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The phenomenon of burnout among medical students - literature review

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ABSTRACT

Introduction: Burnout is characterised by a triad of emotional exhaustion, depersonalisation and a decreased sense of accomplishment. Distress during medical school can lead to burnout,

with significant consequences, particularly if burnout continues into residency and beyond. There is a lot of research into burnout and the authors reviewed literature pertaining to medical student burnout, its prevalence, and its relationship to personal, environmental, demographic and psychiatric factors.

The aim of the study: Paying attention to the correlation between academic lifestyle and occurrence burnout among medical students.

Material and method: The research was done by the usage of the PubMed and Google Scholar articles about the topic of: burnout; stress; medical students; behaviour.

Description of the state of knowledge: The educational process brings a considerable amount of stress to medical students that can influence mental health status and contribute to further professional burnout. According to various studies and definitions of occupational burnout, this phenomenon is observed in up to 76% of medical students. Research has identified associations between burnout and lifestyle health behaviours. Also relationship between the occurrence of burnout and suicide attempts has been demonstrated. In turn spirituality has been positively influence well-being and to prevent burnout.

Summary: Undoubtedly, it is worth paying attention to the phenomenon of occupational burnout among students from the first years of medical studies. Universities should make efforts to reduce the risk of the occurrence and further development of burnout, which may have negative effects in the future work with the patient.

Key words: burnout; stress; medical students;

INTRODUCTION

Burnout is a measure of physical and psychological exhaustion and mental distress caused primarily by occupational and professional demands. It is characterised by heightened levels of emotional exhaustion (EE) and depersonalisation (DP) (described as emotional indifference and the dehumanisation of the client or patient), and a decreased perception of personal accomplishment (PA) [1]. Burnout is commonly found in individuals working within human services and recent studies estimate the prevalence of burnout in American doctors to be around 40% [2, 3], although some have found it to be as high as 76% in internal medicine residents [4].

An increasing amount of attention is being paid to the phenomenon of burnout in physicians and medical students. Medical studies are a difficult period in which many demands are placed on young people. The amount of time devoted to study, stress, a lots of exams, limitation of social life are the key elements causing deterioration of mental life and increasing frustration, and thus – a sense of professional burnout. Burnout progressively develops over the course of medical education, due to the increasing amount of knowledge to be assimilated and clinical classes, while high support and less response to stressors decreased burnout. Burnout can decrease empathy for patients, and affect patient care [5].

HOW TO CHECK THE LEVEL OF BURNOUT?

The Maslach Burnout Inventory is a 22-item instrument that is considered the gold standard for measuring burnout. This instrument has separate subscales to evaluate each domain of burnout: emotional exhaustion, depersonalization, and low personal accomplishment. The emotional exhaustion (EE) subscale assesses feelings of emotional depletion and work-related exhaustion, whereas the depersonalisation (DP) subscale measures an individual's detachment or the degree to which one treats patients with an impersonal response. The personal accomplishment (PA) subscale assesses feelings of competence and achievement towards one's work.

Maslach proposed that burnout is indicated by high subscale scores for EE and DP, along with a low subscale score for PA – according to convention, a score of 27 or higher on the emotional exhaustion subscale or 10 or higher on the depersonalization subscale was considered an indicator of professional burnout for medical professionals. Health professionals are considered to have a low score on the personal accomplishment scale if their score is 33 or less [6].

BURNOUT AND SUICIDAL THOUGHTS

More recently, Givens and colleagues [7] surveyed all medical students at a private U.S. medical school and found that 6.2% of surveyed students reported contemplating suicide during their medical school. Other small, single-institution studies have reported rates of suicidal ideation during medical school ranging from 3% to 6% [8, 9].

Dyrbye studied the frequency occurrence of suicidal thoughts and burnout among medical students.

Out of 4,287 medical students at 7 medical schools, burnout was reported by 49.6% of students, and 11.2% reported suicidal ideation within the past year – which was a much higher result than among the general adolescent population in USA. Age, marital status, year in school, and debt were significantly associated with suicidal ideation in the previous year. They observed no association between sex and suicidal ideation. Suicidal ideation was also strongly correlated with measures of distress and quality of life. Burnout seems to be associated with increased likelihood of subsequent suicidal ideation, whereas recovery from burnout is associated with less suicidal ideation [6].

