Original Article

# Predictors of Burnout Syndrome among Professionals in the Pharmaceutical Industry in the Republic of Serbia

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## ABSTRACT

**Objective:** The aim of the research was to determine the frequency and severity of the burnout syndrome among the university educated professionals, working in pharmaceutical companies, related to burnout categories and to determine the connection between this concept and assertiveness. **Method:** The research was conducted by a cross-sectional study, on a suitable appropriate sample during 2016, and it included 75 university educated professionals, working in pharmaceutical industry in Serbia. The instruments used in the study included the trustworthy and reliable scales, as follows: Maslach Burnout Inventory - Human Service Survey and Rathus Assertiveness Schedule. **Results:** The obtained results revealed the highest levels of burnout in 14% of the respondents, accompanied by high scores on the subscale of Emotional Exhaustion and Depersonalization, as well as the low scores on the Personal Accomplishment subscale. A cross-sectional analysis of socio-demographic determinants of our respondents in relation to the burnout syndrome has shown statistically significant differences in regards to line of business ($\chi2 = 10.834$; $p < 0.05$), gender ($\chi2 = 11.935$; $p < 0.05$), marital status ($\chi2 = 18.787$; $p < 0.05$), number of children in the family ($\chi2 = 17.142$; $p < 0.05$), age ($p = 0.020$), length of service ($p = 0.018$), length of service in the profession ($p = 0.041$) and working full-time while attending postgraduate school ($\chi2 = 19.910$; $p < 0.01$). An analysis of the results of our study has shown statistically significant differences in regards to the levels of assertiveness and the degree of burnout ($p = 0.003$). **Conclusion:** A burnout syndrome was more common in older female respondents whose average age is 41 years old or who has 15 years of service in profession in average, who worked full-time while attending postgraduate school, and who possessed lower levels of assertiveness.

**Key words:** Burnout syndrome, Assertiveness, Pharmacists, Pharmaceutical Companies, Marketing, Drug manufacturing.

## INTRODUCTION

A burnout syndrome relates to emotional exhaustion, depersonalization and the feeling of reduced personal accomplishment and competence regarding one`s job performance.[1] Burnout syndrome is a gradual loss of idealism, energy, sense of purpose and objectives, which is are often experienced by people who are professionally engaged in care-providing professions, and it represents a direct consequence of the working conditions.[2] According to the classification of mental and behavioral disorders (ICD-10) and in psychiatry, that disorder is included in the Adaptation Disorders diagnosis (F43.2) characterized by disorders in social-, occupational-, or academic functioning.[3] This is a specific type of work-related stress marked by chronicity and complexity.[4]

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**The most common stressful aspects of work, within the contemporary pharmacy practice are as follows**

The increase in the scope and complexity of work, working overtime, being understaffed, financial difficulties and a legal liability (in case of error while providing professional services).[5] Studies confirm poor management and a lack of recognition and support, being the chief cause for a decrease in job satisfaction among pharmacists.[5] Work-related stress can lead to a burnout syndrome and a reduced work performance. Following up and resolving the issues within the scope of the pharmaceutical industry are of great importance in both preventing the burnout syndrome, as well as in keeping up the quality level of pharmaceutical services.[6]

In the previous research the risk factors for developing burnout syndrome among professionals in pharmaceutical companies, in relation of separate subscales (emotional exhaustion, depersonalization and sense of the lack of personal accomplishment) has been discussed.[7]

Goals of this study focused on determining the prevalence and severity of a burnout syndrome among the highly educated professionals (engaged in process of manufacturing and marketing of drugs), as well as determining the correlation between the concept and the following categories: assertiveness, some aspects of work and socio-demographic characteristics.

## MATERIALS AND METHODS

The sample was prepared in such a way that it covered all forms of pharmaceutical companies conducting business in the Serbian market:

Multinational companies with production sites in Serbia

Big Pharma representative offices (original pharmaceutical industry)

Pharmaceutical organizations that operate domestically

For the purpose of this research, a cross-sectional study was conducted, which included 75 highly educated medical representatives working in the field of drug marketing, as well as the pharmacists working in pharmaceutical manufacturing companies in Serbia in positions of responsibility, i.e.: on releasing of drugs to the market. The respondents who attended the postgraduate studies at the Faculty of Pharmacy, of the University of Belgrade were surveyed at the Faculty during February and March of 2016. However, the respondents who were not engaged in the postgraduate studies were surveyed directly at their workplaces. All respondents were advised that the study was anonymous. After a detailed orientation regarding the purpose and aim of the study, respondents received hand-outs, informing them (in the introductory section) that by filling out the questionnaire they were giving an informed consent to participate in the study. Participation in the study was on a voluntary basis. The study was approved by the Teaching and Scientific Council, the Faculty of Pharmacy at the University of Belgrade on June 9th, 2016.

