**Burn Out in a Sample of Physicians, Nurses and Medical Students - Risk Factors Analysis**

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Abstract: The burn-out syndrome is a relatively young and controversial clinical entity, unrecognized by the American Psychiatric Association classification of mental disorders (DSM IV TR) and considered only an additional term in the last edition of the International Classification of Mental Disorders (ICD-10), elaborated by WHO. Although little efforts have been put into the conceptualizing and formulating an operational diagnosis and treatment guidelines for this syndrome, its importance for physicians, from the professional risk point of view, cannot be denied. The general practitioners, psychologists, psychiatrists and other health care providers should recognize and efficiently treat this syndrome that could represent a distinct entity, an intricate aspect of an underground, ignored psychopathology or a part of a dual diagnosis. The Maslach Burnout Inventory (MBI), Hamilton Depression Rating Scale for Depression (HAMD) and for Anxiety (HAMA), as well as Montgomery Asberg Depression Rating Scale (MADRS) were applied in a group of high risk health professionals in order to detect their exposure to the burn out syndrome. A structured interview was carried out with these subjects for delineating possible risk factors that could raise the vulnerability to burn out syndrome. We found out that the professionals with high scores on MBI (compared to the low scores respondents) were more frequently single (33.3%, p<0.05), at the beginning of their career (3.4 years of experience, p<0.05), had a high stress related to their service (+5.4 hours per week, p<0.01), higher levels of anxiety (+7.6+/-.2 on HAMA, p<0.05) and depressive symptoms (+10.1+/-.1 on HAMD, +8.8+/-.04 on MADRS, p<0.01). We consider that a thorough evaluation of health care providers should be periodically realized, as they are a high risk population for developing the burn-out syndrome.

Key-Words: burn out syndrome, mental health, health care providers, depression, anxiety, professional risk

**1 Introduction**

The pioneering work in the field of burn-out syndrome was carried out by the American physician and psychoanalyst Herbert Freudenberger (“Staff burnout”, 1974), as well as by C. Maslach and S.E. Jackson, from University of California, who quantified the dimensions of this syndrome and elaborated the “Maslach Burnout Inventory”, 1981) [1,2].

The researchers have observed that extensive working with people could leads to a syndrome characterized by emotional exhaustion, fatigability, distress, low achievement of personal goals and low sense of achievement. The main causal factors for this syndrome are supposed to be the confrontation of a professional with client problems, which could result in negative feelings like anger, embarrassment, fear or despair [2]. High demands from the person, associated with perceived low influence, high level of engagement without sufficient reward and a low level of social support have been involved in the genesis of burn-out syndrome [3].

Patients presenting burn-out syndrome are quite a heterogenous group, including people who had once been highly motivated and successful in their business as well as people feeling overworked all their lives [4]. The incidence of this pathology is unknown and several investigations offered rather pessimistic data. According to some studies, up to 25% of the German working population appear to suffer from burn-out syndrome [3].

The manifestations of burn-out syndrome correlate, if there is a chronic form of disorder, with heightened somatic arousal, postwork irritability, sleep disturbances, complaints of waking up exhausted and higher cortisol levels during the work day [5]. Therefore, a risk for secondary cardiovascular diseases could be inferred for this population [5], with a higher prevalence in men [6]. This finding is sustained by other authors, who observed a high risk for cardiovascular morbidity in burnout population, through variables like high level of low density lipoprotein [7], metabolic syndrome, dysregulation of the hypothalamic-pituitary-adrenal axis along with sympathetic nervous system activation, sleep disturbances, systemic inflammation, impaired immunity

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468

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functions, blood coagulation and fibrosis and poor health behaviors [8]. Other diseases related to this syndrome are musculoskeletal disorders, especially among women (OR=1.22, 95% CI, 1.07-1.38) and this somatic pathology correlated with all the three evaluated dimensions of burnout (exhaustion, cynicism and lack of professional efficacy) [7].

The negative consequences of the burn-out syndrome are reflected not only at the somatic level, but also in the person’s quality of life, diminished performance at the workplace (through absenteeism, low morale, low level of attention, low level of tasks completion) and through possible psychiatric complications (secondary addiction to drugs, depression, anxiety disorders, relational difficulties).

The health care providers are supposed to be at a high risk for developing burn-out syndrome, due to their involvement in emotional stressful situations and intense collaboration with patients that could present pains, disabilities, terminal diseases, irritability, suicidal ideation, aggressive behavior, litigation or lack of compliance to treatment. A telephone survey that was carried in 2007 and involved 511 private GPs, using MBI evaluations, reported a incidence for the burn-out syndrome of 1%, and the assessed risk factors were long working hours on a weekly basis and high levels of mental strain [9]. The palliative care doctors have a higher rate of burn-out, estimated at 25% (from a surveyed population of 41) as they scored high on either Emotional Exhaustion or Depersonalization subscales of MBI [10]. The emergency physicians scored even higher at the MBI scales, as a incidence of 60% moderate to high burnout ranges were observed (from a surveyed population of 1272 emergency physicians) [11].

