Original article

UDC: 614.44:[616.98:578.834
doi:10.5633/amm.2022.0301

PERCEPTION OF PROTECTIVE MEASURES AMONG PATIENTS TESTED FOR COVID-19: A CROSS SECTIONAL STUDY CONDUCTED IN THE SERBIAN UNIVERSITY CENTER

Aleksandar Višnjić[1,2], Kıvanç Kök[3], Roberta Marković[1,2], Aleksandra Jović Vraneš[4], Zoran Milošević[1,2], Dragan Nikolić[2], Tamara Jovanović[1,2]

The main objective of this study was to explore the practical benefits of precautionary behaviors among general population considering the Coronavirus disease 19 (COVID-19) infection rates. Additionally, sociodemographic aspects, related with the COVID-19 transmission, were also of interest.

For the purposes of this research, we have selected two groups of respondents who voluntarily agreed to participate. The research was conducted in the period from October to December 2020 at the Faculty of Medicine of the University of Niš (Serbia).

A total of 1,035 people underwent a telephone survey. There were 522 (50.4%) women and 513 men; 630 (60.9%) were infected with corona virus. The obtained results indicate that age, level of education, self-assessed health and the existence of chronic diseases have a significant impact on the self-perceived risk of contracting COVID-19 infection. Moreover, the presence of the so-called "fear factor" has a significant impact on infection rates. In contrast, no effect of gender difference and wearing mandatory protective masks was observed on COVID-19 infection rates.

This study yields novel insights into common protective measures against COVID-19, highlighting differences between the studied protective factors. Further efforts in this direction are required in order to develop more elaborate, well-balanced, efficient strategies for containing the ongoing pandemic, especially in the context of the contagion control.

Acta Medica Medianae 2022;61(3):05-13.

Key words: *precautionary behavior, face masks, perceived risk, COVID-19, public health*

[1]University of Niš, Faculty of Medicine, Niš, Serbia
[2]Institute of Public Health of Niš, Niš, Serbia
[3]Istanbul Medipol University, International School of Medicine, Istanbul, Turkey
[4]University of Belgrade, Faculty of Medicine, Belgrade, Serbia

Contact: Aleksandar Višnjić
81 Dr Zoran Djindjić Blvd., 18000 Niš, Serbia
E-mail: aleksandar.visnjic@medfak.ni.ac.rs

Introduction

In the Republic of Serbia, the first official case with COVID-19 was reported on March 6th 2020 (1). According to the data of the Public Health Institute of Serbia, a total of 395,263 cases was tested positive among 2,617,473 tested individuals (with PCR test), and 4,020 deaths (1.02% of positives) were reported in the period of almost eleven months, from March 6th 2020 to January 31st 2021 (1). It should be taken into account that the total number of residents in the Republic of Serbia (excluding the Autonomous Province of Kosovo and Metohija) is approximately 7 million people, according to the estimate of the Statistical Office of the Republic of Serbia (2).

The SARS-CoV-2 virus, which causes the COVID-19 disease, is still circulating in the territory of the Republic of Serbia, and beyond. Since Serbia is a country with no entry restriction, it is recommended to follow preventive measures in order to reduce the risk of occurrence and transmission of this infection. The Government of the Republic of Serbia has adopted a number of measures in order to prevent and suppress the pandemic (1). Initially, it was required to wear protective gloves, not to greet people, not to touch the door handles or any other metal surface with bare hands, and to wear face masks indoors (schools, banks, shops, etc.); there was a ban on gathering more than 5 people; catering facilities, gyms, hairdressing salons were closed.

In the meantime, controversial information provided by various sources, through the media, and different networks, made people insecure on how to behave. Many citizens have expressed a serious doubt whether masks protect virus transmission and prevent the spread of the pandemic. It was a period of learning for everyone, and published literature has provoked considerable questions about the individuals' behaviors on the pandemic situation, and links between behavior and the spread of infection (3-11).

Most of the governments have followed the recommendations issued by WHO and mandate the general population to wear a face mask in public locations (12). Therefore, the aim of this study was to explore the perception of protective measures among series of patients tested for COVID-19, and especially tendency of wearing protective masks.

