

Research of psychophysiological features of response to stress situations by future sailors

Investigación de las particularidades psicofisiológicas de la reacción de futuros navegantes a las situaciones de estrés

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Abstract

The purpose of the article is to study the dominant coping-strategy of the personality and indicators of well-being, activity and mood of junior and senior cadets-sailors; holding a comparative analysis of psychophysiological changes after a long voyage. The following methods were used: observation, conversation, methodology "Indicator of coping-strategies", methodology "Well-being-activity-mood". It is defined that the leading coping-strategy for junior cadets is the search for social support and for senior cadets – avoiding problems. Comparative characteristics of the indicators of well-being, activity and mood demonstrates a decrease after cadets' long-term floating practice indicators of well-being, health complaints; an increase of activity indicators, as the need to be more energetic in finding solutions to life's problems. A decrease of mood indicators was recorded in respondents as an indicator of dissatisfaction with oneself. It has been substantiated that the value of the study

is the identification of the connection between the elements of maladjustment and the fact of being in a long voyage. The need for further research of psychophysiological parameters, behavioral models of future sailors is indicated. The prospects for the study of psychophysiological parameters of a cadet-sailor are indicated, taking into account the type of his professional duties.

Resumen

El objetivo del artículo es estudiar la estrategia dominante de afrontamiento y los indicadores de bienestar, actividad, estado de ánimo de cadetes navales de los primeros y últimos cursos; realizar el análisis comparativo de cambios psicofisiológicos después de un largo crucero. Los métodos utilizados: observación, conversación, metodología "Indicador de estrategias de afrontamiento", metodología "Bienestar-actividad-estado de ánimo". Se determinó que la estrategia principal de afrontamiento de los cadetes de primeros cursos es la búsqueda de apoyo social y de los últimos es la evitación de problemas. La característica comparativa de indicadores de bienestar, actividad y estado de ánimo demuestra la disminución de indicadores de bienestar de cadetes después de larga práctica de navegación; el aumento de los indicadores de actividad como necesidad de ser más enérgicos en la búsqueda de soluciones de problemas de la vida, la disminución de indicadores del estado de ánimo como indicador de la insatisfacción de sí mismos. Se argumentó que el valor de la investigación es la identificación de la relación entre los elementos de inadaptación y la navegación duradera. Se indicó la necesidad y las perspectivas de los estudios posteriores de parámetros psicofisiológicos, modelos de comportamiento de futuros navegantes tomando en cuenta sus deberes profesionales.

Key words

Adaptation – Sea Transport – River Transport – Cadet

Palabras clave

Adaptación – Transporte marítimo – Transporte fluvial – Cadete

Introduction

The constant growth of stress in the life of a modern person is due to a number of objective factors: an unstable socio-economic, political situation, a constant increase of the requirements of the modern market for a specialist, competitive conditions for hiring and many others. All this inevitably affects the psycho-emotional state of an adult. It is especially acutely felt by a forming personality, it encourages specialists of various profiles to study the influence of a stressful situation on the personality, on the one hand, as well as the personality's ability to find effective ways out, overcome and adapt to emerging situations.

J. Amirhan, the author of the “Coping-Strategy Indicator” methodology, identified the following coping-strategy models. First, it is a strategy to solve the problem. It includes active reactions and actions on the part of the subject, a constant search for additional resources on the part of the individual to resolve the issue. The main focus is on finding effective solutions to the assigned tasks. Second, it is a strategy for seeking social support. It consists of an active search by the subject of interaction for help and support from others in solving urgent problems. Thirdly, this is a behavioral strategy aimed at avoiding contact with the surrounding reality, the desire to get away from solving the problem¹.

It should be noted that the choice of the coping-strategy model occurs due to the search for a way by the individual to survive in difficult life circumstances. A certain protective mechanism is formed, with the help of which the personality adapts to external conditions.

