sciendo

Bulletin of Geography. Socio-economic Series, No. 51 (2021): 47–60
http://doi.org/10.2478/bog-2021-0004

ISSN 1732–4254 quarterly

BULLETIN OF GEOGRAPHY. SOCIO–ECONOMIC SERIES

journal homepages:
https://content.sciendo.com/view/journals/bog/bog-overview.xml
http://apcz.umk.pl/czasopisma/index.php/BGSS/index

Spatial differentiation of public administration employees due to professional burnout

Iwona Bąk [1, CDFMR], **Katarzyna Wawrzyniak**[2, CDFMR]

West Pomeranian University of Technology, Faculty of Economics, Szczecin, [1]e-mail: iwona.bak@zut.edu.pl (*corresponding author*), http://orcid.org/0000-0001-8959-7269; [2]e-mail: katarzyna.wawrzyniak@zut.edu.pl, http://orcid.org/0000-0003-4161-3877

How to cite:
Bąk, I. and Wawrzyniak K. (2020). Spatial differentiation of public administration employees due to professional burnout. *Bulletin of Geography. Socio-economic Series*, 51(51): 47-60. DOI: http://doi.org/10.2478/bog-2021-0004

Abstract. The paper presents the results of classifying public administration employees in terms of level of occupational burnout, taking into account their place of residence, gender and age. One of the methods of multidimensional statistical analysis – classification trees – was used as a research tool. Two dependent variables are defined. The first has only two variants, defined as "no occupational burnout" and "occupational burnout", which characterise all respondents. The second dependent variable was limited to those respondents diagnosed with occupational burnout and has four variants corresponding to intensity of burnout. The obtained results indicate the differentiation of voivodeships (first-order administrative regions) in terms of the level of the studied phenomenon.

Article details:
Received: 30 November 2020
Revised: 5 January 2021
Accepted: 14 January 2021

Key words:
professional burnout,
public administration employees,
classification trees,
self-diagnosis of mental condition,
spatial diversity

Contents:

1. Introduction

Burnout is a increasingly frequent problem in the 21st century. It affects basically all employees, at different times and to differing degrees – but every employee is exposed to it. Occupational burnout researchers usually point to its three main sources: the first is related to personality structure, the second is related to the specificity of interpersonal relations, and the third is related to organisational factors (Chirkowska-Smolak, 2009; Wolska, 2019). Occupational groups that professionally deal with helping other people and that use social skills at work as a tool – so-called social services (Soderfeldt et al., 1995; Lloyd et al., 2002; Anczewska et al., 2005; Siebert, 2008), including public administration employees – are especially exposed to occupational stress and burnout syndrome symptoms. People belonging to this group show emotional exhaustion symptoms, often associated with social expectations (Wolska, 2018) concerning high standards of customer service without appropriate training in interpersonal skills or in dealing with negative emotions arising from contact with, for example, rude people. According to Arches (1991), the main factors contributing to burnout are lack of autonomy among employees and the impact of funding sources on their work.

Scientific research often emphasises that multidisciplinary research on burnout syndrome and the development of effective prevention and therapy methods is becoming an increasingly urgent need. Apart from the undoubted difficulties and suffering of people experiencing the symptoms of this phenomenon, there are significant social costs associated with reduced quality and efficiency in their work (Anczewska et al., 2005). It seems extremely important to understand the factors that can better predict and prevent burnout.

The study in this paper was conducted based on the project *The assessment of mental condition*, financed by the Ministry of Health as part of the National Health Programme for 2016–20 (operational objective 3: *Prevention of mental health problems and improvement of mental well-being of society*). The project covers eight Polish voivodeships (Dolnośląskie, Kujawsko-Pomorskie, Lubuskie, Łódzkie, Opolskie, Śląskie, Wielkopolskie and Zachodniopomorskie). Its main goal is to assess the mental condition of socio-occupational groups particularly exposed to stress and depression related to their profession, such as students, administration employees, uniformed services employees, teachers and university lecturers, doctors and other employees in the healthcare system, and social workers. The study is carried out using a mental health self-diagnosis tool (*the tool is available on the project website: www.zdrowiepsychiczne.org*), which indicates seven mental disorders, including somatic disorders, sleep problems, burnout, mood disorders, behavioural addictions, mobbing, and eating disorders.

The article focuses on the group of public administration employees from eight voivodeships selected for the study, and occupational burnout was selected from the mental disorders. The main aim of the research is to classify respondents in terms of level of occupational burnout, taking into account their place of residence, gender and age. The obtained classification is intended to discover in which voivodeships the problem of occupational burnout exists and whether burnout is more noticeable among women or men, and whether it affects young people or the elderly. One of the methods of multivariate statistical analysis – classification trees – was used as a research tool.

2. A review of the literature related to burnout

Burnout syndrome is one of the main negative consequences of performing work and, at the same time, one of the most popular research topics in mental health psychology, having a massive impact on both work performance and severe health problems (Leiter et al., 1998; Nahrgang et al., 2011; Ostrowska, Michcik, 2013; Smith et al., 2019). Research by Bakker and Costa (2005) has shown that workers exposed to the risk of occupational burnout, namely those who are chronically exhausted

and maintain a negative attitude to work, show a deterioration in work performance and may face serious health problems over time (Bakker et al., 2014). Research also suggests that when workers experience high levels of burnout they often still encounter problems, and that burnout can be reasonably stable for five, ten, or even fifteen years (Bakker et al., 2014a; Bakker et al., 2014b; Hakanen et al., 2011; Schaufeli et al., 2011). The negative effects of burnout spread to all aspects of life, including home, work and social life (Smith et al., 2019). In the course of their research, Nahrgang et al. (2011) noted that job requirements, such as risks and hazards and their complexity, deteriorate workers' health and contribute to burnout. Bakker and et al. (2005) arrived at similar conclusions, explaining that the interaction between (high) demands and (low) resources gives the highest level of occupational burnout (exhaustion, cynicism, decreased professional performance). An important reason for the professional burnout associated with high employer expectations of employees was pointed out by Pluta (2015). The author considers that an organisation working under time pressure may treat employees in a subjective manner, and this in turn has unfavourable consequences in the form of employee stress, workaholism and occupational burnout.

