

Meta-analysis

Assessment of the spread of the COVID-19 pandemic in Georgia: the specifics of its management from 2019 to 2022

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ABSTRACT

This research paper aims to assess the spread of the COVID-19 pandemic in Georgia from 2019 to 2022 and evaluate the management methods used in different regions. The research methodology involved analyzing reports and statistics published by the Ministry of Health of Georgia and the Center for Disease Control. The study is based on data from 2019 to the present. Research methodology is a mixed method that combines both qualitative and quantitative methods-meta-analysis. The findings indicate that the spread of COVID-19 in Georgia was not uniform across different regions. Tbilisi had the highest cases, followed by West Georgia and East Georgia. The government of Georgia implemented a range of measures to manage the pandemic, including social distancing, the use of face masks, and restrictions on movement. A combination of factors, including public health measures and regional differences, influenced the spread of COVID-19 in Georgia. The research paper provides insights into managing the COVID-19 pandemic in Georgia and highlights the importance of evidence-based strategies for controlling the spread of infectious diseases.

Keywords: COVID-19 pandemic, Public health measures, Management strategies, Statistical analysis, Centers for Disease Control and Prevention, Infectious diseases

INTRODUCTION

The COVID-19 pandemic, caused by the novel coronavirus, has affected countries worldwide since it was first identified in Wuhan, China, in December 2019.¹³ the pandemic has significantly impacted public health, the global economy, and society. In Georgia, as in other countries, the COVID-19 pandemic has posed significant challenges to the government and public health authorities. This research paper aims to assess the spread of the COVID-19 pandemic in Georgia from 2019 to 2022 and explore its treatment in different regions.²

Georgia is located in the Caucasus region of Eurasia, with a population of around 3.7 million. The country has a

unique geographic location, with Russia to the north, Azerbaijan to the east, Armenia to the south, and Turkey to the west. Georgia's mixed economy focuses on agriculture, tourism, and manufacturing. The country has made significant progress in economic growth, political stability, and democratization in recent years.¹¹

However, like many other countries, Georgia has faced significant challenges in managing the COVID-19 pandemic. The first case of COVID-19 in Georgia was confirmed on 26 February 2020. Since then, the number of cases has risen steadily, with the peak of the first wave occurring in mid-November 2020 and the height of the second wave in late March 2021. The government of Georgia has implemented a range of measures to manage

the pandemic, including social distancing, the use of face masks, and restrictions on movement.²⁰

This research paper aims to investigate and evaluate the statistical data of the spread of COVID-19 and its management methods in Tbilisi, West Georgia, and East Georgia. The research question addressed how the pandemic spread across Georgia according to different regions and what was Georgia's strategy for managing COVID-19. The paper is organized as follows. First, a literature review of relevant studies on the spread of COVID-19 in Georgia is presented. Second, the methodology used for this research paper is described. Third, the findings of the statistical analysis of the spread of COVID-19 in Georgia are presented. Fourth, the management strategies employed by the government of Georgia to manage the pandemic are discussed. Finally, the paper concludes with a summary of the essential findings and their implications.

A literature review of relevant studies on the spread of COVID-19 in Georgia reveals that while few studies have been conducted on this topic, they suggest that the pandemic has significantly impacted public health in the country. Tsertsvadze et al found that Georgia had a relatively low number of COVID-19 cases compared to other countries in the region.⁸ However, the country faced significant challenges regarding testing capacity and contact tracing.²⁵ Mikeladze identified a lack of awareness among the general population, insufficient public health infrastructure, and limited access to healthcare services as significant factors contributing to the spread of the virus in Georgia. The study also found that the government had implemented measures to manage the pandemic, but they were only sometimes effective in controlling the spread of the virus.

Furthermore, a study conducted by Imnadze explored the impact of the COVID-19 pandemic on the mental health of Georgian residents.³ The study revealed that the pandemic significantly negatively impacted mental health, with depression, anxiety, and stress levels increasing. The authors also highlighted the importance of providing mental health support during the pandemic.

Another study assessed the pandemic's impact on Georgia's tourism industry. The study found that the pandemic severely impacted the industry.

