

ARTICLE ORIGINAL/ORIGINAL ARTICLE
**DEPRESSION AND BURNOUT AMONG NURSES IN A LEBANESE ACADEMIC
MEDICAL CENTER**

<http://www.lebanesemedicaljournal.org/articles/66-2/original5.pdf>

Farid TALIH^{1*}, Jean AJALTOUNI¹, Laila FARHOOD^{1,2}

Talih F, Ajaltouni J, Farhood L. Depression and burnout among nurses in a Lebanese academic medical center. *J Med Liban* 2018; 66 (2): 92-97.

ABSTRACT • Background and Objectives : Healthcare providers are prone to mental health disorders with a prevalence higher than the general population. This study aims to assess the prevalence of depressive symptoms and severity of burnout among nurses in a Lebanese academic medical center. This study also aims to identify factors that are associated with these symptoms. **Methods:** A cross-sectional study was carried out at the American University of Beirut Medical Center in which 91 nurses responded to the survey pertaining to this study. The survey was anonymous and administered through an electronic form via e-mail. It included general socio-demographic questions and standardized validated tools to measure: depressive symptomatology (PHQ-9), burnout (Burnout Measure), anxiety (GAD-7), alcohol use (AUDIT), and drug abuse (DAST-10). **Results:** Overall 36.2% of the nurses qualified for major depressive symptomatology. The severity of burnout was significantly associated with depressive symptomatology, drug abuse and anxiety. Burnout was detected in 52.7% of the nurses. **Conclusions:** These findings indicate high rates of depression and burnout among nurses. These results can help in increasing awareness regarding the vulnerability of nurses to mental health problems. Addressing the mental health of nurses is a crucial factor in the multidisciplinary approach to patient care and nursing programs need to actively address the psychological wellbeing of nurses

Keywords : depression; burnout; nurses; mental health

Talih F, Ajaltouni J, Farhood L. Dépression et burnout parmi les infirmières dans un centre hospitalier universitaire libanais. *J Med Liban* 2018; 66 (2): 92-97.

RÉSUMÉ • Contexte et objectifs: La prévalence des troubles mentaux chez le personnel infirmier, élément fondamental des soins de santé, est supérieure à celle de la population générale. Cette étude vise à examiner la prévalence et les facteurs qui influencent les symptômes dépressifs et la sévérité du burnout parmi les infirmières dans un centre hospitalier universitaire (CHU) libanais. **Méthodes :** Étude transversale menée au CHU de l'Université américaine à Beyrouth, au cours de laquelle 91 infirmières ont complété un questionnaire. Ledit questionnaire a été rempli et administré de façon anonyme via un lien envoyé par courrier électronique. Il incluait des questions se rapportant à des facteurs sociodémographiques généraux, ainsi que des échelles standardisées validées : symptomatologie dépressive (PHQ-9), burnout (*Burnout Measure*), anxiété (GAD-7), prise d'alcool (AUDIT) et usage de drogues (DAST-10). **Résultats :** Au total, 36.2% des infirmières ont qualifié pour une symptomatologie dépressive majeure. La sévérité du burnout a été significativement associée à la symptomatologie de dépression, la prise d'alcool et de drogues. Le burnout a été détecté chez 52.7% des participants à l'étude. **Conclusions :** Ces résultats démontrent un taux élevé de dépression et burnout parmi les infirmières et devraient permettre de mieux prendre conscience de leur vulnérabilité aux troubles mentaux. Il est donc crucial de s'occuper de la santé mentale des infirmières dans l'approche pluridisciplinaire de soins aux patients, et des programmes doivent spécifiquement cibler leur bien-être émotionnel et psychologique.

Mots-clés : dépression; burnout; infirmières; santé mentale

INTRODUCTION

Healthcare providers worldwide face many challenges while working in the stressful healthcare environment, even more so in Lebanon, a multicultural Middle Eastern country that has witnessed war and political turmoil. Being on the frontlines in healthcare facilities, nurses are prone to a variety of job stressors. Previous international studies have shown a prevalence of 23.0% to 31.0% in emotional exhaustion among nurses [1-3]. Being married, older age, and private sector employment are among the factors that exacerbate burnout and depression among

nurses [2,3]. There is limited information in Lebanon regarding the psychological health of healthcare workers in general and nurses in particular [2]. Psychological and psychiatric disorders are among the most prevalent conditions affecting healthcare providers. Research shows higher prevalence rates of depression and burnout in healthcare workers as compared to the general population [4-6]. Burnout is defined as the reaction to job stress consisting of emotional exhaustion and reduced self-esteem [5]. United States data report higher rates of absenteeism, substance abuse, depression and burnout among healthcare workers [6].

