

Digital Epidemiology of Hepatitis A, B, C, D, E in Central Asia, Russia, & Belarus Using Google Trends

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Abstract

Viral hepatitis remains a serious public health problem in many countries of Central Asia and Eastern Europe. The World Health Organization (WHO) has set the goal to eliminate viral hepatitis as a public health threat by 2030. However, in these regions, the level of public awareness and the effectiveness of health information programs may influence the success of prevention. The use of digital epidemiology, especially the analysis of online search behavior through Google Trends, can help to understand how well the population is informed about hepatitis risks. This study analyzed acute hepatitis incidence from 2018–2023 in Belarus, Kyrgyzstan, Kazakhstan, Russia, Tajikistan, Turkmenistan, and Uzbekistan. National surveillance data were compared with Google Trends search activity to assess the relationship between disease rates and public awareness. Results showed that hepatitis incidence remained high or stable across most countries. Online search interest was low or declining in Belarus, Kazakhstan, and Tajikistan, indicating weak information programs. In contrast, Kyrgyzstan and Russia showed increased search activity, particularly after the COVID-19 period. Turkmenistan and Uzbekistan showed slight growth in search interest, although incidence rates remained high. These differences suggest that public awareness does not always follow the real epidemiological situation. The COVID-19 pandemic likely influenced the decrease

in hepatitis awareness during 2020–2022, as health systems focused on coronavirus control. Digital epidemiology helps track public interest and inform health planning. Countries with low search activity but high incidence should strengthen health education to meet WHO hepatitis elimination targets.

Keywords: Acute hepatitis, Public health awareness, Central Asia epidemiology, Digital epidemiology, COVID-19 impact on health behavior

Introduction

Since independence from the Soviet Union, the countries of Central Asia (CA), specifically Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan, have been undergoing difficult political, social, and economic transition (Semenova *et al.*, 2024). The public health and healthcare infrastructure has deteriorated, resulting in a decline in life expectancy, a rising burden of diseases, and the re-emergence of infectious diseases. Though the region is perceived to have one of the highest HCV prevalence levels worldwide, HCV epidemiology and the drivers of HCV transmission remain poorly characterized (Kamkhen *et al.*, 2024). Viral hepatitis was responsible for 1.34 million deaths worldwide in 2015. Surveillance of acute viral hepatitis is one of the priority actions identified by the World Health Organization. However, accurate data on acute hepatitis are often difficult to obtain because cases are underreported (WHO, 2017).

Digital traces have become a potential data source for health-related purposes in the past few years. Digital epidemiology is a new field that uses digital traces to explore the patterns of disease and health dynamics in a population (Fallatah & Adekola, 2024). Digital epidemiology is epidemiology that uses digital data. We expect that this broad and straightforward definition will appeal to many, as it includes any modern approach to epidemiology based on digital sources (Salathé, 2018). We would, however, like to offer an additional and much more narrow definition for digital epidemiology that I personally find more appealing and more thought-provoking, namely the following: Digital epidemiology is epidemiology that uses data that was generated outside the public health system, i.e., *with data that was not generated with the primary purpose of doing epidemiology* (Lippi & Cervellini, 2019). The interest in Hepatitis in the population can be evaluated using data from internet searches for information related to this disease. The Internet has made it easier to access information and to find in-depth information about many diseases. Trend data generated by the number of Google searches over time have recently been made available by Google Trends (GT), a feature used in previous studies for surveillance in public health (Carpenter *et al.*, 2023).

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Google Trends (<https://trends.google.com/trends/>) operates as a widely used platform to access data through its aggregated search volume indices for specific keywords. Research indicates that Google Trends data demonstrates substantial alignment with traditional epidemiological surveillance systems. The research demonstrates that search query data can serve as an additional tool for traditional surveillance systems because it provides earlier detection and wider accessibility at lower costs.

Materials and Methods

Study Design and Data Collection

The observational study examined Google Trends search volume data about hepatitis across Central Asian nations and the Russian Federation during six years from January 1, 2018, to December 31, 2023. The research included data from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, and the Russian Federation. The research used particular search terms in local languages to monitor public interest and awareness about hepatitis in each country. The research team selected specific terms that represented hepatitis and its different forms, including Hepatitis A, B, C, D, and E.

