03*)
Hypoglycemia	48	48.0	42	42.0	29	29.0	0.73 (0.39)	7.62 (0.006*)
Gastrointestinal symptoms	46	46.0	39	39.0	42	42.0	1.00 (0.32)	0.32 (0.57)
Hypotension	43	43.0	48	48.0	43	43.0	0.50 (0.48)	0.00 (1.00)
Urinary incontinence	30	30.0	25	25.0	16	16.0	0.63 (0.43)	5.53 (0.02*)

Table-4: Exposure to burnout among employees in the study sample throughout study phases (n=100)

Burnout	Phase						X^2 (p-value) Pre-post	X^2 (p-value) Pre-FU
	Pre		Post		FU			
	No.	%	No.	%	No.	%		
Emotional exhaustion:								
High	79	79.0	54	54.0	69	69.0	14.03	2.60
Low	21	21.0	46	46.0	31	31.0	(<0.001*)	(0.11)
Depersonalization:								
High	65	65.0	44	44.0	55	55.0	8.89	2.08
Low	35	35.0	56	56.0	45	45.0	(0.003*)	(0.15)
Personal achievement:								
High	35	35.0	55	55.0	38	38.0	8.08	0.19
Low	65	65.0	45	45.0	62	62.0	(0.004*)	(0.66)

(*) Statistically significant at p<0.05

Table-5: Correlation matrix of nurses' exposure to stress and their strain, and burnout

Scores of	Spearman's rank correlation coefficient		
	Stress	Strain	Burnout
Stress			
Strain	.574**		
Burnout	.605**	.382**	

(**) Statistically significant at p<0.01

Table-6: Correlation between nurses' exposure to stress and their strain, burnout, and coping and their personal characteristics

	Spearman's rank correlation coefficient		
	Stress	Strain	Burnout
Age	.089	.019	.132*
No. of children	.167**	.062	.134*
Qualification	.037	-.002	.059
Income	-.097	-.047	.016
Income sufficiency	-.155**	.009	-.015
Hours/day	.074	.019	.149**
Hours/week	.034	-.067	.027

(*) Statistically significant at p<0.05   (**) Statistically significant at p<0.01

DISCUSSION

The study sample consisted of preretirement employees in the age decade preceding retirement, predominantly females. Their socio-demographic characteristics point to their belonging to a middle socioeconomic level with mostly basic to intermediate education, and insufficient income. These characteristics would certainly influence their apprehension feelings when approaching retirement due to the drop in their incomes with retirement. This was more expected given that the majority were married and had children. In congruence with this, Kerry [14] emphasized the importance of the preretirement transition in post-retirement adjustment and well-being, particularly regarding financial planning. The effects of the change of resources associated with retirement has also been outlined in a study in Hong Kong [15].

Regarding the work conditions of the preretirement employees in the present study, around a half of them were working in shifts, and one-third considered work as heavy. Such conditions might be a source of stress and burnout among them, particularly with the low salaries as the majority were having a monthly salary just less than double the level of minimal salary in Egypt, which is 1200 Egyptian Pounds. Such low salary with heavy work would certainly lead to low satisfaction among them, thus increasing their levels of stress and burnout. The effect of heavy workload on employees' lifestyle has been demonstrated in as study in France [16]. The present study assessed the levels of job stressors among preretirement employees. The findings indicate that job stressors were higher in comparison with the personal stressors before implementation of the intervention. The clinic-related job stressors were the highest among the three types of job stressors. This was certainly due to the lack of proper organization of the work in the outpatient clinics, with low participation in the decision-making process. These conditions would lead to low feelings of identity at work, with consequently high stress and burnout. A similarly high level of stress related to work conditions was reported in a study in Slovenia [17].

The second highest work-related stressors among the preretirement employees in the current study were those of work overload. This might be related to the large numbers of patients attending the settings, in addition to the problems of under-staffing and shortage of nurses. In such conditions, the employees may feel overburdened and unable to cope with the pressing demands of their clients. Added to this is the work schedule with rotating shifts and overtime work. In agreement with this, a study in Poland demonstrated that high workload and working night shifts were the most important sources of stress among nurses [18].

Meanwhile, the psychological type of work-related stressors were the lowest in this category of stressors among the preretirement employees of the current study. Nonetheless, two-thirds of them had high level of these stressors before the study intervention. This aspect of stressors mainly encompasses work relations with peers, supervisors, subordinates, as well as with the clients. The high workload and lack of organization would undoubtedly potentiate such psychological stress. In line with this, Schneider and Weigl [19] in a study in Germany found a significant association between psychological work factors and the mental wellbeing of health care providers in emergency departments.

