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IMPACT OF COVID-19 PANDEMIC ON UNDERGRADUATE MEDICAL STUDENTS: LESSONS FOR THE FUTURE

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ABSTRACT

Background: *The implementation of public health measures is a key aspect of the fight against the pandemic. However, the current literature suggests that the effectiveness of measures is influenced by various factors, and these factors are most pronounced among young people. Finding the causes and reasons for non-compliance is essential for increasing the effectiveness of measures and reducing their negative effects.*

Subjects and Methods: *We evaluated the degree of non-comopliance with epidemiological measures and the reasons for such behaviour among students attending medical colleges at four universities in Croatia (Zagreb, Split, Osijek, Rijeka) in view of altered social, academic, mental, and economic conditions during the pandemic by using an anonymous online questionnaire with 36 Likert scale based questions which was distributed to students in Croatia in March of 2021.*

Results: *A total of 605 students filled out the questionnaire. Female students reported a higher negative impact of social distancing (3.24±1.08 vs 2.95±1.11; p=0.006) and were more concerned about getting infected with SARS-CoV-2 (2.81±1.06 vs. 2.46±0.94; p=0.0005) and about the health of their family and friends during the pandemic (3.83±1.09 vs. 3.50±1.04; p=0.0005). Simultaneously, they were more compliant with the mitigation measures (4.06±0.71 vs. 3.85±0.83; p=0.0413) and were more aware that irresponsible behaviour can place other people at risk. In contrast, male students considered COVID-19 more often as a threat affecting only the elderly (3.11±1.1 vs. 2.78±1.23; p=0.0036). While all students reported high responsibility levels, they did describe violating the measures at times they wanted to socialise.*

Conclusions: *Gender, working status, care for their health, and the health of loved ones were modifying factors for young people behaviour. Assessing social, economic, and health factors must be applied when tailoring public health policies during crisis management.*

Key words: *COVID-19; medicine; students; health policies; pandemic*

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INTRODUCTION

In December 2019, a novel coronavirus named SARS-CoV-2 led to a series of cases of viral pneumonia in Wuhan, China, and it has since spread globally causing one of the biggest public health crisis in history (Wang et al. 2021). Following the declaration of the COVID-19 pandemic in March 2020, governments worldwide utilized public health measures as a means to control morbidity and mortality of COVID-19. Although it initially appeared that widespread vaccine availability would put the pandemic under control, newer studies showed that available vaccines had lower efficacy for the newly emerging viral variants such as Delta (B.1.6.17.2) and Omicron (B.1.1.529). Therefore old-fashioned nonpharmaceutical measures are still employed for a foresseable time in order to control the pandemic.

Pandemic in Croatia: from fear and panic to protests and vaccination refusal

On February 3. 2020 Croatian government introduced a 14-day long health surveillance for all travelers arriving from the mainland China. Almost three weeks later, a quarantine rule was introduced for every person who was in a direct or potential contact with a SARS-CoV-2 positive patient and the Croatian prime minister informed the public about the first infected person in the country. The authorities tried to control the pandemic with two very aggressive and complete lockdowns, however after the initial rigorous

moves, faced with economic difficulties and a public outcry, a long-term lockdown strategy was abandoned. Measures aimed at limiting public and private gatherings, widespread disinfection, wearing masks, and extensive antigen and PCR testing with vaccination proof checking for attendance of public gatherings were all implemented.

The population's reaction ranged from initial panic, accompanied by massive purchases of groceries, medications, personal protective equipment, and disinfectants to frustration and public outcries. The 'flatten the curve' model seemed to be effective at the beginning when fear of getting infected and trust in authorities were present. However, the economic strain brought about by lockdowns led to the adoption of 'the hammer and the dance model' where the aim was to prevent the viral spread while simultaneously controlling the measures' negative effects on the country's economy (Srbljinovic et al. 2020). At the same time, social cohesion crumbled gradually owing to the polarization in public opinion which made the management of the pandemic even more difficult.

