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HEALTH AND SAFETY AT WORK AS PREDICTORS OF QUALITY OF WORKING LIFE: EMPIRICAL STUDIES AMONG WORKERS IN MEDICAL ESTABLISHMENTS*

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ABSTRACT - *This study explores the factor conditionality of the quality of working life from healthy and safe working conditions among workers of eight healthcare establishments in Bulgaria. 510 employees completed a QWL questionnaire and assessed several claims related to a healthy and safe work environment. The results showed statistical significance between age, general and special work experience, and the subjective feeling of safe working conditions. A statistically significant positive correlation relationship between QWL and issues pertaining to the subjective perception of health and safety at work was observed. This was observed both in the overall assessment and for all seven subscales: workforce, remuneration, workplace, organization management, professional careers, social security and social benefits. A major factor is "attack security (physical or verbal)". The results are discussed in the context of research and practice implications.*

Keywords: Quality of Working Life (QWL), Occupational Safety and Health (OSH), medical establishments, health workers, healthcare

1. INTRODUCTION

According to data from the National Statistical Institute of Bulgaria (http://www.nsi.bg/), the number of employed persons aged 20-64 years in 2017 is 3 058 400 and the number of employed persons by economic Human health and social work for the same period is 164 800, or about 5.4% of the employed population. Most of them work in health care facilities and can be exposed to a very wide range of risks, because in real working conditions, a complex of harmful and dangerous factors specific to each occupation and technology usually operate. Their effects on the human body can lead to occupational illness, disability, occupational traumatism and accidents.

At present, most of these risks are covered by EU legislation. In Bulgaria, the employer's basic obligations regarding the provision of healthy and safe working conditions are regulated by the Labor Code (LC, Chapter XIII) and the Health and Safety at Work Act (HSWA, Chapter III). According to the legislation in force, each organization must ensure the application of the minimum health and safety requirements for workplaces, work processes and using the provided work equipment; to provide every employee with appropriate training and instruction on safety and health at work; take account of specific hazards for workers and employees in need of special protection, including those with limited ability to work, and to provide them with facilities for their jobs in the performance of their duties; in working with high mental-psychological load, rhythm imposed, monotony and forced labor position, a certain labor norm, and in shift work to introduce physiological regimes of work and rest; in carrying out work related to a health and safety risk that can not be remedied in any way other than by means of collective protection, to provide workers

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with the necessary personal protective equipment and special workwear; to insure workers for risk of "occupational accidents" in the event of a danger to their life and health. (Labor Code, 2018; Health and Safety at Work Act, 2017).

Good workplace organization and conditions for healthy and safe work, though defined by normative documents, are often neglected, and this ignorance is the cause of an increased risk of occupational illness and disability, labor trauma and accidents.

Working conditions must be physically and psychologically safe from humane considerations.

The need for humanisation of work is the reason for the emergence of the concept of quality of working life (QWL).

One of the reasons for the emergence of the concept of QWL researchers is called a "process of alienation from labor". In the 20s and 30s of the XX century. this dehumanization of labor is the cause of a crisis and puts the question of the expediency of the further existence of such a way of production (Egorova, 2008). The problem is that in industrial society labor is losing its importance because it provides only a material basis for life and does not create conditions for self-expression (Varneke, Saakashki, 1999).

The changes that occurred in the second half of the twentieth century in the political, economic and technological spheres have an impact on employment and attitudes towards work. There is a tendency to shift the interest from material values to post-material (social status, self-realization, self-expression). Such changes, where labor is not only seen as a guarantor of existence and acquired its own value, call for a change in the approach to understanding and organization of hired labor (Varneke, Saakashi, 1999, Bezzubko, Nehota, 2013).

In the 1960s, the systematization of existing labor concepts and theories (concepts of human capital, human relationships, humanisation of labor) led to the creation of the concept of QWL. The new concept is born in response to the process of alienation from labor and treats man as a creative person.

Richard Walton (1973) is doing extensive research on QWL and is considered one of the authors and a great connoisseur of this concept. According to him QWL goes through different phases:

- The first steps were taken in the early 20s of the last century. Legislative changes have been adopted to protect workers from accidents at work and to eliminate dangerous working conditions;
- The 30s and 40s are marked by an active trade union movement that focuses on workplace security, work process, and economic gains for the worker;
- Various theories of the positive relationship between morality and productivity have developed in the 1950s and 1960s. In their view, humanisation of labor will lead to improvement both. Following are the attempts at reform and enrichment schemes at the workplace;
- Early studies provide a basis for further development. Since the late 1960s, there has been a renewal and expansion of ideas and experiments and the development of the QWL theory;
- In the 1970s, the idea of QWL, which according to Walton was wider than the previous ones, was adopted. This idea is something that must include the values that underlie the early reformist movements and human needs and aspirations.

