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ORGANIZATIONAL AND STATISTICAL ANALYSIS OF THE HUMAN RESOURCES POTENTIAL AND QUALIFICATION STRUCTURE OF THE ONCO-GYNECOLOGICAL SERVICE IN UKRAINE

Petro Tokar

The aim. *To conduct an organisational and statistical assessment of the human resources potential and qualification structure of the gynaecological oncology service in Ukraine in the period 2015–2024, identifying key trends, regional imbalances and systemic risks.*

Materials and methods. *The research materials were the official reporting data of the Ministry of Health of Ukraine regarding the number of oncology doctors, their territorial distribution and qualification level by region of Ukraine. The work uses the methods of descriptive statistics, dynamic analysis, structural-dynamic analysis, inter-period comparison and elements of forecasting.*

Results. *During the analyzed period, an unstable change was observed in the total number of oncogynecologists, which was characterized by a decline in the crisis and an uneven subsequent recovery. Significant regional disparities in human resources have been identified, with the concentration of oncologists in large urbanized centers and acute shortages in many areas, especially in the front and rear areas. The conducted structural analysis revealed a gradual decrease in the share of specialists of the highest professional level with a simultaneous increase in specialists without qualification categories. A comparison of the prewar and wartime periods clearly revealed the increase in personnel losses, the migration of medical personnel, and a violation of structural stability.*

Conclusions. *The results of the study indicate the need to revise the personnel policy in oncology and gynecology, taking into account regional characteristics, stimulating the professional growth of doctors and introducing mechanisms for retaining highly qualified specialists in regions with a shortage of personnel. The obtained results have a practical application for making management decisions in planning medical resources, organizing the work of the network of specialized care and increasing the availability of oncological and gynecological care in Ukraine*

Keywords: *accessibility of medical care, staffing, qualification level, medical resources, gynaecological oncology care, regional disparities*

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1. Introduction

Oncogynaecological service is one of the most challenging and expense items in the healthcare system not only in Ukraine, but also in the world, since it involves diagnosis, treatment and observation of patients with female reproductive system cancer [1]. Diseases like cervical, ovarian, uterine cancers, etc. are associated with high medico-social importance, a complicated clinical course, and the need for multidisciplinary approach [2]. Global estimates for 2022 suggest that there will be over 1.47 million new cases and approximately 680,000 deaths due to female genital cancer, with cervical cancer alone accounting for more than 660,000 new cases and nearly 350,000 deaths [3]. These numbers indicate that gynaecological cancer represents a major challenge to humanity, necessitating a coordinated response and substantial investments in all countries irrespective of their economic capabilities [4].

Global trends demonstrate the rising incidence being related to demographic ageing, longer life expectancy, urbanisation, lifestyle changes, and disparities in prevention [5]. In various low- and middle-income countries, the absence of mass screening and vaccination programmes against HPV results in a large proportion of cervical cancer cases being detected at late stages and, as a consequence, in elevated mortality rates [6]. Meanwhile, in countries with well-established preventive programmes, a reduction in mortality of some gynaecological cancers can be observed, underlining the role of easily available primary prevention and early diagnosis [7].

Both clinical pathways and quality of care at all stages of patient's treatment depend on the human resources to provide complex support to the patient, including the clinical support and quality of medical care [8].

During the ongoing reform of the healthcare system, demographic decline, massive emigration of medical workers, the aftermath of the COVID-19 pandemic, and full-scale war-devastation, this issue is especially pertinent for Ukraine [9]. Interference with the logistics of healthcare delivery, dwindling numbers in the workforce, increasing demands on the medical system, and worsening availability of scheduled oncology care make staffing an issue that has ever-increasing importance in gynaecological oncology and which may be one of the most important parameters for ensuring the stability of care of the female population [10, 11].

To this end, a review of human resource and service delivery models in gynaecological cancer care is required to inform a sound strategy for service development at both national and international levels [12].

The aim of the research. The objective of this study is to conduct an organisational and statistical analysis of the human resource potential and qualification structure of the gynaecological oncology service in Ukraine in dynamics during 2015–2024, identifying the main trends, regional characteristics, structural changes, and the formation of scientifically sound conclusions for further planning of personnel policy in the field of gynaecological oncology.

