PREDICTION OF RISK FACTORS AND STUDY OF MORBIDITY NURSES OF THE SURGICAL DEPARTMENT OF THE EMERGENCY MEDICAL CENTER

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Annotatsiya. *Ushbu maqola shoshilinch tibbiy yordam markazi jarrohlik bo’limlari hamshiralari kasallanishining ba’zi xususiyatlari va xususiyatlarini har tomonlama tahlil qilishga bag’ishlangan. Tadqiqot natijalariga ko’ra, hamshiralarning yoshi va ish tajribasi oshishi bilan kasallanishning umumiy darajasi oshadi va kasallanish tarkibi o’zgaradi. Ishlab chiqilgan prognostik jadvalni qo’llash har bir aniq holatda patologik xavf ehtimolini baholashga yordam beradi. Hamshiralarning sog’lig’i ko’rsatkichlarini o’z vaqtida tahlil qilish va baholash, zarur individual va guruhli tibbiy, ijtimoiy va terapevtik tadbirlarni o’tkazish hamshiralarning kasallanishini kamaytirishga va ulardan tibbiy muassasada oqilona foydalanishga va tibbiy yordam sifatini oshirishga yordam beradi.*

Kalit so’zlar: *jarrohlik bo’limi hamshiralari, kasallanish, xavf omillari, integral baholash.*

Аннотация. *Данная статья посвящена комплексному анализу некоторых свойств и характеристик заболеваемости медицинских сестер хирургических отделений центра неотложной медицинской помощи. По результатам исследования было установлено, что с увеличением возраста и опыта работы медсестер увеличивается общий уровень заболеваемости и меняется структура заболеваемости. Применение разработанную прогностическую таблицу может помочь в оценки вероятности патологического риска в каждом конкретном случае. Своевременный анализ и оценка показателей здоровья медсестер, проведение необходимых индивидуальных и групповых медико-социальных и лечебно-оздоровительных мероприятий помогут сокращать уровень заболеваемости медсестёр и рациональное использование им и в медицинском учреждении и повышать качество медицинского обслуживания.*

Ключевые слова: *медицинские сестры хирургического отделения, заболеваемость, факторы риска,интегральная оценка.*

Annotation. *This article is devoted to the integration analysis of some properties and characteristics of morbidity of nurses in surgical departments of the emergency medical*

center. According to the results of the study, it was found that with increasing age and work experience of nurses, the overall incidence rate increases and the structure of morbidity changes. The application of the developed prognostic table can helpinassessing the probability of pathological risk in each specificcase.Timely analysis and assessment of nurses' health indicators, carrying out the necessary individual and group medical, social and therapeutic measures will help to reduce the incidence of nurses and their rationalusein a medical institution and improve the quality of medicalcare.

Keywords: *surgical department nurses, morbidity, risk factors, integral assessments.*

Introduction. In the provision of qualified nursing assistance to the population, the health of medical personnel–nurses is important. In the studies carried out, it was found that every fifth nurse does not care about her health, the maintenance and strengthening of nurses' health is influenced, firstly, by a rational work and rest regime, secondly, timely and complete procedural of emerging diseases, thirdly, a psychologically favorable diet, fourthly, physical activity, fifth, the rejection of bad habits [1,3, 5, 11].

Studies have found that the overall incidence rate of patronage nurses in Uzbekistan is on average 1050.7‰, with an increase in their age and work experience, with an increase in the overall incidence rate($r=0.72\pm0.07$). In the total incidence of district nurses, it has been observed that diseases of the respiratory organs, hematopoietic organs, urinary separation and genital system, digestive organs, endocrine system occupy the main place, accounting for 82.6% of total diseases[2,4].

In studies that examined the impact of regular night shift work on the health and well-being of employees, evening shift workers reported feeling unwell compared to their daytime nurse colleagues.When studying the state of health and well-being of nurses working night shifts in surgical departments and emergency medical services, sleep problems are more common among female medical staff of the surgical department due to the lack of work specifics, chronic fatigue and stress coping skills [6,7,8, 9, 13, 14,17, 18,19].

Nurses in their professional activities mostly experience high stress, and also solve various problems in their personal lives and in the lives of patients. This is one of the factors affecting the health and quality of life of nurses. Medical personnel of healthcare institutions have conditions for the development of burnout syndrome under the influence of professional and industrial factors, including the factor of an abundance of emotional stress, which negatively affects the activities of nurses in surgical departments [3,9,12,15,16].

