Assessment of nurse managers' knowledge of staff nurse burnout

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Abstract: The aim of this study was to assess nurse managers' knowledge of staff nurse burnout. A descriptive correlation research design was utilized. The setting was all private hospital affiliated to nongovernmental profit sector in Alexandria governorate. **Sample** of all head nurses (N=64) who were available during the period of data collection assigned to the previously selected hospital a survey for nurse managers developed by **stewart (2009)** utilized by the researchers to measure nurse managers' knowledge about staff nurse burnout (93 items) classified as: The nurse managers' knowledge of causes of burnout (8 items), causes of staff nurse burnout related to work environment (22 items), the knowledge of burnout prevention measures was assessed by the nurse managers (42 items), knowledge of burnout treatment measures was assessed by the nurse managers (21 items), in addition to socio-demographic characteristics of study subject. **Results:** the majority of nurse managers' knowledge about method to treat and prevent staff nurse burnout with mean percent 94.1 and 93.4 prospectively. There was significant moderate positive correlation between personnel causes and work environment causes, methods to prevent burnout by nurses, methods to prevent burnout by head nurses, methods used by nurses to treat their own burnout, methods used by managers to treat burnout (r=0.525, 0.644, 0.379, 0.332, 0.365) respectively. There was a significant positive correlation between work environment causes and methods used to prevent burnout by nurses (r=0.340). Also, there were significant moderate positive correlation between methods to prevent burnout by nurses and methods to prevent burnout by nurse managers, methods used by staff nurse to treat her own burnout and methods used by nurse managers to treat burnout (r=0.449, 0.408, 0.436) respectively. There were significant positive correlation between methods to prevent burnout by head nurses and methods used by nurse to treat her own burnout and methods used by nurse managers to treat burnout (r=0.578, 0.814) respectively. There was a significant positive correlation between methods used by nurse to treat her own burnout and methods used to treat burnout (r=0.496). The necessary data for socio-demographic variables was: a significant relation between experience in the unit as a nurse managers and knowledge about work environment causes of burnout (p=0.05). A significant relation between experience in the hospital and nurses' knowledge of methods prevent burnout (p=0.005). Marital status had significant relation regarding nurses and managers' knowledge about how to treat their own burnout and nurse managers' knowledge about methods used by them to treat burnout (p=0.035, 0.007) respectively. Education had a significant relation regarding manager's knowledge about methods used by managers to treat burnout (p=0.025). The study recommended to regular assessment of nurse managers' and staff nurses' perception of the knowledge about burnout to identify weakness in this knowledge. Strengthen nursing staff orientation, training of the knowledge of nurses' burnout. Regular meeting between nurse manager and her nursing team to discuss their work problems.
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1. Introduction:

Nursing is a profession that is particularly vulnerable to stress [1, 2, 3]. This stress definitely spill over from work life into home life. An increase in nursing job stressors with the lack of effectively dealing with stress can increase the tendency toward burnout [4].

Burnout is a main cause of loss of nurse's satisfaction and decreased patient care and staff care [1]. It is frequently related to emotional and personal feelings and have catastrophic effects on the work force because the nurse is leaving not only the current job but also the nursing work force [5, 6, 7].

Stress and burnout can feed upon one another. Burnout starts with one nurse feeling stressed and without proper intervention the stress builds and leads to burnout and the loss of one nurse from the team leads to shortage of staff and more work for the remaining nurses which may build another nurse's burnout [4, 8, 9].

Burnout is defined as feeling of complete emotional and physical exhaustion resulting from prolonged stress at work that has negative effects on the individual nurse, the patient, the organization, the nurses' family and personal life [10,11]. It results in poor work performance, feeling of hopelessness, poor health in general and low self-esteem [11,12].

Burnout is related to several factors, some of these factors are related to the nurses personal characteristics or values as the age, the amount of

experience and emotional intelligence [3,13]. Nurses have different preferences as to what they need to feel fulfilled professionally and some of their needs are related to generational differences in having a lot of responsibilities in their social and private life which create added stressors that lead to burnout [14].

