Palestrica of the third millennium – Civilization and Sport
Vol. 18, no. 2, April-June 2017, 69–74

ORIGINAL STUDIES

Burnout syndrome in medical rehabilitation physicians working in Romania

Sindromul de burn-out în rândul medicilor de reabilitare medicală

Laszlo Irsay[1] , Alina Tomescu-Baciu[2] , Andrada Urda-Cîmpean[2], Rodica Ana Ungur[1], Ileana Monica Borda[1], Viorela Mihaela Ciortea[1]
[1] Department of Rehabilitation Medicine, "Iuliu Haţieganu" University of Medicine and Pharmacy Cluj-Napoca, Romania
[2] Department of Rehabilitation Medicine, Clinical Rehabilitation Hospital, Cluj-Napoca, Romania

Abstract

Background. Burnout syndrome is a condition characterized by three dimensions: Emotional Exhaustion (EE), Depersonalization (DEP), and low Personal Accomplishment (PA).

Aims. We investigated the degree of burnout and influencing factors in Romanian rehabilitation physicians working in the public and private sectors. The design of the study was observational and cross-sectional.

Methods. The Romanian Society of Rehabilitation platform was used, where 50 registered rehabilitation medicine physicians affiliated to the Romanian Society of Rehabilitation Medicine completed the burnout inventory. The Maslach Burnout Inventory was chosen to measure burnout.

Results. Of the 50 participants, 62% (31/50) scored high levels of EE, 28% (14/50) scored average EE, while 10% (5/50) indicated low EE. Regarding DEP, 66% (33/50) scored high levels, while 34% (17/50) proved average level. PA level was high in 88% (44/50) and average in 12% (6/50). Our study suggested men were prone to higher levels of EE and DEP than women (EE: p=0.006<0.05; DEP: p=0.008<0.05). Regarding the work place, physicians working in outpatient clinics had higher EE scores then those working in a state hospital (p=0.003<0.005).

Conclusions. Burnout syndrome should be seen as a priority, as its impact on physicians also has direct negative consequences on the quality of provided healthcare services.

Key words: rehabilitation, physicians, burnout, Romania.

Rezumat

Premize. Sindromul de burn-out se caracterizează prin trei dimeniuni: epuizare emoţională (EE), depersonalizare (DEP) şi senzaţie de neîmplinire profesională (PA).

Obiective. Am evaluat dimensiunea sindromului de burn-out şi a factorilor favorizanţi în rândul medicilor de Reabilitare Medicală atât în domeniul privat, cât şi în cel de stat. Design-ul studiului a fost unul observaţional, transversal.

Metode. A fost utilizată platforma Societăţii Române de Reabilitare, unde 50 de medici de medicină de reabilitare, afiliaţi Societăţii Române de Medicină de Reabilitare, au completat chestionarul pentru sindromul de burn-out. Maslach Burnout Inventory a fost ales pentru a măsura acest sindrom.

Rezultate. Dintre cei 50 de participanţi, 62% (31/50) au înregistrat un nivel ridicat de EE, 28% (14/50) au obţinut un nivel mediu de EE, în timp ce la 10% (5/50) s-au constat valori reduse ale EE. În ceea ce priveşte DEP, 66% (33/50) au înregistrat niveluri ridicate, în timp ce 34% (17/50) s-au dovedit a fi cu nivele medii. Nivelul PA a fost ridicat în 88% (44/50) şi mediu în 12% (6/50). Studiul nostru a sugerat că bărbaţii erau predispuşi la niveluri mai ridicate de EE şi DEP decât femeile (EE: p = 0,006 <0,05; DEP: p = 0,008 <0,05). În ceea ce priveşte locul de muncă, medicii care lucrează în ambulatoriu aveau scoruri EE mai mari decât cei care lucrau pe o secţie clinică (p = 0,003 <0,005).

Concluzii. Sindromul de burnout trebuie privit ca o prioritate, deoarece impactul său asupra medicilor are consecinţe negative directe asupra calităţii serviciilor medicale furnizate.

Cuvinte cheie: reabilitare, medici, burn-out, România.