The results of the European Working Conditions Survey (*Eurofound* …, 2017) showed that burnout has an adverse effect on employees and the effectiveness of society's organisation and functioning (e.g., the costs of incapacity to work). The greatest disproportions among the respondents concern the social environment in the workplace. Employees indicate very different experiences regarding the quality of management, social support, and the occurrence of negative social behaviour, such as discrimination based on sex, age, race, religion, nationality, disability or sexual orientation. There is also stress related to the performance of work, and relationships with other employees and clients. As a result, the syndrome of exhaustion of energy resources and a loss of work involvement appears (Demerouti et al., 2001).

According to Basińska and Gruszczyńska (2019), the emotional balance connected with the work performed is shaped by positive and negative emotions, both low and high activation. However, the relationship between emotional balance and occupational burnout is not explicit. Even a positive emotional balance after exceeding the optimum can be connected with a higher, not lower, level of burnout. Positivity at work should not be stimulated in a non-reflective way or treated as an organisational norm, in isolation from the work's realities. Numerous studies show that arousing strong positive emotions, contrary to popular belief, is not conducive to well-being. Happiness or well-being is associated primarily with the frequency, and not intensity, of the positive effect (Diener et al., 1991). In the work of Diener et al. (1991), it has been suggested that the more people appreciate success in a task, the happier they will be if they succeed, but the more unhappy if they fail.

3. Material characteristics and method

The screening test, the results of which were used in this study, was carried out using a mental health self-diagnosis tool prepared by a team of psychologists and psychiatrists and then tested on a control sample in the fourth quarter of 2017. The conducted analysis of the collected data's credibility and reliability allowed for the developed self-diagnosis tool to be assessed as highly effective (Durka, 2018). The screening test is not diagnostic, which means that it is impossible to make a diagnosis on its basis, i.e., to unambiguously state the disease's existence. A person with an abnormal screening result must undergo detailed diagnostic tests to find or rule out a disease. The test is performed on people who are healthy but at risk of mental illness. The aim of the test is to detect the disease at an early stage in order to cure it or prevent its progression.

One of the target groups of the project is public administration employees. They are particularly exposed to stress, which can contribute to mood disorders in combination with high professional demands. In the years 2018–20, a total of 19,196 public administration employees in all voivodeships, including 17,829 in the target ones, used the psychological self-diagnosis tool developed under the project.

The developed self-diagnosis tool is a test consisting of several dozen questions, with a different set of questions for each area of mental disorders

(Durka, 2018). In order to diagnose occupational burnout, the survey questionnaire formulated seven questions with specific answer options. The variants of responses were assigned numerical values (0 or 1) resulting from the assessment of their significance for the subjects' mental condition. Table 1 presents the content of questions, the variants of answers, and the numerical values (the number of points) assigned to individual variants of answers.

After completing the questionnaire, the points assigned to the selected answer variants are summed up, and this sum allows the diagnosis and recommendations to be presented to the respondent who completed the test. In the case of occupational burnout, considering the number of questions, the possible sum of points is from 0 to 7. The respondent's sum of points is compared with the reference value, which indicates the acceptable values that do not indicate a threat to the respondent. If the sum of points is above the reference value, the respondent should further diagnose his situation based on specialist help. In the case of occupational burnout, the number three was taken as the reference value. Therefore, if the sum of points does not exceed three, the respondent is not at risk of burnout. However, if the sum of points is at least four, the respondent has professional burnout problems. The biggest problems with burnout are those for whom the sum of points is seven, and the smallest are those for whom the sum of points is four.

The method of diagnosing occupational burnout based on the developed self-diagnosis mental health tool presented above enables the definition of two dependent variables used in the study to classify respondents according to the level of occupational burnout, taking into account their gender, age and place of residence.

The first dependent variable () has only two variants, which are defined as no burnout when the total of points is three or less, and occupational burnout when the total of points is at least four. The variants of this variable characterise all surveyed respondents. The second dependent variable () has four variants that correspond to the sum of the points: 4, 5, 6, 7. In the case of this variable, the studied group is limited to those respondents diagnosed with burnout.

Due to the research objective and the non-metric (*non-metric variables include those that are measured on weak scales, that is, on the nominal and ordinal scales (Gatnar, Walesiak, 2004: 19-22)*) (qualitative) nature of dependent (,) and independ-

Table 1. Questions included in the survey questionnaire with the numerical values assigned to variants of responses

Have you in the last 6 months:	Numerical values assigned to variants of responses			
	0	**0**	**1**	**1**
performed your daily activities and duties?	Better than usual	As usual	Worse than usual	Much worse than usual
been satisfied with the quality of your work?	More than usual	As usual	Less than usual	Much less than usual
felt that what you have been doing makes sense?	More than usual	As usual	Less than usual	Much less than usual
been irritated by people with whom you have contact at work/at school/ during the performance of official duties/in the clinic, office, hospital?	Not at all	As usual	More than usual	Much more than usual
felt joy and satisfaction at work?	More than usual	As usual	Less than usual	Much less than usual
felt reluctant before going to work?	No	As usual	More than usual	Much more than usual
felt anxiety when contacting patients / when contacting students and their parents/ during the performance of official tasks/when contacting pupils?	No	No more than usual	More than usual	Much more than usual

Source: own study based on Durka (2018)

ent (gender, age, voivodeship) (*for independent variables used in the study, the variants were defined as follows: gender (female, male), age (up to 40, 40-59, 60 and more), voivodship, i.e. the place of residence (Dolnośląskie - DL, Kujawsko-Pomorskie - KP, Lubuskie - LB, Łódzkie - ŁD, Opolskie - OP, Śląskie - ŚL, Wielkopolski - WP, Zachodniopomorskie - ZP, other)*) variables, classification trees were used in the study.

