ANALYSIS OF NUTRITION-RELATED DISEASES AMONG THE ADULT POPULATION OF WORKING AGE IN KYIV REGION (nutrition-related diseases, mortality)

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ABSTRACT

Social unrest, martial law, man-made and radioactive environmental pollution (air, water, soil, food), noise, vibration, electromagnetic waves and other factors of physical, chemical and biological origin, as well as various psycho-emotional overloads with poor-quality, unbalanced nutrition form conditions that over time lead to permanent disruption of organ functioning, irre-versible pathological changes in the body's systems, to loss of working capacity, premature aging, and deaths.

The purpose of the study is to assess the prevalence of nutritionally dependent diseases among people of working age living in environmentally hazardous areas of Ivankiv and Obukhiv districts of Kyiv region in 2019–2021.

The work used bibliosemantic, epidemiological research methodologies and medical statistics methods. The level of nutritionally dependent morbidity was analyzed by disease classes, disease groups and individual nosological forms in accordance with the ICD-10, taking into account age, gender, and the nutritional status of the working age population. The priorities were diseases of the circulatory system, in-cluding diseases characterized by high blood pressure, ischemic heart disease, as well as diseases of the digestive system, in particular diseases of the esophagus, stomach and duodenum, gastric and duodenal ulcers, gastritis, duodenitis, diseases of the liver, gallbladder, biliary tract and pan-creas. The leading indicator of disorders in the body is the state of the cardiovascular system, which instantly reacts to the action of negative factors of various origins, including psycho-emotional ones.

Modern environmental conditions require constant monitoring of the dynamics of morbidity and require the development and implementation of effective large-scale programs aimed at preventing the occurrence of alimentary and alimentary-dependent diseases, restoring affected structures and eliminating the consequences of stress from living in an ecologically hazardous area.

Key words

Alimentary genesis, working age, Chernobyl accident, environmentally hazardous areas, thermal power plants.

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INTRODUCTION

A comprehensive indicator characterizing the impact of the environment on the human population is the state of health. According to the modern interpretation, health is a natural state characterized by complete balance with the biosphere and the absence of any pathological abnormalities in the body. The official definition of health by the World Health Organization (WHO) indicates that "health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity" (Towards a healthier..., 2020). The health of the population of a certain region depends on the ecological state of the environment and reflects the dynamic balance between the organism and the individual's habitat. In the human body, a dynamic stereotype is created with the preservation of homeostasis, which is formed in the process of evolutionary development in certain conditions and is maintained due to metabolic processes, neurohumoral and endocrine regulation.

LITERATURE REVIEW

Technogenic and radioactive pollution of the environment (air, water, soil, food), as well as noise, vibration, electromagnetic waves and other factors of physical, chemical and biological origin cause severe and irreversible pathological changes in the human body and a negative impact on the implementation of genetic information. Living in such conditions leads to loss of working capacity, a sharp increase in morbidity and premature aging, as well as an increase in the number of premature deaths (Mukhatska, 2016; Serdyuk et al., 2011; Ryngach, 2018; Shushpanov, 2017:132; Bazyka et al., 2021; Omelyanets et al., 2007).

After the Chernobyl disaster, as a result of natural processes and anti-radiation measures, the ecological state of the affected territories has changed significantly (Panov, 2021). However, due to the long half-lives, radioactive substances will still remain in the environment and will determine the health of several more generations of people.

Thermal power plants (TPPs) pose no less of a threat to the health and living conditions of the population. Today, emissions from TPPs in Ukraine exceed the European Union (EU) standards by 5–30 times and are the main pollutant of atmospheric air and the environment (Zhdanov, 2008 : 95; Serdyuk, 2018; Directive 2010/75/EU..., 2010). Ensuring acceptable living conditions for the population of such territories is an urgent problem that requires studying and analyzing the impact of harmful emissions from thermal power plants and nuclear power plants on the morbidity of the population, as well as developing ways to improve the current situation. Under these conditions, the relevance of preventive medicine has sharply increased (Mataus, 2024; Serdyuk et al., 2012; Zagorodniy, 2011; Boychuk, 2017).

In Ukraine, the situation with both nutrition and health is significantly complicated by environmental circumstances. The general result of the action of harmful exogenous and endogenous factors on the human body is the suppression of immune reactivity, the increase in non-communicable diseases, and the manifestation of carcinogenic and mutagenic effects (Biletska, et al., 2016; Nedelskaya & Taranova, 2013; Mokiya-Serbina, Sitalo, Yelchaninova, & Ponomareva, 2013). Scientific studies (Murashko & Rushchak, 2014; Korzun, 2012; Matasar et al., 2014; Derevyanko, 2009; Mikhneva, 2016) have shown that nutrition has a modifying effect on the action of toxicants entering the body. Diseases caused by the complex action of anthropo-

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gens include cardiovascular (hypertension, atherosclerosis, ischemic heart disease, etc.), oncological diseases, metabolic diseases, endocrine and digestive systems (Krekoten, 2008; Moskalenko, 2007; Gushchuk, 2006 : 101–102). The leading factor in the occurrence of these diseases is poor-quality, inadequate and unbalanced nutrition. In the prevention and treatment of such pathology, the nutritional factor plays a leading role. Diseases, the occurrence of which is due to a surplus or deficit in the body of nutrients and energy, as well as an imbalance of food ingredients, in particular essential substances in the diet, are called alimentary-related or alimentary (from the Latin alimentarius – food). Food-related diseases also include physiological conditions with impaired absorption of nutrients under the influence of exogenous and endogenous factors.

