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EPIDEMIOLOGICAL ANALYSIS OF THE MEAN AGE AND AGE-GROUP DISTRIBUTION OF PATIENTS WITH BREAST CANCER

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SUT BEZI SARATONI BILAN KASALLANGAN BEMORLARNING O‘RTACHA YOSHI VA YOSH GURUHLARI BO‘YICHA TAQSIMLANISHINING EPIDEMIOLOGIK TAHLILI

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ЭПИДЕМИОЛОГИЧЕСКИЙ АНАЛИЗ СРЕДНЕГО ВОЗРАСТА И РАСПРЕДЕЛЕНИЯ БОЛЬНЫХ РАКОМ МОЛОЧНОЙ ЖЕЛЕЗЫ ПО ВОЗРАСТНЫМ ГРУППАМ

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Abstract

Relevance. Breast cancer is one of the most common malignancies among women. Early detection and the implementation of effective preventive measures are among the key priorities of modern oncology. Investigating the age-related epidemiological characteristics of patients is important for identifying the age groups in which cases are most frequently recorded and for improving regional prevention and early diagnosis programmes. **Objective.** To investigate the mean age of patients with breast cancer, their distribution across age groups, and trends in these indicators in the Fergana Region during 2018–2025. **Materials and methods.** The study used retrospective statistical data on 3445 patients with breast cancer who received examination and

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treatment at the Fergana Regional Branch of the Republican Specialized Scientific and Practical Medical Center of Oncology and Radiology during 2018–2025. Descriptive epidemiological methods were used to assess the absolute number of cases, the proportion of each age group in the overall distribution, mean age, standard deviation, and standard error of the mean age. The indicators were compared across calendar years. **Results**. According to the aggregated statistical data provided, a total of 3,445 cases were recorded during 2018–2025. Of these, 56.68% occurred among patients aged 45–64 years, 24.51% among those aged 20–44 years, and 18.67% among patients aged 65 years and older. The number of recorded cases increased from 342 in 2018 to 530 in 2024, before declining to 504 in 2025. The annual mean age of patients ranged from 57.34 to 59.64 years. The highest mean age was observed in 2024, while the lowest was recorded in 2021. **Conclusion.** Patients aged 45–64 years predominated in the age distribution of breast cancer cases in the Fergana Region. During the study period, the overall number of recorded cases increased, while the mean age fluctuated across years. These findings provide a descriptive basis for improving regional epidemiological surveillance and planning age-appropriate prevention and early detection measures.

Keywords: breast cancer, epidemiological analysis, mean age, age groups, retrospective study.