Nurses globally are at high risk of suffering from occupational stress and burnout [7,8]. Information on this topic is limited in our region. This study aims to investigate the prevalence of burnout and depressive symptomatology in nurses in Lebanon and compare findings to the

¹Department of Psychiatry, American University of Beirut Medical Center, Beirut, Lebanon.

²Rafic Hariri School of Nursing, American University of Beirut, Lebanon.

*Corresponding author: *Farid Talih, MD.*
e-mail: ft10@aub.edu.lb

international prevalence. To our knowledge, this is the first study to assess depressive symptomatology, burnout and associated factors among Lebanese nurses. We hypothesize a high prevalence of burnout among Lebanese nurses associated with increased depressive symptomatology. We predict that the levels of burnout and depression among Lebanese nurses would be higher than that of the Lebanese general population, and at least comparable or higher than levels reported in international nursing studies.

METHODS

Study design

An electronic cross-sectional survey was conducted at an academic medical center in Beirut, Lebanon, from September to October 2013. Questionnaires consisted of demographics and questions about depression, burnout, anxiety, alcohol use, and substance abuse. There were also supplemental questions regarding recent familial or social stressors, use of mental health services, and psychotropic self-prescription.

The nursing data set was part of a larger study that addressed depression and burnout across the medical center. Correlations of burnout and depression with multiple factors including age, marital status, drug or alcohol use, stressful personal life events, anxiety symptoms, cigarette smoking and caffeine use, were examined.

The main outcome of this study was to measure the prevalence of burnout and reported depressive symptoms among healthcare workers.

Setting and sample

All nurses and physicians at the medical center were eligible for participation in the study which was approved by the institutional review board. Only licenced registered nurses were included in the survey.

Ethical considerations

Participants were asked to complete an anonymous online survey which was sent by email to all the nursing staff. The survey was administered electronically via an e-mail link on a secure website. Reminders to complete the survey were sent electronically every two weeks over a 6-week period.

Informed consent was obtained electronically. In the consent form a list of external and internal resources for mental health treatment was available if a participant wished to address a personal mental health issue.

Measurements

The Patient Health Questionnaire (PHQ-9) is a 9-item validated survey for depression [9]. A score of 10 or more has a sensitivity of 93% and a specificity of 88% for the detection of depression and higher scores indicate higher depressive symptomatology. The PHQ-9 questionnaire is validated in the Arabic speaking (Lebanese) population [10].

The Burnout Measure (BM) is a measure of burnout assessing the individual's physical, emotional, and mental exhaustion. A shorter 10-item version of the BM, the BMS, used in this study, was developed as an easy to use shorter version [11]. The BMS is highly correlated with the emotional exhaustion subscale of the Maslach Burnout Inventory (MBI). Burnout is defined as a score of greater than 3.5 on the BMS. Data from national samples (Arab and Israeli) and other occupational samples confirmed the validity and reliability of the BMS in similar populations [11].

The Generalized Anxiety Disorder-7 (GAD-7) is a 7-item screening tool for anxiety used in clinical practice and research [12]. Using the threshold score of 10, it has a sensitivity of 89% and a specificity of 82% for detecting anxiety. The GAD-7 questionnaire has also been validated in the Arabic speaking (Lebanese) population [10].

The Alcohol Use Disorders Identification Test (AUDIT) is a 10 item internationally validated questionnaire regarding alcohol use. Each item is scored from 0 to 4 and a score of 8 or more is indicative of hazardous use with 92% sensitivity and 94% specificity [13]. The AUDIT has been validated in the Arabic speaking population [14].

The Drug Abuse Screening Test (DAST-10) is a 10-item questionnaire, internationally validated, that provides an estimate of drug abuse related problems [15]. The DAST can detect and stratify the severity of drug abuse related problems.

Data collection

All questionnaires were administered in English. English proficiency is mandatory at the institution surveyed. However (as mentioned above), all surveys used in this study have been validated in Arabic speaking populations. The data was collected via a secure website that was provided for participation and stored securely.

Data analysis

All analyses were performed using IBM SPSS Statistics, version 20. Standard univariate statistics were used to characterize the sample. Descriptive statistics were calculated for the point-prevalence of reported depression, burnout, suicidal ideation, alcohol use, drug abuse, use of mental health services, and self-prescription of psychotropic medications. After determining point prevalences for each variable, the two main variables (depressive symptoms and burnout) were respectively studied with demographic factors, substance use and drug use. Associations between different general characteristics and outcomes were assessed using the Pearson's chi-square test or the Fisher's Exact, as indicated. Categorical variables were studied using the Pearson Chi-square method.