According to the WHO classification, there are 4 groups of causes that lead to alimentary diseases:

– insufficient and unbalanced nutrition;
– lack of minerals;
– lack of vitamins;
– surplus or deficit nutrition.

Thus, alimentary diseases are diseases whose etiology is associated with a lack or excess of food ingredients and calories in the body. They can develop both primarily and secondarily, and have a chronic course. The former include food poisoning and parasitic invasions (biohelminthiasis). Such diseases occur when consuming products contaminated with microorganisms or residues of their metabolism (toxins, etc.), as well as helminth eggs.

According to scientific publications, in recent years the overall incidence rate of the population of Ukraine has increased by almost 30%. The rate of increase in alimentary and alimentary-related diseases, as well as diabetes mellitus and bronchial asthma – 2.1 times, gastric and duodenal ulcer – 1.9 times, angina pectoris – 8.6 times, acute myocardial infarction – 2.6 times (Matasar & Petryshchenko, 2023; Matasar et al., 2022).

It has been established that the structure of the population's diet is a fairly stable indicator, the formation of which occurs over several generations. However, the structure of nutrition undergoes significant changes as a result of socio-economic upheavals or environmental disasters. Therefore, the issue of studying the possibilities of modifying the influence of the alimentary factor on the prevention of the action of negative factors of a chemical, biological nature emphasizes the relevance of such research, and solving the issues of health protection of the population living in technogenically polluted territories of Ukraine is extremely necessary.

The purpose of the study is to assess the prevalence of alimentary diseases among people aged 18 to 60 years who permanently live in environmentally hazardous territories of the Ivankiv and Obukhiv districts of the Kyiv region.

METHODOLOGY

To achieve the goal of the study, we divided working-age people into groups of 18-29; 30-39 and 40-60 years old, who permanently reside in the territory of Ivankiv and Obukhiv districts of Kyiv region. Then, an analysis of morbidity was conducted.

RESULTS AND DISCUSSION

In order to conduct an analysis of the incidence of alimentary and alimentary-dependent diseases, a general cohort of working-age people (men and women aged 18–29, 30–39, 40–60 years old) living in environmental-

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ly hazardous areas of Kyiv region, including Ivankiv and Obukhiv districts, was collected during 2019–2021.

The source of initial information for the epidemiological study and analysis was data provided by the State Institution "Ukrainian Center for Information Technologies and the National Register of the Ministry of Health of Ukraine" (SRU).

In total, the total cohort in the Kyiv region consisted of 306,835 people of both sexes registered with the State Health Service, including: men - 129,217 or 42.1%, women - 177,618 or 57.9%; in the Ivankivskyi district, the total cohort consisted of 21,029 people of both sexes, including: men - 8,255 or 39.3%, women - 12,774 or 60.7%; in the Obukhiv district, the total cohort consisted of 3,839 people of both sexes, including: men - 1,535 or 40.0%, women - 2,304 or 60.0%.

Data on morbidity, according to the State Health Service, among men aged 18 to 60 living in the Kyiv region for 2019–2021, are given in Table. 1.

Table 1. Morbidity among men in Kyiv region for 2019–2021

Source: Authors, based on data from the State Health Service

Nosological forms and classes of diseases	18-29 years old			30-39 years old			40-60 years old		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
	n= 41066	n = 41066	n = 41066	n = 35686	n = 35686	n = 35686	n = 52465	n = 52465	n = 52465
1	2	3	4	5	6	7	8	9	10
Malignant neoplasm's of the digestive system	16	15	11	40	32	32	47	36	33
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (class II)	32	12	7	24	16	11	14	10	4
including nutritional anaemia	31	12	7	21	13	11	12	8	4
Diseases of the endocrine system, nutritional disorders and metabolic disorders (class IV)	411	266	203	460	295	233	393	272	221
thyroid diseases associated with iodine deficiency	63	30	30	39	17	15	29	21	20
hypothyroidism	10	8	8	9	6	6	9	7	7
thyrotoxicosis	0	0	0	0	0	0	0	0	0
(hyperthyroidism)	9	7	5	12	6	6	9	5	5
thyroiditis	212	135	108	284	186	148	280	183	152
diabetes	36	17	10	31	14	12	13	8	8
Diseases of the circulatory system (class IX)	9903	7354	3563	15542	10174	5332	17177	10772	6648

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Continuation of table 1.