For the purpose of performing a frequency analysis according to burnout values, the respondents were divided into 5 categories, whereas the high burnout score subjects were grouped into three subgroups (i.e.: high levels of burnout in all three categories and on the subscales of: Emotional Exhaustion/ EE, Depersonalization / DP and Personal Accomplishment (the lack of it) / PA; high levels of burnout in two categories: EE and DP, DP and PA, or EE and PA; high levels of burnout on one of the EE or DP subscales).[1] It has been recommended to calculate scores for each subscale separately, since the instrument has specifically been designed to prevent calculating one single general score of burnout.[1]

The following measuring instruments were used in the research: the Maslach Burnout Inventory - Human Service Survey MBI-HSS (Maslach *et al.* 1996).[8] the Rathus Assertiveness Schedule (RAS).[9] and a general socio-demographic questionnaire. MBI-HSS is used for assessing the burnout syndrome, and it consists of 22 statements scored on a scale from 0 – "never" to 6 – "daily". The questionnaire contains three subscales that measure the following determinants: emotional exhaustion (the EE scale), depersonalization (the DP scale) and a sense of lack of personal accomplishment (the PA scale). A total score may range between 0 and 132. The Emotional Exhaustion (EE) scale - refers to a sense of overexertion of one`s emotional and physical resources. Both types of exhaustion appear as a consequence of experiencing a work-related stress.[10] The Depersonalization (DP) scale - relates to a negative, un-caring, or overly indifferent response to various work aspects, which includes a loss of caring, physical and emotional distancing from clients, patients, and trainees. The lack of a sense of Personal Accomplishment (PA) scale - refers to a sense of incompetence and a lack of achievement and low performance at work. By observing solely a PA subscale, one cannot draw a general conclusion about the presence of the burnout, as opposed to the EE and DP subscales, that carry more relevant significance. The PA subscale is relevant only if that is confirmed by the EE or DP scales.

The Rathus Assertiveness Schedule consists of thirty items describing behavioral manifestations of assertiveness.[11] A modified Serbian version of the instrument was used for the purpose of this study. A translation and

an adaptation of the original were performed, which included a modification from a six-point scale originally to a five-point answering scale, according to Likert – from "Strongly disagree – 1" to "Strongly agree – 5".[12] The questionnaire has been standardized on cohort of local university-level students [12].

A general socio-demographic questionnaire, that was created for the purpose of this research, included questions about: gender, marital status, number of children in the family, age, total length of service and length of service in the profession, profession, attending/ or not attending postgraduate school, working with generic or innovative drugs, type of salary, h worked per week, housing type and financial status.

A statistical analysis included methods of descriptive statistics (frequency, mean value, standard deviation). Pearson's chi-squared test was used in comparing Attributable Determinants. In comparing the numeric features with the categories of burnout syndrome, we used a parametric analysis of variance (ANOVA), but in non-parametric ones we used the Kruskal-Wallis ANOVA test. In addition, Pearson`s parametric correlation was applied as well. The significance level in all the applied analytical methods was 0.05, and the study had a power of 90% (considering the beta error was at 10%).[13]

## RESULTS

The study sample consisted of 75 subjects (average age 36.7 ± 8.1 years), where 12% of the respondents comprised the extremely assertive group, 27% constituted the group of the above average assertive, 36% of the average assertive, 24% below average assertive, and 1% unassertive. There were 33 (44.0%) male and 42 (56.0%) female respondents. In our study, 14% of the respondents had the highest levels of burnout, which was accompanied by high levels of burnout on all three subscales (EE, DP and PA), 19% of them had a high burnout levels on the two subscales (EE and DP, EE and PA or DP and PA), 13% showed a high burnout level in one category (EE or DP), 23% had medium burnout levels on one, two or three subscales, and 31% of respondents were at low risk for developing the burnout syndrome (manifesting through low scores on the emotional exhaustion and depersonalization scales, together with high scores on the personal accomplishment scale). Table 1 shows descriptive statistical parameters of the numerical properties of our study.

A comparison of the average values of the numerical properties with the categories of burnout syndrome (Table 2) in our study, showed statistically significant differences when it came to: age, total length of service, length of service in the profession, values on the EE and DP scales, as well as assertiveness. No statistically significant differences were noted in the values of h worked per week and the PA scale. In average, the highest average age (41.0 ± 6.5 years old) was observed in respondents with the highest level of burnout and high scores in two categories, while the other categories were noted in the respondents below 36 (35.3 ± 7.6 years). The highest average value of the total length of service was in respondents with the highest levels of burnout or high level values in two categories (15.0 ± 8.1 years), while in other categories of the burnout syndrome, the average total length of service values were less than 9 years (8.4 ± 7.2 years). The length of service in the profession of our respondents was displayed (Table 2) in the same way, and with very similar average values. The highest average values on the EE scale were observed in respondents with the highest burnout levels (36.4 ± 5.9 points), then declining to the lowest average values (11.3 ± 5.6 points) in respondents with the lowest levels of the burnout syndrome. The highest average values on the DP scale were observed in respondents with the highest burnout levels (7.6 ± 3.4 points), but then declining to the lowest average values (2.3 ± 1.9 points)

**Table 1: Descriptive statistical parameters of the numerical properties.**

| Numerical properties | min | max | average | MED | SD |
|---|---|---|---|---|---|
| Age | 26.0 | 58.0 | 36.70 | 40.0 | 8.06 |
| Total length of service | 1.0 | 30.0 | 10.33 | 14.0 | 7.74 |
| Length of service in the profession | 1.0 | 30.0 | 9.59 | 12.0 | 7.78 |
| H worked per week | 9.0 | 60.0 | 42.80 | 45.0 | 6.39 |
| EE | 0.0 | 49.0 | 22.84 | 25.0 | 10.57 |
| PA | 9.0 | 43.0 | 32.66 | 30.0 | 6.62 |
| DP | 0.0 | 20.0 | 6.78 | 9.0 | 4.94 |
| Assertiveness | 61.0 | 137.0 | 106.45 | 110.0 | 13.65 |