Methods

This is a cross-sectional study on protective measures among the group of patients who were tested for COVID-19 in the period from October to December 2020 at the Faculty of Medicine of the University of Niš (Serbia). A total of 1,078 patients who had previously undergone PCR testing at the Institute of Public Health in Niš, with both positive and negative results, were invited by phone to voluntarily participate in the survey, i.e. telephone interview with a group of doctors from the Institute of Public Health of Niš within 5-7 days after taking the test. Out of the total number of the invited people, 1,035 (96.01%) responded to the calls and agreed to participate in the interview. The study procedures were carried out in accordance with the Declaration of Helsinki (13).

The survey instrument was the structured questionnaire consisting of two sets of questions. With the first set of questions, sociodemographic data, such as gender, age, level of education, marital status and monthly household income, were collected.

Through the second set of questions, patients were asked to assess their own health (as bad, moderate or good), and self-perceived risk of contracting COVID-19 (self-perceived risk to the infection exposure); to declare if they have co-morbidities, and to assess information sufficiency on COVID-19 (with yes or no questions). The follow-up questions were about strict adherence to the pandemic-related instructions of the Ministry of Health of the Republic of Serbia: maintaining hand hygiene, keeping the social distance of two meters, avoiding crowded places, and regular wearing of the protective facial masks - self-report on their behaviors prior to being tested (1).

Among the respondents, 405 were negative and 630 were positive for SARS-CoV-2 virus. In addition, the fear of contracting the COVID-19 (self-perceived risk to the infection exposure) was assessed on the five point Likert scale (where 1 = no fear at all, and 5 = fear the most). For the purposes of this research, the group of respondents were divided into two subgroups (as PCR positive versus PCR negative) based on the corresponding PCR test results, and the COVID-19-related aspects were compared between the resulting subgroups.

Data were analysed using the descriptive statistics (namely, absolute and relative frequency, mean and standard deviation) and analytical statistics, such as binary logistic regression, multiple regression analysis, and correlation tests. The statistical analysis was performed using the SPSS 17.0 program (SPSS Inc., Chicago, IL, USA). The cut-off threshold for statistical significance was set at $p < 0.05$.

Results

General sociodemographic characteristics

A total of 1,035 patients underwent a telephone interview. Mean age of respondents was 48.35 (SD = 17.22). There group of respondents consisted of 522 (50.4%) women and 513 men (Table 1).

More than a half of interviewed patients were with under high school education (55.9%), 340 (32.8%) were with high school diploma, and only 116 (11.3%) with university degree. The majority of patients 784 (75.7%) were married. Approximately 21% of patients had monthly household income (in euro) fewer than 500. More than a half of patients 571 (55.2%) assessed their health as moderate, one third (33.8%) as good, and 114 (11.0%) as bad.

There were 527 respondents who wore masks (surgical or other) regularly, while the remaining 508 respondents wore them only when obliged (e.g. when entering state institutions).

Among other things, it was found that Pearson chi-square statistic for wearing face masks and getting corona infection, with Yates correction, is $\chi^2 = 0.531$ ($p = 0.466$). Therefore, Pearson's analysis did not confirm a statistically supported significance of wearing protective masks. Similarly, the gender-related statistical difference was not observed.

Perceived risks and precautionary behaviors on COVID-19

Table 2. shows that perception of contamination of COVID-19 infection does not correlate to regular wearing a protective facial masks (it is statistically insignificant, $p = 0.526$), while other measures, such as hand hygiene, keeping the distance, and being away from crowded places have statistically significant negative correlation ($p < 0.001$).

Contracted COVID-19 infection has positive statistically significant correlation only to the self-perceived risk to the infection exposure ($r = 0.624$; $p < 0.001$) (Table 2).

The basic idea was to examine what else could have affected the infection rates.

Therefore, we performed a multiple regression analysis, with self-perceived risk of contracting the infection (Likert 1-5) as the main determinant - dependent variable (Table 3).

This analysis showed that only age, level of education, self-assessed health and the existence of some other, chronic diseases (co-morbidities) have a significant impact on the self-perceived risk of contracting this disease (Table 3).

