

## Prevalence of Burnout Syndrome in Patients Admitted with Acute Coronary Syndrome

Ana Cláudia Giaxa Prosdócimo<sup>1</sup>, Luciane Boreki Lucina<sup>1</sup>, Marcia Olandoski<sup>1</sup>, Priscila Megda João Jobs<sup>2</sup>, Nicolle Amboni Schio<sup>1</sup>, Fernanda Fachin Baldanzi<sup>1</sup>, Costantino Ortiz Costantini<sup>2</sup>, Ana Maria Teresa Benevides-Pereira<sup>1</sup>, Luiz Cesar Guarita-Souza<sup>1</sup>, José Rocha Faria-Neto<sup>1</sup>

Pontifícia Universidade Católica do Paraná – PUCPR<sup>1</sup>; Hospital Cardiológico Costantini<sup>2</sup>, Curitiba, PR - Brazil

### Abstract

**Background:** Burnout Syndrome is the extreme emotional response to chronic occupational stress, manifesting as physical and mental exhaustion. Although associated with higher prevalence of cardiovascular risk factors, no study so far has evaluated whether the Burnout Syndrome could be a prevalent factor in non-elderly individuals active in the labor market, admitted for acute coronary syndrome (ACS).

**Objective:** To evaluate the prevalence of the Burnout Syndrome in non-elderly, economically active patients, hospitalized with ACS.

**Methods:** Cross-sectional study conducted in a tertiary and private cardiology center, with economically active patients aged <65 years, hospitalized with diagnosis of ACS. The Burnout Syndrome was evaluated with the Burnout Syndrome Inventory (BSI), which assesses workplace conditions and four dimensions that characterize the syndrome: emotional exhaustion (EE), emotional distancing (EmD), dehumanization (De) and professional fulfillment (PF). The Lipp's Stress Symptoms Inventory for Adults (LSSI) was applied to evaluate global stress.

**Results:** Of 830 patients evaluated with suspected ACS, 170 met the study criteria, 90% of which were men, overall average age was 52 years, and 40.5% had an average income above 11 minimum wages. The prevalence of the Burnout Syndrome was 4.1%. When we evaluated each dimension individually, we found high EE in 34.7%, high De in 52.4%, high EDi in 30.6%, and low PF in 5.9%. The overall prevalence of stress was 87.5%.

**Conclusions:** We found a low prevalence of Burnout Syndrome in an economically active, non-elderly population among patients admitted for ACS in a tertiary and private hospital. (Arq Bras Cardiol. 2015; 104(3):218-225)

**Keywords:** Acute Coronary Syndrome; Burnout, Professional; Inpatients; Stress, Psychological.

### Introduction

Stress is a complex psychophysiological reaction that characterizes the need of the organism to face a threat to its internal homeostasis<sup>1</sup>. Although the response that characterizes the stress is acutely necessary against an aggressive stimulus, its chronicity is deleterious. In this situation, there is a continuous activation of the autonomic nervous system and neuroendocrine axis<sup>2,3</sup>. Therefore, chronic stress is a recognized risk factor for coronary heart disease<sup>4</sup>, although situations of extreme acute stress are also associated with an increased incidence of cardiovascular events<sup>5</sup>.

In the last decades, several factors, such as demand for increased productivity, have generated greater

occupational (i.e. work-related) stress. Like other forms of stress, occupational stress increases the chances of illness in the population, although a healthy lifestyle seems to mitigate this risk<sup>6</sup>. The Burnout Syndrome is the extreme emotional response to occupational chronic stress. The term "burnout, or "burn to exhaustion", indicates the collapse that arises after use of all available energy<sup>7</sup>, manifesting as a process of physical and mental exhaustion. The syndrome consists of multiple factors and is expressed in three dimensions: high levels of emotional exhaustion (EE) and depersonalization (composed by emotional distancing [EmD] and dehumanization [De]) and low professional fulfillment (PF). It depends directly on the conditions under which the work is performed and also in the interpersonal relationships involved in its execution<sup>8,9</sup>. Its prevalence has been widely evaluated in several professional groups, in particular, health care workers such as doctors and nurses, in addition to workers in social fields, such as lawyers and teachers<sup>10</sup>.