Many other factors of burnout are related to the work environment as lack of resources, working long hours and heavy workload which can lead to staff nurse burnout. Similarly, lack of respect from managers, signs of violence from patient and their families[14-17], **Flinkman (2008)** concluded it is the feeling of being insufficiently trained for the job and lack of professional opportunities for professional development [18].

Hillhouse and Alder (1997) point out that it does not seem to be just any one stressor that cause burnout, rather it is a combination of stressors that causes the nurse to burnout [2].

The entire organization must be involved to put burnout prevention and treatment or reversal measures into place because burnout on nurses is reflected in great cost payed by patients and nurses. Patients pay in terms of decreased satisfaction with care and poor outcomes from nursing care [19-21].

Additionally, the organizations pay in terms of increased cost since burnout in general is financially costly, recruitment and training new nurses are expensive tasks for the organization [14].

Methods of burnout prevention and treatment must be in place to lessen the suffering and loss of nursing staff. Nurse managers are in an excellent position between the staff nurses and upper administration which allows them to serve as an advocate for nursing staff [3], managers, unlike administrators, have direct daily contact with nursing staff. Also the manager, unlike nursing staff, have direct contact with administrators and can convey major staff concerns and staffing issues directly with administrators who have the ability to make drastic changes within the environment or organization [22].

Therefore, the nurse managers must be involved to prevent staff nurse's burnout and encourage its knowledge as a problem in the organization. They can help to create a healthy work environment in general by focusing on ensuring that staffing level and workloads are appropriate, encouraging staff participation in decision making, interdisciplinary team work and empowerment for staff nurses[22].

In addition, nurse managers should encourage an emotional mentorship program for new nurses to help them to cope with emotions. They help also to promote and encourage positive relations between nurses and physicians. **Altun (2002)** found that having the values of justice, human dignity, freedom, and truth help the nurse to be more resistant to burnout[11].

On the other hand there are ways the manager can help to treat the symptoms and return health to the nurse who is already experiencing burnout as the manager can start by analyzing the nurses' daily tasks and work to improve the ergonomic, workload, shift work conditions and discuss with staff what are considered stressors to ensure open communication between management and staff to give feedback to staff, to allow the chance for improvement, showing recognition and respect for them and encouraging senior management to be visible and show support for staff help to reduce burnout, positive performance feedback in the form of reward may be given frequently to nursing staff whose must be encouraged to attend courses that educate about coping skills[23].

Encouraging the frontline management, the supervisors, to be knowledgeable and effective in ways to lead nursing staff into a healthy career will help reduce staff burnout[24].

Aim of the Study:
The aim of the study is to:
Assess nurse managers' knowledge of staff nurse burnout in Alexandria governorate.

Research question
What is the level of nurse managers' knowledge about staff nurse burnout in Alexandria governorate.

2. Materials & Method
I- Materials
Research Design:
A descriptive correlation design was utilized for the current study.

Settings:
The study was conducted in all private hospitals affiliated to nongovernmental profit sector at Alexandria governorate. These hospitals provide a wide spectrum of health services such as inpatient, outpatient, emergency services, as well as acute care settings (ICUs, CCU), each has a bed capacity of more than 50 beds. They are classified as follows: El Salama New hospital, Alexandria New Medical center, Mobarat El Asafraa East and West, El Shefaa hospital, Victoria hospital, Kaser E Shefaa hospital, Medical Madina hospital, Al Almany Hospital, Dr Ebrahim Eibid and Loran Hospital.

The number of private hospitals at Alexandria governorate that were more than 50 beds amounted to eleven hospitals which have a number of beds that ranges from 65 to 160 this to have an adequate number of head nurses.

Subjects:
Comprises all head nurses (N= 64) who were available during the period of data collection assigned to the previously selected hospitals, who have the responsibilities for carrying out the management of

units. They have either a diploma or a baccalaureate degree.