There are not many studies about the influence of physical, psychological, and social features on pandemic mitigation measures compliance. Most commonly evaluated parameters in available domestic and foreign studies conducted so far were: sleeping, dietary habits, physical activity, educational challenges, anxiety level, ways of social engagement, and coping mechanisms (Dragun et al. 2020, Cheah et al. 2021, Alghamdi 2021). The pandemic's impact is a complex and multidisciplinary phenomenon with differences in gender, ethnicity, religion, and income contributing to how young people cope. Detecting behaviour-modifying factors could help design adequate health surveillance strategies to recognize the groups prone to risky behaviour. Therefore, improving these factors, if possible, is crucial for attaining a safer environment and better cooperation between vulnerable groups and health authorities on behalf of everyone's safety. What remains unclear is the role of the youth in the crisis management of this kind, their awareness of the burden of COVID-19, factors that shape their behaviour, as well as the extent to which these factors can be motivated towards compliance?

Epidemiological and sociological studies tried to explain reasons behind irrational human behaviour that negatively impacts invested efforts for pandemic control. Firstly, a high proportion of asymptomatic patients, especially in younger groups, helped solidify a feeling that current concerns were too exaggerated (Almadhi et al. 2021). Furthermore, vaccine hesitancy and doubt in the vaccines' protective role had never been greater. At the same time, the setting with a highly virulent, freely circulating and replicating virus favored the occurrence and establishment of new mutations. The new variants of SARS-CoV-2, such as the Delta variant, had a higher transmissibility rate, longer duration of infection, and higher hospitalization rate resulting in a significantly higher minimum immunization level needed to achieve herd immunity (Iftekhar et al. 2021). Until a suitable vaccination coverage was acquired, non-pharmacological measures such as hand washing, wearing masks, quarantine and partial or complete lockdowns seemed as invaluable tools for effective control of the pandemic. Since those measures had economic and social impacts, the future management of the pandemic became a matter of economic, public, and political interest (Bonotti & Zech 2021). Information chaos, complacency, different management strategies, some of which were controversial and of questionable effectiveness, had all led to decline in motivation, mistrust of authorities, adherence refusal and increased vaccine hesitancy (Gomey & Favorito 2020).

It should not come as a surprise that the WHO highlighted youth as a crucial social group during the pandemic as they were recognized as rebellious, socially active and often without symptoms of COVID-19 infection while having poor insight into the severity of the disease. The youth had a dual role during the pandemic. Strict measures put their well-being in danger, but at the same time, their misbehaviour placed other people's health at risk (WHO 2021). The prohibition of social gatherings, loneliness, greater anxiety levels, poor educational settings, and lower incomes, describe only a minor proportion of problems young people faced during the pandemic. Risk-taking behaviour and disobedience towards pandemic policies were most likely to occur among the youth because of their greater sensitivity to social stressors, self-oriented behaviour, emotional lability, and a lack of self-control (Green et al. 2021, Margraf et al. 2020). Besides depending on sex, age, income, and education level, their degree of measure adherence showed a country-specific pattern (Margraf et al. 2020). Searching for triggers influencing motivation for compliance with measures for pandemic control might be valuable for creating a safe and effective health policy but should be determined for each country separately.

Although health systems have strengthened their capacity since the start of the pandemic, public health policies should continue to pay special attention to overcoming the aforestated obstacles. Therefore, this study aimed to evaluate the degree of non-comopliance with epidemiological measures and the reasons for such behaviour among the students attending four medical colleges at four universities in Croatia (Zagreb, Split, Osijek, Rijeka) in view of altered social, academic, mental, and economic conditions during the pandemic.

SUBJECTS AND METHODS

The survey was conducted in March 2021 and included undergraduate students from four medical

schools in Croatia: Zagreb, Split, Osijek, and Rijeka. The questionnaire was anonymous, online and consisted of 36 questions. The guestions were divided into several groups, see Table 1. We hypothesized that socio-demographic features, the health of participants and their relatives, as well as consequences of having had COVID-19 all impacted their private life and personal concerns thus shaping their behaviour.

Table 1 – Questions sorted out based on examined characteristics. The questionnaire consisted of 36 questions grouped based on variables assessed.

