Clinical characteristics and diagnosis of the COVID-19 in patients in COVID outpatient clinics

Objective. Examine clinical manifestations, PCR test results, and visit outcomes in patients in COVID-outpatient clinics.

Method. The survey was performed using the questionnaire, in February 2021. In patients in four COVID-outpatient clinics in Belgrade and one in Subotica. We got the data about their jobs, gender, age, present symptoms and comorbidities, PCR-testing, and visit outcomes. The data were processed using the software statistical package SPSS 17. Statistical significance was defined for level p<0.05.

Results. We included 676 participants, of both genders, with an average age of 49. They visited the doctor 1-3 days after symptoms onset. The most common symptoms were fever and cough, followed by fatigue and muscle aches. Hypertension and obesity were the most common comorbidities, mostly in patients over 65 (p=0.000). We tested 92% of the participants, using PCR tests, and out of 676, 60.95% tested PCR positive, mostly those over 50 (p=0.010). Due to the disease severity, 17.3% of the participants were referred to the hospitals, mostly those aged 51 to 65, but the difference wasn’t statistically significant (p=0.183).

Conclusion. The most common symptoms of the COVID-19 were high temperature and cough, and the participants visited the doctor 1 to 3 days after symptoms onset. Hypertension and obesity were the most common comorbidities, more often in participants over 65. The PCR tests were positive in more than half of the participants, mostly in those over 50.

Keywords: COVID-19 symptoms, PCR test, visit outcome, general medicine
Introduction

The first cases of the disease, soon to be known as COVID-19, were spotted in the Chinese city of Wuhan in December 2019. The cause was the new virus, from the coronavirus family, SARS-CoV2. The World Health Organization - WHO declared a pandemic on March 11th, 2020, and it's still ongoing, with huge morbidity and mortality. This respiratory virus is hugely transmissible. The epidemiological surveys confirmed people’s movement, economic, trade, and other social connections, and inter-personal communication led to spreading the virus all around the world. Clinical manifestations vary from mostly mild forms of infection to severe with numerous acute complications which sometimes lead to deathly outcomes. The most common symptoms of the disease are similar to flu: fatigue, fever, dry cough, although some researches show there could be other numerous symptoms, as well – headache, muscle pain, dyspnea, nausea, vomiting, and the loss of smell is singled out as the fourth isolated symptom. It's not possible to make the diagnosis of COVID-19 based only on the symptoms and clinical presentation. Fast diagnosis enables disease recognition and isolation of the disease in order to control the spreading. The most common methods for COVID-19 diagnosis are chest X-ray, ultrasound, computerized tomography of the chest, and PCR test. The gold diagnostic standard for the disease is the polymerase chain reaction test - PCR test, which is easily performed and is convenient for mass testing. These fast diagnostic tests are an important tool in the management of all infectious diseases. At first, it was believed the virus affects only the respiratory tract but the research results showed it can damage other organs and systems, especially the cardiovascular system. There are numerous researches worldwide on epidemiological and clinical characteristics of the pandemic and finding solutions to prevent the virus transmission and spreading, and its presence in the community. There were four disease waves in Serbia until now. We practice nonpharmacological preventive measures, mass vaccination but there are still new-found cases. General practitioners working in the COVID – outpatient clinics are the first to come into contact with the patients suspected of COVID-19 infection. The Scientific Board of the Section of General Medicine of the Serbian Medical Society devised the survey, and the GPs working in the COVID – outpatient clinics carried it out, so we could identify the characteristics and specificities of the pandemic in our community.

Objective

We aimed at researching clinical manifestations, PCR test results, and visit outcomes in patients visiting COVID – outpatient clinics in general practice.
Metod

Ovo multicentrično istraživanje sprovedi su lekari u februaru 2020. godine, koji su radili u COVID-ambulantama u četiri doma zdravlja u Beogradu (Dom zdravlja Novi Beograd, Dom zdravlja Palilula, Dom zdravlja Zvezdara, Dom zdravlja Lazarevac) i u Domu zdravlja u Subotici. Lekari uključeni u istraživanje, popunjavali su upitnik tokom 5 uza- stopnih dana, obuhvatajući sve pacijente starije od 18 godina koji su se javili na prvi pregled. Upitnikom su dobijeni podaci o: polu, starosti, postojećim simptomima, drugim oboljenjima i stanjima, podaci o vremenu koje je proteklo od poja ve simptoma do javljanja lekaru, o rezultatu PCR testa i kakav je bio ishod ove posete lekaru, odnosno da li je ispitanik upućen na kućno ili bolničko lečenje. Simptome COVID infekcije smo podelili na glavne simptome: povišena telesna temperatura, suvi kašalj i gušenje; ostale simptome: poremećaj čula mirisa i ukusa, glavobolja, bolovi u mišićima i zglobovima, umor, bolovi u grlu, proliv i povraćanje i simptome “alarma” koji bi ukazivali na teži stepen infekcije koja može da ugrozi život pacijenata: dispneja i ortopneja, bol u grudima, hemopti- zija, oligurija i anurija, nemogućnost pacijenta da samostalno ustane i stoji i poremećaj svesti.

Statistička obrada i analiza podataka

Podatke dobijene upitnikom statistički smo obradili koristeći softverski paket SPSS 20.0. U obradi podataka korišćena je deskriptivna analiza u obliku učestalosti i procenata za prikazivanje uzorka i odgovora na svako postavljeno pitanje. Rezultati su prikazani tabelarno i grafički, gde je učestalost posmatranih parametara izražena u procentima. Pirsonov (Pearson) $\chi^2$-test je korišćen za utvrđivanje postojanja statistički značajne razlike između individuelnih karakteristika ispitanika. Ukoliko je u nezavisnoj promenljivoj prisutno više različitih grupa, korišćena je jednofaktorska analiza varijansi ANOVA različitih grupa sa naknadnim testovima, kako bi se utvrdilo između kojih grupa je razlika statistički značajna. Statistička značajnost je definisana za nivo p<0,05.

