

Burnout Syndrome among Saudi Medical Residents: A Controlled Study

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Abstract:

To investigate resident burnout among different medical specialties. Method: Maslach Burnout Inventory forms had been fulfilled by 71 residents from eight different medical specialties. All residents were from Saudi Board Program. Results: A greater percentage of senior residents (34%) were doing recreational activities than junior residents (28%). Eighty percent of residents were not satisfied with the number of working hours. There was no significant difference between junior and senior residents regarding to the number of calls per week. There was no significant difference between junior and senior residents regarding to the three mean values of the subscales of MBI (t-values = -0.8, -0.9, -1.5 and significance = 0.5, 0.4, 0.1). Medical residents had a significant lower mean values regarding to accomplishment subscale (35 ± 10) than the other 4 main sections of residents ($f = 2.2$, $p = 0.04$). Surgical residents got significantly higher mean scores in two items of MBI than medical residents. These two items are sense of fatigue and dealing with their patients as objects. The test which had been used was t-test ($t = 2.4$ and 3.5) respectively, significances were 0.02 and 0.001. Conclusions: Junior Medical residents are the least who suffer from burnout, followed by senior medical residents. Obstetrics, Gynecology and Surgical residents are the most sufferer from burnout symptoms among all specialties included in this study. Numbers of working hours, number of on calls per week, and residents who live away from their places of work are issues need to be discussed with the decision makers.

Introduction:

Maslach defined burnout syndrome as a loss of interest and care for users and consequently the development of a relationship characterized by detachment and coldness within an environmental model including situational factors like social and environmental context and the nature of the job (Maslach C, et al 2001). Maslach distinguishing three components of burnout: emotional depletion, indifferent attitudes to colleagues and users, and negative self-evaluation of job performance (Thomas NK, 2004).

The 80 hours-per-week limits implemented nationally on residents' work have been sought, in part, as a response to resident burnout, which has been linked to

decreased job performance (Lemkau J, et al 1994) (i.e., increased medical errors), low career satisfaction, and a decrease in empathic concern, including feeling less humanistic (Nyssen AS, et al 2003). Using the Maslach Burnout Inventory (MBI) (Maslach C, et al 1996), a validated and reliable tool, one survey of an internal medicine residency program found that 76% of the respondents met criteria for burnout (Iacovides A, et al 2003). Two years after New York State implemented revisions to the state health code (section 405), which required reduction in on-call work and increased supervision, residents reported diminished fatigue and better patient care (Geurts S, et al 1999). Home-related Stressors for residents may also play

a vital role in work-related fatigue (Levey RE, 2001).

Burnout differs from depression, in that it is confined to the workplace. However, if generalization to the home environment occurs, burnout may progress to clinical depression, although such a temporal relationship is not well established (Levine RE, et al 2003, Veasey S, et al 2002, Beckman JA & Fang JC, 2002).

Based on these results, we undertook checking a sample of residents to measure their burnout and explore the association with specialty, the effects of recreational activities, their frequencies, satisfaction with working hours, number of calls per week, the distance of residents

Housing from the working place, stager in training e.g. junior or senior, and which specialties are more vulnerable to burnout syndrome?.

Subjects and methods:

Subjects of this study are all residents working at King Abdul-Aziz Medical City (KAMC) during March 2005. Confounding variables were assessed among all residents e.g. age, sex, marital status, recreational activities, their frequencies, distance of their living away from KAMC, number of on calls & working hours.

There were 71 residents, who were distributed as the following:

Three residents from ENT, Two residents from ophthalmology, One resident from ER, Ten residents from General Surgery, Ten residents from Obstetrics and Gynecology, Nine residents from Radiology, Seventeen residents from pediatrics, Nineteen residents from Medicine

