

Self-Reported Assessment of Health Status and Psychological Condition among Hospital Medical Residents in Iran

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Abstract

Psychological stress and illness among hospital residences have been subject to increasing scientific scrutiny; however very few studies have been published to describe the extent of health status and psychological stresses in residents in different specialties especially in our country that our study was mainly focused on this subject. **Methods:** The study subjects were medical residents in public hospitals covering 14 different specialties in Tehran in 2007. A self-administered questionnaire elicited information related to socio-demographic profile, specialty, duty hours, sleep quality, physical activity level, number of night shifts per month, mood changes, sense of depression after night shifts, fatigue, use of antidepressant and tranquilizer, and their opinion regarding their health status on a 4-point Likert scale. **Results:** 66.7% of participants were male with the mean age of 32.9 ± 4.2 years. 62.1% of the residents felt mood changes after nightly shifts that could adversely affect their daily living, quality of work, and social relationships. The overall prevalence of the use of antidepressant drugs was 20.0% which was significantly higher in women than men. Also, 24.4% of them reported consumption of sedative and hypnotic drugs. 15.6% reported complete healthy status while 9.4% reported partial illness. Complete healthy status was more reported among the residents of anesthesiology and pediatrics while illness was more reported by residents in pathology field. Residents' satisfaction with their status was positively correlated with the year of residency and marriage, while dissatisfaction was more reported in divorced ones as well as in those with higher number of nightly shifts. **Conclusion:** Notable number of hospital residents in Iran experience significant stressors and emotional and mental health problems. Among all studies factors type of specialty, year of residency, female gender, number of nightly shifts, and single marital status were more important than other factors.

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Keywords

Health, Status, Psychological, Residents

1. Introduction

Recently, psychological stress and feeling of becoming illness among hospital residences have been subject to increasing scientific scrutiny. Residency is potentially a stressful stage of medical training with working for long hours and high responsibility towards the patients' health and live [1]. Residents not only are expected to be proficient clinicians, educators, researchers and administrators by the time they have completed their training, but also are responsible for managing their especial wards as well as set an acceptable relationship with their patients and other hospital personnel, appropriately [2]. These high workloads and responsibilities have been shown to be associated with worse health status, tendency towards mood imbalance, substance use, and even suicidal thoughts [3]-[5]. Furthermore, this residency-related burnout can result in poor performance, medical errors, and even deterioration of confidence in health services [6]-[8]. Even, sleep deprivation in this group can alone predispose residents to fatigue, more medical and diagnostic errors, antidepressant and sedative drugs, and conflict with healthcare staff [9] [10]. Stress status in residents has been also studied at biological level that the pathological changes in cortisol level have been demonstrated [11]. However, based on our knowledge, very few studies have been published to describe the extent of health status and psychological stresses in hospital residents in different specialties in Iran which was our main purpose in our research.

2. Materials and Methods

The population surveyed included medical residents in public hospitals covering 14 different specialties in Tehran in 2007. The Iran medical education system does not allow official residency training in private hospitals and thus all hospitals surveyed in this study were public. The selection was made using disproportionate stratified random sampling with two strata (hospital and resident) those larger hospitals with a larger number of residents is adequately represented. According this sampling method, a minimum sample size of 180 was required for this survey to represent the population of Tehran residents at the 95% confidence level. Attendance was elective and all participants were informed that responses would be anonymous and were blinded to the scope and purpose of the study. We formed all residents in fourteen different medical specialties: anesthesiology (n = 10), cardiology (n = 11), emergency medicine (n = 2), infectious disease (n = 8), internal medicine (n = 22), neurology (n = 13), neurosurgery (n = 1), obstetrics and gynecology (n = 24), occupational medicine (n = 1), pathology (n = 20), pediatrics (n = 35), psychiatry (n = 4), radiology (n = 19), and surgery (n = 12).

A self-administered questionnaire was presented to the residents that all of them completed them and returned. This questionnaire consisted of different queries. The first part of questions queried the socio-demographic profile and specialty choices. The second part of the questionnaire was devoted to duty hours, mean hours of sleep per day, sleep quality, physical activity level, and number of night shifts per month. The third part consisted of questions about mood changes and sense of depression after night shifts, appearance of fatigue, and use of antidepressant and tranquilizer. In the last part of the questionnaire, the residents were asked to rate their opinion of different statements regarding their healthy or illness status on a 4-point Likert scale including "completely healthy" (score of 4), "partial healthy" (score of 3), "no illness" (score of 2), and "partial illness" (score of 1).

Results were reported as mean \pm standard deviation (SD) for the quantitative variables and percentages for the categorical variables. The groups were compared using the Student's *t*-test for the continuous variables and the chi-square test (or Fisher's exact test if required) for the categorical variables. P values of 0.05 or less were considered statistically significant. All the statistical analyses were performed using SPSS version 13.0 (SPSS Inc., Chicago, IL, USA) and SAS version 9.1 for Windows (SAS Institute Inc., Cary, NC, USA).

