

Characteristics of Symptom Complexes of Professional Burnout Among Pedagogical Workers of Educational Institutions of Various Types

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The creation of conditions for the emotional well-being of teachers in the conditions of the labour process transformation is necessary for the prevention of the occurrence of production-related morbidity and the creation of the most favourable working conditions. The purpose of the research is to assess the formation stages of symptom complexes of professional burnout among pedagogical workers of educational institutions of various types. The leading research method is experimental. During the ascertaining experiment, the level of professional burnout was assessed according to V. V. Boiko's method "Diagnostics of the level of emotional burnout" among 852 pedagogical workers of the Sumy region during 2008-2021. The dependence of the development of professional burnout and symptom complexes of tension, resistance, and exhaustion on organizational factors of the type of educational institution was established. The obtained results of the research made it possible to develop practical recommendations for the promotion of professional health of primary school teachers, which are based on information, health, psychotherapeutic and organizational measures.

Keywords: professional burnout, symptom complexes, pedagogical workers, educational institutions of various types

INTRODUCTION

The basis of the promotion of the health of pedagogical workers should be the prevention of psychosomatic and psychovegetative disorders that arise against the background of the complex interaction

of organizational factors of the labour process, the peculiarities of professional activity, work situations, communications, personal characteristics, and the search for a balance between work and personal life. As a result of exposure to such long-term professional stresses of medium intensity, professional burnout (PB) occurs among pedagogical workers (Prokopenko, 2019; Teles et al., 2020). Scientists analysed the factors leading to the development of professional burnout, studying social, personal, organizational factors and physiological, hygienic correlates of the development of PB (Kalynychenko et al., 2021).

However, scientific research on this problem in recent years is few, so it is necessary to consider the results of scientific research over a wider period of time. The founders of the burnout idea are American psychiatrist H. Friedenberger and social psychologist K. Maslach (1997, 1998, 2000). The latter defined this concept as a syndrome of physical and emotional exhaustion, which includes the development of negative self-esteem, attitude to work, loss of understanding and compassion in relation to clients or patients. K. Maslach emphasizes that burnout is not a loss of creative potential, not a reaction to monotony, an uninteresting reaction, but exhaustion arising against the background of stress caused by interpersonal relationships (Iatsyshyn et al., 2019; Polishchuk et al., 2019).

Burnout fulfils the basic criteria for the diagnosis of “work-related neurasthenia” and the diagnostic status as “problems related to difficulties in managing one’s personal life” recorded by the International Classification of Diseases, Injuries and Causes of Death, tenth revision, under heading Z73. The three-dimensional model of the syndrome is worth attention, proposed by V.V. Boyko. According to this model, taking into account the components of “burnout” identified by K. Maslach (emotional exhaustion, depersonalization, and reduction of professional responsibilities) and the theory of H. Selye, the following components of the “professional burnout” syndrome were formed: stress, resistance, and exhaustion. Each of the components is accompanied by four symptoms, thanks to which it is possible to investigate the manifestation specificity of the syndrome among teachers. According to V.V. Boyko, the “tension” component is characterized by such symptoms as: “experiencing psycho-traumatic circumstances”, “dissatisfaction with oneself”, “being confined to a cage”, “anxiety and depression”. The “resistance” component is accompanied by “inadequate selective emotional response”, “emotional and moral disorientation”, “expansion of the sphere of emotional economy”, “reduction of professional duties”. The “exhaustion” component is determined by “emotional deficit”, “emotional alienation”, “personal alienation (depersonalization)”, “psychosomatic and psychovegetative disorders (Leshchenko et al., 2021; Kuzheliev et al., 2016).

A high level of catecholamines and glucocorticoids release indicates significant neuro-emotional stress. Among teachers, the release of adrenaline increases approximately 1.5 times, and the level of norepinephrine reaches the upper line of the norm. Disruption of the daily periodicity of adrenaline secretion with an increase in the night period of the day is characteristic for many teachers. In the context of anti-epidemic measures introduced by countries during the COVID-19 pandemic caused by the SARS-CoV-2 coronavirus, new conditions of the labour process related to online learning have emerged (Carnese, 2020). Wang C., Zhao H.’s research confirms the connection of PB with the stressful load of the labour process and existing psychophysical discomfort associated with anti-epidemic measures (Wang & Zhao, 2020). One of the research areas on the organizational determinants of the formation of PB is the evaluation of the influence of the educational institution depending on the type and various forms of subordination.