MBI was used as a measure to assess the quantity of burnout among all residents (who are under the supervision of Saudi Board Program) and working at KAMC. Given the stress that accompanies this kind of uncertain job situation when hospitals are undergoing restructuring, nurses are particularly prone to developing psychological burnout. Maslach burnout Inventory consists of three different aspects: emotional exhaustion, depersonalization, and reduced personal accomplishment. Emotional exhaustion is defined as feelings of being emotionally overextended and drained by others. Depersonalization is a callous response toward people who are the recipients of one's services. Lack of personal accomplishment is a decline in one's feelings of competence and successful achievement in one's work with people. Burnout is considered a special type of prolonged exposure to occupational stress and results from interpersonal demands at work (Maslach C, et al 1996)

MBI consists of 22 statements representing 3 main components:

A-Emotional exhaustion are represented by statements. Their numbers are: 4,5,7,9,10,11,12,15,17,18,19,21,22

B-Depersonalization are represented by statements. Their numbers are: 1,2,3,4,6,7,8,9,12,13,14,16,17,18,19,20,21

C-Accomplishment are represented by statements. Their numbers are :1,2,3,5,6,8,10,11,13,14,15,16,20,22

Statistical Analysis:

All analyses were conducted with SPSS software. Means, standard deviations (SD) and Qui square are reported. Comparisons between two quantitative means'

differences were assessed using the two-sample t- test and between more than two means were assessed using f-test (ANOVA). Significance was set post-hoc at 0.05 (SPSS version 10.1, 2001).

Results:

MBI forms were distributed among 79 Arab Board program residents at King Abdul-Aziz Medical City. Seventy one of them completed the answers of MBI forms, while 8 residents were too busy to fulfill these forms. The 2nd, 3rd, and 4th authors, who were well oriented by the items of MBI,

helped the other residents in fulfilling the forms of MBI. The forms of MBI included some other data like: age, sex, marital status, doing recreational activities, and the frequency of doing these activities, the satisfaction with the number of working hours, the distance of housing from the hospital, and the number of calls per week.

There was no significant difference between junior and senior residents as regards to gender ($\chi^2 = 0.13$ and significance is $= 0.8$) (Table 1).

Table (1):: Sex distribution among junior and senior residents

	Male	%	Female	%	Total	%	X2	Significance
Junior Residents	24	33.8%	15	21.1%	39	54.9%	0.13	0.8
Senior Residents	21	29.6%	11	15.5%	32	45.1%		
Total	45	63.4%	26	36.6%	71	100		

Level of significance at $p < 0.05$

Most of the residents in our study were married. There were 17 single junior residents, 9 single senior residents, and one divorced resident. The difference between junior and senior residents regarding to marital status is statistically not significant ($\chi^2 = 2.8$ and significance is 0.2) (Table 2).

Table (2): Marital status of junior and senior residents

	Single	Married	Divorced	Total	X2	Significance
Junior residents	17	22	0	39	2.8	0.2
Senior residents	9	22	1	32		
Total	26	44	1	71		

Level of significance at $p < 0.0$

A greater percentage of senior residents (34%) was doing recreational activities than junior residents (28%). The difference between senior and junior residents was statistically significant ($\chi^2 = 4.2$ and significance is 0.04) (Table 3)

Table (3):Doing recreational activities among junior and senior residents

	Doing Recreational activities	%	Not doing Recreational activities	%	Total	%	X2	Significance
Junior Residents	20	28.2%	19	26.8 %	39	55%	4.2	0.04*
Senior Residents	24	33.8%	8	11.2 %	32	45%		
Total	44	62%	27	38%	71	100%		

*Level of significance at $p < 0.05$

Eighty percent of residents were not satisfied with the number of working hours, but the difference between junior and senior residents regarding to satisfaction with the number of working hours was statistically not significant ($\chi^2 = 0.6$ and significance = 0.6) (Table 4).

Table (4): Satisfaction with working hours among junior and senior residents

	Satisfied with working hours	%	Not satisfied with working hours	%	Total	%	X2	Significance
Junior Residents	30	42.3%	9	12.7%	39	55%	0.6	0.6
Senior Residents	27	38%	5	7%	32	45%		
Total	57	80.3%	14	19.7%	71	100		

Level of significance at $p < 0.05$

Thirty seven residents were not satisfied with the number of calls per week, while 34 residents were not satisfied. There was no significant difference between junior and senior residents regarding to the number of calls per week (Table 5).