A classification tree is a graphic representation of the model in the form (Gatnar, Walesiak, 2004: 103–109; Gatnar, 2008: 37–39):

$$Y = f(\mathbf{x}_i) = \sum_{k=1}^{K} \alpha_k \boldsymbol{I}(\mathbf{x}_i \in R_k), \quad (1)$$

where:Y – dependent variable, R_k (k = 1,…,K; K – the number of segments) – the subspace (segment) of the space of independent variables X^L (X^1,X^2,…,X^L; L – number of independent variables), $x_i=[x_{i1},x_{i2},\ldots,x_{iL}]$ – observations from the recognisable set, α_k – model parameters, $\boldsymbol{I}$ – indicator function defined as:

$$\boldsymbol{I}(q) = \begin{cases} 1 & \text{if } q \text{ is true} \\ 0 & \text{otherwise} \end{cases} \quad (2)$$

The method of determining parameters α_k, defining subspaces R_k and assessing the quality of partitioning the space of independent variables V^L depends on the nature of the dependent variable and independent variables. Owing to the study variables' non-metric (qualitative) nature, the formulas for this type of variable will be presented below.

If the dependent variable Y in the model (1) is a non-metric variable, then parameters α_k are designated as:

$$\alpha_k = \arg\max_j p\left(C_j/\mathbf{x}_i \in R_k\right), \quad (3)$$

where p(Cj/xi∈Rk) – the *a posteriori* probability that the observation in the segment R_k belongs to the class C_j.

The notation provided by the formula (3) informs that in the segment R_k the dependent variable Y will take the value C_j that occurs most often.

The R_k subspace, when independent variables (X_1, X_2, ... X_L) are non-metric, needs to be defined as:

$$\boldsymbol{I}(\mathbf{x}_i \in R_k) = \prod_{l=1}^{L} \boldsymbol{I}(x_{il} \in B_{kl}), \quad (4)$$

where B_{kl} – a subset of the independent variable category set X_L.

The sets of combined categories of non-metric independent variables (B_{kl}) are found in such a way that the division improves the quality of the model.

One of the following measures can be used to assess the quality of the division of the space of explanatory variables X^L for a non-metric dependent variable: the classification error, the entropy function, the Gini differentiation index, χ^2 statistics (*the methods of determining and properties of the measures mentioned can be found, among others. in work (Gatnar, Walesiak, 2004: 109-111)*).

Model 1 is not created globally but through the composition of local models, which are created in any of disjunctive subspaces (segments), into which the multidimensional space of independent variables is divided. The procedure for dividing this space is recursive, i.e., at each step, the original fragment of the space is optimally divided into two or more parts using one of the independent variables. The variable and the space division place is selected in such a way that the obtained segments are as homogeneous as possible in terms of the dependent variable (Gatnar, Walesiak, 2004: 104, 107).

The most popular algorithms for creating classification trees are C&RT (CART) and CHAID. Both algorithms are programmed in the *Statistica* package. Their description can be found in, among other places, the Electronic Statistics Manual in the CHAID Trees, C&RT Trees and Classification Trees tab (StatSoft, 2006). At this point, it is worth mentioning that both algorithms can be used to build classification trees. In both cases, trees in which each split node contains a division condition are created. The aim is to optimally classify the tested objects from the adopted stop criterion's point of view (*the stop criterion is most often the homogeneity of objects due to the dependent variable in the separated segments or a specific, minimum number of objects in the obtained segments (Gatnar, Walesiak, 2004: 108)*). The constructed trees differ mainly in that the C&RT algorithm creates binary trees (in each split node, it divides into two segments). In contrast, the CHAID algorithm enables the construction of trees with many segments in the split node (so-called non-binary trees), which is especially important when the independent variables have more than two variants. As a result, it is pos-

sible to extract a maximum of as many segments as the number of variants of the independent variable, provided that they are heterogeneous due to the variants of the dependent variable.

In view of the aim of the study, it was decided to build trees using the CHAID algorithm, as two independent variables: the place of residence (voivodeship) and age have nine and three variants, respectively. Therefore, one can expect to distinguish up to nine (space division based on the place of residence) or three segments (space division based on age) with different respondent structures concerning the variants of the dependent variable).

4. Research results

Study of occupational burnout of public administration employees based on the dependent variable

In this part of the study, the respondents (public administration employees) amount to 19,196, including 17,829 in the target voivodeships. The most numerous are the inhabitants of Śląskie (21.8%), Zachodniopomorskie (15.4%), and Łódzkie (14.5%). In terms of age, the surveyed group is dominated by people under 40 (55.5% of respondents), while people over 60 years old constitute only 2.5% of all respondents. Women dominate the surveyed group – 77.1%. Burnout was diagnosed in 31.3% of the respondents, and most of them (52%) had severe burnout.

Figure 1 shows, in spatial terms, the percentages of respondents who, based on the developed mental health self-diagnosis tool, were diagnosed with occupational burnout or its absence.

