Environment, Resource and Ecology Journal (2023)
Clausius Scientific Press, Canada

DOI: 10.23977/erej.2023.070304
ISSN 2616-3756 Vol. 7 Num. 3

The Epidemiological Principle of Sewage is the Prevention and Control of the New Coronavirus

Yingying Geng*, Jiamin Tan, Shanxin Zhao

School of Economics and Management, Guangdong University of Technology, Zhaoqing, Guangdong, 526070, China
**Corresponding Author*

Keywords: Coronavirus pandemic, Principles of sewage epidemiology, Sewage discharge

Abstract: The main purpose of our research is whether we can form an epidemic through sewage discharge and pipeline placement in the new crown virus epidemic, And whether it leads to the occurrence of the new crown virus epidemic, Which has a huge impact on the global environment and economy, Discuss whether the distribution of sampling points for wastewater monitoring in the united states is reasonable? how to prevent and control sewage and control the occurrence of the new crown epidemic, First, Establish the responsibility and obligation of human beings - the impact of protecting the environment on the occurrence of epidemics, Second, Establish a corporate culture to reduce the changes in sewage discharge to the environment, Third, Take a positive view of environmental change from a strategic perspective, Give early warning to the local government, Predict the epidemic and its severity, And propose prevention and control measures.

1. Introduction

Experts organized by the National Health Commission found in previous studies that COVID-19 nucleic acid had been detected in fecal samples from cases reported in several provinces. At the moment when the crisis comes, to recognize the importance of crisis management has three characteristics of uncertainty, emergency and prevention[6].In certain cases, the waste ends up in sewage treatment plants. The new coronavirus may form aerosols with the waste water transported, and the virus transported in the sewage treatment, forming an aerosol infection environment! Make the person in charge of sewage treatment a high risk group! During the treatment process, the grid processing section is equipped with mesh machines that use metal mesh bars to block large floating matter and impurities in the inflow. The aeration sedimentation tank and biochemical tank run in aeration mode to meet the oxygen content required by the process and slag metabolism. Due to the rotation of the grid machine and the oxygenation and aeration of the biochemical tank, a large number of water droplets and drops are formed on the water surface, and the microorganisms in the water body invade the air from the water surface. Aerosols of microorganisms formed by droplets or water droplets. In sewage treatment plants, filter presses are used to reduce the moisture content of the sludge to the range required for sludge treatment. Viruses in the mud tend to escape in the air during dehydration. Moreover, sludge dewatering facilities are generally built indoors, with

relatively closed space and insufficient ventilation, and microbial aerosols are easy to accumulate in the air of the sludge dewatering chamber. For these reasons, mesh thickening, sedimentation tank ventilation and biochemical tanks and sludge dewatering chambers are the main sources of bacterial aerosols in sewage treatment plants. A mathematical model is established to effectively study the components to be measured in sewage.

2. Research Background

Since the reform and opening up, the vigorous breakthrough of the industrial revolution has caused endless ecological and environmental problems, but the warning sound of nature has quietly sounded again and again inadvertently. For example: Wenchuan earthquake, Henan flood, Tangshan earthquake, etc., the most shocking thing is that more than two years have passed since the outbreak of new coronavirus pneumonia in 2019, and the new coronavirus has mutated many times, forming 11 variant strains, including alpha α, beta β, Delta δ, Omicron omicron, etc, and perhaps there are still many places that need to be continuously studied and discovered in the future. As mentioned earlier, early researchers viewed social support as a whole, a broad, unified relationship that did not take into account the nature of human relationships, and tended to believe that as long as relationships existed, such relationships would certainly help individuals cope with the difficulties of everyday life. For example, Berkman & Symc's 1979 follow-up survey in California found that “people who lack community ties are more likely to die later in life than those who have closer contact with people.”[2]. Since the outbreak of the novel coronavirus, Chinese scientists have quickly caught the pathogenic novel coronavirus and discovered its transmission route[1]. We also need to continuously protect the environment and protect our ecological home. The coronavirus has affected the standard of living of human beings, and every region of the world has been affected. Studies have shown that personality is significantly associated with employment pressure, but there is currently a significant correlation between personality and employment pressure. The research on employment pressure of graduates mainly focuses on individual traits closely related to stress, such as “extroversion and conscientiousness”, “openness”, “initiative personality” and “forward-looking personality”, and the perspective of the investigation is relatively one-sided, and there is a lack of systematic exploration of stress-related personality factors[5]. Stress and business also live in symbiosis. The concept of “symbiosis” originated from natural science. It refers to the common biological phenomenon that different species can survive by transferring matter and energy to each other[8]. Since the reform and opening up, small and medium-sized enterprises have developed rapidly and have become the most dynamic enterprise group and main force in the domestic economy. The economy in various regions of China has experienced a continuous decline, resulting in small and medium-sized enterprises unable to operate, and the economy has continued to decline until now, achieving economic recession. The emergence of black swans has had a huge impact on the development of small and medium-sized enterprises in China. SMEs include a range of industries, such as retail, transportation, construction, and the number of SMEs in the country has exceeded 30 million at the end of 2018, so the assistance needed by SMEs under difficult conditions in the new form of pneumonia brought about by the new crown has affected the overall economic and social development.

