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THE FEATURES OF HEALTH AND PSYCHOLOGICAL STATUS OF NURSING PERSONNEL AND ITS RELATIONSHIP WITH THE LIFESTYLE AND WORKING CONDITIONS

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Keywords: health; health factors; job satisfaction;nursing staff;poll; psychological constitution

ABSTRACT

High quality of medical care is the main goal of the Russian healthcare system. Nursing care is a part of it. The main problem in nursing care is the nursing shortage. So the analysis of its reasons is very important. One of such reasons is physical condition of nurses.The aimof this studywas to analyze the health status of nursing staff, factors that influence it, and elaborate the measures to maintain their health (in the case ofthe Forensic Medical Bureau staff).Materials and methods.In this study, two methods were used: analytical (analysis of the literature on the health of nursing staff andlaws and regulations in the field of the protection of their health) and sociological (two questionnaires). The survey was conducted among nurses in a Bureau of Forensic Medical Examination. 200 employees were interviewed in the study.Results.Only 18.9% of the respondents felt completely well, 59.5% felt well enough, 10.8% of respondents "rather felt sick"(10.8% of nurses failed to answer the question). 54.1% of respondents were given a medical disability certificate during the current year: 16.2% once, 18.9% — twice, 13.6% — 3 times, and

5.4% — 4 times or more.24.3% of the respondents had cardiovascular diseases, 29.7% — diseases of the musculoskeletal system. The majority of the respondents (97.3%) said that they are exposed to hazard in their professional activity.Conclusions. Some factors with negative influence on nursing health were revealed, and the measures for its improvement were proposed.

Keywords: health; health factors; job satisfaction;nursing staff;poll; psychological constitution

INTRODUCTION

The high level of public health is one of the keysto successful development of the country, its economical growth (Izmerov 2014; Volkov & Volkova 2014). A lot of factors influence the health, and the level of healthcare delivery is one of them. The quality of medical care consists from many aspects, including quality of nursing care (Mylnikova 2013). The nurses are the most numerous part of medical staff, that is why there is a special nursing development program in the Russian Federation (Programma razvitiya sestrinskogo dela v Rossii na 2010–2020 goda 2009).

Nowadays, there are some problems in nursing care provision. The main of them is the nursing shortage. The reasons of this phenomenon are various. The first is the salary level, which can't motivate the nurses to workwith high efficiency (Lelyuk 2015). On nurses' opinion, this level does not correspond to the intensity of work, high physical and mental load, social significance of nursing labor, who, along with doctors, are responsible for health and, sometimes, life of their patients.

The second reason, related to the first one, ismany factors at the workplace affecting the health of medical staff(Andreev et al. 2013). The "worker's health" category is an economic value, since it influences the profitability, and health is seen as a necessary condition for high labor potential and an indicator of the general society development and its cultural level. The concept of worker's health, in contrast to the accepted definition of health in general, includes such qualities as the ability to adapt to the changing conditions in accordance with the volume and type of professional activity. The possibility to comprehensively address specific professional problems depends not only onthe diagnosis but also on the functional state. Thus,any manager must understand the capacity of every worker to solve different problems both under normal circumstances andunder extreme conditions, which depends only partially on his or her health status.

It should be stated in the context of the problem that nowadays health indicators of medical staff, especially nurses, including life expectancy, is significantly different (for the worse) from the average rate among the population (Pogosyan 2015).Negative factors at workplace affecting the health of the staff include physical, chemical, biological, and psychological factors (Kraeva & Makarova 2014; Pupelytė et al. 2016). The level of occupational incidence among medical workers (especially among nursing staff) is higher than in many other professional groups (Larchuk 2006). In addition to the knowledge about general health trends in the medical staff, it is necessary to study its specifics for different specialties. However, there is a lack of such researches. At the same time, such researches are important for development of personnel management strategies in every organization and its units (Canco 2011). For example, psycho-emotional stress in forensic-medicalbureaus can be caused by the constant violation of the dynamic stereotypes, including systematic violations of daily biorhythms because

of the work at night time or day duties. This work is also associated with human suffering, death, enormous loads on the nervous system, high responsibility for the welfare of others. These factors should be taken into account particularly, including the prospectsfor developmentof adequate mechanisms of the staff's psychological protection (according to individual psycho-physiological characteristics).