Received: 2017, April 4; *Accepted for publication:* 2017, April 21
Address for correspondence: "Iuliu Haţieganu" University of Medicine and Pharmacy, Cluj-Napoca, The Department of Medical Rehabilitation within the Rehabilitation Hospital in Cluj-Napoca 46-50, Viilor Street, Cluj-Napoca PC 400437
E-mail: irsaylaszlo@gmail.com
Corresponding author: Laszlo Irsay, irsaylaszlo@gmail.com

Introduction

Burnout syndrome first gained attention in 1974, when Freudenberger referred to it as a psychosomatic condition characterized by exhaustion, interpersonal detachment and lack of the sense of accomplishment (Hillert, 2008). These defining traits have been described by Maslach and Jackson as the three component dimensions of the burnout syndrome, as follows: Emotional Exhaustion (EE), incorporating a feeling of being drained by human interaction, Depersonalization (DEP), manifesting as indifference and detachment from people, such as coworkers, clients or patients, and low Personal Accomplishment (PA), resulting in a low perception of personal professional competence and value. These dimensions are viewed as a response to the inability of coping with excessive work-related strain. A reliable evaluation of the burnout syndrome is possible using the Maslach Burnout Inventory (MBI), consisting of 22 items designed to quantify the degree of the syndrome's three inherent dimensions (Maslach & Jackson, 1986).

The causality of burnout is multifactorial. Although genetic predisposition has been hypothesized and subsequently proven to be of etiological relevance, long-term strain-inducing environmental factors, pertaining to the work place, account for the majority of cases (Bloom et al., 2012). As opposed to depression, which generally infiltrates every aspect of a person's life, burnout will tend to limit itself to a work-related context, being generated by work-related factors and manifesting mostly in a work-related setting. In this regard, occupations at risk have been identified as including work with the public, work involving extreme responsibility and severe potential consequences, as well as jobs that employees would consider to be socially stigmatizing (Maslach et al., 2001; Felton et al., 1998).

Medical personnel is particularly susceptible to burnout, with numerous studies having explored high prevalence in practicing nurses, physiotherapists and physicians (Embriaco et al., 2007; Kowalski et al., 2010; Shahriari et al., 2017). A balanced emotional state, focus, empathy, as well as willingness to improve professionally are traits that are necessary for physicians in all fields. The close and sustained interaction with patients, the unique type of responsibility, decision-making and management pertaining to the medical career offer viable premises for the development of burnout syndrome.

The field of medical rehabilitation gathers many such prerequisites and stressors that would lead to burnout. Rehabilitation is defined as "the physical restoration of a sick or disabled person by therapeutic measures and reeducation to participation in the activities of a normal life within the limitations of the person's physical disability" (***, 2015). Thus, it involves a lengthy process in which challenges regard both the medical-clinical as well as the psychological nature. The burden associated to these challenges, which directly affects patients and their caregivers, will consistently have an impact on the medical personnel as well. Whereas high income countries would strive to sustain and improve the efficiency of rehabilitation programs and benefits for people with disabilities, many other countries still exhibit a gap in efficient implementation of such incentives (Kaltenbrunner Bernitz et al., 2013). It is reasonable to assume that social, economic and legal matters, contextually specific and relatively unique to each country, have their say in the potential development of burnout in healthcare employees, as poor legislation and state support in the management of people suffering from disability will leave its mark on the workload and professional struggles of the medical staff. In this regard, it is noteworthy that factors such as high workload, low implication in decision making, poor social support from supervisors and co-workers, and a negative perception of the employing organization have all been proven to be significant risk factors for the development of burnout syndrome (Pavlakis et al., 2010; Gil-Monte et al., 1998).

The aim of our study is to investigate the prevalence and degree of burnout in Romanian registered physical rehabilitation physicians working in the public and private sectors, and to assess personal and social circumstances that might relate to our findings. Awareness of the existence and impact of burnout on the quality of medical services as well as on the health of medical personnel should lead to implementation of prevention strategies as well as therapeutic programs.