3. Results

The response rate for the survey was 100% and all residents completed the survey (Table 1). Among them, 66.7% (n = 120) were male and 33.3% (n = 60) were female. The mean age of respondents was 32.9 ± 4.2 years that the

Table 1. Different specialty of studied residents (n = 180).

Specialty	Frequency (%)
Anesthesiology	10 (5.5)
Cardiology	11 (6.1)
Emergency medicine	2 (1.1)
Infectious diseases	8 (4.4)
Internal medicine	22 (12.2)
Neurology	13 (7.2)
Neurosurgery	1 (0.6)
Obstetrics and gynecology	24 (13.3)
Occupational medicine	1 (0.6)
Pathology	20 (11.1)
Pediatrics	35 (19.4)
Psychiatry	4 (2.2)
Radiology	19 (10.6)
Surgery	12 (6.7)

Data are presented as number (%).

youngest residents were categorized in the residency fields of neurology, pathology, radiology, and general surgery respectively. Among all the levels of residency, 35.2% were from first year of post-graduate training and only 5% were senior. The marital status among residents revealed that 62.1% of residents surveyed were married, 34.1% were never married, and 2.7% were divorced. The mean number of their children was totally 4.0 that 61.0 had no child and 37.9% had at least one child. No significant difference in mean body mass index between men and women ($24.9 \pm 2.7 \text{ kg/m}^2$ vs. $23.0 \pm 3.2 \text{ kg/m}^2$). Respondents' demographic characteristics were similar across the different medical fields surveyed.

The average number of hours worked per day among residents was 9.5 ± 4.8 hrs that in women was significantly higher than men and was adversely correlated with the year of residency. The residents of obstetrics and gynecology, surgery, and neurosurgery had the highest hours worked, respectively. The mean hours worked per day was similar between married and non-married ones. Most of the residents usually began their work at 7:30 to 8.00 am, but women finished their work earlier than men. With respect to regular physical activity, 56.4% of the residents had regular weekly physical activities that this rate was highest in the residents of psychiatry and infectious diseases fields, respectively. Also, physical activity was significantly more observed in residents from the last year of post-graduate training and in men more than women.

Regarding quality of sleep, mean nightly shifts per month was 8.5 ranged between 0 and 21 nights. The highest and the lowest number of nightly shifts were reported from the residents of emergency medicine and psychiatry, respectively. 62.1% of the residents felt mood changes after nightly shifts that could adversely affect their daily living, quality of work, and social relationships. The overall prevalence of the use of antidepressant drugs was 20.0% that was significantly higher in women than men. Also, 24.4% of them reported consumption of sedative and hypnotic drugs. 10% of the participants were current cigarette smoker that 1% of them were heavy smoker.

Summary of Self-reported illness status is presented in (Table 2). The most frequent reported complains were headache (20.0%), followed by gastrointestinal problems (18.9%) and musculoskeletal disorders (17.8%). Female more than male residents suffered from headache and depression feeling, while dental problems were more reported in men. With respect to the health status, 15.6% reported complete healthy status, 69.4% reported partial healthy status, 9.4% reported partial illness, and only 5.6% reported no illness. Complete healthy status was

more reported among the residents of anesthesiology and pediatrics and complete to partial healthy was reported from the residents of pediatrics, internal medicine, and radiology respectively. Besides, residents in pathology field reported illness status more than other fields (Figure 1). Residents' satisfaction with their status was positively correlated with the year of residency and marriage, while dissatisfaction was more reported in divorced one as well as in those with higher number of nightly shifts.

4. Discussion

Based on our knowledge, the present study was the first research on health status and psychological stresses among Iranian hospital residents. Totally, we found that the complains of inappropriate health status and psychological problems were significantly associated with female gender, single marital status, and number of nightly shifts that these predicting factors might be potentially resulted in feeling of illness, fatigue, physical problems such as headache, gastrointestinal or musculoskeletal problems, and the use of various antidepressant

