Environment and Social Psychology (2024) Volume 9 Issue 7
doi: 10.59429/esp.v9i7.2729

RESEARCH ARTICLE

Correlation of the technical subjects teachers burnout syndrome incidence level on the geographical teacher action in a specific region of Slovakia

Kateřina Bočková[1], Dáša Porubčanová[2,*], David Anthony Procházka[3], Roman Gawrych[4]

[1] *DTI University, Department of Economics and Management, Sládkovičova 533/20, 018 41 Dubnica nad Váhom, Slovakia*

[2] *DTI University, Department of School Didactics, Sládkovičova 533/20, 018 41 Dubnica nad Váhom, Slovakia*

[3] *University of New York in Prague, School of Business, Londýnská 41, Prague, Czechia.*

[4] *University of Social and Economics in Gdańsk, Rajska 6, 80-850 Gdańsk, Poland.*

*** Corresponding author:** Dr. Dáša Porubčanová, porubcanova@dti.sk

ABSTRACT

The presented paper discusses the incidence of burnout syndrome among secondary school teachers of technical subjects. Teachers experience burnout syndrome to an increased extent, especially with certain variables. The main goal of the paper is to map the level of burnout syndrome, specifically of emotional exhaustion, depersonalization and personal satisfaction among teachers of technical subjects. Specifically, we analysed the incidence of burnout among technical subjects in the context of all self-governing regions of Slovakia. The research sample consisted of 213 technical subject teachers working at secondary vocational schools of primarily technical orientation in various self-governing regions of Slovakia. Data collection was carried out using the MBI-ES online questionnaire. Statistical analyses were used to evaluate the results of the questionnaire survey. The results show that teachers of technical subjects experience burnout to a moderate degree, statistical significance is observed in the degree of burnout, specifically in the factor of personal satisfaction, in connection with teachers acting in different self-governing regions of Slovakia.

Keywords: burnout syndrome; teacher; technical subjects; self-governing region; Slovakia

1. Introduction

Burnout syndrome is a reaction to a long-term stress associated with emotional strain and intensive work with people. It concerns all those who work in “"human” professions[1,2,3], and therefore also teachers[4,5].

We were based on the knowledge of various authors who defined that gender, e.g. Redondo-Flórez et al. [6], type of employment, e.g. Seibt-Kreuzfeld[7], age, e.g. Stanetić and Tešanović[8], working experience, e.g. Jamaludin and You[9] and type of high school, e.g. Ribeiro et al. [10] have an impact on burnout level. But above all, we focused on an area where we did not identify a lot of research, and thus mapping the general level of burnout among secondary school teachers and at the same time comparing the level of burnout in different regions where teachers of technical subjects work.

ARTICLE INFO
Received: 02 April 2024 | Accepted: 22 April 2024 | Available online: 16 May 2024

CITATION
Bočková K, Porubčanová Dáša, Procházka DA, et al. Correlation of the technical subjects teachers burnout syndrome incidence level on the geographical teacher action in a specific region of Slovakia. *Environment and Social Psychology* 2024; 9(7): 2729. doi: 10.59429/esp.v9i7.2729

We perceive burnout syndrome as a popular current topic that many people face, but especially those who are in daily contact with people[11]. **Therefore, the essential of presented paper is to map the level of burnout syndrome, emotional exhaustion, depersonalization and personal satisfaction, among teachers of technical subjects working in secondary schools in different regions of Slovakia**. Specifically, we investigated the level of burnout syndrome and the aforementioned factors in a heterogeneous sample of teachers who differed in gender, type of employment, age, working experience, self-governing regions, and types of secondary school. In the paper, we try to verify the relevance of the claims of various authors, for example, da Silva and Mello[12], Lesko[13] or Ortiz et al. [14] and to supplement the knowledge in areas where there is a discrepancy of opinions or which have not yet been examined.

Due to the work orientation and the probability of a high incidence of burnout syndrome, the most risky professions include those whose main feature is working with people, high demands and responsibility, their dependence on evaluation and a long-term negative balance. Several professional publications, for example, Marin et al.[15] or Rokach[16] state that health care is in first place, education is in second place, then there are some positions in the economy, social care, and services[17]. It should also be noted that fulfilling tasks in the family can be another factor that increases the risk of burnout[18,19].

Burnout syndrome in teachers is defined by Poschkamp[20] as "*a process of extreme emotional and physical exhaustion with a simultaneous cynical, distancing attitude and reduced performance as a result of chronic emotional and interpersonal stress during intensive commitment to other people".* At the same time, he claims that it occurs in professions in which a person comes into emotional contact with persons who are dependent on him. And this emotional burden that characterises the working profession.

Burnout syndrome threatens all those who have a strong motivation and an excessive level of enthusiasm. Teachers who expect their work being the meaning of life and who understand it more as a profession than a job[21]. Bártová[21] somewhat identifies with Poschkamp[20], because he realises that many people get into stressful situations, but burnout appears only in people who have high goals, expectations, strong motivation, and frequent contact with other people.

Skaalvik and Skaalvik[22] point out the difficulty in the working profession not only on the basis of stressful situations. They consider the relations among teachers, the relationships between teachers and parents, and school authorities to be sources of burden. At the same time, they perceive the roots of the burden in the psychological burden of teachers in working, in preparing for working and in evaluating student works.

Burnout syndrome is often referred to as the "*phenomenon of the first years in employment".* After initial high expectations, strong passion, and idealisation of work and job position, real reality often sets in, which can cause frustration and disappointment among teachers[23].

