



# The Situation with Institutionalized Elderly in Bulgaria during COVID-19 Pandemic

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## Abstract

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**BACKGROUND:** At the beginning of the pandemic, health authorities warned that the most vulnerable group of the coronavirus infection are persons over the age of 65 and in particular institutionalized elderly, as their mortality rate is growing exponentially. Therefore, the protection of old people living in social institutions during the periods of COVID-19 waves is an essential priority.

**AIM:** The study presents information from Bulgarian and foreign surveys and available data from regional, international social and health organizations, government institutions, and departments regarding the situation with institutionalized elderly in Bulgaria during COVID-19 pandemic.

**MATERIALS AND METHODS:** A systematic review was used by searching the Web of Science, Science Direct, Scopus, and PubMed online databases of various legal and scientific sources for relevant and reliable information.

**RESULTS:** Bulgarian old people inhabiting specialized social institutions are at a much higher risk of coronavirus infection and disease. A significant part of them has severe impairments and accompanying chronic conditions, which instantly make them potential, quick, and easy victims of the pandemic. Residents of social homes are isolated from the outside world. They are forced to eat in the common dining room and to share the personal room with another accommodated individual. Compliance with social and physical distancing, as well as hygienic and anti-epidemic measures, turns out to be impossible. They communicate daily with staff who care for them and who are in constant contact with the external environment, which inevitably contributes to the spread of the virus in social institutions.

**CONCLUSION:** The pandemic put institutionalized elderly, a very vulnerable population group, at health risk and affected their well-being. The presented results confirmed the need for urgent change of policies in the long-term care and nursing home sector not only in preparation for future pandemics but also for the overall improvement of the quality of care provided.

## Introduction

For the 1<sup>st</sup> time in Bulgaria, a coronavirus infection spread to a social home for the elderly in the summer of 2020. Since then, the media have reported new and new COVID-19 outbreaks in long-term care facilities. This microscopic virus affected and killed thousands of people in many countries around the world in the spring of 2020 and provoked the implementation of urgent anti-epidemic measures and tough quarantines. In Bulgaria, the new identified pathogen caused the same effect during the second and third wave of COVID-19 – penetration of the infection and its rapid transmission into closed residential services, where hundreds of old people with a weak immune systems and multimorbidity are accommodated. The SARS-CoV-2 has posed additional challenges to the elderly and has become a real and imminent threat to their existence. Unfortunately, for a long period of time, the infection rate in Bulgaria and other nations was spiking [1].

## Goal

This systematic review aimed to present the information on the situation with institutionalized elderly in Bulgaria during COVID-19 pandemic. Bulgaria, as a member state of the European Union, provides similar living conditions for old people accommodated in long-term care facilities in accordance with national and European social legislation. On the other hand, Bulgaria is part of the large family of developing countries in the world, with an extremely low economic status, which determines similar circumstances and factors affecting the way institutionalized old people live, especially in terms of their well-being during the extraordinary epidemic situation. The exposed facts oblige the author to conduct a thorough study on the theme, including a detailed analysis of living conditions in nursing homes of near and far countries in the period of the outbreak, for which representative scientific articles are available.

## Materials and Methods

### Study design

It was used the systematic review by searching the online databases of different legal and scientific sources for the relevant information.

### Inclusion criteria

In this paper, any available original article or official report published in English and Bulgarian presenting data on the situation of Bulgarian institutionalized old people during a pandemic were included in the study.

### Exclusion criteria

Data from research on the situation of Bulgarian non-institutionalized elderly during a pandemic were excluded from the study. All non-original studies, case series, conference abstracts, and unavailable full texts were also removed.

### Study settings

The time frame for the search was from June 1, 2020, to April 30, 2023.

