

Health problems of Lithuanian and Latvian seamen

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The cross-national study was performed during November–December 2003 in Lithuanian and Latvian seamen population according to an international Lithuanian–Latvian concerted research technique. The aim of the study was to evaluate the self-reported and the objective health status of Lithuanian and Latvian seamen.

The evaluation of the health status of Lithuanian and Latvian seamen showed that nearly two-thirds of seamen evaluated their health as “good”, one-third as “quite good”, and nearly 7% of the respondents as “average”. Lithuanian and Latvian seamen pointed out the following main health-related problems at sea: pain (toothache, headache, waist pain, and joint pain), insomnia, and chronic diseases – arterial hypertension, gastric and duodenal ulcers, arthritis, spinal diseases, etc. Among Lithuanian and Latvian seamen, 56.0% indicated that the main cause of morbidity was work at sea being exposed to health-damaging factors. The results of retrospective analysis of seamen’s medical documentation showed no statistically significant difference between Lithuanian and Latvian seamen concerning the frequency of diagnosed diseases: 13.8% of seamen (14.5% of Lithuanian and 13.1% of Latvian seamen) were diagnosed with various diseases. Those related to seamen’s professional group were cardiovascular ($p < 0.05$) and auricular ($p < 0.001$) diseases. Cardiovascular diseases were more frequently diagnosed among seamen of the managing (9.2%) and auxiliary (7.9%) sectors, and auditory disorders were more common among seamen of the mechanical ship services (3.1%, $p < 0.05$, versus deck crews – 0.6%). These diseases were least common among deck crews who, compared to the other professional groups, were more frequently diagnosed with diseases of the connective tissue and the musculo-skeletal system. They also presented better subjective evaluations of their health status.

Key words: seamen, cross-national comparison, self-reported health, objective health status, risk factors

INTRODUCTION

The significance of maritime business for Lithuanian economics is indisputable. At January 1st, 2005 the Lithuanian registry of mariners listed 11,823 seamen. More than 4,000 of them work on Lithuanian and the rest on foreign ships. At present, Lithuania is modernizing its ships, the ships are supplied with newest technologies, the crews are becoming smaller, the duration of stays in foreign ports is decreasing, and the need for highly qualified seamen is rising. The physical and social environment on the ships changes, and so do inter-relationships among seamen; this, in turn, influences the seamen’s physical and mental health. Because of the special psychosocial environment, including a very special planning of working hours, lifestyle factors like

tobacco, alcohol and food habits are important to disease pattern in the maritime industry (1–5).

Despite the relevance of the problem, there are hardly any scientific studies on seamen’s health and lifestyle. However, there has been an increase in the interest in information on seamen’s working environment and lifestyle risk factors (RF) that affect their health, as well as in the search for the methods of standardization of indices of different areas, necessary for comparing the efficiency of preventive programs.

About 1.2 million seamen are engaged in the maritime business worldwide. The rapid globalization requires comparative studies of seamen’s working environment, with the aim to elaborate the common health and working environment safety standards (1, 4, 5). In many sea countries, the aim of the studies and projects initiated on the national or international level is to investigate the psychosocial stress and professional health

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in the seamen's population, to reveal the new regularities of the impact of factors of the physical and the social environment, and to search for new effective methods to control these factors (1, 2, 6–10). The same objectives are raised in Lithuania as well. The present study describes the health and lifestyle behaviour of a large sample of the Lithuanian and Latvian seafaring population.

The aim of the study was to evaluate the self-reported and the objective health status of Lithuanian and Latvian seamen.

MATERIALS AND METHODS

The study contingent. The inquiry embraced the respondents that made up the target population, i.e. seamen reporting for compulsory health check-up. In total, 2050 questionnaires were distributed. 1989 (97.0%) filled questionnaires were received, of which 1984 (99.7%) were selected as suitable for the analysis. The data were accumulated in a database created using Microsoft Access computer software.

The case group consisted of 998 Lithuanian male seamen aged 20 to 64 years, who underwent health examination at the Maritime Medicine Center of Klaipėda Seamen's Hospital.

The comparison group consisted of 986 Latvian seamen aged 20 to 69 years, who underwent health examination at Riga Maritime Medicine Center. Latvian seamen were investigated on the basis of the cooperation agreement between Latvian Maritime Medicine Center and Klaipėda Seamen's Hospital signed on May 12, 2002.

The study was performed during November–December 2003. The mean age of Lithuanian and Latvian seamen was 40.4 (standard deviation (SD) 11.0) years: the mean age of Lithuanian seamen was 40.8 ± 10.2 years and of Latvian seamen 40.0 ± 11.7 years.

Methods. Data for the study were obtained using the method of a sociological questionnaire-based inquiry. Each Lithuanian and Latvian mariner applying for the compulsory health check-up received a questionnaire containing 44 questions. The questionnaire evaluated the following: 1. General data (7 questions), 2. Medical service and health (7 questions), 3. Smoking habit (6 questions), 4. Food habits (6 questions), 5. Alcohol consumption (4 questions), 6. Weight, height, and physical activity on the ship (6 questions), 7. Unhealthy factors on sea (7 questions), 8. Other issues (1 question).