1.1. Causes of burnout in teachers

Teachers who take a strict approach to themselves are more at risk of burnout[24].

Permanent risk factors include doubt about one's own abilities and fear of not meeting demands, both in personal and professional life[25]. Another factor is the tendency to react to stress by getting upset rather than looking for long-term solutions. Such behaviour prevents people from being mentally relaxed. In difficult situations, these people prefer to stay in motion, not stop, and reassess their problems. Many feel the need to function as if nothing has happened, even though this may be at the expense of their own health and psychological well-being[26,27].

Rohmer et al. [28] or Marič et. al. [29] state that several determinants contribute to the emergence of burnout in the working profession. They see the connection between solving and managing problems, the nature of the work, and the possibilities of the teacher on an individual level.

In their research study, Juárez and Becton[30] focus in detail on four areas that teachers consider to be a potential threat.

- Individual psychological causes are related to the individual's personality and influence his reaction to stress. People with a reactive attitude are more prone to stress and may transfer their responsibility to others. On the other hand, a proactive personality tries to create his life with an orientation to the present and accept responsibility for his actions. Negative thinking is also a psychological threat because the way a person thinks and acts about events has an impact on his psychological state. Loss or inability to find daily meaning in daily work can contribute to burnout.
- Individual physical causes represent an area that includes the body's insufficient resistance to stress and an unhealthy lifestyle (alcohol consumption, smoking, being overweight, etc.).
- Institutional causes are factors associated with the school environment that can disrupt the interaction between teacher and student. Relationships between teachers and pupils, where negative attitudes of pupils towards school work prevail, problems with discipline, aggressiveness of pupils, educational problems, different levels of pupils in the class can cause stress. As a fundamental institutional factor, Skaalvik and Skaalvik[22] consider the interaction between the teacher and the subject, where stress can occur as a result of the excessive demands of the subject matter, the lack of textbooks or problems with the mediation of the subject matter, etc. The influence of the working staff on teacher stress is not less significant, as lack of social support, absence of a friendly atmosphere, or lack of cooperation can contribute to teacher stress. Other factors include, for example, unsatisfactory premises, poor lighting, high noise levels, or a harmful climate in the building.
- Social causes are related to our society and culture. One of such factors may be the general inability of parents to raise their children and maintain a healthy relationship with them. This can lead to problems in family relationships that can have a negative impact on the psychological health of individuals. Another factor can be the harmful influence of the media, various advertisements, presenting false images, which can weaken family education and cause problems in society. In addition, the lack for social appreciation of the working profession also contributes to the stress and frustration of teachers who feel undervalued. All these social factors can have an impact on the psychological health of individuals, especially children and young people. Therefore, it is important to make efforts to improve family relations and family education, as well as to increase the social importance and evaluation of the working profession.

As we have already stated, it is also important to be aware of the negative influence of the media and to ensure a healthy, reasonable, and balanced approach to information.

These conclusions are correlated with the findings of Posada - Quintero et al.[31] (2020), Mijakoski et al.[32] or Simões and Calheiros[33].

There are several explanations for the causes of burnout. This is a complex problem, the basis of which are multifactorial. Personality traits, such as striving for excellence, perfectionism, and an inflexible value system, are risk factors for burnout. An inappropriate organisational structure in the workplace, with an excessive number of tasks and combined with insufficient financial remuneration, can also contribute to the emergence of burnout. A high degree of dependence of students and parents on teachers can be another cause

that affects burnout. Therefore, it is important that we know, understand, and explain all possible causes, which are important parts of the overall view of the problem of burnout[20].

1.2. Symptoms of burnout in teachers

"Among the most common symptoms of burnout syndrome are depression, indifference, cynicism, significant reduction of contacts, more frequent sickness, loss of meaningfulness of work, loss of self-confidence" [34].

The symptoms of burnout in teachers are characterised in the handbook for educators at four levels[20,35,36]:

- The physical level includes loss of energy, physical exhaustion, chronic fatigue, lack of sleep, weakened immunity, circulatory and digestive system problems, eating disorders, headaches, muscle, etc.
- The cognitive level manifests itself by symptoms of reduced or limited thinking ability, poor concentration and memory, inaccuracy, inability to perform complex tasks, loss of flexibility.
- The emotional level specifies negative emotional states. These are feelings of exhaustion, overload, apathy toward students and colleagues, reduced self-esteem, depression, frustration, self-pity, negativism towards oneself, towards work, towards society and towards life, fear of going to work, preference for routine, stereotype in expression, feeling of helplessness and futility to suicidal tendencies.
- The level of behaviour specifically describes the behaviour of the person in question. Typical symptoms are a decline in enthusiasm, cynicism, reduced performance, frequent conflicts with others, apathy, increased aggressiveness, avoidance of social contacts, and even isolation, conflicts in private and family environments, increased consumption of caffeine, nicotine, drugs, etc.

"Burn-out or burnout syndrome among teachers is becoming more and more common these days. Symptoms such as a chronic state of exhaustion, suppression of previous activity, initiative, and creativity is a frequent phenomenon in education. With burnout comes a change in attitude towards the activity to which a person is fully engaged - from initial enthusiasm to indifference and finally to resistance" [37].

We cannot forget the fact that the symptoms of burnout in teachers are manifested not only at the individual level of the individual, but are also reflected in the quality and quantity of the work performed, and especially in relationships with other people (students, colleagues, parents, the wider environment).

