

Evaluation of Burnout Syndrome in Medical Residents Following a “Rest after Shift” Intervention

Evaluación del síndrome de burnout en residentes luego de implementar el “descanso postguardia”

LUCRECIA M. BURGOS¹, LUCIANO BATTIONI², JUAN PABLO COSTABEL³, ALBERTO ALVES DE LIMA⁴

ABSTRACT

Background: The burnout syndrome generates a negative impact on professional performance, patient’s safety and resident’s life. Despite this problem has become important in the residency programs in Argentina, effective measures to prevent burnout among residents have not been evaluated yet.

Objective: The aim of this study was to evaluate the prevalence of the burnout syndrome before and after the implementation of rest after shift in cardiology residents.

Methods: An analytic and prospective study was conducted using the Maslach burnout questionnaire in cardiology residents of an institution in the city of Buenos Aires, before and after the implementation of a day of rest (DOR) after a 24-hour shift.

Results: The survey was responded by 42 residents (2014: 19; 2015: 23). There was a trend towards lower prevalence of burnout in the DOR group (26.1% vs. 47.4% p=0.152) and better outcomes in the depersonalization scale [19 (11-21) vs. 10 (1-17) p=0.023]. Women and residents who had moved to Buenos Aires presented lower degrees of exhaustion and depersonalization.

Conclusions: The implementation of DOR after a 24-hour shift was associated with a reduction in the depersonalization scale, particularly among women. We emphasize the importance of creating prevention strategies aimed at improving residents’ working conditions and quality of life.

Key words: Internship and Residency - Education, Medical - Burnout, Professional - Cardiology

RESUMEN

Introducción: El síndrome de burnout genera impacto negativo en la actuación profesional, la seguridad del paciente y la vida del residente. Esta problemática ha tomado vigencia en las residencias argentinas; sin embargo, no se han evaluado medidas efectivas para prevenir su aparición.

Objetivo: Evaluar la prevalencia del síndrome de burnout antes y después de la implementación del descanso postguardia en médicos residentes de cardiología.

Material y métodos: Estudio analítico, prospectivo. Se implementó el cuestionario de Maslach en residentes de cardiología de una institución de la Ciudad de Buenos Aires, antes y después de la implementación de un período de descanso de 24 horas (DPG) luego de una guardia de 24h. Hubo una tendencia a menor prevalencia de burnout en el grupo con DPG (26,1% vs. 47,4% p =0,152) y mejores resultados en la escala de despersonalización (19 [11-21] vs. 10 [1-17] p = 0,023). Presentaron menor agotamiento y despersonalización las mujeres y los mudados a Buenos Aires.

Conclusiones: La implementación del DPG se asoció a la reducción de la escala de despersonalización, principalmente en mujeres. Se remarca la importancia de crear estrategias de prevención que mejoren las condiciones de trabajo y la calidad de vida del residente.

Palabras clave: Internado y residencia- Educación médica -Agotamiento profesional -Cardiología

INTRODUCTION

Stress can be defined as the adaptive nonspecific response of the organism to any demand, challenge or threat. When it persists over the time, it may exceed the subject’s tolerance, producing a negative impact on health, professional performance, patient safety and family and social life. (1)

Burnout (BO) syndrome is defined as the physi-

cal or emotional response to job stress. It represents the chronic exhaustion that arises after coping with the psychological demands at work which affect the quality of life and professional ability to take care of patients. (2, 3)

Burnout was described by Freudenberg (4), but it was Maslach who, in 1976, designed a questionnaire to diagnose BO organized in three dimensions: emo-

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Address for reprints: Lucrecia María Burgos. Instituto Cardiovascular de Buenos Aires (ICBA) - e-mail: lucreciamburgos@gmail.com

¹ Resident, Clinical Cardiology, Instituto Cardiovascular de Buenos Aires (ICBA)

² Chief resident, Clinical Cardiology, Instituto Cardiovascular de Buenos Aires (ICBA)

³ Chief of the Emergency Department, Instituto Cardiovascular de Buenos Aires (ICBA)

⁴ Director of Teaching and Research, Deputy Chief of the Cardiology Department, Instituto Cardiovascular de Buenos Aires (ICBA)

tional exhaustion (characterized by progressive depletion of energy and personal resources for adaptation), depersonalization (manifested by a negative change in attitudes leading to a distant and impersonal response and lack of emotions and feelings towards patients), and personal accomplishment (which describes feelings of competence and efficacy at work). (3)

Many factors have been suggested to contribute to BO: demographic characteristics, type of work, competitive work environment, prolonged hospital workdays, lack of sleep, and personality profiles, among others. (5)

Since BO gained importance, several strategies have been developed in an attempt to reduce the factors promoting it. The number of working hours without taking a break directly affects the levels of attention, exhaustion and satisfaction among health care professionals. As these factors define BO syndrome, we hypothesize that actions tending to increase the hours of rest would reduce its prevalence. In the city of Buenos Aires, the law 4702 for residency programs in hospitals enacted in 2013 (6) grants a day of rest (DOR) after a 24-hour shift. The aim of the present study was to evaluate the prevalence of BO syndrome in medical residents in clinical cardiology at a private center in Buenos Aires before and after the implementation of DOR after a 24-hour shift.