Table (5): Satisfaction with number of calls per week among junior and senior residents

	Not satisfied with No. of calls per week	%	satisfied with No. of calls per week	%	Total	%	X2	Significance
Junior Residents	24	33.8%	15	21.2%	39	55%		
Senior Residents	13	18.2%	19	26.8%	32	45%	3.1	0.1
Total	37	52%	34	58%	71	100%		

Level of significance at $p < 0.05$

It is expected to find a significant difference between the age of senior and junior residents. In this study there was a significant elder mean age among senior residents than junior residents (Table 6).

There was no significant difference between junior and senior residents regarding to the three mean values of the components of MBI (t-value = -0.8, -0.9, -1.5 and significance = 0.5, 0.4, 0.1) (Table 6).

Table (6): Comparison between junior and senior residents

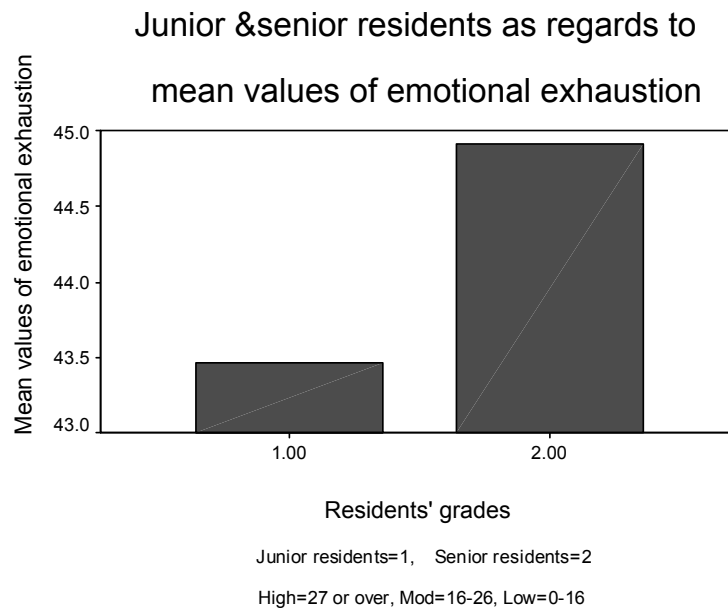
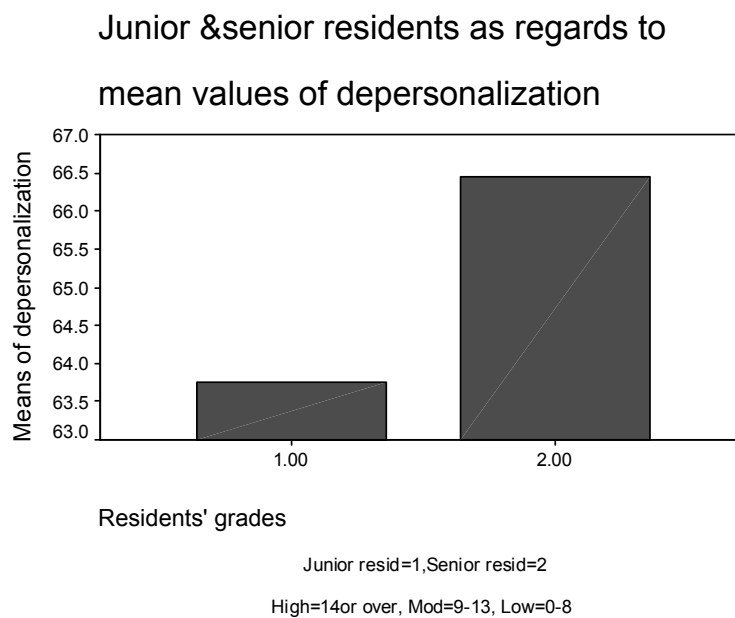
As regards to the mean values of age and the 3 components of Maslach Burnout Inventory:

