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Stress and Burnout During the First Year of Residence Training in a University Teaching Hospital: Preliminary Date

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Abstract

Background: Resident physicians are particularly vulnerable to suffering from work stress. The stress of residency places residents at risk for burnout and may have detrimental personal and professional effects as well as a negative influence on patient care.

Aim: The aim of the study was to assess the levels of perceived stress, psychological distress and burnout among a cohort of junior physicians during their first year or residency in a university teaching hospital.

Methods: The study was designed as a 12-month, prospective cohort study, with surveys administered via an online tool at three designated time points: baseline, 6 and 12 month. Participants were emailed a link to the survey at the relevant time points and electronic responses were collected. The survey measures included the Maslach Burnout Inventory (MBI) organized into three subscales: emotional exhaustation (EE), depersonalitzation (DP), and personal accomplishment (PA); and the Perceived Stress Scale (PSS). Burned-out residents were defined as having a high EE or DP, or a low PA.

Results: At baseline we obtained a response rate of 68% (52 of 76 eligible residents), with about 40% of losses in the following surveys. The mean age was 27.5 (3.2) years, about 60% of participants were women and they worked in medical specialties. Overall, burnout presence was positive in 34% of residents at 6 month, and in the 36% one year after start residency. Moreover at baseline 13% of participants showed psychological distress and this increased to 36 % at the end of the first year of residence. The mean perceived stress levels score was 25.3 (5.3) at baseline, which raised to 27.2 (5.1) and 29 (4.3) at 6 month and a year of residence.

Conclusions: Our data indicate that about 40% of residents surveyed had psychological distress and could be considered burned out by one year of residency training. The findings reinforce the importance of promoting resident wellness early in residency and to educate physicians regarding self-awareness and personal health.

Keywords: Stress; Burnout; Residency; Hospital; Distress

Introduction

Human service professions, including health care providers, are at particular risk to suffering from work stress [1,2]. In addition, resident physicians who are new to the demands of the medical environment are particularly vulnerable [1]. Residents are expected to gain skills in their specialty while simultaneously providing top-quality patient care. The stress residents experience is accentuated by complex interaction of difficulties in balancing time spent in personal and family pursuits [3,4].

The stress of residency places residents at risk for burnout and may threaten their well-being [1]. According to Maslach and Jackson burnout is a syndrome characterized by emotional exhaustion (EE), depersonalization (DP), and reduced sense of personal accomplishment (PA) [5]. Burnout in resident physicians ranges between 30% and 70%, depending on the specialty and the criteria used to define the condition [6,7]. Burned-out residents may feel emotionally depleted and unable to give of themselves such that they develop a cynical attitude, dehumanize their patients, and devalue their own clinical performance [8]. They are also more likely to screen positive for depression [9]. Moreover, burnout has been linked to self-reported suboptimal patient care, deferred clinical decision making, and increased perceived medical errors [4,10,11]. Most studies in this field have focused on identifying type of stressors among residents and burnout prevalence in a specific medical specialty sample [12-15]. In this study we examined through an online program, the longitudinal changes in burnout and perceived stress experienced by a cohort of tertiary hospital physicians along the first year of their residency.

Methods

Study design

All residents who started the residency at the university teaching hospital Clinic of Barcelona were invited to participate in the study during a health visit before starting training. The study was designed as a 12-month, prospective cohort study, with surveys administered at three designated time points: baseline, 6 month and 12 month.

The first survey was administered during the first month of the beginning of the hospital residency. This survey collected demographic information and included questions exploring medical and psychiatric history. The longitudinal follow-up component of the study consisted of two surveys more administered at 6 months, and 12 months. The follow-up surveys included the Maslach Burnout Inventory (MBI) and the Perceived Stress Scale (PSS). Surveys were administered via an online tool. Participants were emailed a link to the survey at the relevant time points throughout the year, and electronic responses were collected. Participation was voluntary, and interns were assured that all answers were confidential. Data were de-identified prior to analysis.