Regarding the incidence of burn-out in cancer professionals, a meta-analysis conducted on MEDLINE, LILACS and COCHRANE databases, published in 2008, showed 10 significant studies (n=2375 participants) and the results of these reflected a high rate of the syndrome- severe involvement by one of the three dimensions of MIB ranged from 8 to 51% [12]. A survey in a psychiatrists sample showed that four factors correlated with a high rate of burn-out: too much work, working long hours, an aggressive administrative environment and lacking support from management [13].

### 2 Problem Formulation

The main objective of this research is to delineate a risk factors profile for burn-out syndrome, derived from the assessment of physicians, nurses and medical students who are in their clinical training program. Although there is no universally accepted definition for the above mentioned syndrome, we used an operational formulation, based on the three subscales of 25-items MBI (Emotional Exhaustion-EE, Depersonalization-DP and Personal Achievement-PA). Therefore, a medium to high level on any one of the three subscale, as well as a medium to high general (G) score, are considered indicators for the presence of burn-out syndrome.

#### 2.1 Methodology

We included in this research a number of 87 health care personal (21 physicians, 34 nurses and 32 medical students in their final years of training), 45 female and 42 male (ratio 1.07), mean age 32.1, age interval 20 to 65 years. The physicians were working in hospitals (n=13) or in day-care facilities (n=8), the nurses were also distributed in either clinical (n=22) or day-care facilities or private practice units (n=12). Medical students were in their final two years (either the 5th or the 6th) and were participating in clinical programs, according to their curricula of training.

Distribution of this sample according to specialties was as follows: surgical (5 physicians, 10 nurses), internal medicine and derivatives (10 physicians, 14 nurses), laboratory and imagistic explorations (2 physicians, 4 nurses), GPs and their teams (4 physicians, 6 nurses).

All subjects were active professionals or students, with no major discontinuity in their professional evolution. The subjects work and/or study in an urban area and reported no multiple change in their workplace/study-place in the last 5 years.

We excluded from this study subjects with previous diagnosed mental disorders or severe, invalidating organic diseases and also persons who presented recent exposure to severe traumas, unrelated to their professional environment (death of a relative, car accident, financial severe loss etc). We also excluded those persons who were on active analgesic, anxiolytic, sedative, psychostimulants or OTC containing similar agents.

We used four clinical scales- MBI, Hamilton Rating Scale for Depression (HAMD)-the 17 items version, Montgomery Asberg Depression Rating Scale (MADRS) and Hamilton Rating Scale for Anxiety (HAMA) and a structured interview focused on the perceived self-efficacy, areas of personal interest, stressful life events and usual coping strategies. These instruments were applied by the same team (one psychiatrist and one clinical psychologist), while the results were summarized and interpreted by an independent, blind-rater, psychiatrist.

#### 2.2 Results

The 87 surveyed subjects succeed in answering to
the questions of all the clinical instruments administered and the data were interpreted in order to correlate potential risk factors to the presence of burn-out syndrome.

A number of 24 respondents (27.58%) met the criteria for a diagnosis of burned out syndrome, either on one or multiple subscale (13 had EE>19, 10 had DP>13, 8 had PA>21, 10 had G>51).

![Fig.1 Evaluation of the burn-out incidence using MBI](image1)

The specific populations (physicians, nurses and medical students) were differently affected. The highest incidence of burn-out syndrome is observed in the physician population (n=12/21, 57.1%), especially in those working in hospitals (n=8/21, 38.1%), followed by nurses working in the hospitals (n=6/34, 17.64%) and nurses in day-care units (n=3/34, 8.82%). In the student population a rate of 9.37% burn-out (n=3/32) was observed.

![Fig.2 Incidence of the burn-out syndrome adjusted for profession](image2)

We can observe that a factor risk for developing burn-out syndrome could be the setting in which work the health care providers, since the hospital population has an almost double rate of burn-out, compared to the day-care or private practice units. Another import observation is that the students have a relatively high rate of emotional exhaustion or depersonalization and even the overall incidence of burn-out is relatively high (almost 10%). This is important because students are a relatively young population, with a reduced patient-interview and treatment related stress due to their low level of clinical experience, therefore the incidence of a professional syndrome should be minimal. Nonetheless, these findings could be the results of either (1) undeveloped coping strategies to emotional stimuli related to clinical stressors or (2) learning and exams related stress, that could trigger an exhaustion response or dissociative experiences.

We found a relatively similar incidence of the burn-out syndrome in the surgical and internal medicine group (p=0.023), but higher than in the laboratory and GPs (p<0.05).

![Fig.3 Burn-out incidence according to the specialty (physicians, nurses)](image3)

A comparative analysis was conducted using two groups: the first one is composed from the 24 subjects with medium to high scores of MBI, while the second represents subjects with low levels of MBI scores (n=63).