### Sampling methods

Data from different Bulgarian and foreign scientific sources were collected, analyzed, and presented to achieve the set goal. Until now, there is no Bulgarian research to present verified information on this actual topic. Publications reporting outbreaks of coronavirus infection in social institutions for the elderly in the media space cannot be accepted as completely reliable. Therefore, the review primarily refers to data from officially adopted legal documents of the Bulgarian authorities and reports of the European Union institutions and agencies. Regionally, there is a burgeoning scientific literature on the impact of COVID-19 pandemic on European vulnerable groups, especially the elderly and people with disabilities. This allowed to be analyzed and compared the information reported in scientific articles and studies of foreign experts and researchers, who have shared data on similar living conditions in long-term care facilities for the elderly and they mention about the situation of the Bulgarian institutionalized old people during the coronavirus pandemic.

### Data analysis technique

All research studies and officially published reports that have been analyzed are legitimate and similar in nature. Finding reference resources in

the online space of Web of Science, Science Direct, Scopus, and PubMed required the use of keywords and operative phrases. The main search terms were:

1. Bulgarian institutionalized elderly or Bulgarian institutionalized old people
2. Bulgarian social home or Bulgarian long-term care facility or Bulgarian nursing home
3. COVID-19 pandemic or SARS-CoV-2 pandemic
4. All of them.

The screening procedure was conducted in a stepwise manner to sort the eligible results. At the first step, records were screened for their title and abstract. The selection filter was articles and reports addressing the situation with institutionalized elderly during COVID-19 pandemic with a main focus on the order, organization, and living conditions of Bulgarian long-term care facilities, circumstances, and factors affecting health and social status of the indicated target group of persons for the specified period. All ineligible studies were removed. At the second step, the full text of the remaining records was evaluated based on the cohesion to the inclusion and exclusion criteria.

## Results

A total of 41 records were identified. Two articles were duplicates. Following the application of the exclusion criteria detailed in Figure 1, 11 articles