Instruments

The Maslach Burnout Inventory [5] is a 22-item self-report questionnaire widely used measure of burnout in relation to occupational stress. The questionnaire has three subscales-personal accomplishment (feelings of competence and achievement), which is measured by 8 items; emotional energy (feeling emotionally drained by work), which is measured by nine items; and depersonalization (feeling detached and uninvolved with people), measured by five items. A high degree of burnout is indicated by high scores on the emotional energy and depersonalization subscales and low scores on the personal accomplishment subscale.

The Perceived Stress Scale (PSS) [16] is a 10-item scale that assesses the degree of uncontrollable and unpredictable situations of life during the past month. Respondents report the prevalence of an item within the last month on a 5-point scale, ranging from 0 (never) to 4 (very often). Scoring is completed by reverse scoring of four positively worded items [4,5,7,8] and summing all item scores. The scale scores range from 0-40. Higher scores indicate higher levels of stress.

Date analysis

The raw data collection instruments were coded and the results were entered into an Excel spreadsheet. Burnout was dichotomized into positive/negative, with burnout defined as meeting the MBI definitions of high emotional exhaustion, high depersonalization, or low personal accomplishment [5]. Continuous variables were summarized using mean (SD), and categorical variables were summarized using frequency and percentage.

Ethical consideration

Ethical approval was obtained before commencement of the study from the institutional research and ethical committee of the hospital Clinic. Informed consent was obtained from each participant after a detailed explanation of the study's objectives with no negative consequences to those who declined. All information pertaining to the participants was treated with confidentiality. Participants with significant level of impairment due to burnout and work related stressors were counselled and treated if necessary.

Results:

At baseline we obtained a response rate of 68% (52 of 76 eligible residents), with about 40% of losses in the following surveys. The characteristics of the sample en each point of the study is shown in Table 1.

At baseline of the 52 residents who returned surveys EE was positive in 2 patients (4%), DP in 2 patients (4%), and PA was negative in one patient (2%). At 6 month of residency of the 35 residents who returned surveys EE was positive in 9 patients (25%), DP in 8 patients (23%), and PA was negative in 3 patients (9%). One year after start residency of the 22 residents who returned surveys EE was positive in 4 patients (18%), DP in 4 patients (18%) and PA was negative in 5 patients (23%) (Figure 1). Overall, burnout presence was positive in 34% of residents at 6 month, and in the 36% one year after start residency (Figure 2). The mean perceived stress levels score was 25.3 (5.3) at baseline, which rises to 27.2 (5.1) and 29 (4.3) at 6 month and a year of residence.

Table 1: Characteristics of the sample.

	Baseline (n=52)	6 month (n=35)	1 year (n=22)
Sex (n,%) Female	32 (61.5)	22 (62.9)	13 (59.1)
Median (SD) age, years	27.5 (3.2)	27.5 (3.2)	27.5 (3.2)
Relationship status (n,%) Single Married/partnered Separate/divorced	30 (57.7) 21 (40.4) 1 (1.9)	16 (45.7) 18 51.4) 1 (2.9)	11 (50) 11 (50) --
Who does he live with (n, %) Alone Friends Couple Family	7 (13.7) 16 (31.4) 18 (35.3) 10 (19.6)	5 (14.3) 8 (22.9) 14 (40.0) 8 (22.9)	2 (9.1) 8 (36.4) 7 (31.8) 5 (22.7)
Specialty (n, %) Medical Surgical Medical and surgical Laboratory	32 (62.7) 5 (9.8) 8 (15.7) 6 (11.8)	21 (61.8) 3 (8.8) 7 (20.6) 3 (8.8)	13 (59.1) 1 (4.5) 6 (27.3) 2 (9.1)
Medical problems (n, %)	23 (45.1)	9 (25.7)	7 (31.8)
Depressed problems (n, %)	7 (13.7)	6 (17.1)	6 (28)