To this day, nurses of the surgical department of emergency medical care facilities have been studied for the quality of work during the period of health care in Uzbekistan, but there

are no studies to study the incidence[10]. This condition determines the relevance of the study of quality indicators of the activities of Nurses of the RSCEM. In modern conditions, the quality of medical care can be maintained by reducing ineffective costs for training young specialists, increasing the prestige and position of medical personnel, creating a personnel reserve and favorable working conditions for medical personnel, strengthening their health, economic well-being and professional self-awareness.

Research objective isstudy of the health of nurses working in the surgical departments of the RSCEM.

Research methods: The survey was conducted in 3 calendar years (2021-2022) and examined the incidence of a total of 532 respondents, including 309 ward, 122 procedural and 101 operating nurses in RSCEM and its branches, on the basis of appeals to medical institutions. The data from the nurse's outpatient card (a/f 025) was included in the "health research card of surgical nurses of the RSCEM" developed by us. The survey results were analyzed on the basis of the Microsoft Excel program.

According to the study, the incidence rate of ward nurses was 990,2 cases per 1000 nurses, while the rate was 968.3 cases in procedural nurses and-1105,0 cases in operationalist nurses respectively, while the average overall incidence was 1022, 5‰ (figure 1.1).

This is due to the higher workload and occupational strains on operating nurses compared to procedural and wardnurses.

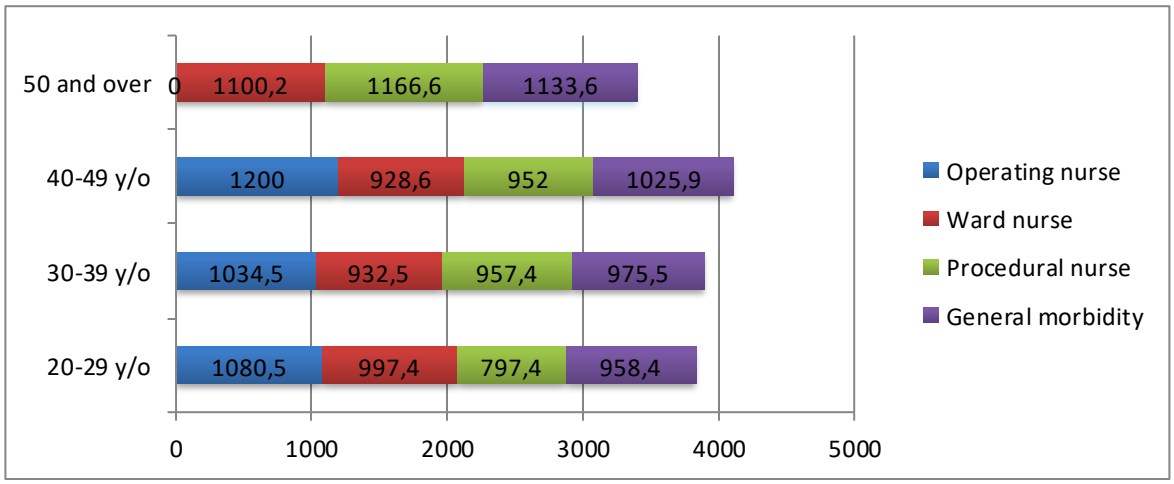

Figure1. Morbidity of surgical department nurses (for 1000 SDN of appropriate age)

A nurse's age morbidity analysis found that all youth cross-sections had a higher morbidity rate in operating nurses compared to ward and procedural nurses, with only the

study found that respondents over the age of 50 did not occur among operating nurses. The incidence rate in operating nurses aged 20-29 was highest, with a low of 1080.5 for every 1,000 nurses – 797.4 cases in procedural nurses and -997.4 for every 1,000 cases in ward nurses.

Table 1.1.

Age morbidity analysis of SDN (for 1000 SDN of appropriate age)

Age of nurses	**Surgical department nurses**			**Indicatorsof general morbidity**
	Operating nurse	**Ward nurse**	**Procedural nurse**	
20-29 years old	1080,50	997,40	797,40	958,40
30-39 y/o	1034,50	932,50	957,40	975,50
40-49 y/o	1200,00	928,60	952,00	1025,90
50 and over	0,00	1100,20	1166,60	1133,60
Total	**1105,30**	**990,20**	**968,30**	**1022,50**

As the age of all nurses increases, it was found that they have an increased incidence rate (table 1.1.).