Tool of the study:

Data for this study was collected by using one main tool. Staff Nurse Burnout: A Survey questioner for nurse managers developed by **Stewart (2009).**

The Survey measures burnout knowledge. It consists of 93 items and was classified as follows: The nurse managers' knowledge of causes of burnout (8 items), causes of staff nurse burnout related to the work environment (22 items), the knowledge of burnout prevention measures was assessed by the nurse managers (42 items), the knowledge of burnout treatment measures was assessed by the nurse managers' (21 items).

In addition, socio demographic characteristics of staff nurses were collected by the researcher such as: age, sex, educational level, marital status, years of experience in profession, in the hospital, and in the unit and working hours during day. In addition, it included structured and open-ended questions about if there were family problems due to work in the hospital and the reasons for these problems if there were any.

II-Method

1-An official permission was obtained from the directors of the studied hospitals to conduct the study and collect necessary data.

2-The tool was translated into Arabic and submitted to a panel of experts composed of five members from the Faculty of Nursing to review and test content validity namely, modifications were done based on their comments.

3-Cronbach's alpha was used to test internal consistency of the items to test reliability of tool. The Cronbach's reliability coefficient for personal causes was 0.745, for work environment causes was 0.928, for methods to prevent burnout by nurses was 0.779, for methods to prevent burnout by head nurse was 0.703, for nurse can do for self to treat or reverse burnout was 0.814 and for manager can do to treat or reverse burnout was 0.836. A Cronbach's alpha tests were proved to be strongly reliable.

4-A pilot study for questionnaires was carried out on 10% of head nurses (n = 6)working at the international cardiac center, this sample was not included in the study. This was done in order to check and ensure clarity of tools and identify obstacles and problems that may be encountered during data collection and to estimate the time needed to fill the questionnaires.

5- Data collection included a list of nurses which obtained from the directors of nursing in each hospital in the study settings. About all head nurses who were employed in the hospitals at the time of the study induction and who had the responsibilities for carrying

out the management activities in all inpatient and outpatient units either having diploma or baccalaureate degree were included in the list.

-The researcher collected the data from the head nurses during the morning shift, by using a survey a questionnaire.

-The researcher started by informing the head nurses with the aim of the study. The time taken to complete the tool ranged from 30-45 mins.

-Data collection period took two months from (1/4/2013 to 1/6/2013).

6-Ethical consideration:

-A written informed consent was obtained from the identified studied subjects to collect data of the study.

-Confidentiality of data was maintained.

7-Statistical analysis:

-Data was computerized using the spss (statistical package for the social science), tabulated and analyzed using descriptive statistics in the form of frequencies and percentage.

Quantitative variables were presented in the form of means and standard deviation, and tested by student T-test one way Anova F, statistical significance was considered at $p\_value > 0.05$.

3. Results

Table (1) shows the socio demographic characteristics of studied nurses, most of the nurses (76%) aged from thirty to less than fifty, and almost all of them were female and seventy three of the nurses were married. About two third (67.2)of the studied nurses were professional nurses, while 32.8 of them were technical nurses. Regarding the experience of nurses in nursing, about 83% of them had a working experience in nursing ranging from ten to less than thirty years, while two third of them had less than ten years in the present hospital and 79.7% of them had less than ten years in the same unit. Eighty two percent of them stated that their work didn't cause family problems.

Table (2) and figure 1 show the nurse managers' knowledge about burnout. The majority of nurse managers' knowledge about methods to treat and prevent staff nurse burnout, the mean percent were 94.1 and 93.4 respectively. As for, the majority of nurse managers' knowledge about methods the staff nurses used to prevent and treat their own burnout, the mean percent were 87.6 and 86.5 respectively.

Table (3) shows the coefficient values for the relationship among different domains of knowledge about staff nurse burnout.