The search terms used for each country are as follows:

Kazakhstan: «Гепатит», «Боткина это», «бауырға салқын тию ауруы»

Kyrgyzstan: «Гепатит», «Боткина это», «Сарык оорусу бул»

Tajikistan: «Гепатит», «Боткина это», «gepatit b haqida»

Turkmenistan: «Hepatit nedir»

Uzbekistan: «gepatit yugish yo`llari»

Russian Federation: «Гепатит», «Боткина это», «как передается Гепатит»

These terms encompass the local terminology for hepatitis, as well as disease transmission vectors and symptoms commonly searched by the population as also shown in **Table 1**.

Data Sources

The search volume data were obtained from Google Trends (<https://trends.google.com/trends/>) using the specified search terms. The data represent the relative frequency of searches for each term within each country, normalized on a scale from 0 to 100, reflecting the popularity of a term in a specific location and time frame. The data were downloaded in comma-separated values (CSV) format with UTF-8 character encoding to ensure compatibility and accuracy of language-specific characters. The data were collected monthly for the entire study period. Additionally, official hepatitis incidence reports were obtained from the respective Health Ministries of the countries under study to compare trends in disease occurrence with search behavior.

Data Analysis

We analyzed the relationship between reported acute hepatitis cases and Google Trends search volumes for defined terms during the same time period. The study evaluated the relationship between reported hepatitis cases and search volume data for hepatitis-related terms. The Google search volume data shows how much the public is interested in or concerned about hepatitis and its symptoms, while official epidemiological data shows the actual disease trends. The study evaluated the potential value of Google

Trends as an additional surveillance system for Central Asian regions.

Ethical Considerations

The study followed all ethical standards from the Declaration of Helsinki, while the Ethical Committee of Osh State University approved the study (WMA, 2013). The study used publicly available aggregated search data and official health reports, which contained no personal or identifiable information, thus minimizing the risk to individual privacy.

Table 1. List of search words and terms

Num	Category	Searching words and terms	Source
Disease definition			
1	Kazakhstan	«Гепатит», «Боткина это», «бауырға салқын тию ауруы»,	Google Trends
2	Kyrgyzstan	«Гепатит», «Боткина это», «Сарык оорусу бул», «Боор оорусу»,	Google Trends
3	Tajikistan	«Гепатит», «Боткина это», "gepatit b haqida",	Google Trends
4	Turkmenistan	«Hepatit nedir» «gepatit näme»,	Google Trends
5	Uzbekistan	«Gepatit»,	Google Trends
6	Russia Federation	«Гепатит», «Боткина»,	Google Trends
7	Belarus	«Гепатыт», «Боткина гэта», «Як перадаецца гепатыт»	Google Trends
Vector of disease			
1	Kazakhstan	«гепатит қалай беріледі»	Google Trends
2	Kyrgyzstan	«Гепатит кандай жуугат»	Google Trends
3	Tajikistan	«чӣ тавр гепатит интиқол дода мешавад»	Google Trends
4	Turkmenistan	«gepatit nädir ýokaşýar»	Google Trends
5	Uzbekistan	"gepatit yugish yo`llari"	Google Trends
6	Russia Federation	«Как передается гепатиты»	Google Trends
7	Belarus	«Як перадаецца гепатыт»	Google Trends

Results and Discussion

The analysis of **Figure 1** Google Trends data on viral hepatitis search activity from 2018 to 2023 across Central Asian countries, the Russian Federation, and Belarus revealed notable variations in public interest over time. All countries demonstrated a significant decrease in search queries during 2020, which corresponds to the COVID-19 pandemic period, potentially reflecting a shift in public focus toward coronavirus-related topics. The search activity started to rise from 2021 until it reached its peak in Kazakhstan, Kyrgyzstan, and Russia. The search volume remained low in Turkmenistan and Uzbekistan throughout the entire period of analysis. The search activity was highest in Kazakhstan throughout the entire period, followed by Russia and Kyrgyzstan, which indicates that these countries had the highest level of information-seeking behavior regarding hepatitis. Tajikistan showed that before pandemic period the interest in Hepatitis was very high more than 1013 in 2019 searches in an average count, but after pandemic the awareness and search interests go(went) down till 542 in 2022 (46,4%), same situation in Turkmenistan in 2018 the searches index was in 865, and decreased till 341 in 2022 (60,5%).

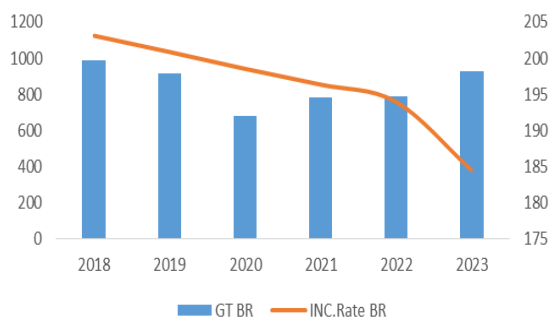


Figure 1. Google trends and incident rates of all acute hepatitis in Belarus

Results of data analysis in **Figure 2**. The comparative analysis of the incidence rates of acute hepatitis across seven selected countries from 2018 to 2023 reveals considerable interregional variation and temporal dynamics. The countries included in this study are Belarus (BY), Kyrgyzstan (KG), Kazakhstan (KZ), Russia (RU), Tajikistan (TJ), Turkmenistan (TR), and Uzbekistan (UZ). The data show yearly patterns that help evaluate the epidemiological patterns of each country.

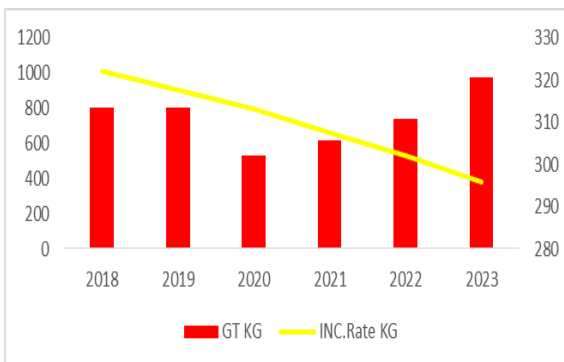


Figure 2. Google trends and incident rates of all acute hepatitis in Kyrgyzstan

The incidence rates of all acute hepatitis types in Belarus (BY) remained stable throughout the study period. The incidence rates began at 200 cases per 100,000 population in 2018 before showing minor year-to-year variations. The rates decreased in 2020 and 2021 before rising slightly in 2022 and 2023 to reach near initial levels. The observed period showed no major changes in hepatitis transmission because the findings indicate continuous hepatitis transmission.

The analysis of hepatitis-related search activity using Google Trends data (GT BY) alongside incidence rates of acute hepatitis (INC.Rate BY) in Belarus as shown in **Figure 1**, from 2018 to 2023 revealed a noticeable decline in public interest, despite relatively stable disease prevalence throughout most of the period. The incidence rate remained stable at 200 cases per 100,000 population until a moderate decrease in 2023, but the digital search engagement decreased each year, indicating a potential gap in health awareness. This divergence suggests that public perception and attention toward hepatitis risks may not align with actual epidemiological trends, possibly due to insufficient information campaigns or reduced media coverage. The results emphasize the need for continuous public health communication strategies to

sustain awareness and promote preventive behaviors, as declining community interest could lead to delayed diagnosis and persistent transmission, undermining hepatitis control efforts in Belarus.

With yearly values regularly around 300 cases per 100,000 population, Kyrgyzstan (KG) had far higher incidence rates than Belarus. With just minor annual fluctuations, the incidence stayed constant from 2018 to 2023. The country has an ongoing public health concern, shown by the constantly high rate of hepatitis cases, which calls for more robust preventive actions and vaccination campaigns.

In Kyrgyzstan, **Figure 2**, the comparative analysis of online search activity related to hepatitis (GT KG) and the incidence rates of acute hepatitis (INC.Rate KG) from 2018 to 2023 demonstrated an opposite trend between public interest and disease occurrence. Although the incidence rates showed a gradual decline from approximately 320 to below 300 cases per 100,000 population, the level of public engagement, as reflected in search queries, remained relatively high, with a marked increase in 2023. The pattern indicates that awareness and interest toward hepatitis prevention in Kyrgyzstan have been maintained or even increased compared to some neighboring countries, possibly because of effective information campaigns or increased public concern. The observed increase in digital search activity in the final year may indicate growing community engagement, which could support preventive actions and contribute to long-term control of hepatitis transmission.