According to some authors, a safe and healthy working environment is inseparable from the QWL factor. Walton (1973) defines QWL as a process by which an organization responds to employees' needs to develop a mechanism that allows them to fully share the decisions that shape their lives. The researcher offers eight categories for QWL assessment (Walton, 1975), one of which is a afe and healthy working conditions.

Workers spend at least a quarter of their conscious lives at work (Harter, Schmidt, Keyes, 2003), and QWL and OSH issues in health care establishments should be of interest to all stakeholders - workers, employers, decision-making unions, and researchers. However, studies linking OSH to QWL are not many. Consequently, it is imperative to consider the quality of working life and its relationship to occupational safety and health.

2. AIM

To investigate the influence of factors related to OSH on the QWL.

3. METHODOLOGY

Data collection: The survey was conducted during the months of July 2017 to September 2017 in 8 medical establishments in Bulgaria and covered 510 employees working in them.

For the purposes of the study, the A.P. Egorshin "Quality of working life" questionnaire was adapted (Egorshin, 2003). Seven sets of indicators are used: Workforce, Remuneration, Workplace, Organization management, Professional career, Social security and Social benefits. In each of the 7 sets of indicators has 10 questions.. The rating scale is 5-degree. Each question has a score of 1 to 5 where: the minimum score is "1 - very bad" and the maximum score is "5 - excellent".

The calculation is made for each subheading presented in the questionnaire and then calculated for the QWL scale, which is 350 points. According to the Russian researcher's methodology, the sum of the points of all seven subscales corresponds to a certain level of QWL.

In addition to the adapted and validated Egorashin questionnaire used in this study, several statements were added to the questionnaire and their rating scale is also 5-step - from "1 - I totally disagree" to "5 - I totally agree". They aim to identify other key factors that are not included in the underlying instrument. The formulated statements are: "I am protected from injuries from working with dangerous tools, machines, equipment or hazardous working methods and hazardous working environment factors", "I feel safe from attack (physical or verbal)", "My work environment is healthy and without risk of getting sick at work".

The results of the study are represented by descriptive statistics - absolute (n) and relative (%) frequencies, mean values (Mean) and standard deviations (SD). The relationship between issues and demographics has been investigated using the Chi-square method. In the correlation analysis, the nonparametric coefficient of Spearman was used. Multiple binary logistic regression was applied for quantitative estimation of factor conditionality.

Results with a level of significance $p<0.05$ were considered statistically reliable. For statistical processing of the data SPSS version 16 was used.

4. RESULTS

Demographic characteristics of respondents

Data from this study showed that approximately 4/5 (78%) of the respondents were women. Respondents' age in this study ranged from 20 to 75 years. Approximately 27.8% and 25.3%) are respectively age groups 45-54 and 55-64 years. These two age groups together account for approximately three quarters (54.1%) of the total sample, indicating that most of the workforce is aging (ie over 45 years of age). The mean age of the sample is 45.63 years (SD = 12.05). Approximately three-quarters (72.2%) of the respondents report that they are married, and non-married are 27.8%. Most respondents have a bachelor degree (44.6%), approximately one third have a master degree (30.0%). With the highest level of education (doctorate) are 2.0% and with the lowest degree (basic education) 1.2%. The analysis of the data shows that the average length of service is 22.03 years (SD = 12.47). More than half of the respondents (60.4%) worked for 20 years or more, and 12.2% had only 4 years or less work experience.

Relationship between demographic indicators and the subjective feeling of safe working conditions

The relationship between the demographic indicators and the claims concerning the subjective sense of safety and health at work has been investigated by the Chi-square method. No statistically significant relationships with gender, education, and family status were found (Table 1).

Table 1. Distribution of the respondents by demographic characteristics and evaluation of the surveyed issues.