Therefore, we must state that it is extremely important to address the issue of the burn out syndrome on a theoretical as well as a research level.

2. Materials and methods

Burnout syndrome is currently a serious problem that teachers working at secondary technical schools also face. Teachers experience burnout to a greater extent than other people in the population. Certain variables such as gender, type of employment, age, working experience, working at a certain type of high school contribute to how high or low the burnout degree is. We observe several studies dealing with these variables, trying to verify the relevance of the claims of different authors, to enrich areas of science and research where there is not a lot of reliable evidence, and especially to contribute to areas where the opinions of experts differ, and thus a discrepancy occurs. Based on the aforementioned, the main goal of the work is to map the degree of burnout syndrome, emotional exhaustion, depersonalization and personal satisfaction, among teachers working at secondary technical schools living in different self-governing regions of Slovakia, and to make a comparison between the mentioned groups.

2.1. Research questions and hypothesis

Considering the goal of the paper, we formulate the following research questions with argumentation:

We observe an insufficient amount of current research dealing with the level of burnout among technical subjects secondary school teachers working in Slovakia. We are interested in mapping the current state, according to the recommendations of Mukundan et al. [38].

RQ1: What is the degree of burnout syndrome - emotional exhaustion, depersonalisation, personal satisfaction - of technical subjects secondary school teachers in Slovakia?

We did not observe any research on the level of burnout syndrome of teachers working technical subjects at secondary technical schools working in different self-governing regions of Slovakia. Based on this, we try to contribute with the obtained information, especially to this area of research.

RQ2: There is a difference in the level of burnout syndrome, emotional exhaustion, depersonalisation and personal satisfaction, between technical subjects secondary school teachers working in different self-governing regions of Slovakia (Bánská Bystrica region, Prešov region, Žilina region, Košice region, Nitra region, Trenčín region, Trnava region, Bratislava region)?

2.2. Research processing

We used the MBI-ES – Maslach Burnout Inventory - Educator Survey method[39,35]. Despite the popularity of the questionnaire abroad and the efforts of the Slovak authors, e.g. Ráczová and Koverová[40] or Novocký and Orosová[41], it has not yet been adapted and standardised in a representative research sample in Slovakia[42].

The questionnaire generally maps the level of burnout. It contains 22 reporting sentences in which teachers subjectively evaluate the intensity of the experienced reality on a seven-point scale (0 – not at all, 7 – very strongly).

Maslach[39] identified three factors within burnout syndrome:

- emotional exhaustion – EE: Emotional exhaustion examines the subjectively perceived level of emotional exhaustion. It is a basic component of burnout syndrome, which is manifested by loss of appetite for life, loss of motivation, lack of strength, etc.
- depersonalisation – DP: Depersonalisation examines the degree of impersonal reactions and the degree of reduced empathic reactions towards pupils, parents, and colleagues. It is characterised by a strong need for reciprocity from the people around it.
- personal satisfaction – PA: Personal satisfaction examines the measure of personal performance, satisfaction.

With the questionnaire, we do not obtain a total score, but the points obtained in individual factors, while we were based on the degrees of the areas of Montano et al.[35]. Burnout syndrome correlates with high values of emotional exhaustion and depersonalisation, and, conversely, low values of personal satisfaction correlate with low levels of stress and burnout[43,44].

In addition, the online questionnaire included variables such as gender, age, working experience, type of secondary school where they teach, type of employment. Reliability values (internal consistency) are shown in **Table 1**. We note that all values reach the minimum required reliability (α=0.700).

Table 1. Reliability as the internal consistency of the instrument in our research, in the areas of emotional exhaustion, depersonalization and personal satisfaction.

Area	Cronbach´s α
EE	0.941
DP	0.832
PA	0.852

*(**Source:** own)*

2.3. Research sample

The research sample was created by a combination of random and deliberate selection. We deliberately approached secondary school teachers working in Slovakia who were willing to voluntarily fill out an online questionnaire via the Internet - emails and social networks. The questionnaire survey took place between October and November 2023.

The participants were familiar with the research purposes, they gave us informed consent for data processing. We strived for anonymity and objectivity.

The heterogeneous sample consisted of 213 secondary school teachers, while their number varied in the range of 209-213 in each question. The research sample differed in gender, age, working experience, type of employment, which are factors irrelevant to our research, and the region in which they work. The distribution of the respondents according to the self-governing regions of Slovakia is presented in **Figure 1**.