The mechanism of psychological defense was first considered in the basic works of S. Freud in the works “Neuropsychology of Defense”² and in the work “Interpretation of Dreams”³. The leading role in the organization of human behavior is played by the unconscious. In addition to innate instincts (by S. Freud “sexuality” and “aggression”), the content of the unconscious includes desires, affects, repressed from consciousness due to their unacceptability or undesirability, trauma for the subject. The energy accumulating from unsatisfied needs displaced from consciousness is the causal factor of human behavior and aspirations. The working conditions of a sailor objectively include limitations in meeting basic human needs, which, in turn, leads to the subject choosing a coping-strategy that allows him to adapt most effectively.

Specific changes occurring in the behavior, self-perception of the subject, are aimed primarily at reducing the state of anxiety. However, at the same time, they do not always carry really positive changes in the process of socialization, resocialization of the sailor's personality.

Thus, the choice of coping-strategy, as well as the very protective mechanism that a person uses, can be more or less effective.

To preserve the basic psychophysiological functions, the personality of the subject resorts to the following types of protection: preventing the awareness of the factors causing anxiety, or the anxiety itself (denial, repression); allowing to fix anxiety on certain stimuli; reducing the level of motivation (depreciation of initial needs); eliminating anxiety or modifying its interpretation⁴.

In the profession of a sailor, a well-oiled balance in the perception of oneself, the characteristics of one's work, one's place in one's own micro-

¹ J. Amirhan, “Coping-strategy's indicator”. (Kazan': KNITU, 2012).

² S. Freud, “Research of hysteria”. (Sankt-Peterburg: VEIP, 2005).

³ S. Freud, “Interpretation of dreams”. Sankt-Peterburg: (Jeksmo; Midgard, 2005).

⁴ F. B. Berezin, “Mental and Psycho-physiological Adaptation of a Person”. (Leningrad: Nauka, 1988).

society, satisfaction from the awareness of the listed components is an important component of effective work. The above factors are of particular importance in the system of forming consciousness, self-awareness of a cadet-sailor mastering a profession, in search of a balance between his own needs and the possibilities of their satisfaction in the chosen profession.

Thus, the peculiarities of psychophysiological reactions, methods of *adaptation* of cadet youth have long been of interest to researchers. The question of the complex of psychophysiological reactions on the part of the subject in a situation of a long voyage, in particular the response features of cadets of maritime specialties, remains without due attention, needs additional research. It should be noted the need to study the coping-strategy chosen by the cadet in specialties associated with additional pressure on the physiological, psycho-emotional spheres of a person, changes in the indicators of well-being, activity and mood of cadets of floating specialties after staying on long voyages.

The purpose of this article: is based on the study of the dominant coping-strategies of the individual and indicators of health, activity and mood of the cadets' junior and senior courses of sea and river transport speciality, to hold a comparative analysis of the psychophysiological changes of cadets of maritime specialties after a long voyage. To implement the objectives of the study following tasks were developed: first, to analyze the literature on the subject of modern research into the dominant coping-strategies of the individual, and indicators of health, activity and mood of cadets of maritime specialties; second, to study the dominant coping-strategy of the individual, indicators of health, activity and mood of students first and second year degree sea and river transport speciality; third, to study dominant coping-strategy of the individual, indicators of health, activity and mood of students in the third or fourth year of the specialty of sea and river transport after passing floating practice; in the fourth, a comparative analysis of changes in the dominant coping-strategies of the individual, indicators of health, activity and mood of cadets of maritime specialties after a long voyage.

Research hypothesis: 1) we assume that there is a connection between the training course of the cadet-sailor, the experience of staying in a long-term floating practice and the presence of an appropriate coping-strategy in his behavior, as well as changes in the characteristics of well-being, activity and mood; 2) we assume that as a result of the study, a relationship will be found between the presence of a long-term floating practice in the experience of a cadet-sailor and his psychophysiological parameters, namely: coping-strategy in behavior, well-being, activity and mood.