The subjective health status was evaluated according to the subjects' answers (good, quite good, average, quite bad, and bad). In order to analyze the health problems, the answers to the questions of the questionnaire were dichotomized into the following: 1) good evaluation of one's health and 2) less than good evaluation of one's health (people with health problems).

In order to perform an objective evaluation of the health status, a retrospective analysis of the documen-

tation on mariners' health was performed; the analysis included evaluation of the prevalence of diseases diagnosed according to the criteria of the International Classification of Diseases (ICD).

Evaluation of risk factors. Overweight (according to the WHO criteria) was diagnosed when the body mass index (BMI) was 25.0–29.9 kg/m² and obesity when the BMI was ≥ 30.0 kg/m². A person who at the time of the study stated that he was smoking was considered to be a smoker. Alcohol consumption was considered as an additional RF when the subjects indicated that they consumed alcoholic drinks while at sea. Psycho-emotional stress (PS) was assessed as an RF in all seamen (subjective evaluation of the experienced PS); PS can be caused by unusual working and life conditions, changes in time and climate zones, the influence of the electromagnetic field, changes in the sexual life, etc. Subjectively experienced PS was evaluated by the answers to the question "Did you experience PS during the last year (12 months) when working on the ship?" Physical activity on the ship was assessed by asking the subjects about regular physical exercises: "Do you frequently exercise (run, etc.) on the ship for at least 30 minutes so that your breathing becomes more rapid and you perspire". The possible answers were the following: every day, 4–6 times per week, 2–3 times per week, once a week, 2–3 times per month, several times per year or less frequently, and cannot exercise because of a disease or disability.

Statistical analysis of the data. The descriptive analysis of the lifestyle determinants was performed using standard statistical indices: for the continuous variables – the arithmetic mean of the parameters, 95% confidence interval (CI), SD, dispersion. The hypothesis of the dispersion equality was verified using Levene's test. In cases of non-parametric variables, statistical significance between the proportions was evaluated using the χ^2 criterion. Spearman's rank correlation was used to determine the rank value interrelationships. When verifying the hypothesis of the equality of the frequency of separate index groups and having determined that $p < 0.05$, the hypothesis was discarded and the difference in the frequency of indices was considered to be statistically significant. The interaction between health status and risk factors was analyzed using the logistic regression method. When age was expected to play a role in the results (self-reported health data, health-related behaviour, and PS), logistic regression or ordinal regression analysis techniques were used to ensure a comparison of the groups accounting for their age profiles. The data were analyzed with SPSS 11.5.

RESULTS AND DISCUSSION

Socio-demographic characteristics of Lithuanian and Latvian seamen. The evaluation of Lithuanian and Latvian seamen's mean age showed that the mean age of Lithuanian and Latvian seamen was, respectively, 40.8

(95% CI 40.2–41.4) and 40.0 (95% CI 39.3–40.7) years. Socio-demographic data on seamen of both countries are presented in Table 1.

The majority of seamen in both countries were over 40 years of age. There was a significant difference in the seamen's distribution in ten-year age groups ($\chi^2 = 36.08$, $p < 0.001$). The number of Lithuanian seamen was less in the age group of up to 25 years, but greater in the age group of 35–54 years compared to Latvian seamen (respectively, 65.2% and 54.0%). More Latvian seamen, compared to Lithuanians, were older than 54 years of age (Latvian – 11.3%, Lithuanian 7.4%).

Lithuanian seamen's mean length of service was 11.9 (95% CI 11.3–12.5) years and of Latvian seamen 9.9 (95% CI 9.4–10.4) years. Most seamen of both countries worked for 1 to 10 years at sea. Every fourth Lithuanian seaman and every fifth Latvian seaman worked for 11–20 years (respectively, 27.6% and 20.4%). 18.1% of Lithuanian seamen and 12.4% of Latvian seamen worked for over 20 years at sea.

In comparison to international shipping data, a higher percentage of Lithuanian and Latvian seamen re-

main in the industry for longer than 10 years. International data indicated that only 12% remained at sea after the same period (2).

Self-report of duration of the latest tour of duty was the following: in Lithuanian seamen – 6.4 (95% CI 6.3–6.5) months and in Latvian seamen 6.5 (95% CI 6.4–6.6) months. 51.2% of Latvian seamen and 45.4% of Lithuanian seamen spent more than 6 months at sea. We did not find any significant differences when analyzing these data according to different types of ship. Lithuanian and Latvian seamen's length of service according to positions occupied was similar, and no significant differences were found between Lithuanian and Latvian seamen working in the same positions.