Materials and methods

The present study is observational, cross-sectional. The Maslach Burnout Inventory – Human Services Survey (MBI-HSS) was chosen to measure burnout, and a permission agreement was obtained, granting its use and delivery to the participants through the Internet. MBI-HSS comprises 22 items, and respondents mark the frequency with which they relate to each item on a 7 point Likert scale. Of the 22 items, 9 items evaluate EE, 5 items pertain to DEP and 8 items measure PA. The resulting scores for each of these three dimensions assess the level at which they manifest, as "High", "Average" or "Low", as shown in Table I (Queally, 2003).

Table I

Suggested cutoff points for MBI based on a normative sample

Level	EE Scale	DEP Scale	PA Scale
High	27-54	13-30	0-31
Average	17-26	7-12	38-32
Low	0-16	0-6	39-48

Alongside the MBI-HSS, data was collected through a survey regarding age, gender, marital status, number of children, and type of work place. Both surveys were made accessible to registered physical rehabilitation medicine physicians affiliated to the Romanian Society of Rehabilitation Medicine through the Society's online platform between September 17th 2009 and January 1st 2010. Participants gave their informed consent for their submitted results to be used in the study, anonymously. 50 surveys were completed and returned. The results of the MBI-HSS together with the survey were analyzed using SPSS, and statistical tests Kruskal-Wallis and Mann-Whitney were used to determine possible burnout differences regarding the participants' age, gender, marital status, number of children and type of employment.

Results

Of the 50 participants who completed and returned the MBI-HSS, 62% (31/50) had scores indicating a high level of EE, 28% (14/50) provided scores for a medium level of EE, while 10% (5/50) displayed results showing low EE. Regarding DEP, 66% (33/50) had scores indicating a high level of DEP, while 34% (17/50) revealed a medium level of DEP. PA was found to have a high level in 88% (44/50) and a medium level in 12% (6/50). No low levels regarding DEP and PA were identified.

Concerning gender, 76% (38/50) of participants were female, and the remaining 24% (12/50) were male. Marital status revealed that 64% (32/50) were married, whereas 36% (18/50) were not. Age was assessed using four categories: 8% (4/50) were aged between 20-29 years, 54% (27/50) were aged between 30-39 years, 30% (15/50) were aged between 40-49 years and 8% (4/50) were aged between 50-59 years. Regarding the number of children, participants with no children represented a majority of 52% (26/50), those with one child were 28% (14/50), and those with two children accounted for the remaining 20% (10/50). There were five categories describing the work place for medical rehabilitation practice, with participants being employed as follows: 28% (14/50) working in a university clinic, 36% (18/50) being employed by a state hospital, 12% (6/50) working in a balneoclimatic resort, 12% (6/50) practicing medicine in outpatient clinics and 12% (6/50) working in a private practice.

Regarding gender differences, the mean EE score for women, 27.08 ± 9.178 , was significantly lower than the mean EE score for men, which was 36.33 ± 5.914 (Mann-Whitney U test, U=107, p=0.006 <0.05). The mean DEP score for women was 14.68 ± 3.565, significantly lower than the 17.92 ± 4.122 mean DEP score for men (Mann-Whitney U test, U=111.5, p=0.008<0.05). No statistical difference was found between genders according to the PA score (Mann-Whitney U test, U=196, p=0.462>0.05). Fig. 1 shows the relationship between the participants' PA level and gender.

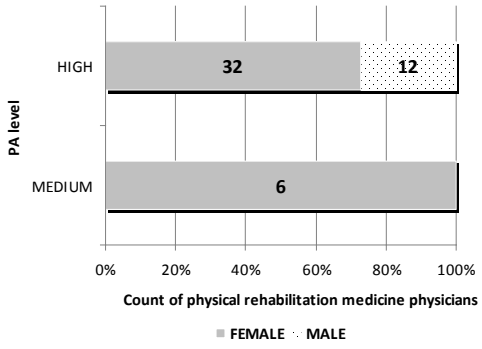

Fig. 1 – Distribution of participants according to their PA level and gender.

Regarding marital status, no statistically significant differences were found between the scores of participants who were married and those who were not married for EE (Mann-Whitney U test, U=258, p=0.542 >0.05) and DEP (Mann-Whitney U test, U=234, p=0.271>0.05). However, in the case of married participants, the mean PA score value was 27.56 ± 3.445 and proved significantly higher than the 24.44 ± 2.007 mean PA score value for those who were not married (Mann-Whitney U test, U=131.5, p=0.001 <0.05).