Research of Methodology

The original methodological position of the study of psychophysiological characteristics of stress-response-situation of future sailors is approved and coherent set of activities with the use of psychodiagnostic instruments. This methodology was used by us and other researchers for the study of distancing,

anxiety and disorders of *adaptation* of students in the conditions of long sea voyages⁵, the motivation of professional formation of future specialists⁶ of different professions⁷ and also in the study of emotional states⁸, social desirability⁹, perfectionism of respondents¹⁰, including the expected mental states in various activities¹¹. All of these experimental and empirical studies contained elements of the study of *adaptation*, anxiety, motivation and self-regulation and present a methodological interest in the context of research of psychophysiological features on stress-response-situation by future sailors.

Educational and professional training of future sailors forms the readiness of cadets of maritime specialties for specific working conditions¹². A specialist must successfully adapt in conditions of long-term isolation, live and

⁵ R. P. Shevchenko, "Phenomenology of adaptation disorders in students under conditions of long-term staying at sea". *Psihologie, revista științifico-practică*, Vol: 34 num 1-2 (2019): 18-25. y R. Shevchenko; I. Popovych; L. Spytyska; P. Nosov; S. Zinchenko; V. Mateichuk y O. Blynova, "Comparative analysis of emotional personality traits of the students of maritime science majors caused by long-term staying at sea". *Revista Inclusiones*, Vol: 7 num Especial (2020): 538-554.

⁶ I. M. Halian, "Personal determinants of responsibility of future educators". *Insight: the psychological dimensions of society*, num 1 (2019): 15-21. y Ma Feng; R. P. Shevchenko y N. V. Karhina, "Student youth representation of psychological well-being: results of content analysis of works". *Insight: the psychological dimensions of society*, num 3 (2020): 44-55.

⁷ Popovych, I. S., Cherniavskiy, V. V., Dudchenko, S. V., Zinchenko, S. M., Nosov, P. S., Yevdokimova, O. O., Burak, O. O. & Mateichuk, V. M. Experimental Research of Effective "The Ship's Captain and the Pilot" Interaction Formation by Means of Training Technologies. *Revista ESPACIOS*, Vol. 41(Nº11), (2020:) page 30. y O. Tsiuniak; A. Pyslar; G. Lialiuk; V. Bondarenko; O. Kovtun; O. Los y I. Popovych, "Research of interdependence of variables and factor structure of masters' readiness for innovative pedagogical activity". *Revista Inclusiones*, Vol: 7 num 3, (2020): 427-452.

⁸ A. Halian; I. Halian; I. Burlakova; R. Shevchenko; V. Lappo; I. Zhigareno y I. Popovych, "Emotional Intelligence in the Structure of Adaptation Process of Future Healthcare Professionals". *Revista Inclusiones*, Vol: 7 num 3, 2020: 447-460 y O. Kononenko; A. Kononenko; V. Stynska; O. Kachmar; L. Prokopiv; H. Katolyk y I. Popovych, "Research of the factor structure of the model of world view settings at a young age". *Revista Inclusiones*, Vol: 7 num 3, (2020): 98-116.

⁹ A. V. Shevchenko, "Research on the correlation between social desirability and value orientations in adolescence". *Insight: the psychological dimensions of society*, 1, 2019: 90-94.

¹⁰ K. V. Klenina, "Theoretical and methodological analyzing of content characteristics of an individual's perfectionism". *Insight: the psychological dimensions of society*, 1, 2019: 84-89.

¹¹ O. Blynova; V. Lappo; V. Kalenchuk; O. Agarkov; I. Shramko; L. Lymarenko; I. Popovych, "Corporate Culture of a Higher Education Institution as a Factor in Forming Students' Professional Identity". *Revista Inclusiones*, Vol: 7 num Especial (2020): 481-496; I. M. Halian; O. I. Halian; L. Ye. Gusak; H. I. Bokshan y I. S. Popovych "Communicative Competence in Training Future Language and Literature Teachers". *Revista Amazonia Investiga*, Vol: 9 num 29 (2020): 530-541 y Yu. V. Cheban; O. Ya. Chebykin; V. V. Plokhikh y A. V. Massanov, "Emotional factor of competitive self-mobilization of professional rowers". *Insight: the psychological dimensions of society*, num 3 (2020): 28-43.