Evaluation of medical service and self-reported health status among Lithuanian and Latvian seamen. The evaluation of the health status of Lithuanian and Latvian seamen showed that nearly two-thirds of seamen evaluated their health as “good”, one-third as “quite good”, and nearly 7% of the respondents as “average”. In addition to that, we detected a statistically significant difference in the subjective evaluation of the health status between the seamen of the two neighbo-

Table 1. Socio-demographic characteristics of the study cohort

Characteristic	Lithuania	Latvia	χ^2	p
	N (%)	N (%)		
Age, years			36.08	<0.001
20–24 m.	77 (7.7)	132 (13.4)		
25–34	197 (19.7)	211 (21.4)		
35–44	329 (33.0)	262 (26.6)		
45–54	321 (32.2)	270 (27.4)		
55–64	74 (7.4)	104 (10.5)		
>64	–	7 (0.7)		
Education level			10.41	<0.05
Unfinished secondary	12 (1.2)	14 (1.4)		
Secondary	216 (21.6)	256 (26.0)		
Specialized secondary	538 (53.9)	536 (54.4)		
Higher	232 (23.3)	180 (18.2)		
Professional groups			7.54	>0.05
I. Management	180 (18.0)	171 (17.3)		
II. Management with combined specialties	5 (0.5)	0		
III. Mechanical ship service	404 (40.5)	400 (40.6)		
IV. Specialists of radionavigation equipment	2 (0.2)	3 (0.3)		
V. Deck crew	339 (34.0)	350 (35.5)		
VI. Specialists of non-self-propelled ship and ferries	2 (0.2)	1 (0.1)		
VII. Auxiliary ship segment	66 (6.6)	61 (6.2)		
Type of ship			3.43	>0.05
Sea transport	643 (64.4)	669 (67.8)		
Trawler	338 (34.0)	301 (30.6)		
Local water transport	17 (1.7)	16 (1.6)		
Length of service, years			30.84	<0.001
<1	15 (1.5)	11 (1.1)		
1–10	527 (52.8)	649 (65.8)		
11–20	275 (27.6)	201 (20.4)		
>20	181 (18.1)	125 (12.7)		

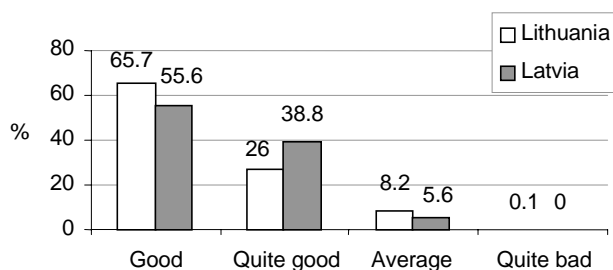


Fig. 1. Distribution of Lithuanian and Latvian seamen according to their health status evaluation

ring countries ($\chi^2 = 39.59$, having evaluated the age difference $p < 0.01$). More Lithuanian seamen compared to Latvians evaluated their health as “good” (65.7% and 55.6%, respectively) (Fig. 1).

Lithuanian and Latvian deck crew specialists differently evaluated their health status. About three-fourths of the Lithuanian deck crewmembers (75.5%) evaluated their health as “good” and 19.2% as “quite good”. Meanwhile, 63.7% of Latvian seamen evaluated their health as “good” and one-third (33.8%) as “quite good”. A small percentage of seamen in both groups evaluated their health as “average” (Lithuanians 5.3%, Latvians 2.5%).

Medical service. The analysis of the findings showed a statistically significant relationship between Lithuanian and Latvian seamen according to their satisfaction with medical services ($\chi^2 = 37.42$, $p < 0.001$). About 40.2% of Lithuanian seamen and only 29.1% of Latvians were fully satisfied with medical services on the ship; 30.8% of Lithuanians and 34.2% of Latvians were satisfied partially, and only 4.3% of Lithuanians and 8.9% of Latvians were dissatisfied. Although the number of Lithuanian seamen who evaluated their health as “good” was significantly greater compared to Latvian seamen, there was no significant difference between Lithuanian and Latvian seamen concerning the frequency of applications to ship physicians. About one-fourth of seamen of both countries had applied to the ship physician during the last year; there was no significant difference between Lithuanian and Latvian seamen concerning the frequency of applications to the physician. Lithuanian seamen on the shore applied to their physicians two times more frequently than when being at sea, whereas Latvian seamen applied to their physicians with equal frequency both on the shore and at sea.

The cases of applications to the physician while at sea were similar among the seamen of both countries. Most common reasons for applications were toothache (Lithuanians 8.2%, Latvians 9.9%), headache (4.8 and 5.5%), and pain in the waist (3.5 and 2.3%). We found possible tendencies ($p < 0.1$) of more frequent applications of Lithuanian seamen compared to Latvians related to chest pain during physical exertion (0.3 and 0.0%, respectively), and pain in the joints (2.4 and 1.3%), the waist (3.5 and 2.3%), and the neck and shoulders (1.0

