

## SOME EPIDEMIOLOGICAL ASPECTS OF FASCIOLIASIS IN THE FERGHANA REGION IN 2018-2019 YY.

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✓ **Resume**

*The article presents the results of the analysis of some epidemiological aspects of fascioliasis in the Fergana region in 2018-2019. 57 cases of fascioliasis were registered in the Fergana region in 2018-2019, 20 of them in 2018 and 37 in 2019. The disease was diagnosed mainly in the rural population, 73.7% of cases were women, 77.2% were people over 18 years old. An analysis of the disease by occupation showed that housewives are more likely to face this problem. A high risk of contracting this disease is associated with the consumption of unwashed greens and fruits, as well as drinking water from surface water bodies (arycs). The monthly analysis of the dynamics of the disease showed that it was not of season character.*

**Key words:** fascioliasis, Fergana region, epidemiology, risk factors.

## ФАРҒОНА ВИЛОЯТИДА 2018-2019 ЙИЛЛАРДА АНИҚЛАНГАН ФАСЦИОЛЁЗ КАСАЛЛИГИНИНГ АЙРИМ ЭПИДЕМИОЛОГИК ЖИҲАТЛАРИ

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✓ **Резюме**

*Мақолада Фарғона вилоятида 2018-2019 йилларда аниқланган фасциолёз касаллигининг айрим эпидемиологик жиҳатлари таҳлил натижалари келтирилган. 2018-2019 йилларда Фарғона вилоятида жами 57 та фасциолёз ҳолати рўйхатга олинган бўлиб, шулардан 20 таси 2018 йилда, 37 таси 2019 йилда қайд этилган. Касаллик асосан қишлоқ аҳолисида қайд этилиб, беморларнинг 73,7% аёллар, 77,2% 18 ёшдан катталар ташкил этди. Касаллик алоқадорлик ўрганилганда уй бекаларида кўп қайд этилгани, касалликни юқтириб олиш хавф омилли сифатида эса яхши ювилмаган кўкатлар ва мева-сабзавотларни истеъмол қилиш, ариқ сувларидан ичиш деб топилди. Касаллигининг динамикаси ойма-ой таҳлилида эса мавсумийлик хос эмаслиги аниқланди.*

**Калит сўзлар:** фасциолёз, Фарғона вилояти, эпидемиология, хавф омиллар.

## НЕКОТОРЫЕ ЭПИДЕМИОЛОГИЧЕСКИЕ АСПЕКТЫ ФАСЦИОЛЕЗА, ВЫЯВЛЕННЫЕ В ФЕРГАНСКОЙ ОБЛАСТИ В 2018-2019 ГГ.

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✓ **Резюме**

*В статье представлены результаты анализа некоторых эпидемиологических аспектов фасциолеза в Ферганской области за 2018-2019 года. Всего в 2018-2019 годах в Ферганской области было зарегистрировано 57 случаев фасциолоза, из них 20 - в 2018 году и 37 - в 2019*

году. Из них 73,7% заболевших составили женщины, 77,2% - люди старше 18 лет. Заболевание регистрировалось преимущественно у сельского населения. Анализ заболевания по профессиям показал, что чаще сталкиваются с этой проблемой домохозяйки. Установлен большой риск заражения при употреблении немытой зелени и фруктов, а также питье воды из артезианских скважин. Ежемесячный анализ динамики болезни показал, что она не имеет сезонности.

**Ключевые слова:** фасциолёз, Ферганская область, эпидемиология, факторы риска.

### Introduction

At present fascioliasis is one of the global problems. According to the World Health Organization (WHO) data, more than 40 million people in more than 70 countries are infected with Trematode and 2.6 million from them suffer with Fasciola [1]. Fasciola is mainly found in East and Southeast Asian countries, as well as in South America [2]. Among Asian countries, the disease is most common in the Islamic Republic of Iran and Vietnam. The WHO has listed Iran as one of six countries with serious fascioliasis problems [3].

In humans, the disease symptoms can vary, in some cases asymptomatic form is observed for a long time, in others fascioliasis is characterized by an acute form and can lead to acute obstruction of the biliary tract. Analysis of the literature has shown that atypical variants of fascioliasis are also present [4,5].