METHODS

An analytic and prospective study, including residents who entered the hospital residency program between 2012 and 2014 was conducted using a closed survey. Those residents who refused to answer the survey were excluded from the study.

The instrument used was an anonymous self-reporting form adapted from the Burnout Short Questionnaire (Figure 1), according to modifications performed on the Maslach Burnout Inventory Manual validated for Spanish-speakers. (7) The questionnaire consists of 22 items assessed with a Likert-type scale identifying BO in three dimensions: 1) *emotional exhaustion* (EE) with 9 items; 2) *depersonalization* (DP) with 5 items (the score of these dimensions is directly proportional to the intensity of the syndrome); and, 3) *personal accomplishment* (PA) with 8 items (the score obtained is inversely proportional to the intensity of the BO syndrome).

The degree of BO was considered as a continuous variable, with different intensities, and BO was defined as the concomitant presence of high EE (>26) and DP (>9) scores, and low PA (<33) score.

The study was conducted following the recommendations of the Declaration of Helsinki and was approved by the institutional Teaching and Research Committee and the Ethics Committee.

All the statistical calculations were performed using SSPSS 21 software package. Discrete variables were expressed as medians and interquartile range and nominal variables as proportions. Continuous variables were compared using the Mann-Whitney U test and Fisher's exact test or the chi square test were used for categorical variables, as applicable. The re-

Maslach burnout inventory

EMOTIONAL EXHAUSTION

1. I feel emotionally drained by my work
2. I feel worn out at the end of my workday
3. I feel fatigued when I get up in the morning and have to face another workday
4. Working with people all day is demanding, stressful
5. I feel burnt out and tired by my work
6. I feel frustrated or bored by my work
7. I feel I am working too much
8. Working with other people directly puts too much stress on me
9. I feel spent, at the end of my tether

DEPERSONALIZATION

1. I feel I treat patients impersonally, without sympathy
2. I have become more insensitive towards people since I work in this profession
3. I worry that work is hardening me emotionally
4. I do not really care what happens to my patients
5. I feel people working with me blame me for some of their problems

PERSONAL ACCOMPLISHMENT

1. I can easily understand how my patients feel about things
2. I effectively deal with the problems of my patients
3. I feel I am a positively influencing other people's lives through my work
4. I feel very energetic
5. I can easily create a relaxed atmosphere with my patients
6. I feel exhilarated after working closely with my patients
7. I have accomplished many worthwhile things in my profession
8. In my work I deal with emotional problems very calmly

0 = Never 1 = Few times a year or less 2 = Once a month
 3 = Few times a month or less 4 = Once a week 5 = Few times a week
 6 = Everyday

Fig. 1. Maslach form

liability of the test results was evaluated using Cronbach's alpha coefficient.

RESULTS

A total of 42 surveys were responded (2014 n=19; 2015 n=23). Of the 25 residents eligible in 2015, 23 (92%) answered the survey and 19 (76%) responded in 2014. All the questionnaires could be analyzed. Cronbach's alpha coefficient was 0.842.

Among the survey respondents, 57.9% were men before the implementation of DOR after a 24-hour shift (PRE group) and 65.2% in the period after such implementation (POST group) (p=0.5). During the PRE period, 31.6% were living alone versus 17.4% in the POST period (p=0.6), while 52.6% moved to Buenos Aires in the PRE period versus 52.1% during the POST period (p=0.7%). There were no differences in the number of hours dedicated to medical practice or in the number of 24-hour shifts performed per week (Table 1).

Burnout was observed in 9 survey respondents (47.4%) in the PRE group and in 6 (26.1%) in the POST group (p=0.152).

The evaluation of each BO dimension (Table 2) demonstrated high prevalence of high DP scores in both groups (PRE group 78.9% vs. POST group 52.2%) but with a statistically significant reduction after DOR implementation (p=0.023). There were no significant differences in the EE scale: 73.7% vs. 56.5% in the PRE and POST groups, respectively (p=0.45). The scores in the scale PA were also low in both groups and without significant differences (PRE group 78.9% vs. POST group 69.6%, p=0.58).

Table 3 describes the components of the BO syndrome according to sex, moving to Buenos Aires and cohabitation. Women presented lower scores in the DP (PRE 19.5 vs. POST 11; p=0.038) and EE (PRE 32.5 vs. POST 26; p=0.05) subscales after DOR implementation. Those residents who moved to the city of Buenos Aires presented lower scores in the DP sub-

scale after DOR implementation (PRE 16 vs. POST 12; p=0.03).

DISCUSSION

Burnout syndrome constitutes an important occupational health problem considering that, in our study, the prevalence was 47.4% in the PRE period and 26% in the POST period with a non-significant trend towards reduction. The publications show diverse results, with prevalence of BO between 27% and 75% depending on the medical specialty. (2, 8) The prevalence of BO in a study performed at a medical center in the city of Buenos Aires was 19.59% (64% with high

Table 1. Description of the population before and after the implementation of rest after shift (n=42)

Variable	2014 (PRE) N=19	2015 (POST) N=23	%
Men	11 (57.9%)	15 (65.2%)	0.5
Lives alone	6 (31.6%)	4 (17.4%)	0.6
Moved to Buenos Aires	10 (52.6%)	12 (52.1%)	0.7
N° of 24-hour duty shifts per week	2 (2-6)	3 (2-6)	1
N° of working hours per week	84 (85-96)	82 (74-100)	1
Children	2 (10%)	1 (4.3%)	1

PRE: Without rest after shift. POST: With rest after shift.

Table 2. Subscale scores in the PRE and POST groups

	PRE	POST	%
Subscale	Score	Score	
	Median (IQR)	Median (IQR)	
Depersonalization	19 (11-21)	10 (1-17)	0.023
Personal accomplishment	29 (26-33)	30 (26-35)	0.58
Emotional exhaustion	31 (25-34)	29 (21-25)	0.45

Depersonalization: High >9, Medium 6-9, Low <6. Personal accomplishment: Low <30, Medium 34-39, High >40. Emotional exhaustion High >27, Medium 19-26, Low <19.

Table 3. Median score and interquartile range by subcategories according to sociodemographic variables

		DP			PA			EE		
		Pre	Post	p	Pre	Post	p	Pre	Post	p
Sex	Men	16 (7-21)	9 (1-17)	0.28	29 (26-35)	30 (26-35)	0.79	30 (24-34)	32 (31-36)	0.68
	Women	19.5 (15-20)	11 (3-12)	0.038	28.5 (24-32)	29 (25-35)	0.64	32.5 (30-35)	26 (21-30)	0.05
Households	Alone	14.5 (5-21)	11 (8-22)	0.76	30.5 (26-37)	28.5 (22-37)	0.61	31.5 (21-36)	30 (24-35)	1
	Accompanied	19 (14-20)	9 (1-17)	0.08	27 (25-33)	30 (26-35)	0.34	31 (27-34)	29 (21-32)	0.36
Moved to Buenos Aires	Moved	16 (11-19)	12 (2-17)	0.038	27 (24-31)	29 (26-37)	0.45	30 (22-35)	30.5 (25-30)	0.41
	Not moved	20 (8-21)	9 (1-13)	0.2	31 (26-35)	30 (24-35)	0.97	31.5 (28-34)	21 (19-35)	0.67

DP: Depersonalization. EE: Emotional exhaustion. PA: Personal accomplishment.

EE score, 64% with high DP score and 28.35% with low PA score), without differences in the demographic variables. (9) Another study performed among cardiology residents in Argentina reported BO in 80.2% of residents, with high degrees of EE in 71.7%, DP in 67.9% and PA in 50.9% of cases. (10)

After the implementation of DOR after a 24-hour shift, a significant improvement was observed in the DP subscale. These results could indicate the influence exerted by fatigue, as longer breaks improve personal contact, reduce apathy and help the resident to feel more involved with the patient. According to Marshall and Pasman, physicians with high degree of DP usually show negative attitudes and loss of affection towards patients and their families. (11)

In our study, we found lower degrees of PA that were similar to those of the published literature and were independent of the implementation of DOR after a 24-hour shift. (10) Probably, these qualities may be influenced by other factors besides DOR, as the resident's profile, the type of residency program and the teaching environment. Dyrbye et al. analyzed the learning environment and BO in medical students, and found environmental factors associated with distress, establishing that the learning environment seems to be a critical factor for satisfaction. (12) Llera and Durante reported a significant correlation between the educational ambience and BO (an inverse correlation with EE and DP, and a direct correlation with PA) during the residency program. (13)

The effect of sex in BO shows contradictory results. In a systematic review of BO, (8) the risk of BO was not higher in women. One study suggests that the risk of BO is greater among men. (14) Our results could be influenced by local social and cultural factors.

Those residents who moved to the city of Buenos Aires and entered the residency program after the implementation of DOR presented better scores in the DP subscale. This result could be due to a different emotional baseline status in subjects who are far away from their usual environment.

Our study evaluated the prevalence of BO before and after the implementation of an intervention in the workplace, a tool that could be useful to reduce this severe phenomenon of professional exhaustion. This type of interventions could include the development of programs to reduce stress, increase the awareness of BO among professionals, provide supportive measures for health care professionals, and ensure a reasonable workload and longer periods of rest. (15)

Study limitations

The limitations of our study are mainly associated with the fact that other variables, rather than the implementation of DOR, could have produced an impact on the results. In addition, the absence of statistical significance in some results could be due to the low number of participants included. We did not perform

a test for paired samples or dependent variables as the board suggested that there should be no way to identify the resident in order to ensure an honest response, with the negative impact of the impossibility of making analyses before and after the intervention.

CONCLUSION

The implementation of DOR after a 24-hour shift was associated with a reduction in the depersonalization subscale, particularly among women, who also presented better scores in the emotional exhaustion subscale. This investigation provides evidence supporting the recent legislation about residency programs in the city of Buenos Aires and allows generating hypotheses to elaborate preventive strategies to improve the resident's working conditions, quality of life, quality of learning and patient's safety, and thus implement measures to decrease the prevalence of BO among medical residents

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