There were significant moderate positive correlation between personal causes and work environment causes, methods to prevent burnout by nurses, methods to prevent burnout by head nurse,

methods used by nurses to treat their own burnout, methods used by managers to treat burnout (r =.525, 0.644, 0.379, 0.332, 0.365) respectively.

There was a significant positive correlation between work environment cause and methods used to prevent by nurses (r = 0.340).

Also, there were significant moderate positive correlation between methods to prevent burnout by nurse and methods to prevent burnout by nurse managers, methods used by staff nurse to treat her own burnout and methods used by managers to treat burnout (r = 0.449, 0.408, 0.436) respectively. The same table indicates that, there were significant positive correlation between methods to prevent burnout by head nurse and methods used by nurse to treat her own burnout and methods used by managers to treat burnout (r = 0.578, 0.814) respectively.

Also, there was a significant positive correlation between methods used by nurse to treat her own burnout and methods used by manager to treat burnout (r = 0.496).

Table (4-9) show the relationship between socio demographic characteristics and different domains of knowledge about burnout. A significant relation was found between experience in the unit as a nurse manager and knowledge about work environment causes of burnout. A statistical significant difference was found (F = 3.2, p = 0.05).

Also, there was a significant relation between experience in the hospital and nurse's knowledge of methods to prevent burnout, a statistical significant difference was (F = 5.8, p = 0.005).

Marital status had significant relation regarding nurses, and managers' knowledge about how to treat their own burnout and nurse managers' knowledge about methods used by them to treat burnout.

A statistical significant difference was found (F = 3.6, p =.035) and (F = 5.4, p = 0.007) respectively.

Also, education had a significant relation regarding manager's knowledge about methods used by managers to treat burnout. A significant difference was (T = 4.1, p = 0.025).

Discussion

Burnout has a direct impact on the nurses' work and home life, nurse managers are in a position to have direct contact with staff nurses as well as upper management. Therefore, the nurse manager's knowledge of burnout has the potential to affect the staff nurses' experience of burnout.[22]

The results of the current study revealed that the studied nurse manager's were most knowledgeable about prevention and treatment or reversal staff nurse burnout, this result was supported by **Hurly 2007** who found that nurse manager analyzing the nurses' daily tasks and workload, shift works conditions and discuss

with staff nurses what are considered stressors so, the manager can learn about burnout and assess her staff frequently for signs and symptoms of burnout and timely treatment may be encouraged for those in need [17,25].

The greatest knowledge need was in the area of work environment causes, this result is consistent with Marchant and Hirani (2005) who found that lack of respect from management, lack of autonomy, feeling insufficiently trained for the job and poor opportunities for development have been identified as causes of burnout [15].

Also, the greatest knowledge need was in the area of personal causes of staff nurse burnout as dealing with emotions of patients and their families and ability to handle their emotions. This result is in the same line with **Augusto Landa et al (2008)** who concluded that some of the factors, which nurse managers are less knowledgeable about, were drawn from studies where nurses identified the factors as issues related to burnout as opposed to being theoretically –based knowledge as covering up true feelings and ability to handle emotions[3].

The result of the current study revealed that there was a positive relation between studied nurse managers' experience, education and marital status and their knowledge about burnout.

The greater knowledge about work environment causes of burnout among nurse managers with >10 years of experience in unit as a nurse managers this could be attributed to that the young nurse managers are more active and their activity is associated with increase in their interests and capability to accept knowledge about their unit work environment and this knowledge enable them to be more aware of environmental factors of burnout. Moreover, these findings are consistent with **MacGrath (2003)** who argued that young nurse managers are more aware of environmental stressors as lack of respect from patients and families such as expression of violence, insufficient safety measures and training, lack of equipment and supplies and lack of autonomy[26].

Moreover, the greater knowledge about methods to prevent burnout by nurse, was also, found among nurse managers with >10 years of experience this could be as a result of their sufficient knowledge about causes of burnout as a part of their knowledge, about how their staff to prevent themselves from stressors in the work environment [23].