¹² P. Nosov; I. Palamarchuk; S. Zinchenko; I. Popovych; Y. Nahrybelnyi y H. Nosova, "Development of means for experimental identification of navigator attention in ergatic systems of maritime transport". *Bulletin of University of Karaganda. Technical Physics*, Vol: 1 num 97 (2020): 58-69. y P. S. Nosov; S. M. Zinchenko; I. S Popovych; A. P. Ben; Y. A. Nahrybelnyi y V. M. Mateychuk, "Diagnostic system of perception of navigation danger when implementation complicated maneuvers". *Radio Electronics, Computer Science, Control*, 2020, Vol: 1 num 52 (2020): 146-161.

work in extreme conditions, critical situations, solve unforeseen tasks¹³. Of course, such working conditions are accompanied by the accumulation of stress and various occupational deformations.

Participants

To study the dominant coping-strategy of personality, indicators of well-being, activity and mood of cadets after long voyages, four groups of students were taken from among the cadets of the Odessa National Maritime University and the Kherson State Maritime Academy: two groups consisted of cadets of the first-second courses (n=40) and the next two groups consisted of cadets of the third-fourth courses (n=40) after undergoing long-term floating practice (lasting over 3 months). In total, 80 cadets specializing in sea and river transport took part in the study. The study was held with the informational consent of the surveyed, in compliance with the norms of ethics and bioethics¹⁴.

Procedures and instruments

To determine the changes in the psychophysiological nature of cadets specializing in sea and river transport, indicators of well-being, activity and mood, as well as the transformation of the leading coping-strategy of personality, were studied before and after long voyages. We used the following psychodiagnostic instruments: the “Coping-Strategy Indicator”¹⁵ method and the “Well-being-Activity-Mood”¹⁶ method.

Data analysis

Statistical processing of empirical data and graphical presentation of results was performed using computer programs “SPSS” v. 23.0 and “MS Excel”. The differences between the received data at the level of $p \leq 0.05$ are considered statistically significant.

Results of Research

As a result of the study, cadets of group 1 and group 2 were divided according to the scales of the methodology: “problem solving”, “search for social support”, “problem avoidance”. The results of the study of first- and second-year cadets are shown in Table 1.

Level	Problem solving	Search for social	Problem avoidance
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¹³ S. Zinchenko; A. Ben; P. Nosov; I. Popovych; P. Mamenko y V. Mateychuk, “Improving Accuracy and Reliability in Automatic Ship Motion Control Systems”. Radio Electronics, Computer Science, Control, num 2 (2020): 189-201. y S. Zinchenko; P. Nosov; V. Mateichuk; P. Mamenko; I. Popovych y O. Grosheva, “Automatic collision avoidance system with many targets, including maneuvering ones”. Bulletin of university of Karaganda, Vol: 96 num 4 (2019): 69-79.

¹⁴ “WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects”. 2013.

¹⁵ J. Amirhan, “Coping-strategy’s indicator ...

¹⁶ V. Doskin, “Well-being-activity-mood”. Krasnoyarsk: Litera-print. 2009.

				support					
	M±m	%	t	M±m	%	t	M±m	%	t
Very low	2.5± .11	2.5	2.42	4.75± .18	5.0	3.1	2.75± .22	5.0	3.1
Low	1.8± .14	2.5	3.28	3.5± .16	10.0	2.2	2.5± .16	10.0	2.2
Middle	2.2± .18	5.0	2.87	2.0± .14	7.5	2.36	2.0± .14	5.0	2.3
High	2.38±.24	15.0	2.9	3.59± .2	25.0	1.9*	0.96± .12	7.5	2.37

Note: M – arithmetic mean; t – reliability criterion; % – percentage of cadets by level; * – criterion t is reliable at $p < .05$

Table 1
Dominant coping-strategy of group 1 cadets

The analysis of the data reflected in the table clearly demonstrates the largest number of cadets in the indicator of the scale “search for social support”.

