Supplementi u prehrani zdravstvenih djelatnika tijekom pandemije COVID-19

Food supplements in healthcare professionals’ diet during COVID-19 pandemic

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Abstract

Aim: The study aims to investigate the impact of the COVID-19 pandemic on the frequency of healthcare professionals’ food supplement consumption.

Subjects and Methods: The study was conducted in December 2020 and January 2021 in the City of Zagreb and comprised a total of 279 healthcare professionals (physicians, nurses/technicians, pharmacists) affiliated with the HC “Center”. Data were collected via a questionnaire adapted to the study’s purposes. Differences between the group which changed its food supplementation consumption during the COVID-19 pandemic and the group that did not change it were tested using the χ2 test. P-values beneath 0.05 were deemed statistically significant.

Results: The results reveal the consumption of some food supplements to be a fairly strong habit among healthcare professionals. COVID-19 pandemic urged one third of them to start taking food supplements (11.5%) or to increase the amount and frequency of their use (21.9%). As for vitamins, during the pandemic healthcare professionals have taken more C (P=0.001), D (P=0.001), and B complex vitamins (P=0.048). The major increase was seen with the D vitamin, whose daily consumption rose by 3.63. Significant differences in the consumption of minerals, proteins, and amino acids, noticeable between the group that changed its food supplementation habits and the one that did not change, arose primarily due to the changes in magnesium and zinc intake (P<0.001). On top of that, a significant rise in beta-glucan (P<0.001), ginkgo biloba (P=0.012), collagen (P=0.038), and homeopathic preparations’ intake was documented (P=0.006).

Conclusion: COVID-19 pandemic significantly impacts food supplements’ use among healthcare professionals. Based on the current knowledge and dietary recommendations, during the pandemic, the focus should be shifted to healthy diet principles. Daily vitamin, mineral, protein, and antioxidant needs should be satisfied through a variety of foods. In case of an increased risk of COVID-19 disease or deficiency of certain nutrients, food supplements should be introduced, too.

Keywords: healthcare professionals, food supplements, COVID-19

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Uvod

Dodaci prehrani pripravci su proizvedeni iz koncentriranih izvora hranjivih tvari ili drugih tvari s hranjivim ili fiziološkim svojstvima. Ova studija namjerava istražiti utjecaj pandemije COVID-19 na frekvenciju konzumiranja dodataka prehrane među zdravstvenim djelatnicima, a pojavu pandemije COVID-19 utjecala je na trećinu ispitanika da započnu s uzimanjem suplementa (11,5 %) ili da ih uzimaju više i češće nego prije pandemije (21,9 %). Od vitaminima, tijekom pandemije COVID-19 među zdravstvenim djelatnicima, povećala se upotreba vitamina C (P = 0,001), vitamina D (P = 0,001) te kompleksa B vitamina (P = 0,048). Najveće povećanje odnosilo se na učestalost uzimanja vitamina D gdje se svakodnevno uzimanje povećalo 3,63 puta. Značajne razlike u uzimanju minerala, proteina i aminokiseline između skupine koja je imala promjenu u uzimanju suplementacije u odnosu na skupinu koja nije imala promjenu odnose se na uzimanje magnezija i cinka (P < 0,001). Od ostalih dodataka prehrani značajno se poveća unos beta-glukana (P < 0,001), ginkgo bilobe (P = 0,012), kolagen (P = 0,038) te homeopatskih priprava (P = 0,006).

Zaključak: Pandemija COVID-19 značajno je utjecala na povećan unos dodataka prehrani kod zdravstvenih djelatnika. Na temelju najnovijih znanstvenih spoznaja i preporuka o prehrani za vrijeme COVID-19 trebalo bi više pažnje usmjeriti na princip pravilne prehrane te dnevne potrebe za vitaminima, mineralima, proteinima i antioksidansima zaštitom konzumacije namirnica iz različitih kategorija hranne, a u slučajevima povećanog rizika od bolesti COVID-19 ili deficita pojedinih nutrijenata upotrebljavati i suplemente.