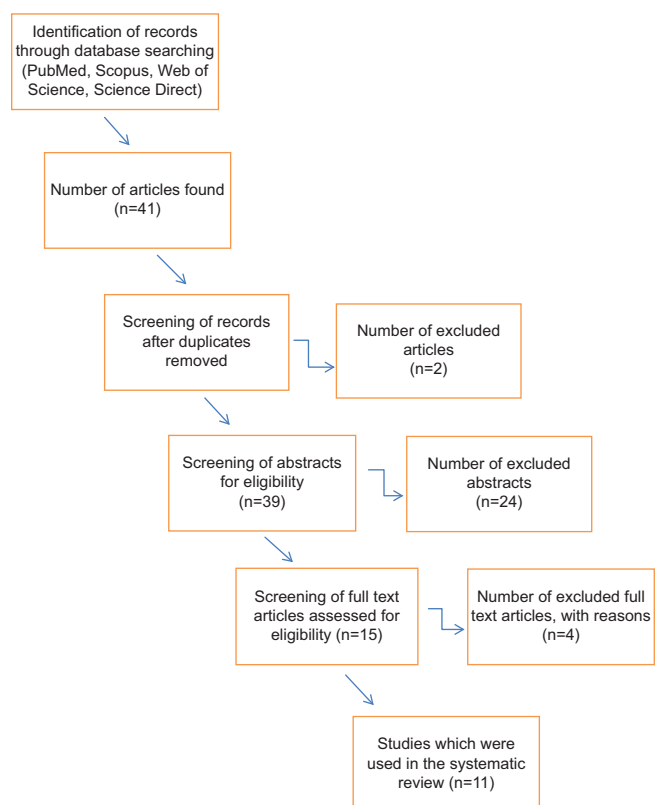


Figure 1: Flowchart of the stages of the systematic review

and reports were included in the systematic review. Nine international research and reports associated with the situation of Bulgarian social homes for the elderly during the SARS-CoV-2 pandemic emphasize the structural and organizing problems of the long-term care facilities, the socio-health characteristics of the beneficiaries, and specificity of COVID-19 disease. In addition, the reviewed and analyzed reports present a wealth of information on the reasons that have made European nursing homes an Achilles' heel in relation to COVID-19. The only found Bulgarian research is a retrospective study including 15 Bulgarian social homes for the elderly, which reveals the difficulties in providing the necessary healthcare for institutionalized old people in the conditions of the outbreak. In the said study, a 100% discharge with coronavirus infection of the residents and service staff was reported, 82% of the elderly were hospitalized, and nearly 57% of them lost the battle with COVID-19. The lack of nurses in Bulgarian social institutions is a well-known problem that escalated during the SARS-CoV-2 pandemic, as well as the mass infection and sickness of a large part of the personnel, which reflects on the quality of healthcare provided. Another study – interrupted time series analyses in 28 European countries – explains the predisposition of nursing homes to elevated rates of transmission of the coronavirus infection, namely, high-risk groups of patients in advanced age, crowding, sharing bathroom facilities, social contacts, and low preparedness for infection control. The authors call for specific attention to the protection of focal microsocieties enriching high-risk elderly subjects, involving nursing homes and chronic care facilities. All included studies overlapped in terms of the stated criteria as reflected in Figure 2. The coronavirus outbreak has revealed weaknesses of the long-term care sector which has not

been prioritized according to the European studies and reports included in the systematic review, as well as a number of representative foreign studies publishing data on the situation of the institutionalized elderly in other countries during the specified period. The pandemic put long-term care recipients, a very vulnerable population group, at health risk and affected their well-being.

### Limitations

This review is based on a well-defined search strategy of maximally effective selection of qualitative and quantitative aspects regarding the real situation of the institutionalized elderly in Bulgaria during the COVID-19 pandemic. It is also important to share the following methodological limitations:

- The inability to cover all relevant articles indexed and existing in the gray literature
- Most of the included studies are observational or they are analyses of reports by Bulgarian authorities and the European Union institutions and agencies.

Therefore, additional research is needed to clarify the real situation of the Bulgarian elderly inhabiting in social institutions during the COVID-19 pandemic identified in this review.

### Discussion

Emerging infectious diseases pose a very special problem for modern society [2]. In 2010, Utsumi *et al.*, using the Medline database, presented information on infectious outbreaks in long-term care facilities and nursing homes that tend to have a significant impact on infection rates and mortality rates of the residents. For the period from 1966 to 2008, the largest number of reported outbreaks in specialized social institutions by a single pathogen was influenza viruses [3]. The community-acquired respiratory viral agents spread mainly from person to person through respiratory droplets and aerosols produced when an infected person coughs, sneezes, or talks. They can also be transmitted by touching something an infected person has touched and then touching a mouth, nose, or eyes [4]. Depending on how virulent the virus is, the indicated mechanisms of airborne transmission could cause exposure and mass contamination. The risk of the SARS-CoV-2 virus spreading in society is also significantly higher among people who are in close contact. The probability of viral dissemination is especially high in long-term care settings where older adults are particularly vulnerable to severe complications and increased morbidity and mortality from a variety of viral infections [5], [6]. Long-term care facilities are institutions such as nursing homes,

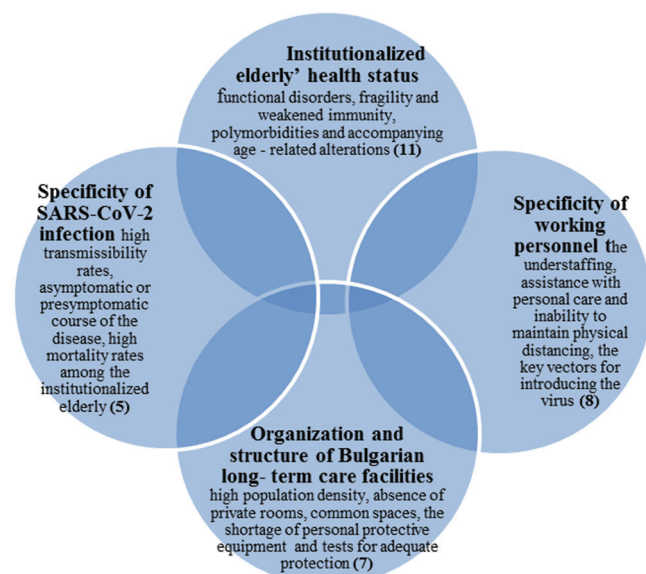


Figure 2: Venn diagram summarizing circumstances and factors affecting the health and life of institutionalized elderly people live in Bulgaria during the COVID-19 pandemic. The number of included research for each established circumstance is in brackets