But now the questions of personnel management are not yet sufficiently understood and poorly introduced into practice (Gvedashvili 2015),which is the third problem. While the general strategy in administration is the application of not only the most common rules of management, but the ideology ofpersonal management (Fetishcheva 2014; Gvedashvili 2015; Zhuk 2015), the heads of medical organizations pay little attention to such aspects as the level of interaction (between different categories of medical staff), preconditions for the development of burnout syndrome of the different degree of gravity, conditions for effective communication, and so on (D'Amour et al. 2005;Milton 2009; Bainbridge etal. 2010; Petrova & Pogosyan 2013;Kucher & Vodopiyanov 2014). Meanwhile, analysis of these issues and development of the optimal labor environment (including its psychological aspects) on their basis are an important condition for ensuring a high level of medical staff health.

The high level of personnel management alsosuggestscreating conditions for compliance with the ideology of a healthy lifestyle, possibilities for psychological relaxation, which can be important, among other things, for high work motivation of the medical staff (Starostin & Noskin 2014; Petrova & Pogosyan 2016).

Since there is no data about the nurses health status in such medical service as forensic medical bureaus, but the problem is so actual,this study was conducted.

The aim was to analyze the health status of nursing staff, factors that influence it,and elaborate the measures to maintain their health (in the case ofthe Forensic Medical Bureau staff).

In accordance with the objective,the following taskswere formulated:

1. to carry out a self-evaluation of the health level among nurses;
2. to examine the features of their lifestyle and working conditions;
3. to analyze the psycho-emotional status using a special scale;
4. toofferthe measures for improvingthe nurses' health.

MATERIALS AND METHODS

At the first stage of the study, an analytical method was applied: a content analysis of the literature on the health of nursing staff, as well as the laws and regulations in the field of the protection of their health, was conducted. It was found out that the main regulatory documents are: Federal Law "On the Sanitary and Epidemiological Welfare of the Population of the Russian Federation", "On the Bases for the Protection of the Health of Citizens in the Russian Federation", "On the State Forensic Medicine Activities in the Russian Federation", the Order of the Ministry of Health Care and Social Development of the Russian Federation

"On approval of the Procedure for Organization and PerformingForensic Medicine Examinations in the State Forensic Medical Institutions of the Russian Federation". Analysis of these documents hasshown that no special measures(different from general ones) to protect health service staff of forensic medicine service are taken.

The sociological method was used in this study. Two questionnaires were developed. When developing the questionnaires,we took into accountmany risk factors that have an extremely negative impact on human health. All the factorswere classified into the following types: lifestyle factors (smoking, alcohol consumption, physical activity level, unfavourable conditions, unbalanced diet, etc.), biological and genetic factors, environmental factors, and factors associated with thetreatment delivery (efficiency of preventive measures, quality of medical care, etc.). So the first questionnaire disclosed medical and social characteristics of employees, revealed some peculiarities of their lifestyle and professional activities, and sought the respondents' views on the importance of the impact of various factors on their health.

The second questionnaire consisted of the Hospital Anxiety and Depression Scale (HADS) aimed at identifying psychological problems (anxiety and depression) among the respondents. This scale was developed in 1983 in order to reveal the mentioned states in general practice via screening. The scale consists of two parts, seven questions in each. There are four possible answers (0 to 3) to each question, the more points a respondent gaining, the more expressed his anxiety and/or depression. The scale is interpretedaccording to the following criteria: 0–7 points — the norm; 8–10 points — subclinical expression of anxiety/depression; 11 points or more —clinically apparent anxiety/depression.

The survey was conducted among nurses in a Bureau of Forensic Medical Examination. 200 employees were interviewed in the study. The overwhelming majority of respondents were women(81.1%),hence, the proportion of men was 18.9%. 29.7% of respondents were under the age of 30 years, numbers ofrespondents in age groups of 30–39 and 40–49 years were almost equal (27.0% and 27.1%, respectively); 16.2% were persons of 50 years and older. The average age of the respondents was 37.4±1.6 years. It is important to note that the nursing personnel prevailsin staff structure of the Bureau of Forensic Medical Examination (46.2%, the percentage of the staff with higher education is 34.6%, another staff — 19.2%). The staffing level is 95.0%, but the dual post rate was 1.5 (thus, the significant part of the staff has more than one full-time job for material reasons, which may affect their health). The majority of nurses (85.0%) have qualification grades (so their professional level is quite high).