Ključne riječi: zdravstveni djelatnici, suplementi, COVID-19

Kratak naslov: zdravstveni djelatnici, suplementi, COVID-19

Ključne riječi: Food supplements are preparations produced from concentrated nutrient sources or other substances having a specific nutritional or other beneficial properties. The aim of this study was to investigate the impact of the COVID-19 pandemic on the frequency of healthcare professionals’ food supplement consumption. The study was conducted in December 2020 and January 2021 in the City of Zagreb and comprised a total of 279 healthcare professionals (physicians, nurses/technicians, pharmacists) affiliated with the HC “Center”. Data were collected via a questionnaire adapted to the study’s purposes. Differences between the group which changed its food supplementation consumption during the COVID-19 pandemic and the group that did not change it were tested using the χ2 test. P-values beneath 0.05 were deemed statistically significant.

Results: The results reveal the consumption of some food supplements to be a fairly strong habit among healthcare professionals. COVID-19 pandemic urged one third of them to start taking food supplements (11.5%) or to increase the amount and frequency of their use (21.9%). As for vitamins, during the pandemic healthcare professionals have taken more C (P=0.001), D (P=0.001), and B complex vitamins (P=0.048). The major increase was seen with the D vitamin, whose daily consumption rose by 3.63. Significant differences in the consumption of minerals, proteins, and amino acids, noticeable between the group that changed its food supplementation habits and the one that did not change, arose primarily due to the changes in magnesium and zinc intake (P<0.001). On top of that, a significant rise in beta-glucan (P<0.001), ginkgo biloba (P=0.012), collagen (P=0.038), and homeopathic preparations’ intake was documented (P=0.006).

Conclusion: COVID-19 pandemic significantly impacts food supplements’ use among healthcare professionals. Based on the current knowledge and dietary recommendations, during the pandemic, the focus should be shifted to healthy diet principles. Daily vitamin, mineral, protein, and antioxidant needs should be satisfied through a variety of foods. In case of an increased risk of COVID-19 disease or deficiency of certain nutrients, food supplements should be introduced, too.

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kim učinkom kojima je svrha dodatno obogatiti uobičajenu prehranu u cilju održavanja zdravlja [1].

Globalno tržište dodataka prehrani u 2020. godini procije- njeno je na 140,3 milijarde dolara te su projekcije da će go- dišnja stopa rasta u razdoblju od 2021. do 2028. godine biti 8,6 %. Najveći udio čine vitamini (31,4 %), biljni preparati, minerali, te proteini, aminokiseline i kreatin. Nekki od čim- benika koji utječu na veliko tržište i porast tijekom godina su: veća svijest ljudi o važnosti zdravlja, pogotovo u današ- njej užurbanom načinu života; veći broj starijeg stanov- ništva; veći interes za zdravu prehranu, posebice radne populacije s ciljem prevencije bolesti te popularnost teretan- na i različitih fitness centara. Pojavom pandemije COVID-19 interes za suplemente u prehrani još više se povećava s ciljem prevencije i liječenja infekcije sa SARS-CoV-2. [2 – 4] pri čemu dolazi do izražaja velik utjecaj medija i društvenih mreža [5].

Optimalna prehrana može unaprijediti zdravstveno stanje, smanjiti rizik od oboljenja i morbiditet povezan s bošću COVID-19. Vitamini i minerali iz prehrane mogu doprinijeti jačanju imunološkog sustava, što je iznimno važno u vrijeme pandemije. Preporučuje se dodavati dobro izbala- vsnu prehranu koja uključuje sve odgovarajuće dijete i solu i željeza i sele. Stoga se preporučuje unaprijediti stres, koja uključuje izrazitije deficite pojedinih mikro- nutrijenata.

Zdravstveni djelatnici koji rade na području unaprijednja zdravlja, sprječavanja bolesti, liječenja ili rehabilitacije često su izloženi povećanom naporima i nemogućnost vođenja dobro izbalansiranih obroka. Pojavom pandemije COVID-19 pred medicinsko osoblje postavljen je novi izazov. U tim okolnostima posebno je važno voditi brigu za ubla- zovanje ćelir, masti i soli uz primjerenu jutrosnu aktivnost, dovoljno sna i izbjegavanje stresa [6 – 8].

Ispitanici i metode

Ispitanje je provedeno tijekom prosinca 2020. i siječnja 2021. godine na području grada Zagreba, a obuhvatilo je 279 zdravstvenih djelatnika DZ Centar. Podaci su prikup- ljeni putem anonimnog upitnika [9] prilagođenog potrebama ovog istraživanja. Prvi dio upitnika odnosio se na sociode- mografске karakteristike ispitanika te pitanja o samopro- cjeni prehranbenih navika, jutrosnoj kondiciji i učestalosti fizičke aktivnosti. Učestalost konzumacije pojedinih suple- menata definirana je kao svakodnevna, 4 – 6 puta tjedno, jedanput tjedo i nikada.