UNIVERSITY ENVIRONMENT

When does burnout begin? Is it a gradual process? Can it be diagnosed at an early stage? How do factors such as lifestyle, influence the development of burnout? There is not a general accepted definition of burnout, but the most common definition was offered by Maslach (1993): “a psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with other people in some capacity” [10].

Medicine is a very demanding field of science, and medical studies themselves require a lot of determination and dedication. Lack of time for social life, constant demands from the society and a lot of science means that there is a high risk of occurrence burnout. Initial fascination with new things and willingness to help others gives way to routine with time. Increasing pressure and decreasing job satisfaction pose the risk of burnout. It might seem that only practicing doctors will be affected by burnout. Nothing else wrong. Research shows that the phenomenon occurs already during medical studies. Stress related to exams, reduced self-confidence and inexperience combined with increasing pressure from lecturers make the phenomenon of burnout more and more common.

Research conducted in Belgrade on a group of fifth and sixth year medical students showed the state of mental health was recorded as worse than before in 39.9% for both genders.

The exams were marked stressor in more than a half of students, more frequently in females than in males (58.2% vs. 33.3%). Contacts with patients was defined most frequently as an activity with no stressful effects in male students (60.8%), while females more often stated this as moderately and highly stressful. Female students considered autopsy as highly stressful activity.

About one half of female and one third of male students in this study estimated their own general stress level as moderate or high.

The symptoms of anxiety and depression could be found in population of medical students with the prevalence of 25-58% depending on the study design and applied method. In the previous study conducted among medical students in Belgrade, the incidence rate of psychiatric disorders was 5.3% per year, with neurosis being the most frequent diagnosis (3.5%).

Medical education is a long process where students face multiple stressors such as lack of leisure time common, emotional pressure to maintain good grades, and specific conditions of learning complex medical procedures [11].

It might seem that professional burnout can only concern students in their last years – who already have contact with the patient, some experience in clinical work. Research shows that the risk of burnout occurs as early as the third year of college and gradually increases to eventually double in the final year of college.

Out of 447 students in the School of Medicine of Seville in the third year, and in the sixth year of training – 270 of them agreed to participate. The age, gender, and ethnicity of all students enrolled in third and sixth year were quite similar to that shown by the responders.

The study was conducted using the standard tool used to measure burnout was MBI Human Services Survey (MBI-HSS).

Research shows that 61 (22.6%) of the total sample were at risk of burnout. Forty-eight (17.8%) had high score in exhaustion, 27 (10%) in cynicism, and 48 (17.8%) in efficacy. Research also shows that, sixth-year students showed a significant increase in mean scores, number, and percentage of exhaustion and cynicism, and a significant decrease in mean scores, number, and percentage of efficacy compared to students in their third year of training. The prevalence of burnout risk was significantly higher in sixth-year students 35 (37.5%) compared to students in the third year of training 26 (14.8%).

In conclusion, burnout risk doubled from the third year to sixth year of training supporting the hypothesis that burnout may appear during preclinical years of medical school.

They also show that there was no significant association between gender and burnout subscales. Moreover, this results support the hypothesis that burnout can occur during preclinical years of medical school [10].

LIFESTYLE

Most studies focusing on the level of occupational burnout among medical students take into account only external factors related to the university – stress related to exams, tasks for young art adepts and unforeseen situations with the patient. Only some studies focus on the students' living environment, which, as it turns out, may have a significant impact on the results of the study of the level of occupational burnout.

Medical school is challenging and previous work suggests that a number of factors, from academic pressures and educational debt, to personal life events, gender, learning environment and exposure to human suffering, contribute to heightened levels of stress and poor mental health in medical students, including burnout [12-15].

Research has also shown that maladaptive lifestyle and health behaviours as a means of coping with stress are prevalent among young people and university students, with studies suggesting associations between stress, alcohol consumption [16, 17], unhealthy diets [18, 19], and reduced physical activity [20].

Poor lifestyle, poor health behaviours, and high levels of burnout have been reported in medical students; however, few studies have directly investigated the relationship between burnout, lifestyle, and health behaviours in a medical student population, with most work focusing on trainee doctors.

