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Medical and Social Characteristics of Water Transport Workers of the Republic of Sakha (Yakutia)

ABSTRACT

The article presents the results of medical examination with questioning of workers of a water transport of Yakutia. This document provides information about age, nationality, sex. Moreover, the social characteristics (work experience, position, marital status), the attitude to health, attitude to unhealthy habits are analyzed. Harmful production factors of respondents are considered precisely and its relationship with nosological structure of diseases.

Keywords: water transport, workplace factors, diseases.

INTRODUCTION

River transport has the great social and economic importance for the Republic Sakha (Yakutia). Lena River is the main thoroughfare of the North-East of Russia. It provides the delivery of cargos from the central part of the country to this region. Being one of the main type of transport of the republic, it provides the delivery of economic cargos of North-East of Russia: the Republic Sakha (Yakutia), Irkutsk region, Krasnoyarsk region, Chukotka Autonomous Area, and also it delivers cargos at the area of the North seaway from Khatanga bay to Peveka in arctic and western territories of republic. Water crafts of mixed navigation river-sea carry out the transfer of oil products. The existence of less accessible areas, where cargos are delivered only by river transport, and climate and geographical specifics of the region, which allows the short-term period of navigation, needs high productivity in short deadlines.

In accordance with the orders №206 dated under 11.04.2005 "About Federal medical and biological agency" and №95 dated under 26.06.2008 "About the working process of departments of FSI "FEDMC of Roszdrav" the medical service of water transport workers is transferred to Federal medical and biological agency of Russia (FMBA of Russia), Lensk Central Basin Hospital was renamed into Yakutsk hospital FSBIH "Far Eastern District Medical Center of Federal Medical and Biological Agency". Medical services of water transport workers are provided according the state task.

According the order of the Government of the Russian Federation №1156 dated under 21.08.2006 to Yakut hospital FSBIH "FEDMC FMBA" are added the following companies of water transport in the republic: " Lensk United River Shipping Company" JSC, FBI "Administration of Lensk Basin", Yakut and Kolymsk areas of water ways and navigation, "Kolymsk Navigation Company" LLC, "Navigation company "Yakutsk" LLC, "River Port "Yakutsk" LLC, North-Eastern Management of State Sea River Control, trade-union organization of workers of a water transport YRPO "Basin Committee of Fleet" and Yakut Institution of Water Transport. They are served under the following contracts "Passenger Regional Management" LLC and "River Taxi" LLC.

The problems of decreasing and preventing the professional diseases among the members of navigation team are the priority in activities of medical prophylactic institutions on water transport. The specific of work of navigation team on river-crafts has the strict requirements to the health of people working on river fleet. High influences on formation of diseases have the shortcomings of organization of the regime of labor, life, food, habitability on the craft etc. The leading factors in this are: the influence of professional damages- noise, vibration, high wetness, different climate, geographical and meteorological factors. Besides that, the workers of water transport have high psycho-emotional stress [2]. Successful economic development of the country directly depends on conditions of labor resources, quality of which is closely related with quantity and health level of the population, who is taking part in economic activity of the government, because the health of workers is the necessary condition to increase the productivity of labor and economic growth, as well as it determines the safety and welfare of society [1]. All mentioned above determines the necessity of modernization of the health service on the water transport and for improvement of health and prolongation of labor longevity of water transport workers.

The **aim** of research is the assessment of medical and social factors, which influence on health of water transport workers of the Republic Sakha (Yakutia).

MATERIAL AND METHODS OF RESEARCH

On the basis of the Yakut hospital FSBIH "FEDMC FMBA" it was conducted the medical examination with questioning of 367 people, aged from 18 to 78 (the average age $42,8 \pm 13,1$ years), man - 287 people (average age $42,5 \pm 13,4$), women - 60 people (average age $44,3 \pm 1,5$) (picture 1, a). People from 30 to 39 turned out to be the leading age group, and the leading ethnic

group turned out to be Russians (88,56%) (picture 1, b). The questioning was conducted according the requirements of Helsinki declaration (2000).