Variables assessed	Questions asked in the questionnaire
Socio-demographic parameters	How old are you? What is your gender? At which college do you study? What is your county of residence? Are you working part-time? Is any of your household members working as healthcare professional?
Health and COVID-19 infection	Do you have any chronic diseases? Did you have COVID-19? Did you fall severely ill due to COVID-19? Did your household members have COVID-19? Did they fall severely ill due to COVID-19?
Level of concern	Are you concerned about being infected with SARS-CoV-2? Are you concerned about the health of your family during the COVID-19 pandemic?
Impact of social distancing measures	Social distancing has an overall negative impact on me. Did social distancing influence your friendships? Did social distancing influence your intimate relationship? Did social distancing influence your academic success? Did mitigation measures influence your financial stability?
Informing and assessing risk	Do you inform yourself about COVID-19 regularly? I think that COVID-19 is solely dangerous for older people. I do not find my behavioural disobedience as a threat to other people's health. I do not consider disregarding social distancing, mask wearing, and hygienic measures as risky behaviour. I think that my mental health suffered more than would my physical health if I had gotten infected.
Behaviour obedience	Do you obey the rules enacted by the National headquarters for public health? I have violated the recommendations due to desire to socialise with my peers.
Motivation	At first, I complied with the measures, but I no longer have the will to do so. I got infected with SARS-CoV-2 even though I adhered to the measures, so I think that the measures are ineffective. I am aware of the importance of measures, but it's too much hassle for me. I find imposed restrictions to be illogical.
Antisocial and self-oriented behaviour, consipracy, and peer pressure	I think that imposed measures violate my civil rights. I think my social and mental health is more important than the physcial health of the community I live in. I think that COVID-19 does not exist and that the whole situation is exaggerated. I think only people who want should obey the imposed rules. I refuse to comply with the rules, as they are not the same for everyone in society. Since public gatherings are allowed, I visit public places and ignore the number of people there. I feel peer pressure to socialise in public gatherings, so I participate, but I am otherwise against it.

Participants in our study answered the questions using a Likert scale (1 - strongly disagree/definitely no, 5 - strongly agree/definitely yes). Respondents needed to answer to which extent they informed themselves about the coronavirus, did they think socialising with friends and nonadherence to hygiene measures were a type of risky behaviour, as well as which social groups in their view, were most at risk of COVID-19. We examined the impact of social distancing on students' education, income, mental health, and relationships with a partner and friends. We also wanted to know if participants found these measures ineffective, illogical, or as a tool that jeopardized their freedoms (EFRA 2020). Since the authorities in Croatia did not introduce any penalties for measure violation, we considered motivation for hygiene measures (hands washing, disinfection, and mask-wearing) adherence solely as an intrinsic factor. Therefore, we assumed it would depend on self-discipline and one's responsibility. We postulated that motivation for social distancing was highly dependant on an individual's urge for social interaction and peer pressure. These two factors are crucial aspects of college life and transition to adulthood.

The R programming language v.4.1.1. was used for statistical data analysis. The statistical significance was set at $p<0.05$.

The study was approved by the institutional ethics committee of the University of Zagreb Medical School.

RESULTS

A total of 605 students filled out the online questionnaire in March of 2021. The mean age of students was 22.15 years (SD = 1.9 years). There were 152 (25.12%) male and 453 (74.88%) female respondents. Overall, 71 (11.7%) students reported working parallel with their studies, with the highest proportion reported in Split (20.00%). Only 42 (6.94%) students suffered from chronic disease while 175 (28.93%) students had a household member who worked in the healthcare system, with the highest proportion noted in Zagreb (30.1%).

Overall, 122 (20.17%) students were diagnosed with COVID-19, but only 4 (0.66%) had a severe form of the disease, showing that the severity of the disease was inversely correlated with age. In contrast, 357 (59.01%) students had family members diagnosed with COVID-19. Among them, 43 (12%) required hospital admission and treatment.