*MED- median; SD - standard deviation;*

**Table 2: A comparison of the numerical properties relative to the categories of the burnout syndrome.**

| Attributable determinants | Burnout syndrome | n | average | SD | min | max | F(χ2kw) | p |
|---|---|---|---|---|---|---|---|---|
| Age | Highest level of burnout | 11 | 41.00 | 6.51 | 33.0 | 52.0 | 3.118 | 0.020* |
| | High level of burnout in 2 categories. | 14 | 40.78 | 7.83 | 30.0 | 55.0 | | |
| | High level of burnout in 1 category | 10 | 32.20 | 6.21 | 26.0 | 46.0 | | |
| | Medium level | 17 | 35.35 | 7.61 | 27.0 | 48.0 | | |
| | Low level | 23 | 35.13 | 8.48 | 26.0 | 58.0 | | |
| | Total | 75 | 36.70 | 8.06 | 26.0 | 58.0 | | |
| Total length of service | Highest level of burnout | 11 | 13.54 | 6.97 | 5.0 | 26.0 | 3.204 | 0.018* |
| | High level of burnout in 2 categories. | 14 | 15.07 | 8.11 | 3.0 | 28.0 | | |
| | High level of burnout in 1 category | 10 | 6.40 | 6.43 | 1.0 | 22.0 | | |
| | Medium level | 17 | 9.29 | 7.48 | 1.0 | 24.0 | | |
| | Low level | 23 | 8.39 | 7.20 | 1.0 | 30.0 | | |
| | Total | 75 | 10.33 | 7.74 | 1.0 | 30.0 | | |
| Length of service in the profession | Highest level of burnout | 11 | 13.45 | 7.09 | 5.0 | 26.0 | 2.634 | 0.041* |
| | High level of burnout in 2 categories. | 13 | 13.69 | 8.09 | 0.0 | 28.0 | | |
| | High level of burnout in 1 category | 10 | 6.40 | 6.43 | 1.0 | 22.0 | | |
| | Medium level | 17 | 8.11 | 7.83 | 1.0 | 24.0 | | |
| | Low level | 23 | 7.91 | 7.37 | 1.0 | 30.0 | | |
| | Total | 74 | 9.59 | 7.78 | 0.0 | 30.0 | | |
| H worked per week | Highest level of burnout | 11 | 42.27 | 4.67 | 35.0 | 50.0 | 1.787 | 0.141 |
| | High level of burnout in 2 categories. | 14 | 43.42 | 4.79 | 40.0 | 50.0 | | |
| | High level of burnout in 1 category | 10 | 46.80 | 6.25 | 40.0 | 60.0 | | |
| | Medium level | 17 | 40.23 | 8.78 | 9.0 | 50.0 | | |
| | Low level | 23 | 42.82 | 5.39 | 40.0 | 60.0 | | |
| | Total | 75 | 42.80 | 6.39 | 9.0 | 60.0 | | |
| EE | Highest level of burnout | 11 | 36.36 | 5.98 | 30.0 | 49.0 | 57.778 | 0.000** |
| | High level of burnout in 2 categories. | 14 | 31.92 | 4.93 | 26.0 | 41.0 | | |
| | High level of burnout in 1 category | 10 | 25.20 | 5.47 | 15.0 | 33.0 | | |
| | Medium level | 17 | 20.82 | 4.20 | 10.0 | 25.0 | | |
| | Low level | 23 | 11.30 | 5.62 | 0.0 | 18.0 | | |
| | Total | 75 | 22.84 | 10.57 | 0.0 | 49.0 | | |
| PA | Highest level of burnout | 11 | 28.81 | 5.17 | 22.0 | 39.0 | 1.973 | 0.108 |
| | High level of burnout in 2 categories. | 14 | 32.28 | 4.51 | 25.0 | 42.0 | | |
| | High level of burnout in 1 category | 10 | 34.60 | 5.77 | 24.0 | 43.0 | | |
| | Medium level | 17 | 31.47 | 8.89 | 9.0 | 42.0 | | |
| | Low level | 23 | 34.78 | 6.11 | 18.0 | 43.0 | | |
| | Total | 75 | 32.66 | 6.62 | 9.0 | 43.0 | | |
| DP | Highest level of burnout | 11 | 14.90 | 2.73 | 10.0 | 20.0 | 43.958 | 0.000** |
| | High level of burnout in 2 categories. | 14 | 8.92 | 3.56 | 4.0 | 17.0 | | |
| | High level of burnout in 1 category | 10 | 7.60 | 3.43 | 2.0 | 12.0 | | |
| | Medium level | 17 | 5.35 | 2.31 | 2.0 | 9.0 | | |
| | Low level | 23 | 2.30 | 1.94 | 0.0 | 5.0 | | |
| | Total | 75 | 6.78 | 4.94 | 0.0 | 20.0 | | |
| Assertiveness | Highest level of burnout | 11 | 94.54 | 14.73 | 61.0 | 115.0 | 4.395 | 0.003** |
| | High level of burnout in 2 categories. | 14 | 106.00 | 12.17 | 89.0 | 125.0 | | |
| | High level of burnout in 1 category | 10 | 102.90 | 10.38 | 90.0 | 117.0 | | |
| | Medium level | 17 | 107.41 | 11.83 | 85.0 | 129.0 | | |
| | Low level | 23 | 113.26 | 13.94 | 88.0 | 137.0 | | |
| | Total | 75 | 106.45 | 11.91 | 61.0 | 137.0 | | |

*SD - standard deviation;* p < 0.05 - statistical significance; ** p < 0.01- statistical significance; F ANOVA; χ2kw Kruskal-Wallis ANOVA*

in respondents with the lowest levels of the burnout syndrome. Nevertheless, the highest average values of assertiveness were in respondents with the lowest levels of the burnout syndrome (113.3 ± 13.9 points), declining to the lowest recorded average values (102.9 ± 10.4 points) in respondents with high levels of burnout syndrome in one category. The Table 2 shows a comparison of the numerical properties relative to the categories of the burnout syndrome.