Prevalencija uzimanja pojedinih suplemenata prikazana je kroz apsolutne vrijednosti te odgovarajuće postotne udje- le. Razlike između skupine koja je imala promjenu u uzima- nju suplemente (N = 93) u odnosu na skupinu koja nije imala promjenu u uzimanju suplementacije tijekom pan- demije COVID-19 (N = 186) analizirane su χ2 testom. Sve P

nutritional or physiological effect, which aim at further en- richment of normal diet to maintain good health [1].

In 2020, the global food supplement market was estimated at 140.3 billion dollars, with a projected annual increase of 8.6% within the 2021-2028 timeframe. The most substan- tial proportion of these supplements is represented by vit- amins (31.4%), followed by herbal preparations, minerals, proteins, amino acids, and creatin. Some of the factors in- fluencing such a large market and the increase in use wit- nessed over the years are increased awareness about the importance of health, especially in the context of modern “rush through life”, an increasing proportion of the elderly, increasing interest in healthier diet, particularly that of the labour force to the end of disease prevention, and increas- ing popularity of gyms and various fitness centres. The onset of the COVID-19 pandemic has increased the interest in food supplements even more, in hope of prevention and curing of SARS-CoV-2 infection [2-4], which is to be attributed to the influence of media and social networks, as well [5].

An optimal diet can improve health and reduce the risk of diseases and COVID-19- associated morbidity rate. Dietary vitamins and minerals may contribute to the reinforcement of the immune system, which is most important in this time of the pandemic. These recommendations highlight the importance of sufficient intake of C, B6, and B12 vitamins, folates, A and D vitamins, zinc, iron, and selenium. It is, therefore, recommendable to stick to a well-balanced diet that includes fresh and unprocessed foodstuffs and avoids sugar, fat, and salt intake, but encourages an appropriate physical activity, a lot of sleep, and stress avoidance [6-8].

Healthcare professionals engaged in several fields dealing with health improvement, disease prevention, therapy, and rehabilitation, that is to say, occupying different work posts, are often overstrained and deprived of well-balanced meals. The emergence of the COVID-19 pandemic represents a nov- el challenge healthcare professionals have to cope with. Un- der these circumstances, it is significant to take care of the immune status, given the fact that the pandemic began to spread widely in the winter period when certain micronutri- ent deficiencies are more striking and more common.

Accordingly, this study aims to investigate the impact of the COVID-19 pandemic on the frequency of supplement use in healthcare professionals’ diet.

Subjects and Methods

The study was carried out in December 2020 and January 2021 in the City of Zagreb and comprised a total of 279 healthcare professionals affiliated with the HC “Centar”. The data were collected using an anonymous questionnaire [9] adapted for the needs of this research. The first part of the questionnaire contained sociodemographic features of the respondents and posed questions about self-appraisal of di- etary habits, physical fitness, and physical activity frequency. The frequency of food supplements consumption was de- fined as “daily”, “4-6 times a week”, “once a week” or “none”. Prevalence rates of individual food supplements were ex- pressed as absolute figures and matching percentage shares. Differences between the group that changed its food supplement intake pattern during the COVID-19 pan-
vrijednosti manje od 0,05 smatrane su značajnima. U analizi i grafičkom prikazu koristila se programska podrška IBM SPSS Statistics for Windows, verzija 25.0.

Rezultati

U istraživanje je uključeno ukupno 279 zdravstvenih djelatnika od kojih je 215 (77,1%) bilo ženskog spola, dok je ispod 30 godina starosti bilo 58 (20,8%) ispitanika. Srednju stručnu spremu imalo je 113 (40,5%) ispitanika, dok je broj medicinskih sestara iznosio 148 (53,0%). Od ostalih zdravstvenih djelatnika, nakon medicinskih sestara, najbrojniji su bili liječnici, njih 64 (22,9%). Zdrave prehrambene navike prema vlastitoj procjeni imalo je 125 (44,8%) ispitanika te je većina ispitanika, njih 173 (62,0%), bila u normalnom rasponu indeksa tjelesne mase (18,5 – 24,9 kg/m²). Lošu kondiciju imalo je 43 (15,4%) ispitanika, a intenzivnu učestalost tjelesne aktivnosti (svakodnevno ili više puta tjedno > 90min) njih 47 (16,8%).

