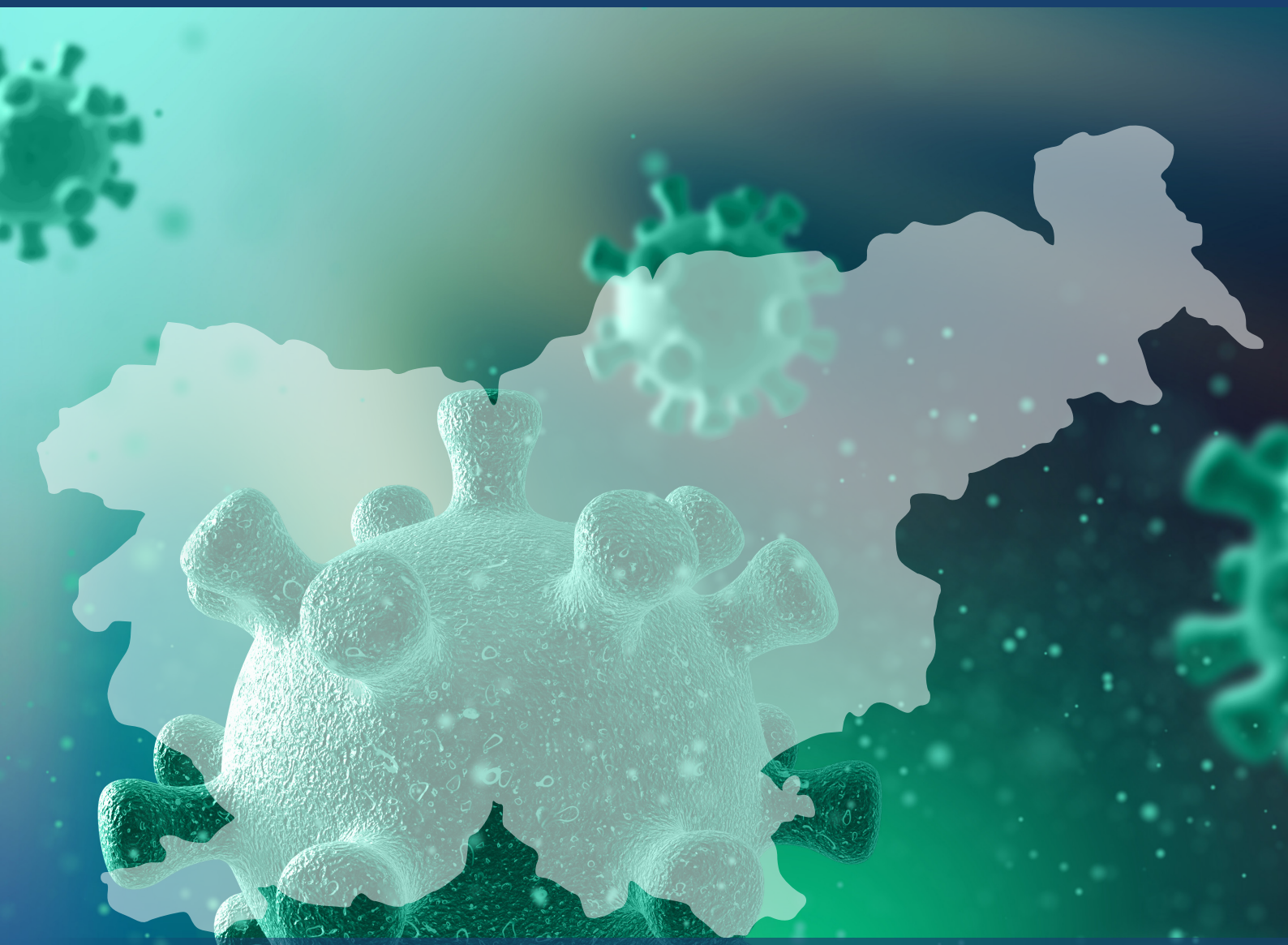
SI-PANDA
Behavioural Insights Survey on COVID-19: Slovenia

NIJZ National Institute of Public Health

100 Years



THE COVID-19 PANDEMIC IN SLOVENIA

Impact on (mental) health, lifestyle, vaccination and access to the health system

ENGLISH SUMMARY OF PUBLICATION

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1 INTRODUCTION

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The COVID-19 Pandemic in Slovenia

In December 2019, the city of Wuhan in the Chinese province of Hubei became the centre of a pneumonia outbreak of unknown cause that attracted a lot of attention not only in China but also internationally. By 7 January 2020, Chinese scientists had isolated a new coronavirus from patients in Wuhan (Wang et al., 2020). The virus, known as SARS-CoV-2, spread rapidly to other countries around the world, prompting the World Health Organization (WHO) to declare a public health emergency of international concern on 30 January 2020. On 11 February 2020, the disease resulting from SARS-CoV-2 infection was officially named Coronavirus Disease 2019 (COVID-19) by the WHO, and exactly one month later the outbreak was defined as a pandemic (Shi et al., 2020; World Health Organization [WHO], n.d.). By mid-November 2020, WHO had reported more than 54 million confirmed cases and more than one million deaths attributable to COVID-19 (WHO, 2020e).

The first cases of COVID-19 in Europe were introduced from China and confirmed in France and Germany at the end of January 2020 (National Institute of Public Health [NIJZ], 2022a). In February 2020, a large outbreak swept neighbouring northern Italy and, by 19 March 2020, the total number of confirmed deaths from COVID-19 in Italy (3,407) had exceeded the total number of confirmed deaths from COVID-19 in China (3,253) (WHO, 2020b). As of 28 March 2020, the total number of confirmed cases of COVID-19 in the USA (85,228) surpassed the total number of cases in China (82,213), making the USA the country with the highest number of confirmed cases in the world (WHO, 2020c).

The first case of COVID-19 in Slovenia was confirmed on 4 March 2020 in a person travelling from Morocco. On 12 March 2020, the Slovenian government declared an epidemic. A number of measures were put in place to contain and control the spread of SARS-CoV-2 infection (NIJZ, 2022a). According to the WHO, on the day the epidemic was declared in Slovenia a total of 125,260 cases of COVID-19 had been confirmed worldwide, and 4,613 deaths (WHO, 2020a). A month later, on 12 April 2020, the figures had risen to 1,696,588 confirmed cases and 105,952 confirmed deaths worldwide, with Slovenia recording a total of 1,213 confirmed cases and 61 deaths (NIJZ, 2022c; WHO, 2020d).

Figure 1 shows the number of confirmed cases of SARS-CoV-2 infection, the number of deaths from COVID-19, the number of confirmed cases of COVID-19 admitted to hospital, and the number of confirmed cases of COVID-19 admitted to intensive care units.

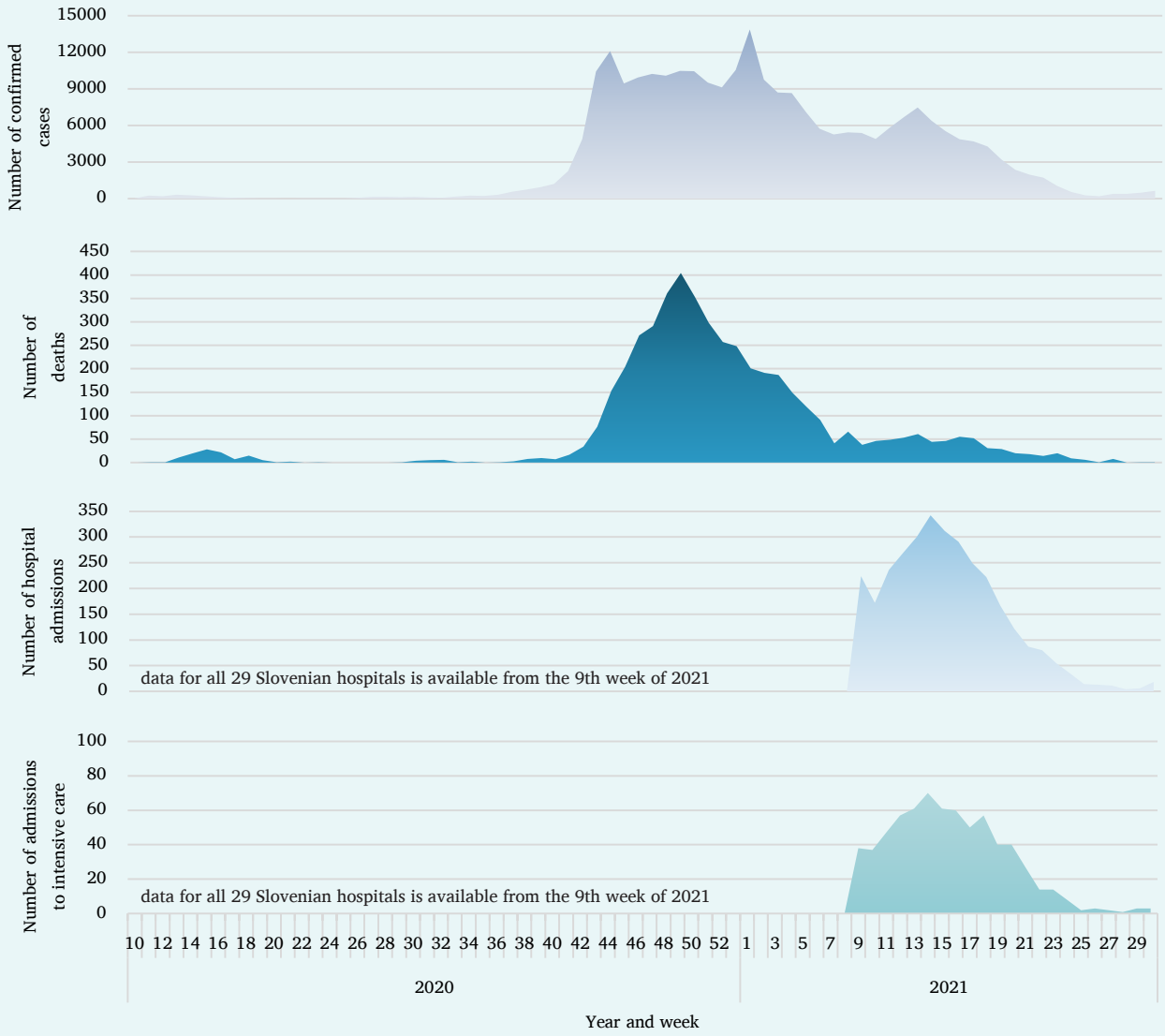

*Figure 1: Number of confirmed cases of SARS-CoV-2 infection, number of deaths from COVID-19, number of confirmed cases of COVID-19 admitted to hospital and number of confirmed cases of COVID-19 admitted to intensive care units between March 2020 and July 2021**

*Explanation of variables from top to bottom: weekly number of confirmed cases of SARS-CoV-2 infection; weekly number of deaths from COVID-19 (underlying cause of death); weekly number of confirmed cases of COVID-19 admitted to hospital; and weekly number of confirmed cases of COVID-19 admitted to intensive care units (ICUs).