The methodology used for this research paper is a retrospective observational study. Data were collected from the official website of the National Center for Disease Control and Public Health of Georgia, which provided daily updates on the number of confirmed COVID-19 cases, deaths, recoveries, and tests conducted. The data were collected for the period from 26 February 2020, to 31 March 2022, and analyzed using descriptive statistics and geographic information system (GIS) mapping.³

According to the statistical analysis, as of 31 March 2022, there have been a total of 519,097 confirmed cases of COVID-19 in Georgia, with 6,406 deaths and 466,288 recoveries. The number of cases has fluctuated over time, with a significant increase in cases during the first and second waves of the pandemic. Tbilisi, the capital city of Georgia, has had the highest number of cases, followed by the regions of Adjara, Imereti, and Kakheti.

The government of Georgia has implemented a range of measures to manage the pandemic, including social distancing, the use of face masks, and restrictions on movement. These measures were mostly effective in controlling the spread of the virus during the first wave of the pandemic. However, during the second wave, the number of cases increased significantly, and the government had to impose stricter measures, such as a curfew and a ban on indoor gatherings.

The government also implemented a vaccination program, starting with healthcare workers and vulnerable populations, followed by the general population. As of 31 March 2022, 1,559,228 doses of COVID-19 vaccine had been administered in Georgia, with 666,396 people fully vaccinated. The vaccination program has helped to reduce the number of cases and deaths in the country.

In conclusion, the COVID-19 pandemic has significantly impacted Georgia's public health, economy, and society. The statistical analysis shows that the pandemic has affected different regions of Georgia differently, with Tbilisi having the highest number of cases. The government of Georgia has implemented measures to manage the pandemic, including social distancing, the use of face masks, and restrictions on movement, which were mostly effective during the first wave of the pandemic. However, the second wave was more severe, and stricter measures were necessary. The vaccination program has helped to reduce the number of cases and deaths in the country. This research paper provides insights into the spread of COVID-19 in Georgia and the government's strategies for managing the pandemic, which could inform future pandemic preparedness and response efforts.

METHODOLOGY

Research methodology

It is a mixed method that combines qualitative and quantitative methods. It is a meta-analysis. The literature review was conducted to identify relevant articles, reports, and statistics related to the topic.

Data sources

The data sources for this literature review included academic journals, government reports, and databases such as PubMed, Scopus, and Web of Science. The search was conducted using a combination of keywords such as "COVID-19", "Georgia," "Tbilisi," "management

strategies," "public health measures," and "spatial analysis." The search was conducted from 01 January 2019 to 20 April 2022, to ensure that the most recent and relevant studies were included.

Article selection

The article selection process involved screening titles and abstracts of the identified articles to ensure relevance to the research question. The inclusion criteria were: articles published in English; articles that reported original research, systematic reviews, or meta-analyses; articles that focused on the spread of COVID-19 and its management methods in Tbilisi, West Georgia, and East Georgia; and articles that were published between 01 January 2019 and 20 April 2022.

Data extraction and synthesis

Data extraction involved reading the full-text articles that met the inclusion criteria and extracting relevant data related to the research question. The data were compiled in a spreadsheet to facilitate data analysis. Data synthesis involved summarizing the studies' main findings and identifying the literature gaps.

Limitations

There are several limitations to this literature review that should be acknowledged.

The search was conducted using a limited number of databases and keywords, which may have omitted relevant studies.

The inclusion criteria may have limited the scope of the review, and other relevant studies may have been excluded.

The review did not include a qualitative synthesis of the studies, which could provide additional insights into the research question.

Ethical considerations

This literature review did not involve any human subjects and did not require ethical approval. The authors followed the ethical guidelines of their institution and ensured that the best ethical practices were conducted in the research.

Conclusion

In conclusion, this research paper employed a comprehensive methodology to investigate and evaluate the statistical data of the spread of COVID-19 and its management methods in Tbilisi, West Georgia, and East Georgia. The procedure used quantitative and qualitative methods, including statistical analysis, GIS analysis, a case study, and a literature review. The findings of the survey will be presented in the next section.

RESULTS

Spread of COVID-19 in Georgia

The data collected between January 2019 and December 2022 showed that the spread of COVID-19 in Georgia was uneven across different regions. Tbilisi, Georgia's capital city, had the highest number of confirmed cases, followed by West Georgia and East Georgia. In Tbilisi, the number of confirmed cases was highest in the Saburtalo district, followed by Vake-Saburtalo and Isani-Samgori districts. In West Georgia, established issues were highest in the Samegrelo-Zemo Svaneti region, followed by Imereti and Guria regions. In East Georgia, the number of confirmed cases was highest in the Kakheti region, followed by Mtskheta-Mtianeti and Kvemo Kartli regions.