A cross sectional analysis of Attributable Determinants in our study - in relation to the burnout syndrome showed statistically significant differences related to the line of business category ($\chi 2 = 10.834$; $p < 0.05$) (Table 3), which came as a consequence of the respondents from the pharmaceutical manufacturing industry, having predominantly medium and high levels of the burnout syndrome, as compared to the medical representatives working on drug marketing (a total of 71.4% to 29.5%). Findings revealed a fivefold level of burnout in medical representatives, as compared to the respondents from the pharmaceutical manufacturing industry (36.1% versus 7.1%). They also showed that there was a significant difference statistically in the burnout relative to gender ($\chi 2 = 11.935$; $p < 0.05$), which came as a consequence of the female respondents having high burnout levels in two categories, and a medium level of burnout, when compared to male respondents (total of 57.6% as compared to 21.2%). In male respondents, the low-level burnout scores were registered nearly three times more frequently, as opposed to the female respondents in our study (45.5% versus 19.0%). In the following step, a cross-sectional analysis of Attributable Determinants in relation to a burnout syndrome showed that there was a significant difference statistically relative to marital status of the respondents ($\chi 2 = 18.787$; $p < 0.05$): the highest levels of burnout were registered in divorced and widowed respondents. There were slightly fewer married respondents with the highest burnout scores. In this study, the lowest burnout values were registered in single (i.e.: unmarried) respondent. An analysis showed a statistically significant difference relative to the number of children in the family of a respondent. That was due to the fact that in respondents who lived in families with up to two children, prevailed the highest and high burnout levels in two categories, as compared to families without children (total of 51.5%, compared to 21.6%). It was quite apparent that the level of burnout in families with three or more children was very low, and that in those families there were no findings of the highest or high levels of burnout registered for the two categories. Finally, a cross-sectional analysis of attributable determinants of our study in regards to the burnout syndrome showed that there was a highly significant difference statistically related to attending postgraduate school by the respondents while working ($\chi 2 = 19.910$; $p < 0.01$), caused by the fact that respondents who were attending postgraduate school while working displayed the highest level of burnout more frequently than those who did not attend postgraduate school while working (a total of 20.8%, compared to 11.8%). One may note that low burnout levels were more frequent in respondents who were not attending postgraduate school, as compared to those who were attending postgraduate school while working (35.3% vs. 20.8%). Table 3 shows the comparison of the Attributable Determinants with respect to the categories of the burnout syndrome.

An analysis showed that there were statistically no significant differences when cross-analyzing the burnout syndrome relative to the profession of the respondents, whether they worked on marketing of the generic and/or innovative drugs, type of pay, financial security (monthly needs), and the housing type (Table 3). A correlation analysis showed there was a statistically significant connection of the burnout syndrome and all the values under observation. (Table 4). The burnout syndrome was linked negatively to PA and Assertiveness scales, but positively with the EE and DP values. The obtained results indicate respondents with the highest burnout levels having high values of EE and DP scores, and vice versa - respondents with low burnout levels demonstrating progressively lower EE and DP values. When it comes to Assertiveness and PA values, the opposite is true, i.e., individuals with the highest level of burnout having low PA and Assertiveness values, and vice versa. If respondents display low levels of a burnout syndrome, they demonstrate higher PA and Assertiveness values. Table 4 shows the correlation coefficients and the significance for the burnout syndrome and scales, i.e. values. In addition, a correlation analysis showed values being interconnected, and the EE value being statistically significantly related to all observed values (positively with DP, but negatively with PA). (Table 4).

A correlation analysis showed that there was a statistically significant connection between the burnout syndrome and the age of our respondents, a total length of service and a length of service in the profession. (Table 5). Since all the connections had a positive prefix, it may be construed that the individuals with the highest level of burnout would be of an older age, with a longer total length of service and a length of service in the profession, and vice versa. The respondents with low levels of burnout would be younger, having shorter: a total length of service, as well as a length of service in the profession.