Like other forms of stress, the Burnout Syndrome is associated with the presence of several cardiovascular risk factors<sup>11,12</sup>. However, a possible association between the syndrome and triggering of cardiovascular events in

**Mailing Address:** José Rocha Faria-Neto •

Av. Getúlio Vargas, 2932, cj 1101, Postal Code 80240-040, Curitiba, PR - Brazil  
E-mail: jrochafaria@cardiol.br; jose.faria@pucpr.br

Manuscript received May 27, 2014; revised manuscript September 23, 2014; accepted October 13, 2014.

DOI: 10.5935/abc.20140196

economically active professionals has not yet been explored in the national literature. The aim of this study was to evaluate the prevalence of the Burnout Syndrome in individuals active in the labor market, admitted with acute coronary syndrome (ACS). The prevalence of global stress, not necessarily associated with work, was also evaluated.

## Methods

### Recruitment of Patients

We evaluated patients with complaint of chest pain admitted to an emergency service of a tertiary private hospital specialized in cardiology in the city of Curitiba (PR), and who were hospitalized for investigation or treatment of ACS. We included patients with confirmed diagnosis of ACS (angiographic evidence), aged  $\geq 21$  years and  $< 65$  years, of both genders, and economically active in the labor market.

Recruitment was carried out in two phases. During the first phase, we conducted a pilot study with duration of 36 weeks in which 94 patients were included. For the second phase and continuation of data collection, the sample size was calculated based on the initial pilot study. Considering an initial estimated frequency of Burnout of 4%, with a maximum margin of error of 3.2% (95% confidence interval [95% CI]: 1.1% to 7.1%), a minimum of 164 patients would be required.

Data collection of both phases occurred from 5/17/10 to 3/1/12. The present study was approved by the Research Ethics Committee of the institution with assigned number 1940. All patients included in the study were informed about the goals of the study and signed an informed consent form (ICF).

### Evaluation Protocol

The cardiological clinical evaluation followed a pre-established protocol for care of patients with chest pain and suspected ACS<sup>13</sup>. The approach to invite the patient to participate in the study was individual and conducted by a psychologist in the patient's room, between the 3rd and 5th days of hospitalization. The application allocated 20 to 30 minutes for completion of the two instruments of psychological assessment of the Burnout Syndrome (BSI) and global stress (LSSI). For patients who preferred to fill out the questionnaires alone, this possibility was offered.

### Psychological Instruments

#### Assessment of the Burnout Syndrome

For assessment of the Burnout Syndrome, we used the Burnout Syndrome Inventory (BSI) by Benevides-Pereira<sup>14</sup>. This inventory is composed of two parts and assessed in a Likert-type scale (0 to 4). Part I consists of 16 items related to the background of the work environment: the positive and the negative organizational conditions, with scores of 0 (never) to 4 (very often). Part II consists of 19 items that assess each dimension of the Burnout Syndrome individually (EE, EmD, De and low PF) with scores of 0 (never) and 1 (a few times

per year) to 4 (every day). The reference values, between minimum and maximum averages, for the assignment of high, moderate or low levels were: Positive Organizational Conditions (POC, 22 – 26), Negative Organizational Conditions (NOC, 8 – 17), EE (4 – 9) and depersonalization, which is represented by the dimensions EmD (2 – 6) and De (4 – 7). The third dimension is the PF (10-15) which is inversely related to the above. According to this instrument, the dimensions are evaluated individually, also covering professions that are not assistive. As a diagnostic criterion for the Burnout Syndrome, this instrument follows the classic criterion of Maslach et al<sup>9</sup> which requires the occurrence of high emotional exhaustion and depersonalization (De and/or EmD), concurrently with reduced PF at work.

#### Assessment of Stress

To evaluate the occurrence of stress, phase and prevalence of physical or psychological symptoms, we used the Lipp's Stress Symptoms Inventory for Adults (LSSI) validated in Brazil by and marketed by *Editora Casa do Psicólogo*<sup>15</sup>. This questionnaire consists of three parts assessing physical and psychological symptoms observed in the previous 24 hours (15 items), which define the Alert phase, during the previous week (15 items), which identifies the Resistance and Near-exhaustion phases, and during the previous month (23 items), which refers to the period of Exhaustion of the stress. Symptoms identified by the patient were marked in the questionnaire, and each item identified received one point.