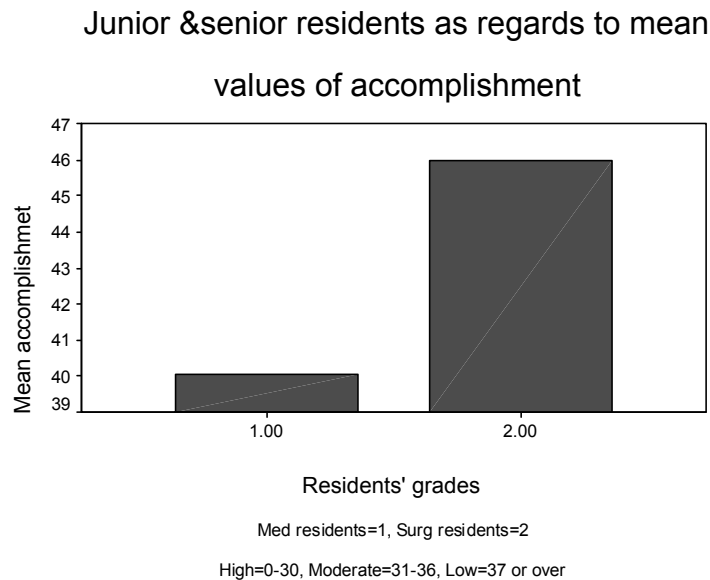
Mean values	Junior residents (No=39)	Senior residents (No=32)	t-value	Significance
Age (years)	26.6±1.5	28.9±1.8	- 5.8	0.000001*
Emotional Exhaustion	43.5±8	44.9±8	-0.8	0.5
Depersonalization	63.7±11.8	66.4±12.6	-0.9	0.4
Accomplishment	40.1±15.9	46±17.2	-1.5	0.1

*Level of significance at $p < 0.05$

Both junior and senior residents got high mean scores' values (27 or over), as regards to emotional exhaustion subscale (Figure 1), but the difference between the mean scores values was statistically not significant. In addition to this, they got also high mean scores' values (above 14), regarding to depersonalization subscale (Figure 2). On the

Contrary, they had poor social interaction "accomplishment subscale" (Figure 3).

**Figure (1)****Figure(2)**

**Figure(3)**

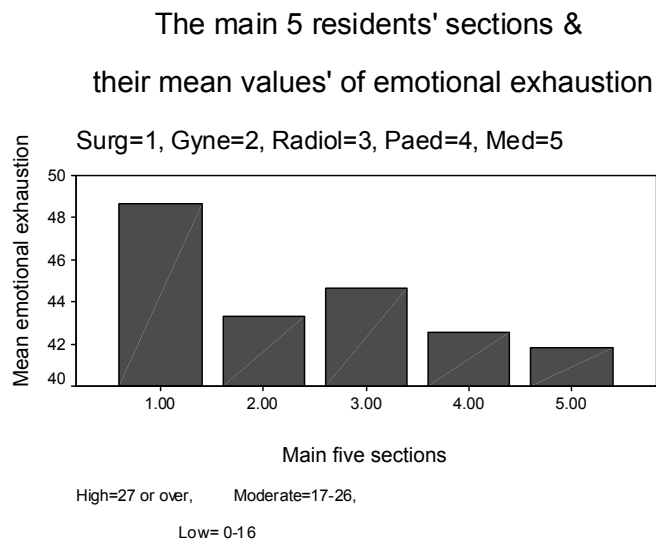
In this study, we found that these 71 residents could be classified into five main sections: 16 residents from surgery department, 10 residents from gynecology and obstetrics department, 9 residents from radiology department, 17 residents from pediatrics, and 19 residents from medical department. The difference between the mean ages of residents among the above mentioned five main sections was statistically not significant (ANOVA test was used, $f = 1.2$, $p = 0.3$). Medical residents had a significant lower mean values regarding to accomplishment subscale (35 ± 10) than the other 4 main sections of residents ($f = 2.2$, $p = 0.04$) (Table 7). On the contrary, there were no significant differences between the five main sections as regards to emotional expression and depersonalization subscales ($f = 1.7$ and 1.5 , $p = 0.2$ and 0.3) (Table 7).

