
SPRING FOUNTAINS AND THE PUBLIC HEALTH

Elena Valkanova

Department of Epidemiology and Disaster Medicine, Faculty of Public Health, Medical University –
Plovdiv, Bulgaria, e.v.valkanov@gmail.com

Rostislav Kostadinov

Department of Epidemiology and Disaster Medicine, Faculty of Public Health, Medical University –
Plovdiv, Bulgaria, rostikosti@abv.bg

Maria Georgieva

Department of Epidemiology and Disaster Medicine, Faculty of Public Health, Medical University –
Plovdiv, Bulgaria, maria_g_georg@abv.bg

Abstract: The water is one of the environmental factors that are essential for the human existence. People rely on this natural resource the quality of which can promote or degrade health and wellness. In accordance to the United Nations' World Water Development Report Bulgaria could be described as a country with relatively significant fresh water resources in comparison with other European countries, both in absolute volume and per capita of the population. As per 2021, access to potable safe water is provided through group village water supply systems to 99.4% of the country's population. Notwithstanding the access to safe potable water, under regular laboratory control of the respective state organizations Regional Health Inspection and The Ministry of Environment and Water, in Bulgaria there is still present practice of increased use of water originated by uncontrolled spring fountains sources. As the current regulations do not require monitoring of water quality at these sources, the spring fountains could present a health risk to the population, especially in the periods (draughts, natural or man-made disasters) with water scarcity. The purpose of this study is to analyze the origin of the population strive to use uncontrolled spring fountains sources that possess risk for individual and population health. Materials and methods: The means of the descriptive and comparative methods were applied for analyzing the historical, religious, ethnographic data related to the populations beliefs and customs about the plausible impact of the spring fountain water on health and wellbeing. Results and discussion: A lot of research papers have been published describing the significance of the water for maintain the life and health – for drinking and cleaning purposes. The plentitude of water springs throughout Bulgaria is providing the population with easy access and utilization of these waters. Almost every region has its own legend related to some of the spring fountains. Some of them, usually located within the sacred walls of the monasteries, churches or shrines are praised as blessed because of their religious symbolic meaning or because of reported miracles. Such sites are related not only to the Christianity but could be traced to the Thracian and Hellenistic goddess or deities. Conclusions: Based on the research findings could be stated that the frequent and widely spread use of the uncontrolled spring fountain waters in Bulgaria could be easily explained with the historical, cultural and religious heritage and it is facilitated by the easy access and plentitude of the fountain springs. It is highlighted their potential usage in case of crises, disasters as an alternative water supply for the affected population that increase the population disaster resilience. The lack of water monitoring and the mining and other industrial sites located close to these water sources could pose a health risk, therefore, as a conclusion the requirement for better understanding of the water quality has to be noted.

Keywords: Spring fountain, Public health, Health risk, Disaster resilience

1. INTRODUCTION

Water is one of the environmental factors that is essential for the human existence. People rely on this natural resource the quality of which can promote or degrade health and wellness. According to the latest WHO report, access to clean water could have prevented 1.4 million deaths and 74 million years of disabled life years in 2019. (Wolf. et al. 2023) In accordance to the United Nations' World Water Development Report Bulgaria could be described as a country with relatively significant fresh water resources in comparison with other European countries, both in absolute volume and per capita the population. In 2021 Bulgaria annual fresh water resources on average per person are estimated at 14,452 m³, including the Danube waters and another external inflow, and without them – 2,936 m³, while UN points the limit for country in "water stress" when the water resources decline below 1,700 m³ per inhabitant. Access to potable safe water is provided through group village water supply systems to 99.4% of the country's population. Only few other European countries – Malta, Luxemburg, Hungary and Cyprus report bigger percentage. The average quantity is 102 l/per capita a day. (The United Nations World Water Development Report, 2022)

Notwithstanding that almost the entire population has access to safe potable water, under daily laboratory control of the respective state organizations: Regional Health Inspection and The Ministry of Environment and Water, in Bulgaria there is still a practice of increased use of water from uncontrolled spring fountains. As current regulations do not require monitoring of water quality at these sources, the spring fountains could present a health risk to the population, especially in the periods (draughts, natural or man-made disasters) with water scarcity.

2. THE PURPOSE of this study is to analyze the origin of the population's strive to use uncontrolled spring fountains that pose a risk for individual and population health.

3. MATERIALS AND METHODS

The descriptive and comparative methods were applied for analyzing the historical, religious, ethnographic data related to the population's beliefs and customs about the plausible impact of the spring fountain water on health and wellbeing.