Table 1. Sociodemographic characteristics of the respondents according to the PCR testing results for COVID-19

Sociodemographic characteristics	n = 1,035 **(100%)**	**COVID-19 status (PCR test)**		Pearson's χ^2	*P*
		Negative (n)	**Positive (n)**		
Gender					
Female	522 (50.4)	231	291	1.96	0.16 (ns)
Male	513 (49.6)	204	309		
Education					
Under high school	579 (55.9)	212	367	36.06	< 0.01**
With high school diploma	340 (32.8)	118	222		
With university degree	116 (11.3)	75	41		
Monthly household income (in euro)					
Under 500	216 (20.9)	74	142	11.41	< 0.01**
500–1000	413 (39.9)	157	256		
1000–2000	331 (32.0)	132	199		
≥ 2000	75 (7.2)	42	33		
Self-assessed health					
Bad	114 (11.0)	20	94	144.87	< 0.01**
Moderate	571 (55.2)	160	411		
Good	350 (33.8)	225	125		
Marital status					
Single	251 (24.3)	100	151	0.04	0.85 (ns)
Married	784 (75.7)	305	479		
Information sufficiency on COVID-19					
No	317 (69.3)	84	233	29.85	< 0.01**
Yes	718 (30.7)	321	397		
Presence of comorbidities					
No	837 (80.9)	357	480	22.02	< 0.01**
Yes	198 (19.1)	48	150		
Wearing regularly facial protective masks					
No	508 (49.1)	205	303	0.531	0.47 (ns)
Yes	527 (50.9)	200	327		
Hand hygiene					
No	119 (11.5)	28	91	13.01	< 0.01**
Yes	916 (88.5)	377	539		
Keeping the physical distance of 2 meters					
No	494 (47.7)	90	404	171.84	< 0.01**
Yes	541 (52.3)	315	226		
Avoiding crowded places					
No	155 (15.0)	23	132	108.44	< 0.01**
Yes	880 (85.0)	532	348		

** Chi square (χ^2) is significant at the 0.01 level

Table 2. Correlation between the protective measures, applied by the participants against SARS-CoV-2 and perceived risk of contracting COVID-19

	Self - perceived risk to SARS- CoV-2 infection exposure	Wearing face masks	Hand hygiene	Keeping the distance	Being away from crowded places	COVID-19 - positive PCR test
Self - perceived risk to SARS- CoV-2 infection exposure	1.00	0.624**	0.114**	0.576**	0.132**	0.085*
P		0.000	0.000	0.000	0.000	0.011
Wearing face masks	0.624**	1.00	0.081**	0.461**	0.123**	-0.028
P	0.000		0.009	0.000	0.000	0.526
Hand hygiene	0.114**	0.081**	1.00	0.074*	0.045	-0.077*
P	0.000	0.009		0.017	0.150	0.018
Keeping the distance	0.576**	0.461**	0.074*	1.00	0.030	-0.071*
P	0.000	0.000	0.017		0.337	0.013
Being away from crowded places	0.132**	0.123**	0.045	0.030	1.00	-0.075*
P	0.000	0.000	0.150	0.337		0.016
COVID-19 positive PCR test	0.085*	-0.028	-0.077*	-0.071*	-0.075*	1.00
P	0.011	0.526	0.018	0.013	0.016	

** Spearman correlation is significant at the 0.01 level, and
* at the 0.05 level

Table 3. Multivariate linear regression analysis of perceived risks for COVID-19 of the surveyed participants

Characteristics	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	***p***	**95% CI**		**Collinearity Statistics**	
Self-perceived risk of contracting the corona virus	**B**	**Std. Error**	**β**			**Lower**	**Upper**	**Tolerance**	**VIF**
Self-Perceived Risk				$R^2 = 0.29$; F = 25.48, df = 8, p < 0.001					
Constant	5.50	0.45		5.493	0.000	1.607	3.395		
Gender	0.002	0.01	0.013	0.261	0.794	-0.01	0.02	0.71	1.41
Age	0.058	0.019	1.417	3.027	0.003	-0.095	-0.020	0.708	1.413
Education	-0.174	0.033	-1.516	-5.33	0.000	-0.238	-0.110	0.543	1.843
Marital status	-0.25	0.366	-0.030	-0.70	0.490	-0.973	0.466	0.752	1.330
Household income	0.084	0.205	0.017	0.412	0.681	-0.318	0.487	0.752	1.330
Self-assessed health	-0.122	0.039	-1.425	-3.165	0.002	0.046	0.198	0.796	1.256
Information sufficiency	0.893	0.455	0.091	1.962	0.050	-0.002	1.788	0.784	1.275
Comorbidities	2.322	0.469	2.208	4.954	0.000	-3.244	-1.401	0.946	1.057