Annotatsiya

Dolzarbligi. Sut bezi saratoni ayollar orasida keng tarqalgan xavfli o‘smalardan biri bo‘lib, uni erta aniqlash va samarali profilaktika choralarini tashkil etish zamonaviy onkologiyaning dolzarb vazifalaridan hisoblanadi. Bemorlarning yoshga oid epidemiologik xususiyatlarini o‘rganish kasallik holatlarining qaysi yosh guruhlarida ko‘proq qayd etilishini aniqlash hamda hududiy profilaktika va erta tashxislash tadbirlarini takomillashtirish uchun muhimdir. Maqsad. Farg‘ona viloyatida 2018–2025-yillarda sut bezi saratoni bilan kasallangan bemorlarning o‘rtacha yoshi, yosh guruhlari bo‘yicha taqsimlanishi va ushbu ko‘rsatkichlarning yillar davomidagi o‘zgarish tendensiyalarini o‘rganish. **Materiallar va metodlar.** Tadqiqotda Farg‘ona viloyatida 2018–2025-yillarda Respublika ixtisoslashtirilgan onkologiya va radiologiya ilmiy amaliy tibbiyot markazning Farg'ona viloyati filialida sut bezi saratoni bilan kasallangan 3445 nafar bemorlarning retrospektiv statistik ma’lumotlardan foydalanildi. Tavsifiy epidemiologik tahlil usuli yordamida kasallik holatlarining mutlaq soni, yosh guruhlarining umumiy tarkibdagi ulushi, o‘rtacha yosh, standart og‘ish va o‘rtacha yoshning standart xatoligi baholandi. Ko‘rsatkichlar yillar kesimida qiyosiy tahlil qilindi. **Natijalar.** Taqdim etilgan jamlangan ma’lumotlarga ko‘ra, 2018–2025-yillar davomida jami 3445 ta holat qayd etilgan. Ularning 56,68 foizi 45–64 yoshdagi, 24,51 foizi 20–44 yoshdagi va 18,67 foizi 65 yosh va undan katta bemorlarga to‘g‘ri kelgan. Qayd etilgan holatlar soni 2018-yildagi 342 tadan 2024-yilda 530 tagacha oshgan, 2025-yilda esa 504 tani tashkil etgan. Bemorlarning o‘rtacha yoshi yillar kesimida 57,34–59,64 yosh oralig‘ida o‘zgargan. Eng yuqori o‘rtacha yosh 2024-yilda, eng past ko‘rsatkich esa 2021-yilda kuzatilgan. **Xulosa.** Farg‘ona viloyatida sut bezi saratoni bilan kasallangan bemorlarning yosh tarkibida 45–64 yosh guruhi ustunlik qilgan. O‘rganilgan davrda qayd etilgan holatlar sonining umumiy o‘sishi va o‘rtacha yosh ko‘rsatkichlarining yillar bo‘yicha tebranishi kuzatilgan. Olingan natijalar hududiy epidemiologik kuzatuvni takomillashtirish, yosh xususiyatlarini hisobga olgan holda profilaktika va erta aniqlash tadbirlarini rejalashtirish uchun tavsifiy asos bo‘lib xizmat qiladi.

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Kalit so‘zlar: sut bezi saratoni, epidemiologik tahlil, o‘rtacha yosh, yosh guruhlari, retrospektiv tadqiqot.

Аннотация

Актуальность. Рак молочной железы является одним из наиболее распространённых злокачественных новообразований среди женщин. Его раннее выявление и организация эффективных профилактических мероприятий относятся к актуальным задачам современной онкологии. Изучение возрастных эпидемиологических характеристик пациентов имеет важное значение для определения возрастных групп, в которых чаще регистрируются случаи заболевания, а также для совершенствования региональных программ профилактики и ранней диагностики. **Цель.** Изучить средний возраст пациентов с раком молочной железы, их распределение по возрастным группам и тенденции изменения данных показателей в Ферганской области за 2018–2025 годы. **Материалы и методы.** В исследовании использованы ретроспективные статистические данные о 3445 пациентах с раком молочной железы, проходивших обследование и лечение в Ферганском областном филиале Республиканского специализированного научно-практического медицинского центра онкологии и радиологии в 2018–2025 годах. С применением методов описательного эпидемиологического анализа оценивали абсолютное число случаев заболевания, долю возрастных групп в общей структуре, средний возраст, стандартное отклонение и стандартную ошибку среднего возраста. Показатели сопоставляли по годам. **Результаты.** Согласно представленным сводным статистическим данным, за 2018–2025 годы было зарегистрировано 3445 случаев заболевания. Из них 56,68% приходилось на пациентов в возрасте 45–64 лет, 24,51% — на возрастную группу 20–44 лет и 18,67% — на пациентов в возрасте 65 лет и старше. Число зарегистрированных случаев увеличилось с 342 в 2018 году до 530 в 2024 году, а в 2025 году составило 504 случая. Средний возраст пациентов в разные годы находился в диапазоне от 57,34 до 59,64 года. Наибольший средний возраст отмечен в 2024 году, наименьший — в 2021 году. **Заключение.** В возрастной структуре пациентов с раком молочной железы в Ферганской области преобладала группа 45–64 лет. За исследуемый период отмечались общий рост числа зарегистрированных случаев и колебания среднего возраста пациентов по годам. Полученные результаты могут служить описательной основой для совершенствования регионального эпидемиологического наблюдения и планирования профилактических мероприятий и мероприятий по раннему выявлению заболевания с учётом возрастных особенностей пациентов.