Rezultati

Istraživanjem je obuhvaćeno 676 ispitanika oba pola (338 muškaraca), od 31 do 50 godina, prosečne starosti 48,97±18,56 (muškarci 49,26±21,11 i žene 48,67±15,61), (Tabela 1).

Method

This multicentric research was carried out by the physicians working in four COVID – outpatient clinics in Belgrade (PHC Novi Beograd, PHC Palilula, PHC Zvezdara, PHC Lazarevac) and PHC Subotica in February 2020. The physicians participating in the research were filling out the questionnaires during five consecutive days, including all patients over 18 who came for their first medical check-up. The questionnaire included data on: gender, age, existing symptoms, comorbidities and other health issues, time from symptoms onset to doctor’s visit, PCR test results, and visit outcomes (whether the patient was sent home or to the hospital). COVID symptoms were divided into main symptoms: fever, dry cough, and dyspnea; other symptoms: a sense of smell and taste disorder, headache, muscle and joint aches, fatigue, sore throat, diarrhea, vomiting, and “alarm” symptoms indicating the severe form of the infection that can endanger the patient’s life: dyspnea and orthopnea, chest pain, hemoptysis, oliguria and anuria, patient’s inability to get up and stand up on his own and loss of consciousness.

Statistical processing and data analysis

The obtained data were statistically processed using the software package SPSS 20.0. We used descriptive analysis in data processing. in the form of frequencies and percentages, for showing sample and answer for each question asked. Results were presented in tables and figures, and the frequency of the observed parameters was shown in percentages. Pearson’s $\chi^2$-test was used for deducing statistically significant differences between individual participants’ characteristics. If there were several different groups in the independent variable, we used one-factorial analysis of variance - ANOVA of different groups with additional tests to identify the statistically significant difference between the groups. Statistical significance is defined for level p<0,05.

Results

The survey included 676 participants of both genders (338 males), from 31 to 50 years, of average age 48,97±18,56 (males 49,26±21,11 and females 48,67±15,61), (Table 1).
Od ukupno 676 ispitanika, 72,63% se javilo lekaru nakon 1 do 3 dana od pojave simptoma (Tabela 2). Nije bilo statistički značajne razlike u odnosu na pol (p=0.994) i starost spitanika (p=0.111).

Out of the total of 676 participants, 72,63% visited the doctor after 1 to 3 days from symptoms onset (Table 2). There was no statistically significant difference concerning gender (p=0.994) and age of the participants (p=0.111).

Tabela 1. Struktura ispitivane populacije
Table 1. Structure of the survived population

| Ispitanici/Participants | N  | %       |
|-------------------------|----|---------|
| Pol/Gender:             |    |         |
| Muškarci/Males          | 338| 50.0    |
| Žene/Females            | 338| 50.0    |
| Starost/Age:            |    |         |
| ≤ 30 godina/years       | 98 | 14.50   |
| 31-50 godina/years      | 274| 40.53   |
| 51-65 godina/years      | 201| 29.73   |
| > 65 godina/years       | 103| 15.24   |
| Ukupno/Total            | 676| 100.0   |

Od glavnih simptoma, najčešće je postojala povišana telesna temperatura (35.21% ispitanika). Kod više od polovine ispitanika glavni simptomi su se javljali udruženo, najčešće istovremeno povišena temperatura i suv kašalj (29,88% ispitanika). Sva tri glavna simptoma najčešće su bila kod starijih od 50 godina, a kod starijih od 65 godina najčešće je, uz povišenu telesnu temperaturu, postojala dispneja (p=0,000). U zasupljenosti glavnih simptoma nije bilo statistički značajne razlike u odnosu na pol (p=0.375). Svaki četrnaesti ispitanik nije imao nijedan od glavnih simptoma, (Tabela 3).

As far as the main symptoms go, the most frequent was fever (35.21% of the participants). In more than half of the participants, the main symptoms appeared collectively, most often at the same time - fever and dry cough (29.88% of the participants). All three main symptoms were mostly present in people over 50, and in those over 65, alongside high fever, dyspnea was mostly present (p=0.000). There was no statistically significant difference concerning gender (p=0.375). Every fourteenth participant had none of the main symptoms. (Table 3).
Tabela 3. Prisustvo glavnih simptoma kod ispitanika

Table 3. Presence of the main symptoms in the participants

| Karakteristike ispitanika/Participants' characteristics | Glavni simptomi/Main symptoms (%) | Bez glavnih simptoma/No main symptoms | Statistička značajnost*/* Statistical significance |
|--------------------------------------------------------|-----------------------------------|---------------------------------------|--------------------------------------------------|
| **Pol/Gender:**                                        |                                   |                                       | p= 0.375                                          |
| Muški/Males                                            |                                   |                                       |                                                  |
| 120                                                    | 111                               | 35                                    | 4                                                 | 32                                    | 7         | 7         | 22         | p= 0.000 |
| 35.50                                                  | 32.84                             | 10.36                                 | 1.18                                              | 9.47                                  | 2.07                               | 2.07                               | 6.51       |
| Ženski/Females                                         |                                   |                                       |                                                   |                                       |                                                   |                                                   | 27         |
| 34.91                                                  | 26.92                             | 10.06                                 | 2.07                                              | 13.91                                 | 1.18                               | 2.96                               | 7.99       |

Glavni simptomi: ↑temp. = povišena telesna temperatura; kašalj = suv kašalj; dispneja / Main symptoms: ↑fever = high fever; cough = dry cough; dyspnea

Od ostalih simptoma kod više od polovine ispitanika, najčešće je postojao umor (56,51%) i bolovi u mišićima (50,3%), (Grafikon 1).

Out of other symptoms, in more than half of the participants, the most common was fatigue (56,51%) and muscle aches (50,3%). (Figure 1).