β—Beta coefficient in regression ANOVA analysis of potential predictors;
CI—confidence interval.

Perception of protective measures and infecting with COVID-19 in relation to the examined factors

The last step in our analysis was conducting a binary logistic regression by creating a model with the most consistent variables, among the previously evaluated ones (Table 4). This model consisted of 10 independent variables: gender, age, education, marital status, household income, self-assessed health, information sufficiency on COVID-19, presence of comorbidities, self-perceived risk of getting infected with corona virus, and adherence to wearing face masks.

The whole model was statistically significant - χ^2 (10, N = 1035) = 55.37, p < 0.001. This model explains between 32.5% (r^2 Cox and Snell) and 44.1% (r^2 Nagelkerke) of variance. The assumptions of collinearity and singularity were satisfied.

Infection with corona virus was taken as a dependent variable. Age (OR = 1.45), level of education (OR = 0.84), self-assessment of health (OR = 0.74), existence of comorbidities (OR = 3.02) and perceived risk (OR = 2.54) were shown to have a significant impact on COVID-19 infection. We concluded that, in addition to age, level of education, the existence of chronic diseases and self-assessed health status, the existence of the so-called "fear factor" (self-perceived risk of getting infected with corona virus) has a significant impact on infection (p < 0.001; OR = 2.54) (Table 4).

In this case, our analysis showed that wearing mandatory protective masks had no effect on COVID-19 infection rates (p = 0.103).

Table 4. Binary logistic regression on perception of protective measures and infecting with COVID-19 in relation to the examined factors

Independent Variables	B	df	*P*	OR	95% CI for OR	
					Lower	Upper
Infection with corona virus	Hosmer-Lemeshow test of goodness-of-fit (p = 0.662, for χ^2 = 5.865, df = 8)					
Gender (1)	-0.144	1	0.377	0.866	0.630	1.191
Age	0.253	1	0.002	1.449	1.288	1.434
Education	-0.177	1	0.023	0.838	0.719	0.976
Marital status (1)	0.089	1	0.641	1.093	0.753	1.586
Household income	0.135	1	0.465	1.145	0.796	1.646
Self-assessed health	-0.446	1	0.003	0.740	0.475	0.864
Information sufficiency (1)	0.119	1	0.501	1.126	0.796	1.593
Comorbidities (1)	1.104	1	0.000	3.016	2.742	5.223
Self-perceived risk to the infection exposure	1.265	1	0.000	2.544	2.988	4.203
Wearing face masks (1)	-0.446	1	0.103	0.640	0.374	1.094
Constant	-3.461	1	0.000	0.031	Correctly classified 88.8%	

B - coefficient for the "intercept" in the null model;
OR - odds ratio;
CI - Confidence interval.

Discussion

Maintaining physical distancing, hand hygiene, and avoiding crowds have been shown to be a protective factor in preventing the spread of a pandemic. However, in our group of respondents, the practice of wearing protective masks in public was not confirmed as a protective factor.

According to numerous findings of other authors, mask mandates reduced the COVID-19 infection growth rate. More specifically, they state that over the longer term, mask mandates had a large effect on "flattening the curve" (4-12). In addition, some recent experiments have shown that face masks may provide some protection from the transmission of infective SARS-CoV-2 droplets, but these masks cannot completely block the transmission of virus droplets (5-7). Further, some authors claim that mandating face mask use in public is associated with an immediate decline after being imposed in the daily COVID-19 growth rate (10-11).