The disease is caused by two types of trematode: *Fasciola hepatica* and *Fasciola gigantica* [6]. The life cycle of these parasites is very complex and takes place in the intermediate and primary host organisms. The parasite is leaf-shaped, size of *F.hepatica* is 20–30 mm x 13 mm and *F.gigantica* is 25–75 mm x 12 mm. [7]. Parasites are transmitted by specific freshwater *Lymnaeidae* snails (intermediate host organism) and infect many mammals, mainly herbivorous but also omnivorous species, causing severe disease in domestic ruminants and humans (primary host organisms). Human fascioliasis is included within foodborne trematodiasis among neglected tropical diseases (NtD) by WHO [8].

Humans become infected with adolescent parasites as a result of consuming unboiled water or bathing in contaminated waters. In addition, adolescent parasites are transmitted to humans as a result of eating unwashed greens and vegetables, as well as eating wild-growing plants (cress-lettuce leaves) in stagnant water [9].

According to the literature data, many cases of fascioliasis were registered among the population [10, 11, 12, 13]. Such outbreak was observed in 1988 in Iran. During this outbreak more than 10,000 people were infected, 4,000 of them were children [14].

Recently, the incidence rate has been increasing in both developed and developing countries. The main reasons for this are global climate changes and the development of international tourism [8].

Due to the development of animal husbandry in Uzbekistan, fascioliasis has been studied in animals [15]. However, this disease has not been well studied in humans. Abdushukurov A.A. and co-authors reported a first case of fascioliasis in 2016 in a 6-year-old patient from Fergana region [16].

### The purpose

To study some epidemiological aspects of fascioliasis in humans in Fergana region during 2018-2019 yy.

### Materials and methods

During the study the epidemiological data of the Fergana Regional Department of Sanitary and Epidemiological Welfare and Public Health for fascioliasis in 2018-2019 were analyzed. The first case of fascioliasis in Fergana region was detected in 2016 [16]. After that case the prevalence of the disease in this region was begun to study.

For this purpose, the epidemiological maps presented the disease morbidity were analyzed. Fascioliasis in patients was confirmed by coproscopy, ultrasound examination, and macroscopic diagnosis of parasites detected after surgery. The Statistical analysis of the results was carried out in MS Excel 2003 XR.

### Results and discussion

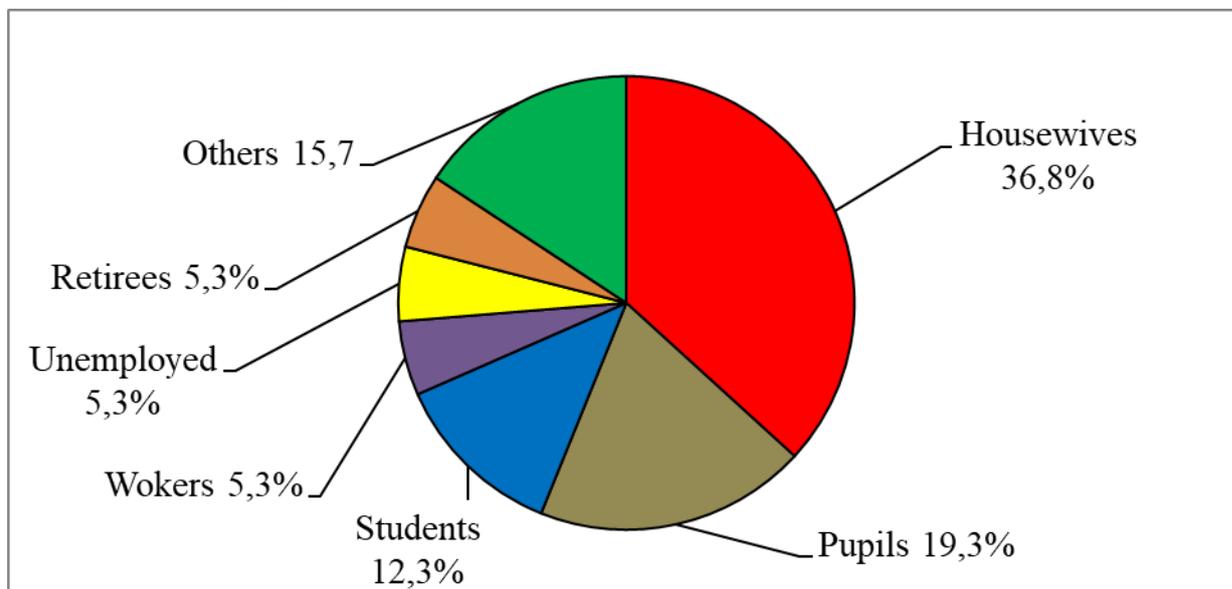
In 2018-2019 yy. 57 cases of fascioliasis were registered in Fergana region. 20 of them were registered in 2018 and 37 in 2019. Analyzing the distribution of these cases in the Fergana region, the highest rate was found in Fergana district, accounting for 35.1% of all cases. In other regions, the incidence rate amounted to 14% - in Fergana and Quvasoy, 10.5% - in Oltiariq district, 7% - in Tashlak district, 5.3% - in Kuva and Rishtan districts, 1.8% - in Margilan, Kushtepa, Baghdad and Buvayda districts. One of the 57 officially registered cases of fascioliasis was a citizen of the Kyrgyz Republic, fascioliasis was diagnosed