**Table 3: A comparison of the attributable determinants with respect to categories of the burnout syndrome.**

| Attributable determinants | | Burnout syndrome | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Highest level | | High level in 2 categories | | High level in 1 category | | Medium level | | Low level | | $\chi^2$ | p | |
| | n | % | n | % | n | % | n | % | n | % | | | |
| Line of business | Industrial manufacturing | 5 | 35.7 | 1 | 7.1 | 2 | 14.3 | 5 | 35.7 | 1 | 7.1 | 10.834 | 0.047* |
| | Drug marketing | 6 | 9.8 | 13 | 21.3 | 8 | 13.1 | 12 | 19.7 | 22 | 36.1 | | |
| Gender | Male | 5 | 15.2 | 4 | 12.1 | 6 | 18.2 | 3 | 9.1 | 15 | 45.5 | 11.935 | 0.042* |
| | Female | 6 | 14.3 | 10 | 23.8 | 4 | 9.5 | 14 | 33.3 | 8 | 19.0 | | |
| Marital status | Single | 1 | 2.8 | 7 | 19.4 | 7 | 19.4 | 10 | 27.8 | 11 | 30.6 | 18.787 | 0.023* |
| | Married | 8 | 21.6 | 7 | 18.9 | 3 | 8.1 | 7 | 18.9 | 12 | 32.4 | | |
| | Divorced | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| | Widowed | 1 | 100.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | | |
| Number of children in the family | No children | 1 | 2.7 | 7 | 18.9 | 8 | 21.6 | 9 | 24.3 | 12 | 32.4 | 17.142 | 0.021* |
| | Up to 2 children | 10 | 30.3 | 7 | 21.2 | 2 | 6.1 | 5 | 15.2 | 9 | 27.3 | | |
| | Three children or more | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 66.7 | 1 | 33.3 | | |
| Profession | Pharmacist | 9 | 15.5 | 11 | 19.0 | 10 | 17.2 | 12 | 20.7 | 16 | 27.6 | 1.644 | 0.218 |
| | Dentist | 1 | 20.0 | 0 | 0.0 | 0 | 0.0 | 2 | 40.0 | 2 | 40.0 | | |
| | Medical doctor | 1 | 12.5 | 2 | 25.0 | 0 | 0.0 | 2 | 25.0 | 3 | 37.5 | | |
| | Other | 0 | 0.0 | 1 | 25.0 | 0 | 0.0 | 1 | 25.0 | 2 | 50.0 | | |
| Are you attending graduate school? | Yes | 5 | 20.8 | 0 | 0.0 | 7 | 29.2 | 7 | 29.2 | 5 | 20.8 | 19.910 | 0.014* |
| | No | 6 | 11.8 | 14 | 27.5 | 3 | 5.9 | 10 | 19.6 | 18 | 35.3 | | |
| Do you work on drug marketing? | Innovative | 3 | 12.5 | 4 | 16.7 | 4 | 16.7 | 4 | 16.7 | 9 | 37.5 | 1.118 | 0.388 |
| | Generic drugs | 8 | 15.7 | 10 | 19.6 | 6 | 11.8 | 13 | 25.5 | 14 | 27.5 | | |
| Type of pay | Fixed | 7 | 15.9 | 10 | 22.7 | 3 | 6.8 | 11 | 25.0 | 13 | 29.5 | 0.911 | 0.448 |
| | Variable (based on performance) | 4 | 12.9 | 4 | 12.9 | 7 | 22.6 | 6 | 19.4 | 10 | 32.3 | | |
| Housing type | I own an apartment | 11 | 21.2 | 11 | 21.2 | 4 | 7.7 | 10 | 19.2 | 16 | 30.8 | 1.748 | 0.119 |
| | I live with parents | 0 | 0.0 | 2 | 12.5 | 3 | 18.8 | 5 | 31.2 | 6 | 37.5 | | |
| | I rent | 0 | 0.0 | 1 | 14.3 | 3 | 42.9 | 2 | 28.6 | 1 | 14.3 | | |
| Financial security (monthly needs) | Income below needs | 1 | 8.3 | 2 | 16.7 | 3 | 25.0 | 2 | 16.7 | 4 | 33.3 | 1.075 | 0.397 |
| | Income sufficient | 8 | 16.0 | 11 | 22.0 | 5 | 10.0 | 12 | 24.0 | 14 | 28.0 | | |
| | Income exceeds needs | 2 | 15.4 | 1 | 7.7 | 2 | 15.4 | 3 | 23.1 | 5 | 38.5 | | |

** $p < 0.05$ - statistical significance; ** $p < 0.01$- statistical significance; $\chi_2$ Chi-squared test*

There was no significant correlation between the burnout syndrome and the total h worked per week by our respondents. Table 5 shows correlation coefficients and the significance for the burnout syndrome and other numerical parameters for the respondents in our study.

## DISCUSSION

Previous studies on burnout syndrome within the scope of pharmaceutical industry in Serbia were focused mainly on determining the presence of burnout in professionals working in community pharmacies.[14,15] Bearing in mind the fact, that our study has researched the work-related burnout among the university educated professionals engaged in process of manufacturing and marketing of drugs, which has excluded pharmacists employed in community pharmacies, as well as the fact that 69% of the respondents within our study sample has had high or medium levels of burnout of varying intensity, our study points to a significance of an even more comprehensive approach to assessing the mental health of pharmacists and other health professionals in the pharmaceutical industry. In our study, the resulting values are two times higher, when compared to the results of the burnout study among pharmacists employed in state- and privately-owned pharmacies in the Republic of Serbia (reporting about the burnout syndrome present in 34.1% of the respondents).[15] Furthermore, our results were not consistent with previous studies conducted

**Table 4: Correlation coefficients and the significance for the burnout syndrome and the scales/values.**

| Attributable determinants | | PA | DP | Assertiveness | Burnout syndrome |
|---|---|---|---|---|---|
| EE | r | -0.227 | 0.737 | -0.442 | 0.867 |
| | p | 0.050* | 0.000** | 0.000** | 0.000** |
| | n | 75 | 75 | 75 | 75 |
| PA | r | | -0.266 | 0.347 | -0.233 |
| | p | | 0.021* | 0.002** | 0.044* |
| | n | | 75 | 75 | 75 |
| DP | r | | | -.442 | 0.824 |
| | p | | | 0.000** | 0.000** |
| | n | | | 75 | 75 |
| Assertiveness | r | | | | -0.406 |
| | p | | | | 0.000** |
| | n | | | | 75 |