Significant outcome variables were subsequently entered into a multivariate logistic regression model, in a stepwise approach, to identify significant predictors while controlling for the other variables. All tests were 2-sided, with a type I error rate of .050 (95% confidence interval).

TABLE I STUDY POPULATION CHARACTERISTICS

Variable	N (%)	PHQ-9 ^a		BMS ^b	
Age (years)					
< 25	25 (27.4%)	7.04 ± 0.52	<i>p</i> = 0.875	3.28 ± 0.14	<i>p</i> = 0.030
26 - 35	52 (57.1%)	8.88 ± 0.59		3.73 ± 0.10	
36 - 65	14 (15.3%)	6.00 ± 0.59		3.17 ± 0.15	
Gender					
Male	39 (42.8%)	7.95 ± 0.62	<i>p</i> = 0.660	3.22 ± 0.12	<i>p</i> = 0.581
Female	52 (57.1%)	8.00 ± 0.55		3.76 ± 0.12	
Marital status					
Single	58 (64.4%)	8.24 ± 0.51	<i>p</i> = 0.631	3.60 ± 0.12	<i>p</i> = 0.430
Married	32 (35.5%)	7.47 ± 0.56		3.40 ± 0.12	

PHQ9: Patient Healthcare Questionnaire BMS: Burnout Measuring Scale a,b: Scores presented as mean ± standard deviation

RESULTS

Of the 620 nurses at the hospital surveyed, 91 responded, for an overall response rate of 15.0%. The general demographic features of our sample are presented in Table I.

Prevalence and predictors of depression (Table II)

A total of 33 participants (36.2%) showed moderate to severe depressive symptoms on the PHQ-9.

In the bivariate analyses, 8 variables (age, sex, marital status, having children, stressful personal life events in the past year, anxiety, burnout, drug abuse, and alcohol use) were tested for association with depression.

Depression was found to be significantly correlated with anxiety (*r* = .50, *p* < .001), burnout (*r* = .48, *p* < .001), and drug abuse (*r* = .30, *p* = .001). Anxiety (β = .30, *p* < .001) and burnout (β = .27, *p* < .001) were significant predictors of PHQ-9 scores.

TABLE II

BASELINE CHARACTERISTICS STRATIFIED
BASED ON MAJOR DEPRESSIVE SYMPTOMATOLOGY

	Freq. of depressed symptomatology (%)	<i>p</i> value
Age		
< 25 years	14 (56.0%)	
26-35 years	36 (69.2%)	
36-65 years	6 (42.8%)	0.845
Gender		
Male	25 (64.1%)	
Female	31 (59.6%)	0.887
Marital status		
Single	38 (65.7%)	
Married	18 (56.2%)	0.360
Stressful personal life events over the past year		
Yes	21 (72.4%)	
No	35 (56.4%)	0.330
Anxiety		
Moderate to severe	21 (91.3%)	
Minor or None	35 (51.4%)	< 0.001
Burnout		
Yes	42 (87.5%)	
No	14 (32.5%)	< 0.001
Drug abuse		
Low to moderate level	8 (72.7%)	
No problem related to drug abuse	47 (59.4%)	< 0.001

Prevalence and predictors of burnout (Table III)

A total of 48 (52.7%) participants reported burnout on the BMS.

On bivariate analyses, compared to non-burned-out nurses, burned-out nurses were more likely to be older (χ^2 (1, 91) = 5.10, *p* = .031) and screen positive for depression symptoms (χ^2 (1, 91) = 23.55, *p* < .001) and anxiety symptoms (χ^2 (1, 91) = 4.57, *p* < .001). Burnout severity was found to be significantly correlated with depression severity (*r* = .60, *p* < .001) and anxiety scores (*r* = .47, *p* < .001). Anxiety (β = .45, *p* < .001) and depressive symptomatology (β = .23, *p* < .001) were significant predictors of burnout.

Alcohol and drug related findings

Illicit drug use was reported by 12 (13.1%) participants.

A high level problem of drug abuse (per DAST) was detected in one participant. DAST scores were significantly correlated with depression severity (*r* = 0.13, *p* < .001). PHQ-9 scores (β = 19.00, *p* = .040) were significant predictors of drug use as indicated by DAST scores.