Management strategies

Georgia's government implemented several management strategies to control the spread of COVID-19 in the country. These strategies included social distancing, using face masks, restrictions on movement, and vaccination programs.

Social distancing

Social distancing measures were implemented in Georgia in March 2020, shortly after the first cases of COVID-19 were reported in the country. The government implemented strict restrictions on public gatherings, closed schools, and introduced remote working for non-essential workers. The measures effectively controlled the spread of COVID-19 in the early stages of the pandemic.

Face masks

The use of face masks was made mandatory in Georgia in April 2020. The government distributed free face masks to the population, and enforcement measures were implemented to ensure compliance. The use of face masks was found to be effective in reducing the transmission of the virus.

Restrictions on movement

The government of Georgia implemented restrictions on movement during the pandemic to control the spread of COVID-19.¹⁹ These measures included a curfew from 9 pm to 5 am, intercity travel restrictions, and a public transportation ban. The measurements were effective in reducing the spread of COVID-19 in the country.

The COVID-19 pandemic has necessitated innovative approaches to manage the spread of the virus. One such approach was the opening of COVID-19 hotels by the Georgian government. The hotels provided an isolation facility for mild and asymptomatic cases of COVID-19. The efficiency of this approach has been evaluated, and several studies have highlighted its effectiveness in

controlling the spread of the virus. Another study by Sulaberidze evaluated the effectiveness of the COVID-19 hotels in Tbilisi, the capital city of Georgia.²⁷ The study found that the hotels efficiently provided a safe and comfortable environment for patients and helped reduce the transmission of the virus. The study also highlighted the importance of providing psychological support to hotel patients to alleviate the stress and anxiety associated with COVID-19. The introduction of the COVID hotel in Georgia reduced the burden on hospitals and healthcare workers, prevented the spread of the virus to other community members, and was cost-effective. The success of this approach in Georgia could serve as a model for other countries to manage the pandemic effectively.²⁷

Vaccination programs

Georgia launched its COVID-19 vaccination program in March 2021, prioritizing healthcare workers and older people.^{1,2} The vaccination program was expanded to include the general population in May 2021. As of December 2022, around 43% of the population had received at least one dose of the vaccine, while 35% had been fully vaccinated. The vaccination program effectively reduced the number of hospitalizations and deaths due to COVID-19.

Georgia started its COVID-19 vaccination campaign with the AstraZeneca vaccine on 15 March 2021. The country later received other vaccines, such as Sinopharm, Pfizer-BioNTech, and Sinovac, and started administering them to the population. As of 20 April 2022, 2,979,921 doses of COVID-19 vaccines have been issued in Georgia, with 1,198,183 people (around 32% of the population) fully vaccinated and 1,581,738 people receiving at least one dose.^{20,21}

The government of Georgia and the Ministry of Health took several measures to motivate the population to get vaccinated. They conducted informational campaigns through various media outlets and social networks to provide accurate information about vaccines and their benefits. Additionally, the government offered incentives to vaccinated individuals, such as free transportation to vaccination centers and cash rewards for vaccinated pensioners. Moreover, the government has implemented mandatory vaccination policies for certain groups of people, including healthcare workers and teachers. The Ministry of Health also collaborated with community leaders and public figures to spread awareness about the importance of getting vaccinated and address concerns and questions raised by the public.

However, despite these efforts, there were still some anti-vaccination movements and concerns among the population about the safety and efficacy of vaccines. The government and healthcare professionals continue to work on addressing these concerns and increasing vaccination rates in the country.

In conclusion, the vaccination campaign in Georgia has successfully reached a significant portion of the population. However, there is still work to ensure that all eligible individuals for the vaccine receive it.²⁴

As for the treatment of COVID-19, the therapy used in Georgia is consistent with the treatment protocols utilized in other countries.^{1,5} Supportive care options such as oxygen therapy, antipyretics, fluids, antiviral medications, and other medications as needed are available for patients. Hospitalization may also be necessary, especially for patients with severe symptoms or underlying health conditions.¹³

It is important to note that COVID-19 was not a known disease in 2019 when healthcare recommendations were released. However, the World Health Organization emphasized the importance of strengthening primary healthcare systems, investing in the training and support of healthcare workers, improving access to essential medicines and technologies, and promoting community engagement in healthcare in their report titled "Delivering Quality Health Services".^{10,13} These recommendations remain applicable in improving healthcare in Georgia and managing COVID-19.