1	2	3	4	5	6	7	8	9	10
diseases characterized by high blood pressure	3208	1981	996	4117	1744	822	4029	1505	668
ischemic heart disease	4732	4260	1988	8675	6928	3707	9893	7200	4608
Respiratory diseases (class X)	1722	1484	956	1372	1105	724	1103	864	629
chronic lower respiratory tract diseases	1008	813	427	988	755	426	902	690	482
Digestive diseases(class XI)	7467	6126	3849	6213	4879	3211	4422	3455	2331
diseases of the oesophagus, stomach and duodenum	3066	2331	1547	2506	1828	1238	1679	1261	858
gastric and duodenal ulcers	865	572	470	740	492	403	529	361	294
gastritis and duodenitis	1441	1257	871	1129	918	677	730	601	469
liver diseases	186	136	108	152	113	85	119	90	73
diseases of the gallbladder, biliary tract and pancreas	4099	3563	2141	3441	2849	1828	2524	2016	1330

The incidence of malignant neoplasms of the digestive organs according to ICD-10 in 2019 was highest among men aged 40–60 years.

Blood diseases in men were most common in the age category of 18–29 years. At the same time, their number in 2021 decreased by 4.5 times. As for the incidence of diseases of the blood and hematopoietic organs and certain disorders involving the immune mechanism, the decrease in their registration decreased in all age categories. However, men in the youngest category still suffered the most from anemia of alimentary genesis.

Diseases of the endocrine system, eating disorders and metabolic disorders occupy a significantly higher place when compared with the above-mentioned nosological forms and exceed the level of malignant neoplasms of the digestive organs by 25 times, and diseases of the blood and hematopoietic organs in 2019 by more than 12 times.

Thyroid disease is of particular concern, despite large-scale measures to prevent iodine deficiency among the population of Ukraine (Figure 1).

At the same time, hypothyroidism was more common in people aged 18-29. In middle-aged and older people (40-60 years old), there was a tendency to reduce the level of this incidence. No one suffered from thyrotoxicosis (hyperthyroidism) during the observation period. In 2019, men in the age category of 30-39 years old were more likely to suffer from thyroiditis. People aged 18-29 years old were more likely to suffer from diabetes. Diseases of the circulatory system occupy one of the first places among all the diseases analyzed by us. At the same time, people aged 40-60 years old were more likely to suffer from it. Ischemic heart disease (IHD) was recorded in all age categories, but more often in people 40 and older.

The incidence of respiratory diseases is significantly lower than that of the circulatory system, but significantly higher than that of malignant neoplasms, blood diseases and endocrine systems. At the same time, respiratory diseases were the most common in all surveyed individuals. However, for the period 2019–2021, there was a tendency to decrease the level of registration of this disease.

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Source: Authors, based on data from the State Health Service

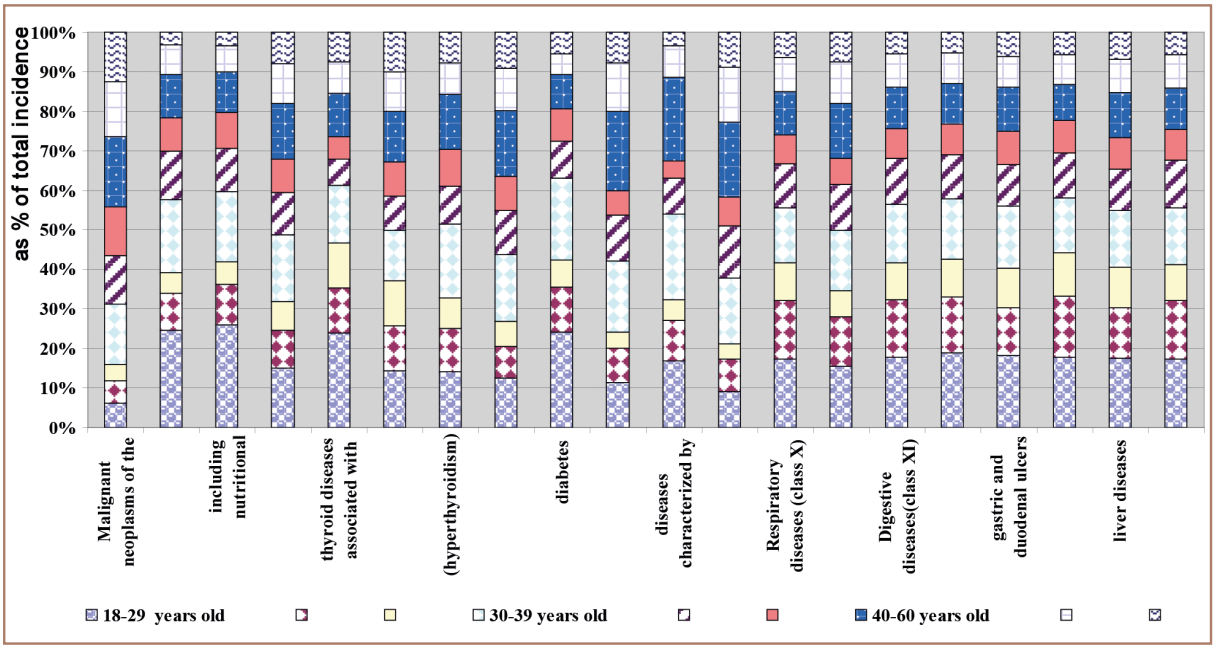

Figure 1. Incidence of men living in the Kyiv region in 2019–2021

Diseases of the digestive system take second place after diseases of the circulatory system.