This indicates pronounced number – 25.0% of the total number of students in this age group – cadets with a leading strategy for searching social support. Cadets of this group take an active life position, make efforts to find an effective solution to the problem. When searching for means of solving the tasks set, they seek help and support from the “inner circle” of the surrounding society: family members, friends, and people around, who are included in the category of “significant others” for the student.

It is necessary to note a significant indicator, collected by the students of this age group on the scale of “problem solving” – 15.0% of the total number of cadets who took part in the study in this age group. By taking an active behavioral strategy, cadets of the characterized indicator constantly use their opportunities to solve life problems, are inclined to search for additional personal resource opportunities for the most effective resolution of tasks.

The received data as a result of the study of cadets after a long floating practice are reflected in Table 2, they clearly demonstrate the largest number of cadets in the indicator of the scale “problem avoidance” – 30.0% of the total number of students in this age group.

Level	Problem solving			Search for social support			Problem avoidance		
	M±m	%	t	M±m	%	t	M±m	%	t
Very low	2.5± .11	5.0	2.42	4.75± .18	0.0	3.1	2.75±.22	5.0	3.1
Low	1.8± .14	5.0	3.28	3.5± .16	7.5	2.2	2.5±.16	2.5	2.2
Middle	2.2± .18	0.0	2.87	2.0± .14	5.0	2.36	2.0±.14	10.0	2.3
High	2.38±.24	10.0	2.9	3.59± .2	20.0	1.9	0.96±.12	30.0	2.37*

Note: M – arithmetic mean; t – reliability criterion; % – percentage of cadets by level; * – criterion t is reliable at $p < .05$

Table 2
Dominant coping-strategy of group 2 cadets

The greatest number of “problem avoidance” with the leading strategy in behavior is due, according to our observations, to certain personal, behavioral transformations that occur with cadets during their stay in conditions of long-term floating practice. Not receiving the same amount of communication, social support, to which the cadet is accustomed in ordinary life "on the shore"; he seeks to save resources, to avoid problems.

The identified characteristic indicates the presence of a desire to avoid contact with the surrounding reality. The cadets of the group being characterized often take the position of avoiding direct problem solving.

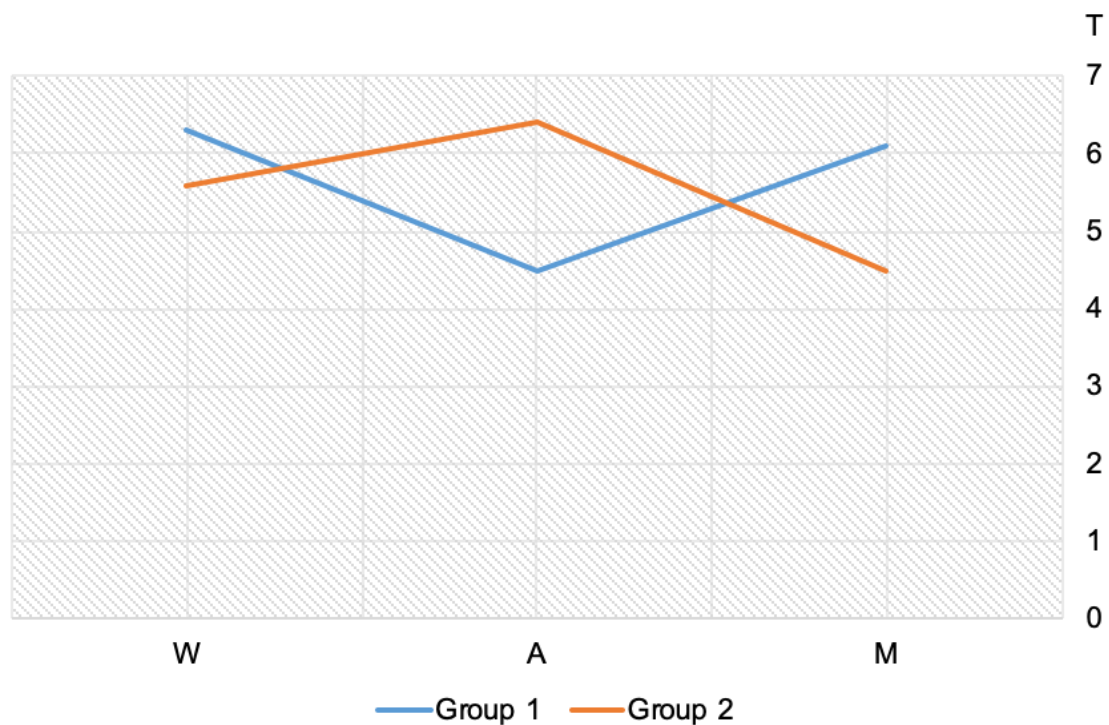
It should be noted that the chosen behavioral strategy forms the basis for the development of maladaptive, pseudo-dominating behavior. The identified characteristic signals a poor development of coping-resources. The subject in this case is experiencing a lack of active problem-solving skills.