Table [1] Sociodemographic features of respondents and differences between the group that changed its food supplementation habits during COVID-19 pandemic and the group that failed to do so: χ² test

| THE IMPACT OF COVID-19 PANDEMIC ON FOOD SUPPLEMENT CONSUMPTION | Yes | No | P |
|---|---|---|---|
| **GENDER** | | | |
| Male | 16 | 17.2 % | 48 | 25.8 % | 0.131 |
| Female | 77 | 82.8 % | 138 | 74.2 % | |
| **AGE** | | | 0.001 |
| <30 | 14 | 15.1 % | 44 | 23.7 % | |
| 31-40 | 15 | 16.1 % | 60 | 32.3 % | |
| 41-50 | 36 | 38.7 % | 46 | 24.7 % | |
| >50 | 28 | 30.1 % | 36 | 19.4 % | |
| **LEVEL OF EDUCATION** | | | 0.160 |
| High school | 45 | 48.4 % | 68 | 36.6 % | |
| Vocational school graduates | 23 | 24.7 % | 52 | 28.0 % | |
| College graduates | 25 | 26.9 % | 66 | 35.5 % | |
| **PROFESSION** | | | 0.205 |
| Physician | 16 | 17.2 % | 48 | 25.8 % | |
| Nurse/Medical technician | 57 | 61.3 % | 91 | 48.9 % | |
| Pharmacist | 5 | 5.4 % | 16 | 8.6 % | |
| The others | 15 | 16.1 % | 31 | 16.7 % | |
| **EATING HABITS** | | | 0.348 |
| Healthy | 43 | 46.2 % | 82 | 44.1 % | |
| Unhealthy | 18 | 19.4 % | 26 | 14.0 % | |
| I do not think about it | 32 | 34.4 % | 78 | 41.9 % | |
| **BODY MASS INDEX** | | | 0.058 |
| < 18.5 kg/m² | 2 | 2.2 % | 5 | 2.7 % | |
| 18.5 – 24.9 kg/m² | 50 | 53.8 % | 123 | 66.1 % | |
| 25.0 – 29.9 kg/m² | 30 | 32.3 % | 50 | 26.9 % | |
| > 30 kg/m² | 11 | 11.8 % | 8 | 4.3 % | |
| **FITNESS LEVEL** | | | 0.001 |
| Excellent | 5 | 5.4 % | 43 | 23.1 % | |
| Good | 31 | 33.3 % | 51 | 27.4 % | |
| Satisfactory | 39 | 41.9 % | 67 | 36.0 % | |
| Poor | 18 | 19.4 % | 25 | 13.4 % | |
| **FREQUENCY AND DURATION PHYSICAL ACTIVITY** | | | 0.017 |
| Rarely /Never | 44 | 47.3 % | 66 | 35.5 % | |
| Moderately | 41 | 44.1 % | 81 | 43.5 % | |
| Intensively | 8 | 8.6 % | 39 | 21.0 % | |
Raspodjela odgovora o utjecaju COVID-19 pandemije na uzimanje suplementacije kod zdravstvenih djelatnika prikazana je Slikom 1. Jedna trećina zdravstvenih djelatnika, odnosno 93 (33,3 %), odgovorila je da jeCOVID-19 pandemija utjecala na svakodnevno uzimanje suplementacije. Također su se podijelili tako da jedna trećina (njih 32) uzima dodatke prehrani, a prije pandemije ih nije uzmala, dok njih 61 uzmala više i/ili redovitije u odnosu na vrijeme prije pandemije.

(SLJEDUJE PILNOST)
### Table 2: Differences in vitamin intake between the group that changed its food supplementation habits during COVID-19 pandemic and the group that failed to do so: χ² test