2. Materials and methods.

The research materials were the official reporting data of the Ministry of Health of Ukraine regarding the number of oncology doctors [13], their distribution by administrative-territorial units of Ukraine, as well as data on the qualification categories of specialists for the period from 2015 to 2024 inclusive. The study used descriptive statistics to determine absolute and relative indicators, dynamic analysis with an assessment of growth and decline rates, a structural-dynamic method to identify changes in the qualification structure, comparative analysis for specific time periods (2015–2019, 2020–2021, 2022–2024), regional analysis with ranking of regions by staffing levels, as well as elements of trend and predictive analysis to determine possible directions for further transformation of the service's human resources potential.

3. Research results

A structural and statistical investigation at the level of human resources capacity indicated in the period of 2015–2024, there was a significant fluctuation in the scale and structure of the gynecological oncology services in Ukraine. The number of gynaecological oncologists in 2015 was 262 and peaked at 278 in 2020, yet gradually declined to 252 in 2024. There was therefore an overall loss of 10 people (3.8%) in the workforce in the review period.

Yet it was not a straight line. The number of doctors rose from 262 to 278 from 2015 to 2020, representing an addition of 16 specialists or 6.1%, showing a fairly good trend of staffing in the pre-war period. Instead, in 2022–2024 the number fell from 278 to 252 persons, dropping by 26 doctors or 9.4%, that closely relates to the disastrous effect of full-scale war, staff migrating and destruction of medical infrastructure in some regions.

The analysis of regional distribution demonstrated a continuingly uneven distribution of staffing. During the entire period under investigation, most gynaecological oncologists were concentrated in Kyiv, Kharkiv, Dnipropetrovsk, Lviv and Odesa regions. These five administrative-territorial units contributed an average of 38 to 42% of the full staffing capacity per annum. In particular, in 2023, they represented 102 out of 264 doctors nationwide, or 38.6%.

However, in some oblasts (Chernivtsi, Ternopil, Rivne, Zakarpattia, Kirovohrad), the number of gynaecological oncologists ranged from 5 to 9 and that represented a mere 1.5–3.5% in the national structure of workforce. This differentiation suggests profound regional disparities – which are systemic – and deny women equal access to specialised gynaecological oncology services.

The qualification structure was the subject of particular investigation. In 2015 the number of gynaecological oncologists with the highest qualification category was 139, that was 53.1% of total gynaecological oncologists. This number increased to 160 persons or 60.1% in 2018 that considered as signs of positive development in terms of human resource capacity. However, in 2024, the number of physicians with the highest category declined to 128, representing only 50.8% of the total, namely a reduction of 9.3 percentage points from the 2018 maximum.

The proportion of the physicians who had the first qualification category varied from 10.5% to 14.8% throughout 2015–2024, the proportion of the second category specialists declined from 11.1% to 7.9% in the period of 2015–2024. On the other hand, the proportion of physicians who did not have a qualification category increased from 22.3% to 30.5% in 2015 and 2024, respectively, suggesting the risk of lowering of the general professional training level in the future.

The comparative periods gave us the opportunity to distinguish three phases of adaptation in human resources. The first phase (2015–2019) was a period of stable workforce with a 7.0% increase in the proportion of doctors holding the highest qualification category. The two years (2020–2021) constituting the second phase, the pandemic-era, beheld stagnation in term of staffing with a deceleration of increase ratio of levels of qualification of specialists. The third stage (2022–2024) that overlaps with the era of full-scale war experienced a double blow with a staff reduction of 9.4%, and a diminution in the share of doctors holding the highest qualification category by 8.2% relative to the pre-war stage (Table 1).