The survey Cecil consisted of four separate and validated tools used to assess burnout alcohol consumption, physical activity levels, and eating habits. Demographic data were also collected, including age, gender, year of study, and institution. Over 2,000 participants from two universities applied for the study, of which 356 online questionnaires were recruited - more female medical students (65.8%) than males participated and 79.7% of participants were in the first, second, or third year of their medical studies. More than half of the participants (54.8%) reported experiencing high levels of EE. Overall 26.7% of participants met the criteria to be considered 'burned out'. Physical activity significantly reduces the risk of burnout among students. It is not the first time that the positive effect of physical activity on mental health has been proven. Salmon postulated that many aspects of physical activity, including an improved sense of self-control and greater social interaction, may have positive implications for mental health.

Generally, it has been shown that health beliefs and behaviours are sub-optimal in European university students. In addition, alcohol consumption has been found to be higher in medical students than in age-matched samples in the general population and increased alcohol intake has also been associated with higher levels of stress, anxiety, and exam and work pressures in medical students. Other studies have found physical inactivity, unhealthy diets, and smoking to be an issue in university and medical student samples.

This study shows that lifestyle, behavioural factors including sweet or savoury food consumption, physical activity may predict medical student's experience of burnout components. The risk of burnout appears in the early years of study. This phenomenon is significantly influenced by the lifestyle and health-promoting habits of students. That is why it is so important to promote a healthy lifestyle and to consolidate physical activity among medical students. These results are consistent with a recent systematic review on burnout in medical students, and suggest that many medical students are at risk of, or are already suffering from, burnout well before they qualify as medical doctors [21].

BURNOUT AND SPIRITUALITY

Burnout among medical students can have serious consequences including depression, suicidal ideation and thoughts of dropping out of medical school [22].

Career in health services is a long and demanding process. Recent research has started to explore the frequency and severity of burnout among medical students and residents. Most research on burnout in medical students focuses on the prevalence rates and negative consequences of burnout. However, there are few studies that attempt to investigate and identify factors that reduce the risk of burnout. Religion and spirituality may serve as protective factors against burnout in medical students [23].

Medical student burnout has been associated with depression, loss of empathy, and suicidal ideation. Many times the influence of spirituality on the level of stress and depression has been studied – in these studies, spirituality turned out to be a protective factor but has not been examined as a factor in medical student burnout.

The research included measures of spirituality, burnout, psychological distress, coping, and general happiness. Participants in the study consisted of 259 medical students enrolled in an MD or MD/PhD program in a mid-size medical school. Burnout was positively associated with a number of variables including anxiety, depression and inversely related to life satisfaction, spiritual life, and daily spiritual experiences.

The research show positive correlation was found between life satisfaction and spirituality. Students having higher levels of spiritual well being and daily spiritual experiences described themselves as more satisfied with their life in general, while students with low scores on spiritual well being and daily spiritual experiences had higher levels of psychological distress and burnout. Spirituality may

therefore be a protective factor against burnout in medical students and future studies should explore potential causal relationships. Further, it appears that not only having a strong spiritual life, but also the salience of that spirituality in daily experiences are preventing burnout [24].

DISCUSSION

It is worth emphasizing that burnout may develop further after medical studies. Studies on the spread of burnout in medical residents and practicing physicians are abundant.

Burnout is prevalent in doctors and can impact on job dissatisfaction and patient care. Solar and colleagues observed that burnout was a common problem in family physicians in Europe and was detrimental to the well-being of physicians because of its association with job dissatisfaction [25]. West and colleagues reported that higher levels of stress and burnout were associated with higher incidents of medical errors [26].

We know that students learn from residents and faculty have developed depersonalization and emotional exhaustion. This attitude then becomes part of curriculum, as students have physicians with burnout as role models [27].

The reported prevalence burnout during students showed a wide range from 2 to 76% depending on the definitions and criteria used, samples studied, and cutoff points applied.

Males may be at greater risk of burnout than females but inconclusive outcomes in the incidence of burnout among gender may be due to the fact that the majority of medical students are women – which reflects trends at the medical schools over the last decades.