Regarding marital status, married nurse managers had greater knowledge about methods nurse can do for self to treat burnout and methods used by manager to treat burnout. The possible explanation could be that married nurse managers as housewives experienced sense of responsibilities in their social life which added stressors that in turn lead to their

exposure to burnout and how to cope with these stressors, this reflect on the increase of their knowledge about how to treat burnout[24].

This explanation is in line with of **Glasberg et al (2007)**.who reported that having a lot of responsibilities in the nurses' social and private life can create added stressors that can lead to burnout[14].

According to education, professional nurse managers had greater knowledge about methods used by nurse managers to treat staff nurse burnout, this could be attributed to their academic preparation about managers' role including methods to treat burnout.

This result is supported by **Stewart (2009)** who found that the most appropriate education for nurse managers can help prevent the worsening of the nursing shortage.[27]

Table 1: Socio demographic characteristics of studied nurse managers

Socio demographic data	No	%
Age (in years)		
▪ 20-	9	14.1
▪ 30-	22	34.4
▪ 40-	27	42.2
▪ 50 or more	6	9.4
Sex		
▪ Male	6	9.4
▪ Female	58	90.6
Marital status		
▪ Single	12	18.8
▪ Married	47	73.4
▪ Divorced/widow	5	7.8
Certificate		
▪ Secondary Nursing School	15	23.4
▪ Nursing Institute	6	9.4
▪ B.Sc	43	67.2
Education		
▪ Technical Nurse	21	32.8
▪ Professional Nurse	43	67.2
Experience in Nursing (in years)		
▪ >10	7	10.9
▪ 10-	26	40.6
▪ 20-	27	42.2
▪ 30+	4	6.3
Experience in Hospital (in years)		
▪ >10	40	62.5
▪ 10-	14	21.9
▪ 20-	10	15.7
Experience in unit as a nurse manager (in years)		
▪ >10	51	79.7
▪ 10-	7	10.9
▪ 20-	6	9.4
Family problems		
▪ No	53	82.8
▪ Yes	11	17.2

Table2: Nurse managers' knowledge about staff nurses' burnout

Domains	α – Cronbach's	Minimum	Maximum	Mean %	SD
Personal Causes	0.745	0.0	100.0	62.3	24.0
Work Environment Causes	0.928	0.0	100.0	58.9	26.8
Methods to prevent BO by nurse	0.779	36.4	100.0	87.6	12.8
Methods to prevent BO by head nurse	0.703	50.0	100.0	93.4	9.8
Nurse can do for self to Treat or Reverse BO	0.814	16.7	100.0	86.5	18.8
Manager can do to Treat or Reverse BO	0.836	46.7	100.0	94.1	9.8

Table 3: The correlation matrix between different domains of nurse managers' knowledge about staff nurses' burnout

	Personal causes	Work environment causes	Methods to prevent BO by nurse	Methods to prevent BO by head nurse	Nurse can do for self to treat or reverse BO	Manager can do to treat or reverse BO
Personal causes	1					
Work environment causes	0.525*	1				
Methods to prevent BO by nurse	0.644*	0.340*	1			
Methods to prevent BO by head nurse	0.379*	0.133	0.449*	1		
Nurse can do for self to treat or reverse BO	0.332*	0.166	0.408*	0.278*	1	
Manager can do to treat or reverse BO	0.365*	0.096	0.436*	0.814*	0.496*	1

*-significant correlation co-efficient
Interpretation of correlation co-efficient Weak (0.1-0.24) Moderate (0.25-0.74) Strong (0.75-0.99)

Table 4: Relationship between socio demographic characteristics of nurse managers and their knowledge about personal cause of burnout.

Socio demographic data	Personal causes of BO		F	P
	Mean%	SD		
Age (in years)				
▪ 20-	73.6	23.8		
▪ 30-	55.7	26.4	1.4	0.252
▪ 40-	64.8	22.5		
▪ 50 or more	58.3	18.8		
Sex				
▪ Male	66.7	20.4	T=0.46	0.644
▪ Female	61.9	24.5		
Marital status				
▪ Single	52.1	23.1	2.9	0.062
▪ Married	66.5	23.8		
▪ Divorced/widow	47.5	18.5		
Education				
▪ Technical Nurse	58.9	23.1	T=0.78	0.437
▪ Professional Nurse	64.0	24.6		
Experience in Nursing (in years)				
▪ >10	69.6	27.8		
▪ 10-	59.6	26.5		
▪ 20-	65.3	20.9	1.0	0.393
▪ 30+	46.9	18.8		
Experience in Hospital (in years)				
▪ >10	65.0	24.7		
▪ 10-	64.3	23.4	1.9	0.152
▪ 20-	48.8	19.0		
Experience in unit as a nurse manager (in years)				
▪ >10	65.0	24.1	1.7	0.189
▪ 10-	55.4	17.5		
▪ 20-	47.9	26.7		
Family problems				
▪ No	60.8	24.8	T=1.1	0.291
▪ Yes	69.3	19.7		

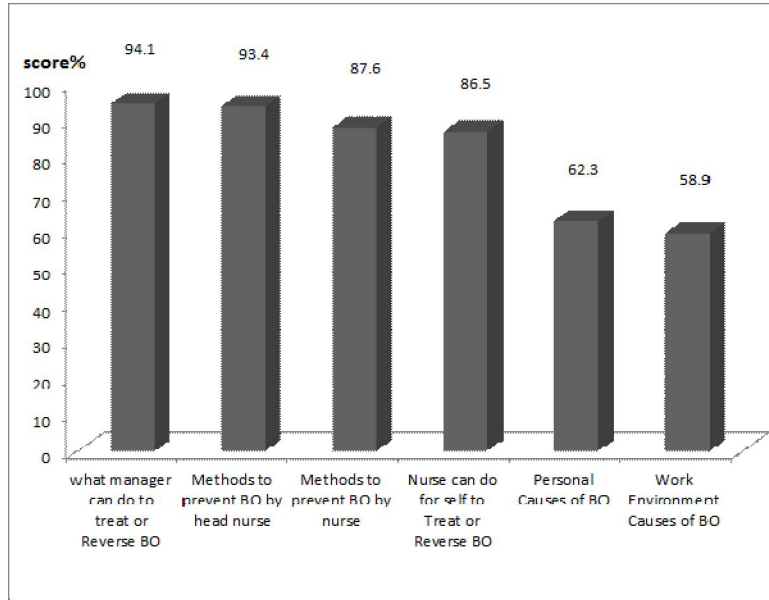F: One Way ANOVA;   T: Students t-test

Figure 1: Nurse Managers' knowledge about staff nurses' burnout.

Table 5: Relationship between socio demographic characteristics of nurse managers and their knowledge about work environment cause of burnout.

Socio demographic data	Work Environment causes		F	P
	Mean%	SD		
Age (in years)				
▪ 20-	70.2	21.1		
▪ 30-	56.0	25.9	0.95	0.422
▪ 40-	55.7	30.5		
▪ 50 or more	67.4	15.9		
Sex				
▪ Male	56.1	32.2	T=0.28	0.784
▪ Female	59.2	26.4		
Marital status				
▪ Single	59.8	16.1	1.4	0.259
▪ Married	60.7	29.2		
▪ Divorced/widow	40.0	17.1		
Education				
▪ Technical Nurse	54.8	25.0	T=0.87	0.386
▪ Professional Nurse	61.0	27.6		
Experience in Nursing (in years)				
▪ >10	63.6	26.6		
▪ 10-	56.1	25.6	0.25	0.858
▪ 20-	61.1	28.7		
▪ 30+	54.5	28.3		
Experience in Hospital (in years)				
▪ >10	59.2	27.0		
▪ 10-	61.4	26.2	0.19	0.828
▪ 20-	54.5	28.7		
Experience in unit as a nurse manager (in years)				
▪ >10	62.5	26.6		
▪ 10-	53.2	19.9	3.2	0.050*
▪ 20-	35.6	25.5		
Family problems				
▪ No	57.4	27.5	T=1.0	0.305
▪ Yes	66.5	22.2		

F: One Way ANOVA;   T:Students t-test;   *P>0.05 (significant)

Table 6: Relationship between socio demographic characteristics of nurse managers and their knowledge about methods to prevent burnout.