There were no statistically significant differences in the scores for EE (Kruskal-Wallis test, $\chi2(3)=3.232$, p=0.357>0.05), DEP (Kruskal-Wallis test, $\chi2(3)=0.918$, p=0.821>0.05) and PA (Kruskal-Wallis test, $\chi2(3)=3.232$, p=0.357>0.05) between participants belonging to the four age groups.

The number of children each participant had did not influence the total EE score (Kruskal-Wallis test, $\chi2(2)=2.498$, p=0.288>0.05) and DEP score (Kruskal-Wallis test, $\chi2(2)=4.643$, p=0.098 >0.05), but it had statistical significance in the case of PA score (Kruskal-Wallis test, $\chi2(2)=7.636$, p=0.022<0.05), as shown in Fig. 2.

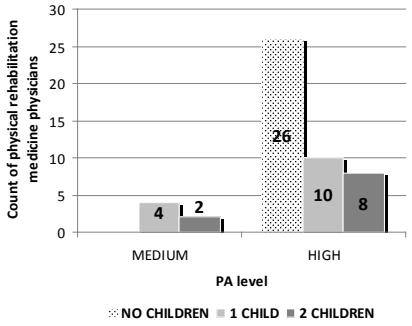

Fig. 2 – Distribution of participants according to their PA level and number of children

The mean value for PA score was 25.46 ± 4.467 in the group who had no children, 27.43 ± 3.886 in the group with one child, and 27.6 ± 3.098 for participants with two children. Comparing pairs showed that differences in PA scores were most notable between participants who had no children and those who had one or two children, as shown in Fig. 3.

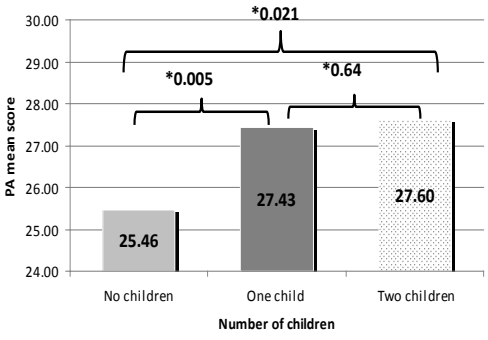

Fig. 3 – Comparison of mean PA scores according to the participants' number of children (*Mann-Whitney test: p value)

When testing for EE score differences between the five types of work place, the mean EE score for physicians working in a university clinic was 31.71 ± 8.730, it was 28.72 ± 8.910 for those working in a state hospital, 26.67 ± 5.989 for participants practicing in a balneoclimatic

resort, and 39 ± 5.404 in the case of those employed in outpatient clinics. Physicians working in a private practice had a mean value of 18.33 ± 6.346 for the EE score. Fig. 4 illustrates the distribution of participants according to their work place, based on EE levels.

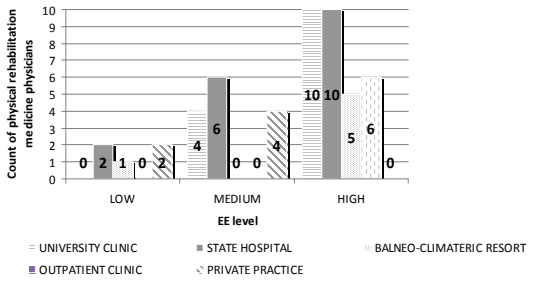

Fig. 4 – Distribution of participants according to the EE level and type of work place

There were statistically significant differences between these five groups regarding the EE score (Kruskal-Wallis test, $\chi2(4)=17.990$, $p=0.001<0.05$), more specifically for physicians working in state hospitals compared to those working in outpatient clinics, with a higher score for the latter (Mann-Whitney U test, $U=9$, $p=0.003<0.005$). Similarly, the EE score varied significantly between participants employed by university clinics versus private practices, with values indicating a greater emotional strain for the first category (Mann-Whitney U test, $U=8$, $p=0.004<0.005$). Comparing EE scores between physicians working in private practice as opposed to outpatient clinics revealed significantly higher values for the latter group (Mann-Whitney U test, $U=0$, $p=0.003<0.005$).The type of work place did not influence DEP (Kruskal-Wallis test, $\chi2(4)=5.859$, $p=0.21>0.05$) and PA scores significantly (Kruskal-Wallis test, $\chi2(4)=8.394$, $p=0.078>0.05$). These results are detailed in Table II.