At the same time, the conditions of a long voyage, the need to respond in a timely manner to the tasks received, require a high level of activity from the individual, the ability to quickly search for effective actions in a specific situation.

Analyzing the received results in the status of the work, it is necessary to note the identified connection between the characteristics of “well-being”, “activity”, “mood” of cadets of maritime specialties and the leading coping-strategies in behavior were identified.

In the status of work with the selected category of cadets using the “Well-being-activity-mood”¹⁷ methodology, intended to quickly estimate the current psychological state of an individual, cadets were asked to fill out a form on which alternative conditions are marked, between which a scale from “-3 to +3”, conditionally reflecting the severity of a particular condition. Analyzing the results of the estimation by cadets of their current state, it is necessary to note the significant difference that was found in the psychophysiological state of senior cadets and cadets after being in a long voyage (see Figure 1).

¹⁷ V. Doskin, “Well-being-activity-mood ...



Note: T – average values converted to T-points; Group 1 – first-second year cadets; Group 2 – cadets of the third or fourth courses; W – well-being; A – activity; M – mood.

Figure 1

Diagram of the profiles of the first-second-year cadets (Group 1) and the third-fourth years (Group 2) after the voyage (according to the results of the "Well-being-activity-mood" method)

According to a comparative analysis of the indicators of cadets Group 1 and Group 2, the following should be noted.

In the characteristic "well-being" (W), the average value (T) in the group of cadets of the first and second courses is 6.3 points, while the average in the group of senior cadets, which included cadets after a long stay in the voyage, is 5.6 points. This indicates that the cadets of the third and fourth courses more often noted poor health, experienced a feeling of weakness, lower estimated their own working capacity, noted the state of weakness, exhaustion, prostration and a desire to rest.

In the characteristic "activity" (A), the average value in the group of junior cadets was 4.5 points, senior courses – 6.4 points, which signals a more active, mobile state of Group 2 cadets. They more often noted activity and enthusiasm in their state. According to our observations, this was due to the need to choose energetically, to agree on a place and time for floating practice, which significantly affected the possibility of receiving more experience and income.

In the characteristic “mood” (M), Group 1 cadets showed an average value of 6.1 points, Group 2 – 4.5 points. In the characteristics of the respondents, this was reflected in a feeling of longing, sadness and bad mood. According to our observations, this was due to a more direct awareness of senior cadets of the need for a long time to be away from their relatives and habitual lifestyles. The understanding of the need to change the lifestyle related to the profession, characteristic of junior cadets, acquired concrete outlines of reality, work in difficult conditions among senior cadets.

Discussions

A review of modern scientific research demonstrates the active interest of specialists in questions of the influence of the psychophysiological parameters of a sailor on the quality of his work.