Table 1

Regional distribution and qualification structure of personnel in the gynaecological oncology service in Ukraine (2015–2024) [13]

Year			Region																											
			Crimea	Vinnytsia	Volyn	Dnipropetrovsk	Donetsk	Zhytomyr	Zakarpattia	Zaporizhia	Ivano-Frankivsk	Kyiv	Kirovohrad	Luhansk	Lviv	Mykolaiv	Odesa	Poltava	Rivne	Sumy	Ternopil	Kharkiv	Kherson	Khmelnytskyi	Cherkasy	Chernivtsi	Chernihiv	Kyiv city	Sevastopol	Total
			Abs. (%)																											Abs.
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
2015	Number of doctors		0 (0,0)	12 (4,5)	8 (3,0)	17 (6,4)	11 (4,1)	7 (2,6)	5 (1,9)	6 (2,2)	8 (3,0)	15 (5,7)	8 (3,0)	1 (0,3)	20 (7,6)	6 (2,2)	11 (4,1)	9 (3,4)	5 (1,9)	7 (2,6)	11 (4,1)	29 (11,0)	7 (2,6)	8 (3,0)	7 (2,6)	9 (3,4)	5 (1,9)	30 (11,4)	0 (0,0)	262
	Qualification category:	higher	0 (0,0)	6 (4,3)	4 (2,8)	9 (6,4)	6 (4,3)	4 (2,8)	3 (2,1)	5 (3,5)	5 (3,5)	6 (4,3)	2 (1,4)	0 (0,0)	11 (7,9)	5 (3,5)	5 (3,5)	6 (4,3)	3 (2,1)	2 (1,4)	5 (3,5)	17 (12,2)	6 (4,3)	5 (3,5)	6 (4,3)	3 (2,1)	4 (2,8)	11 (7,9)	0 (0,0)	139
		I	0 (0,0)	1 (2,1)	3 (6,5)	3 (6,5)	3 (6,5)	0 (0,0)	2 (4,3)	0 (0,0)	1 (2,1)	2 (4,3)	5 (10,8)	0 (0,0)	4 (8,6)	0 (0,0)	2 (4,3)	1 (2,1)	2 (4,3)	2 (4,3)	4 (8,6)	4 (8,6)	0 (0,0)	1 (2,1)	1 (2,1)	2 (4,3)	0 (0,0)	3 (6,5)	0 (0,0)	46
		II	0 (0,0)	2 (6,8)	1 (3,4)	3 (10,3)	0 (0,0)	1 (3,4)	0 (0,0)	1 (3,4)	2 (6,8)	3 (10,3)	1 (3,4)	0 (0,0)	2 (6,8)	0 (0,0)	3 (10,3)	1 (3,4)	0 (0,0)	2 (6,8)	2 (6,8)	2 (6,8)	0 (0,0)	1 (3,4)	0 (0,0)	2 (6,8)	0 (0,0)	0 (0,0)	0 (0,0)	29
2016	Number of doctors		0 (0,0)	13 (4,9)	8 (3,0)	17 (6,4)	10 (3,7)	6 (2,2)	5 (1,8)	6 (2,2)	8 (3,0)	17 (6,4)	7 (2,6)	1 (0,3)	20 (7,5)	6 (2,2)	12 (4,5)	8 (3,0)	5 (1,8)	8 (3,0)	11 (4,1)	31 (11,7)	7 (2,6)	8 (3,0)	7 (2,6)	8 (3,0)	6 (2,2)	29 (10,9)	0 (0,0)	264
	Qualification category:	higher	0 (0,0)	7 (4,6)	5 (3,3)	10 (6,6)	6 (4,0)	4 (2,6)	3 (2,0)	5 (3,3)	6 (4,0)	10 (6,6)	3 (2,0)	0 (0,0)	12 (8,0)	5 (3,3)	3 (2,0)	5 (3,3)	4 (2,6)	3 (2,0)	5 (3,3)	18 (12,0)	6 (4,0)	4 (2,6)	5 (3,3)	3 (2,0)	5 (3,3)	13 (8,6)	0 (0,0)	150