The analysis of these percentages shows that the biggest number of people with problems in this respect was observed in Kujawsko-Pomorskie Voivodeship (39.7%), and the least number was in Łódzkie Voivodeship (16.4%). In the remaining surveyed voivodeships, the percentage of people diagnosed with occupational burnout ranges from 12.1% (Lubuskie Voivodeship) to 30.3% (Dolnośląskie Voivodeship). On the other hand, in eight voivodeships included in the *Other* category (in

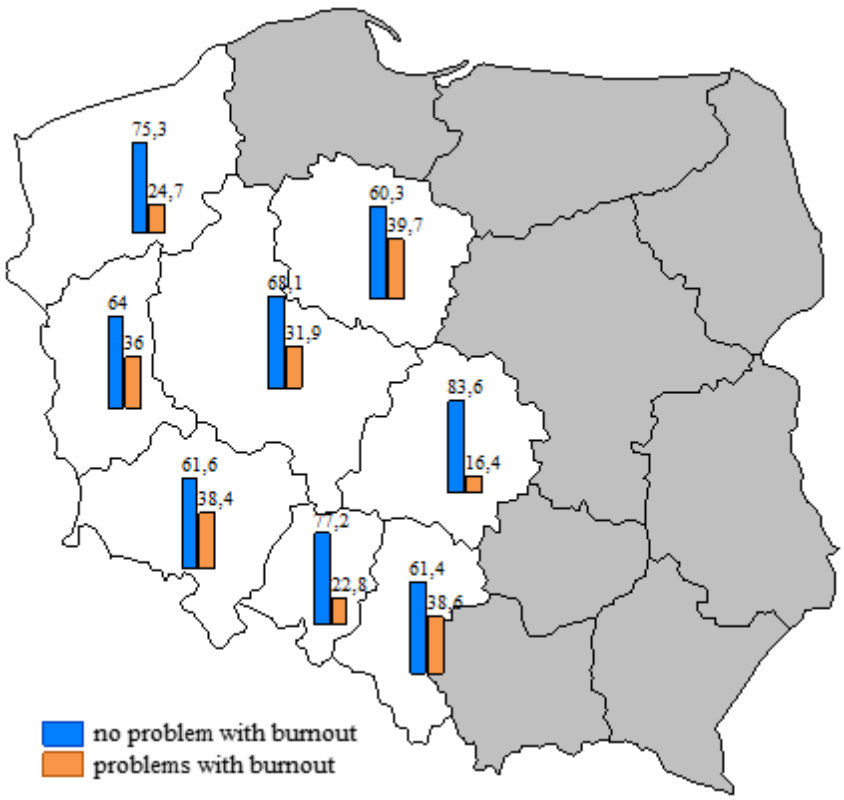

Fig. 1. Percentage of respondents diagnosed with professional burnout or not, in spatial terms
Source: own study

grey in Fig. 1), the percentage of respondents with occupational burnout is 41.7%.

Comparing the structures of respondents presented in Fig. 1, it can also be observed that in some voivodeships these structures are similar to each other, and in others they differ significantly. Therefore, it was decided to build a classification tree for the dependent variable , in which the place of residence (voivodeship), gender, and age were taken into account in the set of independent variables in order to identify the reasons for those similarities and differences. To that end, the CHAID algorithm programmed in the *Statistica* 13.1 package was used, adopting the assumptions set automatically in the program, except for the stop parameter (stop criterion) related to the minimum number of respondents in separated segments. The decision to build trees for various minimum numbers was made after analysing the trees obtained for the minimum number, set automatically at 1,919 – 10% of the studied set size. It turned out that the constructed tree consisted of six shared nodes and nine end nodes, yet none of the end nodes was dominated by the variant of the dependent variable (): occupational burnout. Therefore, it was not possible to identify the variants of the independent variables that affect the burnout of the respondents. For this reason, the form of classification trees obtained for the following minimum numbers (min *n*) was checked: 1500, 1000, 500, 200, 100. Out of these trees, only in two cases (min $n = 1500$ and min $n = 1000$) was one terminal node (segment) distinguished with the dominant variant "burnout" for the dependent variable. These trees had the same number of shared nodes (eight) and the same number of end nodes (12), but in the case of a tree for min $n = 1500$, the risk assessment measure obtained in the model validation process using ten-fold cross-validation was lower. Therefore, this tree was selected for further analysis (Fig. 2).

Interpreting the obtained classification tree (Fig. 2), the following conclusions were formulated, emphasising the spatial differentiation of the surveyed respondents due to occupational burnout and the lack of occupational burnout:

- in the Zachodniopomorskie and Opolskie Voivodeships, 75.9% of respondents did not have a problem with occupational burnout; the same applied to 68.1% of the respondents living in the Wielkopolskie Voivodeship,
- in the Łódzkie Voivodeship, 80.9% of women and 88.4% of men did not experience the problem of burnout,
- in the Kujawsko-Pomorskie Voivodeship and the voivodeships belonging to the *Other* category, the percentage of respondents who do not have problems with burnout depended on age: for people up to 40 years old it was 56.8%, and for people aged 40–59 it was 62.6%, and at the age of 60+ it concerned 76.7% of respondents,
- in Dolnośląskie and Lubuskie Voivodeships, the percentage of respondents without problems with burnout was 61.4% for people under 40 and 60 and over, while for people aged 40–59 it was slightly higher and amounted to 63.5%
- in the Śląskie Voivodeship, the lack of occupational burnout concerned 67.4% of respondents aged under 40 and aged 60+, and 55.7% of women aged 40–59, while 54.3% of men from this voivodeship aged 40–59 years had problems with burnout.