The epidemiological burden in Kazakhstan (KZ) was lower than in Kyrgyzstan but still showed a concerning level of incidence. The data show rates varying between about 220 and 260 cases per 100,000 population throughout the analyzed years. The incidence rates decreased slightly in 2020 and 2021, possibly because of pandemic-related disruptions in healthcare services or underreporting, but returned to previous levels by 2023. The pattern could be due to the partial success of public health interventions, which need additional improvement.

In Kazakhstan, **Figure 3**, the comparison between hepatitis-related search activity (GT KZ) and the incidence rate of acute hepatitis (INC.Rate KZ) from 2018 to 2023 showed different trends. The incidence rate stayed almost the same, about 288 cases per 100,000 people, with only a small decrease in 2023. From 2018 to 2020, the internet interest in hepatitis stayed low, but it started to show a recent increase in 2023. People's search behaviour does not always coincide with the real count of cases. Two possible explanations for the growing search activity in the last period of the research are either that more people started showing interest in hepatitis prevention or that public awareness campaigns succeeded in increasing knowledge about the topic. According to the studies, maintaining public knowledge about hepatitis hazards and prevention strategies still depends critically on efficient health education coupled with information exchange (Sugimori *et al.*, 2022).

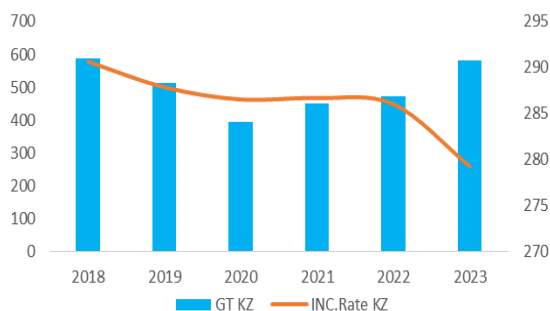


Figure 3. Google trends and incident rates of all acute hepatitis in Kazakhstan

With values usually falling between 170 and 210 cases per 100,000 population, Russia (RU) reported lower incidence rates than the Central Asian nations. The annual dynamics exhibit little variation; 2020 and 2021 show a small dip, then the next years show stabilisation. Although the constant rates highlight the need for ongoing surveillance and vaccination campaigns, especially in sensitive population groups, this trend may imply efficient baseline control mechanisms (Constantin *et al.*, 2022; Mojsak *et al.*, 2022; Frost *et al.*, 2024; Kajanova & Badrov, 2024; Lee & Ferreira, 2024; Rosellini *et al.*, 2024; Umarova *et al.*, 2024).

In Russia, **Figure 4**, the analysis of online search interest about hepatitis (GT RU) and the incidence rate of acute hepatitis (INC.Rate RU) from 2018 to 2023 showed some important differences. The incidence rate slowly went down from about 285 to 255 cases per 100,000 people during this period. However, the search activity on the internet stayed quite high in 2018 and 2019, dropped in 2020, and then increased again by 2023. This means that the level of interest from people did not always match the real number of hepatitis cases. The high search activity at the end of the period may show that more people became interested in the disease, possibly because of health education programs or media attention. These results show that it is important to continue giving people clear and regular information about hepatitis to support prevention and early diagnosis (Alhussain *et al.*, 2022; Balaji *et al.*, 2022; Delcea *et al.*, 2024; Essah *et al.*, 2024; Ribeiro *et al.*, 2024; Uneno *et al.*, 2024).