		I	0 (0,0)	0 (0,0)	2 (4,8)	4 (9,7)	2 (4,8)	0 (0,0)	2 (4,8)	0 (0,0)	0 (0,0)	0 (0,0)	4 (9,7)	0 (0,0)	4 (9,7)	0 (0,0)	3 (7,3)	1 (2,4)	1 (2,4)	2 (4,8)	5 (12,1)	4 (9,7)	0 (0,0)	1 (2,4)	1 (2,4)	3 (7,3)	0 (0,0)	2 (4,8)	0 (0,0)	41
		II	0 (0,0)	3 (10,7)	1 (3,5)	2 (7,1)	0 (0,0)	0 (0,0)	0 (0,0)	1 (3,5)	1 (3,5)	4 (14,2)	0 (0,0)	0 (0,0)	1 (3,5)	1 (3,5)	2 (7,1)	1 (3,5)	0 (0,0)	2 (7,1)	1 (3,5)	2 (7,1)	0 (0,0)	2 (7,1)	0 (0,0)	1 (3,5)	1 (3,5)	2 (7,1)	0 (0,0)	28
2017	Number of doctors		0 (0,0)	11 (4,0)	8 (2,9)	18 (6,6)	9 (3,3)	7 (2,6)	5 (1,8)	6 (2,2)	9 (3,3)	17 (6,3)	7 (2,6)	2 (0,7)	19 (7,0)	6 (2,2)	14 (5,2)	8 (2,9)	5 (1,8)	8 (2,9)	11 (4,0)	27 (10,0)	9 (3,3)	9 (3,3)	8 (2,9)	10 (3,7)	5 (1,8)	31 (11,5)	0 (0,0)	269
	Qualification category:	higher	0 (0,0)	6 (3,9)	6 (3,9)	11 (7,1)	7 (4,5)	4 (2,6)	3 (1,9)	5 (3,2)	6 (3,9)	9 (5,8)	4 (2,6)	0 (0,0)	11 (7,1)	5 (3,2)	3 (1,9)	6 (3,9)	4 (2,6)	3 (1,9)	7 (4,5)	18 (11,7)	6 (3,9)	5 (3,2)	4 (2,6)	3 (1,9)	5 (3,2)	12 (7,8)	0 (0,0)	153
		I	0 (0,0)	1 (2,7)	1 (2,7)	4 (11,1)	1 (2,7)	0 (0,0)	2 (5,5)	1 (2,7)	0 (0,0)	1 (2,7)	3 (8,3)	0 (0,0)	4 (11,1)	0 (0,0)	2 (5,5)	0 (0,0)	1 (2,7)	1 (2,7)	4 (11,1)	1 (2,7)	0 (0,0)	1 (2,7)	1 (2,7)	4 (11,1)	0 (0,0)	3 (8,3)	0 (0,0)	36
		II	0 (0,0)	2 (6,8)	1 (3,4)	2 (6,8)	0 (0,0)	1 (3,4)	0 (0,0)	0 (0,0)	1 (3,4)	3 (10,3)	0 (0,0)	0 (0,0)	2 (6,8)	1 (3,4)	4 (13,7)	1 (3,4)	0 (0,0)	2 (6,8)	0 (0,0)	3 (10,3)	0 (0,0)	2 (6,8)	0 (0,0)	2 (6,8)	0 (0,0)	2 (6,8)	0 (0,0)	29
2018	Number of doctors		0 (0,0)	9 (3,3)	8 (3,0)	17 (6,3)	9 (3,3)	7 (2,6)	5 (1,8)	5 (1,8)	9 (3,3)	16 (6,0)	7 (2,6)	2 (0,7)	19 (7,1)	5 (1,8)	15 (5,6)	8 (3,0)	5 (1,8)	7 (2,6)	12 (4,5)	29 (10,9)	9 (3,3)	8 (3,0)	8 (3,0)	9 (3,3)	5 (1,8)	33 (12,4)	0 (0,0)	266
	Qualification category:	higher	0 (0,0)	5 (3,1)	5 (3,1)	13 (8,1)	7 (4,3)	4 (2,5)	5 (3,1)	4 (2,5)	7 (4,3)	10 (6,2)	4 (2,5)	0 (0,0)	13 (8,1)	4 (2,5)	4 (2,5)	6 (3,7)	5 (3,1)	3 (1,8)	7 (4,3)	17 (10,6)	6 (3,7)	4 (2,5)	5 (3,1)	3 (1,8)	5 (3,1)	14 (8,7)	0 (0,0)	160
		I	0 (0,0)	1 (2,6)	2 (5,2)	3 (7,8)	1 (2,6)	1 (2,6)	0 (0,0)	1 (2,6)	0 (0,0)	1 (2,6)	3 (7,8)	0 (0,0)	3 (7,8)	0 (0,0)	2 (5,2)	0 (0,0)	0 (0,0)	1 (2,6)	4 (10,5)	2 (5,2)	0 (0,0)	3 (7,8)	1 (2,6)	4 (10,5)	0 (0,0)	5 (13,1)	0 (0,0)	38