#### Categorization of the Cohort Professions

Burnout Syndrome is linked to working activities. Much of the research has focused on the categories of assistive and health professionals, but in the 1990s it was observed that other professionals could also suffer from burnout<sup>9</sup>. Therefore, since the objective was to assess the prevalence of the Burnout Syndrome in economically active individuals, all occupational categories were included. For categorization, the professions were subdivided into three groups, according to the degree of bureaucracy involved or the need for interpersonal interaction involved: 1) assistive or health care, 2) administrative, and 3) operational. Although this division is arbitrary, it was based on the classification used in the international literature which defines as "white collar" those professionals with bureaucratic, managerial and empowerment of functions, and as "blue collar", those with less decision-making power, subordinates, as well as operational and manual laborers<sup>16,17</sup>.

#### Statistical Analysis

We present in this study descriptive statistical analysis of the data we obtained. The results are expressed by frequencies and percentages (qualitative variables) or by averages and standard deviations (quantitative variables). The data were analyzed with the software IBM SPSS Statistics v. 20.

## Results

a total of 830 patients with ACS were identified, 298 of whom were  $\geq 65$  years and 330 were not economically

active, yielding 202 potentially eligible patients. Of these, 13 were discharged from the hospital before screening, two were unwilling to cooperate and 10 did not undergo coronary angiography. In total, 170 patients filled out the questionnaires (Figure 1) and 160 patients filled up the Stress Inventory.

### Characterization of the Cohort

The sample was composed predominantly by men (90.6%), and the average age of the overall cohort was  $52.1 \pm 7.2$  years. With regard to schooling, 43.5% reported complete tertiary education. As for professional activity, 46.5% were employees in an administrative area, the average time in the profession was  $20.0 \pm 10.9$  years and the average wage earning of 40.5% of the cohort was above 11 minimum wages. The weekly workload was greater than 40 hours per week in 54.7% of the patients (Table 1). The clinical history of the patients included in the study is described in Table 2. Regarding the cardiac diagnosis, 46.5% of the patients were identified with unstable angina, 26.5% with non-ST elevation myocardial infarction (NSTEMI) and 27.1% with ST-segment elevation myocardial infarction (STEMI). These patients had more extensive coronary heart disease, in addition to the event-related artery: the average number of arteries with lesions ( $> 50\%$ ) per patient was  $2.4 \pm 1.3$ . Patients remained hospitalized for an average of  $8.3 \pm 4.2$  days.

### Levels of the Dimensions of the Burnout Syndrome

Considering as diagnostic criteria the presence of elevated EE and depersonalization (De and/or EmD), concurrently with reduced PF at work, the Burnout Syndrome was identified in 7 patients, yielding a prevalence of 4.1%. When we analyzed the dimensions individually, 34.7% of the sample had elevated EE, 52.4% had elevated EmD, 30.6% had elevated De, and 5.9% had low PF. Regarding background factors for the syndrome, there were high indices of negative work conditions in 52.9% of the participants, whereas positive work conditions were found in 34.1%.

Figure 2 quantifies the individual dimensions of the Burnout Syndrome.

### Stress Phases in Lipp's Quadriphasic Model

Of 160 responded LSSI questionnaires, 87.5% showed stress. The Alert phase was detected in 2.6%, the Resistance phase was present in 65.6%, Near Exhaustion occurred in 25.6% and Exhaustion in 6.2%. There was a prevalence of psychological symptoms in 51.3% of the subjects in the cohort, followed by physical symptoms in 39.4%, and a combination of both in 9.3% of the cases. According to Lipp<sup>18</sup>, the Quadriphasic Model of stress indicates that the phase of Resistance has two different moments characterized by increased symptoms. Thus, the beginning