Figure 1 represents participants' responses of all Likert questions. Female students reported an overall significantly higher negative impact of social distancing in comparison to male respondents (3.24 ± 1.08 vs. 2.95 ± 1.11, p=0.006). Taking gender into account, female participants were more concerned about getting infected with SARS-CoV-2 (2.81±1.06 vs. 2.46±0.94; p=0.0005) and about the health of their family and friends during the pandemic (3.83±1.09 vs. 3.5±1.04; p=0.0005). At the same time, they reported a higher level of compliance with the pandemic mitigation measures (4.06±0.71 vs. 3.85±0.83; p=0.041) and were more prone to think that community health was more important than their mental health (2.29±1.03 vs. 2.48±1.13; p=0.036). Moreover, they did not think of COVID-19 as a threat affecting only the elderly, which was an opinion frequently shared by male respondents (2.78±1.23 vs. 3.11±1.10; p=0.003). Female students also tended to be more persistent in pandemic measures compliance (2.55±1.2 vs. 2.82±1.2) and less inclined to socialise with their peers if that meant distancing measures violation (3.23±1.39 vs. 3.54±1.38). Stated findings could indicate a higher level of empathy and prosocial thinking among women.

Youth behaviour seemed to be independent of peer pressure since mean Likert scores reported in Question 36 were 1.76 and 1.62 for male and female participants, respectively. The observed difference between genders was barely statistically significant either (p=0.049). Female students seemed to be more motivated for adherence since they did not report a significant lack of motivation (mean Likert score in Question 26 lower than 3). Table 2 shows descriptive statistics for each question and summarizes our findings stratified by gender. Students generally expressed a high responsibility level, although significantly higher compliance was observed among females (Question 19; p=0,041). However, they did report violating recommendations provided by the authorities at times they wanted to socialise (Likert scores higher than 3 in Question 27). Such contradictory results highlight the dilemma that young people are experiencing, as they balance between being law abiding citizens while satisfying their urge for social engagement.

The negative impact of social distancing varied significantly among students of different schools (p=0.0156). It was highest among the students in Split (Likert score=3.39) while being the lowest in Osijek (Likert score=2.79). The frequency of visiting crowded open-space events appeared low with the mean Likert scores of 2.65, 2.43, 2.42, and 2.31 in Question 35 among students from Split, Zagreb, Rijeka, and Osijek, respectively. Yet, students from Split appeared to be the most complacent during such activities (p=0.0021).

We used the chi square test and Wilcoxon sum rank test to analyze if the work status, presence of chronic illness, overcoming COVID-19 infection in the past, or family members' profession shaped social life, intimacy, mental health, educational success, and behaviour. Love life seemed to suffer the least, while other aspects of life were affected by observed features. Working status, previous COVID-19 infection, and having a health worker in the family did not affect the relationship with a partner. The impact on the intimate relationship observed when comparing students with and without chronic illnesses (p<0.001) and students