Despite the growing body of literature, much remains unknown about the usefulness of mask wearing in the context of the COVID-19 pandemic (14-17). The World Health Organization states that the use of a mask alone, even when it is used correctly, is not sufficient to provide an adequate level of protection against COVID-19 and that masks should be used as part of a comprehensive strategy of measures (17). Also, the researches published so far have mostly suggested that "wearing face masks is likely to be better than wearing no mask at all", or "because COVID-19 is such a serious threat, wearing masks in public should be advised" (6-11).

WHO continues to advise that anyone suspected or confirmed of having COVID-19 or awaiting

viral laboratory test results should wear a medical mask when in the presence of others (18). In health care settings, WHO recommends that health workers providing care to suspected or confirmed COVID-19 patients wear the mask in addition to other personal protective equipment (PPE); in community areas with known or suspected infections, WHO advises universal masking for all persons within the health facility (18). Particularly, surgeons necessarily wear masks to protect themselves and to protect patients from nosocomial infections (19). However, they are designed for a single use and the masks are discarded after each operation.

And finally, WHO advises that the general public should wear a non-medical mask in indoor (e.g. shops, shared workplaces, schools, etc.) or outdoor settings where physical distancing of at least 1 metre cannot be maintained, in areas of known or suspected infections-containing community or cluster SARS-CoV-2 transmission (18).

But what happens when the influences of the previously mentioned measures (other than face masks) are removed? And is the prolonged wearing of the same mask throughout the day a rational approach? Relatedly, in our study wearing protective masks in the general population in order to prevent the spread of COVID-19 did not prove to be an effective measure among the examined population in Serbia.

Evidence-based arguments for wearing face mask in the general population have not yet been proven. Namely, no study has actually shown a real benefit from wearing masks in the general population, i.e. did not single out wearing face masks in direct relation to decreased infection rates.

As we can see, our findings differ, which makes this study noteworthy. Despite the fact that the coronavirus pandemic is not sufficiently researched, our results did not confirm that wearing protective masks were a decisive factor in preventing the transmission of the coronavirus. In addition, most of the "fashion" masks made from cotton are mainly designed for air pollution or pollen allergy, but useless against viruses and bacteria.

According to Nanda et al., there is limited available preclinical and clinical evidence for face mask benefit in SARS-CoV-2. Randomized controlled trials evidence (cited in their review article) for other respiratory viral illnesses shows no significant benefit of masks in limiting transmission but is of poor quality and not SARS-CoV-2 specific (20). On the other hand, Leung et al. strongly indicated in their study that medical face masks could prevent transmission of human coronaviruses and influenza viruses from symptomatic individuals, examining exhaled breath and coughs of patients with acute respiratory illness (21).

Finally, it is not out of place to point out a few disadvantages of regular using face masks by people in the general population. For example, there were discomfort and irritation outcome (22), devastating effect for people with hearing loss (23), as well as collateral consequences for emotional inferences and social judgments (24). Kisielinski et al. (25), in their very detailed and remarkable review, even found that extended mask-wearing by the general population could lead to the general psychological and physical deterioration, which they described as a Mask-Induced Exhaustion Syndrome (MIES) (25). According to the WHO Director-General's remark, which was expressed on the 5th of June 2020, "People can potentially infect themselves if they use contaminated hands to adjust a mask, or to repeatedly take it off and put it on, without cleaning hands in between" (26). Masks reportedly promote the so-called "false sense of security", resulting into neglection of measures against the infection risk. Relatedly, in the letter to the MBJ Journal, published by Lazzarino et al. in May 2020 (27), after listing the known and potential effects of wearing face masks in public, concluded that "It is necessary to quantify the complex interactions that may well be operating between positive and negative effects of wearing surgical masks at population level. It is not time to act without evidence" (27).

Another very interesting thing stood out in our analysis - people who were more afraid of contracting the corona virus (greater self-perceived risk to the infection exposure) were more likely to get it. Is it a psychosomatic effect? This seemingly somewhat strange finding can be related to the so-called infodemia (28). Actually, the Internet and new information and communication technologies have enabled tremendous progress in the organization and delivery of health services, greater access to health information, as well as the involvement of health professionals, patients and the general public in health decision-making. Unfortunately, the same technologies can also be used to spread misinformation, rumors and conspiracy theories. During the COVID-19 pandemic, the amount of information - accurate and inaccurate, coming from various sources - reliable and unreliable, caused an "infodemia" - the rapid spread of large amounts of information that make it difficult for people to make the right decisions about their own health (28).