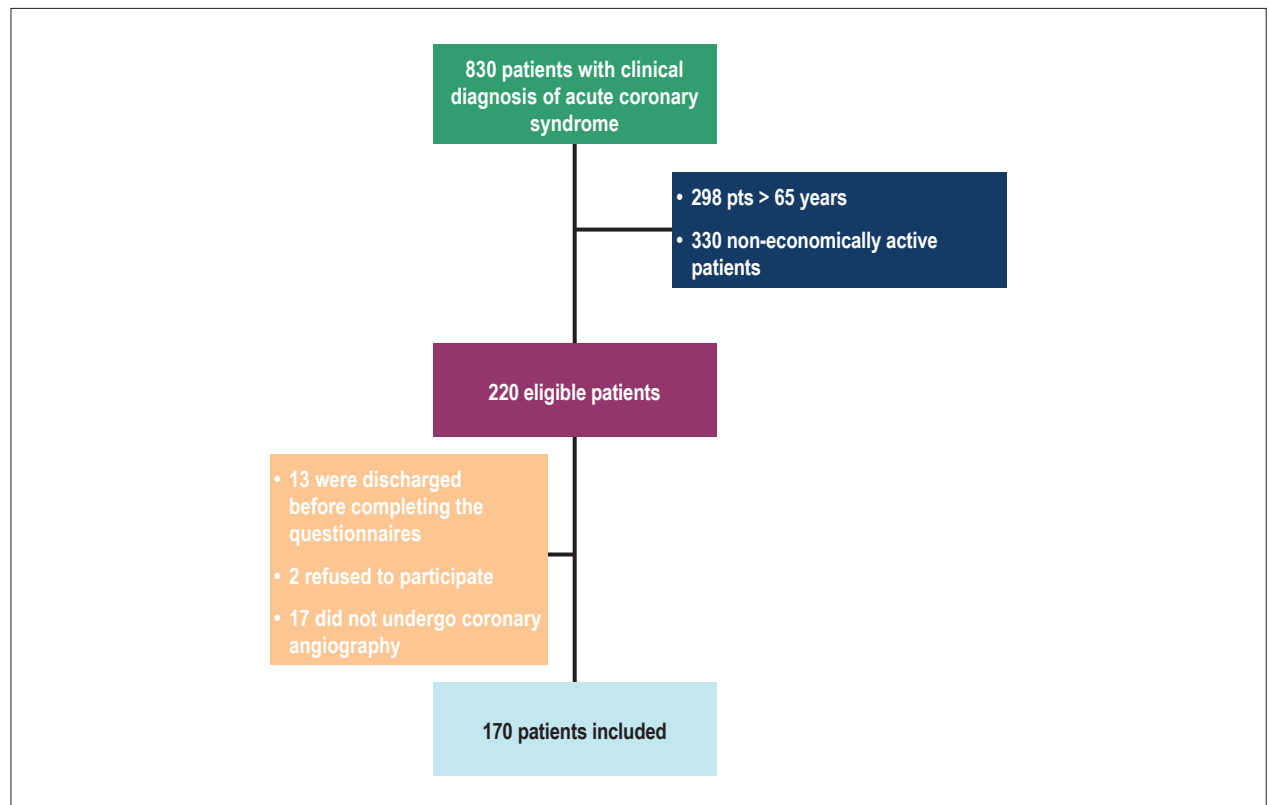


Figure 1 – Method of inclusion of the patients during the period of recruitment.

with a predominance of physical symptoms is regarded as the Resistance phase and the final stages, markedly psychological, are those of Near Exhaustion.

Figure 3 indicates the stages and symptoms of stress in the overall cohort.

## Discussion

In this study, we observed that the Burnout Syndrome, an extreme form of occupational stress, was present in 4.1% of a non-elderly population still active in the job market, hospitalized with a confirmed diagnosis of ACS. This is the first national study correlating the Burnout Syndrome with major cardiovascular events. Global stress, not necessarily related to work, was diagnosed in 87.5% of the individuals in this cohort.

Cardiovascular diseases are the leading cause of death in Brazil and in the world, and ACSs account for a significant portion of these deaths<sup>19</sup>. The socioeconomic impact of ACS is larger when it reaches a younger and more productive

segment of the population<sup>20</sup>. Therefore, the recognition of all the factors that might be associated with its triggering is critical to reduce its damages. The role of chronic stress as a coronary risk factor is well known<sup>4</sup>. Since it is associated with continuous activation of the neuroendocrine-pituitary axis, not only it significantly increases the prevalence of risk factors, it also exposes to an increased risk of major cardiovascular events<sup>2,11,21</sup>. Occupational stress is no different and also increases the incidence of coronary events<sup>6,16,22,23</sup>. This form of stress is better explained by the Karasek model<sup>16,24</sup>, or Demand-Control model, in which the power of decision involved in the performed activity is more important than the workload. The professional categories involved also interfere with the perception of the presence of occupational stress. Employees with administrative offices, known as "white collars", tend to have greater decision-making power when compared with operational employees, the so-called "blue collars". The low decision making and the high demand of work, which are prevalent in "blue collar"