3. Select Characteristic Indicators

3.1 Comparison between China and the United States in Fighting the Epidemic

The contrast between China and the United States against the epidemic has exacerbated anti-China sentiment against hardliners in the United States, exacerbated their strategic concerns, and

accelerated the rupture of economic relations between China and the United States in some areas. By tightening export controls on China, the United States has accelerated the purification of Chinese capital in the field of high-tech and sensitive information. Major industries regulating new technologies, engaged in the arts and sciences, communications, semiconductors, setting up intelligence, security, aerospace On May 15, the Commerce Department and the U.S. Trade and Security Council caressed to change the rule “Restrictions on the Supply of Direct Export Products” to circumvent issues caused by Chinese semiconductor products and China's debate for a year and a half. By tightening export controls on China, the United States has accelerated the purification of Chinese capital in the field of high-tech and sensitive information. The United States believes that China is “dumping” in response to inefficient epidemics, and its retaliation and suppression have brought new challenges to Sino-US economic and trade relations. China and the United States have been actively arguing about the origin of the outbreak and the name of the virus. Trumpe hinted several times that China could “cover up the pandemic” by raising tariffs and even threatened to cut off all ties with China. The United States' requirements on China may become one of the major changes affecting Sino-US economic and trade relations. Currently, the United States has 18 “claims” against China, 16 of which are potential class action lawsuits brought by individuals or civil society, and two of them are lawsuits brought by the attorneys general of Missouri and Mississippi. These lawsuits are taking place in court, but have not yet begun. Many lawmakers insist on amending the sacred provisions of foreign sovereignty to remove institutional barriers to persecuting China. Once Congress makes a legislative decision, the new momentum will ignite the U.S.-China relationship.

3.2 The Impact of the Epidemic on Small and Medium-Sized Enterprises

Our government pays far less attention to the safety of small and medium-sized enterprises than it does to large enterprises or state-owned enterprises. It was only after the 2008 financial crisis that the government began to implement policies to support the financing of small and medium-sized enterprises. Macro impact: Demand and output, investment, consumption, exports have been severely impacted, short-term unemployment has risen, and prices have risen. Preventing outbreaks requires people to avoid large movements and savings, which greatly reduces consumer demand. Workers return to the city, factories are delayed in resuming, enterprises stop production, production is reduced, real estate, capital investment stalls in the short term. Once someone determines that this is an infected area, the exit may be stronger. China's GDP growth fell sharply in the second quarter of 2003, down two percentage points from the previous quarter. Impact on SMEs: The most affected sectors are food, tourism, film, transportation, education and other industries, which raised US$580 million during the 2019 Spring Festival, while no grain was harvested in the spring of 2020. From January 6 to February 10, 2019, the nationwide retail and service company had sales of approximately $150 million. During the Spring Festival in 2019, the total number of tourists in the country increased by 415 million times, while tourism revenue was 519 million yuan, while tourism revenue fell sharply in 2020. At the end of January, the transport sector fell by almost 70%. Trade in real estate was suspended, including construction, finance, agriculture and fishing. The film only assesses the raised $7 million (market expectations and weak) + $500 billion (allegedly) plus $500 billion (allegedly) in the tourism market, with direct economic losses in just seven days, accounting for about $1 trillion in direct economic losses in three sectors, including 46% of GDP in the first quarter of 2019, in addition to other industries. Individual impacts on the microeconomy: citizen corporations, small businesses, salaried flexible workers, migrant workers, etc.

3.3 Data Selection

By studying the 15-day change percentage of the service population in most of the United States and the change of the continuator in most of the United States and the recombinant quantitative analysis of cluster analysis, the preliminary impact of the 15-day change percentage trend of the U.S. service population and the 15-day change percentage is obtained, so as to obtain preliminary conclusions about the impact of the U.S. service population and the 15-day change percentage, the preliminary impact of the U.S. service population and the change trend of the continuator, and conclude that these two conclusions affect the epidemic on the financial internal risk trend. How to avoid risks in the financial industry, how to plan a perfect plan to reduce the bankruptcy of small and medium-sized enterprises and enable small and medium-sized enterprises to continue to operate.