At the same time, diseases of the gallbladder, biliary tract and pancreas account for almost 55% of all pathologies of the digestive system. This nosology is more pronounced in people aged 18-29. However, it is characteristic of all individuals. A somewhat lower level is occupied by diseases of the esophagus, stomach and duodenum, which make up 41% of all diseases of the digestive system. Gastritis and duodenitis take third place and account for 19%.

Gastric and duodenal ulcers were more frequently recorded in younger people, but were widely recorded in all categories of men. Liver diseases were significantly less common, when compared with the above forms and were more frequently recorded in 2019. The trend towards a decrease in incidence is more pronounced in men over 40 years of age.

Regarding the incidence of men living in the Ivankiv district of the Kyiv region in the period from 2019 to 2021, the data of dynamic observation (Table 2) indicate that malignant neoplasms of the digestive organs were recorded in one case in people aged 18-29, two cases in men aged 30-39, and 5 cases among people aged 40-60.

Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism were not recorded in people aged 40-60 throughout the entire observation period, and two and one case in 2019 among people aged 18-29 and 30-39, respectively. These were cases of alimentary anaemia.

According to the DRU data, diseases of the endocrine system, eating disorders and metabolic disorders were recorded only in 2019 and amounted to 17 in people aged 18-29 and 40-60. Men aged 30-39 were sick more often (22 cases in 2019). The data recorded by the DRU raise doubts. Apparently, there is unreliable reporting or its absence altogether, since thyroid diseases associated with iodine deficiency, hyperthyroidism, and only one case of

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hypothyroidism and thyroiditis were not recorded at all. Obesity and other types of excessive nutrition were recorded only in 2019 - 4; 3 and 2 cases, respectively, in people aged 18-29; 30-39 and 40-60. Diseases of the circulatory system are the most common. At the same time, people aged 40-60 were sick more often (Figure2).

Table 2. Morbidity among men in Ivankivskyi district, Kyiv region, 2019–2021

Source: Authors, based on data from the State Statistical Office

Nosological forms and classes of diseases	18-29 years old			30-39 years old			40-60 years old		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
	n = 2584	n = 2584	n = 2584	n = 2176	n = 2176	n = 2176	n = 3495	n = 3495	n = 3495
1	2	3	4	5	6	7	8	9	10
Malignant neoplasms of the digestive system	1	0	0	2	0	0	5	0	0
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (class II)	2	0	0	1	0	0	0	0	0
ncluding nutritional anaemia	2	0	0	1	0	0	0	0	0
Diseases of the endocrine system, nutritional disorders and metabolic disorders (class IV)	17	0	0	22	0	0	17	0	0
thyroid diseases associated with iodine deficiency	0	0	0	0	0	0	0	0	0
hypothyroidism	0	0	0	1	0	0	0	0	0
thyrotoxicosis	0	0	0	0	0	0	0	0	0
(hyperthyroidism)	0	0	0	1	0	0	0	0	0
thyroiditis	10	0	0	16	0	0	15	0	0
diabetes	4	0	0	3	0	0	2	0	0
Diseases of the circulatory system (class IX)	572	497	267	812	624	398	1091	532	392
diseases characterized by high blood pressure	195	27	0	242	33	0	248	24	0
ischemic heart disease	341	469	267	532	590	398	779	507	391
Respiratory diseases (class X)	281	309	244	135	137	132	85	29	27
chronic lower respiratory tract diseases	43	9	5	44	8	3	63	1	0
Digestive diseases(class XI)	568	299	263	524	198	164	270	35	27
diseases of the esophagus, stomach and duodenum	285	88	15	262	53	6	104	5	0

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Continuation of table 2

1	2	3	4	5	6	7	8	9	10
gastric and duodenal ulcers	50	8	6	48	11	2	28	0	0
gastritis and duodenitis	195	80	9	186	42	4	69	5	0
liver diseases	21	0	1	15	0	0	11	0	0
diseases of the gallbladder, biliary tract and pancreas	260	211	244	244	144	156	153	30	26