Ключевые слова: рак молочной железы, эпидемиологический анализ, средний возраст, возрастные группы, ретроспективное исследование.

Background: Breast cancer is one of the most common malignancies among women worldwide. Its early detection, effective treatment, and reduction of disease-related consequences are priorities in modern oncology. According to the International Agency for Research on Cancer (IARC), 2,296,840 new cases of breast cancer were recorded worldwide in 2022, and 666,103 patients died from the disease [1, 2].

According to estimates published on the basis of IARC GLOBOCAN 2024 data, approximately 2.4 million new breast cancer cases were identified worldwide in 2024, and the

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disease remained one of the most frequently diagnosed malignancies among women [2, 3]. These figures indicate that breast cancer remains a major global public health concern and that its epidemiological characteristics warrant in-depth study [1–3].

Breast cancer is also one of the leading oncological diseases among women in the Republic of Uzbekistan. According to GLOBOCAN 2022, an estimated 5,022 new cases of breast cancer occurred in the country, accounting for 25.3% of all newly recorded malignancies in women [1]. GLOBOCAN 2024 estimates indicate 4,793 new cases among women in Uzbekistan; this is a model-based estimate and should not be interpreted as identical to cases directly recorded by the national cancer registry [3].

A scientific report analysing published official statistics for Uzbekistan stated that 16,314 new breast cancer cases were recorded in 2020–2023: 3,317 in 2020, 4,121 in 2021, 4,369 in 2022, and 4,507 in 2023 [4]. These data indicate an increase in the number of registered cases during this period. However, assessment of actual changes in incidence risk also requires consideration of population size, age structure, diagnostic coverage, and completeness of registration [4].

Age characteristics are particularly important in breast cancer epidemiology because the probability of developing the disease increases with age, while the burden across age groups may vary according to countries' and populations' sociodemographic characteristics [5, 6]. An international analysis based on GLOBOCAN 2022 data found that high incidence rates were observed in many regions among women aged 45–69 years, although the age group with the largest number of cases varied according to countries' levels of human development [6]. Therefore, determining the mean and median age of patients with breast cancer and their distribution across age groups is important for describing local epidemiological patterns [5, 6].

The World Health Organization (WHO) emphasises the importance of timely assessment of symptoms, appropriate diagnostic investigations, and prompt referral for treatment in the early detection of breast cancer. Mammographic screening is one population-screening approach used in appropriate settings, particularly for women aged 50–69 years [5, 7]. However, defining the target age for screening and studying the age distribution of patients diagnosed with the disease are distinct tasks. Analysis of the actual age distribution of patients may provide additional evidence for adapting screening and early-detection strategies to local epidemiological conditions [5–7].

By the end of 2024, Uzbekistan's healthcare system had undertaken measures to expand screening examinations and improve early-stage detection of breast cancer. An official report recorded a 28.5% increase in the indicator for early detection of breast cancer [7]. These data highlight the importance of jointly analysing patients' age characteristics, disease stage, and timing of diagnosis when evaluating prevention and early-detection activities [5, 7].

Nevertheless, overall national statistics do not fully describe the mean age and age-group composition of patients in a specific region. In particular, a systematic analysis of local data on the age characteristics of patients with breast cancer in Fergana Region, identification of the age groups with the highest number of cases, and comparison of findings with international epidemiological data are important for providing a scientific basis for regional prevention and early-detection activities [1, 3–6].

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Aim of the study: To investigate the age-related epidemiological characteristics of patients with breast cancer in Fergana Region during 2018–2025, analyse their mean age and distribution by age group, and identify temporal trends in the age composition of cases.