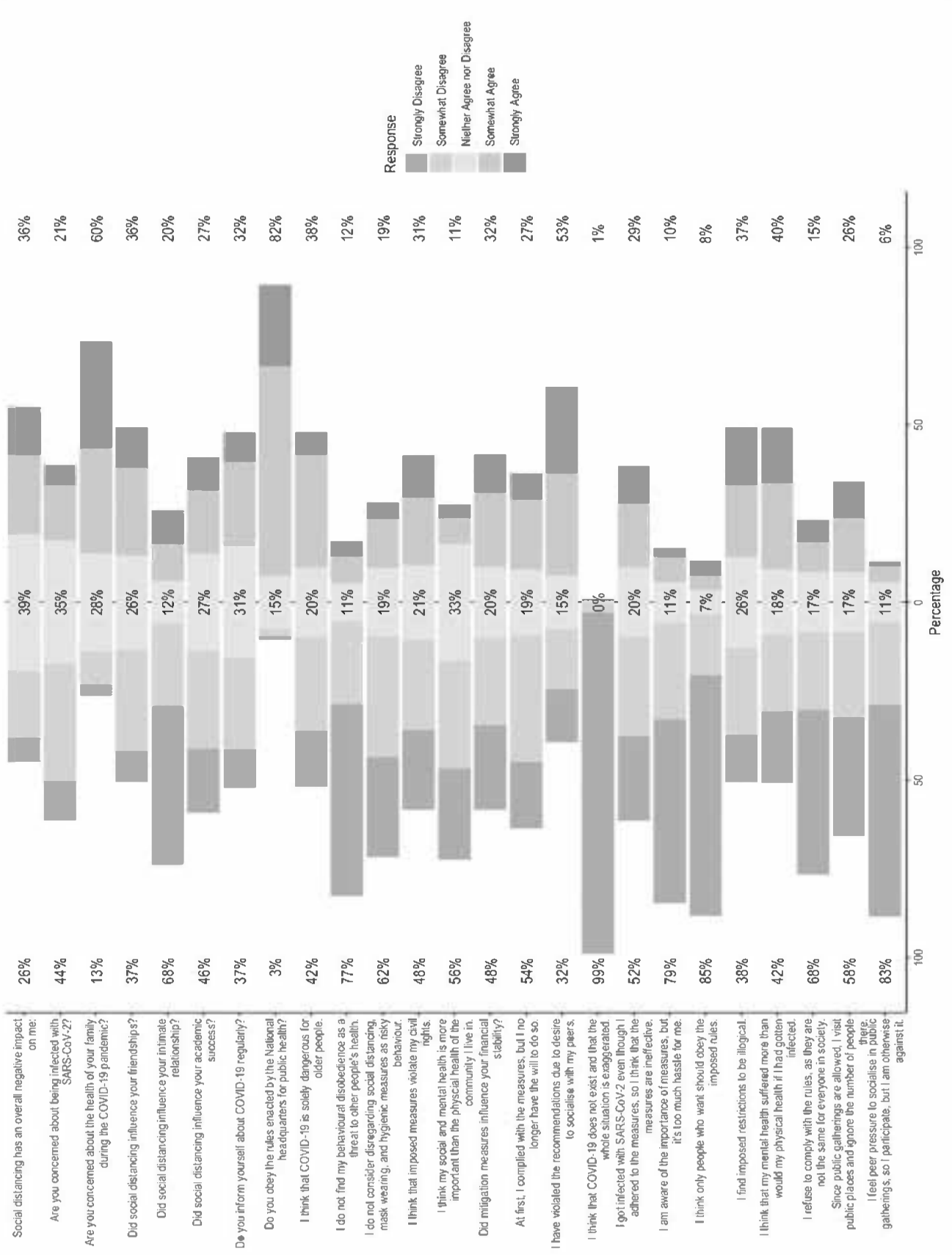

Figure 1.
Likert scores results (questions 12 to 36).

Table 2 – Descriptive statistics (mean and standard deviations (SD)) of Likert scores for each question for both male and female participants. (N=605)