Slovenia had a relatively stable period of confirmed cases until September 2020, after which the number of confirmed cases started to increase relatively rapidly. It remained high until the end of 2020. In 2020 (weeks 10–53), 125,309 cases of SARS-CoV-2 infection (6% of the population) were confirmed (NIJZ, 2022a). As we entered 2021, we reached a new peak of 10,734 confirmed cases in the first week of the year, after which the number of infections started to decline. The next peak in infections occurred in week 13 of 2021 (6,992 confirmed cases), when the first SI-PANDA cross-sectional survey was just being finalised. At the time of the second SI-PANDA cross-sectional survey (18–28 weeks 2021), there was a gradual decline in the number of confirmed cases until week 25 (234 confirmed cases), which then remained at a relatively similar lower level until the end of the first half of 2021.

The first peak in mortality with the underlying cause of death given as COVID-19 was recorded at the beginning of the epidemic in Slovenia in week 15 of 2020 (28 deaths, NIJZ, n.d.a). The surge in confirmed SARS-CoV-2 infections in September 2020 was followed by a rise in mortality with the underlying cause of death given as COVID-19 in October 2020, peaking in week 49 of 2020 (437 deaths). The weekly number of deaths then gradually fell, although the number of confirmed cases remained high, until the figure of 60 deaths recorded in week 7 of 2021. Thereafter, the number of deaths with the underlying cause given as COVID-19 remained at a relatively similar level until week 17 2021 (63 deaths), although there was again an increase in the number of confirmed cases during the same period (with a peak in week 13 of 2021). After week 17 of 2021, the number of deaths fell again. The lowest number was one death in week 28 of 2021.

In Slovenia, 3,390 people (161.4/100,000 inhabitants) died in 2020 and 3,062 people (145.3/100,000 inhabitants) died in 2021 with COVID-19 identified as the underlying cause of death (NIJZ, b.d.b).

As of week 9 of 2021, 29 Slovenian hospitals were included in the national network for epidemiological surveillance of serious acute respiratory infections (EPISARI network). EPISARI data enables the incidence of severe acute respiratory infections with SARS-CoV-2 requiring hospital admission to be monitored on a weekly basis. Figure 1 shows that the second peak in confirmed cases in week 13 of 2021 was followed by a rise in hospital admissions for serious acute respiratory infection (SARI) with confirmed COVID-19, with a peak of 342 admissions in week 14 of 2021 (NIJZ, 2022d). The number of hospital admissions as a result of COVID-19 then fell, as did the number of confirmed cases in the country. In week 28 of 2021, when the second SI-PANDA cross-sectional survey was completed, we recorded the lowest number of hospital admissions for COVID-19 in 2021 (four admissions).

The number of people with confirmed COVID-19 requiring treatment in intensive care units (ICUs) correlated with hospital admissions for the same cause. According to the data available for 29 Slovenian hospitals from week 9 of 2021 onwards, the peak of admissions to the emergency department was recorded in week 14 of 2021, with 70 admissions during the observation period (NIJZ, 2022d). Thereafter, the number of admissions of people with a confirmed case of COVID-19 fell, with the exception of a resurgence in week 18 of 2021 (57 admissions). Similar to the number of admissions to hospitals for the same reason, the lowest number of admissions to the emergency department in 2021 was in week 28 of that year, when one person was admitted.

1.1 Dimensions and consequences of the pandemic

The COVID-19 pandemic has profoundly changed our lives and undermined the most basic foundations of social well-being here and around the world (OECD, 2020). Various measures to prevent and manage the disease, such as wearing a mask in public, keeping a physical distance, home schooling and avoiding public events, have eroded our sense of control and normality. The COVID-19 pandemic and the subsequent closure of the country also caused major economic difficulties and obstacles, causing some companies to fail and others to change their approach or activity. During this time, the percentage of employees working from home increased sharply. Working from home and the changed conditions in workplaces, schools and other institutions during a pandemic are expected to reduce employee satisfaction, engagement and performance. Despite flexible schedules, women expressed dissatisfaction mainly with work-life imbalance during the pandemic, while dissatisfaction among men was associated with fewer education and training opportunities during COVID-19 (Rozman et al., 2021). In addition, many parents and extended families struggled with childcare issues and the responsibilities of school and home-based work. As home environments turned into schools and offices, the working conditions of mothers and fathers changed considerably in comparison with the conditions faced by non-parents. Parents had less time in the day for paid work, and faced frequent interruptions while working from home. An online survey was conducted in Slovenia during the first closure of institutions and restrictions of movement (March–May 2020) to analyse how the closure of nurseries and schools during lockdown changed the time allocation of parents who worked from home compared to non-parents. The study also focused on differences in the impact of lockdown by gender, family status and employment sector. The main finding was that Slovenian parents who worked from home experienced a significant increase in the burden of unpaid work, which was partly reflected in a decrease in time spent on paid work and leisure (Bartolj et al., 2022). Slovenian parents reported about two hours less paid work and four hours more unpaid work per day during lockdown compared to those without children. The results also showed that, before lockdown, women did more unpaid work and enjoyed less leisure time than men. However, lockdown did not further increase gender inequality.

The pandemic also affected transport and all types of business transport worldwide. As a result of the restrictions, all domestic flights, rail services (except freight trains), bus services, freight services and vehicle services were suspended, with the specific exception of those related to basic goods. In almost all countries affected by COVID-19, educational, commercial, sporting and spiritual institutions were closed (Chakraborty and Maity, 2020). The closure of schools, parks, playgrounds and recreational facilities reduced opportunities to maintain an active lifestyle. To understand the effects of the COVID-19 pandemic and various interventions on physical activity and screen time, an online survey was conducted in Europe about two months after the WHO declared a global pandemic (Kovacs et al., 2022). The aim of the study was to examine physical activity and screen time among European school-age children during this period, and to understand the factors that may be associated with adherence to physical activity and screen time guidelines in these specific contexts. Recommendations suggest that children and adolescents should be moderately to vigorously physically active for at least 60 minutes a day, and spend no more than two hours a day in front of screens (Bull et al., 2020). The results of a study by Kovacs et al (2022) showed that Slovenia had the highest proportion of sufficiently active children among European countries. It also showed that children in Slovenia spent most of their time playing outdoors, both on weekdays and weekends. Interestingly, Slovenia also had

the highest proportion of children meeting the screen time recommendation compared to other European countries (Kovacs et al., 2022). An April 2020 survey of over-18s that examined the differences between Italy and Slovenia in daily health-related practices as a result of COVID-19 found that physical inactivity increased more in Italy (65%) than in Slovenia (21%) (Pišot et al., 2022). It found that time spent on sporting activity increased in Slovenia (by 9.7%), but decreased in Italy (by 37%).

In addition to the challenges related to physical activity, there were also changes in people's eating habits. First and foremost, there were some changes to the shopping habits of the Slovenian population. A cross-sectional online survey of 2,680 people in Denmark, Germany and Slovenia found that between 15 and 42% of respondents changed the frequency with which they shopped for certain foods during the pandemic (Janssen et al., 2021). The biggest changes were seen in increased purchases of frozen and tinned foods, cakes and biscuits. Factors associated with increases and decreases in individuals' frequencies of consumption of different food categories were mainly constraints, income loss and sociodemographic characteristics (Janssen, et al., 2021; Vukasovic, 2021). Online shopping rose during lockdown (Vukasović, 2021). A study conducted at the Faculty of Health Sciences in early 2020 investigated the impact of COVID-19 lockdown on changes in dietary habits, physical activity and serum markers in adult Slovenians (n = 38). They found that diet quality was poorer during lockdown (the healthy eating index decreased from 64.59 to 61.08), but that it improved again after lockdown was lifted (Bogataj Jontez et al., 2021). Despite lower levels of physical activity, no significant changes in body composition were observed during lockdown. There were significant increases in serum glucose, total cholesterol and low-density lipoprotein (LDL) after lockdown. The increase in serum glucose levels was more pronounced in subjects with a higher increase in energy intake, increased omega-6 fatty acid intake, those who were exposed to more risky contact, and those who were not active outdoors.

In addition to the direct effects on various behaviours, jobs and incomes, the pandemic increased people's anxiety and worry, and affected social relationships, trust in other people and institutions, personal security and sense of belonging (OECD, 2020). The COVID-19 pandemic also led to increased fears, worries and insecurity, which increased the likelihood of poorer mental health. In the five days following the declaration of the pandemic in Slovenia, 2,722 people completed an online survey measuring mental health and stress perception, health-related variables and personal resilience (Kavčič et al., 2021). Hierarchical logistic regression analyses showed that female, younger and less educated participants were more likely to have less favourable psychological functioning during the COVID-19 outbreak. In addition, poorer health indicators and concerns about COVID-19 infection predicted poorer psychological functioning. Resilience was a key factor in promoting good psychological functioning during the COVID-19 pandemic, providing a further buffer against the adverse effects of various factors on mental health and perceived stress (Kavčič et al., 2021). Podlesek and Kavčič (2020b) used a web-based survey of adult Slovenians (n = 1,359) in April 2020 to investigate whether the increased emotional experience during the COVID-19 pandemic was reflected in altered cognitive functioning. There was a perceived deterioration in people's abilities as a result of fatigue, a deterioration in sleep quality, negative emotions and the impact of restrictions. At the same time, the authors collected data from adult Slovenians (n = 901) on their experiences during the COVID-19 pandemic, specifically with regard to emotional reactions and anxiety, via an online survey. A higher tendency towards anxiety was found among women and the unemployed, single people and students (Podlesek and Kavčič, 2020b; Podlesek and Kavčič, 2021). The negative impact of the pandemic on the mental health of Slovenian students was also confirmed by Cesar and colleagues (2020) in their study. An online survey was conducted at the beginning of 2021 (February–March) that showed that more than half (54.9%) of the students

surveyed had moderate to severe symptoms of depression and anxiety (51.3%), with a higher prevalence among women. Around 5% of respondents reported having suicidal thoughts almost every day. General anxiety was recorded among students, mainly related to the perceived impact of constraints (Podlesek and Kavčič, 2021), with relationships with friends and the possibility of establishing new intimate relationships being subject to the greatest hindrances (Levpuček and Poredoš, 2022). High levels of psychological distress were also associated with changes in tobacco and alcohol use (Vanderbruggen et al., 2020). Self-reported changes in alcohol and tobacco use during the first months of the COVID-19 pandemic were recorded in 495 adult Slovenians in the European Survey on Alcohol and COVID-19 (Radoš Krnel et al., 2022). In a survey conducted in Slovenia between 14 May and 30 June 2020, about half the respondents reported no change in their frequency of drinking during the first months of the pandemic, while 26% reported a decrease and 24.2% an increase in alcohol consumption (Radoš Krnel et al., 2022). However, there was a fourfold increase in drinking among those worried about financial losses compared to others. Similarly, about half the respondents reported an increase in tobacco use, while a decrease was observed in 20% of respondents.