This found the highest incidence among nurses over the age of 50(1133.6‰), but because women in this age group were not observed among operating nurses, they were not diagnosed with incidence.

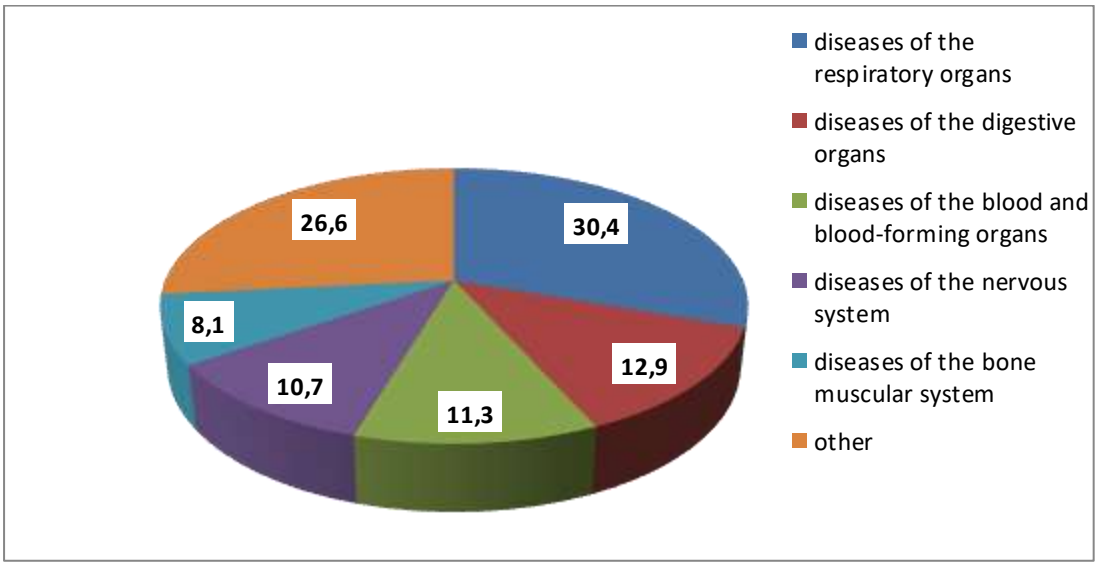

Figure 2. Structure of cases of ward nurses of SDN(%)

Ward and procedural nurses made up the leading positions in 5 main classes of diseases: diseases of the respiratory organs, diseases of the digestive organs, diseases of the blood and hematopoietic organs and certain disorders involving the immune mechanism, diseases of the nervous system and diseases of the bone-muscular system. These diseases accounted for 73.4% and 86.3% of the total number of cases.

Diseases of the 5 leading classes of operating nurses accounted for 74.4% of the total, which showed that, unlike ward and procedural nurses, there were more diseases of the nervous system and diseases of the musculoskeletal system and connective tissue.

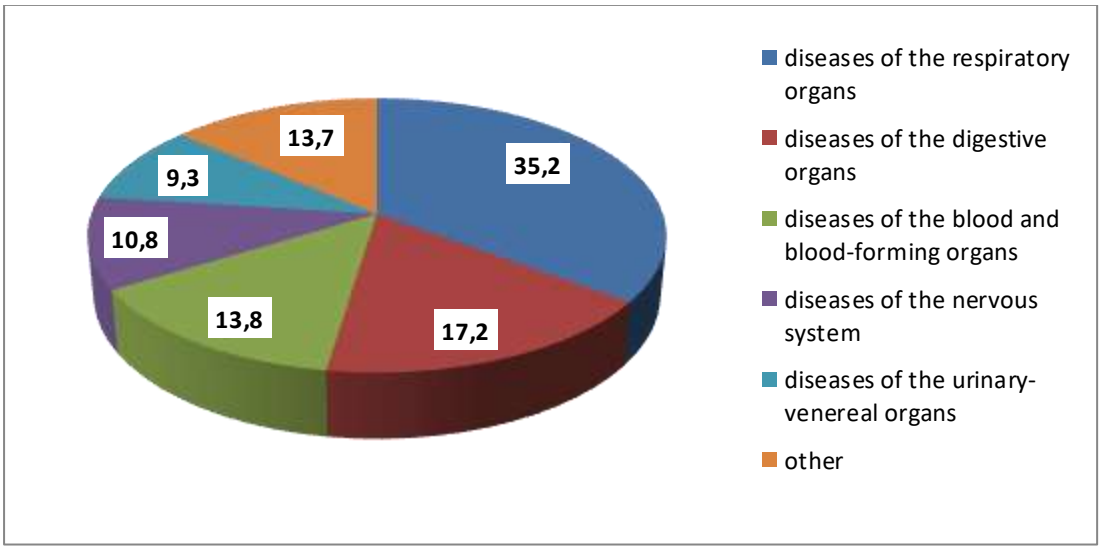

Figure 3. Structure of cases of procedural nurses of SDN (%)