The relevance of the research conducting is confirmed by the recommendations of UNESCO on the resumption of general secondary education institutions in May 2020, the International Labour Organization and the Task Force “Teachers for Education – 2030”, which provide for the creation of conditions for the emotional well-being of teachers (UNESCO, 2020). In addition, the conducted research on the development of professional burnout in the conditions of the transformation of the labour process of pedagogical workers is necessary for preventing the occurrence of production-related morbidity and the creation of the most favourable working conditions for ensuring health and a high level of work capacity.

MATERIALS AND METHODS

The leading research method is experimental. During the ascertaining experiment, the level of professional burnout was assessed according to V.V. Boiko's method "Diagnostics of the level of emotional burnout". PB was determined based on twelve symptoms included in three symptom complexes. Assessment of professional burnout was carried out according to qualitative and quantitative characteristics. The qualitative characteristics included determining the level of forming symptom complexes of stress, resistance, exhaustion (unformed – up to 36 points, the stage of formation – from 37 to 60 points, formed – 61 points and above) and levels of PB (high level – 181 points and above, average level – from 111 to 180 points, low level – up to 110 points). Mathematical processing included the calculation of primary statistical indicators, comparison of samples and variance analysis using the standard statistical package STATISTICA 6.0.

The experimental research base is the laboratory of school hygiene and age-related physiology of the department of public health and medical-biological fundamentals of physical culture of Sumy State Pedagogical University named after A.S. Makarenko. The research was conducted in three stages and covered 852 pedagogical workers of the Sumy region. At the first stage, in 2008, 420 pedagogical workers of general secondary education institutions took part in the study. In the second stage (year 2020), 342 pedagogical workers of preschool education institutions, primary school and secondary education institution, who worked in usual conditions of the labour process, participated. The third stage (2021) included a survey of 85 pedagogic workers of secondary education institutions with online working conditions.

Pedagogical workers were divided into four age groups: up to 31 years, from 31 to 40 years, from 41 to 50 years, 51 years and older. The research was conducted in compliance with the principles of voluntariness, with a guarantee of human rights and freedoms protection, inviolability of his physical and mental integrity, in compliance with the principles of justice and equality, with preliminary detailed information of the volunteers about the essence of the research, written consent for participation was obtained from each subject of the scientific research and for carrying out diagnostic measures in accordance with the "Helsinki Declaration of the World Medical Association".

RESULTS

Dynamics of Symptom Complexes Manifestations of Professional Burnout of Pedagogical Workers in 2008-2021

As a result of the analysis, it was established that the share of the group of teachers with a high level of PB was probably smaller than the group with low and medium levels of PB ($p < 0.001$, Table 1). In 2008, a preference was established for teachers with a low level of PB ($54.52 \pm 1.85\%$), compared to groups of teachers who had a high ($10.48 \pm 0.33\%$, $p < 0.001$) and medium ($35.00 \pm 1.18\%$, $p < 0.001$) PB levels.

In 2020, there was a probable preference among teachers of low ($41.79 \pm 1.41\%$) and medium levels of PB ($39.77 \pm 1.35\%$) over the group of respondents with high level of PB ($18.44 \pm 0.61\%$, $t = 13.83$, $p < 0.001$). A similar trend was observed in 2021, which indicates an increase in the spread of PB in the second stage of formation over the years and has a negative sign of a protracted course of symptoms with difficult correction of the consequences of PB (Table 1).