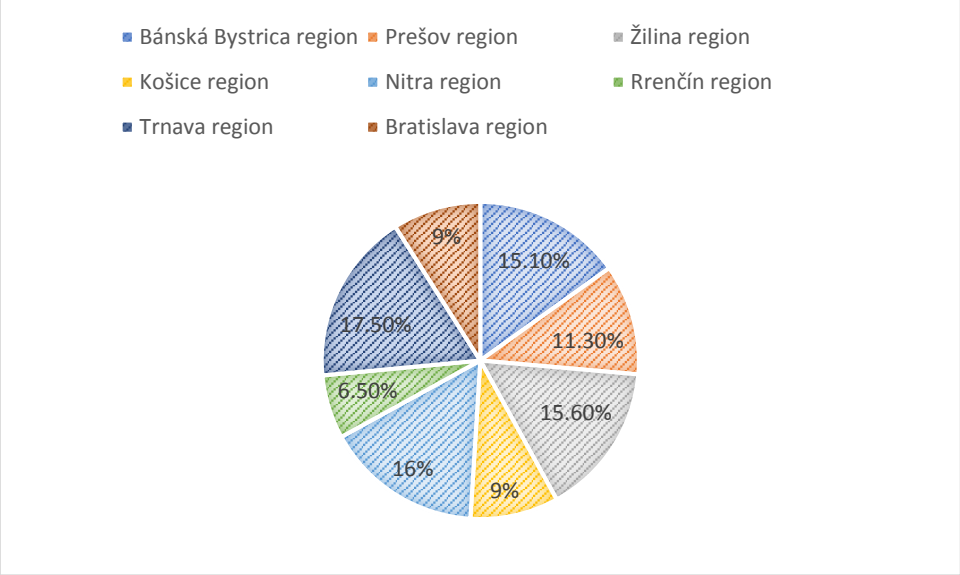


Figure 1. Distribution of the research sample based on the region in which the respondents work (212 responses) (Source: own)

2.4. Research methods

We developed the data set in Microsoft Excel 2014 and later worked in JASP 0.17.1. We calculated the reliability (as the internal consistency of the instrument) of the questionnaire areas EE, DP, PA. We verified the fulfilment of the prerequisites in order to be able to adequately use certain statistical methods. Subsequently, we worked with the data as non-parametric. We performed descriptive statistics of the EE, DP, and PA areas of the entire research sample. Due to the fact that we compared several groups, i.e. self-governing regions in which analysed respondents work, we used MANOVA, on the basis of which we later based ANOVA. In the

case of statistical significance, we also performed Post Hoc testing; the authoritative indicator of the effect size was Cohen's d. We evaluated the results at the level of significance p <0.05. Later, we added descriptive processing of statistically insignificant data.

3. Results

We carried out descriptive statistics of the degree of burnout syndrome - emotional exhaustion, depersonalization and personal satisfaction, of technical subjects secondary school teachers working in Slovakia, which can be found in **Table 2**.

Table 2. Descriptive statistics of emotional exhaustion, depersonalization and personal satisfaction among technical subjects secondary school teachers in Slovakia (N=212)

	EE	**DP**	**PA**
arithmetic mean (AM)	25.750	7.981	36.311
standard deviation (SD)	15.455	6.791	9.002
kurtosis	0.330	0.923	-0.357
SD of kurtosis	0.167	0.167	0.167
exces	-0.742	-0.065	-0.263
SD of exces	0.333	0.333	0.333
Minimum	0.000	0.000	11.000
Maximum	62.000	29.000	56.000

*(**Source:** own)*

In the area of emotional exhaustion, teachers reach an average value of AM=25.750, while they are in the middle, with a mild degree of burnout (17-26). At the same time, they achieve an average AM score of 7.981 in the area of depersonalization, and therefore are in the middle, mild degree of burnout (7-12). In the area of personal satisfaction, they obtained an average value of AM=36.311, which includes a moderate degree of burnout (38-32).

Based on the fulfilled conditions of emotional exhaustion, depersonalization and personal satisfaction among teachers of eight self-governing regions, in addition to the multivariate normality of the data, we applied Pillai's test. We present it in **Table 3**.

Table 3. Pillai's test of emotional exhaustion, depersonalization and personal satisfaction among teachers living in different regions of Slovakia.

Cases	**df**	**Approx. F**	**Trace$_{Pillai}$**	**Num df**	**Den df**	**p**
(Constant)	1	3100.190	0.979	3	201.000	< .001
Region	7	1.670	0.163	21	609.000	**0.031**
Residues	203					

Agenda: Num df – multiple degree of freedom; Den df – divisor of the degree of freedom

*(**Source:** own)*

Table 3 shows that there are statistically significant differences (p=0.031) in burnout syndrome - emotional exhaustion, depersonalization and personal satisfaction, between teachers working in different self-governing regions of Slovakia. Subsequent analyses show a statistically significant effect in the area of personal satisfaction (p<0.001), except in the area of emotional exhaustion (p=0.051) and depersonalisation (p=0.054).

Statistically significant data in the field of personal satisfaction are presented in **Table 4**.

Table 4. ANOVA test of personal satisfaction among teachers living in eight different self-governing regions of Slovakia.

Cases	Sum of squares	df	Middle square	F	p	ω²
Region	2114.763	7	302.109	4.098	< **.001**	0.093
Residues	14966.014	213	73.724			

*(**Source:** own)*

From **Table 4**, in addition to the statistical significance mentioned above (p <0.001), the medium to large substantive significance follows, according to ω².

Based on this, we performed post hoc tests in the area of personal satisfaction, shown in **Table 5**.

Table 5 shows that there are statistically significant differences in the degree of burnout - in the area of personal satisfaction - between secondary school teachers working in the Prešov region and secondary school teachers working in the Košice region (p=0.015), secondary school teachers working in the Žilina region and secondary school teachers working in Košice region (p=0.002), secondary school teachers working in the Košice region and secondary school teachers working in the Nitra region (p=0.003), secondary school teachers working in the Košice region and secondary school teachers working in the Trnava region (p<0.001), secondary school teachers working in Košice region and secondary school teachers working in the Bratislava region (p<0.001). Cohen's d in all cases is informed about the high material significance.

Table 5. Post Hoc tests of the comparison of regions in which secondary school technical subjects teachers work in the area of personal satisfaction.