**Table 1 – Characterization of the cohort**

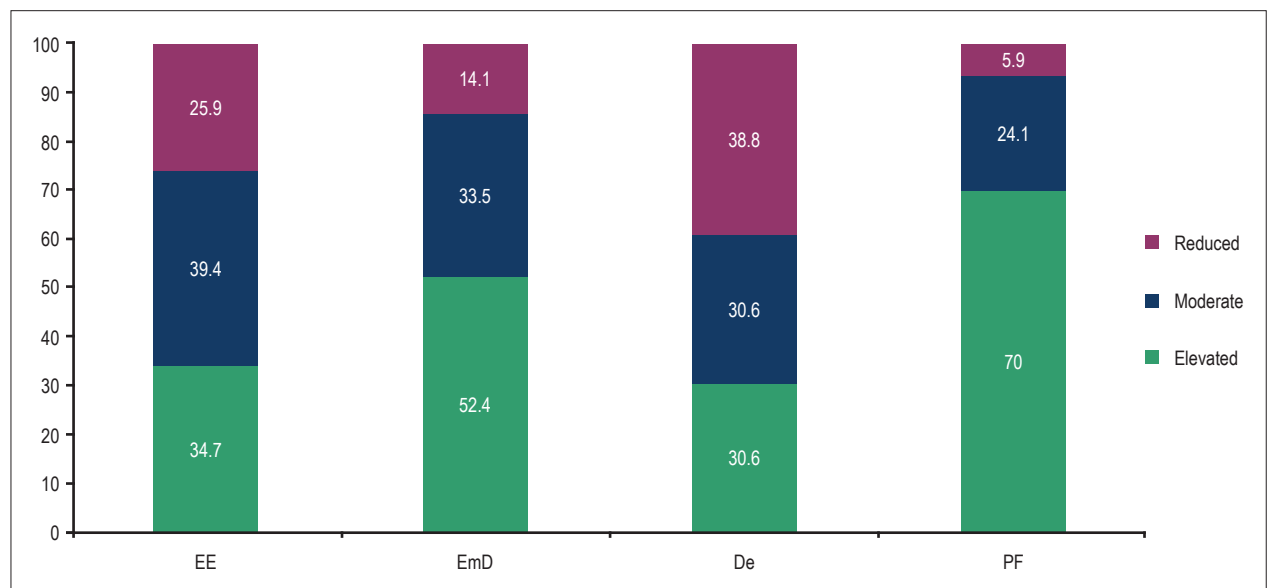
Social Data		Mean	± SD	N
Age		52.1	7.2	-
Race	White	-	-	134 (78.9%)
	Hybrid (Black/White)	-	-	30 (17.6%)
	Black	-	-	6 (3.5%)
Gender	Male	-	-	154 (90.6%)
Marital Status	Married	-	-	166 (97.7%)
Education	Incomplete elementary education	-	-	14 (8.3%)
	Complete elementary education	-	-	13 (7.6%)
	Incomplete secondary education	-	-	5 (3%)
	Complete secondary education	-	-	51 (30%)
	Incomplete tertiary education	-	-	13 (7.6%)
	Complete tertiary education	-	-	74 (43.5%)
	Professional Category	Interpersonal/Health	-	-
	Administrative	-	-	79 (46.5%)
	Operational	-	-	47 (27.7%)
Time in the Occupation		20	10.9	-
Employment Status	Self-employed	-	-	59 (35%)
	Contract/Tenure track	-	-	58 (34%)
	Both	-	-	53 (31%)
Weekly Workload	Up to 40 hours per week	-	-	77 (45.3%)
	> 40 hours per week	-	-	93 (54.7%)
Monthly Income	Up to 5 MW	-	-	55 (32.5%)
	6 to 10 MW	-	-	46 (27%)
	> 11 MW	-	-	69 (40.5%)

MW: minimum wage.

**Table 2 – Clinical history**

Health information	Mean	± SD	N
Hypertension	-	-	89 (52.4%)
Previous CAD	-	-	57 (33.5%)
Diabetes Mellitus	-	-	35 (20.6%)
Family History	-	-	83 (48.8%)
Dyslipidemia	-	-	75 (44.1%)
Stroke/TIA	-	-	3 (1.8%)
Depression	-	-	3 (1.8%)
Acute Coronary Syndrome	Unstable angina	-	79 (46.5%)
	NSTEMI	-	45 (26.5%)
	STEMI	-	46 (27.1%)
Number of Affected Arteries	2.4	1.3	-
Inpatient Days	8.3	4.2	-
Physical Activity	Sedentary	-	166 (97.6%)
	2 to 3 a week	-	4 (2.4%)
Smoking Status	Never smoked	-	81 (47.6%)
	Smoked until 6 months before	-	44 (25.9%)
	Previous smoker for > 6 m	-	45 (26.5%)
Alcoholism	Abstinence	-	39 (23%)
	Up to 30 g day	-	5 (2.9%)
	>30 g day	-	1 (0.6%)
	Weekends	-	125 (73.5%)

CAD: coronary artery disease; TIA: transient ischemic attack; NSTEMI: non-ST elevation myocardial infarction; STEMI: ST-segment elevation myocardial infarction.