Discussion

The impact of burnout is related to high absenteeism rates, increased periods of sick leave and a significant decline in job performance, thus having a negative economic impact on institutions offering healthcare. Insomnia and insufficient sleep, as well as behavioral changes, may predict onset of the syndrome (Söderström et al., 2012). Burnout is a proven risk factor for developing a number of non-communicable diseases (NCDs), such as: depression, cardiovascular disease (CVD), type 2 diabetes and other metabolic dysregulations (Pranjic et al., 2014; Melamed et al., 2006a; Toker et al., 2012; Melamed et al., 2006b; Kitaoka-Higashiguchi et al., 2009). An increase of proinflammatory cytokines as well as elevated cortisol levels in burnout patients imply that the negative consequences of burnout extend to the immune system (Mommersteeg et al., 2006; Melamed et al., 1999).

Burnout syndrome has been studied in various healthcare professionals across many fields of medical practice, with the aim of identifying risk factors and prevention strategies (Tremolada et al., 2015; Rø et al., 2008). Oncology, surgery and fields dealing with acute pathology were most sought after in investigating burnout prevalence, with relevant results. An Australian study suggests that 60% of emergency medicine professionals manifest burnout, in comparison to 38% of general physicians (Arora et al., 2013).

It is important to keep in mind that particular differences in social circumstances and medical systems between different countries will have a say in burnout prevalence, as the level of strain physicians encounter will vary according to factors that are considered to be consequences of a bigger picture including economic and geopolitical aspects. It would not be realistic to assume that a practicing physician in an ill-equipped and understaffed hospital would have a similar burnout level to that of one who is not confronted with these professional shortcomings. Burnout levels should be assessed in close relation to potential risk factors, which are not limited to the particularities of different medical fields, but extend to mirror a much broader perspective.

Our findings reveal an overall high level of burnout in physical rehabilitation medicine physicians practicing in Romania. More than half of participants had high EE, DEP, PA burnout levels, the last affecting 88% (44/50). These results should be interpreted as a warning signal, considering the health risks associated with burnout, as well as the deterioration of patient care to which it leads. Similar studies also identify burnout in physicians, but with variable frequencies and levels. An Italian study investigating burnout in healthcare professionals identified overall medium levels of EE and DEP and a low PA burnout level in physical rehabilitation physicians, values which contrast with our findings (Li Calzi et al., 2006). A more similar perspective to our own is offered by a

Table II

Comparison of EE scores according to the participants' type of work place.

Different work places for EE score	First work place type Mean value (Standard deviation)	Second work place type Mean value (Standard deviation)	Mann-Whitney test: p value (U value)
University clinic - state hospital	31.71 (8.73)	28.72 (8.91)	0.220 (94)
University clinic - balneoclimatic resort	31.71 (8.73)	26.67 (5.98)	0.132 (24)
University clinic - outpatient clinic	31.71 (8.73)	39 (5.4)	0.056 (20)
University clinic - private practice	31.71 (8.73)	18.33 (6.34)	**0.004 (8)**
State hospital - balneoclimatic resort	28.72 (8.91)	26.67 (5.98)	0.688 (48)
State hospital - outpatient clinic	28.72 (8.91)	39 (5.4)	**0.003 (9)**
State hospital - private practice	28.72 (8.91)	18.33 (6.34)	**0.023 (20)**
Balneoclimatic resort - outpatient clinic	26.67 (5.98)	39 (5.4)	**0.014 (3)**
Balneoclimatic resort - private practice	26.67 (5.98)	18.33 (6.34)	**0.024 (4)**
Outpatient clinic - private practice	39 (5.4)	18.33 (6.34)	**0.003 (0)**