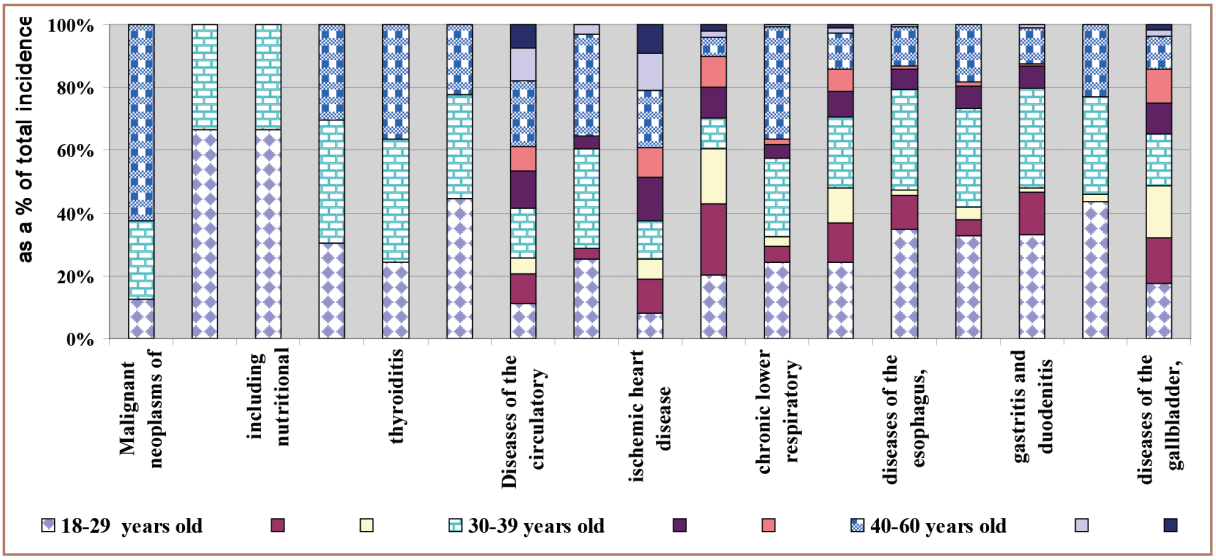

Figure 2. Morbidity of men living in Ivankivskyi district of Kyiv region in 2019-2021

The leading place among diseases of the circulatory system is occupied by coronary heart disease, which was more often recorded among the same category of people aged 40-60 in 2019. Coronary heart disease is less common among people aged 18-29. Diseases characterized by high blood pressure were not recorded at all in 2021 among all people (we believe that this is a shortcoming in the work of statistical bodies).

Diseases of the digestive system are widespread among the population of Ivankivskyi district and occupy second place after diseases of the circulatory system. It is worth noting that the leading place is occupied by ischemic heart disease. This nosological form was more often recorded among people aged 40-60.

Respiratory diseases are well expressed in people aged 18-29, especially in 2020, when the level increased by almost 10%. However, in 2021 it decreased by 26.6%, which may be due to the implementation of preventive measures caused by COVID-19. Chronic diseases of the lower respiratory tract were recorded more often in 2019. In 2020, their number decreased sharply, and in 2021 there were isolated cases, and among people aged 40-60 they were not recorded at all.

Digestive diseases require attention due to their significant level. Young people are more often ill. However, dynamic observations indicate a decrease in morbidity. People are less likely to suffer from gastric and duodenal ulcers (in 2021, not a single case was recorded among people aged 40-60). Liver diseases have

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the lowest level among all digestive disorders. However, diseases of the gallbladder, biliary tract, and pancreas are of particular concern among people aged 18-29, as their incidence is significantly higher than in older people (in 2020 and 2021, the incidence rate was 7 and 9 times higher than among people aged 40-60).

Statistical data on the incidence of men in the Obukhiv district of the Kyiv region are presented in Table 3.

Table 3. Morbidity among men in the Obukhiv district of the Kyiv region in 2019-2021

Source: Authors, based on data from the State Statistical Office

Nosological forms and classes of diseases	18-29 years old			30-39 years old			40-60 years old		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
	n = 450	n = 450	n = 450	n = 367	n = 367	n = 367	n = 718	n = 718	n = 718
1	2	3	4	5	6	7	8	9	10
Malignant neoplasms of the digestive system	0	0	0	2	2	2	2	2	2
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (class II)	0	0	0	0	0	0	0	0	0
including nutritional anaemia	0	0	0	0	0	0	0	0	0
Diseases of the endocrine system, nutritional disorders and metabolic disorders (class IV)	5	5	5	13	13	13	7	7	7
thyroid diseases associated with iodine deficiency	1	1	1	1	1	1	0	0	0
hypothyroidism	0	0	0	1	1	1	0	0	0
thyrotoxicosis	0	0	0	0	0	0	0	0	0
(hyperthyroidism)	0	0	0	0	0	0	0	0	0
thyroiditis	4	4	4	4	4	4	5	5	5
diabetes	0	0	0	7	7	7	2	2	2
Diseases of the circulatory system (class IX)	120	120	120	186	186	186	246	246	246
diseases characterized by high blood pressure	64	64	64	29	29	29	17	17	17
ischemic heart disease	37	37	37	132	132	132	179	179	179
Respiratory diseases (class X)	23	23	23	11	11	11	23	23	23
chronic lower respiratory tract diseases	7	7	7	6	6	6	19	19	19
Digestive diseases(class XI)	133	133	133	151	151	151	180	180	180
diseases of the esophagus, stomach and duodenum	58	58	58	67	67	67	59	59	59
gastric and duodenal ulcers	20	20	20	24	24	24	20	20	20
gastritis and duodenitis	23	23	23	25	25	25	15	15	15

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Continuation of table 3.

