Annotation
of the dissertation thesis for the degree of Doctor of Philosophy (PhD) in the specialty 6D110200 "Public health"
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Topic: "Medical and social aspects of the formation of the health of the population of the oil and gas producing region (Zhanazhol oil and gas complex as an example).

Background. There is a steady increase in the rate of environmental degradation all over the world. Adverse anthropogenic and technogenic impacts significantly affect the health of the population and increase the risk of developing certain diseases (Fletcher R. et al., 1998; Ivanenko A.V. et al., 2017). As stated in the Constitution of the Republic of Kazakhstan, a person and human life are the property of the state and people have the right to protect their health (Sergeeva M.V., 2010), therefore, one of the main tasks is to monitor and check the level of health of the population, taking into account its territorial characteristics.

Unfavorable sanitary and hygienic conditions are an important aspect affecting the level of public health. Environmental pollution, accelerated economic growth and other social factors have had a negative impact on the health of the population, which has led to an increase in health care costs over the past two decades. The deterioration of the environment due to man-made stress, the growing influence of negative factors on the health of the population are considered as the main threats to the environmental safety of sustainable development of regions. Currently, Kazakhstan is undergoing intensive development of oil and gas production and oil and gas processing industries. The large - scale development of the dynamic economy revealed a number of particularly important issues on the agenda, along with ecology, quality of life of the population, social, economic, psychological areas (Suleymanov R.A. et al., 2015; Babak V., 2006; Mukhamatdinova A.R. et al., 2012; Abushinova D.V. et al., 2016).

As a result of the examination to assess the degree of impact of oil and gas production on various areas of industry in settlement regions, it showed a "negative" impact on the environmental situation of the environment, a "positive" impact on the socio-economic situation of the population and the region (Sadyrova M.S., 2014). Consequences of the" positive " impact: the main advantage of the location of oil and gas production facilities in residential areas is the provision of jobs and the organization of other social programs, which directly affect the level of quality of life of local residents, stimulate the development of other industries, that is, the development of the regional socio - economic sphere (Gabdualieva R.S. et al., 2013; Yermukhanova L.S. et al., 2017; Schrecker T. et al., 2018).

Most of the population of Kazakhstan lives in the zone of direct influence of harmful production factors. Industrial regions – Pavlodar, Karaganda, Atyrau, Aktobe and East Kazakhstan regions-make the main contribution to the pollution of the country's atmospheric air. Of the total pollutants released into the atmospheric air in the last year, 79.6% were gaseous and liquid substances, and 20.4% were solids. The volume of emissions increases by 1.5% annually (National Report on the

State of the Environment, 2019). As a result of the examination of the health system, atmospheric air, soil and water pollution, which is the second most dangerous to the health of the population (Evdoshenko V.S. and others, 2012), the main inflow medium for pollutants and emissions is atmospheric air.

The polluting effect on the environment during oil and gas production activities is observed at all stages of the production cycle-during geological exploration, drilling of wells, oil and gas production, their preparation and storage, transportation and processing (Kokoulina A.A. et al., 2017).

G.G. Onishchenko and other researchers pointed out the difficulty of determining one or another role of environmental factors in the violation of public health due to the variety of possible harmful factors characteristic of the environment and the production environment. For example, more than 35 million chemical compounds were registered, among which the majority pose a danger to human health, including chemicals in the oil and gas industry, such as sulfur dioxide, mercaptans, nitrogen dioxide, sulfur dioxide, carbon monoxide, hydrocarbons and others. These chemical elements have a negative effect on the central nervous system and hematopoietic systems, the reproductive system, skin and skin-fat layers, the functions of the eye and the accessory apparatus of the eyes, are mutagens, carcinogens (Schrecker T. et al., 2018; Onishchenko G.G., 2011; Husaynova K.N. et al., 2016).

Currently, one of the most important and complex problems of medicine, especially preventive medicine, is to establish and determine the relationship of changes in the state of health with the influence of environmental factors. The determination of qualitative and quantitative indicators of changes in the state of health of the population under the influence of oil and gas production will serve as the basis for the development of the main directions of policy in the field of Health Protection of the population at the territorial, especially local levels.