The highest rates of Respiratory disease prevalence in ward, procedural, and operating nurses of the surgical department (304.2‰, 344.2‰, and 277.2‰, respectively).

Leading among all respiratory diseases of nurses are acute respiratory diseases of upper respiratory tract (226.5‰, 204.9‰ and 108.9‰, respectively), influenza and pneumonia(35.6‰, 57.7‰ and 69.3.), acute bronchitis(19.4‰, 32.7‰ and 49.5‰), chronic tonsillitis(9.7‰, 24.5‰ and 39.8‰).

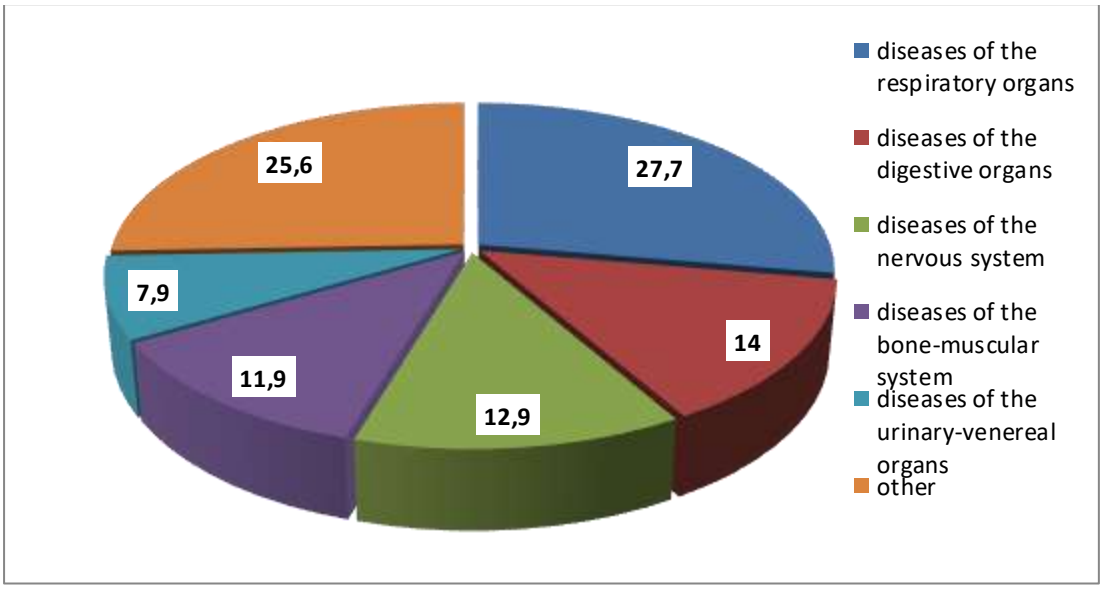

Figure 4. Structure of cases of operating nurses of SDN (%)

The working conditions of medical personnel, especially nurses of the surgical department, create a high risk of diseases of the respiratory system, activities that are regularly associated (or depend on contact) with biological and chemical risk factors, constant contact with medicines and disinfectants, etc.

Table 1.

The structure of the incidence of nurses, degree (in‰)

	Classes of diseases	ward nurse		procedural nurses		operating nurses	
		Morbidity percentage %	Morbidityevel ‰	Morbidityercentage %	Morbidityevel ‰	Morbidityercentage %	Morbidityevel ‰
I	Some infectious and parasitic diseases	0,7	6,4	0,3	2,7	2,9	29,7
II	Tumors	1,0	9,7	0,3	2,7	2,9	29,7
III	Diseases of the blood and hematopoietic organs and certain disorders that attract the immune mechanism	11,3	113,2	13,8	139,3	5,0	49,5