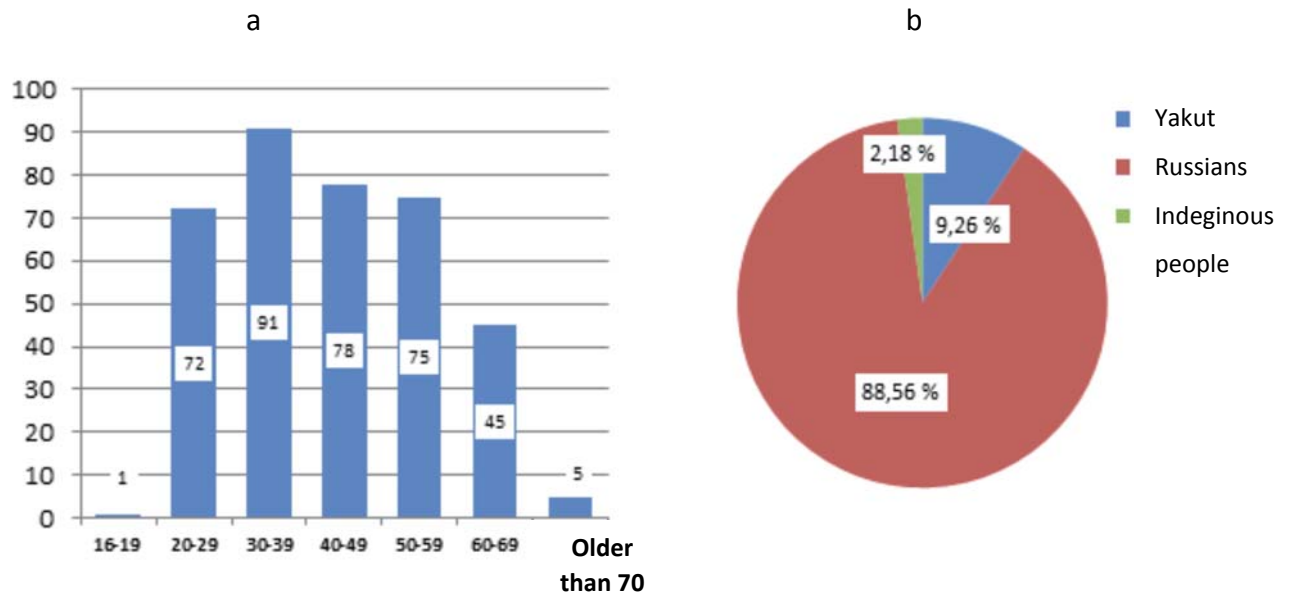


Figure 1. Differentiation of the questioned people in accordance with age (a) and ethnicity

RESULTS AND DISCUSSION

The questioning showed that natives of Yakutsk amounted 35,8% (131 people), other areas of the Republic Sakha (Yakutia) - 19,3 % (71 people). The rest part 44,8 % (164 people) turned out to be natives of other subjects of the Russian Federation.

The differentiation by the work position showed that among the examined people, the specialists of water transport (wheelmen, machinists, mechanics, cranemen, docker-skinners, conductors, craft cooks etc.) amounted 78,9% (289 people), managers (captains of crafts, managers of surveying parties, machine-shop managers) - 12 (44), workers-6,5 (24) and others 2,72% (10 people). Among specialists of water transport 27,8% have the work experience more than 20 years, 20,1 - 10-20, 27,8 - 5-10, 15,6 - to 5 yers, 8,68 - to 1 year, i.e. 75,7% of workers had the work experience more than 5 years. 54,5% of managers the work experience was more than 20 years.

Among the interviewed people (366 people) 62,02% are married, 22,95% are single, 9,5% are divorced, and 5,46% are widowed. Single people are predominantly among specialists of

water transport (26,73%), and age group constitutes from 20-29 years (55,5%). Divorced people are among of age group 40-49 years (16,9%).

Around 80,2% (292 people) of interviewed people gave the positive answer to the question "Are you satisfied with your state of health?"

