

Nightlife and COVID Vaccinations: A Field Study on an Italian Sample of Party Youth in summer 2021

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Abstract

In this study, we described rates of COVID vaccination, attitudes towards COVID prevention behaviours, and perceived risk in relation to different areas of personal well-being and substance use during the pandemic, in a sample of 16- to 25-year-olds ($N = 411$). The participants completed a short self-report questionnaire, while they were spending their 2021 summer nightlife in a crowded city venue. Results showed that 64% of respondents reported being vaccinated. Among the unvaccinated participants, those who were unwilling to be vaccinated agreed less with prevention rules and felt more at risk for drug use and for chances of getting or maintaining a job, when compared to both vaccinated peers and to peers who were unvaccinated but positively intentioned to vaccinate. Overall, the present findings confirm that youth felt at risk for their well-being during the pandemic and further reveal that young people who are reluctant to vaccinate deserve more attention. Vaccination campaigns need to be strengthened in social contexts, where chances of getting a job or keeping it are lower, while the risk of drug use is higher.

Keywords: COVID vaccination, COVID prevention behaviours, substance consumption, risk perception, adolescence

Introduction

EU countries have introduced COVID-19 vaccinations for older adolescents since June 1st, 2021. At the end of September 2021, 76.9% of the population in Italy

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was vaccinated, with a slightly lower rate of 72.7% among 20- to 29-year-olds, and 53.3% among 12- to 19-year-old adolescents (ISS Report, 2021). Although the mortality rate among young infected people is very low, they still are personally at risk of being infected, as well as of passing on the COVID-19 virus to others (ISS Report, 2021). Moreover, vaccination has been necessary to resume in-person learning and promote socialization and well-being among young people, who generally suffer from low social connectedness (Hall-Lande et al., 2007; Lampraki et al., 2022) and have reported various psychological difficulties, since the COVID pandemic was declared worldwide (Panchal et al., 2021; Preston & Rew, 2022). For example, during the pandemic years of 2020 and 2021, the trajectories of emotional-related disturbances in adolescents deviated from the previously observed trajectories and indicated significant increases in both depression and anxiety, in adolescent samples (De France et al., 2022). Therefore, promoting vaccination among adolescents and emerging adults is crucial for their physical as well as mental health, also nowadays when COVID pandemic is gradually shifting to endemic disease, though the infection trend is currently increasing in EU countries.

When empirical studies examined self-reported willingness to be vaccinated against COVID-19, the results have generally revealed that higher rates of reluctance to vaccinate were observed in younger ages (Murphy et al., 2021) and that students who were hesitant or unwilling to get vaccinated were more likely to report coming from deprived socio-economic contexts, smoking or vaping, and spending more time on social media, when compared to peers who were willing to get vaccinated (Afifi et al., 2021; Fazel et al., 2021). Concerns about the safety and side-effects of vaccination are among the main reasons young adults give for their reluctance, but an underestimation of the risk to both personal and public health is also evident (Adams et al., 2021; Afifi et al., 2021).

Attitudes towards vaccination are associated with daily prevention behaviours such as facemask-wearing and social distancing (Taylor & Asmundson, 2021). These behaviours, strongly recommended by WHO and mandatory in several countries for a long time during the pandemic, in order to effectively limit the spread of COVID-19 infection (Howard et al., 2021), have generally become part of daily life (Margraf et al., 2020). Nevertheless, a significant percentage of people have developed negative attitudes towards wearing a facemask and social distancing, both among older and younger ages (Oosterhoff & Palmer, 2020; Taylor et al., 2021). Again, disregard for these behaviours is linked to the idea that the threat of the COVID-19 virus is exaggerated, generally making prevention tools, including vaccination, useless (Taylor & Asmundson, 2021).

An underestimation of health-related risks is distinctive in adolescence and youth (Leather, 2009). In fact, adolescence represents a vulnerable age to unhealthy consequences due to a propensity to take risky behaviours. Specifically, when attention is focused on health-related risk behaviours, they mostly deal with smoking, drinking, using drugs and having unprotected sex, and they steeply

increase from early adolescence to late adolescence, reaching a plateau in the mid-20s (Duell et al., 2018). Taking risks depends on perceived risk, which in turn depends on individual differences in personality and objective consequences, in addition to cognitive and affective processes (Reniers et al., 2022; Rivers et al., 2008). In fact, Extraversion and low Conscientiousness (and especially its facet of Impulsiveness) among the Five Factor Model domains predict risk-taking behaviours both directly and indirectly through perceived costs and benefits (Gullone & Moore, 2000; Reniers et al., 2022; Soane et al., 2010), with Conscientiousness having also been demonstrated to decrease significantly across the adolescence years (Allik et al., 2004). Overall, a combination of lower conscientiousness levels in the ages here inspected, higher need for social connectedness, and lower objective risks for severe consequences due to COVID infection favour an overall perception of low risk due to COVID infection and make young ages particularly vulnerable to engage in COVID-related risk behaviours, in addition to other unsafe behaviours. Indeed, lower levels of perceived risks for health due to the COVID pandemic have been reported among older adolescents (Aguilar-Latorre, 2022), and lower Conscientiousness levels have been observed among respondents who reported to be unwilling to vaccinate (Murphy et al., 2021).