| Vitamin | Yes | No | P     |
|---------|-----|----|-------|
| **MULTIVITAMINS** |     |    |       |
| Never | 63 | 135 | 0.811 |
| Once a week | 3 | 6 |       |
| 4-6 times a week | 8 | 14 |       |
| Every day | 19 | 31 |       |
| **VITAMIN A** |     |    |       |
| Never | 92 | 185 | 0.556 |
| Once a week | 0 | 1 |       |
| 4-6 times a week | 0 | 0 |       |
| Every day | 1 | 0 |       |
| **VITAMIN C** |     |    | 0.001 |
| Never | 61 | 151 |       |
| Once a week | 2 | 7 |       |
| 4-6 times a week | 11 | 19 |       |
| Every day | 19 | 9 |       |
| **VITAMIN D** |     |    | 0.001 |
| Never | 22 | 143 |       |
| Once a week | 2 | 3 |       |
| 4-6 times a week | 20 | 13 |       |
| Every day | 49 | 27 |       |
| **VITAMIN E** |     |    | 0.241 |
| Never | 90 | 184 |       |
| Once a week | 2 | 1 |       |
| 4-6 times a week | 0 | 0 |       |
| Every day | 1 | 0 |       |
| **BETA-CAROTENE** |     |    | 0.259 |
| Never | 88 | 181 |       |
| Once a week | 3 | 1 |       |
| 4-6 times a week | 1 | 2 |       |
| Every day | 1 | 2 |       |
| **B-COMPLEX SUPPLEMENT** |     |    | 0.048 |
| Never | 82 | 178 |       |
| Once a week | 0 | 1 |       |
| 4-6 times a week | 6 | 3 |       |
| Every day | 5 | 4 |       |
| **B9** |     |    | 1.000 |
| Never | 91 | 182 |       |
| Once a week | 0 | 0 |       |
| 4-6 times a week | 1 | 2 |       |
| Every day | 1 | 2 |       |
| **B12** |     |    | 1.000 |
| Never | 92 | 182 |       |
| Once a week | 1 | 3 |       |
| 4-6 times a week | 0 | 1 |       |
| Every day | 0 | 0 |       |

**THE IMPACT OF COVID-19 PANDEMIC ON FOOD SUPPLEMENT CONSUMPTION**
### Table 3: Differences in mineral, protein and amino acids’ intake between the group that changed its food supplementation habits during COVID-19 pandemic and the group that failed to do so: χ² test

| Mineral        | Yes | No | P     |
|---------------|-----|----|-------|
| **Calcium**   |     |    |       |
| Never         | 89  | 178| 0.491 |
| Once a week   | 2   | 7  |       |
| 4-6 times a week | 1 | 1 |       |
| Every day     | 1   | 0  |       |
| **Iron**      |     |    |       |
| Never         | 83  | 174| 0.267 |
| Once a week   | 2   | 1  |       |
| 4-6 times a week | 1 | 4 |       |
| Every day     | 7   | 7  |       |
| **Magnesium** |     |    | <0.001|
| Never         | 63  | 161|       |
| Once a week   | 7   | 5  |       |
| 4-6 times a week | 15| 18|       |
| Every day     | 8   | 2  |       |
| **Zinc**      |     |    | <0.001|
| Never         | 73  | 180|       |
| Once a week   | 4   | 2  |       |
| 4-6 times a week | 13| 3 |       |
| Every day     | 3   | 1  |       |
| **Potassium** |     |    | 0.232 |
| Never         | 84  | 177|       |
| Once a week   | 1   | 0  |       |
| 4-6 times a week | 1 | 1 |       |
| Every day     | 7   | 8  |       |
| **Selenium** |     |    | 0.258 |
| Never         | 91  | 185|       |
| Once a week   | 0   | 0  |       |
| 4-6 times a week | 0| 0 |       |
| Every day     | 2   | 1  |       |
| **Protein**   |     |    | 0.889 |
| Never         | 83  | 162|       |
| Once a week   | 1   | 5  |       |
| 4-6 times a week | 6| 14|       |
| Every day     | 3   | 5  |       |
| **Amino Acid Mixtures** |   |     | 0.604 |
| Never         | 89  | 172|       |
| Once a week   | 1   | 1  |       |
| 4-6 times a week | 2 | 8 |       |
| Every day     | 1   | 5  |       |
| **BCAA**      |     |    | 1.000 |
| Never         | 91  | 182|       |
| Once a week   | 0   | 0  |       |
| 4-6 times a week | 2| 3 |       |
| Every day     | 0   | 1  |       |
| **Glutamine** |     |    | 0.563 |
| Never         | 90  | 179|       |
| Once a week   | 0   | 0  |       |
| 4-6 times a week | 3| 4 |       |
| Every day     | 0   | 3  |       |
### Table [4]: Differences in the intake of other food supplements between the group that changed its food supplementation habits during COVID-19 pandemic and the group that failed to do so: χ² test