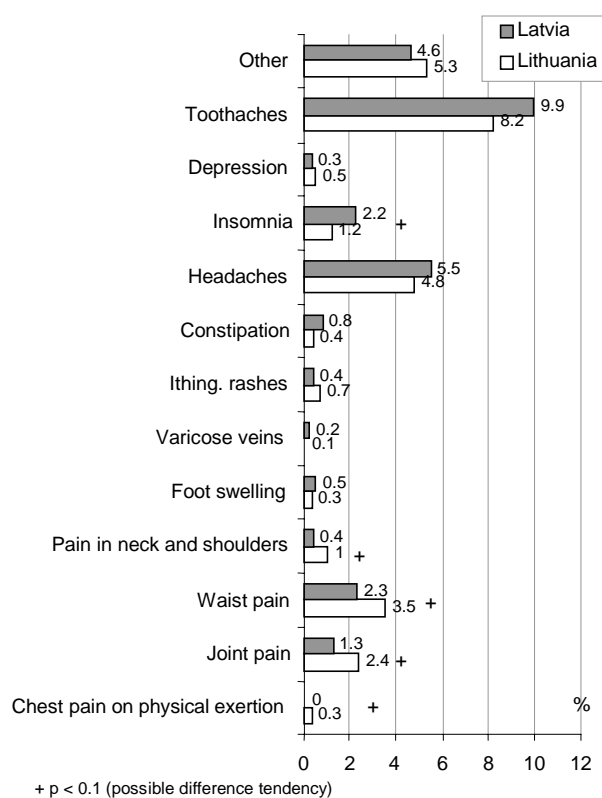


Fig. 2. Distribution of Lithuanian and Latvian seamen according to the reasons for applications to ship physicians

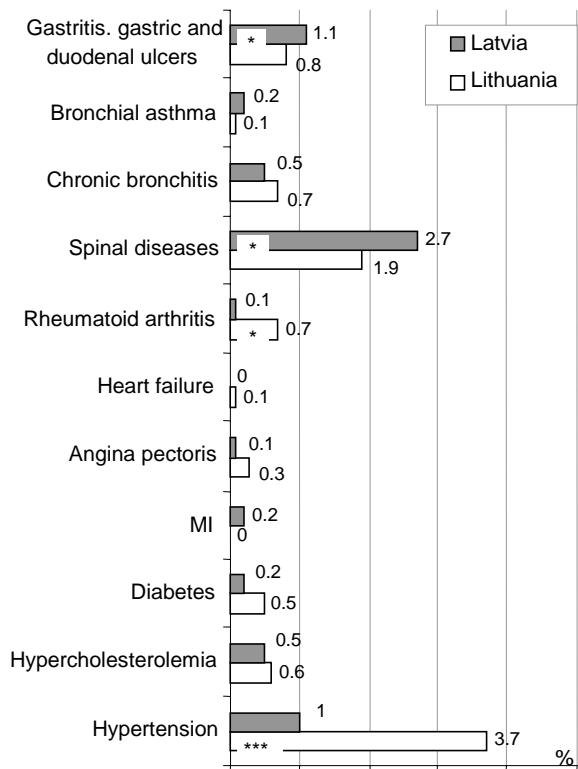
and 0.4%). Latvian seamen more frequently complained of insomnia (2.2%) compared to Lithuanians (1.2%). Other complaints included common cold-related disorders (1.0 and 1.2%, respectively), traumas (0.4 and 1.1%), and (among Lithuanians) influenza (0.6%). There were individual cases of prostate, hepatic and abdominal pains, as well as eye inflammation (Fig. 2).

Results of self-reported health status are shown in Fig. 3. The predominant diseases among Lithuanian and Latvian seamen in whom certain diseases were detected (according to the seamen’s answers) were arterial hypertension, spinal diseases, gastritis, and gastric and duodenal ulcers. Arterial hypertension was more common among Lithuanian seamen (3.7% and 1.0%, $p < 0.001$), whereas spinal diseases were more common among Latvian seamen (2.7% and 1.9%, $p < 0.05$). However, rheumatoid arthritis was more common among Lithuanians than among Latvian seamen (0.7% and 0.1%, $p < 0.05$).

The univariate logistic regression analysis of the whole seamen contingent of both countries showed that the following conditions were significantly related to older age (>45 years): arterial hypertension (AH) (compared to younger people, OR = 3.7; 95% CI 1.9–7.3) and hypercholesterolemia (OR = 6.6; 95% CI 1.2–35.8); among disorders in the ship – joint pain (OR = 2.3; 95% CI 1.1–4.5), waist pain (OR = 2.6; 95% PI 1.4–4.5), and foot swelling (OR = 4.3; 95% CI 0.8–22.3; $p = 0.08$). Most common diseases among Lithuanian seamen over 45 years of age were AH (OR = 3.4; 95% CI 1.6–7.1) and spinal diseases (OR = 7.8; 95% CI

2.2–27.5), and among Latvian seamen – AH (OR = 7.9; 95% CI 1.3–46.5).