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Anxiety problems (n, %)	12 (24)	8 (27)	5 (23)

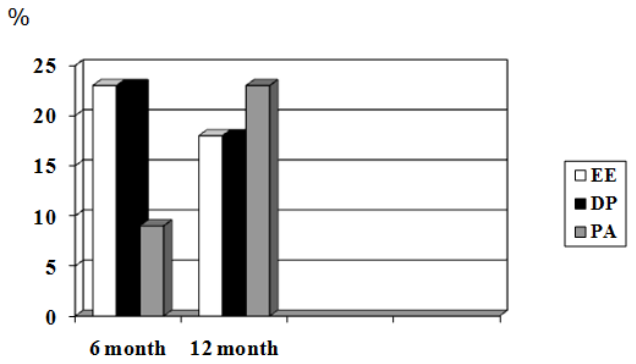

Figure 1: Point prevalence of the three dimensions of burnout (EE: Emotional Exhaustation; DP: Depersonalization; PA: Personal Accomplishment) at 6 and 12 month of hospital residence.

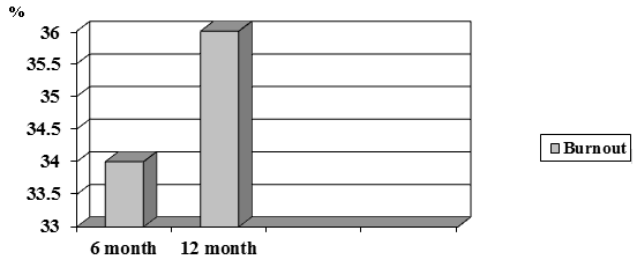

Figure 2: Point prevalence of burnout at 6 and 12 month of hospital residence.

Discussion

In the present study we found that junior physician residents arrived at hospital with low levels of perceived stress and burnout but that increased in all domains (emotional exhaustation, depersonalisation, personal accomplishment) at 6 month and a year of start. Therefore, we found that about 40% of residents respondents would be classified as burned out at both 6 months and a year of residency using the broader criteria of the MBI of high score in EE or DP, or low scores in PA [5].

Although prevalence of burnout varies between studies finding rates ranging from 30-80%, our finding that burnout increases during the first year of residency is in general consistent with the literature. Potential explanations for the differences in studies include a selection bias of applicants drawn to different training programs, variability in the intensity of clinical load, or differences in measures directed at reducing or preventing burnout in trainees. Several prior studies have attempted to determine the potential risk factors for burnout among residents. Excessive work hours [6,17,18] certain personality types [19,20] and depression [18,21,22] are among the correlates linked to higher rates of burnout. However, findings in the literature are inconsistent [6,23].

We found about 10% of a history of depression and anxiety in the participants. In the other hand, the most stressful factors reported by residents were excessive workload, long working hours and lack of sleep and time to study (date not shown). This suggests that these factors may have a relationship with the presence of burnout and psychological distress of these residents. Anyway given the relatively low sample have not performed a statistical calculation to draw significant conclusions.

The findings underscore the need for longitudinal studies including residents from other medical centres and different specialties. Future studies should track burnout in individual trainees over time and include basic demographic information, depression screening, and measures of medical errors to better elucidate both the risk factors and implications of burnout. In addition, further research is needed to evaluate the optimal timing, content, and delivery of programs to prevent or reduce resident burnout [1]. Efforts to increase wellness have included self-care and stress management instruction, support groups, breathing exercises, and education by mental health professionals on emotional exhaustion [24]. More rigorous assessment of the efficacy of these interventions is warranted.

In conclusion, our data indicate that approximately 40% of residents surveyed could be considered burned out by one year of residency training. These significant changes in feelings toward work, patients, and families occurred within the first 6 months of residency training. Our findings reinforce the importance of promoting resident wellness early in residency. This effort and additional research are essential to elucidate the factors contributing to burnout and opportunities for intervention.

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