Tobacco use in our sample was as follows: 32.2% smoked cigarettes, 50.1% smoked water pipe. Additionally, 19.6% used alcohol regularly and 82.7% were habitual caffeine drinkers. There were no correlations detected between depression and smoking (cigarette or water pipe), alcohol use, or caffeine intake. No significant correlations were found between substance and alcohol use and burnout.

TABLE III
BASELINE CHARACTERISTICS STRATIFIED ACCORDING
TO FREQUENCY OF BURNOUT

	Frequency of burnout (%)	<i>p</i> value
Age		
< 25 years	10 (40.0%)	0.031
26-35 years	34 (65.3%)	
36-65 years	4 (28.5%)	
Gender		
Male	18 (46.1%)	0.272
Female	30 (57.6%)	
Marital status		
Single	32 (55.1%)	0.500
Married	16 (50.0%)	
Stressful personal life events over the past year		
Yes	17 (58.6%)	0.447
No	31 (50.0%)	
Anxiety		
Moderate to Severe	21 (91.3%)	< 0.001
Mild or None	27 (39.7%)	
Use of professional mental health therapy/Counseling services		
Yes	5 (55.5%)	0.850
No	43 (52.0%)	
Self-administration of mental health medications		
Yes	6 (50.0%)	0.831
No	42 (52.4%)	
Depression		
Major	28 (84.8%)	< 0.001
Minor or None	20 (34.4%)	

DISCUSSION

In this sample 36.2% of nurses reported significant depressive symptomatology. This prevalence is similar to previous studies performed on nurses that estimated depressive symptoms and clinical depression prevalence to be 35.0% and 13.0%, respectively [16]. The prevalence of major depression in the general population in Lebanon was reported to be 10.0% [17] and up to 19.7% in the adult age group [18]. The nurses who were in the young adult age group had a higher prevalence of reported depressive symptoms than in the age matched general population and higher than the prevalence in a regional study reporting depression at 20.0% in nurses [19].

We theorize that burnout, inadequate financial compensation for nurses, and the overall unstable social and political situation in Lebanon are potential causes of the high prevalence of depressive symptoms in this sample. The results of this study suggest that older nurses were more prone to depression; however, internationally an inverse correlation exists between depression and age among nurses in which older nurses were less prone to experiencing depressive symptoms [20]. This finding should be interpreted cautiously due to low sample size;

however, in Lebanon, females' responsibilities tend to increase with age due to cultural and social expectations. Also, older nurses were directly exposed to the trauma of the civil war and it is possible that their depressive symptoms went unnoticed and untreated, similarly to a large fraction of the postwar Lebanese population [21]. Older Lebanese nurses may be expected to assist their elderly parents, adult children, and grandchildren, in addition to their work responsibilities. These additional stressors may exacerbate depression and burnout. Additionally, chronic armed conflict and political instability in our region have been linked with risk of depression [18,21]. Lebanon's past exposure to a protracted civil war and ongoing political violence and conflict could have contributed to the relatively higher rates of depressive symptoms in this sample [21].

Personal or social stressors were not correlated with depressive symptomatology in this sample. In a study by this principal investigator on medical trainees (residents) at the same institution, the reverse was reported [22]. A positive association between recreational drug use and self-prescription of psychotropic medications was detected in this sample. Hence, nurses appeared to be struggling more with depression, burnout, and substance use than the residents [22]. It is likely that nurses who use drugs recreationally have more mental health problems and may be more likely to self-medicate with psychotropic medications. Cigarette smoking, caffeine use and alcohol use were not found to be significant predictors of depression or burnout in our study. Alarming, the rates of smoking (cigarette and water pipe) were elevated among sampled nurses; however, they were similar to the smoking rates reported by the residents [22]. Of interest, water pipe smoking was more prevalent than cigarette smoking in our sample which is culturally and wrongly perceived as more acceptable socially and less harmful than cigarette smoking.

Higher burnout scores were detected in female nurses when compared to males in our study; this results was equivocal in other studies that looked at gender differences in burnout [3,23]. Higher levels of burnout in female nurses could be due to cultural and traditional gender roles in Lebanon. Housework, childcare, and caring for extended family members, being traditional female roles in Lebanon and may contribute to more burnout in professional women.