Croatian study which identifies high levels of EE in 43.6%, DEP in 33.5% and PA burnout in 49.1% of the participating hospital physicians. The same study signals that moderate to severe depression was present in 12.2% of the group, drawing attention to the possible causal links between the two and the need for further investigations (Tomljenovic et al., 2014). A study in the context of a healthcare system having undergone a demanding transition through reform reflects comparable results to our own. Research conducted on hospital physicians in Bosnia and Herzegovina shows high levels of EE in 37.4%, DEP in 45.6 and PA burnout in 50.3 of participants (Selmanovic et al., 2011). Change is known to be a stress factor, as it requires adapting to a new system, and confronting the rigidity of habit.

The statistically significant gender differences found for EE and DEP levels showed that even though both men and women had high levels, the mean score for women tended to have moderate values, suggesting that men would be more prone to higher levels of EE and DEP than women. This is in contrast with an analysis stating the opposite regarding gender and also presenting young age and negative marital status as a predictive factor for burnout (Amoafo et al., 2015). Although we did not identify significant differences between age groups regarding burnout scores, negative marital status was found to be linked to a higher PA burnout level, with no significance regarding EE and DEP, showing that physicians who were not married experienced a greater degree of low esteem regarding their professional accomplishments.

The type of work place among the studied group was found to be related to the EE burnout level, but not to DEP and PA levels. This difference was significant, showing that physicians working in outpatient practice had higher levels of EE compared to those working in university clinics and private practice. This may be due to the workload pertaining to Romanian outpatient clinics. The impact of EE on physicians practicing in university clinics was higher compared to private practice. Of the five types of work place, private practice was less affected by high burnout levels. It is possible that the different management of the physicians' schedules and workload acted as a protective factor. Literature reviews have had divergent opinions regarding the impact of the work place on burnout levels. One meta-analysis would indicate lower EE levels in physicians working in inpatient compared to outpatient specialties, while another would not find any significant link between burnout and inpatient versus outpatient practice (Lee et al., 2013; Roberts et al., 2013).

The analysis of the participants' number of children with regard to the burnout level showed significant differences only regarding PA scores, with no influence on EE and DEP scores. Even though the PA burnout level was overall high, it was of statistical significance that physicians with no children had a lower score, and thus a higher level, than those with one child. This is in contradiction with the results found in a German study which suggests that the risk of EE is highest among female senior physicians who have children.

Romania ranks among the upper middle income group, according to the 2013 World Bank criteria, with a mean life expectancy of 74 years for both sexes (***, 2015b; ***, 2013). Regarding the mortality rate, a World Health Organization report (***, 2014; ***, 2005) states that NCDs account for 92%, 2% more than previously reported in 2002, with cardiovascular diseases representing a majority of 58% (***, 2015c; ***, 2014). Taking into account the very high and increasing mortality rate of NCDs and particularly CVD in Romania with the overall economic burden posed by NCDs, it is understandable why prevention strategies are needed to reduce NCD risk factors, including burnout (Kankeu et al., 2013; Bloom et al., 2011). From an economic standpoint, leading strong prevention programs to minimize risk factors of developing NCDs ensures subsequent economic growth. From the perspective of burnout syndrome affecting physicians, such prevention will also be for the benefit of patients.

Conclusions

1. The high levels of burnout found in the majority of physical rehabilitation physicians practicing in Romania draw important attention to the subsequent health risks predicted by burnout.
2. A more thorough inquiry regarding work stressors could identify key points that, if changed, could lower burnout prevalence among medical rehabilitation physicians.
3. Further studies should also focus on identifying and comparing burnout prevalence in other medical fields, as well as on investigating prevention and treatment strategies.
4. Assessing protective factors against burnout syndrome will further help implement prevention programs.
5. The issue of burnout syndrome should be seen as a priority, as its proven impact on physicians has direct consequences on the health of those affected, as well as on the quality of provided healthcare services.

Conflicts of interest

Nothing to declare.

Acknowledgments

We wish to thank all the members of the Romanian Society of Medical Rehabilitation who completed the Burnout Inventory.