Materials and methods: The study used retrospective statistical data on patients diagnosed with breast cancer in Fergana Region during 2018–2025. The analysis included the distribution of patients by age group, the number of cases recorded in each calendar year, mean age, standard error of the mean, and standard deviation.

The age structure of patients was examined in the following groups: younger than 15 years, 15–19 years, 20–44 years, 45–64 years, and 65 years or older. An additional analysis used the following groups reflecting women's reproductive and age-related status: 0–19, 20–44, 45–49, 50–59, 60–69, and older than 70 years.

The absolute number of cases in each age group and its percentage of all cases were calculated. Mean patient age was calculated as the arithmetic mean, and age dispersion was assessed using the standard deviation (SD). The standard error of the mean (m) and trends in mean age over time were also analysed.

Annual indicators for 2018–2025 were compared to assess temporal dynamics. Differences and changes in the age-group composition were examined using descriptive epidemiological methods. Where individual-level patient data were available, appropriate statistical tests were intended to be used to assess statistical significance.

The results were presented in tables and figures. The age composition of patients was distinguished from age-specific incidence rates in the population. Because population counts for the corresponding age groups were unavailable, the findings were interpreted as the age composition of diagnosed patients and its changes over time, rather than as age-specific disease risk.

Results: The age-group distribution of patients with breast cancer in Fergana Region during 2018–2025 was analysed retrospectively. According to Table 1, a total of 3,445 cases were recorded during the study period. Patients aged 45–64 years predominated, accounting for 1,952 cases (56.68%). This indicates that most breast cancer cases were recorded among middle-aged and older women (Table 1).

There were 844 cases (24.51%) among patients aged 20–44 years. Among patients aged 65 years or older, 643 cases (18.67%) were recorded. The fewest cases occurred among those younger than 15 years—2 cases (0.06%)—and among those aged 15–19 years—4 cases (0.12%). These findings indicate that breast cancer was more commonly recorded after the age of 45. At the same time, the substantial proportion of cases among women aged 20–44 years underscores the importance of early detection in relatively younger women as well.

Table 1

Age-group distribution of patients with breast cancer in Fergana Region, 2018–2025 (absolute numbers)

Age group	Years	8-year period	M

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	2018	2019	2020	2021	2022	2023	2024	2025	Total	%	M
<15 years	-	-	-	-	2	-	-	-	2	0,06	0,04
15–19 years	-	-	2	-	2	-	-	-	4	0,12	0,06
20–44 years	89	70	75	117	127	121	123	122	844	24,51	0,74
45–64 years	212	204	234	222	244	277	275	284	1952	56,68	0,84
65 years or older	41	70	45	75	83	99	132	98	643	18,67	0,66
Total	342	344	356	414	454	501	530	504	3445	100,0	2,34

The annual number of cases increased from 342 in 2018 to 530 in 2024, and stood at 504 in 2025. Overall, the number of recorded cases showed an increasing trend from 2018 to 2024, followed by a modest decline in 2025. However, interpreting these changes as a true increase in incidence requires consideration of factors such as population size, age structure, diagnostic coverage, and trends in healthcare utilization.

Analysis of annual data by age group showed that the 45–64-year group accounted for the largest share in every year. For example, 212 cases were recorded in this group in 2018, 277 in 2023, 275 in 2024, and 284 in 2025. This indicates a substantial disease burden in this age group and supports the need for effective preventive examinations, risk-factor assessment, and screening activities.

Thus, during 2018–2025, the 45–64-year age group accounted for the largest proportion of breast cancer cases in Fergana Region. The considerable share of cases among women aged 20–44 years also indicates that early-detection and public-awareness initiatives should not be restricted to older women.

Note on scientific accuracy: The table presents a total of 3,445 cases. If the main study sample in the article consists of 333 patients, this table should be presented separately as region-wide aggregate statistics and distinguished from the findings for the 333-patient sample.