The data of official statistics were used as well. It is important to mention that the workload (the number of aupsies) is constantly increasing (Table 1).

Table 1. Dynamics of forensic medical autopsies

Years	Absolutely	Visibility indicator, %	The growth index, %	Rate of increasing, %
2013	9856	100.0	–	–
2014	10458	106.1	106.1	6.1
2015	10726	108.8	102.6	2.6

All the data received were encrypted in accordance with the composed groups, and processed by MSExcel program. 25 group statistical tables have been compiled, the extensive indices (as the ratio of parts of a phenomenon to the whole, expressed as a percentage) were calculated, the average value was determined by the accuracy of the calculated values. Statistical significance was evaluated through Student's t test. Significant differences were recognized at the value greater than or equal 2.The work is illustrated with a pie chart.

This study was approved by the expert council of Pavlov First Saint Petersburg State Medical University.

RESULTS

The questionnaire included the self-rating of the health with one of the following ratings: excellent, good, satisfactory, bad. The majority (75.7%) of respondents rated their health as "excellent", and 24.3% as "good". Other answers were absent. These responses contradicted the answers to other questions, complementary to this one and specifying it. Only 18.9% of the respondents felt completely well, 59.5% felt well enough, 10.8% of respondents "rather felt sick". The other 10.8% of nurses failed to answer the question, which, albeit indirectly, meant uncertainty in their health.

Despite a relatively high self-evaluation of the health, more than half (54.1%) of respondents were given a medical disability certificate during the current year: 16.2% once, 18.9% — twice, 13.6% — 3 times, and 5.4% — 4 times or more.The percent of those who was givena medical disability certificate was the highest among the nurses of 30–39 and 40–49 years old (Table 2).

Table 2. Percentage of respondents of different age who received (not received) medical disability certificate

Certificate of disability	Age				
	Up to 30	30–39	40–49	50 and more	All ages
Yes	36.4	66.7	62.5	50.0	54.1
No	63.6	33.3	37.5	50.0	45.9
In total	100.0	100.0	100.0	100.0	100.0

More than a third of respondents (37.8%) mentioned that they had certain chronic diseases (54.1% did not mention any, and 8.1% said they did not know, thus expressing uncertainty in their health). The percentage of employees with chronic diseases is increasing with the age. In the age group under 20 only 27.3% of respondents had chronic diseases, while in the group of 50 years and older this indicator more than doubled (50.0% of respondents noted that they have chronic diseases) (Table 3).

Table 3. Distribution of respondents of different ages by presence and absence of chronic diseases, %

Age	Chronic diseases			
	Yes	No	Can't say	In total
Up to 30	27.3	63.6	9.1	100.0
30–39	41.7	50.0	8.3	100.0
40–49	37.5	50.0	12.5	100.0
50 and more	50.0	50.0	0.0	100.0

All ages	37.8	54.1	8.1	100.s0

24.3% of the respondents had cardiovascular diseases: in the age up to 30 — 18.2%, in the group of 30–39 — 33.3%, in the group of 40–49 — 12.5%, and in the age of 50 and older — 33.3%.29.7% of nurses had diseases of the musculoskeletal system: in the age group of up to 40 — 27.3%, in the group of 40–49 — 25.0%, and in the age group of 50 and more — 16.7%.

A number of questions were devoted to the respondent's opinion about negative professional factors. The majority of the respondents (97.3%) said that they are exposed to hazard in their professional activity. More than half of employees (51.4%) mentioned the impact of computer radiation, slightly less than half (48.6%) noted such factor as cold (low temperature in the premises), 37.8% marked the role of noise during work, and 40.5% indicated the influence of other factors such as interactions with chemicals and biological agents, as well as X-rays.

The behavioral risk factors were evaluated according to criteria such as smoking, alcohol consumption, sleep duration, regularity of meals, physical activity. The study has shown that more than half (54.1%) of respondents smoked, 10.8% of them said they smoked sometimes, every third respondent (35.1%) was a non-smoker. The number of smokers decreases with the age (Table 4).

Table 4. Distribution of employees by age and attitude to smoking, %

Age	**Smoking**			
	No	**Sometimes**	**Yes**	**In total**
Up to 30	27.3	0.0	72.7	100.0
30–39	30.0	20.0	50.0	100.0
40–49	20.0	20,0	60.0	100.0
50 and more	83.3	0.0	16.7	100.0
All ages	35.1	10.8	54.1	100.0

To the question "Do you consume alcohol?", 69.4% answered positively. Among them, 56.8% said they drank only on holidays, and the othersjust said "yes". One third of respondents (35.1%) said they did not drink at all. The others didn't answer the question.