Another aspect which is worth considering is the difference in curricula among Schools of Medicine. For example students in the UK, Sweden and Poland, in general, begin their medical studies without any preliminary higher education, usually at the age of eighteen or nineteen [10].

Taking into account the difficulties in measuring burnout among students due to the difference in sex, personal life and the difference in the form of preclinical and clinical classes, it seems important to continue research at various universities, taking into account the above-mentioned factors.

SUMMARY

People who graduated from medical studies confirm that it was a time filled with stress, a lot of knowledge to be assimilated with limited time and memory and the lack of time for social life. These are the key elements of burnout. Results show that almost one in four medical students are at high risk of burnout.

Discovery of risk factors for suicidal ideation provides the opportunity for interventions to prevent disasters among students. In their study, 26% of students who were burned out at baseline recovered within the following year, indicating that burnout is reversible. Recovery from burnout was associated with a dramatic decrease in the likelihood of suicidal ideation, which suggests that identifying and treating burnout may provide an opportunity for medical schools to reduce suicide risk [6].

What should be the response to the above research? Burnout can be prevented, but this requires additional education as well as a number of structural changes of the system. Medical schools should have a system in place to identify students who are currently suicidal. Schools should implement student support and wellness programs and the diversity of clinical experiences. Schools should also be aware that negative life events, such as a serious personal illness or the death of a close family member increase the risk for burnout and provide counseling support, confidential mental health services, and flexibility in curricular scheduling [6].

The introduction of medical career programs or guides medical career can help to reduce stress caused by the uncertain future of students. Another method of preventing burnout may be to help develop self-esteem and competence by focusing on students' strengths. Increasing personal accomplishment helps prevent the development of burnout. Stress can be motivating if properly controlled. Stress management programs and training, and relaxation techniques may turn out to be the greatest ally in the fight against burnout. Also religion and spirituality may serve as protective factors against burnout in medical students. Conceptually, however, having high personal accomplishment can protect against the development of burnout despite feelings of depersonalization or emotional exhaustion [28, 29].

In sum, this research show that optimism, empathy and burnout are intertwined and will have implications for enhancing well-being of physicians-in-training and in-practice.

BIBLIOGRAPHY:

- [1] Maslach C, Schaufeli WB, Leiter MP. Job burnout. *Ann Rev Psychol* 2001; 52: 397422.
- [2] Linzer M, Manwell LB, Williams ES, Bobula JA, Brown RL, Varkey AB, et al. Working conditions in primary care: physician reactions and care quality. *Ann Intern Med* 2009; 151: 2836.
- [3] Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, et al. Burnout and satisfaction with worklife balance among US physicians relative to the general US population. *Arch Intern Med* 2012; 172: 137785.
- [4] Shanafelt TD, Bradley KA, Wipf JE, Back AL. Burnout and self-reported patient care in an internal medicine residency program. *Ann Intern Med* 2002; 136: 35867
- [5] Thomas MR, Dyrbye LN, Huntington JL, et al. How do distress and well-being relate to medical student empathy? A multicenter study. *Society of General Internal Medicine*. 2007; 22:177–183.
- [6] Dyrbye LN, Thomas MR, Massie FS, Power DV, Eacker A, Harper W, Durning S, Moutier C, Szydlo DW, Novotny PJ, Sloan JA, Shanafelt TD. Burnout and suicidal ideation among U.S. medical students. *Ann Intern Med*. 2008 Sep 2;149(5):334-41. doi: 10.7326/0003-4819-149-5-200809020-00008. PMID: 18765703.
- [7] Givens JL, Tjia J. Depressed medical students' use of mental health services and barriers to use. *Acad Med*. 2002; 77: 918-21. PMID: 12228091
- [8] Tjia J, Givens JL, Shea JA. Factors associated with undertreatment of medical student depression. *J Am Coll Health*. 2005; 53: 219-24. PMID: 15813232
- [9] Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: a cross-sectional study. *Med Educ*. 2005; 39: 594-604. PMID: 15910436
- [10] Galán F, Sanmartín A, Polo J, Giner L. Burnout risk in medical students in Spain using the Maslach Burnout Inventory-Student Survey. *Int Arch Occup Environ Health*. 2011 Apr;84(4):453-9. doi: 10.1007/s00420-011-0623-x. Epub 2011 Mar 4. PMID: 21373879.