According to Table 2, the mean age of patients fluctuated between 57.34 and 59.64 years during the study period.

The mean age was 57.76 years in 2018 and 59.00 years in 2019. It decreased to 57.73 years in 2020 and 57.34 years in 2021. From 2022 onward, the mean age increased: 58.40 years in 2022, 58.58 years in 2023, and 59.64 years in 2024. In 2025, the mean age was 58.30 years.

Table 2

Distribution of patients with breast cancer in Fergana Region by mean age

Measure	2018	2019	2020	2021	2022	2023	2024	2025
Mean age (years)	57,76	59,0	57,73	57,34	58,40	58,58	59,64	58,30
Standard error (m)	0,59	0,62	0,58	0,62	0,59	0,54	0,51	0,54
Standard deviation (SD)	11,00	11,51	10,90	12,66	12,51	]12,20	11,81	12,03

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Trend	57,9	58,0	58,15	58,28	58,4	58,53	58,66	58,8

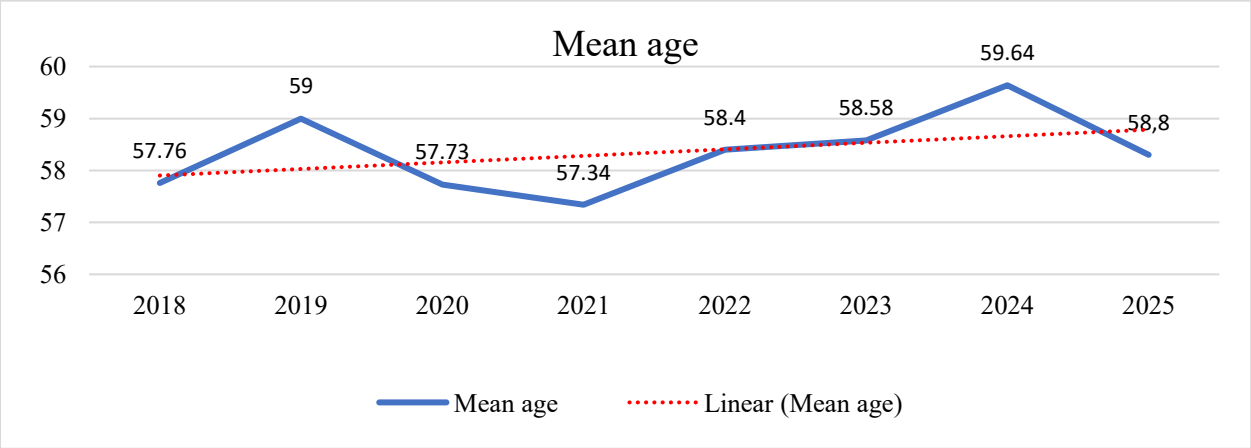


Figure 1. Mean age of patients with breast cancer in Fergana Region, 2018–2025, and its trend.

The highest mean age was recorded in 2024 (59.64 years), while the lowest was recorded in 2021 (57.34 years). The difference between these values was 2.30 years. The overall change in mean age from 2018 to 2025 was 0.54 years.

Standard deviation (SD) values ranged from 10.90 to 12.66, indicating a degree of dispersion in patient age around the mean. The highest SD was recorded in 2021 (12.66) and the lowest in 2020 (10.90). The standard error of the mean (m) ranged from 0.51 to 0.62 (Figure 1).

The trend values in the table increased from 57.9 years in 2018 to 58.8 years in 2025, indicating a moderate long-term upward trend in mean age. However, the decrease in mean age in 2025 compared with 2024 shows that annual changes did not follow a uniform direction.