4. RESULTS AND DISCUSSION

Most of the drinking water used by the population comes from fresh surface waters and groundwater. Fresh surface waters include waters on the surface of the ground, and groundwaters - all water located below the surface of the earth in the water-saturated zone, in direct contact with the earth's layers. In Bulgaria, about 6,300 water sources are used for drinking and domestic water supply, of which about 4% are surface (dams and rivers) and the rest are underground. (EEA) The preference towards underground water is due to the availability and better water quality of these sources.

Evidence for the use of groundwater for drinking and domestic purposes has existed since the early Bronze Age. The existence of water sources is pivotal for the establishment and existence of settlements, shrines, monasteries, etc. Many archaeological finds prove that there were prehistoric settlements, where life was uninterrupted from 6,000 to 5,000 years BC, during the Neolithic period, because of the presence of mineral water.

Many research papers have been published that describe the significance of water for maintaining life and health, for drinking and cleaning purposes. Even bigger are the resources describing the healing capabilities of the water, the mineral ones in particular. From ancient times till nowadays Bulgaria has been famous for its richness of SPA (Sanus per aquam) sites and lately famous resorts. Natural mineral springs such as those in Serdika (Sofia), Hissarya (Augusta), Pautalia (Kyustendil), Germania (Sapareva Banya), Augusta Traiana (Stara Zagora), Medius (Sandanski), Velingrad were known and used since the ancient Thracians, who inhabited our territory. Later, these lands were conquered by the Romans, who had great appreciation for these natural resources and built Roman therms (baths). The mineral water was used for treatment of various diseases and wellness. Bulgarian spas achieved wide popularity during the Roman colonisation and were still actively utilized during the Byzantine Empire and the first Bulgarian state. Later, when the country fell under Ottoman rule, they lost their importance as health centers. (Vassileva, 1996)

After the liberation of Bulgaria from Ottoman Yoke slowly the interest towards mineral waters returned. Since 1930, the Bulgarian Balneological Society has studied the scientific trends of spa therapy. The hydrogeological and chemical analysis of most mineral springs progressively led to a better understanding of their curative properties. Extensive hydrogeological exploration led to the discovery of new hydromineral resources and the promotion of new spas and health resorts that peaked in the 1950s and 1960s. Nowadays, about 200 deposits with over 520 mineral springs are known on the territory of Bulgaria. Most of them are warm or hot and include representatives of all known classes of mineral water. The total estimated flow is 14 000 L/s. The plentitude of mineral water springs throughout Bulgaria is providing the population with easy access to and use of these resources, renowned for their healing capabilities. (Benderev et al., 2016)

The appeal and popularity of springs is demonstrated in Bulgarian folklore. Legends are told about many of the springs in our country. A tsar's daughter recovered from the healing water in Sofia, the handicapped healed after baths in Varshets, and the 20 stab wounds of the outlaw Velko healed after they were watered with water from a mineral well near the village of Banya. Each drop of blood that dripped from a tsar Ivan Shishman turned into a mineral spring. The sad story of the Maiden's Tear spring in Hisarya is still told today. A beautiful Bulgarian woman refused the Turkish bey. She killed him and was sentenced to burn at the stake. As the flames engulfed her, two warm tears fell from her eyes, and a spring gushed out from them.

Since ancient times springs are surrounded by an aura of mysery. Indipascha is a rock shrine and a supposed ancient Thracian vow. Local people consider it one of the most sacred places in Strandja and believe that its water is healing. Visiting the place brings healing, spiritual purification and fulfillment of wishes. (Indipascha) Fairy tales, legends and myths tell of the living water. The one who protects from evil and heals all diseases. Such water is

believed to flow from a bizarre spring with a dragon's head in the village of Bosnek. If an unrighteous person stands before the spring, the water dries up, but if he has a pure soul, it flows with great force. (Bosnek) In the city of Sungurlare, there is the fountain "Ichme", about which the legend tells that every year on the Friday after Easter the water became healing, and the sick, as soon as they washed, recovered. (Ichme)

Legends of miraculous healing create the enchantment around springs. The Roman emperor Ulpius Trajan fell seriously ill with a skin disease and suffered for many years. He was healed in a place he called Pautalia /Spring City"/. (Pautalia) The village of Dobarsko is famous for its church with healing water. The legends that float around the church "St. St. Peter Tiron and Theodore Stratilatus" are about Tsar Samuel's soldiers who discovered the healing water and were cured with it. (Dobarsko) At Karandila near Sliven there is the famous Orlov Izvor or Ptichi Izvor. Known since the time of the Thracians, the Crimean khan Selim Gerai went there for treatment. Also, during the plague epidemic, many people settled there because many of those who touched the spring water got rid of the disease and spread fame throughout the country. (Sliven) The name of Momin prohod is connected with many legend. According to one of them, Pasha's daughter was healed from her crippling disease by the waters of a local spring. (Momin prohod)