Ostali simptomi su se retko javljali izolovano. Od 676 ispitanika, kod 54,43% je bilo 25 različitih kombinacija simptoma, a u radu su prikazane samo najzastupljenije, (Tabela 4). Nije bilo statistički značajne razlike u odnosu na pol (p=0,112). Najčešće su postojali bolovi u mišićima i umor (12,57%), potom udruženost ova dva simptoma i bolova u zglobovima (10,95%), Kombinacija ova tri simptoma bila je najzastupljenija kod starijih od 65 godina (20,39%), a najređa kod mladih od 30 godina (2,04%), (p=0,004). Svaki deseti ispitanik u ovom istraživanju nije imao nijedan od ovih ostalih simptoma.

Other symptoms rarely appeared on their own. Out of 676 participants, in 54,43% there were 25 different symptom combinations, and in our research, we showed only the most common ones, (Tabela 4). There was no statistically significant difference concerning the gender (p=0,112). The most common were muscle aches and fatigue (12,57%), followed by both of these symptoms together, and joint pains (10,95%), The combination of the three symptoms was the most frequent in those over 65 (20,39%), and the least frequent in those under 30 (2,04%), (p=0,004). Every tenth participant in our research had none of these symptoms.

Ostali simptomi 1. poremećaj čula mirisa i ukusa; 2. bolovi u mišićima; 3. bolovi u zglobovima; 4. umor; 5. upaljeno i bolno grlo

Ostali simptomi / Other symptoms: 1. smell and taste disorder; 2. Muscle aches; 3. Joint pain; 4. fatigue; 5. Sore throat

Grafikon 1. Prisustvo ostalih simptoma (pojedinačno ili u različitim kombinacijama) izraženo u procentima

Figure 1. Presence of other symptoms (single or combined) in percentages
Ostali simptomi: 
1. poremećaj čula mirisa i ukusa; 2. bolovi u mišićima; 3. bolovi u zglobovima; 4. umor; 5. upaljeno i bolno grlo

Statistička značajnost* je definisana za nivo p<0,05.

Table 4. Presence of other symptoms (single or collective) in participants, in relation to age and gender

| Karakteristike ispitanika/Participants' characteristics | Ostali simptomi/Other symptoms N/% | Od ukupno 676 ispitanika N/%/Out of the total of 676 participants | Statistička značajnost* |
|--------------------------------------------------------|-----------------------------------|---------------------------------------------------------------|------------------------|
| Pol/Gender                                             |                                   |                                                               |                        |
| Muški/Males                                            |                                   |                                                               |                        |
| 4           | 2,3,4                      | 2,4                        | 4               | 5               | Karakteristike ispitanika/Participants’ characteristics |                       |
| 20          | 33                        | 46                         | 54              | 21              | 132                      | 32                      | 338                      | p= 0.112 |
| 5.92        | 9.76                      | 13.61                      | 15.98           | 6.21            | 39.05                    | 9.47                    | 50.0                    |
| Ženski/Females                                        |                                   |                                                               |                        |
| 24          | 41                        | 39                         | 38              | 37              | 121                      | 38                      | 338                      |                       |
| 7.10        | 12.13                     | 11.54                      | 11.24           | 10.95           | 35.80                    | 11.24                   | 50.0                    |
| Starost/Age                                           |                                   |                                                               |                        |
| ≤ 30 god./years |                                   |                                                               |                        |
| 4           | 2,3,4                      | 2,4                        | 4               | 5               | 132                      | 32                      | 338                      | p= 0.004 |
| 0.08        | 2.04                      | 8.16                       | 16              | 14.99           | 48.90                    | 10.20                   | 98                       |
| 31 do 50 god./years                                   |                                   |                                                               |                        |
| 14          | 27                        | 31                         | 29              | 14              | 31.34                    | 23                      | 201                      |                        |
| 6.97        | 13.43                     | 15.42                      | 14.43           | 6.97            | 31.34                    | 11.44                   | 29.73                    |                        |
| 21.36       | 12.43                     | 14.43                      | 14.43           | 6.97            | 31.34                    | 11.44                   | 29.73                    |                        |
| > 65 god./years |                                   |                                                               |                        |
| 5.83        | 15.92                     | 15.92                      | 15              | 23              | 25.24                    | 7.77                    | 15.24                    |                       |
| 6           | 21                        | 20.39                      | 14.66           | 22.33           | 23.24                    | 7.77                    | 15.24                    |                       |
| Od ukupno 676 ispitanika/Out of the total of 676 participants |                                   |                                                               |                        |
| 44          | 74                        | 85                         | 92              | 58              | 253                      | 70                      | 676                      |                        |
| 6.51        | 10.95                     | 12.57                      | 12.57           | 8.58            | 37.42                    | 10.36                   | 100                      |                        |

* Statistička značajnost je definisana za nivo p<0.05/Statistical significance is defined for level p<0.05

Out of the total 676 participants, in 60% there were no obvious alarm symptoms – mostly dyspnea with orthopnea (in 14.94%) and chest pain (in 12.43%). There was no connection to gender, and dyspnea with orthopnea was the least present in participants ≤ 30, and the most frequent in those over 65 (21.36%) (p=0.000). (Table 5).

Tabela 5. Prisustvo simptoma “alarma” pojedinačno i u kombinacijama

Table 5. Presence of “alarm” symptoms – single or combined

| Karakteristike ispitanika/Participants’ characteristics | Simptomi alarma/Alarm symptoms N/% | Od ukupno 676 ispitanika/Out of the total of 676 participants | Statističkaznačajnost* |
|--------------------------------------------------------|-----------------------------------|---------------------------------------------------------------|------------------------|
| Pol/Gender                                             |                                   |                                                               |                        |
| Muški/Males                                            |                                   |                                                               |                        |
| 11          | 10                        | 9                           | 23              | 203                       | 338                      | p= 0.474 |
| 11.22       | 10.20                     | 9.28                        | 8               | 174                      | 274                      |                        |
| Ženski/Females                                        |                                   |                                                               |                        |
| 34          | 35                        | 23                          | 8               | 174                      | 274                      |                        |
| 12.17       | 12.77                     | 8.39                        | 8.46            | 58.71                    | 201                      | 40.53                  |
| 22          | 23                        | 6                           | 17              | 118                      | 201                      | 29.73                  |
| 21.36       | 12.62                     | 6.83                        | 17.47           | 42.72                    | 15.24                    |                       |
| Od ukupno 676 ispitanika/Out of the total of 676 participants |                                   |                                                               |                        |
| 101         | 84                        | 44                          | 6.36           | 59.76                    | 100.0                    |                       |

Out of the total of 676 participants, in 60% there were no obvious alarm symptoms – mostly dyspnea with orthopnea (in 14.94%) and chest pain (in 12.43%). There was no connection to gender, and dyspnea with orthopnea was the least present in participants ≤ 30, and the most frequent in those over 65 (21.36%) (p=0.000). (Table 5).
Упитником су добијени подаци о присуству других обољења и станја код испитаника. У овом истраживању 42,46% испитаника је било без других обољења, а најреже су то били испитаници старији од 65 година (10,68%). Код осталих, најчешће је изоловано била хипертензија (10,36%), потом гојацност (6,21%) и хронична опструтивна боlest плуćа - HOBP и/или астма (6,07%), (Тabela 6). У односу на пол, нису била статистички значајне разлике (p=0,161), али су у односу на старост, према оцекивању, испитаници млађи од 30 година имали статистички значајно реже, а старији од 65 година значајно чешће истовремено присуство више обољења (p=0,000). (Тabela 6)

Тabela 6. Постојање других обољења код испитаника

| Karakteristike испитаника/Participants' characteristics | Prisustvo других оболења/Presence of other comorbidities N/% | Statistical značajnost*/Statistical significance* |
|---------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------|
| Pol/Gender                                              |                                                          | p=0.161                                       |
| Мушкарци/Males                                         |                                                          |                                               |
|              15                                           | 36                                                      |                                               |
|              4.44                                         | 10.65                                                   |                                               |
|              1.48                                         | 6.21                                                    |                                               |
|              5.62                                         | 15                                                      |                                               |
|              4.44                                         | 19                                                      |                                               |
|              15                                           | 19                                                      |                                               |
|              19                                           | 63                                                      | 144                                          |
|              18.94                                        |                                                          |                                               |
|              42.6                                        |                                                          |                                               |
| Жене/Females                                           |                                                          |                                               |
|              10                                           | 34                                                      |                                               |
|              2.96                                         | 10.06                                                   |                                               |
|              1.78                                         | 6.21                                                    |                                               |
|              22                                           | 15                                                      |                                               |
|              15                                           | 19                                                      |                                               |
|              15                                           | 5.62                                                    |                                               |
|              5.62                                         | 143                                                     |                                               |
|              20.11                                        |                                                          |                                               |
|              42.31                                        |                                                          |                                               |
| Starost/Age                                             |                                                          | p=0.000                                       |
| до/у до 30 год./years                                   |                                                          |                                               |
|              1                                           | 1.02                                                    | 82                                           |
|              3                                           | 3.00                                                    | 83.67                                        |
|              1.02                                         | 5.10                                                    |                                               |
|              5                                           | 5.10                                                    |                                               |
|              1                                           | 1.02                                                    |                                               |
|              82                                           |                                                          |                                               |
|            31-50 год./years                                |                                                          |                                               |
|              3.28                                         | 6.20                                                    |                                               |
|              2.19                                         | 8.39                                                    |                                               |
|              8.76                                         | 0.36                                                    |                                               |
|              17                                           | 13                                                      |                                               |
|              10                                           | 10                                                      |                                               |
|              7.96                                         | 16                                                      |                                               |
|              24                                           | 16                                                      |                                               |
|              4.74                                         | 8.76                                                    |                                               |
|              54.27                                        |                                                          |                                               |
|              42.6                                        |                                                          |                                               |
|            51-65 год./years                                |                                                          |                                               |
|              11                                           | 5.47                                                    |                                               |
|              38                                           | 18.91                                                   |                                               |
|              1.49                                         | 6.47                                                    |                                               |
|              4.98                                         | 10                                                      |                                               |
|              16                                           | 10.95                                                   |                                               |
|              7.96                                         | 34.42                                                   |                                               |
|              29                                           |                                                          |                                               |
|            >65 год./years                                |                                                          |                                               |
|              4                                            | 12                                                      |                                               |
|              3.88                                         | 11.65                                                   |                                               |
|              0.97                                         | 0.97                                                    |                                               |
|              1.94                                         | 12.62                                                   |                                               |
|              3                                            | 56                                                      |                                               |
|              56                                           |                                                          |                                               |
|              11                                           |                                                          |                                               |
| Od ukupно 676 испитаника/Out of the total of 676 participants |                                               |                                               |
|              25                                           | 70                                                      |                                               |
|              3.70                                         | 10.36                                                   |                                               |
|              1.63                                         | 6.21                                                    |                                               |
|              4.67                                         | 13                                                      |                                               |
|              30                                           | 30                                                      |                                               |
|              30                                           | 38                                                      |                                               |
|              38                                           | 130                                                     | 287                                          |
|              130                                          |                                                          |                                               |
|              19.52                                        |                                                          |                                               |
|              42.46                                        |                                                          |                                               |

* Статистичка значајност је дефинисана за ниво p<0.05/Statistical significance is defined for level p<0.05

Друга обољења: 1. кардиоваскуларне боlesti; 2. хипертензија; 3. дијабетес; 4. гојацност; 5. HOBP и/или астма

Other comorbidities: 1. Cardiovascular disease; 2. hypertension; 3. diabetes; 4. obesity; 5. COPD and/or asthma

Prema algoritmu о дефиницији случаја за потребе надзора, које је издало Министарство здравља Републике Србије и Институт за жавно здравље "Dr Milan Jovanovic Batut", лекар у COVID-амбуланти, након узете епидемиолошке анамнезе и клиничког pregleda, donosi одлуку о потреби за PCR тестирањем, као и о одлуком о избору посете, односно да ли ће пацијента упутити на далју дјиагностику, кућно лечење или на болничко лечење.

Пoстуђующi критериjуме о дефиницији случаја за потребе надзора, од ukupног броја испитаника само 8% није тестисан PCR testom, а код 60,95% PCR test je bio pozitivan (Графикон 2). Од 338 испитаника муšког пола, 60,06% je PCR+ a 31,95% je PCR−, а од 338 испитаника женског пола, 61,83% je PCR+ a 30,18% PCR−, te у односу на пол нema статистички значајне разлике (p=0,879), (Тabela 7). У односу на старосну strukturu, među нетестисанима највише je испитаника старости ≤30 година. Највећи проценат PCR негативних испитаника je од 31 do 50 година (35,40%), a pozitivan PCR test bio ćešći kod starijih od 50 godina (p=0,010). (Тabela 7)

According to the algorithm for case definition, for the purpose of surveillance, issued by the Ministry of Health of the Republic of Serbia and the Institute for Public Health "Dr. Milan Jovanovic Batut", COVID-outpatient clinic doctor, after taking patient’s history and performing the exam, decides on the PCR testing, and visit outcome – should the patient undergo further diagnostic procedures, be sent home or to the hospital.

Respecting criteria for the case definition, for the purpose of surveillance, out of the total number of the participants, only 8% were not PCR tested, and in 60,95% PCR test was positive (Figure 2). Out of 338 male participants, 60,06% were PCR+, and 31,95% were PCR-. Out of 338 female participants, 61,83% were PCR+, and 30,18% PCR-, so there was no statistically significant difference concerning the gender (p=0,879). (Table 7). In relation to age, among those who were not tested, the majority were ≤30. The majority of PCR negative participants were from 31 to 50 (35,40%), and positive PCR tests were more frequent in those over 50 (p=0,010). (Table 7)
Od ukupno 676 ispitanika, 117 (17.3%) s težom kli
ničkom slikom upućeni su na bolničko lečenje. Samo jedan
ispitanik nije bio testiran, a 92,3% je imalo pozitivan PCR
test (Tabela 8). Među PCR pozitivnim ispitanicima koji su
hospitalizovani, nije bilo značajne razlike u odnosu na pol
(p=0,248). U odnosu na starosnu strukturu, ispitanici od 51
do 65 godina češće su upućivani u bolnicu (47%), ali razlika
nije statistički značajna (p=0,183), (Tabela 8).

Out of the total of 676 participants, 117 (17.3%) were
with severe clinical symptoms and they were sent to the hos
pital. Only one participant wasn’t tested, and 92.3% had a
positive PCR test (Table 8). Among PCR positive partici
pants, who were hospitalized, there was no significant dif
ference concerning the gender (p=0.248). In relation to age
structure, participants from 51 to 65 were sent to the hospital
more often (47%), but the difference wasn’t statistically sig
nificant (p=0.183), (Table 8).

Grafikon 2. Testiranje ispitanika PCR testom sa sumnjom na COVID-19
Figure 2, COVID-19 suspected participants, PCR tested

Tabela 7. Rezultat PCR testa kod ispitanika sa sumnjom na COVID-19
Table 7. PCR test results in COVID-19 suspected participants

| Karakteristike ispitanika / Participants’ characteristics | Testiranje PCR testom / PCR tested N/% | Od ukupno 676 ispitanika / Out of the total number of 676 participants N/% | Statistička značajnost* / Statistical significance* |
|------------------------------------------------------------|----------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------|
|                                                             | Nisu testirani / Not tested    | PCR + | PCR - | 676 ispitanika / Out of the total number of 676 participants N/% |
| Pol/Gender                                                 |                                        |      |      |                                               |
| Muški/Male                                                 | 27, 7.98                         | 203   | 108   | 338                                           | p=0.879                             |
| Ženski/Female                                               | 27, 7.98                         | 209   | 102   | 338                                           |                                    |
| Starost/Age                                                 |                                        |      |      |                                               |
| do/up to 30 god./years                                     | 16, 16.33                        | 53    | 29    | 98                                            | P= 0.010                            |
| 31 do/to 50 god./years                                      | 21, 7.66                         | 156   | 97    | 274                                           |                                    |
| 51 do/to 65 god./years                                      | 12, 5.97                         | 134   | 55    | 201                                           |                                    |
| vise od/over 65 god./years                                 | 5, 4.85                          | 66.99 | 28.16 | 103                                           |                                    |
| Od ukupno 676 ispitanika / Out of the total of 676 participants | 7.99 | 60.95 | 31.06 | 676                                           |                                    |

* Statistička značajnost je definisana za nivo p<0,05
* Statistical significance is defined for level p<0,05
Diskusija

Podaci o obolelima u Srbiji na početku epidemije ukazivali su da je među obolelima bilo više muškaraca, te da su uglavnom obolevale osobe starijeg životnog doba. U našem istraživanju bila je među obolelima više muškaraca, a oni su uglavnom imali stariji životni dobićak. U našem istraživanju, bila je podjednaka zastupljenost oba pola, a prosječna starost ispitanika iznosila je 49 godina. Podatke o podjednakoj zastupljenosti polova nalaze u istraživanjima Cheng JL et al., Xianguang Yang et al., i Nie Y et al., gdje je odnos muškaraca i žena bio 1,14:1 i 1,09:1, a prosječna starost 46 i 45 godina. U istraživanju Krishnan A et al., prosečna starost 56.2% muškaraca i prosečna starost 43 godina23. Na početku epidemije oboleli su se često lećali sami, a lekarima se javljali tek kada bi se bolni komplikovali. Putem medija je apelovano da se oboleli obrate lekarima prilikom prve simptoma. Podaci o pojavama prvih simptoma u obolelima u Srbiji na početku epidemije ukazuju da su se simptomi pojavili u proseku nakon 3 dana. U našem istraživanju, prosečna starost obolelih u bolnicu iznosila je 49 godina. Obrada

Discussion

Data on the diseased patients in Serbia, at the beginning of the outbreak, showed that among them were more men, and they were mainly older persons. In our research, there were equally diseased of both genders, and the average age was 49. Data on the equal prevalence of both genders were also found in the research of Cheng JL et al. They found the ratio of men to women was 1,14:1, and the average age was 465. Xianguang Yang et al. found this ratio to be 1,09:1, and the average age 45. Nie Y et al. found the incidence of men was 56.2% and the average age of the participants was 43. In the research of Krishnan A et al. the average age of the patients with COVID-19 was slightly higher, 51 years of age. At the very beginning of the pandemic, the diseased often medicated on their own and visited the doctor when the illness got complicated. The media urged the diseased to visit their doctors with the first sign of symptoms. In our research, we found the majority of the participants visited the doctor in the COVID outpatient clinic after 3 days of disease symptoms, on average. The research of Nie Y et al. found this period to be a bit longer - 5.6 days. As far as symptoms go, epidemiological studies show the symptoms in COVID-19 patients vary greatly. Processing the data from our
podataka koje smo dobili u ovom istraživanju pokazala je da
su od glavnih simptoma najčešće postojali povišena telesna
temperatura i kašalj, što je u skladu sa rezultatima \textit{Guan W} i
saradnika\textsuperscript{22}, kao i rezultatima drugih istraživanja\textsuperscript{8,23}. \textit{Mallah IS} i saradnici u svom radu kao glavne simptome navode suv
kašalj i glavobolju\textsuperscript{6,10}. Od ostalih simptoma kod naših ispitana-
nika, najčešće se zapaža umor i bolovi u mišićima, a poreme-
ćaj čula mirisa i ukusa (anosmija) kod 22,04\%. U radu \textit{Gane SB} i saradnika iznenadna anosmija bio je četvrti po učestalo-
st osnovni simptom \textit{COVID}-infekcije\textsuperscript{21}. U nizu radova kao
ostali simptomi navode se glavobolja, dijareja, umor, upalje-
no grlo i anosmija\textsuperscript{7,21}. \textit{Thomas Struyf Jonathan} i saradnici uradili su metaanalizu 44 studije sa 26.884 ispitnika, tražeći
odgovor na pitanje da li se na osnovu znakova i simptoma pa-
cijenata u ordinacijama primarne zdravstvene zaštite ili u bol-
ničkim ustanovama, može utvrditi boluje li pacijent od \textit{CO-
VID-19}. Našli su da su u ovim istraživanjima identifikovana
čak 84 različita znaka i simptoma, te da se samo na osnovu
simptoma ne može pokušano postaviti dijagnoza \textit{COVID-19}. (U pogledu komorbiditeta, u našem istraživanju je nađeno
da je kod 57,54\% ispitnika postojalo neko drugo oboljenje ili
stanje, najčešće hipertenzija, potom gojaznost. \textit{Nie Y} i sa-
radnici navode da su u njihovoj istraživanju komorbiditeti postojali kod 22,4\% ispitnika\textsuperscript{19}, a \textit{Di Salvo} i saradnici ističu
da postojanje komorbiditeta predstavlja alarm koji ukazuje
na mogućnost teže kliničke manifestacije \textit{COVID-19} i lošije
prognose\textsuperscript{24}. U skladu s tim, \textit{Ahmad A} i saradnici potvrđuju da
osebe sa oštećenom funkcijom jetre imaju lošiju prognozu
koja će se rezultira lošijim zdravstvenim ishodom\textsuperscript{14}. \textit{Krish-
nan A} sa svojim saradnicima ističe da je hipertenzija najčešći
zastupljen komorbiditet, ali ukazuju i na gojaznost kao na-
čajan faktor rizika za \textit{COVID-19}\textsuperscript{21}. Do istog rezultata smo i
mi došli u našem istraživanju, jer je četvrta naših ispitnika
bila gojazna (24,56\%). \textit{Hua S} i saradnici su pokazali da i
metaboličke bolesti povećavaju i morbiditet i mortalitet pa-
cijenata sa \textit{COVID-19}\textsuperscript{14}. Prema smernicama za dijagnostiku
\textit{COVID-19}, lančana reakcija reverzne traskripcije polimeraze
- PCR test predstavlja zlatni standard u detekciji pacijenata za-
raženih \textit{SARS-CoV-2} virusom\textsuperscript{19,20}, a istraživači ističu da
primena ovog testa ima najvažniji uticaj na kontrolu širenja vi-
rusa\textsuperscript{12,25}. U našem istraživanju testirano je 92\% ispitnika. Od
676 ispitnika, 60,95\% je bilo PCR pozitivno. Rezultati nekih
istraživanja ukazuju na mogućnost lažnopozitivnih i lažnoge-
nativnih rezultata. Radi dijagnostike \textit{COVID-19}, preporučuje se i
primena drugih vizuelnih dijagnostičkih metoda (radio-
grafija, kompjuterizovana tomografija, pozitivna emisiona
tomografija, magnetna rezonancija), uz sugestiju da istraživa-
ja treba usmjeriti na iznalaženje novih dijagnostičkih metoda
koje bi imale veću pouzdanost\textsuperscript{9,11,13,20}. Naši ispitnici s težom
kliničkom slikom upućeni su na bolničko lečenje. Među nji-
ma su, najčešće, bile osobe starije od 50 godina (mada razlika
research found the most common symptoms were fever and
cough, which is in line with the results of \textit{Guan W} et al.\textsuperscript{22},
as well as the results of some other researches\textsuperscript{8,23}. \textit{Mallah IS}
and others found the dry cough and headache to be the main
symptoms\textsuperscript{6,10}. Other symptoms in our participants mostly included
fatigue and muscle aches, and loss of smell or taste (anosmia)
was found in 22,04\%. In the study of \textit{Gane SB} et al. sudden
anosmia was the fourth most frequent symptom of the \textit{COVID}
infection\textsuperscript{21}. In the series of studies, other mentioned
symptoms were headache, diarrhoea, fatigue, sore throat, and
anosmia\textsuperscript{7,21}. \textit{Thomas Struyf Jonathan} et al. performed a
meta-analysis of 44 studies with 26.884 participants, looking for
the answer to whether the diagnosis of \textit{COVID-19} in a patient
can be made based on the symptoms and signs with which pa-
tients presented in outpatient clinics or hospitals\textsuperscript{9}. They
found 84 different signs and symptoms in these studies, and there-
fore \textit{COVID-19} diagnosis can’t be solely made based on the
symptoms. As for the comorbidities, our research showed
57,54\% of the participants had a comorbidity or health issue,
most commonly hypertension, followed by obesity. \textit{Nie Y} et
al. showed comorbidities were present in 22,4\% of the partic-
ants from their research\textsuperscript{19}, while \textit{Di Salvo} et al. pointed out
the presence of the comorbidities was an \textit{alarm} signaling the
possibility of severe clinical manifestations of the \textit{COVID-19}
and worse prognosis\textsuperscript{24}. Hence, \textit{Ahmad A} et al. confirm
the persons with liver damage had a worse prognosis resulting
in worse health outcome\textsuperscript{14}. \textit{Krishnan A} et al. emphasize that
hypertension is the most common comorbidity but they also
point out obesity as an important risk factor for \textit{COVID-19}\textsuperscript{21}.
We came to the same results in our research because the
fourth of our participants were obese (24,56\%). \textit{Hua S} et al.
showed metabolic diseases also raised morbidity and mortal-
ity of the \textit{COVID-19} patients\textsuperscript{14}. According to the \textit{COVID-19}
diagnostic guidelines, the chain reaction of the reverse poly-
merase transcription - PCR test is the gold standard in detect-
ing patients infected with \textit{SARS-CoV-2} virus\textsuperscript{19,20}. The research-
ners emphasize the use of this particular test has the most
important influence on the control of the virus spreading\textsuperscript{12,25}.
In our research, 92\% of the participants were tested. Out of
676 participants, 60,95\% were PCR positive. The results of some
other studies point out the possibility of false-positive or
false-negative results. For the purpose of \textit{COVID-19} diag-
nosis, other visual diagnostic methods are recommended as
well (chest X-ray, computerized tomography, positive emis-
ion tomography, magnetic resonance), with a suggestion that
future research should be aimed at finding new diagnostic
methods, with higher reliability\textsuperscript{9,11,13,20}. Our participants with
the severe clinical presentation were sent to hospitals. Among
them were mostly persons over 50 (although the difference
wasn’t statistically significant). \textit{Anand U} et al. in their review
pointed out, the disease susceptibility bore no relevance to