Analysis of differences in the prevalence of risk factors of chronic non-infectious diseases among different social groups of Latvian seamen showed that only the prevalence of AH was statistically significantly related



*p < 0.05 ***p < 0.001

Fig. 3. Self-reported health status for the entire maritime sample

Table 2. Odds ratios of the prevalence of risk factors for chronic non-infectious diseases among Lithuanian and Latvian seamen (Latvia with respect to Lithuania, age-adjusted OR)

Risk factors	Prevalence N (%)		Age-adjusted OR (95% CI)*	p
	Lithuania	Latvia		
Age, 1 year			0.99 (0.98–1.00)	
Smoking	460 (46.1)	540 (54.8)	1.08 (0.90–1.29)	0.47
Alcohol consumption	584 (58.5)	476 (48.2)	0.60 (0.50–0.72)	<0.01
Body mass index				<0.001**
normal#	508 (50.9)	539 (54.7)	1	
overweight	365 (36.6)	383 (38.8)	1.01 (0.83–1.23)	
obesity	125 (12.5)	75 (7.6)	0.58 (0.43–0.79)	
Daily exercise				<0.001**
every day#	150 (15.0)	114 (11.6)	1	
2–6 times/week	302 (30.3)	345 (35.0)	0.75 (0.55–1.03)	
4–2 times/month	293 (29.4)	301 (30.5)	1.11 (0.87–1.41)	
no exercising	252 (25.3)	240 (24.3)	1.04 (0.82–1.33)	
Hypertension	37 (3.7)	10 (1.0)	0.25 (0.12–0.52)	<0.001
Hypercholesterolemia	6 (0.6)	5 (0.5)	0.95 (0.27–3.34)	0,500
Psycho-emotional stress	461 (46.2)	573 (58.1)	1.66 (1.39–2.00)	<0.001
Subjective health (worse than “good”)	343 (34.4)	444 (45.0)	1.55 (1.28 – 1.89)	<0.001

*Odds ratio statistically significant when 1 was not included into its 95% confidence interval.

**p for trend.

Reference category.

to the seamen’s education level. As in the case of Lithuanian seamen, the prevalence of overweight and AH among Latvians increased with age. Each year of age, like in case of Lithuanian seamen, by 11% increased the risk for AH. The study did not show any relationship of the prevalence of smoking and alcohol consumption with the level of seamen’s education.

The most prevalent factor in the group of risk factors of chronic non-infectious diseases was smoking – about 72.6% of respondents were smokers or ex-smokers. The mean duration of smoking was 15.9 years. The smoking habits of the majority of Latvians (60.9%) at sea were the same as on shore (47.9% of Lithuanians), and 29.9% of Latvian seafarers smoke more frequently at sea than on shore (Lithuanians 19.6%); 58.5% of Lithuanian seamen and 48.2% of Latvian seamen used alcoholic beverages. Overweight was detected in 47.5% of seamen (49.1% of Lithuanian and 45.9% of Latvian, $p = 0.086$), 51.8% of seamen (46.1% of Lithuanian and 57.5 of Latvian, $p < 0.001$) experienced psycho-emotional stress, and 19.0% experienced depression. Fewer Latvian seamen, compared to Lithuanians, consumed alcohol (OR = 0.60; 95% CI 0.50–0.72; $p < 0.001$), were obese (OR = 0.58; 95% CI 0.43–0.79; $p < 0.001$) and had AH (OR = 0.25; 95% CI 0.12–0.52; $p < 0.001$).

Table 2 presents odds ratios (OR) on whose basis we evaluated the differences in the prevalence of risk factors (self-reported) of chronic non-infectious diseases among Lithuanian and Latvian seamen adjusting for age differences. The differences in the prevalence of smoking and physical exercise were no statistically significant. Adjusting for age, the analysis showed that

fewer obese seamen as well as those consuming alcohol were among Latvians; Latvian seamen more frequently experienced psycho-emotional stress, and the cases of AH among them were less frequent.

The differences in the habits and risk factors of chronic non-infectious diseases between Lithuanian and Latvian seamen conditioned the subjects' attitude towards their health. There were 1.5 times more Latvian seamen who evaluated their health worse than "good", compared to Lithuanians. Lithuanian seamen more frequently (48.6%) evaluated their physical capacity as "good", versus only 38.7% of Latvian seamen; this difference may have been influenced by a significantly greater frequency of physical exercising among Lithuanians.

Retrospective analysis of seamen's medical documentation

The health disorders experienced at sea that were indicated by seamen more reflected short-term health disorders, whereas a retrospective analysis of the seamen's medical documentation allowed for a better understanding of the seamen's real morbidity and tendencies (1, 2, 11). The evaluation of the differences in the morbidity between Lithuanian and Latvian seamen did not reveal any significant differences.

About 0.8% of seamen had diabetes mellitus (DM) (E11, E12), 0.5% had compression of nerve roots and plexuses (G55), 1.6% had ocular diseases (H40, H52, H52.1, H53.5), 1.9% – auricular and auditory disorders (H74.1, H90.1, H90.3), 6.0% – cardiovascular diseases (I10, I11, I15, I25, I48, I83, I84), 0.25% – chronic bronchitis (J42), 0.7% – gastric and duodenal ulcers

and gastritis (K25, K26, K29), 0.7% – loin pains (M54.4), and 1.5% – urethritis and prostatitis (N34, N41) (Fig. 4).