In the central part of Stara Planina - near the town of Shipka, there is a spring that is located in the area "Svetitsa". It is known to make miracles happen. One of the legends about the miraculous water dates back to 1402. Then Patriarch Euthymius washed his injured feet and they were instantly healed. He blessed the water. According to trachologists, the water was also sacred to the ancients, who chose the place for their temples in the area nearly 3000 years ago. (Shipka)

Health is not the only wish spring water can grant. The legend of the golden water is one of the most famous legends in the Bulgarian folklore tradition. It tells of a hidden spring whose water can turn into gold anything that dips into it. According to legend, the golden water is hidden and can only be discovered by those with pure heart and soul. (Golden water) In Koprivshtitsa, emblematic for all Bulgarians, there is the Saboryanka fountain. Legend has it that local people sat around the spring, before starting the long journey, and wished that they would return alive and well. (Koprivshtitsa) The old Arbanassi Kokona fountain was constructed in 1786 by Mehmed Said aga. The front part has a stone inscription with raised old-arabic letters says: "The one, who looks at it and drinks, will have light in the eyes and soul". (Arbanasi)

Springs that are located within the sacred walls of the monasteries, churches, or shrines are praised as blessed because of their religious symbolic meaning or because of reported miracles. In Christianity water symbolizes being itself, the entire cosmos, which pleases the Creator, reflects and praises His glory. In all the Holy Scriptures, water is directly associated with human salvation as a means of purification, repentance, and forgiveness. "In the Orthodox Church, water has been used since the earliest times - in the sacraments of Holy Baptism, Holy Eucharist, and in certain prayer sequences that have a cleansing and illuminating character. The latter are called Water Consecrations. Holy water in the Church does not just have a spiritual significance - it is a new reality, a mutual connection between heaven and earth, between grace and matter (the substance of water)". (BP website)

Water is a source of life. It has a special place in customs and rituals. An ancient tradition of building a fountain is still alive today. It is believed to be an immensely good deed that is remembered. The one who did it fulfills a duty, leaves something behind, and sometimes removes a serious burden from his soul. In the mind of a Bulgarian, the building of a chapel and a fountain are the greatest kindnesses that a person can do in his life for others. Fountains are constructed to commemorate beloved and praised people. At Sokolsi Monastery Kolyo Ficheto erects the fountain in memory of the killed rebels from Captain Dyado Nikola's squad. Legend has it that the fountain never runs dry and its water has miraculous powers to heal the sick and ward off curses. (Sokolski)

Based on the research findings could be stated that the frequent and widely spread use of the uncontrolled spring fountain waters in Bulgaria could be easily explained by the historical, cultural, and religious heritage and it is facilitated by the easy access and plentitude of the fountains. This tendency is facilitated by more contemporary considerations as the protection of the environment. Plastic waste is well-known and widely recognized as one of the most critical environmental challenges. Until now, there is limited knowledge about plastic biodegradation. Limiting the use and promoting reuse of these products remains the only reliable method to deal with this problem. (Ali et al. 2021) (Kedzierski et al., 2020) To stimulate these practices an interactive map with the active fountains in Bulgaria is created to guide people who would like to avoid plastic bottles for environmental or health purposes. (Zerowaste)

Apart from the romantic, sacred, or noble reasons for spring fountain water consumption, there is another one that lies deep in population fears and doubts. Bulgarians rank among the most conspiracy theory-prone countries in Europe. (GLOBSEC Trends 2022)

As proven by the COVID-19 pandemic, distrust in the government, media and corporations leads to massive skepticism, especially regarding health. The poor compliance with COVID-19 vaccination is now well studied, but this distrust stretches further. Theories involving intentional water contamination or negligence in water treatment

practices are popular among the population. Many prefer the water from spring fountains because it is not treated and is 'natural'. (Drażkiewicz et al., 2022) (Rohova et al., 2023).

5. CONCLUSIONS

Our research shows a variety of reasons why people use uncontrolled spring fountain water, but the extent of this tendency is not yet established. More research is needed to assess how common this practice is among the population and the possible implications for public health that could arise from it. Additionally, these sources have a potential usage in the case of crises or disasters as an alternative water supply for the affected population that increases the resilience to disasters of the population. The lack of water content monitoring and the mining and other industrial activities close to these water sources could pose a health risk, therefore, as a conclusion the requirement for a better understanding of the water quality has to be noted.

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