We did a great work to determine the potential for improving the level of training of navigator by comparing the subjective perception and objective indicators of the professional level with further retraining based on the analysis of the navigator's *professiogram*¹⁸. Today, the shipping community has not formed a clear professional portrait of a modern navigator, given the existing problem of the influence of the human factor on the safety of navigation. In the noted work, it is shown that the profession of a navigator is determined by the following: a high degree of danger of human activity in the conditions of professional activity, work in difficult meteorological conditions, wide geography of the operating environment, increased workload of the navigator staff of ships caused by a decrease in the number of crew members on board, increased requirements of domestic and international documents to the level of safe exploitation of transport facilities. The authors emphasized that the modern analysis of accidents indicates a direct relationship between the state of the physical and psychological health of navigators and traffic safety. However, the individual psychophysiological features of the formation of the navigator's personality both in the training process and in subsequent practical work at sea are not presented by the authors.

Another study indicated that most of the accidents associated with maritime traffic are due to the influence of human factors, which is confirmed by statistics from the MAIB (Marine Accident Investigation Branch) – the UK Marine Accident Research Department. So, 15.0% of ships can be defined as sub-standard, not meeting the standards of maritime safety¹⁹. It should be noted that the working conditions of the sailor are associated with growing pressures, the duration of stay in the voyage increases with a decrease of crew number, an increase in the volume of reporting documentation, which inevitably leads to the accumulation of chronic fatigue. A person in maritime traffic is considered as

¹⁸ D. B. Sigaev y A. P. Shatylo, “Ways of realizing the potential of the navigator profession as a factor in increasing the safety of navigation”. The bulletin of the State University of the Maritime and River Fleet named after the Admiral S. O. Makarov, Vol: 4 num 11 (2019): 652-661.

¹⁹ N. N. Grigor'ev y D. B. Sigaev, “Forms and Effectiveness of an International Maritime Organization in the fight against the fatigue of sailors”. The bulletin of the State University of the Maritime and River Fleet named after the Admiral S. O. Makarov, Vol: 9 num 3 (2017): 506-515.

one of the elements of the safety mechanism at sea, however, without taking into account the complexity of this element – its psychophysiological characteristics, parameters of professionally important qualities, mental states of the employee, motives and interests that drive his behavior. According to the researchers, the shortcomings can be compensated for by applying the professionogram for maritime professions in the selection of personnel by marine companies, when accepting applicants for maritime educational institutions, and monitoring their training. At the same time, at present, the professionogram method is not fully used in the field of marine; in fact, it is not used for a number of maritime professions.

In another research, which also serves as an argument for our discussion, the influence of the human factor on the safety of the transport process is noted, taking into account the need to understand the individual psychological characteristics of the floating staff. Attention is focused on the fact that the human factor, which is the cause of accidents and incidents at sea, can be defined as the action or inaction of the crew members, as well as human errors, intentional or unintentional, that negatively affect the operation of the system or the successful completion of a certain task²⁰.

The authors considered the reasons for the development of an emergency at sea. Despite the adoption of the International Convention for the Safety of Life at Sea (SOLAS-74), the rules for the inspection of ships, rescue and other equipment, mechanisms and structures, equipping ships with new modern technical means of navigation and communication, automatic radar tracking, and radar stations and electronic mapping and navigation information systems, the total number of accidents that are related to the human factor is growing. This once again emphasizes the need for a thorough study of the psychophysiological parameters of the main participant in scientific and technological progress – man, as the main component of the work of modern technical innovations.

Recommendations have been developed for the navigator for making operational decisions in conditions of large flows of information²¹. It was emphasized that ensuring the safe navigation of ships is an urgent task, especially in the event of a “danger at sea” situation, when the ship is in imminent loss and a panic condition arises in the crew relations. Attention is focused on the use of the Decision Support System in the work of navigation, which allows the navigator in an emergency situation; when, due to the increased nervousness of the situation, it is more difficult for a person to make

²⁰ V. V. Karetnikov; S. V. Kozik y I. A. Sokolova, “Recording of the individual psychological characteristics of the floating staff and the influence of the human factor on the safety of the transport process”. Bulletin of the Astrakhan State Technical University, num 1 (2018): 16-22.