		II	0 (0,0)	1 (4,5)	0 (0,0)	1 (4,5)	0 (0,0)	1 (4,5)	0 (0,0)	0 (0,0)	1 (4,5)	3 (13,6)	0 (0,0)	1 (4,5)	2 (9,0)	1 (4,5)	2 (9,0)	1 (4,5)	0 (0,0)	2 (9,0)	0 (0,0)	2 (9,0)	0 (0,0)	0 (0,0)	0 (0,0)	1 (4,5)	0 (0,0)	3 (13,6)	0 (0,0)	22
2019	Number of doctors		0 (0,0)	11 (4,0)	8 (2,9)	17 (6,2)	8 (2,9)	6 (2,2)	5 (1,8)	5 (1,8)	9 (3,3)	17 (6,2)	7 (2,5)	1 (0,3)	18 (6,6)	5 (1,8)	17 (6,2)	8 (2,9)	5 (1,8)	6 (2,2)	12 (4,4)	31 (11,4)	9 (3,3)	8 (2,9)	9 (3,3)	9 (3,3)	5 (1,8)	35 (12,9)	0 (0,0)	271
	Qualification category:	higher	0 (0,0)	6 (3,9)	6 (3,9)	11 (7,2)	4 (2,6)	5 (3,2)	5 (3,2)	3 (1,9)	5 (3,2)	7 (4,6)	5 (3,2)	0 (0,0)	13 (8,5)	4 (2,6)	6 (3,9)	5 (3,2)	5 (3,2)	3 (1,9)	9 (5,9)	18 (11,8)	6 (3,9)	4 (2,6)	4 (2,6)	4 (2,6)	3 (1,9)	11 (7,2)	0 (0,0)	152
		I	0 (0,0)	1 (3,1)	1 (3,1)	3 (9,3)	0 (0,0)	0 (0,0)	0 (0,0)	1 (3,1)	1 (3,1)	1 (3,1)	2 (6,2)	0 (0,0)	3 (9,3)	1 (3,1)	1 (3,1)	1 (3,1)	0 (0,0)	1 (3,1)	2 (6,2)	2 (6,2)	0 (0,0)	3 (9,3)	0 (0,0)	3 (9,3)	0 (0,0)	5 (15,6)	0 (0,0)	32
		II	0 (0,0)	1 (4,0)	0 (0,0)	1 (4,0)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	1 (4,0)	4 (16,0)	0 (0,0)	0 (0,0)	2 (8,0)	0 (0,0)	2 (8,0)	1 (4,0)	0 (0,0)	1 (4,0)	0 (0,0)	6 (24,0)	0 (0,0)	0 (0,0)	0 (0,0)	1 (4,0)	0 (0,0)	5 (20,0)	0 (0,0)	25
2020	Number of doctors		0 (0,0)	11 (3,9)	9 (3,2)	16 (5,7)	8 (2,8)	6 (2,1)	4 (1,4)	9 (3,2)	7 (2,5)	17 (6,1)	7 (2,5)	1 (0,3)	17 (6,1)	6 (2,1)	19 (6,8)	10 (3,5)	5 (1,7)	6 (2,1)	12 (4,3)	27 (9,7)	9 (3,2)	9 (3,2)	9 (3,2)	11 (3,9)	6 (2,1)	37 (13,3)	0 (0,0)	278
	Qualification category:	higher	0 (0,0)	6 (3,8)	6 (3,8)	10 (6,4)	5 (3,2)	5 (3,2)	4 (2,5)	4 (2,5)	2 (1,2)	9 (5,7)	5 (3,2)	0 (0,0)	13 (8,3)	4 (2,5)	8 (5,1)	6 (3,8)	5 (3,2)	3 (1,9)	9 (5,7)	17 (10,8)	6 (3,8)	4 (2,5)	5 (3,2)	4 (2,5)	2 (1,2)	14 (8,9)	0 (0,0)	156
		I	0 (0,0)	3 (7,6)	1 (2,5)	4 (10,2)	0 (0,0)	0 (0,0)	0 (0,0)	1 (2,5)	2 (5,1)	2 (5,1)	2 (5,1)	0 (0,0)	2 (5,1)	1 (2,5)	1 (2,5)	1 (2,5)	0 (0,0)	2 (5,1)	2 (5,1)	3 (7,6)	0 (0,0)	3 (7,6)	2 (5,1)	3 (7,6)	0 (0,0)	4 (10,2)	0 (0,0)	39
		II	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	1 (4,1)	0 (0,0)	0 (0,0)	0 (0,0)	4 (16,6)	0 (0,0)	0 (0,0)	1 (4,1)	0 (0,0)	6 (25,0)	2 (8,3)	0 (0,0)	0 (0,0)	0 (0,0)	5 (20,8)	0 (0,0)	0 (0,0)	0 (0,0)	1 (4,1)	0 (0,0)	4 (16,6)	0 (0,0)	24