**Table 5: Correlation coefficients and the significance for the burnout syndrome and other numerical parameters.**

| Attributable determinants | | Age | Total length of service | Length of service in the profession | H worked per week |
|---|---|---|---|---|---|
| Burnout syndrome | r | 0.284 | 0.292 | 0.290 | 0.057 |
| | p | 0.013* | 0.011* | 0.012* | 0.625 |
| | n | 75 | 75 | 74 | 75 |
| Age | r | | 0.934 | 0.920 | 0.053 |
| | p | | 0.000** | 0.000** | 0.654 |
| | n | | 75 | 74 | 75 |
| Total length of service | r | | | 0.965 | 0.036 |
| | p | | | 0.000** | 0.757 |
| | n | | | 74 | 75 |
| Length of service in the profession | r | | | | 0.051 |
| | p | | | | 0.664 |
| | n | | | | 74 |

among health professionals of northern Jordan, which confirmed 27% of respondents having high levels of work-related stress (prevalence in pharmacists was 25%).[16] In our sample group, 11 of the respondents had high levels of burnout on all three subscales which was significantly more than in a burnout research performed among Australian hospital pharmacists, where 20 out of 266 respondents had high scores on all three of the burnout scales.[5] An analysis of the results of our study showed the existence of statistically significant differences when comparing the average assertiveness values with the burnout syndrome categories (Table 2). Additionally, the correlation analysis showed assertiveness values being statistically significantly related to the burnout syndrome, however negatively (Table 4).The highest values of assertiveness score were noted in respondents with low levels of burnout, and the lowest values were registered in professionals with the highest levels of burnout ( i.e. : respondents with the highest levels of emotional exhaustion, depersonalization and the lowest levels on the Personal Accomplishment scale (Table 4). The respondents, who demonstrate a lack of assertiveness in communication, and who either give up on their desires, or react aggressively to frustrations, are at a higher risk for developing the burnout syndrome.[17] Having in mind that assertiveness enhances the com-

munication in emotional and professional relationships and that it improves the well-being in healthy people, as well as in some mental disorders.[11] the aforementioned findings might be of particular importance for better understanding of the significance of applications of an assertive communication style, as one of the measures for prevention of the occupational burnout syndrome.

Our study has confirmed that pharmacists who work in positions dealing with placing of drugs on the market (a pharmaceutical factory) burn out considerably more, comparing to medical representatives (Table 3). Contrary to our findings, some other research suggests that pharmacists engaged in non-distribution- related activities experience less work-related burnout as compared to their colleagues who are in the drug distribution line of work. Considering those differences, it may be advisable to research the impact of the work environment factor on triggering and developing of the burnout syndrome in respondents engaged in drug manufacturing and marketing.[18] The pharmacists working for pharmaceutical factories have very responsible jobs within the pharmaceutical companies. All their activities related to work processes usually go according to precisely established rules and regulations. That, on the one hand, makes the work easier, but on the other hand it reduces creativity in working within the manufacturing line of work, as well as the needs for communication. All of that may represent a significant predictor in the development of a burnout syndrome. Those variations in work environment, existing in different lines of work within the pharmaceutical industry may contribute to the likelihood of developing a burnout syndrome.[19]

In our study, there was a twofold frequency of female respondents within the context of high levels of burnout in two categories and a threefold frequency within the medium levels of burnout, as compared to male respondents (Table 3). Those results are consistent with some other studies.[20] Women are more exposed to the effects of stress factors. Under the present-day work and life conditions, women are assigned numerous roles, which have been imposed on them throughout history, and it is expected from them to be successful both in business roles and in roles of a wives and mothers.[21] All the aforementioned points to a conflict between the family and professional roles as an important predictor of the stress intensity.[22]

An analysis of the results is statistically quite significant when it comes to marital status; it shows that the highest levels of burnout in our study were registered in the divorced and widowed respondents (Table 3). That finding is consistent with numerous studies, which consider having a family and family support important in alleviating stress.[23,24] The lowest number of professionals with the highest levels of burnout was recorded in the group of single respondents, though. Although marriage - on the one hand, may enable overcoming the stress easier (by sharing the roles between the partners and giving mutual support) on the other hand, it imposes greater obligations and responsibilities, as well as a need for greater emotional commitment in creating good marital partnerships, and in relationships between parents and children. In addition, our study confirms that the highest and high burnout levels in two categories are prevalent in the group of respondents with one or two children, as opposed to the respondents with no children (Table 3).

In our study, the highest and high levels of burnout in two categories were prevalent in more senior respondents, who were over 40 years of age and with over 15 years of service (Table 2). Additionally, a correlation analysis showed that there was a statistically significant link between the burnout syndrome and the age of our respondents, a total length of service and a length of service in the profession, and positive one (Table 5). This finding is not in accordance with results of a research performed within the American Pharmaceutical Association on a burnout syndrome in pharmacists, which indicated the highest levels of burnout were present in women younger than 40 and with experience of less than 10 years.[25] However, a previous burnout study conducted in Serbia in 2010 reported higher levels of burnout among the older pharmacists, who are between 51-60 years old and who have 11 – 20 years of service in profession. This is an indication that we should look into changes that have transpired in the area of pharmaceutical industry in the Republic of Serbia, in order to determine the right causes. In the last two decades, the professional expectations and responsibilities within the pharmaceutical practice have significantly increased, especially at the primary level.[14] Most studies, focusing on research of the burnout syndrome in pharmaceutical profession, pointed out a significant increase in the workload which has occurred in that field in the last few decades. In addition, there have been changes in job types performed by pharmaceutical professionals. That all contributed to an increase in number of jobs, but also to an increase in job-related stress.[26]

There has been a significant difference in prevalence and level of the burnout syndrome related to whether the respondents attended or didn't attend graduate school while working (Table 3). The highest levels of burnout (comprising all three of the burnout stages) were recorded among the respondents who attended postgraduate schools. Research indicated academic

requirements as primary sources of stress among students of pharmacy, and they experienced higher levels of psychological stress, comparing to other students in the field of health professions.[27]

There were no statistically significant differences in cross-analyzing the burnout syndrome relative to the following determinants: professions of respondents, working on marketing of innovative and/or generic drugs, types of pay, financial security (monthly needs), and housing type (Table 3).