during his temporarily residing in Fergana. There were no cases reported in Kokand, Besharik, Dangara, Sokh, Uzbekistan, Uchkuprik, Furkat, and Yazyavan districts of Fergana region. Analysis of regional cases showed that 17 (29.8%) and 40 (70.2%) patients were diagnosed among urban were rural residents respectively.

42 (73.7%) of the patients were women and 15 (26.3%) were men. The patients aged from 8 to 66

years, with an average age of  $31.8 \pm 1.04$ . 13 of them aged under 18 years (22.8%) and 44 (77.2%) were over 18 years.

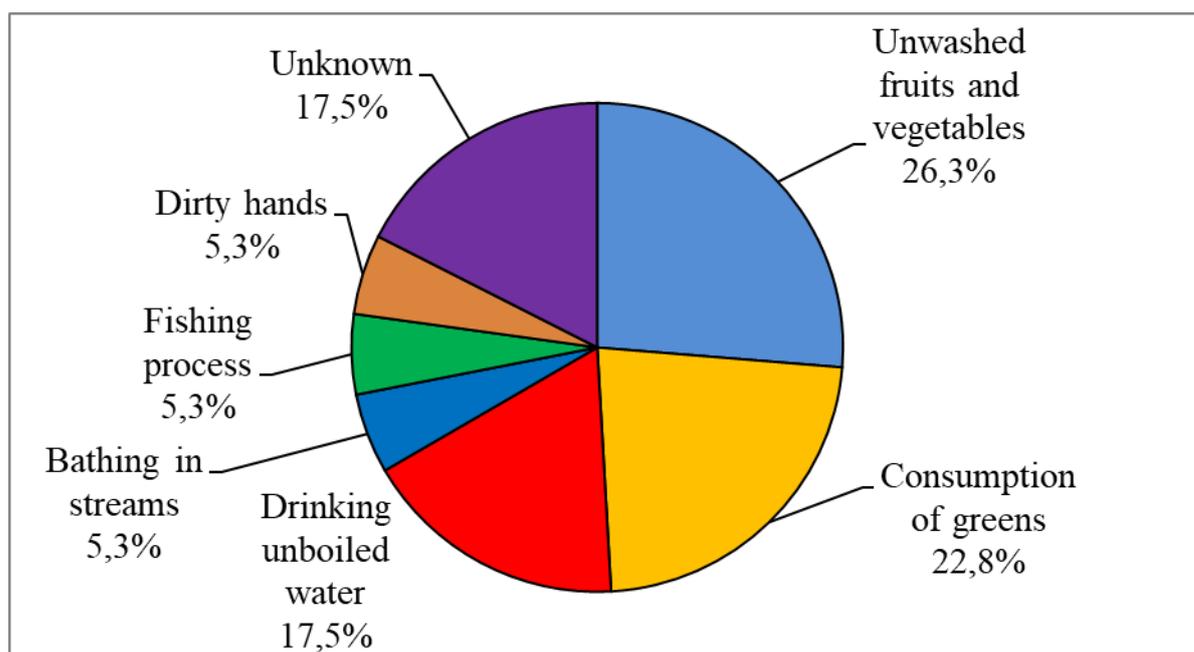
The results of the analysis of patients' profession are shown in Figure 1. Majority of patients were housewives - 36.8%, pupil - 19.3%, students - 12.3%, workers, retirees, temporarily unemployed – by 5.3%, and representatives of other sectors - 15.7%.



**Figure 1. Distribution of patients according with profession.**

The following factors at risk were identified according to epidemiological anamnesis, 26.3% of patients associated the disease with the consumption of unwashed fruits and vegetables, 22.8% - with consumption of greens, 17.5% of patients with drinking water. 5.3% of patients

associate bathing in streams, 5.3% of patients use dirty hands, and 5.3% of patients associate with the fishing process. 17.5% of those surveyed did not link the disease with a specific cause, but the factors listed above were not ruled out too (Figure 2).