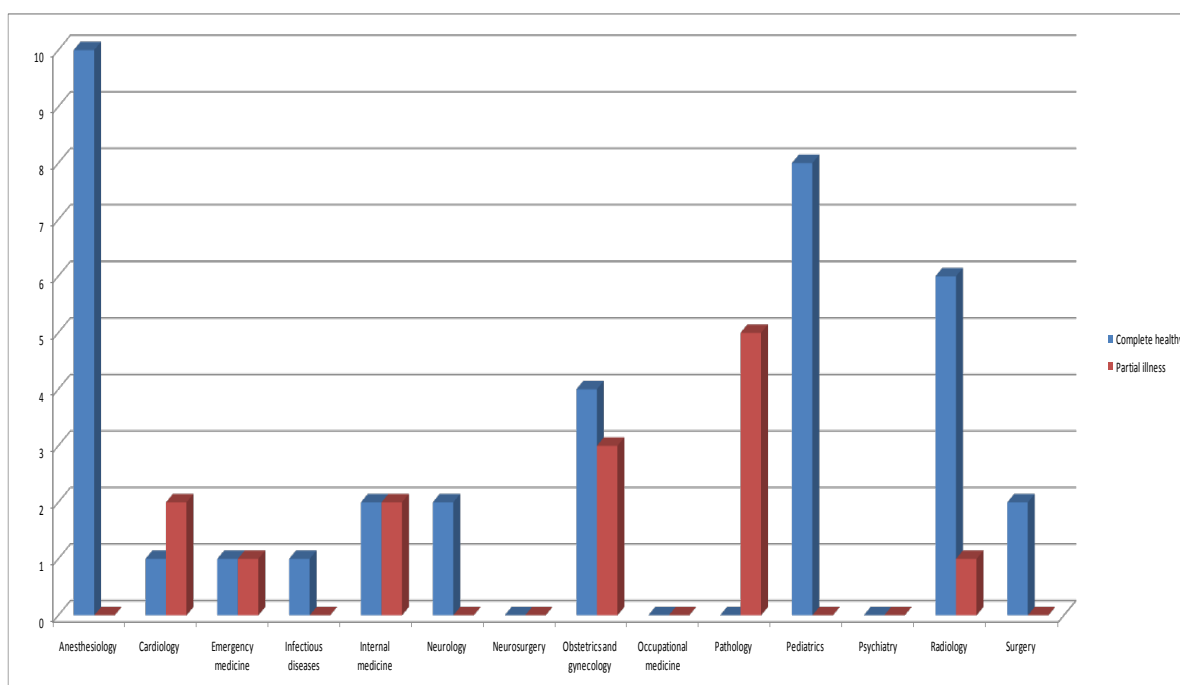


Figure 1. Self-reported complete healthy versus partial illness in different specialties.

Table 2. Self-reported illness status of studied men and women residents (n = 180).

Specialty	Total (n = 180)	Men (n = 120)	Women (n = 60)	P-value
Headache	36 (20.0)	15 (12.5)	21 (35.0)	0.005
Gastrointestinal disorders	34 (18.9)	25 (20.8)	9 (15.0)	0.432
Musculoskeletal disorders	32 (17.8)	18 (15.0)	14 (23.3)	0.255
Depression feeling	28 (15.6)	13 (10.8)	15 (25.0)	0.038
Dental problem	18 (10.0)	17 (14.7)	1 (1.7)	0.015
Respiratory disorders	9 (5.0)	9 (7.5)	0 (0.0)	0.059
Psychological disorders	7 (3.9)	5 (4.2)	2 (3.3)	0.999
Cardiovascular disorders	4 (2.2)	4 (3.3)	0 (0.0)	0.305

Data are presented as number (%).

or sedative drugs. The field of specialty was also a main determinant for feeling illness so that the residents in pathology field reported the highest feeling illness and the residents in anesthesiology and pediatrics reported the highest complete health status. In the review of published literatures, we can clearly reveal similar findings with respect to the main predictors of psychological stresses among medical residents, however the prevalence of these problems are widely varied probably because of the differences in social conditions, worked hours, and even religious approaches. In a study by Waldman *et al.*, high emotional exhaustion and depersonalization was found in the majority of respondents and significant depressive symptoms were found in less than half of residents [12]. In another study by van der Heijden *et al.* about 12% of medical residents reported having suicidal thoughts at least 1 time during their residency [13]. In the study by Satterfield and his colleagues, anxiety and guilt were the most commonly reported emotions, followed by positive emotions and anger [14]. Sangi-Haghpaykar *et al.* reported that the majority of residents (75% of women and 54% of men) were identified to be at high levels of stress and this stress situation was positively associated with sexual dysfunction in both genders. This sexual dysfunction could also affect negatively residents' quality of life [15]. Another study suggested that about half of residents reported their life was stressful. Some residents resorted to the use of alcohol (5.2%), cigarette (1.7%), drugs and medications (8.6%) to handle stress. Thirty percent of the residents admitted to have had emotional or mental health problems during the residency program. About 29% will require further screening for depression, 21.6% for panic disorder, 15.8% for generalized anxiety, 9.3% for social phobia and 8.8% for agoraphobia [16]. Martini *et al.* showed that 50% of residents met burnout criteria, ranging from 75% (obstetrics/gynecology) to 27% (family medicine). The first year of residency, being single, personal stress, and dissatisfaction with faculty were independently associated with burnout [17]. Similar to our study, Cohen [2] could show that women reported stress more frequently than males and the time pressure was reported as the number one factor contributing to stress. Also, similar to our finding, Castelo-Branco *et al.* suggested that the single marital status and workload in office practice were found to be significant predisposing factors as stressors [18].

We also found that the hours of sleep and high nightly shifts could effectively influence residents' health quality and thus were more likely to be involved in their daily living, quality of work, and social relationships. On the other hand, total work hours especially within nightly shifts were significantly correlated with personal accident or injury, a serious conflict with other staff and family members as well as making more medical errors. This sleep loss not only adversely affect personal and social networks abnormalities, but also can affect quality of learning and cognition; job performance, including professionalism and task performance [19].

5. Conclusion

It seems that several factors can be stressful and trigger for feeling illness and mental problems among medical residents and among them, type of specialty, female gender, number of nightly shifts, and single marital status were more important than other triggering factors. In fact, understanding of residents' psychological problems can be enhanced by more rigorous research such as studying large samples of residents in carefully planned prospective studies.

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