Socio demographic data	methods to prevent BO by nurse		F	P
	Mean%	SD		
Age (in years)				
▪ 20-	91.9	9.6		
▪ 30-	87.0	15.3		
▪ 40-	87.2	12.2	0.40	0.753
▪ 50 or more	85.6	11.3		
Sex				
▪ Male	91.7	3.4	T=0.80	0.424
▪ Female	87.2	13.4		
Marital status				
▪ Single	83.3	9.9		
▪ Married	89.7	13.2	2.8	0.068
▪ Divorced/widow	78.2	10.4		
Education				
▪ Technical Nurse	87.0	10.5	T=0.26	0.787
▪ Professional Nurse	87.9	14.0		
Experience in Nursing (in years)				
▪ >10	87.0	13.2		
▪ 10-	89.0	13.8		
▪ 20-	87.7	12.5	0.62	0.605
▪ 30+	79.5	7.9		
Experience in Hospital (in years)				
▪ >10	90.2	12.8		
▪ 10-	88.6	8.3	5.8	0.005*
▪ 20-	75.9	12.9		
Experience in unit as a nurse manager (in years)				
▪ >10	89.8	11.9		
▪ 10-	83.1	11.0	5.0	0.010*
▪ 20-	74.2	14.8		
Family problems				
▪ No	87.1	13.0	T=0.69	0.493
▪ Yes	90.1	12.5		

F: One Way ANOVA;   T:Students t-test;   *P>0.05 (significant)

Table 7: Relationship between socio demographic characteristics of nurse managers and their knowledge about methods to prevent burnout by head nurse.

Socio demographic data	methods to prevent BO by Head nurse		F	P
	Mean%	SD		
Age (in years)				
▪ 20-	96.7	5.6		
▪ 30-	92.5	12.4		
▪ 40-	93.3	7.6	0.45	0.719
▪ 50 or more	91.7	13.3		
Sex				
▪ Male	97.5	4.2	T=1.1	0.279
▪ Female	92.9	10.1		
Marital status				
▪ Single	90.0	14.9		
▪ Married	94.9	7.4	2.5	0.094
▪ Divorced/widow	87.0	12.0		
Education				
▪ Technical Nurse	91.4	12.8	T=1.0	0.272
▪ Professional Nurse	94.3	7.9		
Experience in Nursing (in years)				
▪ >10	92.9	8.1		
▪ 10-	92.3	12.5		
▪ 20-	94.4	7.3	0.21	0.888
▪ 30+	93.8	9.5		
Experience in Hospital (in years)				
▪ >10	95.4	9.4		
▪ 10-	91.1	9.8	2.6	0.082
▪ 20-	88.5	9.7		
Experience in unit as a nurse manager (in years)				
▪ >10	94.3	9.8		
▪ 10-	89.3	11.0	1.2	0.303
▪ 20-	90.0	7.1		
Family problems				
▪ No	94.0	9.5	T=1.1	0.282
▪ Yes	90.5	10.8		

F: One Way ANOVA;   T: Students t-test

Table 8: Relationship between socio demographic characteristics of nurse managers and their knowledge about what nurse can do for self to treat or reverse burnout.