The Present Study: Context and Purposes

The present study aimed to explore COVID vaccination rates, attitudes towards COVID-related prevention behaviours, and perceived risk for personal well-being among 16- to 25-year-old Italians, who were spending their summer nights in crowded entertainment venues during COVID pandemic, thus actually exposing themselves to a higher risk of COVID infection compared to the risk run in uncrowded places. To our knowledge, no empirical study has examined whether vaccinated vs. unvaccinated adolescents and emerging adults report different levels of well-being and attitudes towards COVID prevention rules, thus we aimed to provide initial results to cover this gap.

The study was conducted in the summer of 2021, when the spread of the virus was in a decreasing phase, vaccination campaigns were effective, and bars and restaurants could gradually re-open in Italy, after a long period of lockdown and restrictive prevention rules, which included the closure of entertainment activities since March 2020. Data were collected on-site, at night, as part of the Overnight Project, a harm reduction and prevention program, which has been promoted by the Addictions Department of ASUGI (Azienda Sanitaria Giuliano Isontina), Trieste (Italy), in collaboration with the city municipality, emergency medical services, socio-educational as well as voluntary services, and local police, since summer 2012. On *movida* venues, usually on Friday nights, from 10.00 pm to 3.00 am, each summer, from June to September, both professionals (nurses, psychologists, educators) and volunteers provide leaflets, free taxi services, on-site counselling and initial emergency service, when necessary, in order to promote safe behaviours and

reduce the negative health, social and legal consequences of alcohol and drug use among youth having fun in summer nights. Accordingly, the study also examined how being vaccinated and attitudes towards prevention rules were related to the perceived risk of consumption of alcohol and illicit drugs use. Indeed, though empirical results are mixed, an increase in alcohol and cannabis use (but not hard drugs) was found among adolescents during the pandemic, which was also associated with a break of COVID prevention rules (Benschop et al., 2021; Dumas et al., 2020).

Our cross-sectional study had explorative purposes. Nevertheless, we hypothesized that negative attitudes prevail over positive attitudes towards COVID prevention rules among young respondents who are actually exposing themselves to a higher risk of being infected by spending nights in crowded venues (Oosterhoff & Palmer, 2020). Accordingly, we also anticipated a lower vaccination rate in our sample compared to national data, since our sample could generally be regarded as poorly sensitive to COVID-19 prevention tools (Taylor & Asmundson, 2021). We also hypothesized that our sample would report currently feeling at risk for their future, work, physical and mental health more than they did before COVID pandemic, in accordance with literature consistently reporting subjective as well as objective difficulties among people in the age of our sample (CENSIS, 2021; De France et al., 2022; Panchal et al., 2021). Finally, we predicted that unvaccinated adolescents would report lower agreement with prevention rules (Margraf et al., 2020; Oosterhoff et al., 2020), higher rates of feeling at risk for unsafe health-related behaviours, i.e., alcohol and substances use, compared to their vaccinated peers (Dumas et al., 2020), and lower levels of personal responsibility towards others, but higher levels of seeking for fun (Lin & Wang, 2020).

Method

Participants

Initially, 456 people were invited to take part in the study, but 411 (90%, 52.8% female, 1.2% other) agreed and provided complete self-reports. They were aged between 16 to 25 years ($M = 20.4 \pm 2.1$; 39.2% were in the age of the high school, i.e., 16–19); 68.8% were students, 21.9% were employees, and 9.2% were NEET (Not in Education, Employment, or Training) young people.

Procedure

The respondents completed a short online self-report form in the night, between 10 pm and 1 am, when they spontaneously approached the Overnight Project professionals and volunteers and asked for information or help. Participation was voluntary; no exclusion criteria were applied, but respondents had to be clear-headed

enough, that is, not under the influence of drugs or alcohol, to complete the questionnaire on their own. Data were collected from 19 June to 11 September 2021. Online informed consent (briefly describing the content and aims of the questionnaire and data processing) was obtained from all individuals participating in the study before they began answering the brief questionnaire.

Instrument

An online self-report questionnaire was administered to the participants. For the purposes of the present study, the items were generated so as to be as simpler and shorter as possible; single items were used to tap the different variables here examined in order to present a brief questionnaire and avoid high rates of disagreement to collaborate or high rates of missing or random responses. The items are presented in Table 1 and they were aimed to describe 1) levels of agreement with the main pandemic prevention rules (3 items, 1 = *disagree* to 5 = *agree*); 2) current perceived risk in terms of future, work, physical and mental health, and alcohol and illicit drug use compared to pre-pandemic (6 items, 1 = *less at risk* to 5 = *more at risk*); 3) endorsement of “just having fun” (after the lockdown) and “my behaviour has an impact on other people” (1 = *applies to me much less than before the pandemic COVID* to 5 = *applies to me much more than before the pandemic COVID*) as single item indicators of sociability and responsibility, during summer 2021; 4) whether they were vaccinated (yes/no) and if unvaccinated whether they were intended to get vaccination (yes/not).