skilled nursing facilities, retirement homes, assisted living facilities, residential care homes, or other facilities. These facilities take care of people requiring support who find it difficult to live independently in the community due to the interaction between barriers in the environment and physical, mental, intellectual, or sensory impairments, possibly as a result of old age or chronic medical conditions [7].

Most elderly people living in these places have basic conditions for survival, access to health services/resources, and a place to live until finitude arrives [8]. In the European Union/European Economic Area before December 2019, there were an estimated 2.9 million residents in 43,000 of these long-term care facilities types, representing approximately 0.7% of the total population [9]. In addition, according to the data of European Center for Disease Prevention and Control, there were no national incidence surveillance systems in the European Union/European Economic Area for healthcare-associated infections in the specialized social institutions before the start of the COVID-19 pandemic. By May 2020, deaths among long-term care facilities residents accounted for 37–66% of all COVID-19-related deaths in the European Union/European Economic Area, referring to available data of some countries [7]. In August–November 2020, the European Center for Disease Prevention and Control requested European Union/European Economic Area countries to send national surveillance reports and protocols that related to COVID-19 in long-term care facilities in accordance with developed criteria. For the time interval between January and November 2021, 16 (94%) of the 17 participating countries returned periodic surveys. Until now, there is no official information that Bulgaria has developed and maintained such statistics and that it has joined as a participating country in the program implemented by the European Center for Disease Prevention and Control. In Bulgaria, the access of visitors to persons accommodated in specialized institutions or social services for residential care was fully suspended from the introduction of the state of emergency in March 2020 until September 01, 2020 [10], [11]. The Bulgarian Social Assistance Agency issued a set of guidelines for preventing the spread of COVID-19 within these services, including procedures for access of visitors to persons accommodated in these institutions under certain conditions as well as the anti-epidemic measures to be applied. At the same time, there was no explicit prohibition on the possibility for persons accommodated in such services to move freely outside the territory of the service, for example, for the purpose of using home leave or attending urgent personal commitments. From June 2021, it was resumed the accommodation of new users in specialized institutions and in social services of residential type in compliance with the requirements for a negative result from a real-time reverse transcription-polymerase chain reaction test for the detection of SARS-CoV-2 performed within 48 h or a document for a completed vaccination scheme

against COVID-19. Newly arrived residents have to be in separate rooms for 14 days, due to the availability of data in the regional health inspectorates for registered cases of SARS-CoV-2 infection and detection of the new coronavirus in vaccinated persons.

It is known that these institutions are relatively closed and high-occupancy settings. They are commonly homes for the elderly with medical and social vulnerabilities [7], [9], [12]. Institutionalized people have a variety of chronic conditions in an advanced stage that make them fragile and unable to perform self-care and personal hygiene practices [5], [8], [13], [14], [15]. Functional disorders and weakened immunity related to the aging process are an additional reason for subsequent helplessness and deterioration in quality of life of old persons. In most cases, complications and disabilities caused by polymorbidities and accompanying age-related alterations determine and increase the need of continuous assistance in carrying out their daily activities such as bathing, dressing, eating, grooming, homemaking, and cleaning after defecation. Thus, the presence of pre-existing health conditions, compromised immune status, degenerative changes, and functional decline considerably limits the vitality of the elderly, making them more susceptible to contracting the virus, experiencing more severe symptoms on infection, leading to elevated levels of death [16], [17], [18], [19], [20], [21].