Question	Male (n=152)		Female (n=453)		p*
	Mean	SD	Mean	SD	
12. Social distancing has an overall negative impact on me.	2.95	1.11	3.24	1.08	***0.006***
13.Are you concerned about being infected with SARS-CoV-2?	2.46	0.94	2.81	1.06	***0.0005***
14. Are you concerned about the health of your family during the COVID-19 pandemic?	3.50	1.04	3.83	1.09	***0.0005***
15. Did social distancing influence your friendships?	2.97	1.21	3.03	1.14	0.68
16. Did social distancing influence your intimate relationship?	2.40	1.50	2.09	1.29	0.082
17. Did social distancing influence your academic success?	2.76	1.23	2.72	1.21	0.66
18. Do you inform yourself about COVID-19 regularly?	2.97	1.13	2.92	1.12	0.69
19. Do you obey the rules enacted by the National headquarters for public health?	3.85	0.83	4.06	0.71	***0.041***
20. I think that COVID-19 is solely dangerous for older people.	3.11	1.10	2.78	1.23	***0.003***
21. I do not find my behavioural disobedience as a threat to other people's health.	1.90	1.14	1.83	1.15	0.26
22.I do not consider disregarding social distancing, mask wearing, and hygienic measures as risky behaviour.	2.48	1.17	2.28	1.16	0.66
23. I think that imposed measures violate my civil rights.	2.69	1.33	2.74	1.32	0.739
24. I think my social and mental health is more important than the physcial health of the community I live in.	2.48	1.13	2.29	1.03	***0.036***
25. Did mitigation measures influence your financial stability?	2.59	1.34	2.74	1.32	0.187
26. At first, I complied with the measures, but I no longer have the will to do so.	2.82	1.20	2.55	1.20	***0.014***
27. I have violated the recommendations due to desire to socialise with my peers.	3.54	1.38	3.23	1.39	***0.013***
28. I think that COVID-19 does not exist and that the whole situation is exaggerated.	1.07	0.38	1.06	0.39	0.664
29. I got infected with SARS-CoV-2 even though I adhered to the measures, so I think that the measures are ineffective.	2.74	1.36	2.60	1.30	0.863
30. I am aware of the importance of measures, but it's too much hassle for me.	1.91	1.12	1.78	1.03	0.295
31. I think only people who want should obey the imposed rules.	1.76	1.19	1.55	1.01	0.061
32. I find imposed restrictions to be illogical.	3.11	1.28	2.99	1.28	0.320
33. I think that my mental health suffered more than would my physical health if I had gotten infected.	2.88	1.39	2.96	1.37	0.548
34. I refuse to comply with the rules, as they are not the same for everyone in society.	2.28	1.33	1.99	1.20	***0.022***
35. As public gatherings are allowed, I visit public places and ignore the number of people there.	2.64	1.34	2.39	1.36	***0.033***
36. I feel peer pressure to socialise in public gatherings, so I participate, but I am otherwise against it.	1.76	0.96	1.62	0.94	***0.049***

*Mann-Whitney U test

whose family members suffered from COVID-19 ($p<0.001$) was probably due to stricter compliance with social distancing measures.

DISCUSSION

The first goal of the study was to evaluate the opinion of the youth about the SARS-CoV-2 pandemic and mitigation measures compliance with respect to gender, place of study, part-time work, chronic disease, past COVID-19 infection, and family members' profession. The second aim was to investigate the effects of COVID-19 on love life, financial status, academic success, social life, mental health, and concern level. Experiencing a high level of stress in these areas might have had short-term effects on behaviour, as well as long-term consequences in the future. By understanding the level of experienced stress, difficulties the youth encountered during the pandemic, and characteristics of their behaviour, it could be possible to find an approach which would be helpful in securing a safe environment for both physical and mental health. Evaluation of opinions was also helpful in gaining insight into awareness of the COVID-19 burden among the youth since they are often regarded as irresponsible.

Our findings suggest that the male gender predisposes to riskier behaviour, while simultaneously being associated with less worrying. Gender differences were also observed in the study by Karaşar et al. where higher depression scores among females were observed, together with higher psychological resilience among male participants (Karaşar & Canlı, 2020). Moreover, male respondents showed a greater tendency to believe that their mental health is more important than the health of general population. That belief could be considered as a selfish trait. Several research papers stated that men were more prone to misbehaviour and non-compliance regardless of their age (Nivette et al. 2021, Kleitman et al. 2021). In our study, increased stress levels were related to greater adherence to the measures, which was not found in all studies, making

the strain theory a questionable model for predicting behaviour (Schnell et al. 2021). It seems that personal risk and fear of infection were the principal triggers for experiencing greater stress levels as well as higher compliance rates. Moreover, emotional intelligence also plays an important role in mitigating percieved stress (Koca 2022). A high degree of knowledge about proper hygiene was related to anxiety and pessimism among adults in one Croatian study (Galic et al. 2020). The perception of increased risk among individuals makes them constantly worry about getting infected, thus increasing their anxiety levels. In Question 21, both male and female respondents did not consider disobedience as a type of behaviour that would endanger others (p=0.26), however low mean Likert scores among males (1.90±1.14) and females (1.83±1.15) indicated that young adults generally had empathy and behaved prosocially.