Analyzing the respondents' answers to the question of the regularity of meals, it was found that only 45.9% of employees eat regularly. 29.7% of respondentseat whenever possible. Almost one out of five respondents (18.9%) eat irregularly, 5.4% were undecided.

Sleep duration in the study groupis 6–7 hoursin the majority of cases (43.2%). About a fifth of respondents (21.7%) sleep 8 hours and more a day. A large number of the respondents sleep less than 6 hours a day (35.1%). The minimal sleep duration was registered among the respondents in the age of 50 and more (Table 5).

Table 5. Distribution of different respondents by sleep duration per day, %

Age	**Sleep duration, hours**			
	Up to 6	**6–7**	**8 and more**	**In total**

Age	Sleep duration, hours			
	Up to 6	6–7	8 and more	In total
Up to 30	27.3	54.5	18.2	100.0
30–39	40.0	30.0	30.0	100.0
40–49	30.0	50.0	20.0	100.0
50 and more	50.0	33.3	16.7	100.0
All ages	35.1	43.2	21.7	100.0

An important factor influencing health is physical activity level. Therefore, it is important to found out the reasons for employees to reduce their physical activity. So, answering the question "What factors reduce your physical activity (exercise)?", the large part of respondents mentioned "low income" (35.2%); lack of free time was mentioned by 27.0% of the respondents; 13.5% are indifferent to physical activity (sports activities); difficult working conditions were reported as a cause by 10.8% of the respondents. 13.5% could not answer the question.

One of lifestyle criteria is the level of medical activity. The nurse opinion about preventive examinations was as follows. 59.5% of them viewed themquite positively, the third part of workers (29.7%) expressed indifference, 5.4% expressed their negative attitudes (5.4% could not answerthis question).More than half (64.9%) of the workers surveyed are ready to attend preventive examinations only if it is necessary to continue their studies or work, 18.9% are ready to attend examinations only by referral from a doctor, and only 16.2% of the respondents (only women)are ready to attend examinationson their own initiative.

Answering the question "Do you always comply with the doctor's instructions?",the respondents offered the following responses. Only 37.8% of them said "yes", 48.6% said they did it irregularly, 10.8% of respondents could not answer the question. The remaining 2.7% did not comply with the doctor's instructionsat all. Among men, only 22.2% comply with the doctor's instructions, among women, this rate was significantly ($p<0.05$) higher (42.9%).

To assess respondents' understanding of the value of their own health, the following question was included in the questionnaire: "Do you think that you are enough careful of you health?". The majority of the respondents said that they do not pay enough attention to their health (70.3%). More than a quarter of respondents (27.0%) believe that they take care of their health to the full, while 2.7% said that they did not care about their health at all.9.1% of the workers under 30 do not take care of their health. 90.0% of persons aged 40 to 49 years said they are not concerned about their health. The maximum number of the respondents taking care of their health to the full extent was found in the age group of 30–39 (50.0%) (Table 6).

Table 6. Distribution of the responses by respondents of different age groups to the question "Do you think you care enough for your health?" %

Age	Yes	Not to the full extent	No	In total
Up to 30	18.2	72.7	9.1	100.0
30–39	50.0	50.0	0.0	100.0
40–49	10.0	90.0	0.0	100.0

Age	Yes	Not to the full extent	No	In total
50 and more	33.3	66.7	0.0	100.0
All ages	27.0	70.3	2.7	100.0

The next question was“What factors can make positive impact on your health, in your opinion?”. 43.2% of the respondents believe that it may be discarding unhealthy habits; 27.0% thought that it may be the improving of their material welfare, 16.2% of the respondents reported the visit to the doctor, 10.8% — regular exercises, 2.7%—better working conditions.

Answering the question “What the measures must be taken by the administration to improve the health of the employees, in your opinion?”, the respondentsoffered the followingresponses (Figure 1). 35.1% could answer nothing. 21.6% believed that it may bebetter medical care, and 18.9% — improvement of the organization of medical examinations. 13.6% pointed to the need to improve working conditions. 10.8% considered it important to increase wages.