The interview on the influence of harmful workplace factors on the workers of the water transport showed that 45,13% of the interviewed people deny its existence, 16,6% indicate one factor, 17,27% – two factors, 18,38% – three factors, 3,06% indicates from four to six factors (picture 2). More than third part of interviewed people (31,75%) have the duration of influence of professional harmfulness more than 25 years, 28,13% - to 5 years and 22,84% - to 10 years.

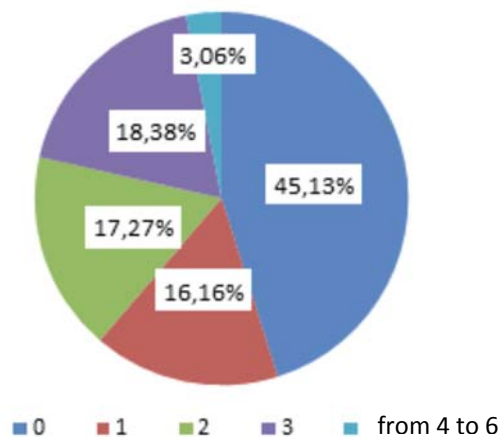


Figure 2. The quantity of factors of the working environment of the questioned people

The results of questioning showed that such production factors as noise (74,11%), vibration (72,59 %) are the most widespread among the workers of the water transport. Around 12,69 % of questioned people indicated the influence of the electromagnetic radiation, 11,7%- the dustiness of the work environment, 6,09% - the welding aerosols.

It should be noted, that 66,85% of the questioned people think that their work is stressful. The analysis showed the significant differences depending on the position ($\chi^2=19,26$, $p=0,000$), thus 95,45% of managers , 63,41% specialists and 16,6 % workers indicate that the work on the occupied position is stressful.

To the question "Are you physically active?" - 74,04% of the questioned people gave the positive answer and 25,6% think that the physical activity for them is not enough. The insufficient

physical activity was indicated by 56,52% of people aged from 20 to 29, 46,77%- from 30 to 39, 22,22% from 40 to 49, 33,9% from 50 to 59, 9,7% from 60 to 69 years old.

The analysis of the answers to the questions, concerning the unhealthy habits, showed that 23.69% of questioned people do not drink alcohol, 32,51% do not smoke (picture 3, a, b). Thus, smokers constitute 58.20% and alcohol drinkers 13.77%.