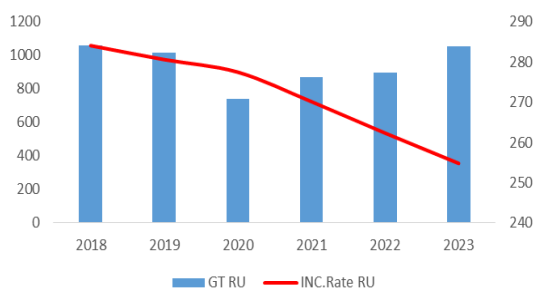


Figure 4. Google trends and incident rates of all acute hepatitis in Russia

Among all the countries we investigated, Tajikistan (TJ) showed the highest incidence rates—more than 350 cases per 100,000 population in several of the recorded years. From 2018 through 2023, the rates stayed shockingly high despite small swings. The data point to a particularly severe epidemiological scenario, maybe

reflecting gaps in vaccination coverage, limited access to healthcare infrastructure, or continuous community transmission chains. These results highlight Tajikistan's desperate need for all-encompassing hepatitis preventive plans (Adeleke, 2022; Razhaeva *et al.*, 2022; Rojas *et al.*, 2022; Sri *et al.*, 2022; Al Abadie *et al.*, 2023; Guzek *et al.*, 2023; Lee *et al.*, 2023; Simonyan *et al.*, 2023; Tsiganock *et al.*, 2023; Sanlier & Yasan, 2024; Aksoy & Akaydin, 2025; Kunie *et al.*, 2025).

In Tajikistan, **Figure 5**, the relationship between online search interest about hepatitis (GT TJ) and the incidence rate of acute hepatitis (INC.Rate TJ) from 2018 to 2023 showed mixed results. The incidence rate stayed high, around 355 to 340 cases per 100,000 people, with a slow decrease over the years. The search activity on the internet was highest in 2019, then went down in the following years, but stayed at a medium level until 2023. This shows that public interest was not always directly connected to the number of real cases. The high number of hepatitis cases suggests that stronger and more regular health education is needed. Keeping people informed about the risks and ways to prevent hepatitis is very important, especially in countries like Tajikistan, where the disease remains a serious health problem.

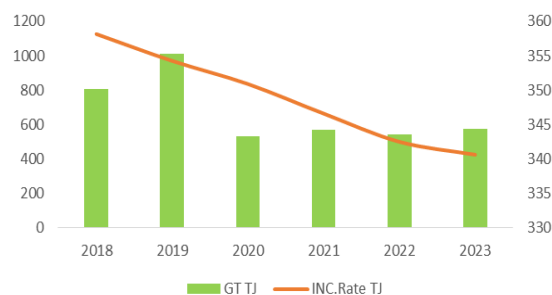


Figure 5. Google trends and incident rates of all acute hepatitis in Tajikistan

In Turkmenistan (TR), the incidence rates were situated between those observed in Russia and Kazakhstan, generally remaining within the range of 200 to 250 cases per 100,000 population. The data reveal a gradual decrease during the pandemic years, followed by a partial rebound by 2023. This trend may be partially attributed to the healthcare system's responsiveness to external health crises and its capacity to maintain hepatitis control measures amid broader public health challenges.

In Turkmenistan, **Figure 6a**, the analysis of hepatitis-related online search activity (GT TR) and the incidence rate of acute hepatitis (INC.Rate TR) from 2018 to 2023 showed similar decreasing trends. The incidence rate dropped slowly from about 330 to 305 cases per 100,000 people over these years. The search activity was highest at the beginning of the period and then decreased sharply until 2022, with a small increase in 2023. This means that public interest in hepatitis became lower while the number of cases also slowly went down. However, the rise in search interest in the last year may show that people started paying more attention again. These results show that regular information campaigns and health education are important to keep the population aware and involved in hepatitis prevention.

The incidence rates of acute hepatitis in Uzbekistan (UZ) were among the highest and most stable throughout the entire study

period, with 300 to 340 cases per 100,000 population. The transmission pattern in Uzbekistan shows continuous endemic spread with little annual change in rates, while some neighboring countries experienced more significant rate fluctuations. The steady hepatitis burden indicates fundamental public health problems that require better vaccination programs, enhanced diagnostic services, and improved hepatitis prevention education for the community.

In Uzbekistan, **Figure 6b**, the analysis of hepatitis-related search activity (GT UZ) and the incidence rate of acute hepatitis (PREV UZ) from 2018 to 2023 showed that both trends moved in the same direction. The incidence rate stayed high, around 370 cases per 100,000 people at the beginning, and slowly went down to about 355 by 2023. At the same time, the internet search activity was highest in 2018 and 2019, then decreased between 2020 and 2021, with some increase again in the last two years. This means that while the number of hepatitis cases stayed high, people's interest in the topic was not stable. The increase in search activity in 2022 and 2023 would indicate that more people grew interested in information and preventive measures. These findings highlight the need for consistent health education to maintain the population well-informed and to assist in the future reduction of the hepatitis prevalence.