IV	Endocrine system disorders, eating disorders and substance metabolism disorders	6,1	61,4	2,4	24,6	4,0	39,6
VI	Diseases of the nervous system	10,7	106,7	10,8	106,6	14	138,6
VII	Diseases of the eye and its additional apparatus	0,3	3,2	1,6	16,4	2,0	19,8
VIII	Diseases of the ear and mastoid process	1	9,7	0,6	2,9	2,0	19,8
IX	Diseases of the circulatory system	5,5	55,0	2,4	24,5	2,9	29,7
X	Diseases of the respiratory organs	30,4	304,2	35,2	344,2	27,7	277,2
XI	Diseases of the digestive organs	12,9	129,4	17,2	164,0	12,9	128,7
XII	Diseases of the skin and subcutaneous tissue	0,7	6,4	0,6	2,9	1,9	19,8
XIII	Diseases of the bone-muscular system ndconnective tissue	8,1	80,8	2,4	24,5	11,9	118,8
XIV	Diseases of the urinary venereal system	6,1	61,5	9,3	90,2	6,9	69,3
XXI	Factors affecting the state of health and appeal to health institutions	3,9	38,7	1,5	16,3	2,0	19,8
	Other classesof diseases	4,2	42,07	4,6	16,4	1,0	9,9
	Total	**100**	**990,2**	**100**	**968,3**	**100**	**1105,3**

In the ward and procedural nurses, the 2nd place in terms of overall incidence was for digestive organ diseases (129.4 per 1,000 SDN and 164.0 per 1,000 respectively), while in operating nurses for nervous system disorders (138.6 cases per 1,000 SDN). Among the diseases of the digestive system, the main places are occupied by diseases of the stomach and duodenum (58.2‰ and 73.8‰), diseases of the gallbladder and biliary tract (29.2‰ and 32.8‰), which have increased with the age of nurses. Also, nervous system disorders are ranked 2nd among operating nurses(138.6‰) and they consist mainly of neuralgia (105.6‰) and radiculitis (33.0‰).

In nurses, malnutrition (fatty and fried food), stressors and nervous system disorders, age features, diseases of the digestive organs were observed in large numbers. The reason for

the high incidence of nervous system disorders in operating nurses is due to the high workload and the complexity of their work.

In terms of the composition of diseases detected in nurses of the surgical department, ward and procedural nurses with diseases of the blood and hematopoietic organs are in 3rd place (113.2 and 139.3 per 1000 SDN). The highest rate of diseases of the blood and hematopoietic organs fell on nurses aged 20-29 years (185.5 per 1000 people). Among the diseases of the blood and hematopoietic organs, the highest incidence of anemia was detected (103.5 and 122.9, respectively), and it tends to decrease with the age of nurses. The 3rd place among operating nurses in terms of the overall incidence was taken by diseases of the digestive organs (128.7%). They were mainly caused by diseases of the stomach and duodenum (49.5%) and diseases of the gallbladder and biliary tract (39.6%).

In the ward and procedural nurses of the surgical department who participated in the study, the 4th place was occupied by diseases of the nervous system, the level of which was 106, 7 and 106.6 cases per 1000 JBH. These were mainly neuralgias (49.7 and 60.1%, respectively) and sciatica (57.0 and 46.5%, respectively).

As for operating nurses, diseases of the musculoskeletal system and connective tissue occupied the 4th place in terms of total morbidity - (118.8 per 1000). Diseases of the musculoskeletal system and connective tissue included damage to intercostal discs (69.3%), herniated disc (29.7%), and rheumatoid arthritis (19.8%). This is due to the fact that they regularly participate in long surgical procedures and activity in a state of forced standing.

The 5th place among the treatment rooms and operating nurses was taken by diseases of the genitourinary-venereal system with an indicator of 119.7 cases per 1000 SDN. The incidence among nurses and operating rooms was 90.2 and 79.2 per 1000 people, respectively. In addition, it was found that the incidence of diseases of the urinary and venereal systems also increases with increasing age of nurses, with the lowest rate (91.2%) recorded at the age of 20-29 years, and the highest at the age of 40-49 years (161.1%). Among the diseases of the genitourinary system, the most common are cystitis, endometriosis, inflammation of the fallopian tubes and salpingitis. It should be noted that the incidence of these diseases is mainly high in women aged 30-39 years. The incidence of cystitis was 45.1%. Its peak (52.9%) was observed in women aged 30-99 years, and the lowest (37.7 %) - in women aged 20-29 years. The frequency of endometriosis and inflammation of the fallopian tubes was 30.7%. The highest incidence of the disease was 40.0% at the age of 30-39 years, and the lowest (18.9 %) was observed in women aged 20-29 years. The high incidence of this disease in all the study groups depends on the physiological changes characteristic of their gender and age, that is, most of the study participants are women.