|          | Yes |  | No |  | P   |
|----------|-----|---|----|---|-----|
|          | N   | % | N   | % |     |
| CREATINE |     |   |     |   |     |
| Never    | 92  | 98.9 % | 181 | 97.3 % | 0.778 |
| Once a week | 0  | 0.0 % | 0  | 0.0 % |     |
| 4-6 times a week | 1  | 1.1 % | 4  | 2.2 % |     |
| Every day | 0  | 0.0 % | 1  | 0.5 % |     |
| CAFFEINE |     |   |     |   |     |
| Never    | 87  | 93.5 % | 176 | 94.6 % | 0.907 |
| Once a week | 1  | 1.1 % | 3  | 1.6 % |     |
| 4-6 times a week | 4  | 4.3 % | 6  | 3.2 % |     |
| Every day | 1  | 1.1 % | 1  | 0.5 % |     |
| BETA-GLUCAN |     |   |     |   | <0.001 |
| Never    | 80  | 86.0 % | 182 | 97.8 % |     |
| Once a week | 0  | 0.0 % | 0  | 0.0 % |     |
| 4-6 times a week | 7  | 7.5 % | 3  | 1.6 % |     |
| Every day | 6  | 6.5 % | 1  | 0.5 % |     |
| COQ10 (Co-Enzyme Q10) |     |   |     |   |     |
| Never    | 90  | 96.8 % | 182 | 97.8 % | 0.267 |
| Once a week | 2  | 2.2 % | 0  | 0.0 % |     |
| 4-6 times a week | 0  | 0.0 % | 1  | 0.5 % |     |
| Every day | 1  | 1.1 % | 3  | 1.6 % |     |
| OMEGA-3 |     |   |     |   |     |
| Never    | 82  | 88.2 % | 170 | 91.4 % | 0.420 |
| Once a week | 1  | 1.1 % | 1  | 0.5 % |     |
| 4-6 times a week | 5  | 5.4 % | 4  | 2.2 % |     |
| Every day | 5  | 5.4 % | 11 | 5.9 % |     |
| GINKGO BILOBA |     |   |     |   | 0.012 |
| Never    | 89  | 95.7 % | 186 | 100.0 % |     |
| Once a week | 0  | 0.0 % | 0  | 0.0 % |     |
| 4-6 times a week | 3  | 3.2 % | 0  | 0.0 % |     |
| Every day | 1  | 1.1 % | 0  | 0.0 % |     |
| GINSENG |     |   |     |   |     |
| Never    | 91  | 97.8 % | 184 | 98.9 % | 0.606 |
| Once a week | 1  | 1.1 % | 1  | 0.5 % |     |
| 4-6 times a week | 1  | 1.1 % | 0  | 0.0 % |     |
| Every day | 0  | 0.0 % | 1  | 0.5 % |     |
| GUARANA |     |   |     |   |     |
| Never    | 92  | 98.9 % | 182 | 97.8 % | 1.000 |
| Once a week | 0  | 0.0 % | 0  | 0.0 % |     |
| 4-6 times a week | 1  | 1.1 % | 3  | 1.6 % |     |
| Every day | 0  | 0.0 % | 1  | 0.5 % |     |
| L-CARNITINE |     |   |     |   |     |
| Never    | 90  | 96.8 % | 176 | 94.6 % | 0.921 |
| Once a week | 0  | 0.0 % | 1  | 0.5 % |     |
| 4-6 times a week | 3  | 3.2 % | 7  | 3.8 % |     |
| Every day | 0  | 0.0 % | 2  | 1.1 % |     |
| ROYAL JELLY |     |   |     |   | 0.159 |
| Never    | 85  | 91.4 % | 178 | 95.7 % |     |
| Once a week | 3  | 3.2 % | 2  | 1.1 % |     |
| 4-6 times a week | 2  | 2.2 % | 5  | 2.7 % |     |
| Every day | 3  | 3.2 % | 1  | 0.5 % |     |
| MELATONIN |     |   |     |   | 0.823 |
| Never    | 90  | 96.8 % | 182 | 97.8 % |     |
| Once a week | 1  | 1.1 % | 2  | 1.1 % |     |
| 4-6 times a week | 2  | 2.2 % | 2  | 1.1 % |     |
| Every day | 0  | 0.0 % | 0  | 0.0 % |     |
Rasprava

Komplementarna i alternativna terapija globalno postaju sve popularnije. Pojavom pandemije COVID-19 interes za suplemente prehrani, funkcionalnom hranom i biljnim pripravcima još je izraženiji u nadi da bi mogli biti učinkoviti u prevenciji i liječenju te bolesti [10].