Figure 6. a) Google trends and incident rates of all acute hepatitis in Turkmenistan. b) Google trends and incident rates of all acute hepatitis in Uzbekistan

The analysis of online search activity about hepatitis and the incidence rates of acute hepatitis from 2018 to 2023 showed different patterns across the seven countries. The Belarus incidence rate remained steady until 2022 before decreasing, while search interest decreased gradually throughout each year at a low level. The incidence rate in Kyrgyzstan remained high while search activity rose to its peak in 2023, indicating improved public understanding of the issue. The incidence rate in Kazakhstan

remained steady until 2023, when it showed a minor decrease, but search interest started low before increasing during the last year. In Russia, the incidence rate gradually declined, but search interest was high in the first few years, then declined in the middle, before rising in 2023. Search activity peaked in 2019 before declining, indicating a lack of public awareness of the serious situation. The incidence rate in Tajikistan remained at a high level but showed a steady decrease. The incidence rate in Turkmenistan followed the same pattern as search activity until search interest reached its peak in the last year, which might indicate increasing prevention awareness. The search interest reached its peak before declining, while showing a small increase in 2022 and 2023, but the incidence rate in Uzbekistan remained elevated throughout the entire period. The research demonstrates that various countries experience a mismatch between public interest and actual hepatitis cases, which requires sustained health education and continuous information campaigns to boost disease awareness and control.

The results of this study show important differences between the real epidemiological situation of acute hepatitis and public interest, measured through online search activity, in seven countries from 2018 to 2023. The use of Google Trends data as part of digital epidemiology helps to understand how people search for health information outside the traditional health system. This approach is helpful since it reveals an appropriate level of public awareness and engagement, which is necessary for early diagnosis and prevention. Many countries concentrated their health budgets on coronavirus control during the COVID-19 epidemic (2020–2022), so perhaps reducing attention to other diseases, including hepatitis. This period may explain why search interest for hepatitis decreased in several countries, for example, in Belarus, Kazakhstan, and Tajikistan, even though the incidence rates of hepatitis stayed high. In these countries, the health communication about hepatitis may have been weak, and the population was less informed about the risks. In contrast, in Kyrgyzstan and Russia, search activity increased again after the main pandemic period, which may show that information campaigns or public concern returned after COVID-19. Turkmenistan and Uzbekistan also showed some growth in search interest in the last years of the study, which could be a sign of improving awareness or new preventive actions.

The World Health Organization (WHO) has set the goal to eliminate viral hepatitis as a public health threat by 2030 (WHO, 2026). However, the high and stable incidence rates in countries like Tajikistan and Uzbekistan show that this target is still far from being achieved in Central Asia and surrounding regions. Our results imply that it will be challenging to lower the hepatitis incidence without robust and consistent health education initiatives. Countries like Belarus and Tajikistan, where search activity remained low while incidence stayed high, clearly need better public knowledge of hepatitis transmission, symptoms, and prevention, as well as communication strategies.

Digital epidemiology, through the analysis of search data, can help to identify where awareness is low and where more action is needed. For example, the rise of online search interest in Kyrgyzstan and Russia in the last year may suggest successful public health efforts or higher public engagement. This method gives useful extra information, especially in places where traditional surveillance may miss early signs of changes in public

concern. In conclusion, the combination of epidemiological data and digital epidemiology offers a more complete view of the hepatitis situation in these countries. The findings show that to reach hepatitis elimination goals, it is important not only to focus on medical interventions but also to support strong information campaigns, increase awareness through digital channels, and keep the population engaged in prevention programs. Future strategies should include monitoring both incidence rates and digital search activity to better understand public behavior and improve health outcomes.