There were also disruptions to the provision of and access to health services during the COVID-19 pandemic. All non-emergency health services were suspended, although oncology services in Slovenia were placed on the list of exceptions (Zadnik et al., 2020). However, as cancer treatment and management also depends on other health services, Slovenian data (from November 2019 to May 2020) was analysed to see if this had an impact on the diagnosis and treatment of different cancers in Slovenia. Compared to the average (November 2019–February 2020), the reduction in April 2020 was approximately 43% for pathology and 29% for clinical cancer notifications, and 33% for referral to initial, 46% for referral to follow-up and 85% for referral to genetic examinations. While the authors state that the decrease was expected, they do not claim with certainty that it was due to the impact of the pandemic (Zadnik et al., 2020).

In addition to all preventive measures, vaccination emerged as one of the key measures in the fight against SARS-CoV-2. Although vaccination is widely recognised by the health and medical community as an effective way of reducing or eliminating the burden of infectious diseases, its benefits also depend on the willingness of individuals to be vaccinated. Vaccination against COVID-19 began in Slovenia on 27 December 2020, initially using the Pfizer/BioNTech vaccine. Due to limited vaccine supplies, nursing home residents and staff, as well as some healthcare workers, were vaccinated first. Vaccination was then carried out, in line with supply, among pre-defined priority groups: health workers, care home employees and residents of care homes and social care institutions, persons aged over 80, 75 and 70, especially vulnerable chronic patients regardless of age, persons aged over 65, employees in education, officials, employees of the police and the Slovenian army, etc. These groups were then followed by all other inhabitants, in accordance with the order of vaccination applications. Vaccines manufactured by Moderna and AstraZeneca were made available at the beginning of 2021. The mRNA vaccines were initially used for people aged 65 and over, while the AstraZeneca vaccine was used only for people aged between 18 and 64. The Janssen vaccine was made available from April 2021. The very limited quantities of vaccines available meant that it was not possible to choose which vaccine to receive. On 15 March 2021, use of the AstraZeneca vaccine was temporarily suspended to clarify thromboembolic events temporally related to vaccination that had occurred in some countries. All adults were eligible for vaccination from May 2021. Free choice which vaccine to receive was available from the end of June 2021 (Figure 2).

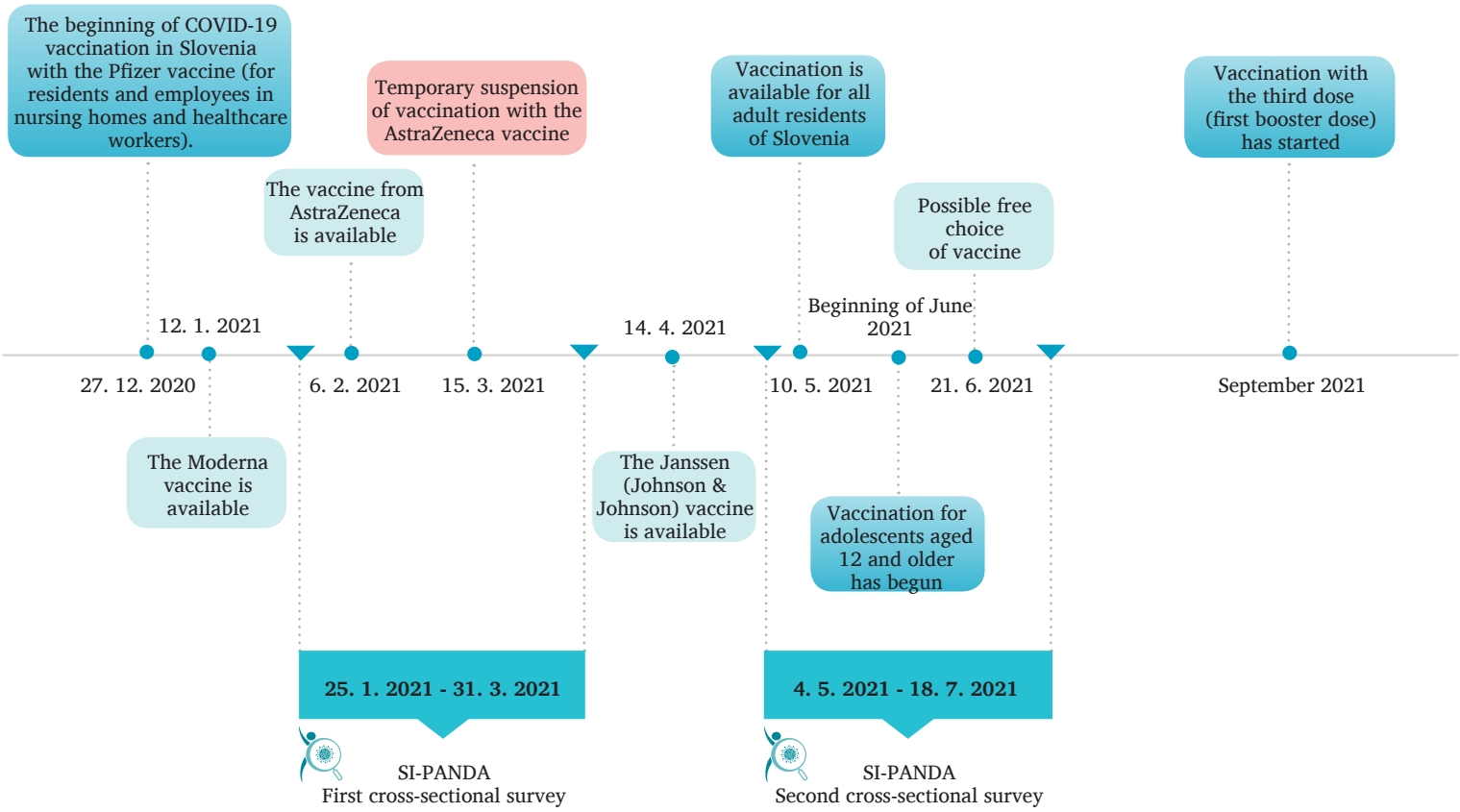

Figure 2: Vaccination against COVID-19 in Slovenia

Belščak Čolaković and colleagues (2020) set out to examine the reasons behind decisions for and against vaccination. To this end, a qualitative focus group method was used to discuss attitudes towards the pandemic, vaccination and COVID-19 vaccines with participants. Participants were overwhelmingly positive about vaccination against COVID-19, believing that vaccination was the only way to exit the pandemic and to release restrictive measures. The main concerns against vaccination were the speed of vaccine development and the possible short- and long-term side-effects of vaccination. Participants also felt that while there was a lot of information available, it was inconsistent, contradictory and sometimes too technical, and that it was difficult to identify the most credible or trustworthy information. The problem of vaccine hesitancy was not new, but became more pronounced with the new COVID-19 vaccines. In Slovenia, a cross-sectional online survey was conducted in December 2020 to determine the population's attitudes towards vaccination against COVID-19 and the factors influencing these attitudes (Petravić et al., 2021). Based on 12,042 completed questionnaires, it was found that men, the elderly, doctors, medical students, respondents who had received a flu vaccine, those who knew someone who had been hospitalised or died from COVID-19, and those who had higher levels of trust in experts, institutions and vaccines displayed a greater desire to receive a vaccine. Vaccine mistrust was more common among nurses, technicians (Petrovič et al., 2021) and students (Vrdelja et al., 2020). The results of this study showed that less than a third of student respondents had no intention of receiving a vaccine, and just as many were still undecided. During the pandemic, there were also many news stories containing false and misleading information. These created fear and uncertainty in people

(infodemia). In Slovenia, higher propensity to believe such conspiracy theories was observed among women, those in a worse financial situation and those with lower levels of education (Žagar et al., 2020). As Slovenia is a country with a relatively low level of trust in political institutions, this was also reflected in lower compliance with preventive measures (Hafner-Fink and Uhan, 2020).

In early December 2020, the National Institute of Public Health launched the SI-PANDA online panel surveys to investigate the impact of pandemic COVID-19 on people's lives. The surveys were initially repeated fortnightly, then monthly. After a break of a few months, they were resumed in September 2022 on a monthly basis. They were carried out among people aged between 18 and 74. The measurement instrument used in the surveys was designed in collaboration with the World Health Organization and adapted to the Slovenian context. It then changed over time, adding questions that proved important to ask during certain waves of the pandemic. Initially, it was adherence to measures to prevent the spread of SARS-CoV-2, which was consistently very high, as well as support for the measures in place at the time, the most widely supported of which was wearing a mask in public in the early days of the survey. However, at least half the people surveyed described support for the current measures as excessive. The survey also checked vaccination intentions, although vaccines were not yet available in the early months of the survey or were only available to certain sections of the population. Throughout the surveys, about half the participants said that they would get vaccinated once a vaccine was available. According to the September 2022 survey, when the majority of adult Slovenians had received their first vaccine dose (68%) (Electronic Register of Vaccinated Persons and Post-vaccination Adverse Events, 2022), only a good quarter of those taking part in the survey said that they did not intend to get vaccinated or could not be vaccinated for health reasons. Other topics that were relevant in the surveys were SARS-CoV-2 testing, lifestyle, financial situation during the pandemic, and trust in people and institutions to adequately manage a pandemic (trust in general practitioners was most frequently expressed throughout the survey). All iterations of the survey also included a mental health questionnaire to measure the prevalence of mental health problems or depressive symptoms. Mental health problems or symptoms of depression were present in at least 26% of people, with the proportion occasionally reaching 40% at times during the survey. During the pandemic, problems were most pronounced in the youngest age group (18–29 years) covered by the survey. In subsequent research from December 2021 onwards, the topic of long Covid or post-Covid syndrome, or the impacts on their health and well-being that some people experienced following SARS-CoV-2 infection, became a highly topical issue. The most frequently reported problems were related to feeling unwell, tiredness and lack of energy. On average, across all the surveys, people who suffered post-infection problems reported two problems after recovering from Covid-19 infection. The key findings of the SI-PANDA online panel surveys are published in reports available on the NIJZ website: https://nijz.si/zivljenjski-slog/izsledki-panelne-spletne-raziskave-si-panda/.