On the other hand, only approximately two-fifth of the preretirement employees in the present study had high personal stressors. This might be explained by their long years of experience, which helped them adapt their personal and family life with their working conditions. It could also be related to their residence close to the workplace, with less expenditure of money and time in transportation and commuting to work. In agreement with this, a study in Australia emphasized the importance of commuting time as a factor influencing employees' job stress [20].

The implementation of the present study intervention led to significant decreases in all types of personal and job stressors. This indicates the effectiveness of the training program in alleviating the stress among these preretirement employees. The finding was confirmed through multivariate analysis, which identified the study intervention as the main

significant independent negative predictor of employees' stress score. Similar effectiveness of interventions aimed at lowering job stress were published, whether cognitive-behavioral direct interventions [21], or web-based ones [22].

The present study has also investigated the effects of job stressors on preretirement employees through measuring strain among them. The results demonstrated that the most commonly reported symptoms of strain among them before the intervention was implemented were those of headache, fatigue, and dizziness. These are the most known general physical symptoms associated with psychological stress. Similar symptoms were reported among employees in the retirement transition phase in a study in the United Kingdom [23].

At the post-intervention phase of the present study, the present study preretirement employees demonstrated significant decreases in certain symptoms of their stress such as the symptoms of headache, tachycardia, hypertension, muscle stiffness, and tachypnea. These are mostly symptoms indicating acute stress and consequent strain, which can show immediate improvement. Moreover, their improvement was sustained during the follow-up phase. The findings are in congruence with those of a study carried out in Hong Kong, where a training program for preretirement employees was successful in decreasing their somatic and psychological troubles [24].

Meanwhile, other symptoms of strain indicating chronic exposure to stressors such as fatigue, gastrointestinal troubles, and hypotension did not significantly improve after the implementation of the intervention. Such symptoms may need more time to be relieved and more intense management. Concerning the symptoms of hyperphagia, general weakness, skin allergy, hyperglycemia, weight loss, hypoglycemia, and urinary incontinence, they demonstrated significant improvements only at the follow-up phase. The findings indicate the intervention program was effective in relieving such symptoms but only after a certain time given that such symptoms are not as acute as headache, tachycardia, and tachypnea, which showed immediate improvement.

In sum, more than one-third of the preretirement employees in the present study had high strains before the implementation of the study intervention. These decreased to one-fifth at the post-intervention phase, and around one-tenth at the follow-up phase. The findings indicate the success of the intervention program both in short and long terms. In fact, the study intervention was identified as the only significant independent negative predictor of employees' strain score in the multivariate analysis model. The employees' personal and job characteristics had no significant influence on their strain score.

Pignata and Winefield [25] reported a similarly successful intervention in Australia.

The current study has also assessed the level of burnout among the preretirement employees. The results indicate that a majority of these employees had high emotional exhaustion at the pre-intervention phase. Such high level of this burnout dimension is commensurate with the high level of work-related stressors revealed among these employees. The finding is in agreement with Weigl and Schneider [26] whose study in Germany revealed that 66% of the emergency department professionals were having a high level of emotional exhaustion.

Additionally, approximately two-thirds of the preretirement employees in the current study had high levels of depersonalization before the intervention. This dimension of burnout is often closely related to emotional exhaustion. In this respect, Maslach *et al.*, [12] mentioned that emotional exhaustion may lead to depersonalization.

On the other hand, only around one-third of the preretirement employees in the present study had high level of personal achievement before implementation of the study intervention. Such feeling of low personal achievement might be attributed to the inability of these employees to provide the services to their clients at a level of quality that satisfies their professionalism. This is often due to the lack of time, supplies and equipment due to shortage of resources and under-staffing. In agreement with this, a study in the United States reported an even lower level of personal achievement, as low as 18%, among the health care providers in a burn center [27].

The implementation of the present study intervention led to significant improvements in all three dimensions of burnout among the preretirement employees in the present study. Thus, the percentages of employees with high emotional exhaustion and depersonalization decreased, whereas those with high personal achievement increased. In total, approximately one-third of the preretirement employees of the current study had high level of burnout before implementation of the study intervention. This dropped to less than one-tenth at the post-intervention phase. These results indicate that the intervention program was effective in alleviating burnout among employees. Two systematic reviews provided a similar evidence of the effectiveness of interventions in reducing the levels of burnout among employees [28, 29].