1	2	3	4	5	6	7	8	9	10
liver diseases	4	4	4	5	5	5	5	5	5
diseases of the gallbladder, biliary tract and pancreas	70	70	70	77	77	77	112	112	112

As evidenced by the above data, malignant neoplasms of the digestive organs were not recorded in people aged 18-29 living in the Obukhiv district of the Kyiv region. Two cases were registered among men aged 30-39 and 40-60.

Blood and hematopoietic organ diseases and certain disorders involving the immune mechanism (class III), including alimentary anaemia, were also not detected.

Diseases of the endocrine system, nutritional disorders and metabolic disorders were most often recorded among people aged 30-39, which exceeded similar indicators in people aged 18-20 and 40-60 by two times. Thyroid diseases associated with iodine deficiency were not recorded at all among people aged 40-60 and one case each in men aged 18-20 and 30-39 during the entire observation period.

Hypothyroidism and hyperthyroidism, as well as thyroiditis - not a single case was recorded.

Four people aged 18-29 and 30-39 years and five people aged 40-60 years had diabetes.

Circulatory system diseases are the most common disease among men in Ivankivskyi district. Thus, people aged 18-29 years suffered from high blood pressure more often. Men aged 30-39 and 40-60 years suffered much less (2.2 and 3.7 times, respectively). Everyone complained of ischemic heart disease (IHD), but in people aged 30-39 years, IHD was recorded 3.6 times more often, and in people aged 40-60 years, 7.8 times, respectively (Figure 3).

Source: Authors, based on data from the State Statistical Office

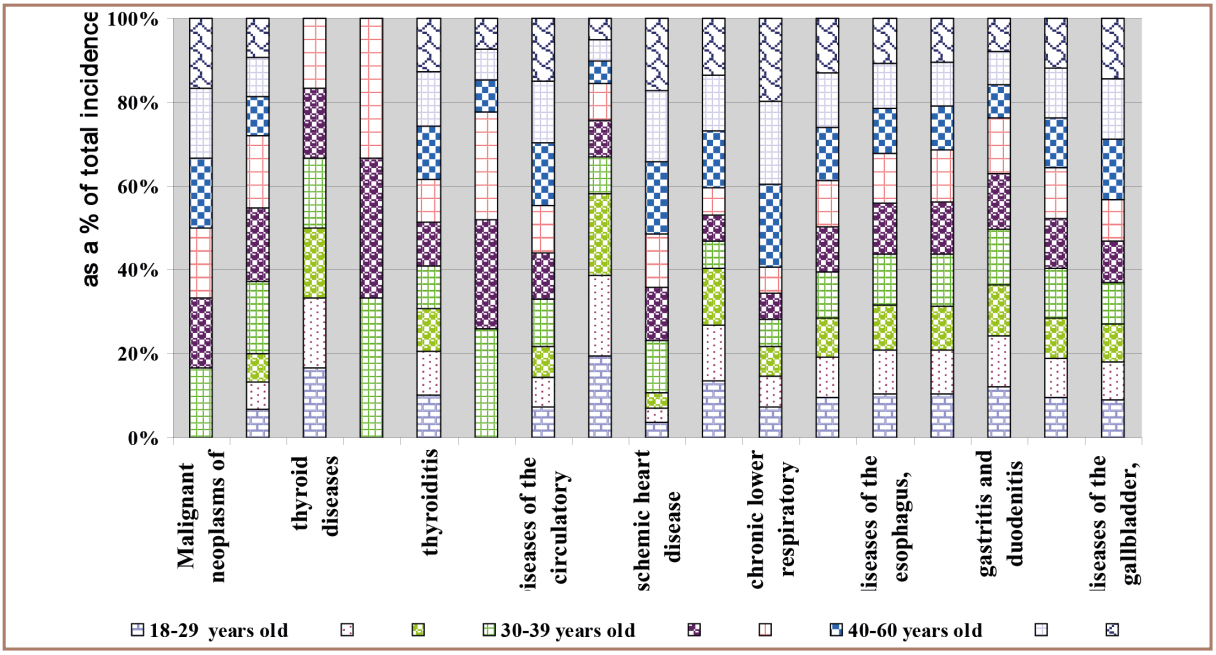

Figure 3. Morbidity of men living in Ivankivskyi district of Kyiv region for 2019-2021

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Seven people aged 30-39 and two people aged 40-60 suffered from obesity and other types of overeating.

Respiratory diseases were not significantly expressed and ranged from 11 to 23 cases, and lower respiratory tract diseases from 6 to 19 throughout the entire observation period. People aged 40-60 were more likely to suffer.

Digestive diseases are second only to diseases of the circulatory system. Diseases of the esophagus, stomach and duodenum took the leading place and were almost at the same level among all people throughout the entire observation period.