4. Establish and Verify the Univariate Regression Model

4.1 Predict How Quickly the Virus Will Change over a 15-Day Period

Based on the linear regression equation found between the data finding the U.S. population served and the 15-day percentage change,

Table 1. Regression Equation for the U.S. Population Served with 15-Day Percentage Change

	Coefficients	standard error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	33855110	13347774	2.536386	0.011584	7613752	60096468
X Variable 1	-17.5314	32.70654	-0.53602	0.592245	-81.8315	46.7688

The experimental results are shown in Table 1. Calculated from data: Intercept Coefficients=33855110, X Variable 1 Coefficients=17.5314, the resulting linear regression equation is $Y = 33855110\text{-}17.53x$. The regression coefficients are analyzed is β_1=-17.53, Indication: For each additional population served, the percentage of change in 15 days decreased by an average of 17.53%.$R^2 = 0.000725$, It shows that the proportion explained by the linear relationship between the population served and the 15-day percentage change in the change of the 15-day change percentage is 0.000725, and the regression equation fits moderately. The estimated standard deviation error is $S_e = 2.45E + 8$, Indicates that the prediction error is not large. Since the analysis data is known from the ANOVA table is Significance F=0.592245>α=0.05, It shows that the linear relationship of the regression equation is not significant, and the regression coefficient is tested: P-value=0. 592245> α=0.05. It is not significant, it can be concluded that the distribution of wastewater monitoring in the United States is not reasonable0.

When looking at most of California, there are only two seasons: dry and wet. Southern California's tropical deserts have a large climate change, with 10 inches of rainfall per year. Due to the influence of the California Ocean Current, the coastal area has a Mediterranean climate. The average annual temperature is 13 degrees in Los Angeles and 13 degrees in San Francisco, with summers in the mountains, far from the coast, with a warm climate and colder winters. California's high mountains, including the Sierra Nevada, have a mountainous climate with snowy winters and summers not as hot as the living conditions of -19 species, making California vulnerable to large-scale eruptions.

4.2 Analyze How to Take Preventive Measures through Sewage Inspection and Investigation

Table 2**.** **T**he U.S. Serves the Population with the Regression Equation of the Continuator

	Coefficients	standard error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	2596774	81107.09	32.01661	8.90E-225	2437807	2755741
X Variable 1	-1.66167	0.204895	-8.10983	5.08E-16	-2.06326	-1.26008

The experimental results are shown in Table 2. Based on the linear regression equation that finds the data between the U.S. service population and the continuator, it is obtained from the data Intercept Coefficients=2596774, XVariable1 Coefficients=1.66167. The linear regression equation is Y =2596774 - 1.66167x. Regression coefficient is β_1= -1.66167.It is concluded that the number of deaths is increasing in parts of the United States, such as Washington, Missouri, Iowa, California, Nebraska, Kentucky, Pennsylvania, Louisiana, New Mexico, and South Dakota, and the death rate continues to change due to changes in mortality0.

Viruses usually exist in wastewater, so frequent virus routine testing can be analyzed with other data in the table, the standard error number is 67382520.08 range is large, and the proportion of the continuation is very difficult to form effective data, although there is still a certain proportion in it can form a linear regression equation, but the error is too large, so the new crown virus and sewage research American detection sampling points are not very reasonable distribution. Most of our analysis was conducted in areas with more developed populations in the United States, as well as underdeveloped areas. The relationship between the population that can be served and the detection of sewage continuers, and the formation of irregular development routes with regional developed areas and underdeveloped areas, it is necessary to reasonably reduce sewage discharge. Whether the discharged sewage is discharged with reduced chemicals and then discharged into the sewage, the chemical substances will cause the occurrence of many bacteria, which will evolve into viruses.

5. Make Recommendations to the Current Government

Regional environmental surveillance refers to the detection of viruses or other microorganisms or their structural components on wastewater or other environmental samples in the area. Clinical surveillance, on the other hand, involves the systematic collection, analysis, and interpretation of direct health-related data (e.g., throat swabs) and indirect data (e.g., observation of symptoms). Combining these two regulatory approaches has proven useful for planning public health practices.

Viruses are usually found in sewage, so routine virus testing (epidemiological tracking of emerging and possible viruses in aquatic environments) is often performed. During the 2020 pandemic, WBE was used to understand the epidemiology of people producing wastewater. While most of the population is unmarked, WBE enables scientists and health organizations to monitor the spread of the epidemic.