1.2 Measures to contain the spread of COVID-19 during the first SI-PANDA cross-sectional survey

Before the first cross-sectional survey was launched, a number of measures were put in place that affected people's experiences, lives and health, and helped us understand the full context of the responses and findings (Figure 3). From 19 October 2020, distance learning was available for primary school pupils from Year 6 onwards, as well as for secondary and music schools. All events and sporting activities were banned, except for those involving elite athletes. Nightclubs and cinemas were closed. Restaurants, hotels, shopping centres, hairdressing and beauty salons, student hostels and dormitories were closed. Public transport was limited. Nursery schools were only open for essential childcare purposes. Solo or guided sports recreation for individuals was allowed from 4 January 2021, subject to distance limits (one person per 50 square metres and 5 m distance between people). However, gyms, swimming pools and sports halls (with exceptions), museums and galleries were closed at the beginning of January, and only pick-ups were allowed from libraries. When the cross-sectional survey was launched, the measures gradually began to be relaxed. At the end of January, nurseries and schools opened in some regions for pupils in the first three years, only to close again in every region. The number of exemptions for crossing the border without a negative test or quarantine was limited.

In all regions, all shops of up to 400 square metres in size, beauty services, one-to-one vocational training and first-cycle schools opened in early February 2021. Border checkpoints were abolished, and border crossings were possible without quarantine and without persons who had been vaccinated or who had recovered being required to test. On 15 February 2021, the ban on crossing municipal or regional borders was lifted, gatherings of up to ten people were permitted, all shops were permitted to open, and all primary schools were opened for pupils of all years. Secondary schools opened for final-year students, and universities allowed exams and practical exercises for up to ten people. On the same day, non-contact recreational exercise was allowed in groups of up to ten people, subject to a two-metre distancing requirement. At the beginning of March, all secondary school students returned to school and dormitories reopened. At the end of March 2021, the timing of restrictions on movement changed (from 9 pm–6 am to 10 pm–5 am) and travel to red zones was banned (except for the vaccinated and recovered). A stricter border regime was introduced (crossing conditional on an EU/Schengen PCR test, border only to be crossed at designated border crossing points).

1.3 Measures to limit the spread of COVID-19 during the second SI-PANDA cross-sectional survey

Stricter measures came back into force on 1 April 2021 (Figure 3). At the proposal of the Ministry of Health's Expert Group on Epidemic Control, the Slovenian government imposed a measure of almost total shutdown of public life, which lasted from 1 to 11 April. During this period, inter-regional movement, gatherings, festivals, rallies, weddings, celebrations and the collective exercise of religious freedom were banned. Schools and nurseries were closed, as were non-essential shops, museums and galleries. Sporting activity, except where it involved elite athletes, was once again banned. Restrictions were placed on public transport and on office work for public administration employees. The wearing of masks outdoors was also mandatory. This provision was then changed on 10 April 2021, with masks mandated only when social distancing of 1.5 m could not be ensured. Measures had been eased slightly by mid-April. All children returned to primary schools and nurseries, to Model C secondary schools and to some music school classes. The night-time curfew (10 pm to 5 am) was lifted. All shops and most services reopened, although regular testing was mandatory in some cases. Libraries, museums and galleries also reopened, as did driving schools. Recreational exercise for up to ten people (minimum distance of two metres) was permitted, as were elite-level sporting competitions. Several exemptions for crossing the border without quarantine and for travel outside the country were reintroduced. Restrictions on hospitality service in gardens and terraces between 7 am and 7 pm were gradually relaxed in some regions (and in all regions by the end of the month). Indoor dining was permitted in yellow regions. Public meetings of up to 100 people and gatherings of up to ten people were permitted. At the end of April, restrictions on inter-regional travel were lifted, and training in groups of up to ten people and all sports competitions (no spectators, conditional upon testing) were permitted. All schools, including universities and colleges, were reopened. At the same time as the second cross-sectional survey was launched in May 2021, hotels were able to return to 50% occupancy, and indoor dining was permitted in all regions (under the RVT (recovered/vaccinated/tested condition). In mid-May, cultural events were allowed at 50% occupancy (RVT condition), as were gatherings of up to 50 people. Restaurants and bars were restricted to opening between 5 am and 10 pm. Secondary schools and colleges released all measures. There were no longer any restrictions in place at organised public meetings and events (except for social distancing requirements). At the end of June, restrictions were lifted for almost all services, as were restrictions on the opening hours of bars and restaurants. The border regime changed: an RVT condition was put in place for orange countries and a PCR test with quarantine was required for red countries (except for the vaccinated and recovered). In July the country-by-colour list was abolished, and RVT or ten-day quarantine was made a condition of entry into the country (Figure 3).

The aim of this publication is to present the findings of the first and second SI-PANDA cross-sectional surveys related to different aspects of the health, life and behaviour of the Slovenian population during the COVID-19 pandemic. We have presented details of mental health and psychological resilience, accessibility of the health system, non-pharmacological measures to contain the pandemic, vaccination against COVID-19, diet, physical activity, sleep, use of tobacco and related products, drinking of alcoholic beverages, domestic violence, experience of the pandemic, pandemic fatigue and the impact of the pandemic on cognitive abilities, the consumption of and trust in sources of information on COVID-19, and the prevalence of susceptibility to conspiracy theories.

We present the findings by gender, age group, level of education, activity status, marital status and, in some sections, also by assessment of personal financial situation in the last three months, the presence of mental health problems, the presence of chronic diseases, some determinants of health (obesity, smoking), vaccination against COVID-19, the cohesion region of residence, the characteristics of the household in which the respondent lives (whether or not the respondent lives alone in the household, whether or not they live with children under age of 18), etc. The results were compared with other Slovenian and international studies. The data collected in this publication will provide key information for experts and decision-makers on pandemic fatigue in the general population and on the impact of the pandemic on the lives and health of the Slovenian population.

We are now past an important and special period in our history, and the SI-PANDA survey was designed to shed light on how this period was lived and experienced by the people of Slovenia. It is important that we record our findings so that at least some of the lessons and experiences of the pandemic are preserved for future generations.

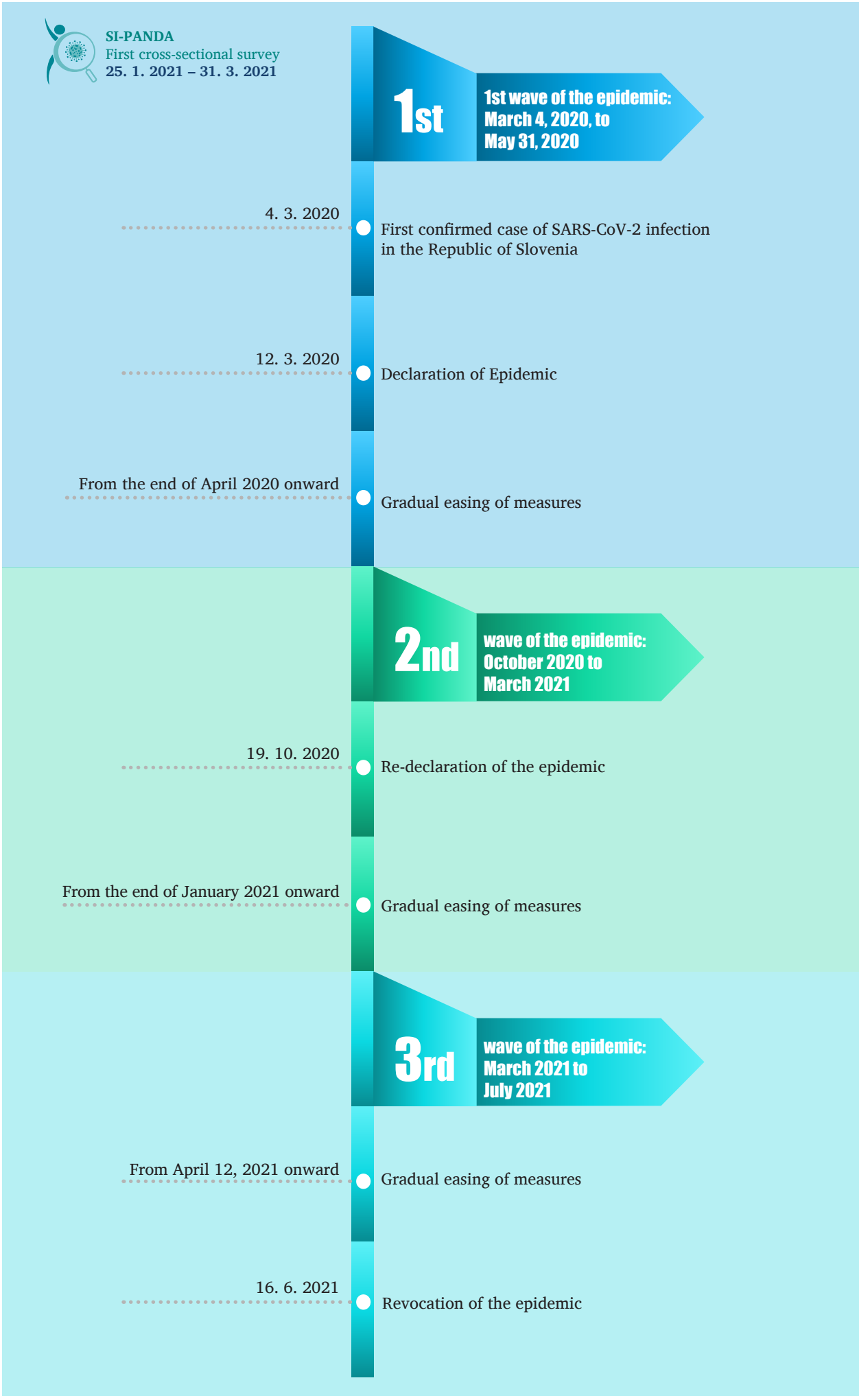

Figure 3: Measures to contain the spread of COVID-19

Complete closure of public life in the country

Visits prohibited in nursing homes
Closure of schools and kindergartens, student dormitories (remote learning)
Prohibition of gatherings and movement in public areas
Ban on public transportation and air travel
Suspension of non-essential preventive health services
Closure of all non-essential stores, restaurants, hotels, spas, cinemas, museums, etc.
Prohibition of services: hairdressing, cosmetic services, and other services
Prohibited sports and recreational services
Restricted dispensing of medications in pharmacies (for 1 month, 1 package)
Cancelled specialist examinations, surgeries, and other non-essential forms of treatment
Mandatory wearing of masks (nose and mouth protection)