Statement		Sex		Education			Marital status	
		Male	Female	secondary	bachelor	master	Married	Unmarried
I am protected from injuries from working with dangerous tools, machines, equipment or hazardous working methods and hazardous working environment factors	I totally disagree	6 (5,7)	13 (3,3)	1 (0,9)	11 (5,0)	7 (4,3)	14 (3,9)	5 (3,6)
	I do not agree	15 (14,3)	42 (10,8)	9 (8,0)	27 (12,2)	21 (13,0)	39 (11,0)	18 (12,9)
	It's hard to say	36 (34,3)	96 (24,6)	36 (32,1)	48 (21,6)	48 (29,8)	84 (23,7)	48 (34,3)
	I agree	33 (31,4)	170 (43,6)	46 (41,1)	103 (46,4)	54 (33,5)	154 (43,4)	49 (35,0)
	I completely agree	15 (14,3)	69 (17,7)	20 (17,9)	33 (14,9)	31 (19,3)	64 (18,0)	20 (14,3)
		$X^2(4)=8,56, p=0,073$		$X^2(8)=13,81, p=0,087$			$X^2(4)=7,14, p=0,129$	
I feel safe from attack (physical or verbal)	I totally disagree	12 (11,4)	34 (8,7)	9 (7,9)	21 (9,4)	16 (10,1)	34 (9,6)	12 (8,6)
	I do not agree	19 (18,1)	76 (19,5)	21 (18,4)	41 (18,4)	33 (20,9)	65 (18,3)	30 (21,4)
	It's hard to say	34 (32,4)	124 (31,8)	32 (28,1)	68 (30,5)	58 (36,7)	115 (32,4)	43 (30,7)
	I agree	28 (26,7)	110 (28,2)	35 (30,7)	68 (30,5)	35 (22,2)	98 (27,6)	40 (28,6)
	I completely agree	12 (11,4)	46 (11,8)	17 (14,9)	25 (11,2)	16 (10,1)	43 (12,1)	15 (10,7)
		$X^2(4)=0,83, p=0,935$		$X^2(8)=6,63, p=0,577$			$X^2(4)=0,91, p=0,923$	
My work environment is healthy and without risk of getting sick at work	I totally disagree	10 (9,5)	41 (10,5)	6 (5,3)	21 (9,5)	24 (15)	34 (9,6)	17 (12,1)
	I do not agree	26 (24,8)	76 (19,5)	22 (19,3)	49 (22,2)	31 (19,4)	75 (21,1)	27 (19,3)
	It's hard to say	32 (30,5)	147 (37,7)	38 (33,3)	83 (37,6)	58 (36,3)	126 (35,5)	53 (37,9)
	I agree	30 (28,6)	92 (23,6)	39 (34,2)	48 (21,7)	35 (21,9)	85 (23,9)	37 (26,4)
	I completely agree	7 (6,7)	34 (8,7)	9 (7,9)	20 (9,0)	12 (7,5)	35 (9,9)	6 (4,3)
		$X^2(4)=3,64, p=0,457$		$X^2(8)=13,02, p=0,111$			$X^2(4)=4,98, p=0,289$	

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In terms of age, general and special length of service, and their relationship to the subjective feeling of safety and health at work, there is statistical significance (p <0.05) (Table 2).

Table 2. Results of the analysis of the correlation relationships between age, length of service and investigated claims.

Statement		Age	Total work experience	Work experience of the current position
I am protected from injuries from working with dangerous tools, machines, equipment or hazardous working methods and hazardous working environment factors	R	0.094	0.096	0.081
	p	0.036	0.032	0.081
	N	495	495	460
I feel safe from attack (physical or verbal)	R	0.125	0.127	0.129
	p	0.005	0.005	0.005
	N	495	495	461
My work environment is healthy and without risk of getting sick at work	R	0.192	0.185	0.186
	p	<0.001	<0.001	<0.001
	N	495	495	461

Relationship between QWL and the subjective feeling of health and safety at work

The relationship between quality of life and claims referring to the subjective feeling of safety and health at work has been studied with the correlation coefficient of Spirman. A statistically significant positive correlation relationship has been established with both the overall assessment and all seven hypothesis. The results are presented in Table 3.

Table 3. Results of the analysis of the correlation relationships between QWL and the investigated assertions.