Table (7): Comparison between 5 residents' sections as regards to the mean values of the 3 components of Maslach Burnout Inventory

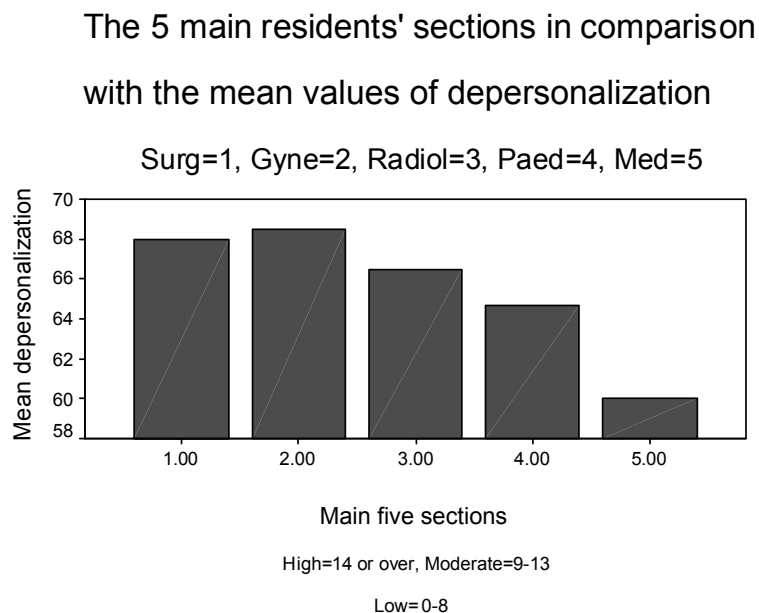
	Surg. Resid. (No=16)	Gyne. Resid. (No=10)	Radiol. Resid. (No=9)	Pedia. Resid. (No=17)	Med. Resid. (No=19)	f- test	Signifi- cance
Age	29.6±2.5	28.1±1.4	29.9±2.4	27.7±1.3	28.6±2.2	1.2	0.3
Emotional Exhaustion	48.7±7.8	43.3±7.7	44.7±6.5	42.5±8	41.88	1.7	0.1
Depersonalization	68±15	68.5±11.3	66.5±9.4	64.7±11.8	60.1±10.8	1.5	0.2
Accomplishment	46.8±17.8	50.8±18.2	39.8±19.3	44.4±17.2	35±10	2.2	0.04*

*Level of significance at $p < 0.05$

The five main sections of residents had high mean scores regarding to emotional exhaustion (27 or over) and depersonalization (14 or over) subscales of MBI (Figures 4 and 5). On the contrary, the five main sections of residents had low mean scores (37 or over) regarding to social interactions (accomplishment) (Figure 6). The mean values in figures 4,5,6 can show us that most of the residents in this study, were suffering from burnout syndrome.

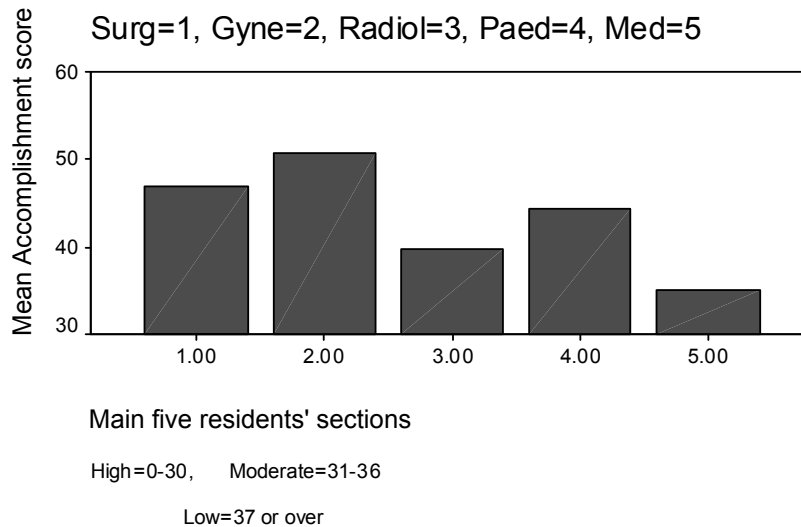


Figure(4)