People aged 30-39 were more likely to suffer from stomach and duodenal ulcers. Gastritis and duodenitis were recorded in 23; 25 and 15 cases, respectively, among people aged 19-29; 30-39 and 40-60. Liver diseases were registered in 4 cases among people 18-29 and 5 cases among people from 30 to 60 years old.

Diseases of the gallbladder, biliary tract and pancreas are more typical for people 40-60 years old. Their number exceeds the incidence in younger men by an average of one and a half times (Figure 3).

Dynamics of morbidity among women of working age. Data on the morbidity of women of working age living in the Kyiv region for 2019-2021, according to the State Health Service, are given in Table 4.

Table 4. Morbidity of women aged 18 to 60 in Kyiv region in 2019-2021

Source: Authors, based on data from the State Statistical Office

Nosological forms and classes of diseases	18-29 years old			30-39 years old			40-60 years old		
	2019	2020	2021		2019	2020	2021		2019
	n = 51607	n = 51607	n = 51607	n = 45765	n = 45765	n = 45765	n = 80246	n = 80246	n = 80246
1	2	3	4	5	6	7	8	9	10
Malignant neoplasms of the digestive system	22	9	10	48	31	29	59	40	39
Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (class III)	208	104	78	197	102	73	87	51	35
including nutritional anomies	202	99	75	183	89	68	80	47	35
Diseases of the endocrine system, nutritional disorders and metabolic disorders (class IV)	1321	800	666	1680	1026	873	1656	1119	949

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Continuation of table 4.

1	2	3	4	5	6	7	8	9	10
thyroid diseases associated with iodine deficiency	118	58	51	88	43	39	91	52	49
hypothyroidism	53	41	41	43	34	33	59	43	42
thyrotoxicosis (hyperthyroidism)	0	0	0	0	0	0	0	0	0
thyroiditis	127	70	70	174	101	97	80	55	54
diabetes	368	219	176	760	459	393	866	555	473
obesity and other types of overeating	117	60	41	90	51	35	63	38	30
Circulatory system diseases (class IX)	16214	10851	6101	26305	16281	9631	35091	21879	14623
diseases characterized by high blood pressure	5918	3199	1721	7825	3295	1702	8646	3290	1639
ischemic heart disease	4732	6200	3444	13876	10670	6420	19618	14363	10014
Respiratory diseases (class X)	2022	1728	1325	1771	1314	963	1743	1370	1063
chronic diseases of the lower respiratory tract	1014	790	529	1220	869	569	1359	1047	773
Digestive system diseases	11245	9127	6098	10619	8274	5684	9509	7316	5112
(class XI)	3528	2638	1763	3281	2312	1533	2919	2149	1488
diseases of the esophagus, stomach and duodenum	630	396	322	758	454	362	703	466	368
gastric and duodenal ulcers	1867	1564	1159	1625	1344	1009	1506	1196	926
gastritis and duodenitis	178	127	99	188	131	103	171	110	75
liver diseases	7361	6208	4133	6976	5672	3923	6155	4822	3357

Analysis of data on the incidence of malignant neoplasms of the digestive organs in women according to ICD-10 in 2019 was the highest, as in men aged 40-60 years and amounted to 59 cases out of the number of registered persons. It should be noted that neoplasms in dynamics decreased by 50% in persons aged 18-29 years, by 16.6% and by 15%, respectively, in persons aged 30-39 and 40-60 years.

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Blood and hematopoietic organ diseases and certain disorders involving the immune mechanism were the highest among persons aged 18-29 years and amounted to 208 out of all registered persons. The incidence of blood organs and disorders involving the immune mechanism was lower in persons aged 40-60 years (2.8 in 2019, 2 times in 2020 and 2.2 times in 2021). The incidence of people aged 30-39 was lower than among people aged 18-29, but significantly higher than among women aged 40-60. Similar differences are observed in relation to nutritional anaemia.

Diseases of the endocrine system, nutritional disorders and metabolic disorders are characterized by a high level in all age groups. At the same time, a higher level was observed in 2019 among people aged 40-60 (Table 4, Figure 4). Somewhat less endocrine diseases caused by nutritional disorders and metabolic disorders were registered in women aged 18-29. Over the analyzed period, there was a tendency to decrease the incidence by an average of 1.6-1.9 times in people aged 18-29 and 1.6-1.9 times and 1.5-1.4 times in people aged 30-39 and 40-60, respectively, when compared with 2019.