		MD	SE	t	Cohen´s d	p_{tukey}
1	**2**	-1.729	2.319	-0.746	-0.201	0.995
	3	-2.491	2.130	-1.169	-0.290	0.940
	4	7.391	2.487	2.972	0.861	0.064
	5	-2.278	2.130	-1.070	-0.265	0.962
	6	-0.973	2.751	-0.354	-0.113	1.000
	7	-4.431	2.073	-2.138	-0.516	0.395
	8	-4.451	2.487	-1.790	-0.518	0.628
2	**3**	-0.761	2.303	-0.331	-0.089	1.000
	4	9.121	2.637	3.459	1.062	**0.015**
	5	-0.549	2.303	-0.238	-0.064	1.000
	6	0.756	2.888	0.262	0.088	1.000
	7	-2.702	2.250	-1.200	-0.315	0.931
	8	-2.721	2.637	-1.032	-0.317	0.969
3	**4**	9.882	2.473	3.996	1.151	**0.002**
	5	0.212	2.114	0.100	0.025	1.000
	6	1.517	2.739	0.554	0.177	0.999
	7	-1.940	2.056	-0.944	-0.226	0.981
	8	-1.960	2.473	-0.793	-0.228	0.993
4	**5**	-9.670	2.473	-3.911	-1.126	**0.003**
	6	-8.365	3.024	-2.766	-0.974	0.110
	7	-11.822	2.423	-4.878	-1.377	< **.001**
	8	-11.842	2.786	-4.251	-1.379	< **.001**
5	**6**	1.305	2.739	0.477	0.152	1.000
	7	-2.152	2.056	-1.047	-0.251	0.966

		MD	SE	t	Cohen´s d	p_{tukey}
	8	-2.172	2.473	-0.878	-0.253	0.988
6	**7**	**-3.458**	**2.694**	-1.283	-0.403	0.904
	8	-3.477	3.024	-1.150	-0.405	0.945
7	**8**	-0.020	2.423	-0.008	-0.002	1.000

Agenda: MD – mean difference; SE – standard error; 1 – Bánská Bystrica region; 2 – Prešov region; 3 – Žilina region; 4 – Košice region; 5 – Nitra Region; 6 – Trenčín Region; 7 – Trnava Region; 8 – Bratislava region

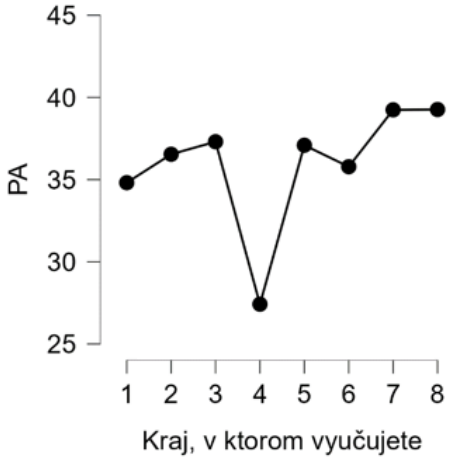
*(**Source:** own)*

Based on this, we conducted a descriptive analysis of personal satisfaction among teachers working in eight different self-governing regions, which are shown in **Table 6** and **Graph 1**.

Table 6. Descriptive statistics of the degree of personal satisfaction in the individual eight self-governing regions in which secondary school teachers work.

Region	N	AM	SD	SE	Coefficient of variation
1	32	34.813	9.842	1.740	0.283
2	24	36.542	9.519	1.943	0.260
3	33	37.303	7.435	1.294	0.199
4	19	27.421	6.760	1.551	0.247
5	33	37.091	9.661	1.682	0.260
6	14	35.786	6.830	1.825	0.191
7	37	39.243	8.160	1.341	0.208
8	19	39.263	8.491	1.948	0.216

Agenda: MD – mean difference; SE – standard error; 1 – Bánská Bystrica region; 2 – Prešov region; 3 – Žilina region; 4 – Košice region; 5 – Nitra region; 6 – Trenčín region; 7 – Trnava region; 8 – Bratislava region
*(**Source:** own)*



Agenda: 1 – Bánská Bystrica region; 2 – Prešov region; 3 – Žilina region; 4 – Košice region; 5 – Nitra region; 6 – Trenčín region; 7 – Trnava region; 8 – Bratislava region

Graph 1. Descriptive representation of the degree of personal satisfaction in the individual eight self-governing regions in which secondary school teachers work (Source: own).

Tables 7 and 8 present a descriptive analysis of burnout syndrome – emotional exhaustion, depersonalisation – of teachers working in various self-governing regions of Slovakia.

Table 7. Descriptive statistics of burnout syndrome - emotional exhaustion - of teachers of different self-governing regions.

	EE							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
N	32	24	33	19	33	14	37	19
AM	28.219	23.083	23.727	35.947	27.636	21.286	24.000	21.526
SD	16.626	15.082	12.456	15.583	16.305	13.170	17.031	12.294
Minimum	0.000	0.000	0.000	9.000	0.000	4.000	1.000	2.000
Maximum	59.000	55.000	58.000	56.000	59.000	43.000	62.000	45.000

Agenda: N – number of people in the group; AM – arithmetic mean; SD – standard deviation; 1 – Bánská Bystrica region; 2 – Prešov region; 3 – Žilina region; 4 – Košice region; 5 – Nitra region; 6 – Trenčín region; 7 – Trnava region; 8 – Bratislava region

***(Source:** own)*

Table 8. Descriptive statistics of burnout syndrome - depersonalization - of teachers of different self-governing regions.