There were a few limitations to this study which need to be mentioned. We did not consider the types of protective masks in our study. The number of respondents (only 1,035) and research limited to one geographical area (south Serbia) may also be a limiting factor. One of the topics of the study was the use of masks for the prevention of COVID-19 transmission, yet it was not possible to isolate mask use in order to rule out any covariant effect. The period in which the research was conducted was restricted, the end of 2020. Finally, our findings are based on the self-report method. We suggest these aspects are taken into account while viewing our findings and designing future studies.

Conclusion

Despite the growing body of research on measures for protection against the COVID-19 disease, their effectiveness and adoption by the community are not fully understood. Furthemore, sociodemographic aspects underlying the infection risk, remain largely unknown. This study contributed to filling this research gap by investigating the commonly used protection measures in Serbia. The

conducted study suggests that wearing of face masks among the general population has no effect on contracting COVID-19 infection. In contrast, the existence of the so-called "fear factor" (self-perceived risk to the infection exposure) has a significant impact on the infection. The intention of this study is to open the question of the justification of wearing protective masks among the general population, both with public health authorities and with the governments. The obtained findings suggest that the implementation of face mask as a protective measure could be more complex than previously though. Overall, this report yields novel insights into protective measures, which are commonly applied with the purpose of mitigating, containing and ultimately controlling the COVID-19 pandemic. More research in this direction in other countries and a subsequent meta-analysis is expected to provide more accurate conclusions. As our understanding on this complex issue grows, the current practices should be reconsidered and improved in the light of new findings. Further efforts are required in order to develop more elaborate, well-balanced, efficient strategies for combatting the ongoing pandemic.

Acknowledgements

The authors would like to thank the Ministry of Education, Science and Technological Development of the Republic of Serbia (Grant No: 451-03-9/2021-14/200113) for financial support.

References

1. Ministry Ministry of Health of Republic of Serbia and Institute of public health of Serbia "Dr Milan Jovanović Batut". Coronavirus - Covid-19. Available online: https://covid19.rs/
2. Republic Statistical Office of the Republic of Serbia. Estimated number of inhabitants in the Republic of Serbia, 2019. Available online: https://www.stat.gov.rs/sr-latn/vesti/20200701-procenjen-broj-stanovnika-2019/?s=1801
3. Lee M, You M. Psychological and Behavioral Responses in South Korea During the Early Stages of Coronavirus Disease 2019 (COVID-19). Int. J. Environ Res Public Health 2020;17(9):2977. [CrossRef] [PubMed]
4. Zhang X, Warner ME. COVID-19 Policy Differences across US States: Shutdowns, Reopening, and Mask Mandates. Int. J. Environ. Res Public Health 2020; 17(24):9520. [CrossRef] [PubMed]
5. Sommerstein R, Fux CA, Vuichard-Gysin D, Abbas M, Marschall J, Balmelli C et al. Risk of SARS-CoV-2 Transmission by Aerosols, the Rational Use of Masks, and Protection of Healthcare Workers from COVID-19. Antimicrob Resist Infect Control 2020;9(1):100. [CrossRef] [PubMed]
6. Ueki H, Furusawa Y, Iwatsuki-Horimoto K, Imai M, Kabata H, Nishimura H et al. Effectiveness of Face Masks in Preventing Airborne Transmission of SARS-CoV-2. mSphere 2020;5(5):e00637-20. [CrossRef] [PubMed]
7. Esposito S, Principi N, Leung CC, Migliori GB. Universal Use of Face Masks for Success against COVID-19: Evidence and Implications for Prevention Policies. Eur Respir J 2020;55(6):2001260. [CrossRef] [PubMed]
8. Wang J, Pan L, Tang S, Ji JS, Shi X. Mask use During COVID-19: A Risk Adjusted Strategy. Environ Pollut 2020;266(Pt 1):115099. [CrossRef] [PubMed]