References

Amoafo E, Hanbali N, Patel A, Singh P. What are the significant factors associated with burnout in doctors? Occup Med (Lond). 2015;65(2):117-121. DOI:10.1093/occmed/kqu144

Arora M, Asha S, Chinna ppa J, Diwan AD. Review article: burnout in emergency medicine physicians. Emerg Med Australas. 2013;25(6):491-495.

Bloom DE, Cafiero, Jané-Llopis E, Abrahams-Gessel S, Bloom LR, Fathima S, Feigl AB, Gaziano T, Mowafi M, Pandya A, Prettner K, Rosenberg L, Seligman B, Stein AZ, Weinstein, C. The Global Economic Burden of Noncommunicable Diseases. Geneva: World Economic Forum. A report by the World Economic Forum and the Harvard School of Public Health September, 2011. Available from: http://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf. Accessed on 12.03.2015.

Bloom V, Bergström G, Hallsten L, Bodin L, Scedberg P. Genetic

susceptibility in a Swedish twin cohort. Eur J Epidemiol. 2012;27(3):225-231. DOI:10.1007/s10654-012-9661-2

Embriaco N, Azoulay E, Barrau K, Kentish N, Pochard F, Loundou A, Papazian L. High level of burnout in intensivists: prevalence and associated factors. Am J Respir Crit Care Med. 2007;175(7):686-692. DOI: 10.1164/rccm.200608-1184OC.

Felton JS. Burnout as a clinical entity - its importance in healthcare workers. Occup Med (Lond). 1998;48(4):237-250.

Gil-Monte P.R, Peiro JM. A study on significant sources of the "Burnout Syndrome" in workers at occupational centers for the mentally disabled. Psychology in Spain. 1998;2(1):116-123.

Hillert A. Burnout - a new disease? Versicherungsmedizin. 2008;60(4):163-169.

Kaltenbrunner Bernitz B, Grees N, Jakobsson Randers M, Gerner U, Bergendorff S. Young adults on disability benefits in 7 countries. Scand J Public Health. 2013;41(12 Suppl):3-26. DOI:10.1177/1403494813496931.

Kankeu HT, Saksena P, Xu K, Evans DB. The financial burden from non-communicable diseases in low- and middle-income countries: a literature review. Health Res Policy Syst. 2013;11:31. DOI:10.1186/1478-4505-11-31

Kitaoka-Higashiguchi K, Morikawa Y, Miura K, Sakurai M, Ishizaki M, Kido T, Naruse Y, Nakagawa H. Burnout and risk factors for arteriosclerotic disease: follow-up study. J Occup Health. 2009;51(2):123-131.

Kowalski C, Driller E, Ernstmann N, Alich S, Karbach U, Ommen O, Schulz-Nieswandt F, Pfaff H. Associations between emotional exhaustion, social capital, workload, and latitude in decision-making among professionals working with people with disabilities. Res Dev Disabil. 2010;31(2):470-479. DOI:10.1016/j.ridd.2009.10.021.

Lee RT, Seo B, Hladkyj S, Lovell BL, Schwartzmann L. Correlates of physician burnout across regions and specialties: a meta-analysis. Hum Resour Health. 2013;11:48. DOI:10.1186/1478-4491-11-48

Li Calzi S, Farinelli M, Ercolani M, Alianti M, Manigrasso V, Taroni AM. Physical rehabilitation and burnout: different aspects of the syndrome and comparison between healthcare professionals involved. Eura Medicophys. 2006;42(1):27-36.

Maslach C, Jackson SE. Maslach Burnout Inventory Manual (2nd ed.). Palo Alto, CA: Consulting Psychologists Press. 1986.

Maslach C, Schaufeli WB, Leiter MP. Job burnout. Annu Rev Psychol. 2001;52;397-422.

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. 2006a;132(3):327-353. DOI:10.1037/0033-2909.132.3.327.

Melamed S, Shirom,A, Toker S, Shapira I. Burnout and risk of type 2 diabetes: a prospective study of apparently healthy employed persons. Psychosom Med. 2006b;68(6):863-869. DOI:10.1097/01.psy.0000242860.24009.f0.