Study of occupational burnout intensity of public administration employees based on the dependent variable

This part of the article focuses on assessing the degree of occupational burnout among public administration employees, i.e., the surveyed group was limited to 6,012 respondents. The most people diagnosed with occupational burnout live in the Śląskie Voivodeship (26.9%), and the fewest in the Lubuskie Voivodeship (4.1%). The analysed group is dominated by women (78.8%) and people up to 40 years old (56.2%). The degree of occupational burnout is determined by four variants of the dependent variable (): 4, 5, 6, 7. Option 4 shows the smallest problem with occupational burnout, while option 7 shows the biggest problem in this respect.

Figure 3 shows, in spatial terms, the percentages of respondents with different levels of occupational burnout. The analysis of these percentages shows that the respondents from the Śląskie Voivodeship have the most significant problems with burnout (burnout at level 7 was diagnosed in 64.9% of

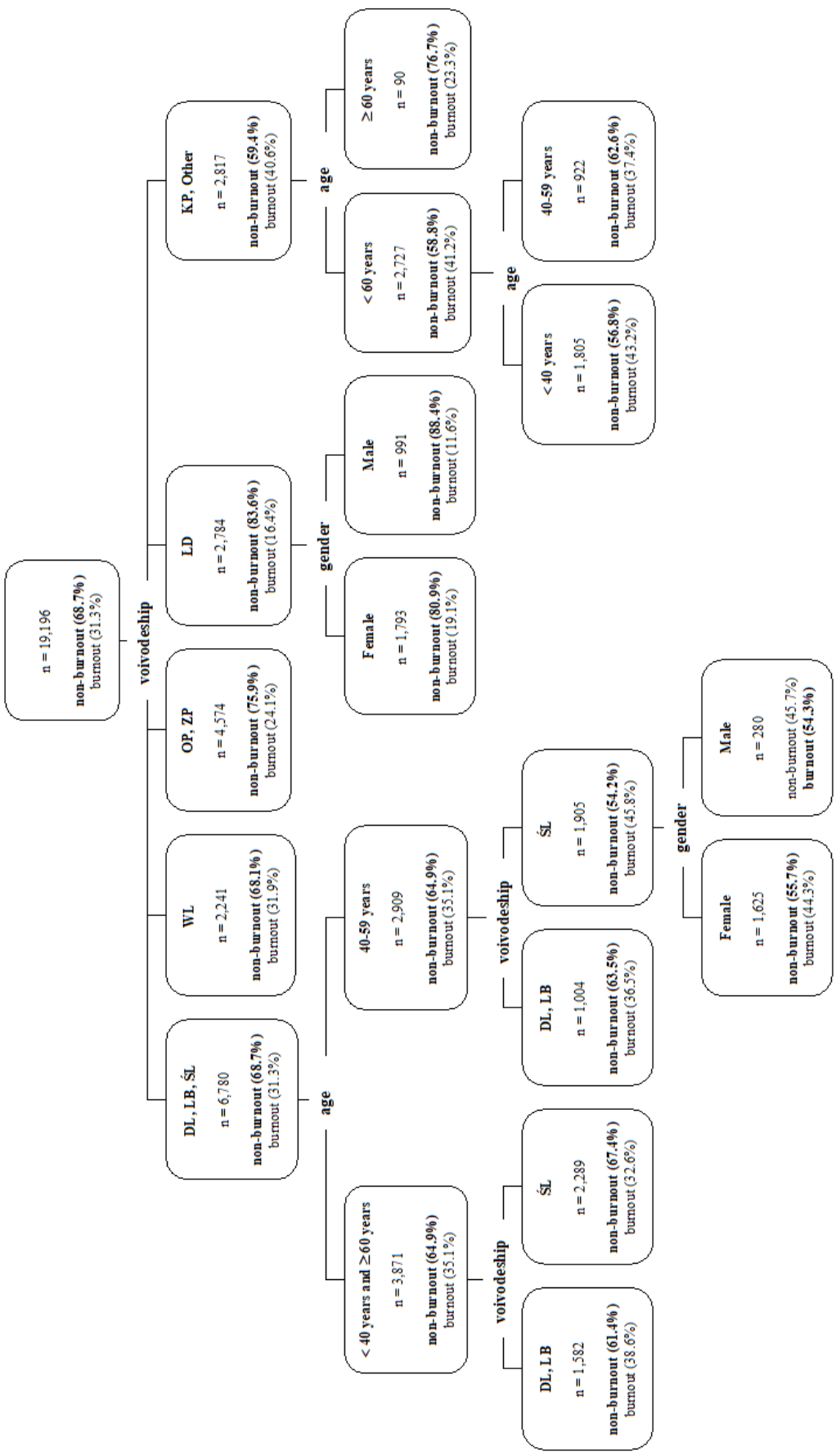

Fig. 2. Classification tree for the dependent variable including place of residence, age and gender of respondents
Source: own study

respondents), and the smallest problem is found among respondents from the Kujawsko-Pomorskie Voivodeship (burnout at level 7 was diagnosed in 15.8% of respondents). In the remaining voivodeships, the percentage of people with burnout at the level of 7 ranges from 20.3% (Opolskie Voivodeship) to 25.3% (Zachodniopomorskie Voivodeship). On the other hand, in eight voivodeships included in the category *Other* (in Fig. 3 marked in grey), the percentage of respondents with the most significant problems in terms of occupational burnout is 24.9%.

Similar to the first part of the study, based on Fig. 3, one can notice similarities and significant differences in distribution of respondents' according to the degree of occupational burnout in spatial terms. Therefore, it was decided to build a classification tree for the dependent variable , in which the place of residence (voivodeship), gender and age were included in the set of independent variables in order to identify the reasons for those similarities and differences. To that end, the CHAID algorithm programmed in the *Statistica* 13.1 package was used – the tree selection process for further analysis was the same as for the dependent variable . It turned out that the best tree among the trees built for the minimum numbers of 600, 500, 400, 300, 200, 100 is the tree obtained for minimum n = 100 (Fig. 4). This tree consists of five shared nodes and nine end nodes. In these nodes, either variant 4 (the least problem with occupational burnout) or variant 7 (the most significant problem with occupational burnout) of the dependent variable dominates.