To potvrđuje i naše istraživanje provedeno među zdravstvenim djelatnicima koje ukazuje na značajnu naviku konzumiranja dodataka prehrani, odnosno više od tri četvrtine ispitanika (77 %) uzima neku vrstu suplementa. Pri tome je na trećinu ispitanika pojava pandemije COVID-19 utjecala da započnu s uzimanjem suplemenata (11,5 %) ili da ih uzimaju više i češće nego prije pandemije (21,9 %).

Analizirajući sociodemografska obilježja ispitanika i njihove razlike s obzirom na promjenu u uzimanju suplementacije i onih koji nisu mijenjali navike za vrijeme COVID-19 pandemije, utvrđeno je da su stariji ispitanci i oni s lošijom kondicijom, odnosno sa smanjenom tjesnom aktivnošću, imali značajne promjene u uzimanju suplemenata. Tijekom pandemije COVID-19 zdravstveni djelatnici značajno su povećali potrošnju vitamina C i kompleksa vitamina B dok je najveća povećana potrošnja, čak više od tri puta, utvrđena za vitamin D. Od minerala se bilježi značajno povećanje unosstva magnezija i cinka. Također, ispitanici su povećali unos i drugih suplemenata: beta-glukana, ginko bilobe, kolagena i homeopatskih pripravaka.

Vrlo malo je provedenih istraživanja među zdravstvenim djelatnicima o njihovim prehrambenim navikama uključujući dodatke prehrani, a ona koju su provedena uglavnom se odnose na istraživanja provedena u Americi. Tako Dickinson i sur. [11] ukazuju na to da 72 % liječnika i 89 % medicinskih sestara kao dio opće populacije konzumiraju dodatke prehrani redovito, povremeno ili sezonski. Također, istraživanje provedeno prije pojave pandemije COVID-19 među američkim liječnicima kardiolozima, dermatolozima i ortopedima potvrđuje da, osim što sami uzimaju suplemente prehrani, preporučuju ih i svojim pacijentima [12].

Pojavom pandemije COVID-19 istraživanja su usmjerena na načine prevladavanja tog izvanrednog stanja te povećanje imuniteta organizma. Neka istraživanja pokazuju da bi suplementacija prehrane s vitaminima A, B, C i vitaminom D, te mineralima poput selena, cinka i željeza, ali i omega-3 te melanotina, mogla imati ulogu u liječenju COVID-19 pacijenata, ali i u prevenciji infekcija gornjeg respiratornog

| Suplementa | Never | Once a week | 4-6 times a week | Every day |
|------------|-------|-------------|-----------------|-----------|
| COLLAGEN   | 78    | 1           | 7               | 7         |
|            | 83.9 %| 1.1 %       | 7.5 %           | 7.5 %     |
|            | 174   | 0           | 6               | 6         |
|            | 93.5 %| 0.0 %       | 3.2 %           | 3.2 %     |
| HOMEOATPATHIC PREPARATIONS | 82 | 3 | 7 | 1 |
|            | 88.2 %| 3.2 %       | 7.5 %           | 1.1 %     |
|            | 179   | 4           | 1               | 2         |
|            | 96.2 %| 2.2 %       | 0.5 %           | 1.1 %     |

Discussion

The global popularity of complementary and alternative therapies is increasing. The onset of the COVID-19 pandemic gave rise to the interest in food supplements, functional diet, and herbal preparations that are more wanted in hope that they might be efficient in the prevention and treatment of the disease [10].

The aforementioned was confirmed by our study carried out among healthcare professionals, who have a marked habit of taking food supplements; in fact, this was the case in more than three quarters of our examinees (77%). One third of the latter started taking food supplements under the influence of the COVID-19 pandemic or have increased their intake for the very same reason (21.9%).

The analysis of sociodemographic features of our respondents and the differences between those who changed their food supplementation habits during the COVID-19 pandemic and those who did not, revealed that major changes in food supplementation habits occurred among older respondents, respondents in poorer physical shape and respondents not keen on physical activity. During the pandemic, healthcare professionals have significantly increased their vitamin C and B complex consumption (over three times in the case of D vitamin) and their consumption of magnesium and zinc. Other supplements (beta-glucan, ginkgo biloba, collagen, and homeopathic preparations) have also been taken in larger quantities.