Future Recommendation

Make Digital Epidemiology part of National Surveillance Systems

Further studies must be based on the concept of incorporating Google Trends and other online sources of data into national surveillance systems of hepatitis. The research paper illustrates that online search behavior is a demonstration of trends in public awareness and, in some instances, predicts a change in the trend of interest in the population before or along with an epidemiologic phenomenon. Central Asia, Russia, and Belarus Ministries of Health would be able to set up regular monitoring boards, which would bring together ancient incidence status with digital search indices. Such integration would enable the timely identification of the dwindling public awareness and prompt execution of the specific programmed action of communication planning (Nuti *et al.*, 2014; Siddiqui *et al.*, 2023).

Cultivate Specific Online Health Education Initiatives in Low-Engagement Nations

There were also never-reducing incidence levels in belief-like attractive countries like Belarus or Tajikistan, with low or decreasing search interest. Structured digital awareness through the application of social media, government websites, and mobile health through local languages should also be considered as a part of strategies in the future. They should conduct research to assess how effective specialized digital campaigns are in stimulating the growth of search, the rate of vaccination, and the level of early diagnosis. Controlled intervention experiments would be able to quantify hepatitis prevention behaviors with respect to increased digital interactions, having a direct effect (Gaur & Gupta, 2021; Siddiqui, 2021).

Extend Research to More Digital Sources of Data

Although this paper employed Google Trends, future studies should also consider using other online platforms like YouTube, Facebook, Telegram, and country-specific search engines that are popular in the Central Asian region and Russia. There are various digital points of entry that will give a better insight into how the population will seek public information. This can be compared to the existing platform so that the demographic differences of awareness may be noted, especially between the younger and older generations (Ornos & Tantengco, 2022; Hafezieh & Pollock, 2023).

Carry out Correlation and Predictive Modelling Research

Future research must use advanced statistical models, such as time-series analysis and predictive models, to measure the statistical

strength and direction of the relationship that exists between search activity and hepatitis incidence rates. It would be of great value to digital epidemiology to establish whether future outbreaks or underreporting periods can be forecasted using search trends. This would also enable the policymakers to rely on the search data as an early warning, but not merely as a descriptive awareness measure (Zhang *et al.*, 2019; Nurzamana *et al.*, 2025).

Enhance the Regional Cooperation to meet the WHO 2030 Elimination Goals

Due to the fact that the incidence rates are always high in Tajikistan, Uzbekistan, and Kyrgyzstan, the collaboration at the regional level should be enhanced with mutual surveillance, a similar vaccination plan, and joint awareness campaigns. Future studies are needed on cross-border transmission dynamics and to align reporting standards in major parts of Central Asia and other companies in the region. Regional digital epidemiology network may be used to track the trends of the population awareness level as a whole and to facilitate a coordinated intervention based on the WHO hepatitis elimination objectives by 2030 (Dadanova *et al.*, 2025; Siddiqui *et al.*, 2025).

Conclusion

A detailed study of acute hepatitis incidence, together with public interest trends throughout Central Asia, Russia, and Belarus from 2018 to 2023, reveals multiple complex patterns. The three countries of Tajikistan, Uzbekistan, and Kyrgyzstan maintained constant high or stable hepatitis incidence rates, but their online search patterns for the disease showed significant variations. The peak of the COVID-19 pandemic activity (2020–2021) caused hepatitis-related queries to decline sharply because public attention shifted to coronavirus issues, which possibly harmed hepatitis prevention and awareness programs. The post-pandemic period brought renewed public interest in Kyrgyzstan and Russia, which experts attribute to successful health communication strategies or increased community awareness. The search interest for hepatitis remains low in Belarus and Tajikistan despite their high incidence rates, which demonstrates the need for better public engagement and educational outreach programs. The search trends in Kazakhstan and Turkmenistan exhibited moderate yet irregular patterns, which failed to align with their actual disease epidemiology, thus demonstrating ongoing difficulties in matching public understanding with actual disease burden. These findings demonstrate that continuous health education efforts, along with digital epidemiology tools, serve as essential tools to track public involvement and boost participation. The WHO's 2030 target to eliminate viral hepatitis faces substantial obstacles because of the ongoing high incidence rates in this region. The achievement of disease prevalence equality with public understanding requires continuous targeted information campaigns to enhance awareness, which will lead to better early detection, prevention, and control measures for these countries.

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Conflict of interest: None

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Ethics statement: This study was reviewed and approved by the IRB of the International Medical Faculty, Osh State University,

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