Complete closure of public life in the country

Limited gathering of people
Closed shopping centers, nightclubs, cinemas, restaurants, hotels
Restricted movement between regions, later between municipalities
Restriction of movement during the night from 9 pm to 6 am
Closure of schools and kindergartens, student dormitories – remote learning
Prohibition of events and sports activities
Prohibition of services (hairdressing and cosmetic services, etc.)
Limited public transportation (later prohibited)
Mandatory wearing of masks in enclosed public spaces and outdoors

Complete closure of public life in the country from April 1 to April 10, 2021

Closure of schools and kindergartens – remote learning
Closure of all non-essential stores, museums, libraries, services, restaurants
Limited public transportation – holiday schedule
Prohibition of movement between regions
Prohibition of gatherings
Mandatory wearing of masks, even outdoors
Prohibition of (organized) sports activities
Prohibition of church ceremonies with congregants
Restriction of movement from 10 pm to 5 am

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2 METHODOLOGY

AUTHORS: *Maruša Rehberger, Darja Lavtar, Aleš Korošec*

2.1 Purpose and objectives of the survey

The Behavioural Insights Survey on COVID-19: Slovenia (SI-PANDA) 2021 consists of two quantitative cross-sectional national surveys among adults in Slovenia. The initiative to study the impact on life of the COVID-19 pandemic came from the World Health Organization (WHO). Similar surveys have been carried out in other EU countries.

The aim of the study on the impact of the pandemic on people's lives is to investigate and understand people's behaviour in relation to Covid-19, and to assess pandemic fatigue during and after the COVID-19 pandemic in Slovenia. This study aims to identify and address the impact of the COVID-19 pandemic on the Slovenian population.

We wished to study the impact of the pandemic on life during and after the pandemic. However, the pandemic had not yet run its course by the time the data was being collected for the second cross-sectional survey. This summary of monography examines the state of the population during periods of worse and better epidemiological conditions. The two studies are therefore treated separately. Depending on the period of data collection, we named the surveys the SI-PANDA First Cross-Sectional Survey and the SI-PANDA Second Cross-Sectional Survey.

2.2 Survey sample

The target population for both SI-PANDA cross-sectional surveys were adult inhabitants of Slovenia living in private households (i.e. non-institutionalised adults). In accordance with the Annual Statistical Surveys Programme for 2021 (LPSR 2021, Naloga 09.19: Pandemska izčrpanost) and the National Statistics Act, the Statistical Office of the Republic of Slovenia drew a sample of persons according to the sampling plan. The sampling frame for both surveys was the Central Population Register. Each sample was drawn on the basis of a stratified simple random sampling design. The total sample included 16,000 people who were at least 18 years of age on the day the survey commenced. The sample was split into two sub-samples so that data was collected at two points in time. A total of 8,000 people were initially invited to participate in the survey, which was held when the epidemiological situation was worse and when more protective measures were in place (SI-PANDA First Cross-Sectional Survey). The same number were invited to take part in the SI-PANDA Second Cross-Sectional Survey, which was held during a period when fewer measures were in place. The first data collection process took place between 25 January and 31 March 2021 and the second one between 4 May and 18 July 2021.

2.3 Method of data collection

Data was collected using a mixed-mode survey, i.e. a combination of a computer-assisted web-based survey (CAWI) and a paper-based questionnaire (PAPI). The participants selected were informed about the survey in a notification letter sent by post by the NIJZ. Persons under the age of 55 were first invited by notification letter to participate in the online questionnaire only, while persons aged 55 or over were sent a paper questionnaire and a return envelope with the NIJZ's address (enabling them to return the completed questionnaire free of charge), in addition to a notification letter containing the password for the online survey. People who wanted to take part in the online survey could access it using a unique password contained in the notification letter. Paper questionnaires with a return envelope were sent with reminders to all non-respondents, irrespective of age, later in the survey (Figure 4).

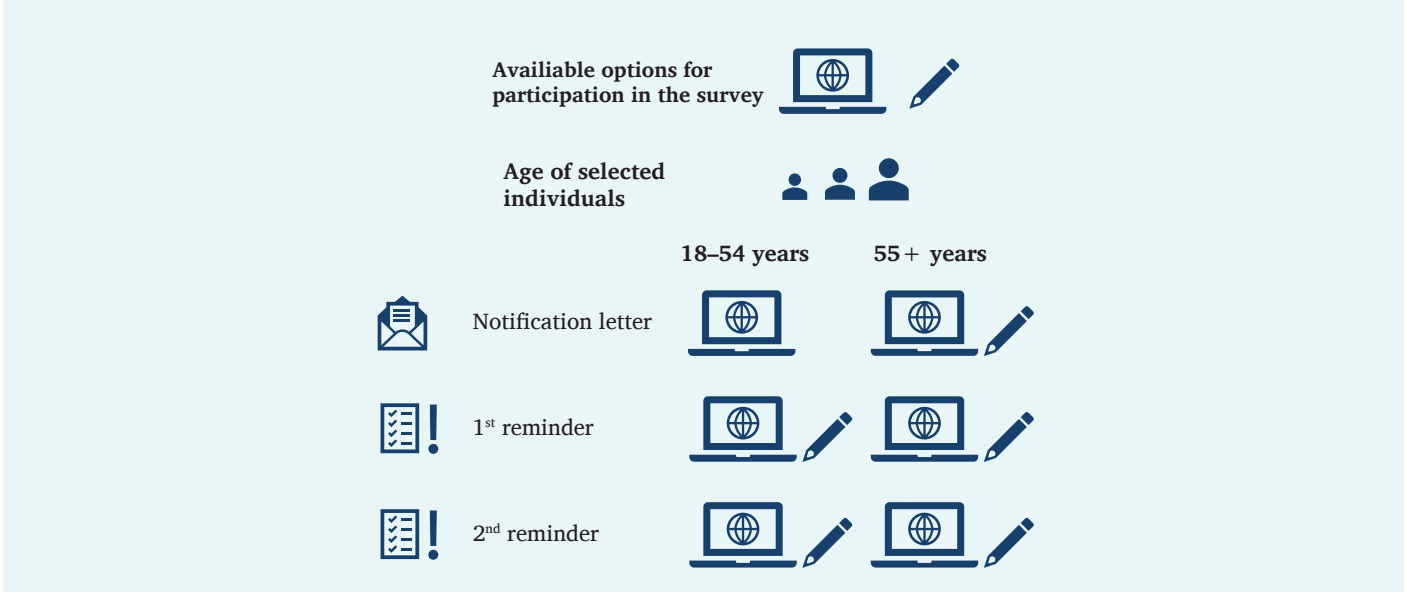

Figure 4: Invitation scheme according to the sequence of invitations and the age of the persons selected in the sample

2.4 Survey response rate

The sample for the first cross-sectional survey included 8,000 people. The same number of people were included in the sample for the second cross-sectional survey.

In the first cross-sectional survey, 176 of persons sampled were ineligible (133 ineligible persons in the second cross-sectional survey). They were ineligible because, for example, they were living abroad for the whole of the data collection phase, were unable to participate due to illness, were hospitalised at the time of the data collection, lived in a collective household (e.g. retirement home, monastery, various institutions, single persons' homes), were deceased, or were unknown at the address to which the letters had been sent. In the first cross-sectional survey, another 7,824 persons were eligible, of whom 3,994 did not participate in the survey, either because they refused to participate or because it was not possible to contact them at the time of data collection (4,837 such persons in the second cross-sectional survey).

In the first cross-sectional survey, 3,830 interviews were carried out: 62.6% were by paper questionnaire and 37.4% were by web-based questionnaire. In the second cross-sectional survey, 3,030 interviews were carried out: 64.5% were by paper questionnaire and 35.5% were conducted online. The response rate in the first cross-sectional survey was 48.9% and the response rate in the second cross-sectional survey was 38.5%.

The unit outcomes of both surveys are given in Table 1.

Table 1: Outcome of the first and second SI-PANDA cross-sectional surveys and the response rates

Survey period	First cross-sectional survey	Second cross-sectional survey
Number of units in the sample	8,000	8,000
Ineligible units	176	133
Eligible units	7,824	7,867
Refusals, non-cooperation	3,774	4,837
Responses	3,830	3,030
Paper surveys (PAPI)	2,399	1,953
Online surveys (CAWI)	1,431	1,077
Response rate	48,9 %	38,5 %

2.5 Poststratification

The purpose of weighting data is to improve the representativeness of the sample so that it is as representative of the population being studied as possible. Each unit in the sample therefore represents a certain number of units of the target population. The final weights were calculated from the sample weights (due to the unequal probability of selection into the sample), the non-response weights and the calibration weights. This allows adjustments to be made to known population values by gender, five-year age groups, three levels of education and statistical region. The weighting was done for the whole target population using a reference date of 1 January 2021 for both cross-sectional surveys.

Table 2: Characteristics of the population of Slovenia included in the cross-sectional surveys

Survey period	First cross-sectional survey		Second cross-sectional survey	
	n	%	n	%
Total	3,830	100.0	3,030	100.0
Gender				
Men	1,910	49.9	1,510	49.8
Women	1,920	50.1	1,520	50.2
Age group				
18–29	567	14.8	448	14.8
30–39	642	16.8	507	16.7
40–49	684	17.9	542	17.9
50–59	673	17.6	533	17.6
60–69	620	16.2	490	16.2
70 and over	644	16.8	509	16.8
Level of education				
Primary education or lower	773	20.2	612	20.2
Lower or secondary vocational education	680	17.7	529	17.5
Secondary vocational or general education	1,408	36.8	1,123	37.1
Tertiary education or higher	969	25.3	766	25.3
Activity status				
Employed, self-employed	2,047	53.6	1,600	52.8
Pupil, student	294	7.7	240	7.9
Retired	1,140	29.8	935	30.9
Unemployed	237	6.2	147	4.8
Other	104	2.7	107	3.5

Weighted sample data that matches population data reflects the structure of the population (in terms of the variables involved in the data weighting process: gender, five-year age groups, three levels of education and statistical regions) being studied, and the monograph presents analyses of the weighted data that allow generalisation from the sample to the target population under examination (Table 2).

2.6 Analysis of results and statistical methods

Different statistical methods were used to identify associations between the selected variables within each cross-sectional survey, or to allow a comparison between the first and second cross-sectional surveys.