Also, taking into account the importance of the state policy of eliminating or reducing the adverse effects of man-made factors on the population at the production level, protecting the health of the population from adverse environmental factors in the framework of sustainable development, it is important to study the real environmental situation of the studied regions, assess the socio-economic situation and obtain qualitative and quantitative indicators of the dependence of the quality of life and health of the adult population on the influence of Environmental Risk Factors.

Purpose of the study

Study of the medical and social aspect of the formation of the health of the adult population living in the zhanazhol oil and gas complex (ZhOGC).

Research objectives:

1. Assessment of the socio-economic status and quality of life of the inhabitants of the settlement in the Zhanazhol oil and gas complex (ZhOGC) region;
2. Assessment of registration, structure and results of in-depth medical examination of primary morbidity among adults;

3. To determine the chemical composition of the atmospheric air of the object under study and its effect on the health of adult residents;
4. Assessment of environmental hazards to the health of adult residents in the region of ZhOGC.

Form of research

The main region is Aktobe region, located near the Zhanazhol oil and gas field, Kenkiyak district, Sarkol district of Temir district, Saga district of Mugalzhar district, Shengelshi district. 192 adult (male, female) residents aged 18-60.

Monitoring region - Kobda district, Kobda a. 192 adult (male, female) residents aged 18-60.

Atmospheric air of the studied areas.

Subject of the study

The results of the organization of an in-depth medical examination of the adult (male, female) population aged 18 to 60 years, assessment of the psychological state of the population, atmospheric air (sulfur dioxide, carbon monoxide, hydrogen sulfide, hydrocarbons, ethanol, phenol, ammonia, ammonia, xylene, toluene, styrene, oil), assessment of the health of the population, assessment of environmental hazards.

Scientific novelty of dissertation research

First time:

- The health, socio-economic conditions and quality of life of residents of the Zhanazhol oil and gas field were evaluated in comparison with the clean zone;
- Effects of chemical substances in atmospheric air and socio-economic conditions on the health of residents were determined.

Practical significance of the work:

As a result of the study, the socio-economic conditions of the residents of the studied region are evaluated, and objective information on the morbidity indicators of the adult population is obtained. If the result of the assessment of the socio-economic conditions of the residents of the studied village is taken as a key basis in the development of a strategic plan in the implementation of the local government system, the evaluation and study of the health condition, the objective indicators obtained for all tasks, sanitary-hygienic and medical-prophylactic measures for the protection and improvement of the health of residents allows to create a system.

Statistical-analytical materials were used by departments of ecology, sanitary-epidemiological services in solving environmental protection and public health issues, and were used to teach medical ecology classes.

A scientifically based criterion (eco-danger) was introduced into the practical field of health care to determine the impact of man-made pollution on the health status of residents and to justify the medical-ecological recommendations of environmental quality management.

The results of the study of the medical and ecological problems of the oil and gas producing region will contribute to the further development of the foundations of environmental quality management and the improvement of sanitary and hygienic monitoring.

The principles of medical and social rehabilitation based on the results of the analysis of the dependence of the population on the health of the complex influence of ecology and socio-economic factors should be used as a guide when conducting activities in the oil and gas production area and allow to be used when conducting research in other oil and gas production areas.

Basic rules of protection

1. According to the results of in-depth medical examinations, the morbidity of the population of the oil and gas producing region is relatively higher than in the clean zone.
2. Atmospheric air pollution in the villages of Kenkiyak, Saga, Sarkol, Shengelshi in the oil and gas zone and the impact of non-carcinogenic environmental hazards on the health of men and women depends on the distance and location of production facilities.
3. The socio-economic conditions and economic activities of the residents of the oil and gas producing region are lower compared to the non-production region, i.e. the control region.

Personal contribution of the author

The dissertation research was carried out on the basis of the scientific and technical program "Development of a scientific and methodological base for reducing the environmental burden of ecologically disadvantaged territories of the Republic of Kazakhstan, medical care, social protection and rehabilitation" (state registration number 0117RK00026).

All sections of the dissertation (collection of materials, their processing, study of research materials, interpretation and analysis of research results) and organization of research according to the program, psychological surveys of the population, air sampling was carried out with the personal participation of a doctoral student.