Continuation of Table 1

			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
2022	Number of doctors		0 (0,0)	10 (3,9)	9 (3,5)	17 (6,7)	0 (0,0)	6 (2,3)	4 (1,5)	7 (2,7)	7 (2,7)	16 (6,3)	7 (2,7)	2 (0,7)	19 (7,5)	5 (1,9)	17 (6,7)	10 (3,9)	7 (2,7)	6 (2,3)	12 (4,7)	18 (7,1)	6 (2,3)	9 (3,5)	7 (2,7)	9 (3,5)	6 (2,3)	36 (14,2)	0 (0,0)	252
	Qualification category:	higher	0 (0,0)	7 (4,8)	6 (4,1)	12 (8,3)	0 (0,0)	5 (3,4)	4 (2,7)	4 (2,7)	3 (2,0)	8 (5,5)	5 (3,4)	1 (0,6)	14 (9,7)	4 (2,7)	6 (4,1)	6 (4,1)	5 (3,4)	3 (2,0)	10 (6,9)	6 (4,1)	3 (2,0)	5 (3,4)	3 (2,0)	4 (2,7)	3 (2,0)	17 (11,8)	0 (0,0)	144
		I	0 (0,0)	0 (0,0)	0 (0,0)	2 (7,1)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	1 (3,5)	4 (14,2)	2 (7,1)	0 (0,0)	4 (14,2)	0 (0,0)	3 (10,7)	1 (3,5)	0 (0,0)	2 (7,1)	0 (0,0)	3 (10,7)	0 (0,0)	1 (3,5)	2 (7,1)	1 (3,5)	0 (0,0)	2 (7,1)	0 (0,0)	28
		II	0 (0,0)	2 (8,3)	0 (0,0)	1 (4,1)	0 (0,0)	1 (4,1)	0 (0,0)	0 (0,0)	0 (0,0)	3 (12,5)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	4 (16,6)	1 (4,1)	0 (0,0)	1 (4,1)	0 (0,0)	4 (16,6)	1 (4,1)	1 (4,1)	0 (0,0)	1 (4,1)	0 (0,0)	4 (16,6)	0 (0,0)	24
2023	Number of doctors		0 (0,0)	14 (5,3)	9 (3,4)	19 (7,1)	7 (2,6)	6 (2,2)	5 (1,8)	7 (2,6)	9 (3,4)	19 (7,1)	5 (1,8)	2 (0,7)	17 (6,4)	5 (1,8)	16 (6,0)	10 (3,7)	7 (2,6)	5 (1,8)	11 (4,1)	18 (6,8)	5 (1,8)	9 (3,4)	7 (2,6)	9 (3,4)	5 (1,8)	38 (14,3)	0 (0,0)	264
	Qualification category:	higher	0 (0,0)	7 (4,8)	6 (4,1)	10 (6,9)	4 (2,7)	5 (3,4)	4 (2,7)	4 (2,7)	5 (3,4)	9 (6,2)	3 (2,0)	0 (0,0)	14 (9,7)	4 (2,7)	8 (5,5)	5 (3,4)	5 (3,4)	2 (1,3)	9 (6,2)	7 (4,8)	2 (1,3)	5 (3,4)	4 (2,7)	4 (2,7)	3 (2,0)	14 (9,7)	0 (0,0)	143
		I	0 (0,0)	2 (7,4)	0 (0,0)	3 (11,1)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	4 (14,8)	2 (7,4)	0 (0,0)	1 (3,5)	0 (0,0)	2 (7,4)	1 (3,7)	0 (0,0)	1 (3,7)	0 (0,0)	4 (14,8)	0 (0,0)	1 (3,7)	1 (3,7)	1 (3,7)	0 (0,0)	4 (14,8)	0 (0,0)	27