The prevalence of diagnosed diseases among seamen of both countries was homogeneous (Levene test 3.635, $p = 0.067$), and the differences were statistically insignificant when adjusting for age differences, therefore the whole contingent of seamen was analyzed ($N = 1984$). The majority of the diagnosed diseases were CVD (6%), ocular and auditory diseases (1.6 and 1.9%), and urogenital diseases (1.5% of cases). The rest were diseases of the endocrine system (3%), metabolic disorders (0.8%), and diseases of the nervous (0.5%), respiratory (0.3%), digestive (0.7%), connective tissue and musculo-skeletal system (0.7%).

The correlation analysis of diseases diagnosed according to the ICD-10 criteria showed a statistically significant association of their prevalence with age (each year of age increased the risk of diseases by 7%, OR = 1.07; 1.05–1.08), the professional group, the length of service, and the duration of smoking. Analysis of the prevalence of individual cases of diseases showed that the following diseases were related to age: ocular (OR = 1.06; 1.02–1.09), auditory (OR = 1.03; 1.02–1.07), cardiovascular (OR = 1.08; 1.06–1.10), and urogenital (OR = 1.11; 1.06–1.16); the risk of such diseases in seamen increased by 2 to 16% with each year of life. The length of service was associated with diseases of the nervous, cardiovascular, respiratory and urogenital systems. We found diseases of the cardiovascular, digestive and urogenital systems to be associated with the duration of smoking, while the auditory and

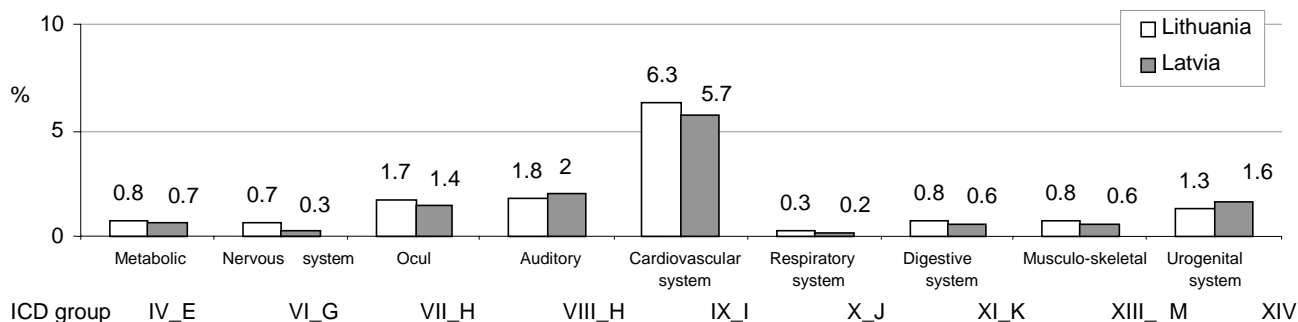


Fig. 4. Morbidity of Lithuanian and Latvian seamen

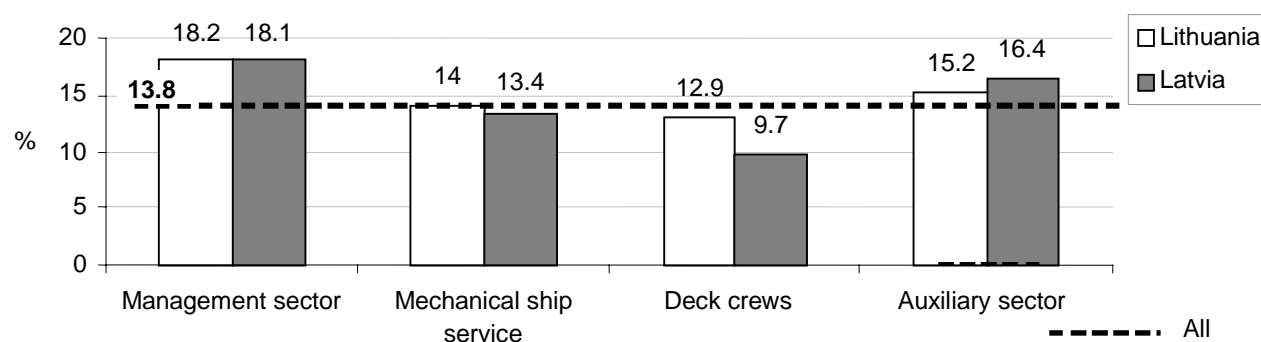
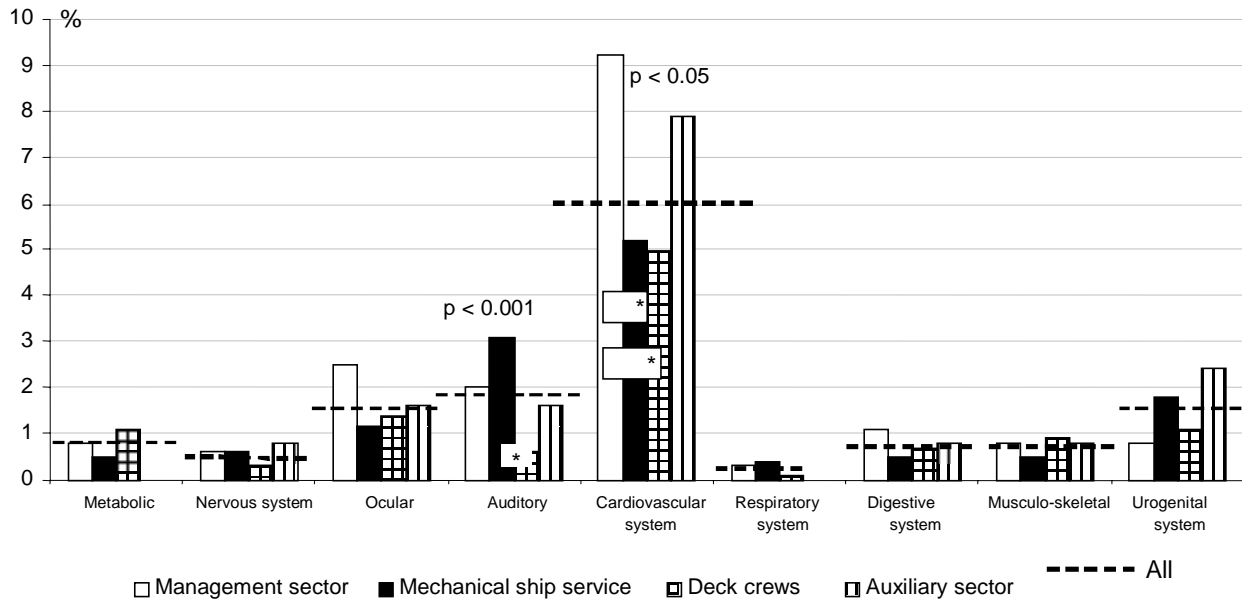