In ward nurses, diseases of the musculoskeletal system occupied the 5th place with an indicator of 80.8 cases per 1000 SDN, and it was found that with increasing age of nurses, the incidence rate also increases. Diseases of the musculoskeletal system and connective tissue included damage to intercostal discs (61.7%), herniated disc (25.1%), rheumatoid arthritis (13.1%). This ward was created because of the high intensity and workload of the nurses, their standing activities.

One of the main goals of studying the health of medical personnel is to further improve the health of medical personnel by reducing the number of diseases that occur among them. To do this, it is necessary to study the degree and composition of the morbidity of medical personnel, the causes of the spread of the disease among medical personnel based on the conditions on the spot, in connection with the external environment, socio-economic, socio-biological factors, as well as the lifestyle of the population.

To study the diseases of medical personnel, it is necessary to study socio-hygienic factors(related to work, living conditions, lifestyle) using a pre-known program and a special questionnaire-survey method for recording diseases and leading risk factors affecting them, and collect accumulated statistical materials with a sufficient number of observations.

Table 2.

Socio-hygienic factors affecting the incidence rate of SDN

№	**Socio-hygienic factor**	Factor gradations	P_1 (experimental group) **(operating nurses)** **n=101**	P_2 (control group) (procedural, **ward**nurse) n=431	Absolute risk (N) P_1/P_2	Relative risk (R)	Integrative risk
1	Age	20-29	9,5±1,44	8,7±2,55	0,88		2,83
		30-39	53,5±2,46	60,3±4,4	1,10		2,61
		40-49	36,9±2,38	30,7±4,2	1,19	2,38	2,09
		50 and over	0,1±0,02	0,2±0,4	0,5		1,19
2	Education	special-secondary	78,6±0,22	85,2±3,2	0,92	1,56	1,43
		higher education	21,4±2,02	14,8±2,36	1,44		2,24

3	family status	single	79,4±1,99	81,6±3,5	0,97		2,23
		married	14,6±1,74	15,6±3,28	0,93	2,3	2,13
		divorced	6,0±1,17	2,8±1,49	2,14		4,92
4	Totalwork experience	0-5	28,7±2,28	36,3±4,35	0,79		2,44
		5-14	46,1±2,46	53,4±4,51	0,86	3,08	2,65
		15and over	25,2±2,14	10,3±2,75	2,4		7,5
5	Home conditions	satisfactory	13,9±1,7	19,5±3,59	0,71		1,42
		good	40,3±2,42	28,4±4,08	1,42	2,0	2,84
		excellent	45,8±2,46	52,1±4,5	0,87		1,74
6	Nutrition classification	dietary	39,3±2,41	34,5±4,3	1,13		2,8
		boiled	21,6±2,03	37,8±4,38	0,57	2,47	1,4
		fried food	39,1±2,40	27,7±4,05	1,41		3,5
7	Mental state in the family	friendly	65,9±2,34	81,8±3,48	0,80	2,34	1,87
		restless	34,1±2,34	18,2±3,49	1,87		4,37
8	Mental state in the team	satisfactory	7,1±2,25	5,4±2,04	1,31	1,81	2,37
		bad	29,4±2,25	19,3±3,57	1,52		2,75
		good	63,5±2,37	75,3±3,73	0,84		1,52
9	Morning exercise	regularly engaged	17,4±1,87	15,2±3,25	1,14		1,3
		not engaged	82,6±1,87	84,8±3,25	0,97	1,18	1,1
10	Medical activeness	full medical examination	37,0±2,38	42,3±4,47	0,87		2,38
		partial medical examination	60,9±2,40	52,8±4,5	1,15	2,74	3,15

		does not pass medical examination	2,1±0,62	4,9±1,95	0,12		1,15
	Incidence indicator (M)	M=1022,5	M=1105,0	M=968, 3 M=990,2			
	Relative risk indicator sum - ∑R=20,68 $\sum X_{max}$=35,02 $\sum X_{min}$=15,65						

$\sum X_{max} / \sum R_n$= 35,24 :20,68= 1,71
$\sum X_{min} / \sum R_n$=15,65:20,68 = 0,75

After that, according to the gradation of each factor, the largest prognostic indicators are determined, and with their help, the highest risk value is determined. Table 3 basically represents the sum of the highest predictive indicators (∑XP)= 35.24). Dividing it by the sum of the relative risk indicators, the last highest risk value is determined, equal to 1.71. So, the range of influence of 10 received socio-hygienic factors on the morbidity rates of nurses of the surgical department is in the range of 0.75—1.71.