TABLE 1
DISTRIBUTION OF LEVELS OF PROFESSIONAL BURNOUT SYNDROME OF
PEDAGOGICAL WORKERS OVER THE YEARS (%)

Year	Levels of professional burnout		
	low	medium	high
2008 <i>n</i> =420	54.52±1.85 <i>t</i> =8.9, <i>p</i> <0.001	35.01±1.18 *** <i>t</i> =13.05, <i>p</i> <0.001	10.48±0.33 ** <i>t</i> =23.44, <i>p</i> <0.001
2020 <i>n</i> =347	41.79±1.41 <i>t</i> =1.41, <i>p</i> >0.05	39.77±1.35 *** <i>t</i> =13.83, <i>p</i> <0.001	18.44±0.61 ** <i>t</i> =15.14, <i>p</i> <0.001
2021 <i>n</i> =85	44.71±1.51 <i>t</i> =1.51, <i>p</i> >0.05	44.71±1.51 *** <i>t</i> =21.97, <i>p</i> <0.001	10.59±0.35 ** <i>t</i> =21.97, <i>p</i> <0.001

Note: * – probable difference between groups with a low and medium level of PB; ** – probable difference between low and high level of PB, *** – probable difference between average and high level.

The increase in the average level of PB in 2020 (39.77±1.35%, *t*=13.83, *p*<0.001) was 4.94% and 4.77% in 2021 (44.71±1.51%, *t*=5.06, *p*<0.01) compared to 2008 (35.01±1.18%). In 2020, the share of the group of teachers with a high level of PB was higher by 7.96% (18.44±0.61%) compared to the similar group in 2008 (10.48±0.33%, *t*=11.4, *p*<0.001). In 2021, the specific weight of the group with a high level of PB was similar to the initial observation period in 2008 (10.59±0.35%), which indicates an increase in 2020 of pedagogical workers with chronic manifestations of PB and their decrease during the period of the introduction of the remote form work.

The distribution analysis of the qualitative characteristics of the stages of the tension symptom complex indicates a probable advantage of the share of its non-formation regardless of the year (*p*<0.001). However, the signs of the stage of the formation of the stress symptom complex are recorded from 29.86±1.01% in 2008 to 18.82±0.63% in 2021 (table 2). In 2008, 11.37±0.37% of pedagogical workers were at the stage of the formation of the stress symptom complex, which is 0.96% higher than the share in 2020 (10.41±0.34%, *t*=1.91, *p*>0.05) and 5.49% higher in 2021 (5.88±0.18%, *t*=13.25, *p*>0.001). Thus, in the dynamics of the studied years, a decrease in the share of teachers with a feeling of emotional exhaustion, fatigue from professional activity is registered.

TABLE 2
DISTRIBUTION OF PERCENTAGES OF THE FORMATION OF SYMPTOM COMPLEXES
OF PROFESSIONAL BURNOUT OF PEDAGOGICAL WORKERS IN THE
DYNAMICS OF THE YEARS (%)

Year	Symptom complex of professional burnout		
	Unformed	Stage of formation	Formed
Symptom complex "Tension"			
2008 <i>n</i> =420	58.77±1.99 ° <i>t</i> =12.94, <i>p</i> <0.001	29.86±1.01 °°° <i>t</i> =9.11, <i>p</i> <0.001	11.37±0.37 °° <i>t</i> =23.36, <i>p</i> <0.001
2020 <i>n</i> =347	62.44±2.12 ° <i>t</i> =15.27, <i>p</i> <0.001	27.16±0.91 °°° <i>t</i> =7.79, <i>p</i> <0.001	10.41±0.34 °° <i>t</i> =24.21, <i>p</i> <0.001
2021 <i>n</i> =85	75.29±2.56 ° <i>t</i> =21.42, <i>p</i> <0.001	18.82±0.63 °°° <i>t</i> =5.03, <i>p</i> <0.001	5.88±0.18 °° <i>t</i> =27.03, <i>p</i> <0.001