## Figure 2. Factors at risk for Fasciola infection.

The results of fascioliasis incidence during the year are shown in Figure 3.

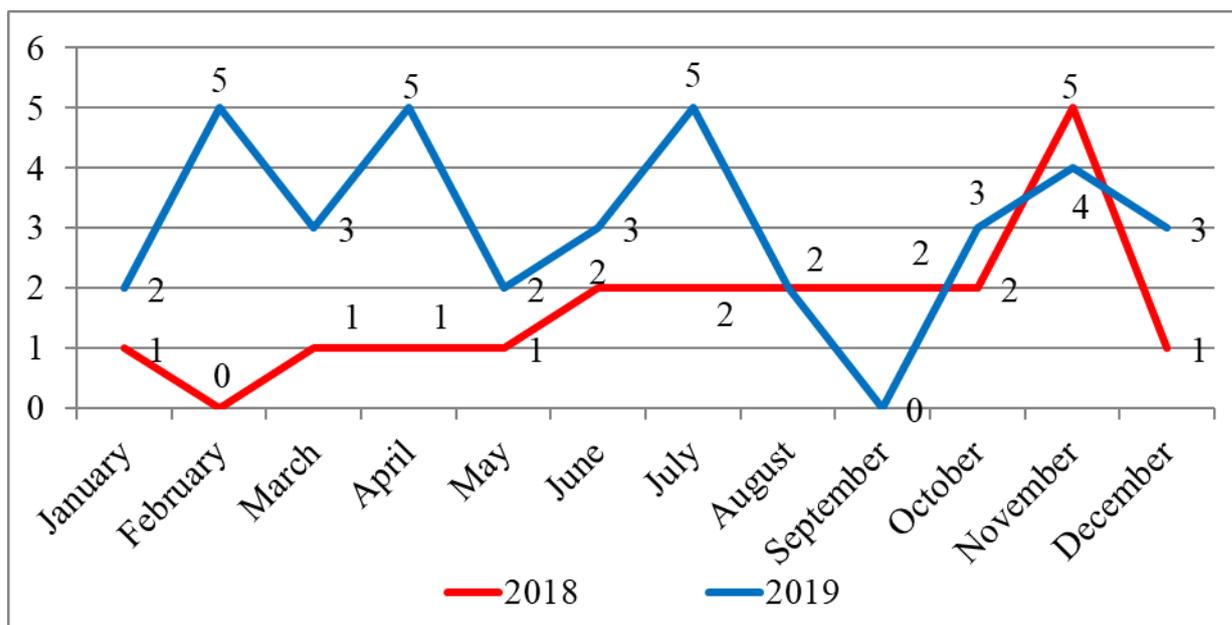


Figure 3. Monthly dynamics of fascioliasis morbidity.

Analysis of the data showed that a clear seasonal specificity of fascioliasis morbidity was not identified, however 5 from 20 cases were registered in 2018 (25%) were detected in November.

The incidence of fascioliasis is increasing in many countries around the world, especially in the countries along the Nile Delta [17]. In Fergana region, the incidence rate in 2019 increased by 85% compared to 2018. The incidence rate in the rural population is much higher than in the urban residents, and our results did not differ from the world literature data [18, 19].

A lot of reported data describe the prevalence of fascioliasis among men or no difference between the sexes [20], in our study, the proportion of women in the morbidity rate was 73.7%. Our study also found that the incidence of the disease is increasing with age and that it was more common in the working-age population.

Consumption of cress-lettuce leaves as a risk factor for infection has been reported in a number of articles [21, 22], and some authors suggest consuming irrigated greens from stagnant water basins, wild plants in such ponds, unboiled water contaminated with adolescent parasites, or bathing in such water sources [6]. In our study, the main risk factor of fascioliasis is associated with eating unwashed greens, fruits and

vegetables, and drinking water from surface water bodies.

### Conclusion

1. In 2018-2019, fascioliasis was registered mainly in the rural population of Fergana region, 73.7% of patients were women and 77.2% were over 18 years old.
2. In the study of occupational affiliation, Analysis of the professional activities of the patients showed that housewives belong to the risk group, apparently due to often consumed unwashed greens and fruits and drinking water from surface water bodies (arycs).
3. Monthly analysis of the morbidity dynamics did not reveal seasonal dependence.

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