QWL		I am protected from injuries from working with dangerous tools, machines, equipment or hazardous working methods and hazardous working environment factors	I feel safe from attack (physical or verbal)	My work environment is healthy and without risk of getting sick at work
Total score	R	0.436	0.478	0.444
	p	<0.001	<0.001	<0.001
	N	495	495	495
Workforce	R	0.396	0.343	0.322
	p	<0.001	<0.001	<0.001

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	N	495	495	495
Remuneration	R	0.257	0.314	0.312
	p	<0.001	<0.001	<0.001
	N	495	495	495
Workplace	R	0.464	0.483	0.419
	p	<0.001	<0.001	<0.001
	N	495	495	495
Organization management	R	0.479	0.340	0.312
	p	<0.001	<0.001	<0.001
	N	495	495	495
Professional career	R	0.401	0.422	0.392
	p	<0.001	<0.001	<0.001
	N	495	495	495
Social security	R	0.261	0.311	0.277
	p	<0.001	<0.001	<0.001
	N	495	495	495
Social benefits	R	0.165	0.298	0.285
	p	<0.001	<0.001	<0.001
	N	495	495	495

Multiple logistic regression model

As a follow-up of the correlation analysis, multiple binary logistic regression was applied to quantify and identify significant health and safety factors affecting QWL. According to Egorashin's methodology, according to the final result, the respondents are divided into four groups - with an unsatisfactory, satisfactory, good and excellent level of QWL. For the purposes of this analysis, the respondents were regrouped. As a result, the following groups are grouped: (0) - low QWL respondents and (1) high QWL respondents. In the first group are all who have an unsatisfactory and satisfactory level of QWL, and in the second are those with a good and excellent level of QWL. The dependent variable is QWL, and independent (factor) variables include statements about safety and health at work. The results of the analysis are presented in Table 4.

Table 4. Results of multiple logistic regression analysis.

Factors	β	SE of β	Wald statistics	df	OR	95% CI for OR		p-value
Constant	-3.773	0.455	68.846	1	0.023			<0.001
I am protected from injuries from working with dangerous tools, machines, equipment or hazardous working methods and hazardous working environment factors	0.323	0.125	6.633	1	1.381	1.080	1.766	0.010

I feel safe from attack (physical or verbal)	0.528	0.131	16.109	1	1.695	1.310	2.193	<0.001
My work environment is healthy and without risk of getting sick at work	0.245	0.138	3.162	1	1.278	0.975	1.674	0.075

Two of the three statements examined are significant factors for QWL: "I am protected from injuries from work with dangerous tools, machines, equipment or hazardous working methods and hazardous working environment factors" and "I feel safe from attack (physical or verbal) ". The impact of an assault safety attack is stronger, increasing the chance of higher QWL by 1,695 times [OR=1.695, 95% CI: (1.310÷2.193), p<0.001]. The increase in injury from work-related injuries leads to an increase in the chance for a higher level of QWL by 1,381 times [OR=1.381, 95% CI: (1.080÷1.766), p=0.010].

The multifactor analysis carried out has analyzed the independent impact of each of the safety and health factors studied. As a leading among them, the "attack safety (physical or verbal) factor" has been identified, followed by "protection against injuries at work" and "risk of illness at work" was not a significant factor.

5. DISCUSSION

This study aimed to investigate the factorial conditionality of the quality of working life from healthy and safe working conditions.

The results showed statistical significance between age, general and special work experience and the subjective feeling of safe working conditions (p <0.05).

A statistically significant positive correlation relationship has been established between the quality of working life and the issues pertaining to the subjective perception of healthy and safe working conditions. This is observed both in the overall assessment and in all seven sub-groups: workforce, remuneration, workplace, organization management, professional careers, social security and social benefits.

Significant factors for QWL are two of the three investigated statements: "I'm protected from injuries from working with dangerous tools, machines, equipment or dangerous working methods and hazardous working environment factors," and "I feel safe from an attack (physical or verbally) ".

Our study is in line with Harrison (2000), Kerce and Booth-Kewley (1993), Newell (2002) and Stein (1983). According to them the safe and healthy working conditions have a significant impact on QWL.

Pacheco and Riaño-Casallas (2017) are of the opinion that a healthy and safe working environment is not only an integral but also determinant of QWL, because the aim of quality of working life and safety and health at work is wealth, productivity and protection workers in the workplace. They report that the QWL has a comprehensive and multidimensional character, so that interference with the problems affecting the well-being of workers in their working and family environment is complemented by occupational safety and health.

6. CONCLUSION

The results of this study show that health and safety at work are positively related to the quality of working life. Employees who perceive their workplace as healthy and safe experience a high quality of working life. This safety satisfaction is likely to expand or overflow, so employees will be satisfied with other aspects both at work and outside the workplace (Pacheco & Riaño-

Casallas, 2017). These facts should be taken into account by healthcare managers when developing programs aimed at safety and health at work and aiming at improving the quality of working life.

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