Figure(5)

The main 5 residents' sections &
their mean values of accomplishment

**Figure(6)**

Surgical residents got significantly higher mean scores in two items of MBI than medical residents. These two items are sense of fatigue and dealing with their patients as objects. The test which had been used, was t-test ($t = 2.4$ and 3.5) respectively, significances were 0.02 and 0.001 (Table 8)

Table (8): Significant differences between medical and surgical residents regarding to the items of Maslach Burnout Inventory:

Item of MBI	Medical Residents (No = 36)	Surgical Residents (No = 35)	t-test	Significance
Sense of fatigue	3.5±2	4.6±1.7	-2.4	0.02*
Dealing with patients as objects	0.7±1.2	2.1±2	-3.5	0.001*

*Level of significance at $p < 0.05$

Discussion:

To our knowledge, the first study comparing burnout among residents across medical specialties was at Wayne State

University and in South Carolina in 2004 (Balon R, et al 2004). The lack of findings of statistically significant differences in

burnout rates among specialties may be due to low and perhaps differential response rates. It is plausible that those residents who felt burned out were more or less likely to respond, even to three mailings. The findings of comparable burnout rates among family medicine residents at Wayne State University and in South Carolina (Michels PJ, et al 2003) and internal medicine residents at Wayne State University and the University of Washington (Shanafelt TD et al, 2002) lead us to believe, although with caution, that the results might be generalized to settings outside of Wayne State University, particularly in Western communities. The first study is limited by the low response rate and small numbers of residents in some specialties, which may have affected the findings. In a survey of medical students' attitudes and concerns regarding possible repercussions of completing a depression survey, only 48% finished the survey (40% of those completed the depression inventory with 10% admitting to recording dishonest answers and 19% admitting to concerns about the research (Levine RE, et al 2003). These results are in accord with verbal feedback from residents to the first author (Balon R, et al 2004), expressing concerns of confidentiality and potential negative consequences of self-reporting.

In our study, nearly all the residents of the Saudi Board Program at King Abdul-Aziz Medical City were welcoming to participate in this study, as its results will be represented in front of some authority figures of the Saudi Board Program on the Residents' Day. In the present study, there were no significant differences between senior and junior residents as regards to the mean values of the three components of MBI (Table 6). This can be explained by the support which might be given by senior

residents and staff. On the contrary, in the above mentioned American studies, they found that junior residents had higher rate of burnout, which may indicate that they are a vulnerable group. Special attention by program directors may be needed to reduce this high rate of burnout.

In the present study, we found that surgical residents had significantly higher mean score value regarding sense of fatigue than medical residents. To explain this, we think surgical residents have to practice many clinical surgical skills, in addition to studying theoretical medical and surgical curriculum. All of us know that, a good surgeon is a good decision taker and maker, which add more responsibility to surgical residents. All these responsibilities need extra times and efforts to be achieved. That is why surgical residents are more fatigued and overwhelmed than medical residents. Fatigue is a common complaint in the general and working population, with a reported prevalence varying from 7% to 45%. Fatigue can best be understood as a continuum, ranging from mild complaints frequently seen in the community on the one hand to severe, disabling fatigue, such as chronic fatigue syndrome on the other.' When fatigue among employees becomes severe and persistent, it may lead to long term sick leave and work disability. Conceptually linked with fatigue and absenteeism is the phenomenon of burnout. In general, burnout can be described as a persistent, negative, work related state of mind characterized by work related emotional exhaustion and accompanied by distress, (perceived) reduced effectiveness, decreased motivation, and dysfunctional attitudes and behaviors at work. Burnout symptoms are mostly psychological and burnt out workers often causally attribute their complaints to problems at work,

blaming their jobs for their condition. A conservative estimate of the prevalence of "clinical" burnout is 4.2% in the working population.' Like persistent fatigue, burnout can lead to long term sick leave. However, it is important to realize that persistently fatigued workers are not burnout by definition, and that burnt out workers might not experience fatigue as a major complaint.