**Figure 2 – Levels of individual dimensions of the Burnout Syndrome.**

EE: emotional exhaustion; EmD: emotional distancing; De: dehumanization; PF: professional fulfillment.

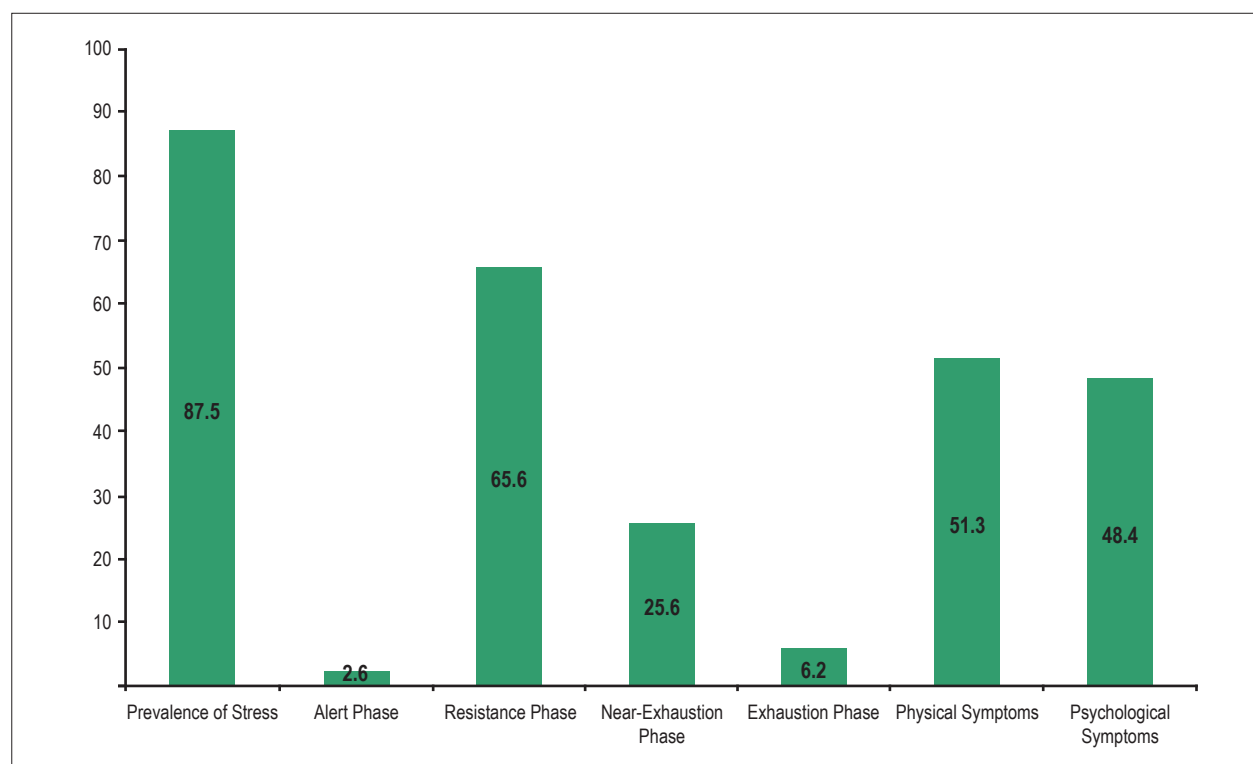


Figure 3 – Stages and types of stress symptoms.

workers, have been described as instrumental to a higher elevation of diastolic blood pressure after stimulation with an  $\alpha$ -agonist (phenylephrine), especially in black workers<sup>3</sup>. However, in a prospective study with follow-up of 18 years, the work category ("white" or "blue") was not determinant of an increased risk of myocardial infarction. In this same study, the only occupational characteristic associated with greater risk was the lack of future prospects at work<sup>16</sup>.