Fig. 5. Diagnosed cases of diseases in different professional groups



* $p < 0.05$ the level of significance of difference among professional groups

Fig. 6. Prevalence of diagnosed diseases in seamen's professional groups

cardiovascular diseases were related to the professional group.

Analysis of the distribution of the diagnosed diseases according to the position occupied and when controlling for age did not yield any significant difference between Lithuanian and Latvian seamen, although the morbidity of the Latvian mechanical ship service and deck crews was lower than that among Lithuanian seamen (Fig. 5). According to the data of the seamen's medical documentation, 13.8% of seamen of both countries were diagnosed with various diseases. Most diseases were diagnosed among seamen of the management (18.2%) and auxiliary (15.7%) sections; fewer diseases were found among the mechanical ship services (13.7%) and deck crews (11.3%).

Figure 6 presents the distribution of separate diagnosed diseases according to professional groups (adjusted for age differences). With the exception of auditory diseases and diseases of the cardiovascular system, professional groups exhibited similar health profiles.

We found that cardiovascular diseases were more common among seamen of the management (9.2%) and auxiliary sectors (7.9%) ($p < 0.05$, after adjusting for age differences). The difference in the prevalence of these diseases among seamen of the management sector and mechanical service (5.2%) and deck crews (5.0%) was statistically significant ($p < 0.05$).

Ear diseases were more frequently diagnosed among seamen of the mechanical ship services (3.1%; $p < 0.05$, versus deck crews – 0.6%). Such diseases were more common among the seamen of the managerial (2.0%) and auxiliary (1.6%) sectors compared to deck crews (0.6%).

The distribution of other diagnosed diseases according to professional groups was not statistically significant, but eye diseases (Levene homogeneity test 3.7,

$p < 0.05$) more frequently than usual (1.6%) were diagnosed among seamen of the managerial sector (2.5%). Diseases of the digestive system were also more common in this group (1.1%) than in other professional groups. Diseases of the urogenital system (1.5%) were more common among seamen of the auxiliary sector (2.7%) and the mechanical ship service (1.8%) (Levene homogeneity test 4.027, $p < 0.01$). Diseases of the connective tissues and the musculo-skeletal system (0.8%) were common among deck crews (0.9%) and seamen of the managerial (0.8%) and auxiliary (0.8%) sectors. Diseases of the respiratory tract and the nervous system were least common among deck crews – these seamen were more frequently diagnosed with diseases of the metabolic system, compared to other professional groups. Seamen working in the auxiliary sector more frequently had diseases of the nervous system, compared to seamen of other professional groups (0.8%). The evaluation and standardization of the obtained findings and seamen's self-reported other risk factors showed that the relationships were either very weak or absent.

In conclusion, the occurrence of auditory problems in engineers is consistent with findings of previous maritime studies. Although this condition is a common problem for engineers, strict implementation of guidelines for exposure to noise levels in industry would impact the incidence of auditory problems (7). Several studies have shown that health problems in the maritime industry especially include ergonomic diseases as well as attrition, hearing-handicap, musculoskeletal and cardiovascular diseases. Furthermore, these are the results of special psychosocial conditions with an increased occurrence of tiredness, stress and psychic symptoms (6, 7, 10, 11, 13).