Having a chronic health condition or past COVID-19 infection in the family also had the influence on reported compliance and attitudes towards mitigation measures. Although chronic health problems are not frequently present among younger age individuals, they might be a major concern when it comes to health of family members in case of living in a multi-membered household. Chronic diseases are linked with higher mortality rates and disease severity among COVID-19 patients, although their contribution to mortality among young adults can not be easily determined, due to insufficient number of severe COVID-19 cases among these age groups. Moreover, in all-cause deaths COVID-19 made a small contribution making up only 1.98%, 1.30%, 0.32%, 0.38% of all-deaths in people 10-19 years of age in UK, Italy, Germany and France, respectively (Bhopal et al. 2021). Proportion of students with chronic diseases was low in our sample (6.9%), and these students showed higher compliance (4.071 vs. 4.004, p<0.0007) with social distancing measures. Nevertheless, research involving students from Denmark noted that having a chronic health condition did not have an impact on compliance (Berg-Beckhoff et al. 2021).

Contrary to our expectations, students whose family mambers had COVID-19 reported a lower adoption rate of governemnts recommendations (3.969 vs. 4.065, p=0.48). The family environment facilitates contracting COVID-19, and increases the portion of infected individuals in comparison to community settings (Bi et al. 2021). Overcoming COVID-19 could have an effect on implementation of health regulations. It may uphold the underestimation of risk, perception of COVID-19 as a past hazard and contribute to pandemic fatigue, a newly introduced social phenomenon which spurs disregard for public health recommendations. WHO policy brief features pandemic fatigue as a significant aspect needed to be considered in creating future agenda in terms of 'a new normal' (WHO 2020).

Interestingly, overall negative impact of social distancing was not particularily high, albeit it was strikingly higher (3.24 ± 1.08 vs. 2.95 ± 1.11, p=0.0006) among female students. In the study by Yang et al. students reported a high degree of anxiety and fear (Yang et al. 2020). Different findings might be a concequence of contrasting pandemic strategies implemented, and more rigorous epidemic measures depending on political and geographical differences. Study by Cao et al. indicates that economic disruptions, academic delays and impact of the pandemic on daily life act as stressors and increas anxiety level (Cao et al. 2020). This might serve as an explanation why students from our sample did not report significant negative impacts of the pandemic, since they did not report any significant difficulties in mentioned aspects of life.

Individual actions have a significant impact on restraining SARS-CoV-2 spread. Therefore, assessing personality features could yield conclusions that could be useful in accomplishing greater motivation (Miguel et al. 2021). Prosocial personality is linked to greater compliance, while antisocial traits encompass lower adherence and higher ignorance (Dinic & Bodroza 2021, Preti et al. 2020). Although they demonstrated greater empathy, female respondents experienced a greater level of stress. Awareness of their own responsibility in controlling the spread of the virus could also be a factor that increased anxiety, along with the concerns about personal health.

Respondents whose family members were involved in combating COVID-19 reported a more negative effect on social interactions and academic success. In addition, they demonstrated higher level of compliance, awareness, fear, and moral obligation to obey the rules. Higher levels of depression, anxiety, and stress among Croatian family physicians during the pandemic were also detected. Female gender and having schoolchildren were recognized as predisposing factors for these findings (Vlah Tomicevic & Bralic Lang 2021). Stressful working conditions may intensify stress and depression levels among household members. Issued alerts point out that, within families, social stigma and tremendous workload affect the parental role and emotional stability of children (Souadka et al. 2020, Karlsson & Fraenkel 2020). Fear of transmitting the virus to their household members and difficulties met when balancing between professional and private life might have led to greater axiety during the pandemic. Moreover, fear of getting infected in the workplace makes health care professionas feel insecure and anxious (Mosolova et al. 2020, Usul et al. 2020). Seeing family members concerned and both mentally and physically exhausted could have influenced the students' perception of COVID-19.