²¹ A. V. Valjaev, “About the development of a decision support system in case of a threat of flooding of a river displacement ship”. Works of the Krylov State Scientific Center, Vol: 3 Special Issue (2019): 248-243.

informed decisions, calculate his own actions and the time required for this²². At the same time, the author overlooks the psychophysiological characteristics of the captain's personality, which directly affects his performance, the very ability to quickly respond to emergency situations.

Thus, the importance of a deeper study of the features of the psychophysiological state of cadets of maritime specialties is confirmed, which is due to the need to search for the most effective methods in training personnel of the indicated category.

Conclusions

Realizing the first task – to analyze the literature for the presence of modern research on the issue of the dominant coping-strategy of the personality, indicators of well-being, activity and mood of cadets of maritime specialties – researches were found that reflect the study of stress resilience of cadets, the relationship of dominant coping-strategies at different levels of stress resilience; studied the components of the resilience of cadets; basic coping-strategies, individual style of coping behavior; study of the peculiarities of labor of water transport workers, the mechanism of organizing medical and psychological prevention, rehabilitation of sailors. At the same time, it should be noted that it is necessary to study the peculiarities of the formation of the coping-strategy of the personality among cadets of maritime specialties after a long voyage.

Realizing the second task – to study the dominant coping-strategy of the personality, indicators of well-being, activity and mood among the cadets of the first and second courses of the specialty of sea and river transport – the largest number of cadets of the selected research category with the leading strategy of searching social support was found. They take an active life position, make efforts to find an effective solution to the problem, often turn to family members, friends and others for help and support.

Realizing the third task – to study the dominant coping-strategy of the personality, indicators of well-being, activity and mood in the third-fourth-year cadets of the specialty of sea and river transport after passing the floating practice - the largest number of cadets was found in the indicator of the “problem avoidance” scale, which indicates that the students of this group have a desire to avoid contact with the surrounding reality, the presence of a base for the development of maladaptive, pseudo-coping behavior, poor development of copying resources and a lack of active problem solving skills.

Realizing the fourth task – to hold a comparative analysis of changes in the dominant coping-strategy of the personality, indicators of well-being, activity and mood of cadets of maritime specialties after a long voyage – It was found

²² V. V. Karetnikov; S. V. Kozik y I. A. Sokolova, “Recording of the individual psychological characteristics of the floating staff and the influence of the human factor on the safety of the transport process”. Bulletin of the Astrakhan State Technical University, num 1 (2018): 16-22.

that senior cadets who have completed floating practice, to a greater extent than junior cadets, have a reaction in difficult situations of the "problem avoidance" type. To a lesser extent, they seek communication support from others, however, personal resources for the effective resolution of life tasks are still insufficient, which in turn leads to the development of a state of *maladaptation*, pseudo-coexisting behavior. Comparative characteristics of the indicators of well-being, activity and mood show a decrease in the respondents' indicators of well-being after prolonged floating practice, an increase in activity indicators and a decrease in mood indicators.

Thus, the question of the formation mechanism, the possibilities of correcting the dominant personality coping-strategy, the study of the causes and mechanism of changes in the indicators of psychophysiological activity of cadets of maritime specialties after a long voyage needs additional research.

In difficult conditions of the voyage, special circumstances of performing professional duties in situations of the need for quick response, decision-making, questions about the psychophysiological state of the sailor, as well as the search for ways to improve the quality of his life, gain particular importance.

The identified connection between the elements of maladjustment and the fact of being in a long voyage determines the need for further research of psychophysiological parameters, behavioral models of cadets-sailors.

As a result of the our work, new prospects open up for the continuation of the study of the psychophysiological parameters of the cadet-sailor, taking into account the type of his professional duties, the characteristics of work, daily activities, the experience of staying in the conditions of a long voyage, a number of psychosocial factors, the geographic and climatic conditions of the upcoming voyage.

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