The association between the two categorical variables was determined using the chi-square test ($\chi 2$). As the same variable was involved in several comparisons, we took the Bonferroni correction into account. In this case, even if the test showed a statistical significance level of $p \leq 0.05$, it was not necessary to label the differences between the groups as statistically significantly different, as the criterion was stricter. A two-tailed test was used to test for differences in response rates between groups within the same sociodemographic variable (e.g. proportion of current SARS-CoV-2 infection by age group – comparisons between all different pairs of age groups). Here again, the Bonferroni correction for the interpretation of differences and p-values was taken into account. We also compared the proportions of individual responses between the first and second cross-sectional surveys within the same demographic group.

For the numerical variables, we used one-way analysis of variance (ANOVA) to analyse the means, and to determine whether the groups were statistically significantly different from each other.

2.7 Explanatory variables used

The basic presentation of the studied areas of the impact of the pandemic on life, which are presented in the individual chapters of the scientific monograph, was carried out by means of socio-demographic variables included in the questionnaires or calculated from the basic variables: gender, age category, level of education attained and employment status. Some chapters of the monograph are also explained by perceptions of financial situation in the three months prior to the survey, mental health, household composition and other categories.

The age of the respondents was calculated into ten-year age groups (18–29, 30–39, 40–49, 50–59, 60–69, and 70 and over).

The level of education attained was defined using eight categories in the questionnaire, which were then grouped into four categories for the analyses: primary education or lower (incomplete primary education, primary education); secondary vocational education; secondary vocational or general education; tertiary education or higher (higher professional education, post-secondary education, higher professional education, university higher education, specialisation, master's degree, doctorate).

Activity status was calculated from a variable with seven categories. We grouped the employed and self-employed in the first category, followed by students, pensioners and the unemployed, and the second category (housewives, homemakers, persons incapacitated due to age, illness or disability, and other activity statuses that did not fit into any of the above categories).

When perceiving their financial situation in the last three months, people only reported an assessment of whether their personal financial situation in the last three months before the survey was better, worse or the same as before (we did not know their basic financial situation).

The presence of mental health problems or depressive symptoms in the last 30 days prior the survey was measured using the WHO-5 instrument, which calculates mental well-being for an individual from five survey questions into three categories: high likelihood of mental problems/ possibility of mental problems/no mental problems.

Some other explanatory variables used in the analysis:

- SARS-CoV-2 infection (yes/no);
- presence of chronic disease (no disease/at least one detected at any time);
- obesity (yes/no);
- current smoker (yes/no);
- cohesion region of residence (Eastern Slovenia, Western Slovenia).

Depending on the characteristics of the household in which the respondents live, the explanatory variables sometimes used are:

- whether the person lives alone in the household (yes/no);
- whether the person lives with children under 18 years of age (yes/no);
- whether the person lives with people who are at risk of contracting SARS-CoV-2 (yes/no).

2.8 Questionnaire

The survey was carried out using the WHO methodology and other internationally recognised questionnaires for specific topic areas, so the results are also comparable with similar surveys carried out in other EU Member States.

The questionnaires for both cross-sectional surveys contained the following sets of questions:

- socio-demographic status;
- previous infection with SARS-CoV-2;
- health status (prevalence of certain diseases and conditions);
- positive mental health;
- lifestyle;
- domestic violence;
- use of health services;
- vaccination against COVID-19;
- determinants of health (smoking, alcohol use, body mass index).

The questionnaire for the first cross-sectional survey included further sets of questions:

- health literacy regarding SARS-CoV-2;
- implementation of protective measures to prevent transmission of SARS-CoV-2;
- experiences of the SARS-CoV-2 virus;
- use of and confidence in different sources of information on SARS-CoV-2;
- confidence in people and institutions to manage SARS-CoV-2 appropriately;
- designating contacts in the event of SARS-CoV-2 infection;
- eating habits;
- sitting, physical activity and sleep.

The second cross-sectional survey questionnaire included the following sets of questions:

- in-depth questions on alcohol use and smoking;
- questions about cognitive abilities.

2.9 Advantages and disadvantages of the survey

The Behavioural Insights Survey on COVID-19: Slovenia was carried out on a probability sample of the Slovenian population living in private households, so the results of the survey can be generalised from the sample of selected persons to the adult population of Slovenia (living in private households). The target population of the study is adults, and the age of the sample has no upper limit; this allows us to study both younger and older age groups (the latter represent a more at-risk population when exposed to the virus).

Compared to the online surveys conducted as part of the SI-PANDA Behavioural Insights Survey on COVID-19: Slovenia, where certain population groups were over-reported, e.g. those with higher levels of educational attainment, and people aged 74 and over were excluded, the cross-sectional survey, the results of which are presented in monograph, also adequately represented people with lower levels of educational attainment, which allowed us to study more vulnerable population groups.

The survey was carried out using a self-administered questionnaire, either online or on paper. This was important for the response rate of in all age categories, and personal contact with the sample was not necessary for the purpose of completing the questionnaire.

While the data collection processes in the first and second cross-sectional surveys took place fairly close to each other in terms of time (i.e. in the first half of 2021), they were conducted during different periods of the pandemic. For this reason, we have decided to present the data separately for each period. In any further analyses, the two data collection periods could be combined and presented as a single cross-sectional survey.

LITERATURE

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3 CHAPTER SUMMARIES

3.1 Respondents' health status

AUTHORS: *Ada Hočevar Grom, Marina Šinko, Ema Ahačič, Maruša Rehberger, Andreja Belščak-Čolaković*

KEY WORDS: COVID-19, epidemic, disease, health condition, delaying a doctor's visit

INTRODUCTION: The COVID-19 pandemic has challenged healthcare availability and accessibility. The health condition of people was exposed not only due to the emergence of the new SARS-CoV-2 virus and potential infections with it, but also due to the change and reorganization of work at all levels of health systems that resulted from the fight against the infectious COVID-19 disease.

METHODS: In the first and second SI-PANDA cross-sectional studies, we asked the respondents a question about diseases or health status diagnosed by a physician in the last 12 months and diagnosed more than 12 months ago. We further asked them about the impact of the COVID-19 pandemic on their health (e.g. chronic diseases, dental diseases etc.) and whether they had avoided visiting a physician in the last two weeks for a problem that was not related to the virus SARS-CoV-2. We also investigated these topics in relation to various socio-demographic factors.

RESULTS: About a quarter of respondents avoided a visit to a personal doctor for problems not related to COVID-19, and about the same number also reported the consequences on their health status due to the pandemic. The proportion (slightly less than half) of people with a high probability of mental health problems who reported avoiding doctors during the epidemic and a deterioration in their health status is particularly pronounced. People with existing chronic diseases also reported delaying visiting a doctor to a greater extent, compared to people without chronic diseases, and to a greater extent reported that the COVID-19 pandemic had an impact on their health. In the first year of the pandemic, the proportion of people diagnosed by a doctor with depression, sleep disorders and chest pains increased considerably.

CONCLUSIONS: According to the results of both cross-sectional studies, the COVID-19 pandemic had an impact in terms of worsening of health and also avoidance of visiting a physician for a problem that was not related to the SARS-CoV-2 virus. Those changes in behaviour and health can lead to an increase of existing inequities in health or the emergence of new ones.

3.2 SARS-CoV-2 infection

AUTHORS: *Andreja Belščak Čolaković, Ada Hočevar Grom, Marina Šinko, Darja Lavtar, Ema Ahačič*

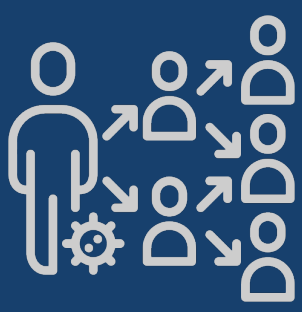
KEY WORDS: SARS-CoV-2 virus, alpha variant, delta variant, the course of the disease, infection rate, vaccination.

INTRODUCTION: The first case of SARS-CoV-2 virus infection in Slovenia was detected in March 2020. After the first confirmed case, the number of infected people began to increase rapidly, and the spread of the virus was also faster due to the mutations of the virus and the appearance of new variants.

METHODS: In first and second cross-sectional surveys we asked responders about being (now or until now) infected with the SARS-CoV-2 virus and about the course of the COVID-19 disease (mild or severe). We compared the results from the first and second cross-sectional surveys and investigated them in relation to various socio-demographic factors.

RESULTS: By the end of the second cross-sectional survey in July 2021, according to the data from that survey, over a fifth of respondents were already infected, and according to the data of both surveys, women, people under 50 years of age, people with higher education and people with employment were somewhat more often affected. As expected, in the second cross-sectional survey, the proportion of persons who were infected with the SARS-CoV-2 virus increased statistically significantly. A more severe course of the disease due to infection with COVID-19 was reported in both surveys by slightly more than 15% of people.

CONCLUSIONS: The considerable increase of respondents who reported being infected with SARS-CoV-2 in the second cross-sectional survey in comparison with the first cross-sectional survey, indicate how fast the virus spread among the population. It is important to protect the most vulnerable groups, such as the elderly and people with comorbidities, from infection, since they have a higher risk of a severe course of the COVID-19 disease.



3.3 Mental health and resilience during the COVID-19 pandemic

AUTHORS: *Helena Jeriček Klanšček, Matej Vinko, Varineja Drašler, Aljaž Brlek, Darja Lavtar*

KEY WORDS: COVID-19 pandemic, mental health, mental health continuum, mental health inventory, resilience

INTRODUCTION: Numerous studies show that the COVID-19 pandemic has negatively affected people's mental health. The aim of this paper is to present the findings of the first and the second cross-sectional SI-PANDA study related to the mental health of the Slovenian population during the pandemic.

METHODS: In the first and the second SI-PANDA cross-sectional study, we measured positive mental health (Mental Health Continuum – Short Form, MHC-SF), mental health problems (Mental Health Inventory 5, MHI-5) and resilience (Brief Resilience Scale, BRS). We also investigated the relationship between mental health and various socio-demographic factors.

RESULTS: During the COVID-19 pandemic approximately one tenth of the Slovenian population had poor (languishing) mental health (8 %) and a high probability of mental health problems (12 %). In both studies, women, young adults, the less educated, unemployed, high school and university students, singles and those living alone, individuals with worsened financial situation during the pandemic and people with chronic illness reported poorer mental health. At the same time, resilience was lower among those groups. We found no major differences between the first and the second cross-sectional study related to the mental health of the Slovenian population, but some improvements in resilience were found in most groups.

CONCLUSIONS: Special attention should be paid to the groups with poor mental health. It is also important to strengthen people's resilience, as it can help with coping and mitigating the negative consequences of crisis events such as the COVID-19 pandemic.