In long-term care, large groups of patients cohabit in confined settings with communal meals and many group social activities [5], [22], [23]. They share the same sources of air, water, food, caregivers, and medical care among themselves [24]. Bulgarian residential facilities house individuals in close quarters. Usually, two inhabitants coexist in a room with a shared bathroom and toilet. The immediate vicinity of residents in combination with advanced age, comorbidity, and frailty predispose old people to an even greater susceptibility to contagious infections [25], [26]. The clustering of weak older adults in close proximity allows infections to spread more quickly [27], [28], [29], [30]. High population density, absence of private rooms to sleep in, common spaces such as a dining and living areas, and other organizational hurdles in specialized social institutions have rendered isolation of positive cases challenging [3], [6], [8], [31]. These places do not have the status of hospitals. They have no assigned functions to perform invasive medical manipulations and procedures, which are potentially risky for the health and life of consumers in outpatient performance without the necessary assistance of highly specialized medical teams and modern medical technologies. Residential institutions are neither designed nor equipped to treat serious infections and sudden exacerbations of underlying diseases [5], [8], [32]. Long-term care facilities care for elderly patients in a setting that is less expensive than medical institutions of the third level of healthcare. There, institutionalized people

rely on assistance with personal care and they are unable to maintain physical distancing [33]. Caregivers help them in processes such as nutrition, dressing, and hygiene procedures. Nurses monitor the daily intake of medications prescribed to residents. Social workers provide the necessary help in solving social and financial issues. Regular care deteriorates as staff decline. Substantial disruptions occur in absenteeism of qualified employees and increased and heavy workload of caretakers [8], [11], [24], [34], [35]. The understaffing and fewer workers mean that each caregiver interacts with more patients per day and performs more physically and often emotionally intense work [36]. Residential care for the elderly in Bulgaria is the sub-sector that is most critically affected by the shortage of staff [37]. Bulgaria, together with central and eastern member states of the EU, is facing the phenomenon of “care drain” [38]. Long-term care facilities are unattractive workplaces with difficult working conditions, low pay, constant turnover of personnel, and a dominant labor force from women in a middle and aging age. Retention of adequate personnel and deficit in skilled workforce for the provision of quality services to the semi-dependent and dependent elderly pose challenges and increase the risk of COVID-19 outbreaks even more [3], [5], [8], [11], [38]. Bulgarian workers have in many cases been exposed to higher stress levels, due to high uncertainty regarding the evolution of the crisis, the shortage of personal protective equipment and tests for adequate protection at the beginning of the pandemic, insufficient sanitary procedures related to isolation of potentially infected people, pressure to protect their care recipients, and anxiety over getting infected themselves [11], [32], [38], [39].

The personnel are often one of the key vectors for introducing the virus into facilities [36], [40], [41]. The permanent movement and circulation of social and healthcare staff favor the transmission of infectious agents from the community to these institutions [11], [35], [36], [38], [42]. Many of these employees work at several different locations and maintain constant contact with the society. Caregivers and nurses travel in other risk environments, such as hospitals, other health services, other long-term care facilities, and public transport [34], [43]. The personnel can frequently come and go without limitation, introducing pathogens from another place of work and/or leisure. Due to high transmissibility rates through droplet and contact transmission, respiratory viral infections such as SARS-CoV-2 are brought in by people daily visiting social facilities, in particular employees and workers during the pandemic according to most scientific studies [24], [27], [34], [36], [40], [42], [43].

COVID-19 has both a long incubation period and an extended phase of viral shedding, which further complicates the situation [42], [44]. It is quite possible that ill residents and personnel may have mild, trivial symptoms or they may remain asymptomatic in the course