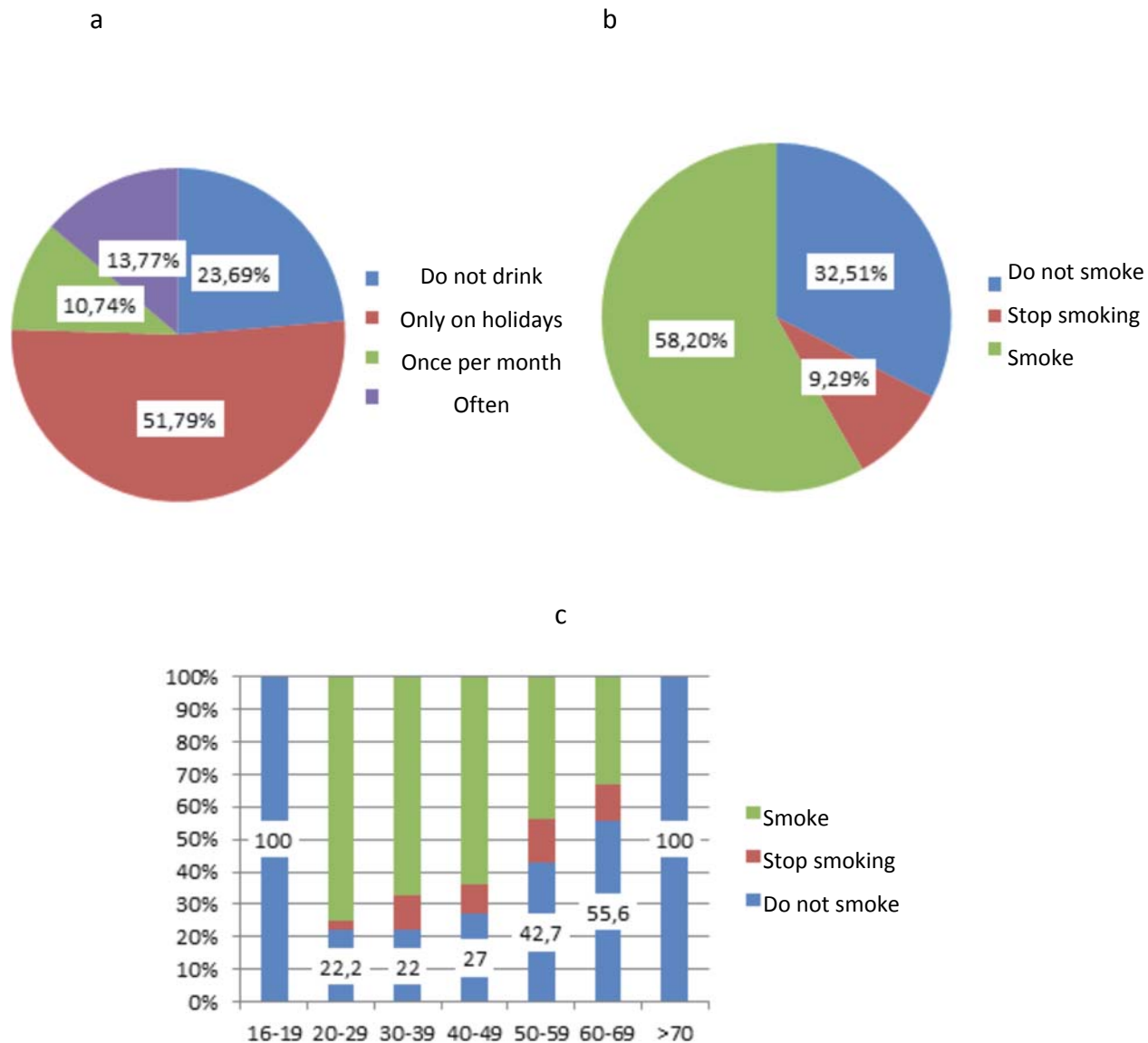


Figure 3. Prevalence of unhealthy habits (alcohol-a, smoking-b) and dependence of smoking on age (c)

It turned out that the percentage of the smokers depends only on the age of questioned people ($\chi^2=43,92$, $p=0,000$), but not from the occupied position, labor stress, place of live, education and other factors. It is necessary to say, that the highest percentage of the smokers is in the age group 20-29 years (75%), with age the number of smokers decreases (picture 3, c).

The results of medical examination of workers of companies of water transport showed, that the cardiovascular diseases occurred more often (35,15%), than other diseases. From 129 people with cardiovascular pathology, around 104 (80,6%) have a diagnosis - essential hypertension, which appeared to be most depended on the age ($\chi^2=101,24$; $p=0,000$) and from the occupied position ($\chi^2=15,2$; $p=0,019$). More often this pathology is met among people in senior age groups 50-59 years (56%) and 60-69 years (68%) and 47% managers.

The pathology of endocrine system - 76 people (20,7%) appeared to be next according the frequency among the examined people. 82,8% suffer from fattiness (63 people). The frequency of fattiness increases with age ($\chi^2=17,93$; $p=0,006$). It should be mentioned that people, who chose from different variants of food ("milk", "vegetable", "meat" and "mixed") the variant "mixed" more often suffer from fattiness ($\chi^2=11,08$; $p=0,05$). Diseases of nervous system are met at 15,5%, musculoskeletal system at 15,04%, urogenital system at 11,99%, respiratory organs at 11,98%, digestion organs at 9,81 %.

It is necessary to mention that the frequency of sensorineural hearing loss of the examined people was high (12,9%). This pathology has the linear dependence ($\chi^2=53,28$; $p=0,000$) on the age. Besides this, the dependences from the following factors of the production environment were identified: noise ($\chi^2=7,72$; $p=0,005$) (picture 4,a) and vibration ($\chi^2=6,59$; $p=0,009$). The results of the analysis show that, besides the mentioned above factors the frequency of sensorineural hearing loss depends on the quantity of the simultaneous combination of several factors of production environment (noise, vibration, dustiness etc) ($\chi^2=14,74$; $p=0,022$) (picture 4,b).