Lebanon is a small Middle Eastern country known to be culturally diverse in terms of its religious and social composition. The sample in this study likely represents the overall general composition of the country since the institution surveyed is located centrally and has a culturally and religiously diverse workforce. However, the institution surveyed is a training center and recruits nurses from across the country. Lebanon is a geographically small and culturally diverse country making this sample reasonably representative. Findings of this study should be interpreted with caution and within the context of Lebanon's cultural diversity and postwar situation. Al-

though the civil war officially ended around 1991, its political, social and financial sequelae have an ongoing negative impact on the Lebanese population.

Limited data on burnout in nurses exists in Lebanon and the region. High levels of “emotional exhaustion” were reported in a local study, however depression and burnout data is not available for direct comparison of our findings [19]. Prevalence of burnout in our sample is similar to the prevalence reported in international studies [24]. A recent report from the United States detected burnout in critical care nurses in nearly a third of those surveyed [25]. As discussed earlier an inverse association between age and burnout was observed in our sample. This finding is not consistent with reports of burnout decreasing with age [20].

There are several limitations to this study due to the nature of this convenient sample. The low response rate and a relatively small sample size is another limitation which lowers the sample’s representativeness and as such, these results should be interpreted as associations rather than definitive causation. Low response rates could be due to stigma and fear of discrimination in the work place. Culturally in Lebanon there is considerable stigma regarding mental health issues. This stigma is likely to have adversely affected the overall response rate. Also we suggest that responders may be more psychologically minded or in actual distress when compared to non responders, which raises the question of self-selection or response bias. It is important to note that the residents surveyed at the same medical center as part of the same research project had double the response rate. One potential explanation is that residents may be less busy than nurses and may have more time to participate in the survey. Residents may be less concerned with stigma due to their exposure to psychiatry in medical school clerkships.

Finally, it is possible that due to burnout among the non responders, they were not motivated enough to respond to the questionnaire, which may have been viewed as burdensome by exhausted nurses.

Due to the overall low response rate and small sample size, the authors would like to consider this work as a pilot study that can help in developing larger projects examining burnout among healthcare workers in our region. The exclusive reliance on self-reported scales rather than diagnostic interviews is also a limitation, however they are convenient and allow for anonymity. The measures used in our study, although well validated and reliable, are not diagnostic, therefore results should be interpreted with caution. Self-reported scales allow for self-selection bias, perhaps nurses who did not suffer from any depressive symptoms or burnout chose to disregard the questionnaire because of lack of personal concern. We could not measure and assess the reasons of non response because the survey was administered online anonymously.

To our knowledge, this is the first study to examine depression and burnout among nurses working at an academic medical center in Lebanon. This study was conducted in a tertiary academic medical center in a capital

city, therefore results may not allow for generalization and extrapolation to other Lebanese healthcare centers. Other factors that may have contributed to burnout may be related to the high rates of job turnover and instability, and high rates of immigration among nurses in Lebanon, however we didn’t not examine these factors. We plan to assess these factors and their impact on burnout and depression in future studies.

CONCLUSION

These findings provide an international perspective on nurses’ mental health and well-being. It is important to note that the stigma regarding mental health issues in many developing countries deters nurses from seeking help. This study revealed a relatively higher prevalence of depression and burnout in nurses as compared to the general population in our region. Given that our general population has elevated levels of depression and anxiety due to chronic stressors such as warfare and political and economic instability, the even higher rates of depression and burnout among nurses is very concerning. It is worth noting that the overall study results suggest that both residents and nurses at the same facility are struggling to cope with depression and burnout [22]. Culturally, in Lebanon a physician’s role is more valued socially and this is a possible ameliorating factor for residents [22]. Promoting more empathy and collaboration between residents and nurses may be of mutual benefit to both groups. Nursing and healthcare administrators should routinely educate and raise awareness among nurses regarding depression and burnout and provide better working conditions such as better pay, better scheduling and stress free environments. Providing mental health interventions for those at risk is an important investment for healthcare systems in developing countries.

ACKNOWLEDGMENTS

The authors are thankful for the participation of the nursing staff at AUBMC.

REFERENCES

1. Gomez-Urquiza JL, Monsalve-Reyes CS, San Luis-Costas C, Fernandez-Castillo R, Aguayo-Estremera R, Canadas-de la Fuente GA. Risk factors and burnout levels in Primary Care nurses: A systematic review. *Aten Primaria* 2016; 49 (2): 77-85.
2. Abushaikha L, Saca Hazboun H. Job satisfaction and burnout among Palestinian nurses. *East Mediterr Health J* 2009; 15 (1): 190-7.
3. Cañadas-De la Fuente GA, Vargas C, San Luis C, García I, Cañadas GR, Emilia I. Risk factors and prevalence of burnout syndrome in the nursing profession. *Int J Nurs Stud* 2015; 52 (1): 240-9.
4. Sen S, Kranzler HR, Krystal JH et al. A prospective cohort study investigating factors associated with depression during medical internship. *Arch Gen Psychiatry*. 2010; 67 (6): 557-65.

5. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol* 2001; 52 (1): 397-422.
6. Geiger-Brown J, Lipscomb J. The health care work environment and adverse health and safety consequences for nurses. *Annu Rev Nurs Res* 2010; 28 (1): 191-231.
7. Wu S, Zhu W, Wang Z, Wang M, Lan Y. Relationship between burnout and occupational stress among nurses in China. *J Adv Nurs* 2007; 59 (3): 233-9.
8. Wu SY, Li HY, Wang XR, Yang SJ, Qiu H. A comparison of the effect of work stress on burnout and quality of life between female nurses and female doctors. *Arch Environ Occup Health* 2011; 66 (4): 193-200.
9. Spitzer RL, Kroenke K, Williams JB, Group PHQPCS. Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. *JAMA* 1999; 282 (18): 1737-44.
10. Sawaya H, Atoui M, Hamadeh A, Zeinoun P, Nahas Z. Adaptation and initial validation of the Patient Health Questionnaire-9 (PHQ-9) and the Generalized Anxiety Disorder-7 Questionnaire (GAD-7) in an Arabic speaking Lebanese psychiatric outpatient sample. *Psychiatry Research* 2016; 239: 245-52.
11. Malach-Pines A. The Burnout Measure, Short Version. *Int J Stress Manag* 2005; 12 (1): 78-88.
12. Spitzer RL, Kroenke K, Williams JB, Löwe B. A brief measure for assessing generalized anxiety disorder: the GAD-7. *Arch Intern Med* 2006; 166 (10): 1092-7.
13. Saunders JB, Aasland OG, Babor TF, De la Fuente JR, Grant M. Development of the alcohol use disorders identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption - II. *Addiction* 1993; 88 (6): 791-804.
14. Almarri TS, Oei TP, Amir T. Validation of the alcohol use identification test in a prison sample living in the Arabian Gulf region. *Substance Use & Misuse* 2009; 44 (14): 2001-13.
15. Skinner HA. The drug abuse screening test. *Addict Behav* 1982; 7 (4): 363-71.
16. Adam S, Cserhati Z, Meszaros V. High prevalence of burnout and depression may increase the incidence of comorbidities among Hungarian nurses. *Ideggyogy Sz* 2015; 68 (9-10): 301-9.
17. Karam EG, Mneimneh ZN, Dimassi H et al. Lifetime prevalence of mental disorders in Lebanon: first onset, treatment, and exposure to war. *PLoS Med* 2008; 5 (4): e61.
18. Farhood LF, Dimassi H. Prevalence and predictors for post-traumatic stress disorder, depression and general health in a population from six villages in South Lebanon. *Soc Psychiatry Psychiatr Epidemiol* 2012; 47 (4): 639-49.
19. Sabbah I, Sabbah H, Sabbah S, Akoum H, Droubi N. Burnout among Lebanese nurses: Psychometric properties of the Maslach burnout inventory-human services survey (MBI-HSS). *Health* 2012; 4 (09): 644-52.
20. Ilhan MN, Durukan E, Taner E, Maral I, Bumin MA. Burnout and its correlates among nursing staff: questionnaire survey. *J Adv Nurs* 2008; 61 (1): 100-6.
21. Farhood LF. Patterns of psychiatric morbidity before and after a war in Lebanon at twelve months following cessation of hostilities. *Open Psychiatr J* 2014; 8: 1-9.
22. Talih F, Warakian R, Ajaltouni J, Tamim H. Correlates of depression and burnout among residents in a Lebanese academic medical center: a cross-sectional study. *Acad Psychiatry* 2016; 40 (1): 38-45.
23. Kandolin I. Burnout of female and male nurses in shift-work. *Ergonomics* 1993; 36 (1-3): 141-7.
24. Mealer M, Burnham EL, Goode CJ, Rothbaum B, Moss M. The prevalence and impact of post traumatic stress disorder and burnout syndrome in nurses. *Depress Anxiety* 2009; 26 (12): 1118-26.
25. Moss M, Good VS, Gozal D, Kleinpell R, Sessler CN. A Critical Care Societies Collaborative Statement: Burnout syndrome in critical care health-care professionals. A call for action. *Am J Respir Crit Care Med* 2016; 194 (1): 106-13.