of their illness, which facilitates the entry and spread of the coronavirus into social institutions [45], [46], [47]. Such a positive correlation between seroprevalence in staff and inhabitants has also been observed, which provides more insight into the role of asymptomatic or presymptomatic people in the transmission of the virus within long-term care facilities. The result of the serology of employees and occupants is for a large part explained by features related to the nursing homes and individual vulnerability [48]. The atypical presentation with a meager clinical picture of this respiratory infection in institutionalized elderly is even more likely among those who are very old, comorbid, cognitively impaired, or frail [27], [34], [48], [49], [26]. The specified scenario creates additional difficulties for the early identification and timely diagnosis of infected old patients and significantly increases the risk of inadvertent transmission and contamination by SARS-CoV-2 in long-term care facilities. In most cases, weak old people who are carriers of multiple risk factors and suffer from incurable chronic illnesses such as diabetes mellitus, obesity, pulmonary and kidney problems, cardiovascular diseases and arterial hypertension, and their concomitant complications are more susceptible to the coronavirus disease [1], [18], [50], [51], [52], [53], [54], [55], [56], [57]. The functional dependence as a result of pre-existing comorbid conditions and age-related loss of physical and mental abilities and immune alterations impairs and reduces the capacity of the old organism to recover from any acute attack [58], [59], [60].

Almost all studies have found that institutionalization is a risk factor for severe COVID-19 infection in elderly patients. Reagan and coauthors ascertain that nursing homes have served as “hotspots” of contagion and, for many countries, are the primary source of COVID-19 deaths [36]. The average of the share of all COVID-19 deaths that were care home residents is 41% based on submitted information from 22 countries that was analyzed and published on February 1, 2021, in a report of Comas-Herrera *et al.* [46]. For the countries where data is available, the share of all care home residents who have died ranges from 0.02% in Singapore and 0.04% in New Zealand to over 5% in Belgium, France, the Netherlands, Slovenia, Spain, Sweden, the UK, and the USA. The authors of the report estimate that over one in 20 care home residents have died linked to COVID-19. Official statistics on the number of infected cases and deaths as a result of SARS-CoV-2 infection in social homes for the elderly in Bulgaria are not available. A survey conducted by Krumova and Uzunova reported a 57% mortality rate in 82% of hospitalized elderly living in nursing homes [32]. During the coronavirus pandemic, the only source of information about successive and growing outbreaks of infection in nursing homes across the country was the media and daily journalistic reports. Along with the weak points of the social and health system in Bulgaria, this vulnerable group of individuals quickly became hostage to the pandemic and an easy victim of the coronavirus.

## Conclusions

The SARS-CoV-2 virus and the devastating consequences that it has caused have emerged as the most acute public health emergency of the past 100 years. In this unprecedented situation, the practice of underestimating the health hazards of the institutionalized elderly was repeated everywhere. In most European countries, including in Bulgaria, long-term care facilities tend to be regarded as the place of “last resort” [61]. On the periphery of public attention and interest, Bulgarian old people accommodated in social homes have become an accessible target for the coronavirus. The advanced age of the inhabitants and their widespread polymorbidities, the congregate living settings, and the current organizational conditions of the long-term care facilities constitute a predisposing environment for COVID-19 prevalence and severity. Residents of nursing homes do not have personal space. They are deprived even of the possibility of self-isolation. Observance of social and physical distance, as well as hygiene requirements, is proving to be practically impossible. Bulgarian occupants are constantly surrounded by personnel communicating with the outside world, which in many places is also the leading source of the spread of the virus. Ultimately, a picture emerges in which institutionalized old people are located geographically and metaphorically “off the public radar,” they are left in the hands of non-specialized in the prevention, much less in the treatment of viral infection, medical or quasi-medical staff as their survival literally depends on the will of fate. Viral pandemics are not from today. On the contrary, they are the leading cause of the loss of millions of human lives in the past. With the experience gained and the lessons learned, more effective strategies can be created to limit the spread of future highly virulent viral agents, and more efficient pandemic preparedness plans can be developed to protect the health and existence of the human population and its most vulnerable groups. Evidence-based guidelines for the implementation of practically feasible and assimilable anti-epidemic measures and policies in every social institution should be introduced. It is necessary for a significant change of policies in the sector of long-term facilities and nursing homes not only in preparation for future pandemics, but also for the overall improvement of the quality of care provided.

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