		II	0 (0,0)	2 (8,6)	0 (0,0)	0 (0,0)	0 (0,0)	1 (4,3)	0 (0,0)	0 (0,0)	0 (0,0)	2 (8,6)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	4 (17,3)	1 (4,3)	0 (0,0)	1 (4,3)	0 (0,0)	3 (13,0)	1 (4,3)	1 (4,3)	1 (4,3)	1 (4,3)	0 (0,0)	5 (21,7)	0 (0,0)	23
2024	Number of doctors		0 (0,0)	11 (4,3)	9 (3,5)	19 (7,5)	4 (1,5)	6 (2,3)	4 (1,5)	5 (1,9)	9 (3,5)	18 (7,1)	4 (1,5)	2 (0,7)	18 (7,1)	5 (1,9)	16 (6,3)	12 (4,7)	7 (2,7)	5 (1,9)	11 (4,3)	17 (6,7)	5 (1,9)	9 (3,5)	8 (3,1)	9 (3,5)	6 (2,3)	33 (13,0)	0 (0,0)	252
	Qualification category:	higher	0 (0,0)	6 (4,6)	5 (3,9)	10 (7,8)	1 (0,7)	5 (3,9)	4 (3,1)	1 (0,7)	5 (3,9)	6 (4,6)	2 (1,5)	0 (0,0)	13 (10,1)	4 (3,1)	7 (5,4)	5 (3,9)	5 (3,9)	2 (1,5)	9 (7,0)	7 (5,4)	2 (1,5)	5 (3,9)	4 (3,1)	4 (3,1)	3 (2,3)	13 (10,1)	0 (0,0)	128
		I	0 (0,0)	2 (7,6)	0 (0,0)	3 (11,5)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	0 (0,0)	4 (15,3)	2 (7,6)	0 (0,0)	1 (3,8)	0 (0,0)	3 (11,5)	1 (3,8)	0 (0,0)	1 (3,8)	0 (0,0)	3 (11,5)	0 (0,0)	1 (3,8)	2 (7,6)	1 (3,8)	0 (0,0)	2 (7,6)	0 (0,0)	26
		II	0 (0,0)	1 (5,0)	0 (0,0)	0 (0,0)	0 (0,0)	1 (5,0)	0 (0,0)	0 (0,0)	0 (0,0)	2 (10,0)	0 (0,0)	0 (0,0)	1 (5,0)	0 (0,0)	3 (15,0)	1 (5,0)	0 (0,0)	1 (5,0)	0 (0,0)	2 (10,0)	1 (5,0)	1 (5,0)	1 (5,0)	1 (5,0)	0 (0,0)	4 (20,0)	0 (0,0)	20

Note that in Ukraine the gynaecological oncology service has shrinking human resources and the quality of those resources is declining, the situation was getting worse since 2022. The above trends should be considered as a great challenge towards the healthcare system, as the decreasing number of well-qualified professionals has a direct impact on the quality and accessibility of specialized medical care to female cancer patients.