	DP							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
N	32	24	33	19	33	14	37	19
AM	8.781	6.583	6.939	12.632	8.879	6.071	7.432	6.737
SD	6.593	5.124	5.385	7.049	8.771	5.526	6.942	6.261
Minimum	0.000	2.000	0.000	2.000	0.000	0.000	0.000	0.000
Maximum	23.000	19.000	24.000	23.000	25.000	19.000	29.000	20.000

Agenda: N – number of people in the group; AM – arithmetic mean; SD – standard deviation; 1 – Bánská Bystrica region; 2 – Prešov region; 3 – Žilina region; 4 – Košice region; 5 – Nitra region; 6 – Trenčín region; 7 – Trnava region; 8 – Bratislava region

*(**Source:** own)*

4. Discussion

Secondary school teachers working in different self-governing regions differ in their experience of burnout, especially in the area of personal satisfaction with a medium to large effect. The most significant differences are especially between teachers working in the Košice region and Bratislava region, teachers working in the Košice region and Trnava region, teachers working in the Žilina region and Košice region, teachers working in the Košice region and Trnava region, teachers working in the Prešov region and Košice region, while the mentioned order correlates with the degree of significance. Feelings of insufficient personal performance are mainly experienced by teachers in the Bratislava region, followed closely by teachers in the Trnava region. The least are teachers from the Košice region (with a significant lead compared to teachers from other regions) and teachers from the Bánská Bystrica region.

The contribution is therefore a statistical analysis of the experience of burnout among technical subject secondary school teachers who work in various self-governing regions of Slovakia. In addition to the fact that we are not aware of the implementation of research with a similar theme in Slovakia, the results also bring interesting findings. These are worthy of further research analysis.

We consider the limits of our research to be the characteristic of insufficiently variable investigated, which, according to our considerations, is related to the socially desirable responses of teachers. We follow up on the fact that a more reliable and valid source, used as a data collection method, would be an assessment questionnaire. We are aware that some distortions have occurred.

We also have a negative perception of an insufficiently heterogeneous sample in certain variables, such as gender, type of secondary type of employment. The female gender was represented by 80.2% and the male gender by 19.8%. Full-time teachers were represented by 90% compared to part-time teachers who were represented by 10%. Therefore, the data characterize the population insufficiently representatively. The emergence of the research sample, which was created by a combination of random and deliberate selection, is also related to the mentioned limits. The questionnaire was completed by the secondary school teachers who were willing to fill it out. Based on this, we also did not obtain a sample that would representatively represent the entire population representatively.

Due to the fact that we found that technical subjects secondary school teachers working in Slovakia experience burnout syndrome to a medium to high degree, it is important to focus on this population and try to prevent, or intervention measures for all teachers, regardless of variables such as age, gender, working experience, type of employment, etc.

5. Conclusion

The main goal of our research was to map the level of burnout syndrome, namely emotional exhaustion, depersonalization and personal satisfaction, among technical subjects teachers working in secondary schools. We tried to concretise the main goal in terms of specific variables, namely the operation in various self-governing regions of Slovakia. Using statistical analysis, we found that secondary school teachers experience a moderate degree of burnout. Furthermore, there is no difference in burnout experience among teachers of different sexes, different employment relationships, different ages, different lengths of working experience and working in different types of schools. Importantly, the fact that teachers differ in the degree of burnout based on the self-governing regions in which they work. We consider this finding to be the greatest contribution of our research, even considering that no reliable findings have been published in this area of science and research.

In conclusion, it can be concluded that the burnout syndrome of secondary school teachers is a current and worrying problem that deserves significant attention. It is a complex phenomenon influenced by various factors, including excessive workload, lack of support, challenging student behaviour, and organisational determinants. The consequences of teacher burnout go far beyond the teachers themselves and affect the overall quality of education.

Burnout research consistently shows that burnout negatively affects teacher performance, job satisfaction, and retention. When solving this problem, educators and policy makers must coopedegreewith teachers themselves in order to reduce the psychological and bureaucratic burden, to hear and strengthen their voice and autonomy in decision-making processes.

Furthermore, the importance of the personal level cannot be underestimated. Working is a demanding profession that requires emotional and physical health. It is essential that teachers take care of their own health and well-being. If necessary, they knew how to seek support and help and thus maintain a balance between work and private life.

Providing opportunities and resources for teachers to reflect on themselves and take care of themselves can significantly contribute to reducing the risk of burnout and improving overall well-being.

By knowing the issue of burnout syndrome and creating a supportive and empowering environment on the personal level, the level of the organization, but also the social level, we can reduce the degree of burnout among teachers. Promote a sense of professional and personal fulfilment and satisfaction with the work of teachers while at the same time creating an inclusive educational environment for students.

Author contributions

"Conceptualization, K.B. and D.P.; methodology, D.A.P and R.G...; software, K.B..; validation, K.B., D.P. and D.A.P.; formal analysis, R.G.; investigation, K.B., D.P. and R.G.; resources, K.B.; data curation, D.P.; writing - original draft preparation, K.B., D.A.P.; writing - review and editing, R.G..; visualization, D.P.; supervision, K.B.

All authors have read and agreed to the published version of the manuscript.".

Acknowledgments

The authors gratefully acknowledge DTI University, Slovakia for supporting this work.

Conflict of interest

The authors declare no conflict of interest.