Symptom complex “Resistance”			
2008 n=420	31.52±1.06 ° <i>t</i> =4.95, <i>p</i> <0.001	40.05±1.35 °°° <i>t</i> =7.01, <i>p</i> <0.001	28.44±0.96 °° <i>t</i> =2.15, <i>p</i> <0.05
2020 n=347	29.70±1.01 ° <i>t</i> =4.14, <i>p</i> <0.001	36.29±1.22 <i>t</i> =1.33, <i>p</i> >0.05	34.01±1.15 °° <i>t</i> =2.83, <i>p</i> <0.001
2021 n=85	18.82±0.62 ° <i>t</i> =14.19, <i>p</i> <0.001	39.04±1.35 °°° <i>t</i> =3.91, <i>p</i> <0.001	48.24±1.63 °° <i>t</i> =16.81, <i>p</i> <0.001
Symptom complex “Exhaustion”			
2008 n=420	70.38±2.39 ° <i>t</i> =18.9, <i>p</i> <0.001	22.75±0.77 °°° <i>t</i> =19.92, <i>p</i> <0.001	6.87±0.22 °° <i>t</i> =26.42, <i>p</i> <0.001
2020 n=347	48.41±1.64 ° <i>t</i> =6.22, <i>p</i> <0.001	35.73±1.21 °°° <i>t</i> =15.1, <i>p</i> <0.001	15.85±0.53 °° <i>t</i> =18.89, <i>p</i> <0.001
2021 n=85	60.00±2.04 ° <i>t</i> =14.12, <i>p</i> <0.001	28.24±0.95 °°° <i>t</i> =16.07, <i>p</i> <0.001	11.76±0.39 °° <i>t</i> =23.26, <i>p</i> <0.001

Note: ° – a probable difference between an unformed symptom complex and one at the stage of formation; °° – a probable difference between an unformed and a formed symptom complex; °°° – a probable difference between a symptom complex at the stage of formation and a formed symptom complex.

The greatest differences among the evaluated symptom complexes have the symptom complex of resistance. The distribution structure of characteristics of the formation degree of the symptom complex “Resistance” by years shows the growth of the share of pedagogical workers with its maximum manifestations.

In 2008, the first place was occupied by pedagogical workers with the symptom complex of resistance at the stage of formation (40.05±1.35%, *t*=7.01, *p*<0.001), the second place – with the absence of its manifestations (31.52±1, 06%, *t*=4.95, *p*<0.001) and the third – with a formed symptom complex (28.44±0.96%, *t*=2.15, *p*<0.05). However, in 2020, the structure of the characteristics of the symptom complex changed, the first place is shared by the stage of formation (36.29±1.22%, *t*=1.33, *p*>0.05) and the formed symptom complex (34.01±1.15% , *t*=2.83, *p*<0.001) and the second – specific weight with a unformed symptom complex of resistance (29.70±1.01%, *t*=4.14, *p*<0.001). In 2021, the largest number of pedagogical workers with manifestations of PB is observed, as evidenced by the total value of the specific weight of 81.18% of the symptom complex of resistance at the stage of formation (39.04±1.35%) and formed (48.24±1.63%). The obtained data indicate the presence of teachers with manifestations of the symptom complex of resistance of excessive emotional exhaustion with the development of indifference in professional relationships, emotional isolation, curtailment of professional activity.

At the stage of unformed manifestations, a symptom complex of exhaustion is registered in the dynamics of the years. In 2008 – 70.38±2.39%, in 2020 – 48.41±1.64%, in 2021 – 60.00±2.04%. A formed symptom complex of exhaustion was found among 6.87±0.22% of pedagogical workers in 2008, which is 8.98% less than the share of formed in 2020 (15.85±0.53%, *t*=15.78, *p*< 0.001) and 4.89% less than the share of 2021 (11.76±0.39%, *t*=11.05, *p*<0.001). Thus, in the dynamics of the years, it is observed that the symptom complexes of tension and exhaustion are not formed and the contribution of the symptom complex of resistance in the formation of professional burnout of pedagogical workers is increasing.

Manifestations of Symptom Complexes of Professional Burnout Among Pedagogical Workers of Various Types of Educational Institutions

In order to determine the influence of organizational factors on the development of PB depending on the type of educational institution, in 2020 we conducted a study among pedagogical workers in primary schools (I degree), general secondary education (I-III degrees), and preschool education institutions. The division into types of educational institutions was carried out in accordance with Article 9 of the Law of Ukraine “On Education”. Conditions of the labour process in terms of severity in educational institutions have a mosaic of changes from optimal to 1st degree harmful classes, but do not differ significantly between institutions and are controlled by the Sanitary Regulations of educational institutions. The organization of

the labour process according to the norm of the weekly workload and the structural elements of professional activity (preparatory, basic and auxiliary) differ. Therefore, the influence of organizational factors of educational institutions is taken as a basis for the further analysis of the research results.