3.4 The accessibility of health system during the COVID-19 pandemic

AUTHORS: *Ticijana Prijon, Tatjana Kofol Bric, Marina Šinko, Darja Lavtar*

KEY WORDS: COVID-19 pandemic, healthcare needs, healthcare accessibility, forms of healthcare provision

INTRODUCTION: As a result of the COVID-19 pandemic, all groups of the population suffered from restrictions on access to timely, high-quality and safe medical treatment at all levels of healthcare, as the Slovenian healthcare system also had to adapt to the pandemic situation.

METHODS: On the basis of the results of the first and the second SI-PANDA cross-sectional studies, we compared the needs for medical treatment, the accessibility and the forms of provision of medical treatment by general practitioners, specialist practitioners and dentists during the two periods of the second wave of the COVID-19 pandemic in Slovenia.

RESULTS: During the two analysed periods the percentage of people who needed medical treatment increased: in primary medical care by 5.9 percentage points, in specialist medical care by 1.3 percentage points and in dentistry by 3.7 percentage points.

In the first cross-sectional survey, more than half of the people who needed treatment from a general practitioner, specialist or dentist, had medical treatment at different levels (50.2% - 58.8%). During the COVID-19 pandemic, more than a third of people accessed medical treatment from a personal physician only remotely, as in-person contact with the physician was not possible. A fifth of people had contact with a personal doctor remotely, at their own wishes – especially people who had already been infected with COVID-19. A tenth of people had contact with a specialist remotely, while only 4.2% of people had contact with a dentist remotely. Among them, there were a number of persons with chronic diseases and persons with the possible presence or high likelihood of mental health problems.

CONCLUSIONS: The COVID-19 pandemic measures and the fear of infection reduced physical accessibility to healthcare, thereby increasing the percentage of remote medical treatments. The reduction of the accessibility of non-urgent treatment was particularly noticeable in specialist medical care. Since patients with chronic and mental health issues, the eldery and retirees need more visits, this further leads to an increase of health inequalities.

3.5 Non-pharmacological measures against COVID-19

AUTHORS: *Petra Klepac, Veronika Učakar, Maruša Rehberger*

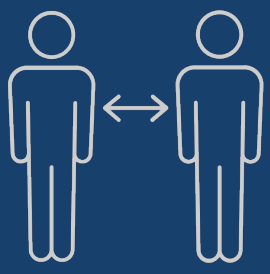
KEY WORDS: non-pharmacological measures against COVID-19, contact tracing, limited access to vaccination compliance with preventive behaviours

INTRODUCTION: At the end of the first year of the COVID-19 epidemic in Slovenia, the epidemiological situation initially improved and then began to deteriorate with the spread of the alpha variant of the SARS-CoV-2 virus. Vaccination coverage against COVID-19 was low. Our aim was to determine the compliance of the adult population with recommended non-pharmacological measures, including disclosure of their contacts.

METHODS: Respondents reported on their compliance with hand hygiene and respiratory protocols, mask use, social distancing, surface disinfection and ventilation during the past week and on the intention to name their contacts to the healthcare service in the event of a positive COVID-19 test.

RESULTS: Compliance was highest for mask use in public spaces (97.3%). More than 90% of the population observed respiratory protocols, avoided the elderly if they became ill, maintained interpersonal distance and avoided public social events. Compliance was lowest for staying at home (76.5%) and surface disinfection (67.2%). Compliance was lower in men, persons younger than 50 years and those who disagreed that the COVID-19 vaccine could help limit transmission of the virus. 82.7% of the population would disclose their contacts while others would inform their contacts themselves.

CONCLUSIONS: Despite the long-term health crisis, most of the population observed recommended non-pharmacological measures. Compliance was influenced by enforcement of measures, perception of risk for infection and severe progress of the disease, and institutional trust. For the public health response to COVID-19, the measures most frequently observed should be considered, targeting promotion at the groups having lowest compliance. Digital contact tracing can effectively complement contact tracing by the epidemiological service.



3.6 Vaccination against COVID-19

AUTHORS: *Veronika Učakar, Aleš Korošec*

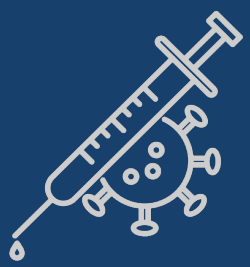
KEY WORDS: SARS-CoV-2, COVID-19, vaccination

INTRODUCTION: In Slovenia, vaccination against COVID-19 began at the end of 2020, first in long-term care facilities and among health professionals and their associates, and then gradually among the elderly population. Starting in mid-May, vaccination became available to all residents.

METHODS: Our aim was to assess how much the vaccination coverage against COVID-19 increased in the first months of the campaign and to study confidence in COVID-19 vaccination and the influences on the decision to vaccinate at the beginning of vaccination.

RESULTS: In the first cross-sectional study, 4.7% of subjects reported having already been vaccinated with one or two doses of the vaccine, while in the second, this proportion rose to 44.2%. The proportion of people who reported not intending to be vaccinated was similar in both surveys (22.8% and 23.8% respectively). Most people reported that their decision to be vaccinated would depend on whether sufficient data were available on vaccine effectiveness (70.5%) and safety (70.1%). More than half of the people (52.5%) reported that their decision to vaccinate would depend on the recommendation of their personal physician. As many as two-thirds (66.7%) reported agreeing that vaccination was important for their own protection, and even more (70.6%) reported that vaccination was very important for protection of others.

CONCLUSIONS: We will only achieve high vaccination coverage if we understand and respond to the concerns and expectations of individuals and communities about vaccination in relation to their perceptions and concerns about the COVID-19 disease itself.



3.7 Dietary habits during the COVID-19 pandemic

AUTHORS: *Aljaž Brlek, Mojca Gabrijelčič Blenkuš, Matej Gregorič, Vida Fajdiga Turk, Rok Poličnik, Darja Lavtar, Maruša Rehberger*

KEY WORDS: changes in dietary habits, obesity, socio-economic inequalities, young adults

INTRODUCTION: The COVID-19 pandemic had a significant impact on various aspects of society, including people's diets and lifestyle. Foreign research has identified both negative and positive changes that have occurred as a result of the COVID-19 pandemic and the epidemiological measures that have followed. In this chapter, we present the changes in eating behaviour in Slovenia, with a particular focus on the groups in which the changes were most pronounced.

METHODS: We assess the impact of the COVID-19 pandemic on eating habits in both cross-sectional surveys, which enabled a comparison between two time points in the course of the pandemic. The remaining questions examine dietary habits in more detail at the time of the second cross-sectional survey.

RESULTS: Data from the first cross-sectional survey show that 34.5% of subjects reported a change in healthy diet, with 17.7% of subjects reporting a worsening of their diet. The greatest impact was observed on the frequency of fruit consumption and the consumption of foods high in fat, salt and sugars. At the same time, 34.8% of subjects increased their intake of dietary supplements. The groups in which we detected the most pronounced changes are young people, the unemployed, those whose financial situation has worsened, those with a high probability of mental health problems, people with reported obesity, those living with children under 18 and those living alone.

CONCLUSIONS: Although the majority of the population did not change their diet during the COVID-19 pandemic, there is a notable percentage of those that either improved or worsened their diets. Some of the negative changes are most pronounced in the vulnerable groups. Together with the expected increase in body weight and decrease in physical activity, these negative changes may have a significant impact on the prevalence of chronic non-communicable diseases in the future.

3.8 Physical activity during the COVID-19 pandemic

AUTHORS: *Monika Brovč, Aleš Korošec, Ada Hočevar Grom, Marina Šinko*

KEY WORDS: physical (in)activity, sedentary time, lifestyle changes, lockdown, COVID-19

INTRODUCTION: Various epidemiological measures aiming to prevent the propagation of SARS-CoV-2 have caused significant change in people's daily routines, such as physical activity. Numerous studies have shown decreased physical activity among the population and increased sedentary time.

METHODS: In the first and the second SI-PANDA cross-sectional study, physical activity was measured on a 5-level scale from highly decreased to highly improved compared to the time before the pandemic. Sedentary time was additionally determined in the second study, as well as different types of physical activity. Physical activity and sedentary time were then compared to socio-demographic factors to determine a possible relationship between them.

RESULTS: Physical activity decreased during the pandemic, which was more evident in the first period of this study (43.9 %, compared to 35.0 % in the second). The decrease was present in younger age groups, the more educated, students, people with deteriorated financial situation and those with poorer mental health. The largest increase in physical activity in the second cross-sectional survey was in walking on a flat surface (30.3%), exercising online (24.0%) and hiking or walking uphill (21.9%).

CONCLUSIONS: During the COVID-19 pandemic, the lockdown led to decreased physical activity of the population, which can have negative consequences on their general health, if it lasts for a longer period. Therefore, it would be beneficial to focus the attention of decision-makers on promoting and maintaining healthy lifestyles, especially physical activity in the case of another pandemic.

3.9 Sleep during the COVID-19 pandemic

AUTHORS: *Brigita Zupančič-Tisovec, Marjeta Peperko, Maruša Rehberger, Darja Lavtar*

KEY WORDS: sleep, COVID-19 pandemic, adults

INTRODUCTION: The COVID-19 pandemic represented an extraordinary situation that also affected the sleep of adult Slovenians. The aim of the article is to examine the prevalence of sleep quality among adult Slovenians during the first and second cross-sectional studies and some factors related to it.

METHODS: Data from the Behavioural Insights Survey on COVID-19, 2021 are presented. An adapted WHO questionnaire was used to carry out a self-assessment of sleep as part of the survey.

RESULTS: Approximately a quarter of surveyed Slovenian adults reported that their sleep had deteriorated during the COVID-19 pandemic. The proportion of those who reported deterioration of sleep decreased between the first and second cross-sectional studies. Due to the emergence of new circumstances during the pandemic, women had more sleep problems than men. The youngest (18 to 29 years) and the oldest (70 and over) respondents reported the greatest changes in sleep quality over this time. The youngest respondents reported the highest proportion of both deterioration and improvement of sleep. Educational attainment and work status also contributed to poorer sleep. The presence of mental health problems has been shown to be an important co-factor for sleep deterioration. The COVID-19 pandemic appears to be a risk factor for sleep deterioration in adult Slovenians.

CONCLUSIONS: The survey found some vulnerable groups among adults who were more likely to report sleep deterioration due to the new situation. For these people, the improvement in the epidemiological situation has also had an impact on sleep. Public health policy planning in times of crisis needs to pay more attention to the promotion of regulated sleep and the prevention of factors that contribute to sleep deterioration, and to targeting vulnerable populations.