References

1. García-Real, T. J., Díaz-Román, T. M., & Mendiri, P. (2024). Vocal Problems and Burnout Syndrome in Nonuniversity Teachers in Galicia, Spain. Folia Phoniatrica et Logopaedica, 76(1), 68-76. https://doi.org/10.1159/000531982
2. Serenko, A. (2024). The human capital management perspective on quiet quitting: recommendations for employees, managers, and national policymakers. Journal of Knowledge Management, 28(1), 27-43. https://doi.org/10.1108/JKM-10-2022-0792
3. Van Horn, J. E., Schaufeli, W. B., Greenglass, E. R., & Burke, R. J. (1997). A Canadian-Dutch comparison of teachers' burnout. Psychological reports, 81(2), 371-382. https://doi.org/10.2466/pr0.1997.81.2.371
4. Drouin‐Rousseau, S., Morin, A. J., Fernet, C., Blechman, Y., & Gillet, N. (2024). Teachers' profiles of work engagement and burnout over the course of a school year. Applied Psychology, 73(1), 57-92. https://doi.org/10.1111/apps.12465
5. Casinillo, L. F., Malquisto, I. R., Salabao, A. A., & Tavera, G. F. Job burnout and satisfaction among secondary teachers: regression and k-means clustering analysis. Development, 50, 60.
6. Redondo-Flórez, L., Tornero-Aguilera, J. F., Ramos-Campo, D. J., & Clemente-Suárez, V. J. (2020). Gender differences in stress-and burnout-related factors of university professors. BioMed Research International, 2020. https://doi.org/10.1155/2020/6687358
7. Seibt, R., & Kreuzfeld, S. (2021). Influence of work-related and personal characteristics on the burnout risk among full-and part-time teachers. International journal of environmental research and public health, 18(4), 1535. https://doi.org/10.3390/ijerph18041535
8. Stanetić, K., & Tešanović, G. (2013). Influence of age and length of service on the level of stress and burnout syndrome. Medicinski pregled, 66(3-4), 153-162. https://doi.org/10.2298/MPNS1304153S
9. Jamaludin, I. I., & You, H. W. (2019). Burnout in relation to gender, working experience, and educational level among educators. Education Research International, 2019. https://doi.org/10.1155/2019/7349135
10. Ribeiro, B. M. D. S. S., Martins, J. T., & de Marchi Barcellos, R. D. C. (2020). Burnout syndrome in primary and secondary school teachers in southern Brazil. Revista Brasileira de Medicina do Trabalho, 18(3), 337. https://doi.org/10.47626/1679-4435-2020-519
11. Lajčin, D. (2021). Difficult situations in educational management. Acta Educationis Generalis, 11(2), 129-144. https://doi.org/10.2478/atd-2021-0017
12. da Silva, N. C., & Mello, J. A. V. B. (2023). Analysis trends of burnout syndrome among teachers: a bibliometric study. Revista Cubana de Información en Ciencias de la Salud, 34(1), 16.
13. Lesko, J. (2023). Teacher Burnout: Definition, Causes, Implications, and Systemic Supports.
14. Ortiz, V. L., Bustos, Y. V. C., & Porras, D. R. (2023). Systematic Review on Stress, Insomnia and Burnout Syndrome in Secondary School Teachers. Revista UNIMAR, 41(2), 203-226. https://doi.org/10.31948/Rev.unimar/unimar41-2-art12
15. Marin, I., Fira-Mladinescu, C., Marin, C. N., Stan, V., & Ursoniu, S. (2024). An Analysis of Burnout, Coping, and Pulse Wave Velocity in Relation to the Workplace of Healthcare Workers for the Sustainability of the Medical