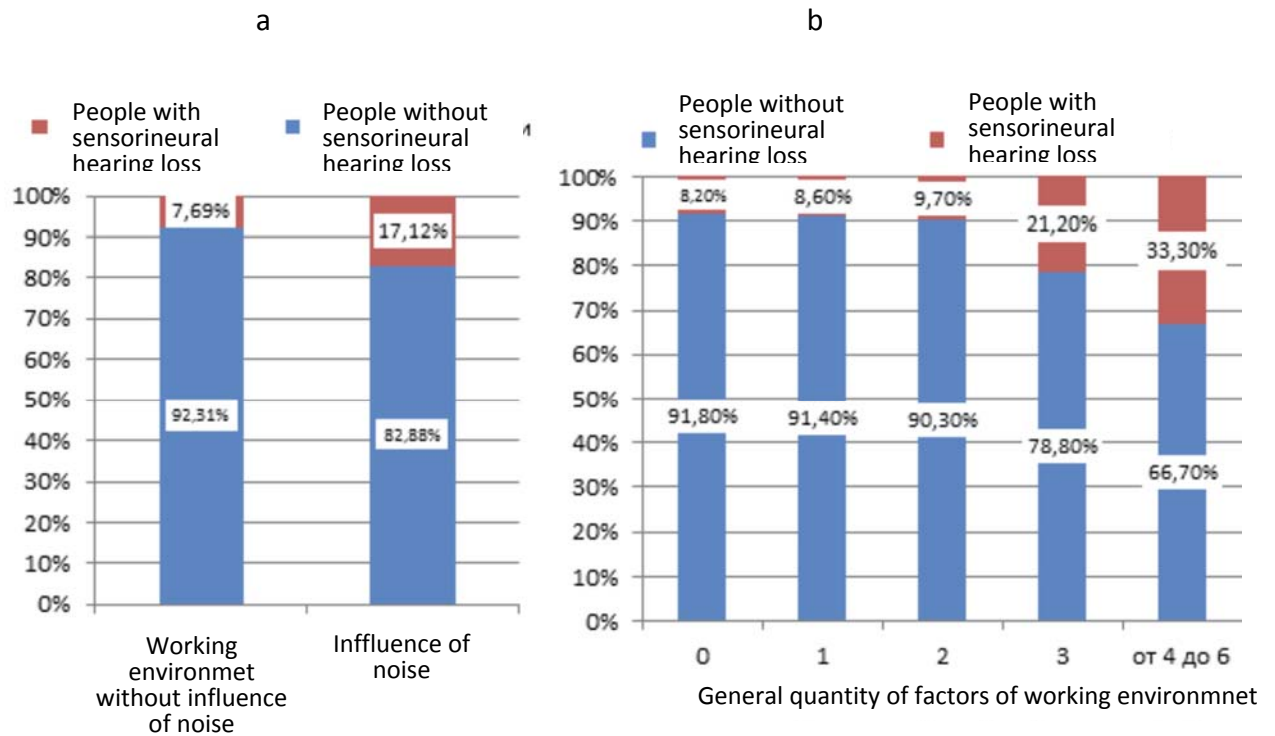


Figure 4. Dependence of sensorineural hearing loss on factors of working environment
(a-influence of noise, b- quantity of factors)

CONCLUSION

Thus, the results of the questioning indicate to the need for the medical and prophylactic work on harm of the smoking and influence of physical activity among people of young age to 30 years, because in this age group the percentage of the smokers is much higher and the physical activity is not high enough in comparison with other groups. The results of medical examination show that as a person gets older the frequency of the cardiovascular diseases among the workers of the water transport increases, in particular essential hypertension and fattiness. It should be noted that among the examined people the frequency of sensorineural hearing loss depends not only on age, but also on factors such as noise, vibration and the quantity of complex production factors.

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