The professionals with a high risk for developing burn-out syndrome were more likely to be single (n=8/24, 33.3%), compared to the controls (n=18/64, 28.1%), a significant correlation at p<0.05. Single subjects in the burn-out group were divorced (n=3), widowed (n=3) or never married (n=2). This correlation is congruent with other researches in the field, which stated that lack
of support group could be a risk factor for burn-out syndrome.

The years of experience in the profession was associated with significant higher risk for developing burn-out, compared to controls, and a value of under 5 years was correlated with the highest probability. Subgroup analysis established a value of 3.4 years of experience as a marker of vulnerability (p<0.05). This risk factor is important because preventive measures could be taken in order to decrease the incidence of burn-out in young doctors, nurses and medical students. A psycho-educational approach, focused upon the relaxation techniques, enhancing coping skills to stressful professional situations or Balint groups could be useful measures, with long-term efficacy.

The level of anxiety was higher in the burn-out subjects (mean value was higher with 7.6+/−1.2 points on HAMA than in controls, p<0.05) and the depressive symptoms were more frequently met (+10.1+/−1.7 on HAMD, +8.8+/−0.4 on MADRS, p<0.01). These data should be interpreted with caution, because there several possible perspectives: (1) anxiety and depression are the results of the burn-out syndrome, (2) the affective symptoms are preexistent and, therefore, they could sensitize the subject to burn-out or similar conditions, (3) there is a degree of overlap between affective disorders and burned-out, both having a similar origin in a specific population. Although we excluded from enrollment subjects who presented personal history of affective, as well as other psychiatric, disorders, anxiety and depressive symptoms were under-recognized by the subjects and were not addressed appropriately. Because we excluded subjects who had recently psychological or physical traumas, other than profession-related, we could infer that affective symptoms were associated in some way to the professional stress. However, we could not elaborate on the specific relationship between affective dimension and the burn-out symptom, because a further, more detailed, interview, with each subject is needed.

The number of hours in service was a variable that consistently associated with higher level of Emotional Exhaustion and General score on MBI. We observed, through data analysis, that subjects with higher EE and G worked at least 5.4 hours per week more than controls (p<0.01). This observation was held across the professional categories, with a slightly more significance in physicians (p<0.001) than in nurses (p<0.005) and students (p<0.01). In the medical student population we considered the number of hours spent in learning or practicing professional skills. An appropriate management of the time used for professional activities should be advised for physicians, nurses and students, regardless the workplace or study-place.

3 Discussion
There are some limitations of this research, because we included only health care professionals and trainees that are working/studying in an urban area. The specific factors associated with the social environment in rural areas could be addressed in a further study. Also, although we used several rigorous inclusion criteria, patients with burn-out syndrome have had important affective symptoms, that confound variables and prognosis. A longitudinal evaluation of this group could prove itself useful in order to detect the course of overlap between the two psychopathology dimensions. This follow-up could clarify the causal or non-causal
relationship between anxiety, depression and the burn-out syndrome.

There is a significant proportion of health care providers (physician, nurses) and trainees (medical students) that are at risk for developing the burn-out syndrome. Our investigation established a 27.58% incidence of burn-out syndrome in the target population, the most exposed to the risk being physicians and nurses that work in hospitals and physicians that work in day-care facilities. The surgical and internal medicine specialties share a similar rate of burn-out syndrome, higher than the rate of laboratory, imaging sciences, and GPs.

Students have a high vulnerability to burn-out, probably due mostly to their learning and exams program, but the impact of lack of skills when confronting to the patient’s specific complaints should be considered, because this factor creates a higher risk for developing or aggravating a burn-out syndrome when young doctors are to begin their practice.

Being single, being in the first 5 years of practice and working more hours per week are factors that strongly correlate to the risk of burn-out. Anxiety and depression levels are to be considered when the other factors are present, because undetected affective disorders could sensitize the professionals to developing burn-out syndrome.

The data we obtained in this study is not entirely supported by previous researches. For example, the relationship between the age and years of practice and risk for burn-out was not proved in another study [11]. This phenomenon could be explained through different inclusion and exclusion criteria and methods of evaluation used. The overall data regarding the high incidence and prevalence of burn-out in the health-care professional are, nonetheless, convergent with those data presented in the introductory chapter.

4 Conclusion
More research is needed for delineating the specific risk factors and diagnostic criteria for burn-out, due to the vaguely clinical presentation of this syndrome. However, more attention should be paid by clinician psychologist, psychiatrists and other mental health specialists, for early detection and prevention of burn-out syndrome in the physician, nurses and medical students population.

A practical conclusion that could be formulated by analyzing the previous data is that preventive programs focused upon the detection of risk factors in this specific high-risk population and upon the development of professional and stress-management skills, beginning as early as in the faculty, could have long-term beneficial impact.

References: