PSYCHOLOGICAL AND PSYCHOPHYSIOLOGICAL "PRICE" ASSOCIATED WITH SCHOOLTEACHERS' OCCUPATION

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Abstract

Any kind of work is normally associated with a certain psychological and psychophysiological "price". It is most pronounced in occupations that are characterized by high professional pressure, permanent stresses and increased risk of professional burnout. The survey that targeted 765 Ukrainian school teachers has revealed that the "price" they pay by virtue of their occupation is three-fold: personal, subjective and psychosomatic.

Key words: *psychological and psychophysiological occupational "price", school teachers, adaptation, general well-being, fatigue, state of health, state anxiety.*

Introduction

As it was said before, any occupation is associated with a certain psychological and psychophysiological "price" (the occupational "price"). Once defined and accounted for it can be used as a means of enhancing effectiveness in solving such issues as raising the quality of professional selection, individualization of occupation, performing various training, rehabilitation and correctional actions etc. Addressing these issues is most beneficial for occupations that are characterized by high professional pressure, permanent stresses and increased risk of professional burnout (Karpoukhina, & Kokun, 2010; Kokun, & Karpoukhina, 2010). These features apply among others to the work of school teachers. Therefore, factoring in their occupational "price" can contribute to effectiveness of their occupation and maintaining their physical and psychotic health.

Content and components of occupational "price"

Most often the occupational "price" is interpreted as psychological and psychophysiological "expenditures" of internal resources, which enable individuals to accomplish certain activities (Карпухина, & Розов, 1993). It is adequate if the ratio between the occupation effectiveness and psychophysiological expenditure of the human body resources is optimal. In other words, if individuals perform their tasks at an appropriate level of effectiveness they can fully (or almost fully) replenish their "spent" psychological and psychophysiological resources within a normative respite period before resuming work (before the next working day, over weekend or vacation/leave). And vice versa, if the occupational effectiveness is maintained through permanent and unreplenished exhaustion of psychic and physical reserves of the human

body and the period of restoring psychic and physical occupation capacities is getting longer endangering the individual's health the occupational "price" can be described as mostly inadequate.

Some researchers break down the occupational "price" into three main components: 1) personal "price" conditioned by changes in steady personal features, which manifest themselves if an individual is engaged in a certain work for a long period of time; 2) subjective "price" that reflects the level of psychic comfort or discomfort of an individual performing work; 3) psychosomatic "price" that manifests itself in various psychosomatic symptoms and syndromes (Карпухина, & Розов, 1993).

Nieuwenhuijsen and colleagues demonstrated that stress-related disorders are provoked by such main determinants as high job demands, low job control, low co-worker support, low supervisor support, low procedural justice, low relational justice and a high effort-reward imbalance (Nieuwenhuijsen, Bruinvels, & Frings-Dresen, 2010). Kopp and colleagues believe that root causes triggering the workplace stress include job insecurity, low control and low social support at work, weekend work hours, job-related life events and dissatisfaction with work (Kopp, Stauder, Purebl, Janszky, & Skrabski, 2008).

We have shown that the *components* constituting the occupational "price" can be broken down into two main categories: objective and subjective. Those of the first group include the workplace conditions, intensity and nature of load, psychological climate inside the work group, social and housing conditions of employees. The second category comprises professional qualification and experience, level of professional capacities, individual features, state of health, work motivation etc. (Кокун, 2004). All other circumstances being equal, hard work conditions (high temperature, humidity, noise, etc.), high intensity of the work load, unfavorable psychological climate in the working team and social/housing conditions of employees increase their occupational "price". And on the contrary, high professional qualification, considerable experience, high level of professional skills, good health, solid physical and psychic endurance, high work motivation result in bringing this "price" down (and vice versa).

The notion of occupational "price" can be of generic and individual nature: 1) different varieties of work differ by its relatively objective higher or lower "price"; 2) the better individuals get adapted to a certain variety of occupation the lower is the "price" they have to pay.

Parameters increasing occupational "price" for school teachers

Specifics of the school teachers' occupation are conditioned by its general nature and requirements, on one hand and by social and economic conditions in a certain country at a certain stage of its social and historic development, on the other. General nature of occupation performed by school teachers that may cause its "price" to go up includes complexity, high dynamics, polyaspectedness and poly-functionality (Болтівець, 2000; Кокун, 2004).

It is well known that the work of school teachers is associated with high emotional load, regular burnout, permanent stressful situations (Goyal, & Goel, 2009; Jimmieson, Hannam, & Yeo, 2010; Болтівець, 2000; Семиченко, & Заслуженюк, 2000). It is believed to be one of the most intensive varieties of work (Bellingrath, Weigl, & Kudielka, 2009; Скрипко, 2002; Ширманова, 2002). School teachers have to shoulder the two-fold work load: professional/ pedagogical and managerial, which takes a toll of not only intellectual but also enormous emotional and physical exertions. In opinion of some researchers, school teachers normally have to sustain greater work loads as compared to managers and bankers, general directors and association presidents, i.e. those who work in close contact with other people (Зборовская, 2001). According to the data provided by the World Health Organization (WHO), the stress factor attributed to the pedagogic activities is 7.2 (at the scale of 10, which is the highest

stress level) that in terms of the negative effects on the physical and psychic health is inferior only to such occupations as miner, surgeon, civil aviation pilot, policeman and prison guard (Василькова, 2007).

The elevated psychological load of school teachers can also be function of social causes. Ukraine, for instance, is still experiencing permanent social perturbations, political and economic instability, constant reforms and transformations in the education system. Another important component of the Ukrainian school teachers' high occupational "price" are the conflicts that tend to arise in the pedagogical process: between teachers, teachers and students, teachers and school administration (Семиченко, & Заслуженюк, 2000). Some researchers emphasize that in many cases teachers are affected by such negative phenomena as social disorientation and disadaptation being provoked by their low income, livelihood problems, uncertainties and daily routine (Болтівець, 2000).

Our earlier surveys among Kyiv teachers lead to conclude that most teachers experience abnormally high professional and livelihood loads and are apparently dissatisfied with their salaries and their social status (Karpoukhina, & Kokun, 2010; Кокун, 2004).

Negative effects of elevated occupational "price" for school teachers

In the territory of the post-Soviet countries teachers constitute the professional group that is distinguished by very low physical and psychic health parameters. Another important factor is that various parameters of the teachers' physical and psychic health tend to deteriorate with progress of their professional career (Зборовская, 2001; Скрипко, 2002). According to researchers the consequence of the above-mentioned elevated stress inherent to pedagogic occupation in case of many teachers is manifested in decreased work satisfaction, elevated anxiety, frustration, resentment, fatigue, frequent headaches and insomnia (Ноженкина, 2009; Ширманова, 2002). Considerable percentage of teachers suffers of stress-related diseases: multiple somatic and mental stress ailments (Chamundeswari, Vasanthi, & Parvathi, 2009; Болтівець, 2000).

Many teachers suffer of intellectual, emotional-volitional, personal-professional and other psychological disorders, which often result in the increasing gap between their current professional practices and new job requirements (Зборовская, 2001). One of the most pronounced negative aftereffects of the school teachers' elevated occupational "price" is their professional deformation and professional "burnout" (Кокун, 2004).

Professional deformation of teachers is expressed in their attempts of manipulating other people, craving for power, authoritarianism, rigidity, absence of critical thinking that eventually produce negative impact on their professional activities (Болтівець, 2000). The most widely spread professional deformations exhibited by teachers include: pedagogic aggression, authoritarianism, self-righteousness, tendency of being didactic in communications, ostentation, pedagogic dogmatism, dominance, pedagogic indifference and conservatism, simplified approach to problems, desire of bringing everything to overly simple structures, generalization in perceiving other people, role expansion, social hypocrisy, poor sense of humor (Зеер, 2007).

For teachers the most characteristic manifestation of the professional "burnout" is reduction of their professional obligations, lesser interaction with colleagues and students, expansion of "emotional thriftiness", the growing desire of being "left alone", inadequate emotional reaction etc. (Zaichikova, 2003; 2004).

Approaches to research of occupational "price"

Traditionally, the occupational "price" is discovered by comparing two sets of diagnostic parameters: those that were evaluated in "background" conditions and those that reflect a certain period of professional experience (i.e., "before" and "after"). The extent to which the latter exceed the former makes up a considerable component of such "price" (Кокун, 2004).

For purpose of this article we can take a working day, daily shift, working week (from the first workday to the weekend), working year or any other lengthy period between leaves or other periods as the unit of work experience (Karpoukhina, Kokun, & Zeltser, 2008).

The comprehensive study of "price" attributed to any (including the teachers') occupation in the above described aspect is normally based on a multi-stage research that requires considerable material, organizational and human resources. The "price" charged by the school teacher's occupation can be determined for a single working day, week, semester, school year. However, no matter how well-substantiated such research approach appears one should keep in mind that it does not guarantee that the discovered occupational "price" will be "pure". It is explained by the fact that the diagnostic parameters obtained at the end of research, beside the immediate professional load, can also be influenced by a number of other conditions that are hard to control (Karpoukhina et al., 2008). Therefore, the planning of similar research should be performed with particular accuracy and the analysis of received results should be carried out with special care and thoughtfulness.

We believe that it is also important to account for such aspects of the occupational "price" as "age" and "gender". The purpose of such break-down is to make sure that the occupational "price" is determined by comparing diagnostic parameters for different age and/or gender professional groups inside one occupation. This allows "simultaneously" comparing occupational "price" by identifying, in which age and gender groups, and with respect to which parameters, it is reliably lower or higher. Such approach to considering the occupational "price" was successfully tested earlier in studies performed to define the "price" paid by high school and college students.

The professional's fatigue and illnesses can also be interpreted as one of the occupational "price" manifestations. Studying such manifestations is an important aspect of occupational "price" research. According to some scholars, these manifestations are the most evident demonstration of the "price" charged within a certain occupation since permanent over-fatigue and stresses almost inevitably lead to psychogenic disorders: cardiovascular, gastrointestinal, allergic illnesses, etc. (Родина, 1996).

Method

Participants, procedure, measures

In our research of the school teachers' occupational "price" we have used different approaches from among those listed above.

At the first stage we have partially used the "traditional" approach of studying the occupational "price". With participation of 67 teachers in two Kyiv schools we have performed two sets of research: before the beginning of the school year (after summer vacations), and at the end of the first semester (4 months later). We have applied the self-estimated method (O. Kokun). Under this method the subjects of the study were asked to evaluate different work and life-related factors (estimates of well-being, level of vitality, mood, ability to do the regular work demands, health) by using non-calibrated scales (with a range from 1 to 100), where 1 means the worst and 100 the best possible value.

At the second stage, we have conducted one-off research with participation of 765 teachers from several Ukrainian cities (of which 67 teachers came from the previous study). The methods we applied included survey (O. Kokun) and the State Trait Anxiety Inventory (Ch. D. Spilberger et al.). The survey questions that teachers were asked to answer were deemed to assess, in particular, when (at the beginning, in the middle or at the end) they would feel themselves better or worse throughout the working day, week, semester and school year; what was their work capacity curve (getting worse, stays the same or getting better) during the working day and week; what were their relations with colleagues, school management

and student parents; what was their professional and off-school load and characteristic manifestations of fatigue due to their school activities as well as any disorders provoked by their professional activities etc.

Limitations

Since the research revealed that only 4% of all subjects were male teachers it was decided to use only women for analysis. For the same reason we omitted the "gender" aspect of the school teachers' occupational "price" and consequently all results of this research applies exclusively to female teachers.

Results and Discussion

The results which have been obtained *at the first stage* that allow tracing the dynamics of the self-esteem parameters for teachers who have participated in this study within the first semester of the school year are included in Table 1.

Table 1

Comparison of self-esteem parameters exhibited by teachers before the start of the new school year and at the end of the first semester.

No	Variable	s	*M*	*SD*	n	p ≤
1	General well-being	a	72.1	22.1	77%	0.01
		b	59.3	20.8		
2	Level of effort	a	69.5	23.2	56%	–
		b	66.7	22.1		
3	Mood	a	54.4	20.1	29%	0.001
		b	71.2	25.6		
4	Labor capacity	a	67.3	19.8	58%	–
		b	65.8	20.2		
5	State of health	a	66.5	23.8	74%	0.01
		b	56.4	22.7		

Note: 1) a – results before the beginning of the new school year, b – results at the end of the first semester; 2) n – number of teachers, whose parameters have worsened.

According to the data listed in the Table above we can conclude that after four months of work at school the teachers that have been subjected to professional load demonstrated that at reliable level their self-assessment of the general well-being and state of health have worsened; the level of efforts and labor capacity decreased insignificantly and self-assessment of their mood has, on the contrary, improved significantly.

The obtained results can be viewed as generally consistent with the self-assessment of general well-being: the state of health reflects "homeostatic" level of teachers' adaptation to occupation and self-assessment of level of effort whereas their labor capacity reflects the "productive" level. The "productive" level characterizes adaptation from perspective of effectiveness one exhibits when exercising a certain occupation and "homeostatic" one is mostly indicator of the occupational "price" and characterizes adaptation of an individual to his/her occupation from perspective of spending psychological and psychophysiological resources and maintaining his/her health (Карпухіна, & Розов, 1993).

In our opinion, psychophysiological occupational "price" that manifests itself at the "homeostatic" level of adaptation (certain reduction of self-assessed general well-being and

state of health) is adequate. In other words, we could observe the optimal ratio between the effectiveness of professional activities and the spent psychological and psychophysiological resources. If, however, the occupational "price" manifests itself already at the "productive" level (considerably reduced self-assessment of labor capacity, lower level of effort) it is evident that the occupational "price" is inadequate as related to the available psychological and psychophysiological resources. The longer individuals work under conditions of the elevated occupational "price" the more inevitably it leads to exhaustion of their psychophysiological resources and deterioration of their physical and psychic health.

As to the dynamics of the mood we think that it is influenced by other sufficiently evident reasons. The first set of research was performed after the long (two months) summer leave the teachers had before the next school year. And the second set of research took place a few days before the New Year holidays and two-week vacation. Therefore the second half of research has registered a much better mood as compared to the first one, which can be considered as absolutely natural. The fact that the teachers' occupational "price" manifests itself, first of all, at the "homeostatic" level of adaptation is corroborated by results obtained also at the *second stage* of our research. Their self-assessment of general well-being throughout the working day, semester and school year is shown in Table 2. The results of self-assessed curve of labor capacity throughout the working day and week can be found in Table 3.

Table 2

The dynamics of teachers' well-being throughout the working day, semester and school year

Period		*General well-being*	
		Highest	Lowest
Working day	Start	58%	13%
	Middle part	33%	16%
	End	9%	71%
Semester	Start	42%	20%
	Middle part	42%	22%
	End	16%	58%
School year	Start	50%	19%
	Middle part	32%	31%
	End	18%	50%

Table 3

The dynamics of teachers' labor capacity throughout working day and week.

Period	*Labor capacity*		
	Deteriorates	Stays at the same level	Improves
Working day	37 %	50 %	13 %
Working week	43 %	45 %	12 %

The above results make it possible to visualize the general picture of the trend regarding the subjects' self-assessment of general well-being and labor capacity. It appears logical that the majority of all teachers have a better general well-being at the beginning of the above periods and worse at the end. The same applies to the change in labor capacity. On the other hand, we revealed the trend of general well-being fluctuating throughout the working day to greater extent than during longer periods.

As to the self-assessment of those teachers who told to feel themselves better at the end of the above periods an assumption can be made that this self-assessment is caused by

an actual improvement of the body status at physiological level (physiological pre-condition) and by improvement of their psycho-emotional well-being by the end of the working day (psychological pre-condition). The ratio of these components can considerably vary for different individuals.

To standardize the nature of changes occurring in general well-being and labor capacity of teacher, we have grouped the data on each of the subjects to analyze the ratio between the best and the worst general well-being and labor capacity in respective periods (Tables 4 and 5).

Table 4

Self-assessed teachers' general well-being

Period	*General well-being*								
	the best	the worst	n	the best	the worst	n	the best	the worst	n
Working day	start	middle part	12%	middle part	start	9%	end	start	4%
		end	47%		end	23%		middle part	5%
Semester		middle part	11%		start	14%		start	6%
		end	30%		end	28%		middle part	11%
School year		middle part	19%		start	12%		start	8%

Table 5

Self-assessed teachers' labor capacity

Change in labor capacity			
Throughout the day	During the week		
	improves	stays at the same level	deteriorates
Improves	5%	6%	2%
Stays at the same level	5%	30%	15%
Deteriorates	2%	10%	25%

Distributing subjects between groups made it possible to determine common adaptation types of teachers. Based on the self-assessed *general well-being* these types were broken down separately for working day, semester and school year (Table 6). For instance, with the best well-being at the end of the working day 4% of all subjects said they felt themselves the worst at the beginning of the working day and 5% in its middle (see Table 4), which makes up 9% of the "improvement" adaptation type for the working day.

Table 6

Adaptation types of teachers (based on self-assessed general well-being).

Adaptation type	Working day	Semester	School year
"Improvement"	9%	17%	18%
"Deterioration"	68%	55%	62%
"Unstable"	23%	28%	20%

Based on self-assessed *labor capacity* (determined on the basis of the results shown in Table 5) five adaptation types of teachers were differentiated:

"Improvement" – 5% (teachers, whose labor capacity improves throughout the day and during the week);

"Improvement-stable" – 11% (labor capacity improves throughout the day and stays at the same level during the week or otherwise);

"Stable" – 30% (labor capacity stays at the same level throughout the day and week);

"Unstable" – 29% (labor capacity throughout one period deteriorates and improves or stays at the same level throughout another);

"Deterioration" – 25% (labor capacity deteriorates throughout the day and during the week).

Therefore, the most favorable (relative to the reduction of an individual occupational "price") adaptation type of "improvement" (for general well-being) was discovered in 9% to 18% of all teachers (function of period). The most favorable adaptation types in terms of labor capacity: "improvement", "improvement-stable" and "stable" were displayed by 46% of all teachers. The first group, as we have mentioned before, reflect predominantly "homeostatic" level of adaptation and the second group – the "productive" one. In terms of labor capacity the category of favorable adaptation type included several times more subjects than that in the category of the general well-being. These statistics completely correspond to other results of the research, which prove that the teachers' occupational "price" manifests itself predominantly at the "homeostatic" adaptation level.

Let's review below the results, which characterize the age aspect of the school teachers' occupational "price". In the Tables 7 and 8 below certain age consistencies between the general well-being and labor capacity curves displayed by the surveyed teachers can be observed.

Table 7

Dynamics of general well-being fluctuations displayed across different teachers' age groups

Period		*Age group (years old)*							
		≤ 29 (n = 216)		30–39 (n = 234)		40–49 (n = 201)		≥ 50 (n = 114)	
		A	B	A	B	A	B	A	B
Working day	start	53%	16%	53%	18%	62%	9%	73%	3%
	middle part	30%	30%	39%	13%	35%	13%	24%	13%
	end	17%	54%	8%	69%	3%	78%	3%	84%
Semester	start	31%	23%	32%	26%	52%	13%	49%	13%
	middle part	39%	30%	52%	15%	37%	22%	40%	19%
	end	30%	47%	16%	59%	11%	65%	11%	68%
School year	start	47%	16%	43%	26%	54%	14%	49%	19%
	middle part	26%	44%	37%	33%	35%	23%	38%	30%
	end	27%	40%	20%	41%	11%	63%	13%	51%

Note: A – the best general well-being; B – the worst general well-being.

Table 8

Dynamics of labor capacity fluctuations displayed across different teachers' age groups.

Period	*Age group (years old)*											
	≤ 29 (n = 216)			30–39 (n = 234)			40–49 (n = 201)			≥ 50 (n = 114)		
	A	B	C	A	B	C	A	B	C	A	B	C
Working day	41%	48%	11%	29%	57%	14%	39%	48%	13%	43%	49%	8%
Working week	34%	50%	16%	40%	47%	13%	48%	43%	9%	51%	48%	1%

Note: Labor capacity: A – deteriorates; B – stays at the same level; C – improves.