Lastly, the present study results demonstrated significant positive associations and correlations among the scores of stress, strain, and burnout. Moreover, high strain was significantly associated with each of the personal, clinic-related, and psychological stressors. Similar associations among stress, strain, and burnout

were reported in studies from Italy [30], and France [31].

CONCLUSION

The study findings lead to the conclusion that the pre-retirement employees in the study settings experience high levels of stressors, both personal and work-related, with lower percentages suffering from strains and burnout. The implementation of the nursing intervention program is effective in reducing the levels of stress, strain, and burnout. These improvements are maintained throughout follow-up for the stress and strain but not for burnout, which tends to regress to baseline. Certain personal and job factors do influence the scores of stress, strain, and burnout such as the female gender and number of children, as well as the shift work, teamwork, and workload.

Recommendations
- In view of the study findings, the recommendations proposed are as follows
- The intervention program should be implemented in the study settings and in similar ones to reduce stressors and strain.
- Improvements of the burnout aspects of the intervention program are needed in order to be effective in long-term reduction of burnout rather than only having an immediate transient effect...
- Periodic assessment of employees' levels of stress, strain, and burnout must be done regularly to help in early detection of those affected before they suffer strains, actual burnout, and their consequences. This should be more frequently applied in the pre-retirement period.

REFERENCES

1. Onasoga Olayinka, A., Osamudiamen, O. S., & Ojo, A. A. (2013). Occupational stress management among nurses in selected hospital in Benin city, Edo state, Nigeria. *European Journal of Experimental Biology*, *3*(1), 473-481.
2. American Instituteof Stress Job Stress. (2015). http://www.stress.org/job/htm. 2015
3. Pahlavanzadeh, S., Asgari, Z., & Alimohammadi, N. (2016). Effects of stress management program on the quality of nursing care and intensive care unit nurses. *Iranian journal of nursing and midwifery research*, *21*(3), 213-218.
4. Garrosa, E., Rainho, C., Moreno-Jimenez, B., & Monteiro, M. J. (2010). The relationship between job stressors, hardy personality, coping resources and burnout in a sample of nurses: A correlational study at two time points. *International journal of nursing studies*, *47*(2), 205-215.
5. Abarghouei, M. R., Sorbi, M. H., Abarghouei, M., Bidaki, R., & Yazdanpoor, S. (2016). A study of job stress and burnout and related factors in the hospital personnel of Iran. *Electronic physician*, *8*(7), 2625-2632.
6. Raftopoulos, V., Charalambous, A., & Talias, M. (2012). The factors associated with the burnout syndrome and fatigue in Cypriot nurses: a census report. *BMC Public Health*, *12*(1), 457.
7. Meneghini, F., Paz, A. A., & Lautert, L. (2011). Fatores ocupacionais associados aos componentes da síndrome de Burnout em trabalhadores de enfermagem. *Texto & contexto enfermagem. Florianópolis, SC*. 20(2) 225-233.
8. Czaja, A. S., Moss, M., & Mealer, M. (2012). Symptoms of posttraumatic stress disorder among pediatric acute care nurses. *Journal of pediatric nursing*, *27*(4), 357-365.
9. Silva, J. L. L. D., Soares, R. D. S., Costa, F. D. S., Ramos, D. D. S., Lima, F. B., & Teixeira, L. R. (2015). Psychosocial factors and prevalence of burnout syndrome among nursing workers in intensive care units. *Revista Brasileira de terapia intensiva*, *27*(2), 125-133.
10. El-Hady, A. (2016). Job Stressors and Coping Strategies among Nurse Educators at Secondary Technical schools of Nursing in Alexandria. Unpublished Master Thesis, faculty of Nursing Alexandria University, Egypt.
11. Vagg, P. R., & Spielberger, C. D. (1998). Occupational stress: Measuring job pressure and organizational support in the workplace. *Journal of Occupational Health Psychology*, *3*(4), 294-305.
12. Maslach, C., Jackson, S., & Leiter, M. (2016). Maslach Bunout Inventory Manual. 3rd ed., Palo Alto, CA: Consulting Psychologists press.
13. Loera, B., Converso, D., & Viotti, S. (2014). Evaluating the psychometric properties of the Maslach Burnout Inventory-Human Services Survey (MBI-HSS) among Italian nurses: how many factors must a researcher consider?. *PLoS One*, *9*(12), e114987.
14. Kerry, M. J. (2018). Psychological Antecedents of Retirement Planning: A Systematic Review. *Frontiers in psychology*, *9*, 1870.
15. Yeung, H. W. C. (2017). The political economy of transnational corporations: a study of the regionalization of Singaporean firms. In *Singapore* (pp. 57-84). Routledge.
16. Descatha, A., Herquelot, E., Carton, M., Sabbath, E. L., Goldberg, M., Zins, M., & Leclerc, A. (2016). Is physically arduous work associated with limitations after retirement? Findings from the GAZEL cohort. *Occup Environ Med*, *73*(3), 183-186.
17. Dobnik, M., Maletič, M., & Skela-Savič, B. (2018). Work-Related stress factors in nurses at Slovenian hospitals–A cross-sectional study. *Slovenian Journal of Public Health*, *57*(4), 192-200.
18. Kwiatosz-Muc, M., Fijałkowska-Nestorowicz, A., Fijałkowska, M., Aftyka, A., & Kowalczyk, M. (2018). Stress prevalence and stressors among anaesthesiology and intensive care unit workers: A multicentre survey study. *Australian critical care*, *31*(6), 391-395.