The professional burnout of pedagogical workers of various educational institutions in 2020 is characterized by the preference of low and medium level over high level of PB. Thus, in preschool, the low and medium level of PB have a difference of 6.67% ($t=1.46$, $p>0.05$), in primary school – 3.97% ($t=1.01$, $p>0.05$) and in secondary education institutions – 3.49% ($t=1.13$, $p>0.05$), which indicates the possibility of fluctuations in the positive or negative direction under the influence of formation factors and the possibility of correcting the PB syndrome with preventive measures.

A comparison of the high level of PB in different types of educational institutions proves a probable advantage of 8.45% of the share of high level of PB among pedagogical workers of primary school ($21.78\pm 1.14\%$, $t=6.34$, $p<0.001$) than the share of preschool ($13.33\pm 0.69\%$) and by 3.85% of the share of secondary education institutions ($17.91\pm 0.93\%$, $t=2.62$, $p<0.05$). The established feature may indicate a higher prevalence of PB among primary school teachers. On the basis of variance analysis, it was established that the general indicator of PB depends on the type of institution ($F=5.76$, $p<0.001$).

Distribution analysis of the formation degree of symptom complexes of PB allows us to characterize the manifestation of its signs. The symptom complex of tension, regardless of the type of educational institution, is in an unformed state, as presented in. The difference is observed when comparing the symptom complex at the stage of formation. Thus, the symptom complex of tension at the stage of formation among pedagogical workers of the primary school ($35.64\pm 1.89\%$) is 11.2% higher than the corresponding level of the specific gravity of the preschool ($24.44\pm 1.28\%$, $t=4.9$, $p<0.001$) and by 11.45% of the specific weight of secondary education institutions ($24.19\pm 1.27\%$, $t=5.03$, $p<0.001$). The same trend is observed in the share of the formed symptom complex of tension: among the pedagogical workers of the primary school ($14.85\pm 0.77\%$) it is 6% higher than the specific weight of the formed symptom complex of the pedagogical workers of the preschool ($8.89\pm 0.44\%$, $t=6.74$, $p<0.001$) and secondary education institutions ($8.87\pm 0.45\%$, $t=6.71$, $p<0.001$). Thus, the obtained data indicate probably higher signs of the symptom complex of stress among primary school teachers. Analysis of variance allowed establishing the dependence of the stress symptom complex on the type of educational institution ($F=2.92$, $p<0.05$).

The analysis results of the formation degree of the symptom complex “resistance” indicate the formation of its manifestations among the pedagogical workers of preschool and primary school. At the same time, the share of the formed symptom complex has no probable difference with the symptom complex at the stage of formation in both groups of educational institutions. The formed symptom complex among pedagogical workers of both institutions does not differ (primary school – $40.00\pm 2.12\%$, preschool – $42.57\pm 2.26\%$), but it is bigger than the specific weight of secondary education institutions ($29.44\pm 1.55\%$). During the comparison, it was established that the specific weight of secondary education institutions ($29.44\pm 1.55\%$) is 13.13% lower than the specific weight of the primary school symptom complex ($t=4.79$, $p<0.001$) and 10.56% lower than the specific the weight of preschool ($t=4.71$, $p<0.001$). In addition, the symptom complex of resistance among pedagogical workers of secondary education institutions is formed at the expense of particles with the characteristics “at the stage of formation” and “unformed” without a probable difference between them ($p>0.05$). Variance analysis made it possible to establish the dependence of the symptom complex of resistance on the type of educational institution ($F=4.13$, $p<0.01$).

The symptom complex “exhaustion” of pedagogical workers is not formed in preschool and secondary education institutions. The symptom complex of exhaustion can be characterized in the same way among the pedagogical workers of primary school, both by unformed and partially formed manifestations, since no probable difference between them has been established. The specific weight of the formed symptom complex of exhaustion among pedagogical workers of preschool ($20\pm 1.05\%$) is 6.57% ($t=5.23$, $p<0.001$) higher than the share of the formed symptom complex in secondary education institutions (13.43 ± 0.69) and by 5.38% for the share in primary school ($18.81\pm 0.98\%$) ($t=4.71$, $p<0.001$). Variance analysis made it possible to establish the dependence of the symptom complex of exhaustion on the type of educational institution ($F=7.29$, $p<0.001$).