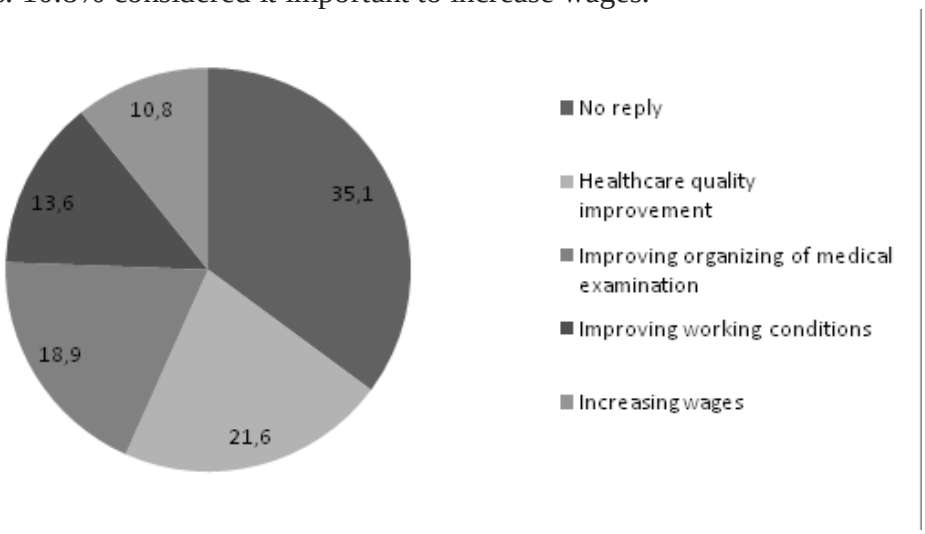

Figure 1.

The study of the psychological state of the employees has shown that just over half of them (54.1%) did not have anxiety or depression, while 45.9% had one or another form of anxiety or depression: a combination of both (in 27.0% of cases), only anxiety (16.2%), only depression (2.7%). Among women, the absence of the mentioned symptoms is registered in 63.3% of cases, among men — only in 14.3% of cases ($p<0.001$). The combination of anxiety and depressive state is registered in 42.8% ofcases among men, and in 23.3%of cases among women. Depression (in its “pure” form) was observed only among men (14.3% ofcases).
The proportion of patients with anxiety and depression was different across age groups. So, 69.2% of nurses in the age group of 18–30 years had no anxiety and depressive state, in the group of 46–60 years this index was 60.0%, in the group of 31–45 years — 35.7%. Percentage of combined forms was maximal (42.9%) among nurses aged 31–45, 15.4% in the group of 18–30 years, and 20.0% in the group of 46–60 years.

The study of anxiety and depression symptoms among individuals with different work experience has shown the following. The percentage of employees with the presence of these symptomswas the highest (57.1%) among the respondents

withwork experience of up to 10 years. Further, the figure decreases(to 25.0% with a work experience of 10–15 years) and increases again(37.3%with a work experience of more than 10 years).

An important part of the psychological comfort is team environment. Respondents were asked to assess their colleagues by choosing one of three statements. Most of the respondents appreciated their colleagues as good and nice people (78.0%), however, more than a fifth (22.0%) of the respondents judged themrelatively negatively (15.0% believed that most members of the team "have a mind on their own", 7.0% — that the colleagues were unpleasant people). It is clear that the level of psychological status influences both perception of others and the nature of relations with them. If the latter are uncomfortable, they can aggravate psychological problems.

In turn, dissatisfaction with relationships in the collective can be a factor of job satisfaction in general and motivateto continue working in the same place or change jobs. The survey has shown that the majority (63.0%) of the respondents sometimes thought about changing job, while 11.0% did it frequently.

Other professional factors also influence job satisfaction and psychological status. Respondents were asked to report what conditions of their professional activity they were dissatisfied with. 57.0% of the respondents mentioned "unsatisfactory wages", 14.0% — lack of career advancement, 9.0% —inconvenient work schedule.

Only 16.2% of the respondents were fully satisfied with their job (54.1% answered that they were not completely satisfied with their work, and 29.7% — that they were completely dissatisfied with it). Among the men interviewed, 22.2% were fully satisfied with their work, while among women — only 14.3%.
Job satisfaction and the level of work motivation depend on the management style in the organization. It has been found out that 52.0% of the respondents believed it to be quite democratic. 33.0% said that the management is quite adequate, though sometimes it does not take into account capacities of the employees and workplace environment. 9.0%of the nurses said that the attitude of the managers is respectful andthat they take into account the personality, willingness and capacities of the employees, and only 6.0% pointed toexcessivelybrash, demanding and principled attitude of the management.