The above data is the evidence of a rather clear-cut trend: the older are the subjects, the more ($p \leq 0.01–0.001$) their self-assessment in terms of general well-being throughout various periods (ranging from one working day to a school year) and their self-assessment of labor capacity throughout the week deteriorate. It leads to conclude that the older school teachers are, the more evident is their tendency of paying higher occupational "price".

Let's now review the results of this research regarding such of teachers' occupational "price" as symptoms of fatigue and illnesses. The subjects representing various age groups did not display any considerable disparities in the quality and quantity parameters of fatigue symptoms; the research results broken down by percentage distribution and age are included in Table 9.

Table 9

Distribution of fatigue symptoms that teachers feel at work

Fatigue symptoms	*Age group (years old)*				
	≤ 29 (n = 216)	30 – 39 (n = 234)	40 – 49 (n = 201)	≥ 50 (n = 114)	Entire sampling (n = 765)
Deterioration of general well-being	43%	47%	55%	56%	50%
Decreasing of labor capacity	37%	39%	39%	47%	40%
Deterioration of focus	31%	24%	20%	16%	22%
Nervous stress	46%	39%	42%	42%	42%
Increased resentment	38%	25%	28%	16%	27%
Less self-control	4%	6%	3%	4%	4%
Mood swings	25%	16%	22%	11%	19%
Indifference to work	21%	16%	6%	2%	13%
No symptoms	3%	1%	5%	0%	2%

The above Table shows that the fatigue felt by teachers in most cases (40–50%) manifests itself in form of deteriorated general well-being, nervous stress and decreased labor capacity. Another important portion of subjects (19–27%) said they experience increase in resentment, deterioration of focus, mood swings. Relatively less number of teachers (13%) acknowledged being indifferent to the work they perform and the lowest share of interviewees (4%) complained of reduced self-control. Only 2% said they did not feel any of the above symptoms of fatigue.

In terms of age the trend looks rather interesting. The older the subjects are the more numerous are symptoms of fatigue related to their state of health, such as deterioration of general well-being and decreasing labor capacity and less of those related to their professional level and professional adaptation: lapses of attention, elevated resentment, mood swings and indifference to work. To summarize the above said we can state that teachers with extended professional experience exhibit increasing professional adaptiveness, which makes it possible for them to partially reduce their occupational "price". At the same time the "price" teachers pay increases in terms of health as they grow older.

Table 10 shows the teachers' perceptions of illnesses that in their perspective are occupational by nature. According to this Table, the teaching in most cases (50–51%) leads to cardiovascular system diseases and sight deterioration. Also quite spread are illnesses of a nervous system (39%) and Ear Nose Throat problems (33%).

Table 10

Break-down of illness symptoms provoked by teachers' occupational activities

Illness symptoms	*Age group (years old)*				
	≤ 29 (n = 216)	30–39 (n = 234)	40–49 (n = 201)	≥ 50 (n = 114)	Entire sampling (n = 765)
Musculoskeletal apparatus	7%	14%	17%	20%	14%
Cardiovascular system	32%	50%	62%	59%	50%
Nervous system	28%	38%	45%	36%	39%
Sigh deterioration	37%	37%	70%	69%	51%
Ear Nose Throat problems	35%	35%	40%	27%	33%
Other*	3%	3%	3%	4%	2%
None	29%	8%	4%	4%	11%

* Note: Almost all subjects indicated gastrointestinal deceases as "other" in this Table.

The dependence between aging and the increasing disorders of musculoskeletal apparatus, cardiovascular and nervous system, sight deterioration can be regarded as logical. We believe that this is one of the most evident manifestations of the teachers' occupational "price". Whereas 29% of young teachers said they did not feel any of the above fatigue symptoms, in the next age group (30 to 39) this percentage goes down to 8% and even further down among those over 40 – to 4%.

Tables 11 and 12 show the number of fatigue and illness symptoms among teachers of different age groups.

Table 11

Number of fatigue symptoms teachers experience at work

Age group	*Number of fatigue symptoms*						
	0	1	2	3	4	5	6
≤ 29 years old	4%	23%	31%	27%	9%	5%	1%
30 to 39 years old	1%	40%	22%	22%	12%	2%	1%
40 to 49 years old	4%	35%	27%	21%	5%	4%	4%
≥ 50 years old	0%	47%	29%	16%	4%	2%	2%
Entire sample group	2%	36%	26%	22%	9%	3%	2%

Table 12

Number of illness symptoms teachers relate to their occupation.