Table 3.

Morbidity risk groups and their poddiapazonesof SDN

Risk group	**Small ranges**	**Risk group assessment**
A good perspective	0,75-1,05	Minimum risk
A warning perspective	1,06-1,38	Medium risk
A dangerous perspective	1,39-1,71	Highest risk
Limit of risk	0,75-1,71	

When dividing into such groups, the risk of total outbreaks is taken as 100%. The first minimum risk range is up to 30% of the risk magnitude in the entire range, the second — 30-60% and the third – 60 to 100% of the total.

The above small ranges determine the risk size of diseases and allow to divide them into such perspective groups as good, warning, dangerous: (table 1.4).

Table 4.

Algorithm of complex systemic measures for risk groups of diseases of SDN

THE LOWESTRISK

1. Regular observation by a doctor
2. Carrying out medical and diagnostic measures
3. Elimination of risk factors
4. Compliance with proper nutrition
5. Improving working and leisure conditions
6. Elimination of occupational stress factors

MEDIUM RISK

1. Targeted medical examination
2. Dispensary control and rehabilitation
3. Reducing the factors of professional burnout
4. Organization of a full-fledged rest
5. Reducing risk factors.

HIGHEST RISK

1. Maintaining a healthy lifestyle;
2. Improving mental health in the family and society
3. Improving working conditions
4. Improving mental health in the family and society
5. Timely passing of medical examinations
6. Stress reduction

For example: operating nurse Karimboeva Umida, 48 years old, education – middle, married, work experience –more than 15 years, home conditions – satisfactory, eating – fried foods, family - stable, mental state at work-bad, does not engage in morning exercises, does not pay attention to his own health at all.

Let Karimboeva Umida be required to determine which prognostic group it belongs to and how many times it can get sick. This figure is determined based on the table and the

formulas presented above, and as a result is 1.16, which is determined to be part of the average risk group.

$P=X_1+X_2+X_{3+}2,09+1,43+2,13+7,5+1,42+2,8+1,87+2,37+1,1+1,15 = 23,9$

$$P_r = \frac{P}{\sum Rn} = \frac{23,9}{20,68} = 1,16$$

So, this means that Karimboeva Umida is at an average risk level. If the risk of the disease is high, she should undergo a comprehensive medical examination once a year, and it is also recommended to adhere to proper nutrition, a healthy lifestyle. If she does not follow the prescribed regimen, she is expected to get sick. The use of the prognostic table developed by us allows us to determine the probability of pathological risk in each specific case, to determine the relative risk indicators related to each specific person, to identify prognostic groups and to justify individual and group medico-social and therapeutic measures for the studied persons.

Thus, an in-depth study of morbidity in nurses of the surgical department of the emergency medical care center of the healthcare system and a comprehensive assessment of risk factors allowed us to come to the following conclusions:

1. The average total incidence was 1022.5‰. In the composition and frequency of the general incidence, diseases of the respiratory organs, digestive system, blood and hematopoietic system, bone-muscular system and urinary venereal system occupy a leading position and account for 75.3% of all diseases.
2. For the first time, it was found that the morbidity of nurses is inextricably linked with their position, age and professional activity and affects the structure of morbidity. In ward, procedural and operating nurses, the prevalence and frequency of disease classes and nosological forms are differentiated.
3. The leading positions in cases of operating nurses in relation to ward and procedural nurses were shown to be factors related to professional activity(overload, work in a regular standing position, professional tension) in their origin, with a high incidence of diseases of the nervous system(1.6-1.7 times), bone-muscle and connective tissue(6.0-8.0 times).
4. Based on the results of the program analysis, it was found that compared to ward and procedural nurses, the main leading factors affecting morbidity in operating nurses (work experience, medical activity, the nature of nutrition, age, marital status and psychological atmosphere in the family) are 2 times greater.
5. The use of the prognostic table that we have developed allows to determine the likelihood of pathological risk in each specific case, determine the relative risk indicators

relevant to each specific person, identify predictive groups and justify individual and group medical-social and treatment-wellness measures for the studied individuals.

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