Melamed S, Ugarten U, Shirom A, Kahana L, Lerman Y, Froom P. Chronic burnout, somatic arousal and elevated salivary cortisol levels. J Psychosom Res. 1999;46(6):591-598.

Mommersteeg PM, Heijnen CJ, Kavelaars A, van Doornen LJ. Immune and endocrine function in burnout syndrome. Psychosom Med. 2006;68(6):879-886. DOI:10.1097/01.psy.0000239247.47581.0c

Pavlakis A, Raftopoulos V, Theodorou M. Burnout syndrome in Cypriot physiotherapists: a national survey. BMC Health Serv Res. 2010;10:63. DOI:10.1186/1472-6963-10-63.

Pranjic N, Males-Bilic L. Work ability index, absenteeism and depr ession among patients with burnout syndrome. Mater Sociomed. 2014;26(4):249-252. DOI:10.5455/msm.2014.249-252.

Queally J. The Presence and Measurement of Burnout in Inpatient Mental Health Settings (Thesis). Degree of Doctor of Phylosophy. NY: Hofstra University, Hempstead, 2003.

Rø KE, Gude T, Tyssen R, Aasland OG. Counselling for burnout in Norwegian doctors: one year cohort study. BMJ, 2008;337:a2004. doi: 10.1136/bmj.a2004.

Roberts DL, Cannon KJ, Wellik KE, Wu Q, Budavari AI. Burnout in inpatient-based versus outpatient-based physicians: a systematic review and meta-analysis. J Hosp Med. 2013;8(11):653-664. DOI:10.1002/jhm.2093

Selmanovic S, Ramic E, Pranjic N, Brekalo-Lazarevic S, Pasic Z, Alic A. Stress at work and burnout syndrome in hospital doctors. Med Arh. 2011;65(4):221-224.

Shahriari M, Shamali M, Yazdannik A. The relationship between fixed and rotating shifts with job burnout in nurses working in critical care areas. Iran J Nurs Midwifery Res. 2014;19(4):360-365.

Söderström M, Jeding K, Ekstedt M, Perski A, Akerstedt T. Insufficient Sleep Predicts Clinical Burnout. J Occup Health Psychol. 2012;17(2):175-183. DOI:10.1037/a0027518.

Toker S, Melamed S, Berliner S, Zeltser D, Shapira I. Psychosom Med. 2012;74(8):840-847. DOI:10.1097/PSY.0b013e31826c3174.

Tomljenovic M, Kolaric B, Stajduhar D, Tesic V. Stress, depression and burnout among hospital physicians in Rijeka, Croatia. Psychiatr Danub. 2014;26 Suppl 3:450-458.

Tremolada M, Schiavo S, Tison T, Sormano E, De Silvestro G, Marson P, Pierelli L. Stress, burnout, and job satisfaction in 470 health professionals in 98 apheresis units in Italy: A SIdEM collaborative study. J Clin Apher. 2015;30(5):297-304. DOI:10.1002/jca.21379

***. Merriam-Webster [Internet]. 2015a. Available from http://www.merriam-webster.com/medical/rehabilitation. Accessed on 13.03.2015.

***. The World Bank [Internet] 2015b. Available from: http://data.worldbank.org/country/romania. Accessed on 12.03.2015

***. World Health Organization. 2014. "Noncommunicable Diseases (NCD) Country Profiles" Retrieved March 12, 2015. Available from: http://apps.who.int/iris/bitstream/10665/128038/1/9789241507509_eng.pdf. Accessed on 12.03. 2015.

***. World Health Organization. 2015c. World Health Statistics. March 12, 2015. Available from: http://apps.who.int/iris/bitstream/10665/170250/1/9789240694439_eng.pdf. Accessed on 12.03. 2015.

***. World Health Statistics 2013. Geneva, World Health Organization, Available from: http://www.who.int/gho/publications/world_health_statistics/EN_WHS2013_Full.pdf. Accessed on 12.03.2015.

***. World Health Organization. Highlights on health in Romania 2005. Available from: http://www.euro.who.int/__data/assets/pdf_file/0005/103568/E88529.pdf. Accessed on 12.03.2015.