Age group	*Number of illness symptoms*					
	0	1	2	3	4	5
≤ 29 years old	29%	40%	20%	8%	3%	0%
30 to 39 years old	8%	39%	29%	18%	6%	0%
40 to 49 years old	4%	21%	30%	27%	16%	2%
≥ 50 years old	4%	40%	20%	18%	13%	5%
Entire sample group	11%	33%	27%	19%	9%	1%

The obtained survey results support the thesis according to which older and more experienced teachers feel themselves less tired but more ill. Teachers under 29 years old said they felt in average 2.42 ($\sigma = 1.5$) fatigue symptoms; those 30 to 39 years old – 2.16 ($\sigma = 1.4$); and those 40 to 49 years old – 2.14 ($\sigma = 1.4$); teachers above 50 years old experienced 1.91 ($\sigma = 1.3$) fatigue symptoms. The difference between the first and last group is statistically reliable ($t = 2.603$; $p \leq 0.01$). Of those teachers who complained of illnesses, teachers under 29 years old make up 1.25 ($\sigma = 0.9$); 30 to 39 years old – 1.77 ($\sigma = 1.1$); 40 to 49 years old – 2.27 ($\sigma = 1.4$); and above 50 years old – 2.07 ($\sigma = 1.2$). The difference between the age group under 29 years old and all other groups as well between age groups of 30 to 39 and 40 to 49 years old are equally statistically reliable at high level ($t > 3.5$; $p \leq 0.001$).

Results of correlation analysis also corroborate the trend of older and more experienced teachers feeling less tired but more ill. Regardless of a rather strong correlation between the number of illness and fatigue symptoms manifested by teachers ($r = 0.31$; $p \leq 0.001$) the number of the above fatigue symptoms negatively correlates with age ($r = -0.16$; $p \leq 0.001$) whereas correlation between age and the number of illness symptoms is positive ($r = 0.25$, $p \leq 0.001$).

Once again it was demonstrated that the teachers' occupational "price" manifests itself primarily on "homeostatic" level of adaptation (more illness symptoms with age) and not on productive one (more fatigue symptoms with age). We could measure one of specific parameters featuring the teachers' occupational "price" by observing the state anxiety. Such anxiety can be detrimental to efficiency of various activities (Kokun, 1996; 1997). By comparing the measurements taken in different age teacher groups we have ascertained that the subjects over 40 years old had statistically higher state anxiety level ($t = 3.342$; $p \leq 0.001$) as opposed to their younger colleagues. Therefore, one of the manifestations of the teachers' occupational "price" is the trend of their personal anxiety growing with age.

Conclusions

To summarize, we believe that the findings of this study make an important contribution to research on psychological and psychophysiological occupational "price".

First, this article reviews in a condensed manner the content, parameters and measurements of the occupational "price", determines major fields where its research can be practically applied and considered. The article lays down basic approaches that can be used to study the occupational "price", its interrelation with "homeostatic" and "productive" level of human adaptation to work, substantiates the approach to understanding its adequacy/inadequacy. The authors have scrutinized the parameters that lead to elevated occupational "price" of school teachers and the negative consequences that such "price" incurs.

Second, the research analyzed manifestations of school teachers' occupational "price". It was demonstrated that this "price" is felt primarily on "homeostatic" level of adaptation (deterioration of general well-being, state of health, etc.) and can be viewed as relatively adequate (optimal relation between occupational efficiency and expenditures of human psychological and psychophysiological resources). In the age aspect, the school teachers' occupational "price" is displayed in form of growing with age level of state anxiety, worsening of general well-being and labor capacity throughout various time periods, increased number of different illnesses and disorders. Older teachers tend to experience increasing number of fatigue symptoms, which are closely related with their state of health and decreasing number of fatigue manifestations associated with professional level and professional adaptation, which enables them to partially reduce their occupational "price" by enhancing their professional qualification and professional adaptiveness. The common adaptation types of teachers that we have identified on the basis of their general well-being and labor capacity can equally be of interest in practical sense.

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