4. Discussion

The obtained results are consistent with the data of international studies, which indicate a decrease in personnel potential, the concentration of oncology specialists in large, urbanized centers, and the deepening of regional disparities in access to specialized care, especially in conditions of socio-political crises and military conflicts [7, 8, 11]. Similar to the reports of other authors, the decrease in the share of highly qualified specialists is considered as a systemic risk for the quality of oncological care and the sustainability of the service as a whole [3, 10]; at the same time, there are no studies in the available scientific literature that would provide a comprehensive national organizational and statistical analysis of the number, territorial distribution and qualification structure of the oncology service in dynamics, especially in the conditions of the war period, which confirms the scientific novelty of the presented work. The above results enable us to view the capability of human resources in the gynaecological oncology services as a key challenge within the system of cancer care in Ukraine. Decreasing the number of experts, especially in areas with particularly high cancer burdens, can lead to an overburdening of existing staff, erode the quality of diagnostic and therapeutic procedures, and increase wait times for care and the risk of negative clinical outcomes. At the same time, a decrease in the percentage of physicians with advanced qualifications suggests a possible deterioration in the general professional level of the service, which in turn requires enhancement of the system of postgraduate education, promotion of professional growth, and formation of conditions that enable holding on to skilled specialists within the system.

One national trend was a typical geographic disparity in personnel across regions, which mirrored their unequal socio-economic development, material capacity to health facilities, and security. We would draw your attention to the frontline and de-occupied areas, where the greatest shortages of staff coincide with the highest oncological burden and most-limited access to medical care. It is worth noting that it is necessary to establish state programmes on motivating doctors to work in these regions, to promote telemedicine and mobile types of medical care, and to connect the system of Ukrainian gynaecological oncology with international educational and professional networks to support staff.

It should also be noted that the forecast models based on the 2015–2024 dynamics suggest a high likelihood of further decline in the number of doctors without focused managerial efforts. This makes and opens for revision the personnel policy in gynecologic oncology, especially in the area of state orders for specialists training, distribution and motivating them and continuous professional development system.

Study limitations. A limitation of the study is the use of exclusively aggregated official reporting data of the Ministry of Health of Ukraine, which does not allow assessing the individual professional trajectories of doctors, the real workload and clinical results of their work. In addition, the impact of hostilities, temporary occupation of certain.

Prospects for further research. Further research should focus on analyzing the factors of personnel loss and migration of oncogynecologists, as well as assessing the effectiveness of mechanisms for motivating and retaining specialists in regions with staff shortages. It is also promising to develop predictive models for the demand for oncogynecological personnel taking into account the demographic, epidemiological and post-war transformations in the health care system of Ukraine.

5. Conclusions

In 2015–2024, the human resources capacity of Ukraine's gynaecological oncological care provision was subject to pronounced quantitative and structural change under the influence of system reforms and inordinate sociopolitical factors.

The number of gynaecological oncologists has been on the decline in recent years, with a trend towards growing regional differences in the distribution of staff as well as a decline in the share of more qualified specialists. The observed trends demonstrate the importance of elaborating a comprehensive state policy for addressing staffing in gynaecological oncology to stabilise the workforce, raise the professional level of the gynaecological oncologist and provide the population with equal access to highly specialised gynaecological oncology care irrespective of their place of residence.

Findings can be employed in the prospective planning of the healthcare system resources, in the formulation of strategic programme-based developments within oncology services and in the enhancement of the post-graduate medical education system.

Cterritories, and incomplete reporting in 2022–2024 could have led to a certain underestimation of actual personnel losses.

Conflict of interest

The author declares that he has no conflict of interest with respect to this study, including financial, personal, authorship, or other conflicts that could influence the study and its results presented in this article.

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Data availability

Data will be provided upon reasonable request.

Use of artificial intelligence

The author confirms that he did not use artificial intelligence technology in the creation of this work.

Authors' contributions

Tokar Petro: Conceptualization, Methodology, Data curation, Formal analysis, Investigation, Writing – original draft, Writing – review & editing, Visualization, Supervision.

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