Establish an information exchange mechanism. Relevant public security bureaus, communities, hotels, hotels, etc., strengthen and mobilize the public power that is already in the spotlight to make it a voluntary report. Strengthen the control of epidemics under centralized population control, strict compliance with housing requirements or 14 days of centralized quarantine supervision.

Mobile monitoring of regional airports, railway stations, bus stations, all places, conduct temperature measurement, arrival appointments of major areas, traffic vehicles and social transport and transit vehicles and natural knowledge of the presence of diseases, social management, growing outbreak mechanisms of diseases on grasslands, speed and spread of the virus.

Analysis of potential crises: The investigation of potential crises should answer the following two questions: (1) to find out the type and characteristics of the organization, whether it is a large shopping mall in the bustling city center, or a transportation organization, or a food and beverage

manufacturer, etc.; (2) to list the various crisis accidents that may occur in the organization. For example, there is a flood, a fire, the general manager is kidnapped, the product has quality problems, the product is poisoned, the enterprise is blackmailed, etc[6]. In order to urgently prevent epidemic protective clothing, masks and other urgent needs, Chint people in the international sales, procurement, logistics, administration and other fronts of Chint Group worked day and night and sincerely cooperated to interpret a “love relay” across the globe[4]. Protecting the environment is China's basic national policy, enterprises in the process of operation, environmental protection is a social responsibility that must be fulfilled, the government as a regulatory unit, enterprises to perform environmental protection responsibilities in the process, the government should be proactive, urge enterprises to consciously perform environmental protection responsibilities[7]. Avoid the drawback that it is difficult to handle standalone indicators. Finally, through the comparison of experimental results, it is found that the improved method can improve the conciseness of the reference system and reduce the loss of information[3].

6. Conclusion

Protecting the environment is everyone's responsibility, green and healthy development of China. In order to more effectively promote China's sustainable development. In order to promote green development, the government has introduced relevant policies, given enterprises certain encouragement and development space, and strengthened the supervision and management of corporate environmental issues. In terms of reducing emissions and controlling pollution, it is necessary to establish a specific ecological compensation mechanism to reduce the increase of pollutants. The protection of the ecological environment is not only a symbol of national civilization, but also the responsibility and obligation of individuals and enterprises, and the constraint of national policies. Truly implement this environmental protection work, effectively remove harmful components from pollutants. Consciously abide by environmental protection regulations and reduce the harm of emissions to human beings. Love flowers and trees, love life.

Management guru Drucker said that the modern enterprise “economic, political, social” trinity. The combination of government, society and market forces is the fundamental guarantee for modern enterprises to effectively implement the standards of social responsibility that enterprises should undertake. Therefore, from the enterprise itself, the government and the society to jointly find ways to promote the construction of private enterprises' environmental responsibility implementation promotion mechanism, try to find a comprehensive and comprehensive theoretical perspective of private enterprises' environmental responsibility implementation promotion mechanism0.

References

[1] CHEN Hong. Maintenance of self-psychological safety under the new crown pneumonia epidemic. [J]. Journal of Nanchang Institute of Technology, Health, Vol.39, No.2, pp.4,2020.

[2] HE Zhaiping. Review of foreign social support network.[J]. Foreign Social Sciences, Health, No. 01, pp. 79-85, 2001.

[3] LU Ke, ZOU Qiming, LI Ming, et al. Simplification Method of Index System Based on R-Type Clustering-Factor Analysis. [J]. Computer System Application, Health, No. 5, pp. 6, 2016.

[4] Chen Xiangguo. Fight against COVID-19, fight against COVID-19, fight against energy: The energy industry plays a strong role in the fight against COVID-19 [J]. Energy Conservation and Environmental Protection, Health, Vol. 0, No. 3, pp.10-16, 2020.

[5] SONG Yingjie, MA Cuixia. The Impact of College Graduates' Stress Response Personality on Employment Pressure under the Background of the Novel Coronavirus Pneumonia Epidemic: The Parallel Mediating Role of Coping Styles [J]. Journal of Yellow River Institute of Science and Technology, Health, Vol. 23, No. 4, pp. 7, 2021.

[6] LIU Xiping. Attaching Importance to Enterprise Crisis Management Strategy: Death and Later Life: Response Strategies for Enterprise Crisis Management[J]. Beijing Industry and Commerce, Health, No.05, pp. 4-4, 2003.

[7] ZHANG Meng. Research on the role of local government in the performance of environmental protection responsibilities by enterprises, Jilin University, 2018.
[8] Lu Jiani, Zhang Ren. Research on the Promotion Mechanism of Environmental Protection Responsibility of Private Enterprises from the Perspective of Symbiosis Theory[J]. Market Week, Health, No. 9, pp. 2, 2017.