DISCUSSION

Analysis of the health self-assessments by the nursing staffin the Bureau of Forensic Medical Examination has shown the following. Despite the fact that most respondents have sufficient work experience in health care, they could not assess the state of their healthobjectively. Initially, it was found out that the vast majority of the respondents assessed their health as excellent. However, it turned out that most of the respondents were given a medical disability certificate during the year, and more than a third had a history of chronic diseases. It is important to mention a number of factors that could have a negative impact on health, in the respondents' opinion: a particular lifestyle (smoking, alcohol consumption, irregular meals, inadequate sleepduration, physical inactivity) and working conditions (computer radiation, cold, noise, etc.). Among the factors that can improve health, along with better working conditions and lifestyle changes,the respondents mentionedthe increase of salary level as well.

Some changes in the respondents'psycho-emotional status were identified. 45.9% of them had one or another form of anxiety and/or depression.These symptoms are most pronounced among the workers with work experience of up to 10 years. Thus,the management should pay more attention to the development of specific forms and methods of adapting of young employees to the new workplace.

Physical and psychological status may be a factor influencing the relationship in the team, working efficiency, and even decision to change it. The research has proven the existence of such intentions in some respondents. In the context of the existing staff shortages, a staff loss is an extremely undesirable phenomenon. Therefore, the data presented in the study are important in the elaboration of human resource management activities.

CONCLUSIONS

The study has shown that in spite of the initial optimistic self-assessment of their health,a considerable number of employees had health problems (including chronic diseases). Furthermore, the disorders of the psycho-emotional sphere (anxiety,depression) that could affect the quality of work have been revealed. The fact of some employees being dissatisfied with the relationships in the team, whichmight contribute to aggravation of psycho-emotional disorders, should attract attention of the senior management.

Working conditions and salary level are the factors affecting health, and theyshould be controlled to a greater or lesser degree. Dissatisfaction with salaries and heavy workload could be a demotivating factor in the work, even forma decision to change the work, which could aggravate the deficit of nurses. It is necessary to install safety monitors on computer screens, improveventilation in the premises where people work with chemicals, provide staff with warm clothes. It is also necessary to establishtransparent and understandable pay system, a rewarding mechanism, which would motivatethe personnel.

The preventative measures in the Bureau must be enhanced. Attention should be paid to the optimization of preventive examinations, which must end with mandatory recommendations for the preservation and strengthening of health. It would be useful to hold periodicinterviews with employees in order to develop sustainable awareness of the importance of a healthy lifestyle. The schedule must be compiled so that each employee could have enough time to rest and regular meals.

In order to promote a healthy lifestyle among employees, the managersshould organize regular sporting competitions and outdoor activities.

Finally, the actual problem is to organize psychological consulting of employees (it is necessary to hire a psychologist or conductperiodic psychological trainings. A recreation room should be arranged in the Bureau for the staff nursing care, with the aim of physical and psycho-emotional unloading. It may be possible tohave on board a specialist in psychologyin order to timely eliminate anxiety or depression among nursing staff.

Solution of these problems will not only improve the health of employees, but also improve efficiency of their work.

Implications for Clinical Forensic Nursing Practice

These data may be used in the managers' practice in planning and implementing comprehensive measures for improving nursing health and optimizing their work conditions. The methodology of such studies proposed in the article may be useful in other medical organizations for similar studies and for health monitoring among medical staff of all categories.

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FIGURE LEGENDS

Figure 1. The structure of the respondents' answers to the question "What the measures must be taken by the administration to improve the health of the employees, in your opinion?", %

TABLE LEGENDS

Table 1. Dynamics of forensic medical autopsies

Table 2. Percentage of respondents of different age who received (not received) medical disability certificate

Table 3. Distribution of respondents of different ages by presence and absence of chronic diseases, %

Table 4. Distribution of employees by age and attitude to smoking, %

Table 5. Distribution of different respondents by sleep duration per day,%

Table 6. Distribution of the responses by respondents of different age groups to the question "Do you think you care enough for your health?", %