Anand U and colleagues in their review note that there are no gender differences in terms of susceptibility to infection, but persons over 60 were at a higher risk for severe clinical presentation due to the comorbidities, which was confirmed in the research of Alkhathami MG et al. as well.

**Conclusion**

The most common symptoms of COVID-19 in our participants were fever and cough, and they visited a doctor after 1 to 3 days from symptoms onset, on average. Out of the comorbidities, the most common were hypertension and obesity, more often in those over 65. In more than half of the participants, the PCR test was positive, most commonly in those over 50. In all the looked at parameters there was no statistically significant difference in relation to gender.

**Conflict of interest**

I hereby confirm the authors have no conflict of interest in writing this paper.
Reference/ Literatura

1. Khan AH, Tirth V, Fawzy M, Mahmoud AED, Khan NA, Ahmed S, et al. COVID-19 transmission, vulnerability, persistence and nanotherapy: a review. Environ Chem Lett [Internet]. 2021 Aug 1 [cited 2021 Aug 6];19(4):2773–87. Available from: https://pubmed.ncbi.nlm.nih.gov/33846683/

2. Anand U, Cabreros C, Mal J, Ballesteros F, Sillanpää M, Tripathi V, et al. Novel coronavirus disease 2019 (COVID-19): From transmission to control with an interdisciplinary vision. Environ Res [Internet]. 2021 Jun 1 [cited 2021 Jul 30];197. Available from: https://pubmed.ncbi.nlm.nih.gov/33831411/

3. Rahman S, Montero MTV, Rowe K, Kirton R, Kunik F. Epidemiology, pathogenesis, clinical presentations, diagnosis and treatment of COVID-19: a review of current evidence. Expert Rev Clin Pharmacol [Internet]. 2021 [cited 2021 Jul 30];14(5):601–21. Available from: https://pubmed.ncbi.nlm.nih.gov/33705239/

4. Yang X, Chen X, Ding C, Bai Z, Zhu J, Sun G, et al. Epidemiological Investigation and Prevention Control Analysis of the Longitudinal Distribution of COVID-19 in Henan Province, China. mSphere [Internet]. 2020 Oct 28 [cited 2021 Jul 30];5(5). Available from: https://pubmed.ncbi.nlm.nih.gov/33028688/

5. Cheng JL, Huang C, Zhang GJ, Liu DW, Li P, Lu CY, et al. [Epidemiological characteristics of novel coronavirus pneumonia in Henan]. Zhonghua Jie He Za Zhi [Internet]. 2020 Mar 2 [cited 2021 Jul 30];43(0):E027. Available from: http://www.ncbi.nlm.nih.gov/ pubmed/3218390