Career. Sustainability, 16(3), 997. https://doi.org/10.3390/su16030997
16. Rokach, A. (2023). Coping with Burnout in the Healthcare Field. OBM Integrative and Complementary Medicine, 8(4), 1-20. https://doi.org/10.21926/obm.icm.2304042
17. Maslach, C. (2013). Burnout research in the social services: A critique. Burnout among social workers. Routledge. https://doi.org/10.1300/J079v10n01_09
18. Avargues-Navarro, M. L., Borda-Mas, M., Campos-Puente, A. D. L. M., Pérez-San-Gregorio, M. Á., Martín-Rodríguez, A., & Sánchez-Martín, M. (2020). Caring for family members with Alzheimer's and burnout syndrome: Impairment of the health of housewives. Frontiers in Psychology, 11, 576. https://doi.org/10.3389/fpsyg.2020.00576
19. Kurtoğlu, H. H., & Özçirpic, B. (2019). A comparison of family attention and burnout in families of children with disabilities and families of children without disabilities. Türkiye Klinikleri. Tip Bilimleri Dergisi, 39(4), 362-374. https://doi.org/10.5336/medsci.2018-62949
20. Poschkamp, T. (2013). Vyhoření: rozpoznání, léčba, prevence (Burnout: recognition, treatment, prevention). Edika
21. Bártová, Z. (2011). Jak zvládnout stres za katedrou (How to handle the stress behind the department). Computer Media.
22. Skaalvik, E. M., & Skaalvik, S. (2015). Job Satisfaction, Stress and Coping Strategies in the Working Profession-What Do Teachers Say?. International education studies, 8(3), 181-192. https://doi.org/10.5539/ies.v8n3p181
23. Abdalla, A., Li, X., & Yang, F. (2024). Expatriate Construction Professionals' Performance in International Construction Projects: The Role of Cross-Cultural Adjustment and Job Burnout. Journal of Construction Engineering and Management, 150(3), 04024005. https://doi.org/10.1061/JCEMD4.COENG-13912
24. Lajčin, D., Miško, D., & Vojtilová, V. (2023). Assessment of links between personality traits and soft skills in the work environment. Polish Journal of Management Studies, 28.
25. Melguizo-Ibáñez, E., González-Valero, G., Ubago-Jiménez, J. L., & Puertas-Molero, P. (2022). Resilience, stress, and burnout syndrome according to study hours in Spanish public education school teacher applicants: an explanatory model as a function of weekly physical activity practice time. Behavioral Sciences, 12(9), 329.
26. Dinis, A. C., Ferraro, T., Pais, L., & Dos Santos, N. R. (2024). Decent work and burnout: a profile study with academic personnel. Psychological Reports, 127(1), 335-364.
27. Zhou, Y., & Zhou, G. (2024). Does Telecommuting Incur Burnout in Teachers During the COVID-19 Quarantine Lockdown? A Moderated Mediation Model of Harmonious Passion and Housing Size. The Asia-Pacific Education Researcher, 33(1), 47-58. https://doi.org/10.1007/s40299-022-00706-w
28. Rohmer, O., Palomares, E. A., & Popa-Roch, M. (2024). Attitudes Towards Disability and Burnout among Teachers in Inclusive Schools in France. International Journal of Disability, Development and Education, 71(1), 83-100. https://doi.org/10.1080/1034912X.2022.2092078
29. Marić, N., Mandić-Rajčević, S., Maksimović, N., & Bulat, P. (2020). Factors associated with burnout syndrome in primary and secondary school teachers in the Republic of Srpska (Bosnia and Herzegovina). International journal of environmental research and public health, 17(10), 3595. https://doi.org/10.3390/ijerph17103595
30. Juárez, S. W., & Becton, A. B. (2024). A Self-Care and Wellness Framework in Educator Preparation to Address Burnout, Compassion Fatigue, and Secondary Traumatic Stress. Action in Teacher Education, 1-19. https://doi.org/10.1080/01626620.2024.2319294
31. Posada-Quintero, H. F., Molano-Vergara, P. N., Parra-Hernández, R. M., & Posada-Quintero, J. I. (2020). Analysis of risk factors and symptoms of burnout syndrome in Colombian school teachers under statutes 2277 and 1278 using machine learning interpretation. Social Sciences, 9(3), 30. https://doi.org/10.3390/socsci9030030
32. Mijakoski, D., Cheptea, D., Marca, S. C., Shoman, Y., Caglayan, C., Bugge, M. D., ... & Canu, I. G. (2022). Determinants of burnout among teachers: a systematic review of longitudinal studies. International journal of environmental research and public health, 19(9), 5776. https://doi.org/10.3390/ijerph19095776
33. Simões, F., & Calheiros, M. M. (2019). A matter of teaching and relationships: determinants of teaching style, interpersonal resources and teacher burnout. Social Psychology of Education, 22(4), 991-1013.
34. El Helou, M., Nabhani, M., & Bahous, R. (2016). Teachers' views on causes leading to their burnout. School leadership & management, 36(5), 551-567. https://doi.org/10.1080/13632434.2016.1247051
35. Montano, M. D. L. N. V., Martínez, M. D. L. C. G., & Lemus, L. P. (2023). Interdisciplinary Exploration of the Impact of Job Stress on Teachers' Lives. Interdisciplinary Rehabilitation/Rehabilitacion Interdisciplinaria, 3, 57-57. https://doi.org/10.56294/ri202357
36. Zivcicova, E., & Gullerova, M. (2018). Burnout syndrome among teachers. Economic and Social Development: Book of Proceedings, 78-85.

37. Bulatevych, N. (2017). Teacher's burnout syndrome: the phenomenology of the process. Polish Journal of Public Health, 127(2), 62-66. https://doi.org/10.1515/pjph-2017-0014
38. Mukundan, J., & Ahour, T. (2011). Burnout among female teachers in Malaysia. Journal of International Education Research (JIER), 7(3), 25-38. https://doi.org/10.19030/jier.v7i3.4972
39. Maslach, C. (2018). Burnout: A multidimensional perspective. Professional burnout. CRC Press. https://doi.org/10.4324/9781315227979-3
40. Ráczová, B., & Köverová, M. (2020). Konfirmačná faktorová analýza slovenskej verzie dotazníka MBI-HSS pre pomáhajúce profesie (Confirmatory factor analysis of the Slovak version of the MBI-HSS questionnaire for helping professions). Ceskoslovenska Psychologie, 64(3), 272-287.
41. Novocký, M., & Orosová, R. (2019). The relationship between professional reflection and burnout syndrome in secondary school teachers. Ad alta: Journal of interdisciplinary research, 9(2).
42. Kohútová, K. (2022). Úroveň syndrómu vyhorenia a pohľad učiteľov na distančné vzdelávanie počas pandémie Covid-19 na Slovensku (Level of burnout syndrome and teachers' view of distance education during the Covid-19 pandemic in Slovakia). Pedagogika, 72(3). https://doi.org/10.14712/23362189.2022.2052
43. Kimsesiz, F. (2019). The effect of school type on EFL teachers' burnout: The case in Turkey. Journal of Language and Linguistic Studies, 15(4), 1413-1425. https://doi.org/10.17263/jlls.668533
44. Lobotková, A. (2018). Teaching practice as a motivating factor of prospective teachers. In EDULEARN18 Proceedings (pp. 4068-4072). IATED. https://doi.org/10.21125/edulearn.2018.1030