It would deem important to emphasize the fact that our study faced several limitations. The data on independent and dependent variables were obtained by using self-assessment questionnaires and without observing the behavior of respondents. We were unable to make an assessment of the exact number of professionals working at pharmaceutical companies in Serbia, given that there is no database and the changes in the market are frequent, as are the changes in the numbers of employees in the pharmaceutical industry. The study sample is small and uneven in regards to the line of work and the type of university education (besides pharmacists, there were medical doctors, dentists, chemists and biologists working as medical representatives in the area of pharmaceutical marketing). Bearing in mind, there has been a very little research done, dealing with mental health of students of pharmacy.[28] and that studies of burnout in the pharmaceutical profession have been very scarce.[29] we believe in importance of our research because it shows the correlation between certain demographic and psychosocial factors and the burnout syndrome among professionals within the pharmaceutical industry engaged in drug manufacturing control and drug marketing. In addition, our results point to the importance of a systematic approach in reduction of a burnout syndrome among pharmaceutical industry professionals.

## CONCLUSION

The results of our study indicate that two thirds of the professionals in the field of pharmaceutical industry engaged in drug manufacturing and marketing have scores on one, two or three burnout subscales above the limit values. The burnout syndrome is more common in divorced or widowed professionals, older female respondents, with longer duration of service, who work while studying, and who have lower levels of assertiveness. Intervention programs, such as assertive communication trainings, particularly during the postgraduate studies at the Faculty of Pharmacy, might lead to a significant decrease of the burnout syndrome levels among professionals working in the pharmaceutical industry.

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## CONFLICT OF INTEREST

The authors declare No conflict of Interest.

## ABBREVIATIONS USED

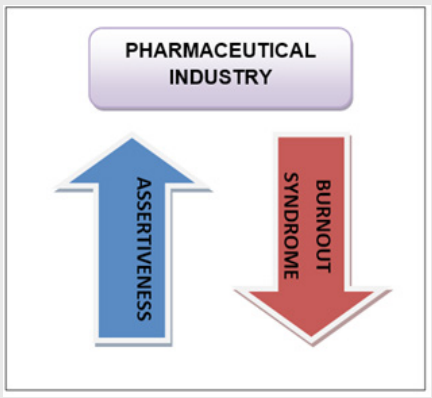
**ICD-10:** International Statistical Classification of Diseases and Related Health Problems 10th Revision; **EE:** Emotional exhaustion; **DP:** Depersonalization; PA; Personal accomplishment; **MBI-HSS:** Maslach Burnout Inventory - Human Service Survey; **RAS:** Rathus Assertiveness Schedule.

## REFERENCES

1. Maslach C, Jackson S. The measurement of experienced burnout. Journal of Occupational Behavior. 1981;2(2):99-113.
2. Freudenberger HJ. Staff Burnout. Journal of Social Issues. 1974;30(1):159-65.
3. WHO. ICD-10 Class Disorders. Classification of Mental and Behavioral Disorders. Clinical descriptions and diagnostic guidelines. Geneva: World Health Organization,1992.
4. Popov S, M Latovljev, A. Nedić. Syndrome of burnout in health care and educational workers: The role of situation, and the individual factors. Psychological research. 2015;18(1):5-22.
5. Thomas PG. Burnout and work engagement levels and community pharmacists residing in three counties of the United Kingdom. The thesis is submitted in partial fulfillment of the requirements for the award of the degree of Professional Doctorate in Pharmacy of the University of Portsmouth, 2011.
6. Rothmann S, Malan M. Work-related well-being of South African hospital pharmacists. South African Journal of Industrial Psychology. 2011;37(1):1-1. adapted to: http://www.sajip.co.za/index.php/sajip/article/view/895/1041
7. Jovanović VR, Krajnović D, Mihajlović G, Marinković V. Factors associated with the burnout syndrome among professionals in pharmaceutical manufacturing industry and marketing. Rational therapy, *in press*.2017;9(2)13-22.
8. Maslach C, Jackson SE, Leiter MP . Maslach burnout inventory: Manual. Palo Alto, Consulting Psychologists Press, California, 1996.
9. Rathus SA. A 30-item Schedule for Assessing Assertive Behavior. Behav Ther. 1973;4(3):398-406
10. Jackson SE, Maslach C. After-effects of job-related stress: Families as as victims. Journal of Organizational Behavior. 1982;3(1):63-77.
11. Košutić Ž, Dukanac V, Bradić B, *et al*. Assertiveness in adolescents with anxiety disorders, association with personality dimensions, social maturity and socio-demographic characteristics. Today Psychiatry. 2012;44(1):47-59.
12. Milankov R. Standardization of Rathus questionnaire to measure assertiveness (RAS) Graduate thesis. Novi Sad: Faculty of Philosophy in 1993.
13. Erić-Marinković J, Dotlić R, Janošević S, Kocev N, Gajić M, Ille T. Statistics for the Medical Sciences Researchers, Belgrade, Faculty of Medicine, University of Belgrade, 2006.
14. Jocić DD, Krajnović MD. State of anxiety, stress and burnout syndrome among community pharmacists: relation with pharmacists attitudes and beliefs. Indian Journal of Pharmaceutical Education. 2014;48(2):9-15.
15. Jocić D, Krajnović D, Lakić D, Tasić L. Occupational stress and burnout: impact on the attitudes of pharmacists in providing pharmaceutical services. Value in Health. 2012;15(7):A543.