Studies on dietary habits of healthcare professionals, food supplementation included, are scarce and mostly conducted in the US. Dickinson et al. [11] reported that 72% of physicians and 89% of nurses consume food supplements on a regular, time-to-time, or seasonal basis. A study conducted among American cardiologists, dermatologists, and orthopaedics prior to the COVID-19 pandemic showed that they started to take food supplements, but also tend to increasingly recommend them to their patients [12].

The COVID-19 pandemic has prompted research on how to overcome this emergency and strengthen immunity. Some of the research has suggested that food supplementation in terms of A, B, C, and D vitamin and minerals such as selenium, zinc, and iron, together with omega-3 and melanotin, could play a role in COVID-19 treatment, and even more importantly, in the prevention of upper respiratory tract infections [6, 13, 14]. The most recent study involving
sustava [6, 13, 14]. Najnovija studija provedena na gotovo 450.000 ispitanika ukazuje na značajnu povezanost upotrebe suplemenata multivitamina, vitamina D, probiotika, omega-3 masnih kiselina i nižeg rizika za razvoj bolesti COVID-19 kod žena, ali ne i kod muškaraca [15].

Istraživanje provedeno među zdravstvenim djelatnicima nutricionistima u Turskoj pokazuje da se, kao i u našem istraživanju, povećao broj ispitanika (14 %) koji su počeli uzimati suplemente za vrijeme pandemije COVID-19 [10]. Pérez-Rodrigo i sur. [16] ukazuju na značajan unos suplementa vitamina i minerala za vrijeme pandemije COVID-19 i „lockdown-a“ u Španjolskoj i to naročito kod žena i osoba u dobi od 35 do 54. godine. Kao i u našoj studiji, najčešće se upotrebljavaju multivitamini, vitamin D, vitamin C i vitamin B12, a od minerala cink, željezo i selen. Od ostalih dodataka prehrani navodi se i konzumacija pivskog kvasca, vlakana, omega-3 višestruko nezasićenih masnih kiselina i kolagen-a. U isto vrijeme istraživanje provedeno u Kini za vrijeme pandemije COVID-19 potvrđuje da više od trećine (37,7 %) ispitanika konzumira suplemente vitamina C, probiotike te druge dodatke prehrani [17].

Stupanj edukacije i socioekonomski čimbenici utječu na prehrablene navike pri čemu niže obrazovane i slabije plaćene osobe imaju lošije navike u prehrani koje se manifestiraju u smanjenoj konzumaciji voća i povrća, a povećanoj konzumaciji proizvoda bogatih šećerima, mastima i soli. [18, 19]. Jedno od rijetkih istraživanja provedeno u Republici Hrvatskoj među medicinskim sestrama pokazalo je da njih samo 7 % preferira mediteransku prehranu [21]. Dvadesetak izvora poznatih spremi u odnosu na pojavom pandemije COVID-19 dva, a drugo istraživa-nje ukazalo je na smanjeni unos lisnatog povrća u prehrani [21].

U našem istraživanju ispitanici su zdravstveni djelatnici različitih stupnjeva obrazovanja sa srednjom, višom te visokom stručnom spremom s odgovarajućim prihodima. Slikom njihovoj edukaciji koja se manifestira u smanjenju konzumacije voća i povrća, a povećanoj konzumaciji proizvoda bogatih šećerima, mastima i soli. [18, 19]. Jedno od rijetkih istraživanja provedeno u Republici Hrvatskoj među medicinskim sestrama pokazalo je da njih samo 7 % preferira mediteransku prehranu [21].

Zaključak

Pandemija COVID-19 utjecala je na trećinu ispitanika da započnu ili povećaju unos određenih dodataka prehrani. Na temelju najnovijih znanstvenih spoznaja i preporuka o prehrani za vrijeme COVID-19 trebalo bi više pažnje usmjeriti na princip pravilne prehrane te dnevne potrebe za vitamini-nima, mineralima, proteinima i antioksidanamsima. Bilo je evidentno konzumacijom namirnica iz različitih kategorija hrane, a u slučajevima povećanog rizika od bolesti COVID-19 ili deficita pojedinih nutrijenata, upotrebljavati i određene suplemente.

Nema sukoba interesa

The authors declare no conflicts of interest.
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