9. Fouladi Dehaghi B, Ghodrati-Torbati A, Teimori G, Ibrahimi Ghavamabadi L, Jamshidnezhad A. Face masks vs. COVID-19: a systematic review. Invest Educ Enferm 2020;38(2):e13. [CrossRef] [PubMed]
10. Chu DK, Akl EA, Duda S, Solo K, Yaacoub S, Schünemann HJ, on behalf of the COVID-19 Systematic Urgent Review Group Effort (SURGE) study authors. Physical Distancing, Face Masks, and Eye Protection to Prevent Person-to-person Transmission of SARS-CoV-2 and COVID-19: a Systematic Review and Meta-analysis. Lancet 2020;395(10242): 1973-87. [CrossRef] [PubMed]
11. Lyu W, Wehby GL. Community Use Of Face Masks And COVID-19: Evidence From A Natural Experiment Of State Mandates In The US. Health Aff (Millwood) 2020;39(8):1419-25. [CrossRef] [PubMed]
12. Matuschek C, Moll F, Fangerau H, Johannes C Fischer JC, Zänker K, van Griensven M, et al. Face masks: Benefits and Risks During the COVID-19 Crisis. Eur J Med Res. 2020;25(1):32. [CrossRef] [PubMed]
13. World Medical Association (WMA). Declaration of Helsinki.
Available online: https://www.wma.net/what-we-do/medical-ethics/declaration-of-helsinki
14. Esposito S, Principi N. To mask or not to mask children to overcome COVID-19. Eur J Pediatr 2020;179(8): 1267-70. [CrossRef] [PubMed]
15. Liu X, Zhang S. COVID-19: Face masks and human-to-human transmission. Influenza Other Respir Viruses 2020;14(4):472-3. [CrossRef] [PubMed]
16. Pires C. A pre-systematic review on the use of masks as a protection material for SARS-COV-2 during the COVID-19 pandemic. Int J Clin Pract 2021;75(9): e14215. [CrossRef] [PubMed]
17. World Health Organization. Advice on the use of masks in the context of COVID-19; interim guidance. Geneva: World Health Organization; 2020. Available online:
https://apps.who.int/iris/handle/10665/331693
18. World Health Organization. Mask use in the context of COVID-19: interim guidance. Geneva, 2020.
Available online: https://apps.who.int/iris/handle/10665/337199
19. Javid B, Weekes MP, Matheson NJ. Covid-19: should the public wear face masks? BMJ 2020;369:m1442. [CrossRef] [PubMed]
20. Nanda A, Hung I, Kwong A, Man VC, Roy P, Davies L, and Douek M. Efficacy of surgical masks or cloth masks in the prevention of viral transmission: Systematic review, meta-analysis, and proposal for future trial. J Evid Based Med 2021;14(2):97-111. [CrossRef] [PubMed]
21. Leung NHL, Chu DKW, Shiu EYC, Chan KH, McDevitt JJ, Hau BJP et al. Respiratory virus shedding in exhaled breath and efficacy of face masks. Nat Med 2020; 6(5):676-80. Erratum in: Nat Med. 2020; 26(6):981. [CrossRef] [PubMed]
22. Bakhit M, Krzyzaniak N, Scott AM, Clark J, Glasziou P, Del Mar C. Downsides of face masks and possible mitigation strategies: a systematic review and meta-analysis. BMJ Open 2021;11(2):e044364. [CrossRef] [PubMed]
23. Chodosh J, Freedman ML, Weinstein BE, Blustein J. Face masks can be devastating for people with hearing loss. BMJ 2020;370:m2683. [CrossRef] [PubMed]
24. Grundmann F, Epstude K, Scheibe S. Face masks reduce emotion-recognition accuracy and perceived closeness. PLoS One 2021;16(4):e0249792. [CrossRef] [PubMed]
25. Kisielinski K, Giboni P, Prescher A, Klosterhalfen B, Graessel D, Funken S et al.. Is a Mask That Covers the Mouth and Nose Free from Undesirable Side Effects in Everyday Use and Free of Potential Hazards? International Journal of Environmental Research and Public Health 2021;18(8):4344. [CrossRef] [PubMed]
26. World Health Organization (WHO). WHO Director-General's opening remarks at the media briefing on COVID-19 - 5 June 2020.
Available online: https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---5-june-2020
27. Lazzarino AI, Steptoe A, Hamer M. Covid-19: Important potential side effects of wearing face masks that we should bear in mind. BMJ 2020;369. [CrossRef] [PubMed]
28. Managing the COVID-19 infodemic: Promoting healthy behaviours and mitigating the harm from misinformation and disinformation. Joint statement by WHO, UN, UNICEF, UNDP, UNESCO, UNAIDS, ITU, UN Global Pulse, and IFRC.
Available online: https://www.who.int/news/item/23-09-2020-managing-the-covid-19infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation

Originalni rad **UDC: 614.44:[616.98:578.834**
doi:10.5633/amm.2022.0301

PERCEPCIJA MERA PREDOSTROŽNOSTI OD OBOLJEVANJA IZAZVANIH VIRUSOM COVID-19 – STUDIJA POPREČNOG PRESEKA

Aleksandar Višnjić[1,2], Kıvanç Kök[3], Roberta Marković[1,2], Aleksandra Jović Vraneš[4], Zoran Milošević[1,2], Dragan Nikolić[2], Tamara Jovanović[1,2]

[1]Univerzitet u Nišu, Medicinski fakultet, Niš, Srbija
[2]Institut za javno zdravlje Niš, Niš, Srbija
[3]Univerzitet Medipol u Istanbulu, Internacionalna škola medicine, Istanbul, Turska
[4]Univerzitet u Beogradu, Medicinski fakultet, Beograd, Srbija

Kontakt: Aleksandar Višnjić
Bulevar dr Zorana Đinđića 81, 18000 Niš, Srbija
E-mail: aleksandar.visnjic@medfak.ni.ac.rs

Glavni cilj ove studije bio je da se istraže praktične prednosti predostrožnosti u ponašanju među opštom populacijom u vezi sa zaražavanjem korona virusom COVID-19 i oboljevanjemkoje ovaj virus izaziva. Sociodemografske karakteristike ispitanika u vezi sa prenošenjem COVID-19 virusa takođe su bile praćene.

Za potrebe ovog istraživanja odabrane su dve grupe ispitanika, koji su dobrovoljno pristali da učestvuju. Istraživanje je sprovedeno u periodu od oktobra do decembra 2020. godine na Medicinskom fakultetu Univerziteta u Nišu (Srbija).

Telefonskim pozivima anketirano je ukupno 1.035 ljudi. Ovi pozivi bili su obavezujući za sve testirane individue, a sprovedeni su od strane lekara sa Instituta za javno zdravlje Niš. U ovom istraživanju bile se 522 žene (50,4%) i bilo je 513 muškaraca; korona virusom bilo je zaraženo njih 630 (60,9%). Dobijeni rezultati ukazuju na to da starost, stepen obrazovanja, samoprocenjeno zdravlje i postojanje hroničnih bolesti imaju značajan uticaj na percepciju rizika od zaraze virusom COVID-19. Štaviše, starost, stepen obrazovanja, postojanje hroničnih bolesti i samoprocenjeno zdravstveno stanje, naročito prisustvo takozvanog „faktora straha" imaju značajan uticaj na stopu zaražavanja. Nasuprot tome, nije primećen uticaj razlike među polovima i nošenja obaveznih zaštitnih maski na stope zaražavanja od virusa COVID-19.

Ova studija daje nove uvide u uobičajene mere zaštite od virusa COVID-19, naglašavajući značajne razlike između proučavanih zaštitnih faktora. Neophodni su dalji napori u ovom pravcu, kako bi se razvile razrađenije, dobro izbalansirane, efikasnije strategije za obuzdavanje tekuće pandemije, posebno u kontekstu kontrole zaraze.

Acta Medica Medianae 2022;61(3):05-13.

Ključne reči: *predostrožnost, maske, samoprocenjeni rizik, COVID-19, javno zdravlje*