19. Schneider, A., & Weigl, M. (2018). Associations between psychosocial work factors and provider mental well-being in emergency departments: A systematic review. *PloS one*, *13*(6), e0197375.

20. Milner, A., Badland, H., Kavanagh, A., & LaMontagne, A. D. (2017). Time spent commuting to work and mental health: evidence from 13 waves of an Australian cohort study. *American journal of epidemiology*, *186*(6), 659-667.

21. Shariatkhah, J., Farajzadeh, Z., & Khazaee, K. (2017). The Effects of Cognitive-Behavioral Stress Management on Nurses' Job Stress. *Iranian journal of nursing and midwifery research*, *22*(5), 398-402.

22. Wright, E. M. (2018). Evaluation of a web-based holistic stress reduction pilot program among nurse-midwives. *Journal of Holistic Nursing*, *36*(2), 159-169.

23. McDonald, S., Vieira, R., Godfrey, A., O'Brien, N., White, M., & Sniehotta, F. F. (2017). Changes in physical activity during the retirement transition: a series of novel n-of-1 natural experiments. *International Journal of Behavioral Nutrition and Physical Activity*, *14*(1), 167.

24. Ng, S. M., Leng, L., & Wang, Q. (2017). Active Interest Mentorship for Soon-to-Retire People: A Self-Sustaining Retirement Preparation Program. *Journal of Applied Gerontology*, *38*(3), 344-364.

25. Pignata, S., & Winefield, A. H. (2015). Stress-reduction interventions in an Australian university: A case study. *Stress and Health*, *31*(1), 24-34.

26. Weigl, M., & Schneider, A. (2017). Associations of work characteristics, employee strain and self-perceived quality of care in Emergency Departments: A cross-sectional study. *International emergency nursing*, *30*, 20-24.

27. Markiewitz, N., Cox, C., Krout, K., McColl, M., & Caffrey, J. A. (2018). Examining the Rates of Anxiety, Depression, and Burnout Among Providers at a Regional Burn Center. *Journal of Burn Care & Research*, *40*(1), 39-43.

28. West, C. P., Dyrbye, L. N., Erwin, P. J., & Shanafelt, T. D. (2016). Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *The Lancet*, *388*(10057), 2272-2281.

29. Panagioti, M., Panagopoulou, E., Bower, P., Lewith, G., Kontopantelis, E., Chew-Graham, C., ... & Esmail, A. (2017). Controlled interventions to reduce burnout in physicians: a systematic review and meta-analysis. *JAMA internal medicine*, *177*(2), 195-205.

30. Chirico, F. (2016). Job stress models for predicting burnout syndrome: a review. *Annali dell'Istituto superiore di sanita*, *52*(3), 443-456.

31. Metlaine, A., Sauvet, F., Gomez-Merino, D., Elbaz, M., Delafosse, J. Y., Leger, D., & Chennaoui, M. (2017). Association between insomnia symptoms, job strain and burnout syndrome: a cross-sectional survey of 1300 financial workers. *BMJ open*, *7*(1), e012816.