16. Boran A, Shawaheen M, Khader Y, Amarin Z, Hill Rice V. Work-related stress among health professionals and northern Jordan. Occupational Medicine. 2011;62(2):145-7. doi: 10.1093 / occmed / kqr180.
17. Kapor N. Management of health institution-Proceedings ECPD international summer schools. Caring for human resources-exhaustion syndrome. ECPD, 2013;11-20. ISBN 978-86-7236-080-6.
18. Barnett CW, Hopkins WA , Jackson RA. Burnout experienced by recent pharmacy graduates of Mercer University. Am J Hosp Pharm. 1986;43(11):2780-4.
19. Liew Teck Jin LS, Poosary AP, Kuang Wei IL, Ahmad Riza ZY, Ching Jou T, Kamaruddin A. Burnout Syndrome among Pharmacy Staffs of Hospital Miri, Sarawak. Sarawak Journal of Pharmacy. 2016;1:1-15.
20. Olanrewaju AS, Chineye OJ. Gender differences in burnout among health workers in the Ekiti State University Teaching Hospital Ado-Ekiti. International Journal of Social and Behavioural Sciences. 2013; 1(6):112-21.
21. Knezević T, Katić I, Ivanisević A. Impact of management styles on the occurrence of work stress managers. Business Economics. 2009;2:332.
22. Adam S, Győrffy Z, Susanszky E. Physician Burnout in Hungary, A Potential Role for Work-Family Conflict. Journal of Health Psychology. 2008;13(7):847-56.
23. Petrović N, Maćešić-Petrović D., Đorđević M. Syndrome of burnout for professionals working in the prison treatment of juvenile delinquents. Social Thought. 2010;(2):50-69.
24. Ifeagwazi FC. The Influence of Marital Status on Self-Report of Symptoms of Psychological Burnout among Nurses. OMEGA-Journal of Death and Dying. 2006;52(4):359-73. Retrieved from http://journals.sagepub.com/doi/pdf/10.2190/DNBR-8E28-JXTM-MEAW
25. Lahoz MR, Mason HL. Burnout among pharmacists. Am Pharm. 1990;NS30(8):28-32.
26. Lea VM, Corlett SA, Rodgers RM . Workload and its impact on community pharmacists' job satisfaction and stress: a review of the literature. Int J Pharm Pract. 2012;20(4):259-71. doi: 10.1111 / j.2042-7174.2012.00192.x.
27. Votta RJ, Benau EM. Sources of stress for pharmacy students in a nationwide sample. Currents in Pharmacy Teaching and Learning. 2014;6(5):675-81.
28. Votta RJ, Benau EM. Predictors of stress in doctor of pharmacy students: Results from a nationwide survey. Currents and Pharmacy Teaching and Learning. 2013;5(5):365-72.
29. Thomas PG. Burnout and work engagement levels in community pharmacists residing in three counties of the United Kingdom, doctorate thesis. University of Portsmouth, 2011, adapted to: https://researchportal.port.ac.uk/portal/files/6084037/Peter_Thomas_Thesis_final_.pdf

## PICTORIAL ABSTRACT




## SUMMARY

- This study reports the frequency and severity of the burnout syndrome among the
- university-educated professionals, working in pharmaceutical industry in Serbia, and its relation to assertiveness.
- Pharmacists who work in positions dealing with releasing of drugs on the market (a pharmaceutical plant) burn out considerably more, comparing to medical representatives.
- The highest values of assertiveness score were noted in respondents with low levels of burnout, and the lowest values were registered in professionals with the highest levels of burnout.

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**Vesna R. Jovanović** was born on September 7, 1975 in Banja Luka, Bosnia and Herzegovina. She obtained master's degree in defectology in 2013 at Faculty of Special Education and Rehabilitation, University of Belgrade. She gained specialist degree in pharmacy in 2016 at the Faculty of Pharmacy, University of Belgrade, the field of pharmaceutical marketing and management. She enrolled in PhD studies in 2014 at Faculty of Medical sciences, University of Kragujevac, the field of Neurosciences where she attends the third year of studies presently. Today she is lecturer at High Medical School of Professional Studies, Belgrade.

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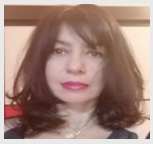

**Valentina D. Marinkovic** was born in Leskovac. She obteined BSc, MSc, PhD at the Faculty of Pharmacy, University of Belgrade, the field of pharmaceutical chemistry. Valentina Marinkovic's professional career built in two directions - academic and work in practice. She established their practical experience in the pharmaceutical and chemical industry at the position of Quality director in multinational companies. Today, she is Associate Professor at University of Belgrade, Faculty of pharmacy, Department of Social Pharmacy and Pharmaceutical legislation. Recently, she was visiting researcher at RWTH University of Aachen, Germany.

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