Current literature is scarce on the issue of students working rights and job insecurity during the pandemic, especially among students from the western countries. We assumed working status has both advantages and disadvantages when it comes to adherence. Students'

work is a relevant source of income that covers the cost of living and studying. Therefore, it can be a major cause of distress and resilience, but also a trigger that promotes higher compliance to avoid new lockdowns, job loss, and 'working from home' measures. There was an overall difference observed in answers between working and non-working students. Study by Nomura et al. reports a 2.79 times higher incidence of suicidal thoughts among students who felt financially insecure (Nomura et al. 2021). This rise in incidence can be explained with greater stress level caused by students's concerns in terms of experiencing financial insecurity. Financial insecurity could greatly influence compliance among the youth, since such kind of disruptions have a major impact on household economy. The lack of financial support measures during quarantine might reduce compliance among parents thus causing the same behavior in their offspring. Indeed, study from Israel showed a tremendous drop in reported compliance rate when monetary compensation policy was abandoned (Bodas & Peleg 2020). In addition, adolescents whose parents experience financial instability tend to be less motivated in fullfiling academic obligations and report lower bonding in school (Maiya et al. 2021). The financial cost arising from implementation of protective behaviours in everyday life should also be taken into account, since some recommendations given by the authorities clearly produce economic burden on the citizens. Study conducted by Patherick et al. showed that mask-wearing increased over time, but self-restraint for public gatherings and going out gradually decreased. However, researchers argue that the latter observation could not be explained solely by the fact that it is percieved as a high-cost behavior (Petherick et al. 2021). Having a stable income could potentially lead to better conditions to comply and therefore increase adherence, but our results showed that mean self-reported compliance rate was not significanlty higher among non-working students (4.024 vs. 3.887, p=0.2). According to our results, the romantic relationships appeared to suffer the least, with no significant differences between male and female medical students. Although less engaged in social interactions due to lockdown and social distancing, young adults presumably did not consider hanging out with their romantic partner as a threat of getting infected. Students in contrast to adolescents, tended to spend much more time daily with their partners possibly because they often lived alone and away from their parents' home (Yarger et al. 2021). Additionally, social media might have had a buffering effect on the stress caused by social distancing, as it enabled socialising in a virtual world. Nevertheless, the impact of social media might not be strictly positive, since positive correlation between time spent on social media and stress, anxiety and depression has been observed (Al-Qahtani et al. 2020).

Peer approval is considered as a significant part of evolving to adulthood. Therefore, we wanted to evaluate the effect of peer pressure on students' attitudes. Social anxiety, the need to fit in, a sense of belonging, and having a close relationship with parents are just the tip of the iceberg when the phenomenon of peer pressure is argued (Chiu et al. 2021, Andrews et al. 2020). Despite that, our results portray the youth as responsible and obedient society members. The noticed findings probably arised from including individuals who had a decent amount of medical education.

Given the above, the public health campaigns during COVID-19 should include strategies suitable for individuals who possess both prosocial and antisocial traits, especially among younger generations. Recommendations should alleviate negative emotions such as fear, anxiety, and concern by providing psychological, healthcare, financial and social support. Gaining back trust and raising credibility is imperative to attenaute antisocial behaviour. In addition, increasing an individual's intrinsic motivation and promoting empathy might be crucial for the individuals who downplay health risks. For this reason, when dealing with ignorant individuals in public campaigns, authorities should emphasize the self benefits of adopting safe behaviour. Social disapproval for those ignoring the recommendations might help boost public-spirited behaviour among model citizens yet simultaneously could be viewed as a way of discrimination that instigates anger and leads to resistance (Lunn et al. 2020).

CONCLUSION

This study showed that the compliance rate with pandemic control measures was high among young adults, which is opposite to the message shared through the mass media. Gender, working status, care for their health, and the health of loved ones are modifying factors for the behaviour of young people. Therefore, assessing social, economic, and health factors that influence behaviour should be applied when tailoring public health policies during crisis management. This study had few limitations. It included only future medical professionals, which often cope better with stress and are comparatively more aware of risks posed by COVID-19. For that reason, our sample may not be fully representative of students in general. Moreover, this study was cross-sectional and therefore did not provide a proper insight into behavioural changes concerning the course of events during the pandemic. As the knowledge about the virus continues to evolve, further research should use a longitudinal study design to identify long-term factors which contribute to changes in particular patterns of behaviour.

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Contribution of individual authors:
Both authors were equally involved in study conceptualization, study design, data collection and analysis, and manuscript writing.
Dr. Dominik Ljubas: data collection, analysis and manuscript writing.
Prof. Robert Likić: study conceptualization, study design and critical revision.

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