3.10 Use of tobacco and related products during the pandemic

AUTHORS: *Helena Koprivnikar, Darja Lavtar*

KEY WORDS: tobacco, smoking, electronic cigarette, heated tobacco products, COVID-19 pandemic, SARS-CoV-2 virus

INTRODUCTION: Tobacco smoking is one of the leading preventable risk factors for disability-adjusted life years in Slovenia. The COVID-19 pandemic could have had a significant impact on the use of tobacco and related products due to its large scale, measures taken and health consequences. The purpose of this chapter is to present tobacco and related products' use and smoking in the domestic environment in the second year of the pandemic.

METHODS: In 2021, we monitored numerous indicators of tobacco and related products' use in two cross-sectional studies on a representative sample of the Slovenian population aged 18 and over.

RESULTS: Smoking prevalence was 19.6% in the first study and significantly lower in the second (16.8%). The majority of smokers smoke regularly. Just over a tenth of smokers report increased smoking compared to the period before the pandemic. Due to COVID-19, 3.4% or almost 10,000 smokers quit smoking. Among inhabitants, 8.8% reported smoking in their living quarters during the pandemic. Heated tobacco products were used by 5.4%, e-cigarettes by 1.3% and smokeless tobacco products by 1.3% of inhabitants.

CONCLUSIONS: Studies indicate a decrease in the prevalence of smoking and smoking in the domestic environment. Use of smokeless tobacco and e-cigarettes remains low, while use of heated tobacco products substantially increased. Most of the changes are most probably related to recent tobacco control measures and the recent arrival on the market of some products, but COVID-19 pandemic could have also contributed. Further studies and tobacco control measures are necessary to confirm and reinforce the observed changes.

3.11 Drinking beverages containing alcohol during the COVID-19 pandemic

AUTHORS: *Maja Roškar, Marjetka Hovnik Keršmanc, Sandra Radoš Krnel, Maruša Rehberger*

KEY WORDS: alcohol, COVID-19 pandemic, drinking habits, mental health, vulnerable groups

BACKGROUND: The COVID-19 pandemic has had a significant impact on the mental health and drinking behaviour of the population. Research has shown a decline in drinking alcoholic beverages at the start of the COVID-19 pandemic, mainly due to lower alcohol availability, while in the long run, the authors predict an increase in drinking mostly due to the pandemic's negative effects on mental health. The aim of our research was to explore the drinking habits and possible changes among the adult population of Slovenia during the COVID-19 pandemic.

METHODS: Two surveys, each at different times of the COVID-19 pandemic, were conducted. A structured questionnaire was used to monitor the prevalence (abstainers and drinkers) and frequency (weekly, monthly or less frequently) of drinking alcoholic beverages and the amount of alcoholic beverages consumed during the COVID-19 pandemic compared to the time before the pandemic (drinking more or less beverages containing alcohol, or the amount of beverages didn't change).

RESULTS: The share of abstainers was higher compared to other population-based surveys conducted in Slovenia before the COVID-19 pandemic, but decreased between the two surveys. The share of drinkers of alcoholic beverages as well as the frequency of drinking these beverages increased between the two surveys. These changes may be due to the easing of certain measures to curb the spread of the COVID-19 pandemic during the two surveys; as a result, the availability of alcoholic beverages increased, which is an important factor in increasing alcohol consumption. The majority of the population (77% in the first and 78% in the second survey) did not change the amount of alcoholic beverages consumed, and among those with changes, there were significantly more of those who drank less than those who drank more.

CONCLUSIONS: In times of pandemic crisis, we need to pay special attention to vulnerable groups. According to our research, women, people with mental health problems and young adults are among the people at higher risk of drinking alcoholic beverages.

3.12 Domestic violence during the COVID-19 pandemic

AUTHORS: *Anja Bohinec, Barbara Mihevc Ponikvar, Zalka Drglin, Maruša Rehberger*

KEY WORDS: family relationships, domestic violence, COVID-19 pandemic.

INTRODUCTION: Domestic violence causes suffering, bodily harm and other physical, mental, sexual and reproductive health issues, so it is an important public health problem. Experts warn that violence in times of crisis increases and spreads, which was also shown during the COVID-19 pandemic, as there was an increase in domestic violence. People stayed at home, there was less social contact with other people, and at the same time stress and insecurity contributed to the increase in conflicts and domestic violence.

METHODS: The survey included a module on domestic violence: questions about physical, psychological, sexual or economic violence and restrictions on social contacts by a family member and about the effect of the pandemic on the occurrence of violence in the respondent's family.

RESULTS: Research data show that the COVID-19 pandemic contributed to the occurrence and rise of domestic violence. Residents most often reported experiencing psychological violence, followed by restrictions on contact and freedom, economic violence, physical violence and sexual violence. Women reported slightly more experience of psychological, physical and sexual violence, and there were no significant gender differences in restrictions on contact and freedom and economic violence. Violence was most often caused by current/former partners.

CONCLUSIONS: The COVID-19 pandemic shed further light on the issue of domestic violence and gender inequality. Violence causes many short-term and long-term health problems and affects people's quality of life. Therefore, addressing the issue of domestic violence and gender inequality is extremely important in the field of public health.

3.13 Perception of the COVID-19 pandemic, pandemic fatigue and impact of the pandemic on cognitive functions

AUTHORS: *Ada Hočevar Grom, Andreja Belščak Čolaković, Marina Šinko, Darja Lavtar*

KEY WORDS: COVID-19 pandemic, health belief model, pandemic fatigue, pandemic fatigue scale, cognitive functions

INTRODUCTION: The long-lasting COVID-19 pandemic has left certain consequences on both the physical and mental health of people. The aim of monograph is to present the findings of the first cross-sectional SI-PANDA study related to the public perceptions of affect towards COVID 19, and the findings of the second cross-sectional SI-PANDA study related to development of pandemic fatigue and the impact of the pandemic on cognitive functioning of the Slovenian population.

METHODS: In the first SI-PANDA cross-sectional study, we measured public perception of affect towards the COVID-19 pandemic (Health Belief Model). In the second SI-PANDA cross-sectional study we measured pandemic fatigue (Pandemic Fatigue Scale, PFS) and cognitive functions (perceived cognitive functions indicator). We also investigated the relationship between these topics and various socio-demographic factors.

RESULTS: Almost a fifth of people self-assessed that it was difficult to avoid infection with the SARS-CoV-2 virus. A third of them experienced the novel coronavirus as something that causes them stress. The survey confirmed the presence of pandemic fatigue among the respondents. Younger people, people with a high probability of mental health problems, those who assess their financial situation as worse than before the pandemic and people who will not get vaccinated against COVID-19 stand out in particular. There was also a small decline in perceived cognitive abilities in people in the last two weeks during the pandemic compared to the period before the pandemic, especially among persons with a high possibility of mental health problems, and among the oldest and retired persons.

CONCLUSIONS: Most people perceived the COVID-19 pandemic in a similar manner, irrespective of gender, age, education or employment status. People with mental health problems and people with a worse financial situation had a harder time experiencing the pandemic. The results of the study showed that, in the case of any major epidemic, experts and decision-makers should familiarize themselves with how individual groups of the population experience it and pay special attention to the issue of the emergence of pandemic fatigue and the impact of the pandemic on cognitive functioning.

3.14 The use of and trust in sources of information about COVID-19

AUTHORS: *Janina Žagar, Mitja Vrdelja, Maruša Rehberger*

KEY WORDS: SARS-CoV-2 virus, COVID-19 pandemic, infodemic, frequency of use of information sources, trust in information sources

INTRODUCTION: During the COVID-19 pandemic, (crisis) communication took place through a variety of channels and sources, and an individual's choice of sources of information about SARS-CoV-2 and the perception of each source can have a significant impact on adherence to protective behaviours. Effective and targeted communication is therefore crucial to mitigating the impact and consequences of the COVID-19 pandemic and the related infodemic. Therefore, the aim of our paper was to investigate which sources of information about the SARS-CoV-2 virus individual population groups in Slovenia (most frequently) use and which they trust (the most).

METHODS: The frequency of use of COVID-19 information sources and trust in COVID-19 information sources were investigated in the first SI-PANDA cross-sectional study.

RESULTS: In the study, we find differences between the most frequently used sources and trust in them by gender, age and education. We also find differences between the frequency of use of individual sources and trust in them (whereby frequency of use and trust were treated separately, as two independent concepts rather than correlated).

CONCLUSIONS: The findings of our study provide important insights into differences in the frequency of use of SARS-CoV-2 virus information sources and trust in SARS-CoV-2 virus information sources among different population groups. At the same time, they provide an extremely useful basis for designing effective public health communication campaigns with the common goal of managing the impacts and consequences of the COVID-19 pandemic and the concurrent infodemic.

3.15 The prevalence of conspiracy theories

AUTHORS: *Janina Žagar, Mitja Vrdelja, Maruša Rehberger*

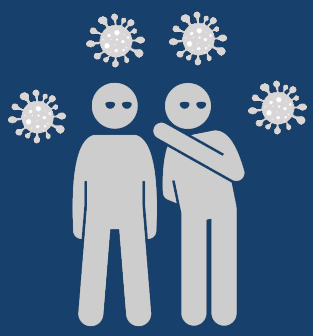
KEY WORDS: COVID-19 pandemic, SARS-CoV-2, conspiracy theories, infodemic

INTRODUCTION: In addition to SARS-CoV-2 itself, a number of conspiracy theories about SARS-CoV-2 or COVID-19 began to spread with remarkable speed during the COVID-19 pandemic. Given the impact of conspiracy theories on public health and adherence or not to public health measures, undermining the credibility of scientific evidence and compromising the efforts of health institutions, it is therefore important to determine whether there are differences in the propensity for conspiracy theories among different population groups in Slovenia.

METHODS: We measured the propensity to conspiracy theories among different socio-demographic groups in Slovenia using the Conspiracy Mentality Questionnaire (CMQ) indicator in the first SI-PANDA cross-sectional study.

RESULTS: In our study, we find a high level of propensity to conspiracy theories among the Slovenian population. A higher propensity to conspiracy theories is found among women, the less educated, those who assessed their financial situation as worse, and in the 60–69 and 18–29 age groups.

CONCLUSIONS: The data provide important information for decision-makers and experts in designing effective public health and communication campaigns with the aim of controlling the COVID-19 pandemic and combating the parallel infodemic. The findings were also considered more broadly, in the context of the interaction of various factors related to socio-demographic variables, which may further explain the observed propensity to conspiracy theories in particular population groups.



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