In that sense, it is of great importance to identify the determinants of recovery in fatigued employees: if causal attributions can determine the course and outcome of fatigue complaints in employees, it might be an indication that early prevention of chronic fatigue lies partly in alterations of the labeling of fatigue complaints, for example with the use of cognitive behavioral techniques (Huibers et al, 2003).

In our study, there were no significant differences between sex, marital status, numbers of working hours and numbers of on calls per week as regards to junior and senior residents. Multiple studies shows no significant associations between variables such as sex, marital status, location of housing, age and the three MBI "components" subscales (Elnagar et al, 2001, Leiter and Harvie 1996). These findings differ from other studies, which found negative correlations between age, years of experience and burnout (Maslach & Jackson, 1981; Meadow, 1981; Randall & Scott, 1988). In a study on correlations between age and acquired work experience and burnout, in a sample of nurses working in an AIDS care unit versus a sample of nurses working in an oncology unit, it was found that older age was a protective factor towards the development of burnout. On the contrary, acquired work experience was not a protective factor in the development of

burnout (Bennett, 1991). Moreover, only a weak significant correlation between the length of work with HIV-infected patients and the 'Depersonalization' scale was found. Instead three predictive variables: 'Peer relationship', 'Social reward', 'Grief & Loss' correlated significantly with the three MBI components scales. As expected, 'Peer relationship' and 'Social reward' were protective (negative correlation) against burnout in the 'Emotional exhaustion' and 'Depersonalization' MBI subscales. 'Grief & loss', on the contrary, had positive correlations with burnout in the 'Emotional exhaustion' and 'Depersonalization' subscales and a negative correlation with burnout in the 'Personal achievement or accomplishment' MBI subscale. As described in the results, the length of work variable is a predictor of clinical burnout levels on the 'Emotional exhaustion' and 'Depersonalization' subscales and not, obviously, on the 'Personal achievement or accomplishment' subscale.

Future studies on burnout syndrome among medical residents should find out the role of the personal characteristics of residents, the style of their relationship with patients and the individual perception of stress and of work stressors as etiological factors in occurrence of burnout syndrome.

We have to mention that there are some studies about burnout syndrome among certain residents' specialties like anesthesia (Nyssen AS, et al 2003), intensive care, gynecology & obstetrics, orthopedics, internal medicine (Geurts S, et al 1999) (Shanafelt TD, et al 2002) family medicine (Lemkau J, et al 1994) and psychiatry. The results of one of the above mentioned studies (Nyssen et al, 2003) showed that 40.4% of the anesthetists were suffering from high emotional exhaustion; the highest

rate was in young residents under 30 years of age. These results are particularly alarming. Moreover, first-year residents did not feel as empowered as the others. Surprisingly, fourth-year anesthetists also showed a low score for empowerment. It is well recognized among Belgian anesthetist supervisors that the third year of training is particularly critical because this is when the trainees start to work on their own in the operating room, calling for help when problems occur. In fact, the third-year anesthetists showed the highest stress scores in the above mentioned study, but there were no significant differences between the six training levels. The lower self-confidence score found in fourth-year residents may come from this critical year. Results also indicated that 23% of trainees felt under-- supervised and some authors have demonstrated that support can alleviate job stress (Collier V, et al) (21). Together, the lack of empowerment and the lack of support, by decreasing the individual's ability to cope with stressful situations, could explain the high score for emotional exhaustion found in the young anesthetist group. These details about burnout syndrome among different years of anesthesia residency graduation can be studied in different residents' specialties as future studies.

Summary and conclusions:

In this study we found that:

-Junior Medical residents are the least who suffer from burnout, followed by seniors' medical residents.

-Obstetrics, Gynecology and Surgical residents are the most sufferer from burnout symptoms among all specialties included in this study.

-Number of working hours, on calls per week, & residents who live away from their places of work, all are issues need to be discussed with the decision makers.

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