The progress of occupational stress to Burnout Syndrome is a continuous changing phenomenon of individual dimensions of the syndrome. We chose the BSI (Burnout Syndrome Inventory) as a diagnostic tool motivated by the process of standardization in the Brazilian population, but also because it contemplates all areas of professional activity. To verify the presence of the syndrome, four dimensions are considered, two of which (EmD and De) are the equivalent of depersonalization in the Maslach Burnout Inventory (MBI)<sup>14,25</sup>. The BSI has been previously applied to a sample of Brazilian physicians and showed, as in our study, changes beyond the average in negative work conditions, EE and De<sup>26</sup>. In this study, adverse work conditions also prevailed over positive ones, indicating that the participants notice more demands than resources in performing their professional activities. As for the dimensions of the syndrome, we observed that they use predominantly EmD as a way to counter the feeling of exhaustion. It draws attention in our cohort the high prevalence of PF. Considering that Burnout

is understood as a form of defense - even if inadequate - against occupational stress, the data are consistent with the theoretical assumptions. More professionals were found in stress than in Burnout in our sample. A hypothesis for this is that the LSSI is unable to distinguish between types of stress, measuring instead the overall stress. On the other hand, Burnout arises when the worker, unable to find ways to cope with stressing stimuli arising in the work environment, remains in exhaustion which then follows a chronic course. Most of the participants were in the phase of Resistance according to the LSSI, which matches the theoretical condition of Burnout as coping and defense against the perceived stress. Patients may be resisting the stress through high dimensions of the Burnout Syndrome.

This study has a limitation in the extrapolation of its results (external validity). The patients were recruited from a single, tertiary, and private cardiology center. This justifies some findings, such as the high prevalence of individuals with higher education and earning above 11 minimum wages. An accurate estimation of the general prevalence of Burnout Syndrome in patients admitted with ACS would only be possible using a representative sample of the entire national population. Another limitation, determined by the cross-sectional design of the study, is the impossibility of assessing the Burnout Syndrome as a triggering factor of the ACS. We believe that even prospective studies have limitations in this regard, since in the long run, professionals are subject to changes in functions and even in jobs. However, we believe that

by performing the first evaluation of the frequency of the Burnout Syndrome in patients with ACS, leaving the traditional model of evaluating its prevalence in an specific professional category, we are enabling a new area of investigation in which the Burnout Syndrome is no longer seen as just a labor problem, alerting to the possibility of its association with a greater impact on the overall health of the worker.

## Conclusions

In conclusion, this study demonstrated that the Burnout Syndrome has a low prevalence in non-elderly, economically active patients who are admitted to the hospital with ACS. Future analyses involving populations with distinct economic realities from this cohort may expand the understanding of the association of occupational stress and cardiovascular diseases.

## Author contributions

Conception and design of the research: Prosdócimo ACG, Lucina LB, Benevides-Pereira AMT; Acquisition of

data: Prosdócimo ACG, Baldanzi FF, Jobs Priscila; Analysis and interpretation of the data: Prosdócimo ACG, Olandoski M, Benevides-Pereira AMT; Statistical analysis: Olandoski M; Writing of the manuscript: Prosdócimo ACG, Schio NA, Schio NA, Benevides-Pereira AMT; Critical revision of the manuscript for intellectual content: Costantini CO.

## Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

## Sources of Funding

There were no external funding sources for this study.

## Study Association

This article is part of the dissertation of master submitted by Ana Claudia Merchan Giaxa Prosdócimo from Pontífica Universidade Católica do Paraná - PUC-PR.