By interpreting the obtained classification tree (Fig. 4), the following conclusions were drawn:

in Dolnośląskie, Łódzkie and Opolskie Voivodeships, among the surveyed respondents, an almost even distribution of the degree of occupational burnout can be observed, with a slight dominance of variant 4 (the smallest problems with occupational burnout), for which the percentage of respondents was, respectively, 31.3% (for people under 40 years of age and aged 60+) and 28.5% (for people aged 40–59); in these voivodeships the greatest problems with burnout (variant 7) were experienced by people aged 40–59 – the percentage of respond-

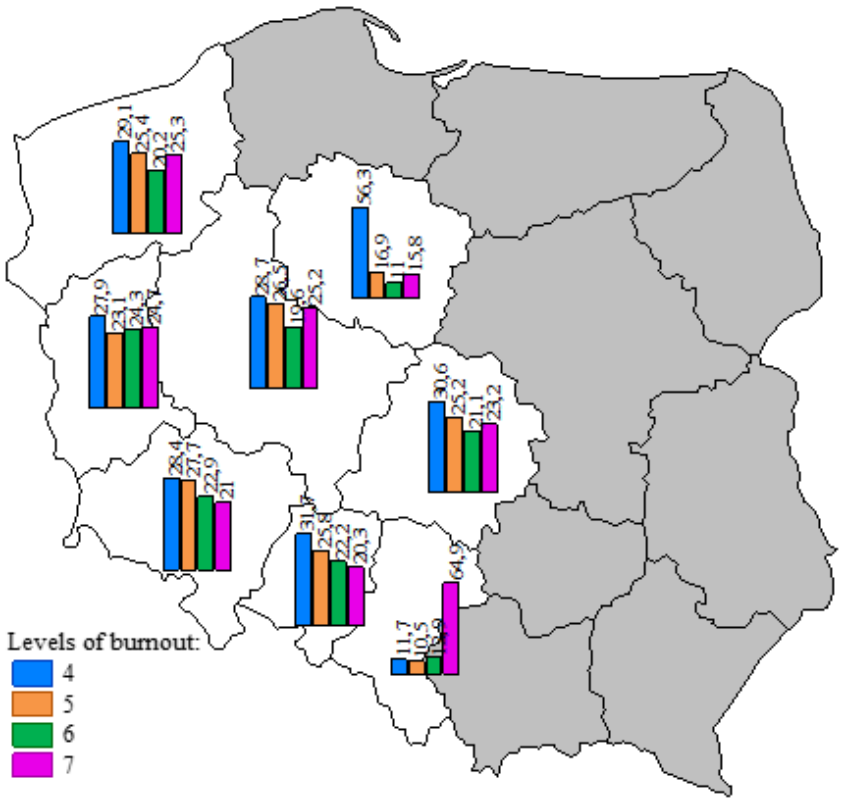

Fig. 3. Structure of respondents by level of professional burnout, in spatial terms
Source: own study