6. Mallah SI, Ghorab OK, Al-Salmi S, Abdellatif OS, Tharmaratnam T, Iskandar MA, et al. COVID-19: breaking down a global health crisis. Ann Clin Microbiol Antimicrob [Internet]. 2021 Dec 1 [cited 2021 Jul 30];20(1). Available from: https://pubmed.ncbi.nlm.nih.gov/34006330/

7. Struyf T, Deeks JJ, Dinnes J, Takwoingi Y, Davenport C, Leeflang MMG, et al. Signs and symptoms to determine if a patient presenting in primary care or hospital outpatient settings has COVID-19. Cochrane Database Syst Rev [Internet]. 2021 Feb 23 [cited 2021 Jul 30];2021(2). Available from: https://pubmed.ncbi.nlm.nih.gov/33620086/

8. Rothan HA BS. The epidemiology and pathogenesis of coronavirus disease (COVID-19) outbreak. J Autoimmun [Internet]. 2020 May 1 [cited 2021 Aug 6];109. Available from: https://pubmed.ncbi.nlm.nih.gov/32113704/

9. Afshar-Oromieh A, Proshch H, Schaefer-Prokop C, Bohn KP, Alberts J, Mingels C, et al. A comprehensive review of imaging findings in COVID-19 - status in early 2021 [Internet], European Journal of Nuclear Medicine and Molecular Imaging. Eur J Nucl Med Mol Imaging; 2021 [cited 2021 Jul 30]. Vol. 48:2500–2524. Available from: https://pubmed.ncbi.nlm.nih.gov/33932183/

10. Regmi K, Lwin CM. Factors associated with the implementation of non-pharmaceutical interventions for reducing coronavirus disease 2019 (Covid-19): A systematic review. Int J Environ Res Public Health [Internet]. 2021 Apr 2 [cited 2021 Jul 30];18(8). Available from: https://pubmed.ncbi.nlm.nih.gov/33920613/

11. Luo X, Liu Y, Ren M, Zhang X, Janne E, Lv M, et al. Consistency of recommendations and methodological quality of guidelines for the diagnosis and treatment of COVID-19. J Evid Based Med [Internet]. 2021 Feb 1 [cited 2021 Jul 30];14(1):40–55. Available from: https://pubmed.ncbi.nlm.nih.gov/33565225/

12. Mardian Y, Kosasih H, Karyana M, Neal JD, Ding L, et al. Cardiovascular disease during the COVID-19 pandemic: From transmission to control with an interdisciplinary vision. Environ Res [Internet]. 2021 Jun 1 [cited 2021 Jul 30];275(6):616–24. Available from: https://pubmed.ncbi.nlm.nih.gov/32789839/

13. Sen M, Honavar SG, Sharma N, Sachdev MS. COVID-19 and eye: A review of ophthalmic manifestations of COVID-19. Indian J Ophthalmol [Internet]. 2021 Mar 1 [cited 2021 Jul 30];69(3):488–509. Available from: https://pubmed.ncbi.nlm.nih.gov/33595463/

14. Nie Y, Li J, Huang X, Guo W, Zhang X, Ma Y, et al. Epidemiological and clinical characteristics of 671 COVID-19 patients in Henan Province, China. Int J Epidemiol [Internet]. 2020 Aug 1 [cited 2021 Jul 30];49(4):1085–95. Available from: https://pubmed.ncbi.nlm.nih.gov/32588051/

15. Song Q, Sun X, Dai Z, Gao Y, Gong X, Zhou B, et al. Point-of-care testing detection methods for COVID-19. Lab Chip [Internet]. 2021 May 7 [cited 2021 Jul 30];21(9):1634–60. Available from: https://pubmed.ncbi.nlm.nih.gov/33705507/

16. Krishnan A, Hamilton JP, Alqahtani SA, A.Woreta T. A narrative review of coronavirus disease 2019 (COVID-19): clinical, epidemiological characteristics, and systemic manifestations [Internet]. Vol. 16, Internal and Emergency Medicine. Intern Emerg Med; 2021 [cited 2021 Jul 30]. p. 815–30. Available from: https://pubmed.ncbi.nlm.nih.gov/33453010/

17. Guan W, Ni Z, Hu Y, Liang W, Ou C, He J, et al. Clinical Characteristics of Coronavirus Disease 2019 in patients in COVID-19 outpatient clinics General Practice 2022;28(1-2):14-26
23. Gane SBC, Kelly C, Hopkins C. Isolated Sudden onset anosmia in COVID-19 infection. A novel syndrome? Rhinology [Internet]. 2020 [cited 2021 Jul 30];58(3):299–301. Available from: https://pubmed.ncbi.nlm.nih.gov/32240279/

24. Di Salvo E, Di Gioacchino M, Tonacci A, Caciari S M, Gangemi S. Alarmins, COVID-19 and comorbidities Ann Med. 2021;53(1):777–85.

25. Al-Hosani F, Al-Mazrouei S, Al-Memari S, Al-Yafei Z, Paulo MS, Koornneef E. A Review of COVID-19 Mass Testing in the United Arab Emirates. Front Public Heal [Internet]. 2021 May 12 [cited 2021 Jul 30];9. Available from: https://pubmed.ncbi.nlm.nih.gov/34055725/

26. Alkhathami M, Advani S, Abalkhail A, Alkhathami F, Alshehri M, Albeashy E, et al. Prevalence and mortality of lung comorbidities among patients with COVID-19: A systematic review and meta-analysis. Lung India [Internet]. 2021 [cited 2021 Jul 30];38(7):31. Available from: https://pubmed.ncbi.nlm.nih.gov/33686977/

Autori izjavljuju da nemaju sukob interesa
Conflict of Interest: None declared

Primljen - Received - 16.01.2021.
Ispravljen - Corrected - 18.02.2022.
Prihvaćen - Accepted - 31.03.2022.