- [11] Backović DV, Zivojinović JI, Maksimović J, Maksimović M. Gender differences in academic stress and burnout among medical students in final years of education. *Psychiatr Danub*. 2012 Jun;24(2):175-81. PMID: 22706416.
- [12] Dahlin M, Joneborg N, Runeson B. Stress and depression among medical students: a cross-sectional study. *Med Educ* 2005; 39: 594604.
- [13] Dyrbye LN, Thomas MR, Shanafelt TD, editors. Medical student distress: causes, consequences, and proposed solutions. *Mayo Clinic Proc* 2005; 80: 161322.
- [14] Dyrbye LN, Thomas MR, Harper W, Massie F, Power DV, Eacker A, et al. The learning environment and medical student burnout: a multicentre study. *Med Educ* 2009; 43: 27482.
- [15] Purvanova RK, Muros JP. Gender differences in burnout: a meta-analysis. *J Vocat Behav* 2010; 77: 16885.
- [16] Kuntsche E, Knibbe R, Gmel G, Engels R. Why do young people drink? A review of drinking motives. *Clin Psychol Rev* 2005; 25: 84161.
- [17] Park CL, Armeli S, Tennen H. The daily stress and coping process and alcohol use among college students. *J Stud Alcohol Drugs* 2004; 65: 126.
- [18] Liu C, Xie B, Chou C-P, Koprowski C, Zhou D, Palmer P, et al. Perceived stress, depression and food consumption frequency in the college students of China seven cities. *Physiol Behav* 2007; 92: 74854.
- [19] Mikolajczyk RT, El Ansari W, Maxwell AE. Food consumption frequency and perceived stress and depressive symptoms among students in three European countries. *Nutr J* 2009; 8: 31.
- [20] Nguyen-Michel ST, Unger JB, Hamilton J, Spruijt-Metz D. Associations between physical activity and perceived stress/ hassles in college students. *Stress Health* 2006; 22: 17988.
- [21] Cecil J, McHale C, Hart J, Laidlaw A. Behaviour and burnout in medical students. *Med Educ Online*. 2014 Aug 25; 19: 25209. doi: 10.3402/meo.v19.25209. PMID: 25160716; PMCID: PMC4145104.
- [22] Dyrbye L, Thomas M, Power D, et al. Burnout and Serious Thoughts of Dropping Out of Medical School: A Multi-Institutional Study. *Academic Medicine*. 2010; 85(1):94–102. PubMed: 20042833
- [23] Koenig HG. Research on Religion, Spirituality, and Mental Health: A Review. *Résumé: Recherche sur la religion, la spiritualité et la santé mentale: une revue*. 2009; 54(5):283–291.
- [24] Wachholtz A, Rogoff M. The relationship between spirituality and burnout among medical students. *J Contemp Med Educ*. 2013;1(2):83-91. doi: 10.5455/jcme.20130104060612. PMID: 25485165; PMCID: PMC4255468.
- [25] Soler JK, Yaman H, Esteva M, Dobbs F, Asenova RS, Katic M, et al. Burnout in European family doctors: the EGPRN study. *Fam Pract*. 2008;25(4):245-65

- [26] West CP, Tan AD, Habermann TM, Sloan JA, Shanafelt TD. Association of resident fatigue and distress with perceived medical errors. *JAMA*. 2009;302(12):1294-300
- [27] Santen SA, Holt DB, Kemp JD, Hemphill RR. Burnout in medical students: examining the prevalence and associated factors. *South Med J*. 2010 Aug;103(8):758-63. doi: 10.1097/SMJ.0b013e3181e6d6d4. PMID: 20622724.
- [28] Maslach C, Jackson SE, Leiter MP. *Maslach Burnout Inventory Manual*. ed 3. Palo Alto, CA, Consulting Psychologists Press, 1996.
- [29] Brenninkmeijer V, VanYperen N. How to conduct research on burnout: advantages and disadvantages of a unidimensional approach in burnout research. *Occup Environ Med* 2003;60(Suppl I): i16 –i20.