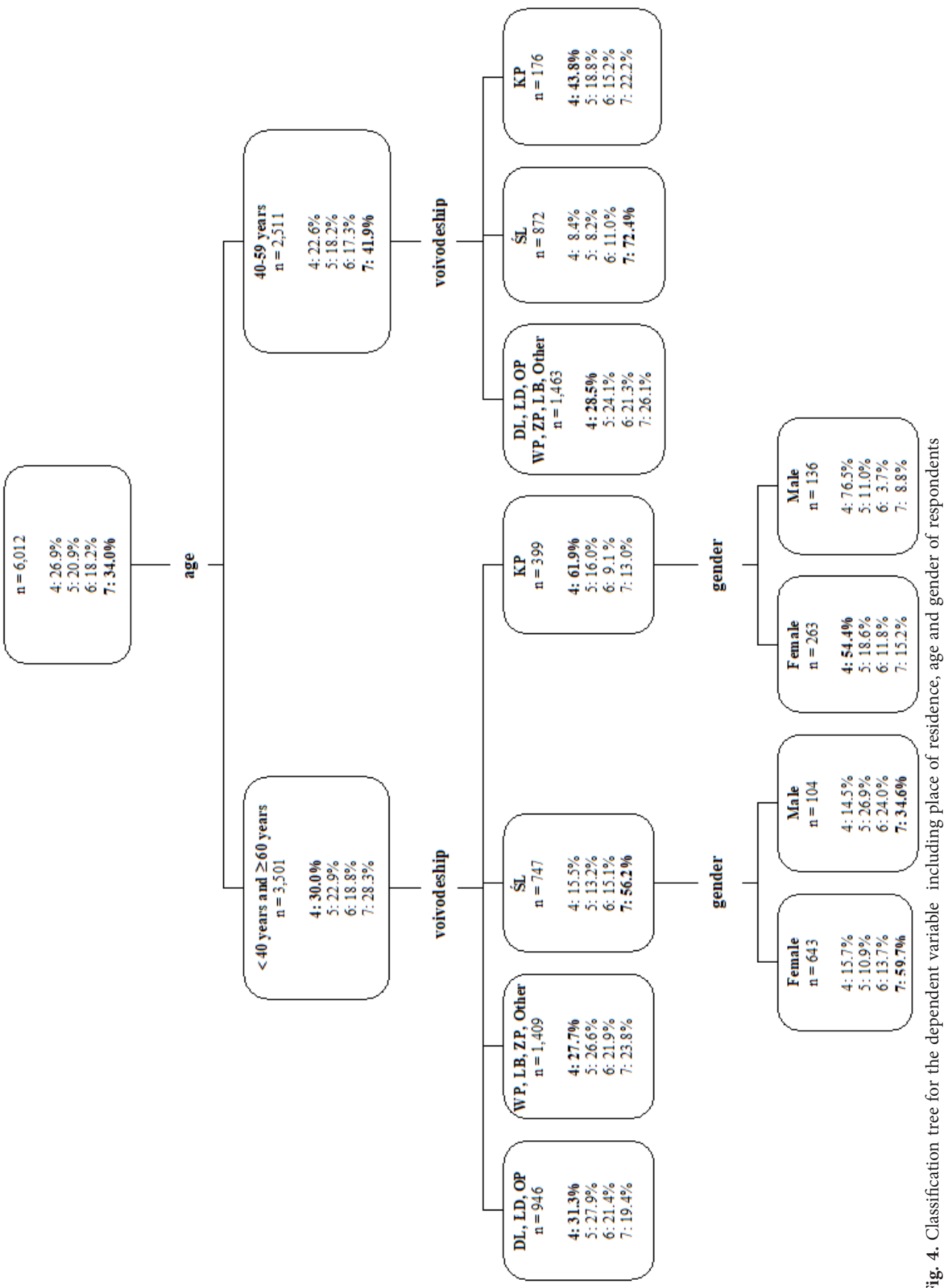

Fig. 4. Classification tree for the dependent variable including place of residence, age and gender of respondents
Source: own study

ents for this variant of the variable subsidiary was 26.1%,

- the situation in the provinces of Lubuskie, Wielkopolskie, Zachodniopomorskie and in *Other* was similar to the above voivodeships, and the only difference was in the percentage of respondents aged under 40 and aged 60+, which for these voivodeships was 27.7%,
- the highest level of occupational burnout (option 7) concerned the inhabitants of the Śląskie Voivodeship (72.4% of respondents) aged 40–59; the respondents from other age groups also had significant burnout problems in this voivodeship, but the percentage for variant 7 of the dependent variable was 59.7% among women, and 34.6% among men,
- the lowest degree of occupational burnout (variant 4) concerned the respondents living in the Kujawsko-Pomorskie Voivodeship, with 76.5% of men and 54.4% of women under 40 and aged 60 and over, while for the respondents aged 40–59 (regardless of gender), the percentage for variant 7 of the dependent variable was 43.8%.

5. Conclusions

The classification trees used in the research allowed respondents from the researched professional group to be grouped in terms of degree of occupational burnout, taking into account the place of residence (voivodeship), gender and age. On this basis, the following general conclusions were formulated:

1. In all the voivodeships surveyed apart from the Śląskie Voivodeship, the majority of public administration employees who participated in the survey believe that they are not at risk of professional burnout.
2. In the Śląskie Voivodeship more than half of the men aged 40–59 have diagnosed themselves with professional burnout.
3. Considering the degree of occupational burnout, two variants (4 and 7) were identified that indicate the lowest and highest degree of burnout.
4. The highest degree of burnout, regardless of gender, concerned the inhabitants of the Śląskie Voivodeship aged up to 40 and 60+. In the remaining voivodeships, a lower degree of burnout prevailed.
5. The most significant number of people with occupational burnout problems was observed in the Kujawsko-Pomorskie Voivodeship; however, the degree of occupational burnout was low among the respondents from this voivodeship (variant 4).
6. The lowest number of people with occupational burnout was diagnosed in the Łódzkie Voivodeship. The degree of occupational burnout among the respondents was evenly distributed, i.e., almost every fourth respondent had minor problems with burnout, and every fourth had very high problems.

Summarising the above conclusions, it should be noted that in the analysed voivodeships, the majority of public administration employees who took part in the research are not at risk of professional burnout. However, thanks to the methods applied, it was possible to distinguish groups of public administration employees who were diagnosed with professional burnout problems. It turned out that the highest proportion of those working in public administration in a single voivodeship that have problems with professional burnout are found in the Kujawsko-Pomorskie Voivodeship, but most of those have the lowest level of professional burnout. Therefore, it would be useful to characterise more precisely the group of these respondents in order to identify the reasons for this, and thus prevent this phenomenon from worsening among these people. Special attention should be paid to those responsible for public administration employees, and men between the ages of 40 and 59 living in the Śląskie Voivodeship deserve special attention. For these employees, it is worth carrying out an additional study to explain the reasons for such a high level of professional burnout.

The literature on the subject often emphasises that occupational burnout has been recognised as the greatest threat to economically active people in the 21st century. This threat has both a social and an economic dimension. The work of people who have been diagnosed with occupational burnout is often of lower quality, and their productivity is lower. Significant burnout can lead to depressive conditions, and this in turn creates costs associated with absence from work and with the process of treating

depression. The social and economic costs of occupational burnout are so high that there is a need for broad scientific discourse in this regard and the search for measurement tools that would allow the identification of regularities related to this phenomenon. According to the authors, this article, proposing the application of multidimensional statistical analysis methods to study mental health based on individual, unique data from eight Polish voivodeships, is a part of this research trend.

References

Anczewska, M. Świtaj, P. and Roszczyńska, J. (2002). Wypalenie zawodowe. *Postępy Psychiatrii i Neurologii*,14(2): 67-77.

Arches, J. (1991). Social structure, burnout, and job satisfaction. *Social Work*, 36(3): 202-207.