## References

1. Lipp M. Mecanismos neuropsicofisiológicos do stress: teoria e aplicações clínicas. São Paulo: Casa do Psicólogo; 2003.
2. Laszlo KD, Ahnve S, Hallqvist J, Ahlbom A, Janszky I. Job strain predicts recurrent events after a first acute myocardial infarction: the Stockholm Heart Epidemiology Program. *J Intern Med*. 2010;267(6):599-611.
3. Thomas KS, Nelesen RA, Ziegler MG, Bardwell WA, Dimsdale JE. Job strain, ethnicity, and sympathetic nervous system activity. *Hypertension*. 2004;44(6):891-6.
4. Rosengren A, Hawken S, Ounpuu S, Sliwa K, Zubaid M, Almahmeed WA, et al. Association of psychosocial risk factors with risk of acute myocardial infarction in 11119 cases and 13648 controls from 52 countries (the INTERHEART study): case-control study. *Lancet*. 2004;364(9438):953-62.
5. Nozaki E, Nakamura A, Abe A, Kagawa Y, Kohzu K, Sato K, et al. Occurrence of cardiovascular events after the 2011 Great East Japan Earthquake and tsunami disaster. *Int Heart J*. 2013;54(5):247-53.
6. Kivimaki M, Nyberg ST, Fransson EI, Heikkila K, Alfredsson L, Casini A, et al. Associations of job strain and lifestyle risk factors with risk of coronary artery disease: a meta-analysis of individual participant data. *CMAJ*. 2013;185(9):763-9.
7. Benevides-Pereira A. Burnout: quando o trabalho ameaça o bem-estar do trabalhador. São Paulo: Casa do Psicólogo; 2002.
8. Tamayo M. Estresse e cultura organizacional. São Paulo: Casa do Psicólogo; 2008. p.75-105
9. Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol*. 2001;52:397-422.
10. Innstrand ST, Langballe EM, Falkum E, Aasland OG. Exploring within- and between-gender differences in burnout: 8 different occupational groups. *Int Arch Occup Environ Health*. 2011;84(7):813-24.
11. Melamed S, Shirom A, Toker S, Berliner S, Shapira I. Burnout and risk of cardiovascular disease: evidence, possible causal paths, and promising research directions. *Psychol Bull*. 2006;132(3):327-53.
12. Kitaoka-Higashiguchi K, Morikawa Y, Miura K, Sakurai M, Ishizaki M, Kido T, et al. Burnout and risk factors for arteriosclerotic disease: follow-up study. *J Occup Health*. 2009;51(2):123-31.
13. Bassan R. Chest pain units: a modern way of managing patients with chest pain in the emergency department. *Arq Bras Cardiol*. 2002;79(2):196-209.
14. Benevides-Pereira A. ISB - Inventário da Síndrome de Burnout [Internet]. [Citado em 2013 ago 13]. Disponível em : <http://gepeb.wordpress.com/isb/>
15. Lipp M. Inventário de sintomas de stress para adultos de Lipp (ISSL). São Paulo: Casa do Psicólogo; 2000.
16. Vaananen A, Koskinen A, Joensuu M, Kivimaki M, Vahtera J, Kouvonen A, et al. Lack of predictability at work and risk of acute myocardial infarction: an 18-year prospective study of industrial employees. *Am J Public Health*. 2008;98(12):2264-71.
17. Toppinen-Tanner S, Kalimo R, Mutanen P. The process of burnout in white-collar and blue-collar jobs: eighth-year prospective study of exhaustion(online). *J Organiz Behav*.2002;23(5):555-70.
18. Lipp M. Manual do Inventário de Sintomas de Stress para Adultos de Lipp (ISSL). . Brasil; 2002. p. 3.
19. Baena CP, Chowdhury R, Schio NA, Sabbag AE Jr, Guarita-Souza LC, Olandoski M, et al. Ischaemic heart disease deaths in Brazil: current trends, regional disparities and future projections. *Heart*. 2013;99(18):1359-64.
20. Teich V, Araujo DV. Estimativa de custo da síndrome coronariana no Brasil. *Rev Bras Cardiol*. 2011;24(2):85-94.
21. Loures DL, Sant Anna I, Baldotto CS, Sousa EB, Nobrega AC. [Mental stress and cardiovascular system]. *Arq Bras Cardiol*. 2002;78(5):525-30.
22. Kivimaki M, Nyberg ST, Batty GD, Fransson EL, Heikkila K, Alfredsson J, et al. Job strain as a risk factor for coronary heart disease: a collaborative meta-analysis of individual participant data. *Lancet*. 2012;380(9852):1491-7.
23. Aboa-Eboule C, Brisson C, Maunsell E, Masse B, Bourbonnais R, Vezina M, et al. Job strain and risk of acute recurrent coronary heart disease events. *JAMA*. 2007;298(14):1652-60.

## Original Article

- 
24. Lourel M, Abdellaoui S, Chevaleyre S, Paltrier M, Gana K. Relationships between psychological job demands, job control and burnout among firefighters. *N Am J Psychol.* 2008;10(3):489-96.
  25. Maslach C, Jackson SE, Leiter MP, Schaufeli WB, Schwab RL. *Maslach Burnout Inventory Manual(MBI)*. 3<sup>rd</sup> ed. Palo Alto, CA.: Consulting Psychologists Press; 1996.
  26. Ferreira Bortoletti F, Teresa Benevides-Pereira AM, Vasconcellos EG, Siqueira JO, Araujo Júnior E, Nardoza LM, et al. Triggering risk factors of the Burnout syndrome in OB/GYN physicians from a reference public university of Brazil. *ISRN Obstet Gynecol.* 2012;2012:593876.