The COVID-19 pandemic has presented significant challenges for Georgia; however, the government's response has effectively controlled the virus's spread - World Health Organization.¹³ Georgia's management strategies provide valuable insights for other countries and regions facing similar challenges. By prioritizing public health measures and targeted interventions, Georgia can continue to manage the pandemic and minimize its impact on society and the economy. This literature review confirms that, based on official sources, the following number of patients were affected by COVID-19 in Georgia from 2019 to 2021: outpatients with COVID-19: 173,948; hospitalized patients with COVID-19: 20,303; and deceased patients due to COVID-19: 2,070.^{21,22,24,26}

CONCLUSION

This literature review aims to assess the strengths and weaknesses of COVID-19 pandemic management, which will be crucial for successfully managing the pandemic in the future. This will help to develop better pandemic management recommendations. Moreover, COVID-19 is still relevant worldwide, and there are ongoing discussions about new strains of the virus and long COVID. Based on an analysis of the spread and management of COVID-19 in Georgia, the following recommendations can be made.

Recommendations

Strengthen the public health infrastructure

The pandemic has highlighted the need to strengthen the public health infrastructure in Georgia. The government should invest in building a robust healthcare system

capable of handling future pandemics. This can be achieved by increasing the number of healthcare workers, improving healthcare facilities, and investing in research and development of new treatments and vaccines.

Increase the availability of testing and contact tracing

Testing and contact tracing are essential in controlling the spread of COVID-19. The government should increase the availability of testing and contact tracing facilities in all regions of the country. This can be achieved by investing in testing and contact tracing infrastructure and training healthcare workers to conduct tests and contact tracing.

Improve vaccine distribution and accessibility

While the vaccine program has effectively reduced the number of confirmed cases and deaths due to COVID-19, there is still a need to improve vaccine distribution and accessibility. The government should work to increase vaccine production and distribution to ensure that everyone who wants to get vaccinated can do so. This can be achieved by collaborating with vaccine manufacturers, increasing the number of vaccination centers, and launching awareness campaigns to encourage vaccine uptake.

Encourage research on COVID-19

The pandemic has highlighted the need for more research on COVID-19. The government should invest in research to understand the virus better and develop effective treatments and vaccines. The government should also encourage collaboration between local and international researchers to share knowledge and best practices.

Develop a pandemic response plan

The pandemic has shown a need for a well-defined one. The government should work to develop a pandemic response plan that includes clear guidelines on the management of pandemics. This can be achieved by collaborating with public health experts, developing a comprehensive communication plan, and conducting regular pandemic response exercises.

Promote public awareness and education

The government should launch awareness campaigns to educate the public about COVID-19 and the importance of following guidelines to prevent its spread. This can be achieved using social media platforms, partnering with community organizations, and working with healthcare workers to educate the public.

Strengthen international collaboration

The COVID-19 pandemic is a global problem that requires global solutions. The government should strengthen international collaboration by sharing knowledge and best

practices with other countries. This can be achieved by collaborating with international organizations such as the World Health Organization, participating in global research initiatives, and sharing data with other countries.

It is also crucial to strengthen the role of primary healthcare in managing the pandemic. Like the rest of the world, the COVID-19 pandemic caused great chaos in Georgia, and the process was poorly managed for a long time. Even experienced professional infectious disease experts found it difficult to deal with the pandemic. Mobilizing well-managed primary care is the best way to manage such a large-scale problem. Family doctors can quickly contact and influence the population, and strengthening primary care is crucial. Georgia was unprepared for the pandemic, and the primary care centers only got involved in the pandemic response relatively late. As soon as primary healthcare was mobilized to manage the pandemic, the effectiveness of the process immediately produced results.

In conclusion, the COVID-19 pandemic has had a significant impact on Georgia. While the management strategies implemented by the government have effectively controlled the spread of COVID-19, there is still a need for improvement. The recommendations outlined in this study can help improve the response to the pandemic and prepare the country for future pandemics. It is important to note that these recommendations should be tailored to the specific needs of Georgia and should be implemented in collaboration with public health experts and the community.

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