Bakker, A.B. Demerouti, E. and Euwema, M.C. (2005). Job Resources Buffer the Impact of Job Demands on Burnout. *Journal of Occupational Health Psychology*, 10(2): 170–180. DOI: https://doi.org/10.1037/1076-8998.10.2.170

Bakker, A.B. and Costa, P.L. (2014a). Chronic job burnout and daily functioning: A theoretical analysis. *Burnout Research*, 1: 112-119. DOI: http://dx.doi.org/10.1016/j.burn.2014.04.003

Bakker, A.B. Demerouti, E. and Sanz-Vergel, A. (2014b). Burnout and work Engagement: The JD–R. *Approach Annual Review of Organizational Psychology and Organizational Behaviour*, Vol. 1: 389-411. DOI: https://doi.org/10.1146/annurev-orgpsych-031413-091235

Basińska, B.A., and Gruszczyńska, E. (2019). Emocje a wypalenie zawodowej urzędników administracji publicznej: testowanie kształtu relacji w modelach poprzecznych i podłużnych. *Medycyna Pracy,* 70(2), 201-2011. DOI: https://doi.org/10.13075/mp.5893.00750

Chirkowska-Smolak, T. (2009). Organizacyjne czynniki wypalenia zawodowego, *Ruch prawniczy, Ekonomiczny i Socjologiczny*, LXXI, 4: 257-272.

Demerouti, E. Bakker, A.B. Nachreiner, F. and Schaufeli, W.B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3): 499–512. DOI: https://doi.org/10.1037/0021-9010.86.3.499

Diener, E. Colvin, C.R. Pavot, W.G. and Allman, A. (1991). The psychic costs of intense positive affect. *Journal of Personality and Social Psychology*, 61(3): 492–503. DOI: https://doi.org/10.1037/0022-3514.61.3.492

Durka, W. (2018). *Ocena kondycji psychicznej. Raport końcowy dotyczący zastosowania narzędzia samooceny zdrowia psychicznego*. Stowarzyszenie Czas Przestrzeń Tożsamość, Warszawa-Szczecin.

Eurofound: Sixth European Working Conditions Survey – Overview report. Publications Office of the European Union, Luxembourg (2017). https://www.eurofound.europa.eu/publications/report/2016/working-conditions/sixth-european-working-conditions-survey-overview-report

Gatnar, E. and Walesiak, M. (2004). *Metody statystycznej analizy wielowymiarowej w badaniach marketingowych*. Wydawnictwo AE, Wrocław.

Gatnar, E. (2008). *Podejście wielomodelowe w zagadnieniach dyskryminacji i regresji*. Wydawnictwo Naukowe PWN. Warszawa.

Hakanen, J.J. Bakker, A.B. and Jokisaari, M. (2011). A 35-year follow-up study onburn-out among Finnish employees, *Journal of Occupational Health Psychology*, 16: 345–360. DOI: http://dx.doi.org/10.1037/a0022903

Leiter, M.P. Harvie P. and Frizzell, C. (1998). The correspondence of patient satisfaction and nurse burnout. *Social Science & Medicine* 47 (10): 1611-1617.

Lloyd, C. King, R. and Chenoweth, L. (2002). Social work, stress, and burnout: A review. *Journal of Mental Health*, 11: 255-265. DOI: 10.1080/09638230020023642

Ostrowska, M. and Michcik, A. (2013). Wypalenie zawodowe – przyczyny, objawy, skutki, za-pobieganie, *Bezpieczeństwo Pracy – Nauka i Praktyka*, 8(503): 22-25.

Nahrgang, J.D. Morgeson, F.P. and Hofmann, D.A. (2011). Safety at Work: A Meta-Analytic Investigation of the Link Between Job Demands, Job Resources, Burnout, Engagement, and Safety Outcomes. *Journal of Applied Psychology*, 96(1): 71-94. DOI: http://doi.org/10.1037/a0021484

Pluta, A. (2015). Organizacja działająca pod presją czasu – szanse i zagrożenia. *Studia i Prace Wydziału Nauk Ekonomicznych i Zarządzania Uniwersytetu Szczecińskiego*, 39/4: 263-276.

Schaufeli, W.B. Maassen, G.H. Bakker, A.B. and Sixma, H.J. (2011). Stability and change in burnout: A 10-year follow-up study among primary care physicians. *Journal of Occupational and Organizational Psychol-*

ogy, 84, 248–267. DOI: http://dx.doi.org/10.1111/j.2044-8325.2010.02013.x

Siebert, D.C. (2008). Personal and Occupational Factors in Burnout Among Practicing Social Workers: Implications for Researchers, Practitioners, and Managers, *Journal of Social Service Research*, 32(2), 25-44. DOI: http://doi.org/10.1300/J079v32n02_02

Soderfeldt, M. Soderfeldt, B. and Warg, L. (1995). Burnout in social work. *Social Work*, 40(5): 638-646.

Smith, M. Segal, J. and Robinson, L. (2019). *Burnout Prevention and Treatment, Help Guide*. https://www.helpguide.org/articles/stress/burnout-prevention-and-recovery.htm

StatSoft. (2006). *Elektroniczny Podręcznik Statystyki PL*, Kraków, WEB: http://www.statsoft.pl/textbook/stathome.html

Wolska, G. (2018). Społeczna odpowiedzialność biznesu. *Ruch Prawniczy, Ekonomiczny i Socjologiczny*, LXXX, 1: 301-310.

Wolska, G. (2019). Institutional model of corporate social responsibility. *European Research Studies Journal*, 22(4): 438-439.

Ministry of Science and Higher Education
Republic of Poland

The proofreading of articles, positively reviewed and approved for publishing in the 'Bulletin of Geography. Socio-economic Series', was financed from the funds of the Ministry of Science and Higher Education earmarked for activities popularizing science, in line with Agreement No 695/P-DUN/2018.