Socio demographic data	Nurse can do for self to Treat or Reverse BO.		F	P
	Mean%	SD		
Age (in years)				
▪ 20-	83.3	23.6		
▪ 30-	84.1	18.2	0.43	0.753
▪ 40-	88.3	17.8		
▪ 50 or more	91.7	20.4		
Sex				
▪ Male	97.2	6.8	T=1.5	0.141
▪ Female	85.3	19.3		
Marital status				
▪ Single	76.4	27.9	3.6	0.035*
▪ Married	90.1	15.0		
▪ Divorced/widow	76.7	14.9		
Education				
▪ Technical Nurse	85.7	21.3	T=0.02	0.826
▪ Professional Nurse	86.8	17.7		
Experience in Nursing (in years)				
▪ >10	83.3	25.5	0.99	0.406
▪ 10-	82.7	17.9		
▪ 20-	89.5	18.6		
▪ 30+	95.8	8.3		
Experience in Hospital (in years)				
▪ >10	88.8	18.3	0.82	0.447
▪ 10-	83.3	16.0		
▪ 20-	81.7	24.2		
Experience in unit as a nurse manager (in years)				
▪ >10	87.3	17.8		
▪ 10-	83.3	21.5	0.22	0.802
▪ 20-	83.3	25.8		
Family problems				
▪ No	85.8	19.4	T=0.57	0.572
▪ Yes	89.4	15.4		

F: One Way ANOVA;   T:Students t-test;   *P>0.05 (significant)

Table 9: Relationship between socio demographic characteristics of nurse managers and their knowledge about what managers can do to treat or reverse burnout.

Socio demographic data	Manager can do to Treat or Reverse BO.		F	P
	Mean%	SD		
Age (in years)				
▪ 20-	97.8	4.7		
▪ 30-	92.7	12.5	0.96	0.417
▪ 40-	94.8	7.2		
▪ 50 or more	90.0	13.8		
Sex				
▪ Male	98.9	2.7	T=1.3	0.208
▪ Female	93.6	10.1		
Marital status				
▪ Single	90.0	16.7	5.4	0.007*
▪ Married	96.2	6.2		
▪ Divorced/widow	84.0	8.9		
Education				
▪ Technical Nurse	90.2	12.9	T=4.1	0.025
▪ Professional Nurse	96.0	7.3		
Experience in Nursing (in years)				
▪ >10	95.2	10.0	0.67	0.573
▪ 10-	93.3	11.8		
▪ 20-	95.3	6.6		
▪ 30+	88.3	14.8		
Experience in Hospital (in years)				
▪ >10	95.0	10.1	1.8	0.166
▪ 10-	95.2	7.1		
▪ 20-	88.7	10.9		
Experience in unit as a nurse manager (in years)				
▪ >10	95.2	9.6		
▪ 10-	92.4	7.1	2.2	0.118
▪ 20-	86.7	11.9		
Family problems				
▪ No	93.8	10.1	T=0.40	0.689
▪ Yes	95.2	8.5		

F: One Way ANOVA;   T:Students t-test;   *P>0.05 (significant)

Conclusion

Based on the result of this study it can be conclude of that, the majority of nurse managers' have knowledge about methods used to treat and prevent staff nurses' burnout, in addition to, knowledge about methods used by staff nurses' to prevent and treat their own burnout.

Moreover, there was a moderate positive correlation between the six domains of knowledge about burnout.

Further more, the findings of this study revealed that there was a significant relation between nurse managers' experience, marital status, level of education and their knowledge about staff nurses burnout.

Recommendation

In the light of the results of this study, the following recommendations are suggested:

1-Regular assessment of nurse managers' and staff nurses' perception of the knowledge about burnout to identify weakness in these knowledge.

2-Strengthen nursing staff orientation, training and development of the knowledge of nurses' burnout and deliver the knowledge as components of program to prevent and treat nurses' burnout.

3-Nurse manager should meet her nursing team at regular times to discuss their personal and work problems.

4-Regular feedback should be given by nurse manager to health institution management about the action taken or must be taken to prevent and treat nurses' burnout to gain the cooperation and assistance of these management.

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