Approbation of work

The main results of the dissertation were presented at the following conferences:

1. V international scientific conference of scientists and students "Future of development of biology, medicine and pharmacy" (Shymkent, 2017);
2. LXXII International scientific and practical conference of students and young scientists "Actual problems of modern medicine and pharmacy" (Minsk, 2018);
3. ICES 2019: International Conference on Environment and Sustainability (Istanbul, 2019);
4. International Conference on Medical, Biological and Pharmaceutical Sciences (ICMBPS-19) (Dubai, 2019).

Approbation of the study

11 papers have been published on the research work of the dissertation:

- in Scopus scientific information base - 1 (Journal of Environmental Management and Tourism, https://doi.org/10.14505/jemt, SJR 0.296)
- 3 articles in publications presented by the Control Committee in the field of Education and Science of the Republic of Kazakhstan;
- Methodological manual "Assessment of the health of the residents of the oil and gas producing region (Zhanazhol oil and gas complex as an example)" ISBN 978-601-7650-25-4 / approved by the Academic Council of the Academy of Sciences "BSMU named after M. Ospanov", No. 7 16.06.2021 .;
- Abstracts at international scientific and practical conferences - 6.

Implementation of research results

Based on the results of the study, a methodological manual "Assessment of the health status of the population of the oil and gas region (on the example of the Zhanazhol oil and gas complex)" was prepared (approved by the Academic Council of the Non-profit JSC M.Ospanov WKMU dated 16. 06.2021, №7) and transferred to the following institutions: The Department of Health of the Aktobe region (№193, 27.10.2021); Non-profit JSC "CNPS - Aktobemunaygas" (No. 195, 28.10.2021); the Department of sanitary and epidemiological supervision for the Aktobe region of the Committee of the Ministry of Health (№194, 27.10.2021).

Structure and scope of the dissertation

The dissertation consists of the content, definitions, symbols, abbreviations, introduction, literature review, materials and research methods, results, conclusions, practical recommendations parts. The dissertation thesis consists of 120 pages printed on a computer. It includes 30 tables and 22 figures. The list of references is 189, including 156 from foreign literature. Appendices are presented at the end of the dissertation.

Conclusions:

1. The economic activity of the inhabitants of the settlement in question in the Zhanazhol oil and gas producing area (8.5%) is relatively low compared to the control area. The unemployment rate is 2.2% higher than in the control region, the non-production region, as a result of which 20.3% of the respondents have an average monthly family income of 42,500 tenge.
2. In the period 2017-2021, the first incidence rate is higher in the control region than in the main region, 31,485.6 and 33,181.2 per 100,000 inhabitants, respectively. As a result of the in-depth medical examination, the first-time morbidity in the population was 6.3% higher in the main region than in the control region, and compared to the control region, diseases of the respiratory organs (PR=1.52), diseases of the skin layer and skin folds (PR=1.6), diseases of the cardiovascular system (PR=1.08), diseases of the digestive tract (PR=1.25), diseases of the ears and nipples (PR=2.25), diseases of the blood

and hematopoietic organs (PR=1 .04), diseases of the endocrine system (PR=1.83) were found to be high.

3. In the period from 2014 to 2020, among regional enterprises, the annual environmental emissions of JSC «CNPS – Aktobemunaygas» are in the first place, the growth rate is 2.1%, as a result of which, from the atmospheric air, maximum permissible concentration hydrogen sulfide (1.12 times), hydrocarbons (1, 11 times), while xylene (4.4 times) is higher, the rank correlation of Spearmen in the center of morbidity was determined during the determination of correlation with carbon monoxide (CO): diseases of respiratory organs (r=0.9, p=0.000), cardiovascular system (r=0.9, p=0.01), diseases of the digestive tract (r=0.9, p=0.05), diseases of the ear and nipple (r=0.9, p=0.004), diseases of the skin layer and skin layer (r=0.9, p=0.04), diseases of the genitourinary system (r=0.9, p=0.009).
4. The total environmental risk affecting the health of men and women in the oil and gas producing regions was HI_{md}=5.4 (increased danger). Under conditions of isolated exposure to hydrogen sulfide, the eco-risk index was HQ_{md}=1.5; carbon HQ_{md} = 3.65 (medium hazard), having a direct effect on the eyes, respiratory system, liver, kidneys, central nervous system.