We examined the occurrence of important lifestyle and risk factors for ill-health such as arterial hyper-

tension (AH), immoderate use of alcoholic beverages, smoking, increased blood cholesterol levels, insufficient physical activity. In addition to these factors, there are other specific factors that affect seamen's health and lifestyle. Although on the international level studies on seamen's health in different sectors of business have been performed for a number of years, there is still a lack of knowledge about the working environment, injuries and diseases on the ships, and thus the majority of maritime studies emphasize the necessity of the renewal of knowledge in this area (42, 1054, 105). According to the recommendations of the World Health Organization (WHO), studies on the working environment of different professional groups of coast workers have been performed for over 30 years, the recommendations are being implemented, while similar research in maritime business is only in its initial stage. As the result of the cooperation between the WHO and the International Labor Organization (ILO), a new strategy of maritime studies has been adopted in Geneva in 1997 (4, 5). The strategy recommended that physicians would learn about the seamen's living and working conditions on the ship during the compulsory health check-ups. One of the main tasks was research on the relationship between seamen's health and the working environment. Detailed information about the seamen's working and resting conditions is necessary, since only sufficient knowledge may allow for early detection of health disorders and diseases and for a timely application of effective preventive measures (1–3). In our study, 56.0% of Lithuanian and Latvian seamen indicated that the main cause of morbidity was the work at sea being exposed to health-damaging factors. Future studies should therefore pay special attention to estimating associations or cause and effect relationship between the occurrence of a disease and high stress, poor environmental conditions, and critical traffic conditions.

CONCLUSIONS

There was no statistically significant difference between Lithuanian and Latvian seamen concerning the frequency of diagnosed diseases – 13.8% of seamen (14.5% of Lithuanian and 13.1% of Latvian) were diagnosed with various diseases. The diseases related to seamen's professional group were cardiovascular and auricular diseases. These diseases were least common among deck crews, but these seamen, compared to those of other professional groups, were more frequently diagnosed with diseases of the connective tissue and the musculo-skeletal system. They also presented better subjective evaluations of their health status. There is no doubt that a comprehensive health promotion work is important to seafarers.

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LIETUVOS IR LATVIJOS JŪRININKŲ SVEIKATOS PROBLEMOS

Santrauka

Vienkartinis nacionalinis jūrininkų gyvenimo ir sveikatos tyrimas buvo atliktas 2003 m. lapkričio–gruodžio mėn. pagal tarptautinę Lietuvos ir Latvijos suderintą metodiką, kurio metu įvertinta ir palyginta jūrininkų darbo aplinka, gyvenimo,

sveikata, sveikatą žalojančių rizikos veiksnių paplitimas, objektyvios bei subjektyvios sveikatos vertinimo ir patiriamos jūroje psichoemocinės įtampos prieštastiniai ryšiai. Šio darbo tikslas – įvertinti subjektyvią bei objektyvią Lietuvos ir Latvijos jūrininkų sveikatos būklę.

Mūsų tyrimo duomenimis, trečdalis (34,3%) Lietuvos jūrininkų savo sveikatą įvertino blogiau nei „gera“. Tarp pagrindinių, su sveikatos būkle jūroje susijusių problemų Lietuvos ir Latvijos jūrininkai nurodė skausmą (dantų, galvos, juosmens, sąnarių), nemigą ir lėtines ligas – arterinę hipertenziją, skrandžio ir dvylikapirštės žarnos opaligę, artritą, stuburo ligas, bronchitą ir kt. Kaip pagrindinę sergamumo priežastį 56,0% Lietuvos ir Latvijos jūrininkų nurodė darbą jūroje veikiant sveikatai žalingiems veiksniams. Diagnozuotų ligų dažnis tarp Lietuvos ir Latvijos jūrininkų statistiškai reikšmingai nesiskyrė: bu-

vo nustatytos ligos 13,8% jūrininkų (14,5% Lietuvos ir 13,1% Latvijos jūrininkų). Vienodai dažnai abiejų šalių jūrininkams diagnozuotos kraujotakos sistemos (6,0%), ausų (1,9%), akių (1,6%), urogenitalinės sistemos (1,5%) ligos, cukrinis diabetas (0,8%), opaligė (0,7%). Su jūrininkų profesijos grupe buvo susijusios kraujotakos sistemos ($p < 0,05$) ir ausų ligos ($p < 0,001$): kraujotakos sistemos ligos dažniau diagnozuotos vadovaujančios (9,2%) ir pagalbinės grandžių jūrininkams (7,9%), tuo tarpu klausos sutrikimai dažniau vargino mechaninės laivo tarnybos jūrininkus (3,1%; $p < 0,05$, lyginant su denio komanda – 0,6%). Denio komandos jūrininkai šiomis ligomis sirgo retai, jiems dažniau nei kitų profesinių grupių jūrininkams pasireiškė jungiamojo audinio, skeleto ir raumenų ligos, taip pat jie geriau ir subjektyviau vertino sveikatos būklę.

Raktažodžiai: jūrininkai, sveikata, rizikos veiksniai