The presented observations of the development of PB among pedagogical workers of educational

institutions of various types testify to its low and medium level regardless of the organizational factors of the educational institution. The dependence of the formation of symptom complexes of PB on organizational factors of the type of educational institution has been established.

DISCUSSION

Nowadays, the research results of professional burnout state of pedagogical workers in the conditions of the online regime of the labour process, both among national and foreign scientists, are discussed. Thus, researches by I.A. Sergeeva, A.A. Bukatych, and A.V. Naumova, conducted to assess emotional burnout among students studying online, indicate an average level of its development with the manifestation of psycho-emotional devastation and depersonalization (Sergeeva et al., 2020). According to the study results of the influence of distance learning on the emotional state of teachers by a group of scientists, it was established that professional burnout in the conditions of a pandemic is characterized by the dominance of the following symptoms: “experiencing psychotraumatic circumstances” (45.9%), “anxiety and depression” (31.2%), “inadequate selective emotional response” (54.1%), “emotional-moral disorientation” (32.8%), “expansion of the sphere of economy of emotions” (31.1%), “reduction of professional duties” (50.8%) and “psychosomatic and psychovegetative disorders” (22.9%) (Zhukov et al., 2021).

Studies of the organizational determinants of the PB formation are isolated and included an assessment of the influence of the educational institution depending on the type and various forms of subordination. In particular, N. M. Bulatevych notes that the level of burnout of pedagogical workers teaching in lyceums and gymnasiums was lower than that of teachers in general secondary education institutions (Bulatevych, 2017). Research by W. L. Arias, J. Huamani, K. D. Ceballos on the professional burnout of scientific-pedagogical workers of higher education institutions proves its lower level compared to pedagogical workers of general secondary education institutions (Arias et al., 2019). Pedagogical workers of primary grades have a higher level of PB compared to their colleagues from senior classes, and teachers of preschool education institutions have less manifestations of this syndrome compared to teachers of boarding schools (Rean & Baranov, 2019).

The research of S. Stasio, C. Fiorilli, P. Benevene, L. Uusitalo-Malmivaara, C. D. Chiacchio shows that there are no differences in the development of PB among teachers and pedagogical workers of primary school (Stasio et al., 2017). There are studies on the PB development of pedagogical workers depending on the forms of ownership. Pedagogical workers of private educational institutions have a higher level of PB compared to state ones (Naumenko et al., 2020; Soleimani & Bolourchi, 2021; Rusnak et al., 2020).

The conducted analysis of scientific research confirms the relevance and practical significance of assessing the development of PB syndrome among pedagogical workers. However, the conducted studies do not take into account the characteristics of symptom complexes of PB in the dynamics of years, taking into account the unified method of evaluating PB, there is no analysis of the distribution of the stages of the formation of symptom complexes of PB depending on the national distribution by types of educational institutions.

CONCLUSION AND RECOMMENDATIONS

Probably higher values of the low level of PB over the average and high levels during 2008-2021 were established. Over the years, there has been a steady trend of spreading the average level of PB, which has a negative sign of a protracted course with regular manifestations of symptoms due to the contribution of the symptom complex of resistance.

There is an established trend towards the preference for an average level of professional burnout among primary school teachers, in contrast to other types of educational institutions. The dependence of the professional burnout development ($F=5.76, p<0.001$) and symptom complexes of tension ($F=2.92, p<0.05$), resistance ($F=4.13, p<0.01$) and exhaustion ($F=7.29, p<0.001$) from organizational factors of the type of educational institution was established.

Taking into account the obtained results, measures for the promotion of the PB among pedagogical

workers have been developed in order to promote professional health in educational institutions of various types within the framework of the “School of Health Promotion”, in particular: informational (seminars, trainings on awareness of the factors of formation of professional burnout), health (formation of the skill of dosed physical activity), psychotherapeutic (art-pedagogical means) and organizational (correction of elements of the labour process).

Prospects for further scientific research are the continuation of dynamic observation of the professional burnout state among pedagogical workers, the expansion of the spectrum of hygienic determinants of the professional burnout formation and the role of motor activity in various conditions of the labour process.

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