Source: Authors, based on data from the State Statistical Office

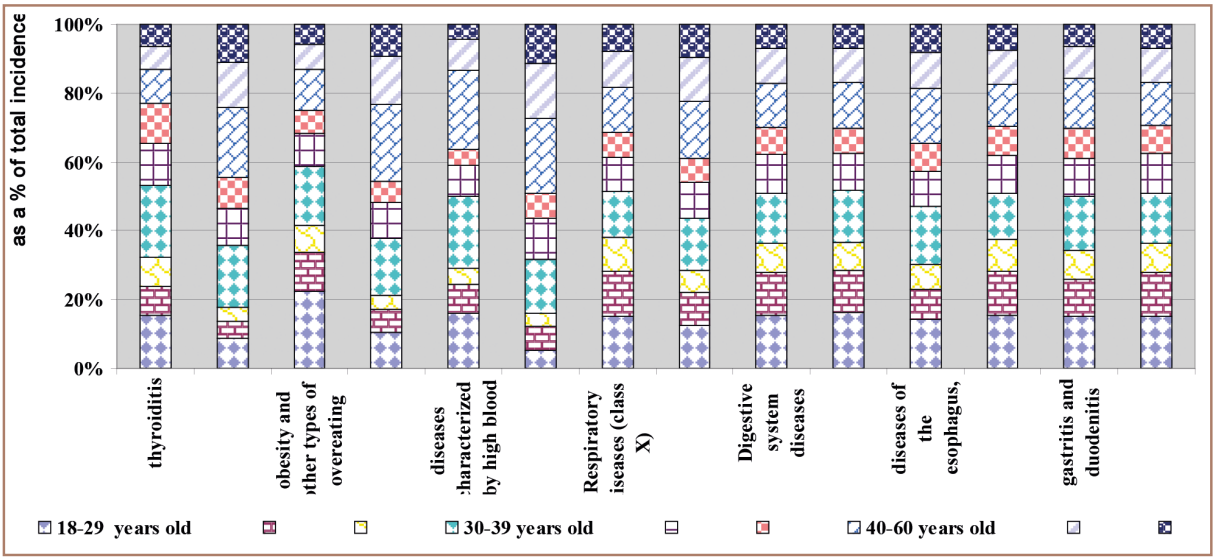

Figure 4. Morbidity of women living in the Kyiv region

Thyroid diseases associated with iodine deficiency were almost twice as common among people aged 18-29. The surveyed people suffered from hypothyroidism during the entire observation period at almost the same level. At the same time, there was a tendency to decrease the incidence rate. Hyperthyroidism was not recorded. Thyroiditis was more common in 2019. In later years, there was a tendency to decrease the incidence rate.

Diabetes mellitus was most common among people aged 40-60. Women aged 18-29 were significantly less likely to suffer from it than people aged 30-39. Women aged 18-29 suffered from obesity. Thus, in 2019, this indicator exceeded the similar one in the age group 40-60 by 1.8 times. Diseases of the circulatory system occupied a leading place throughout the entire observation period. People aged 40-60 were more likely to get sick. All women surveyed showed a tendency to a decrease in the incidence rate.

Diseases characterized by high blood pres-sure prevail over other nosologies of this

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class. All surveyed women suffer from coronary heart disease. However, the highest incidence was observed in people aged 40-60. In all women of this age, a tendency to decrease in the level of coronary heart disease was observed.

Respiratory diseases tend to decrease. However, their level is still high. Of particular concern are chronic diseases of the lower respiratory tract, which show a slight tendency to decrease in all age groups.

Digestive diseases are somewhat inferior to cardiovascular diseases, but are of concern. Thus, among women aged 19-29, they were the highest in 2019 among all surveyed. Diseases of the esophagus, stomach and duodenum occupied an average of 30% among all digestive diseases in people aged 18-29. This figure for people aged 30-39 was 30.9%; 28% and 27% respectively in 2019; 2020 and 2021. Regarding people aged 40-60, it should be noted that the share of diseases of the esophagus, stomach and duodenum was on average 29% of the total incidence of the gastrointestinal tract.

Gastric and duodenal ulcers were more frequently recorded among people aged 39-40. In dynamics, a tendency towards a decline in the incidence rate was observed. Gastritis and duodenitis are most common among women aged 18-29. The tendency towards a decrease in the incidence rate is found only in people aged 40-60 and then only in 2021.

Liver diseases are least pronounced in women aged 40-60, and gallbladder, biliary tract and pancreas diseases are more common in people aged 18-29.

CONCLUSIONS

The level of nutritionally dependent morbidity by classes and groups of diseases and individual nosological forms was analyzed, taking into account age, gender, and nutritional status of the working-age population living in ecologically hazardous regions of the Kyiv region, Ivankiv and Obukhiv districts. The priorities are diseases such as circulatory system diseases, including diseases characterized by high blood pressure, ischemic heart disease, as well as diseases of the digestive system, including diseases of the esophagus, stomach and duodenum, gastric and duodenal ulcers, gastritis, duodenitis, liver diseases, diseases of the gallbladder, biliary tract and pancreas.

The state of morbidity of alimentary genesis in the adult population of working age is of concern and requires nutritional correction, which should be aimed at improving the provision of the population with essential nutrients. Preventive measures should contribute to increasing the level of knowledge among the population regarding the balance of the diet, which will affect the nutritional status, which will contribute to improving the health index of the population, as well as extending creative longevity.

The study of the morbidity status of the adult population, which lives in conditions of constant exposure to exogenous factors of various nature, is promising for the scientific substantiation of measures to prevent diseases caused by poor-quality, unbalanced and insufficient nutrition.

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