Discussion: Analysis of the age-group distribution of patients with breast cancer in Fergana Region during 2018–2025 showed that cases were most frequently recorded among women aged 45–64 years. This group accounted for 1,952 cases, or 56.68% of all cases. There were 844 cases (24.51%) among women aged 20–44 years and 643 cases (18.67%) among those aged 65 years or older.

The number of recorded cases increased from 342 in 2018 to 530 in 2024, and was 504 in 2025. These data indicate an overall upward trend in the number of recorded cases during the observation period. However, population size, age structure, and diagnostic coverage must also be considered before these changes can be directly associated with an increase in disease risk.

The predominance of the 45–64-year group indicates the importance of strengthening preventive measures, screening examinations, and early-detection activities among women in this age range. The considerable proportion of patients aged 20–44 years also supports the need to promote breast health awareness among younger women and ensure timely medical assessment when symptoms occur.

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The findings indicate that the mean age of patients with breast cancer in Fergana Region remained relatively stable over the eight-year study period, although fluctuations occurred in some years. A mean age ranging from 57 to 60 years is consistent with the fact that the disease was recorded predominantly among older women.

The increase in mean age from 2021 to 2024 may indicate a higher proportion of older women among patients. However, this possibility should be verified by separately analysing changes in the proportions of age groups over time. The decline in 2025 may also reflect a change in the age composition of patients, but the table alone cannot establish the reasons for this change.

The relatively similar SD values may indicate that the age distribution of patients did not change substantially over the years. Nevertheless, appropriate statistical tests based on individual patient data are required to determine whether year-to-year differences in mean age are statistically significant. The table alone does not support a definitive conclusion regarding statistical significance.

Changes in the mean age of patients should not be directly equated with population ageing or an increase in disease risk. Such conclusions require data on age-specific incidence, population size, and diagnostic coverage.

Conclusions:

A total of 3,445 breast cancer cases were recorded in Fergana Region during 2018–2025.

The 45–64-year age group predominated, accounting for 56.68% of all cases.

Patients aged 20–44 years accounted for 24.51% of cases, while those aged 65 years or older accounted for 18.67%. This highlights the need to include different age categories when assessing the age-related characteristics of the disease.

The number of recorded cases increased from 342 in 2018 to 530 in 2024, then decreased to 504 in 2025.

From 2018 to 2025, the mean age of patients with breast cancer in Fergana Region ranged from 57.34 to 59.64 years.

The highest mean age was recorded in 2024 (59.64 years) and the lowest in 2021 (57.34 years).

The overall increase in mean age during the study period was 0.54 years, suggesting a moderate long-term upward trend. However, both increases and decreases occurred across individual years.

SD values ranging from 10.90 to 12.66 indicate dispersion of patient ages around the mean.

The findings demonstrate the importance of considering age characteristics when planning breast cancer prevention and early-detection activities. Further analyses are required to determine the statistical significance of age trends and their underlying causes.

References

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This article/work is licensed under CC Attribution-Non-Commercial 4.0

1. International Agency for Research on Cancer (IARC). Global Cancer Observatory: Cancer Today. Uzbekistan Fact Sheet, GLOBOCAN 2022. Lyon: International Agency for Research on Cancer; 2024.

2. Bray F, Laversanne M, Sung H, et al. Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: A Cancer Journal for Clinicians. 2024;74(3):229–263.

3. International Agency for Research on Cancer (IARC). Global Cancer Observatory: Cancer Today. Uzbekistan Fact Sheet, GLOBOCAN 2024. Lyon: International Agency for Research on Cancer; 2026.

4. Breast cancer morbidity and role of mammographic screening program in Uzbekistan. Journal of Clinical Oncology. 2025;43(16_suppl):e22510.

5. World Health Organization (WHO). Breast cancer. WHO Fact

6. Global burden and trends of breast cancer: GLOBOCAN 2022 estimates of incidence and mortality in 185 countries. PMC. 2026.

7. World Health Organization (WHO). Cancer screening and early detection of cancer. WHO Regional Office for Europe.