Design and Analyses

The study is cross-sectional, has descriptive purposes, and takes advantage of the sample of respondents and context of data collection, which are unusual in the literature.

Descriptive statistics allowed us to depict an overall picture in terms of rates of COVID vaccination, levels of agreement with prevention rules, and current perceived risk for future, job, physical and mental health, and use of illicit substances and alcohol. ANOVA with bootstrapping was applied in order to compare differences in means in the quantitative study variables among three study groups – namely, vaccinated participants, unvaccinated but intended to vaccinate participants, and unvaccinated and not intended to vaccinate participants. We applied the bootstrap method because the sizes of the study groups were unequal, a limit which often leads to unequal variances. Specifically, bootstrapping takes the sample data, resamples it hundreds of times, with each random simulated sample having its own statistical properties, and then this technique uses these sampling distributions to construct confidence intervals and perform hypothesis testing; as such, bootstrapping does not make assumptions about the distribution of data.

Lastly, logistic regression identified unique significant predictors of dichotomous outcomes distinguishing first vaccinated vs. unvaccinated participants, and then unvaccinated but intentioned to vs. unvaccinated and unwilling to vaccinate participants. Specifically, since our study had explorative purposes, we applied the automatic backward variables selection procedure, in accordance with simulation studies demonstrating that such an automatic method performs comparably with a purposeful selection method (i.e., with the researcher entering the variables in the model) when sample sizes are large enough, i.e., $n > 360$ (Bursac et al., 2008); Nagelkerke Pseudo- R^2 was used as an index of goodness of fit.

Results

Descriptive statistics showed that 64.6% of respondents reported being vaccinated, 26.7% not being vaccinated but intended to get vaccinated, and the remaining 8% being unwilling to vaccinate. Chi-square results showed no significant differences in percentage distribution between males and females, students and non-students, or employed and unemployed participants; the proportions of unvaccinated vs. vaccinated groups were statistically comparable across the summer months; conversely, the unvaccinated participants prevailed among younger participants who were in the age of high school (16–19 years, 41% unvaccinated) compared to older participants (20–25 years, 30% unvaccinated) ($\chi^2 = 4.80$, $df = 1$, $p < .05$).

Table 1 presents mean scores for each item questionnaire and shows that respondents generally agreed with the main prevention rules studied here; that they currently perceived their future, their job chances and their psychological well-being as more at risk compared to how they felt before the pandemic; and that they evaluated that their peers used alcohol and illicit drugs during the pandemic more than they did before; finally, they indicated that they reinforced their positive attitude towards having fun whenever possible as well as towards being aware of the consequences of their own behaviour on other people.

Table 1

Descriptive Statistics of the Interview Variables

	Whole Sample	Vaccinated	Unvaccinated		<i>p</i>	η^2
			Positive intention	Negative intention		
<i>Agreement with prevention rules</i>						
Social distancing is necessary to contain the spread of the coronavirus	4.2±1.0	4.3 ^{ab} ±0.9	4.0 ^{b,c} ±1.0	3.3 ^{a,c} ±1.4	**	.08
The closure of schools and meeting places was an indispensable decision to contain the contagion	3.4±1.3	3.6 ^a ±1.2	3.3±1.3	2.8 ^a ±1.5	**	.03

	Whole Sample	Vaccinated	Unvaccinated		p	η ²
			Positive intention	Negative intention		
When it is not possible to respect the distance, the use of masks is necessary to contain the spread of the coronavirus	4.2±1.1	4.3 ^a ±1.0	4.1 ^b ±1.0	3.3 ^{ab} ±1.3	**	.07
<i>Currently I feel more at risk than before COVID when I think of</i>						
Future	3.4±1.0	3.4±1.0	3.3±1.0	3.6±1.3		
Work	3.5±1.1	3.4 ^a ±1.0	3.4±1.0	4.0 ^a ±1.0	*	.02
Physical Health	3.2±0.9	3.3±0.9	3.1±0.9	3.1±1.0		
Psychological Well-Being	3.7±1.0	3.8±1.0	3.7±1.1	3.7±1.1		
Consumption of Illegal Drugs	3.0±1.0	3.0 ^a ±0.9	2.9 ^b ±1.1	3.6 ^{ab} ±0.9	**	.03
Alcohol Consumption	3.3±1.0	3.3±0.9	3.1±1.1	3.7±0.9		
<i>I now believe more than I did before COVID</i>						
Have fun while you can	3.6±1.1	3.6±1.1	3.5±1.1	3.9±1.1		
My behaviour affects other people	3.5±0.9	3.6±0.9	3.3±1.0	3.4±0.9		
<i>Compared to before COVID, now peers use more</i>						
Alcohol	3.5±0.9	3.6±0.9	3.5±0.9	3.4±0.9		
Illegal Drugs	3.4±0.9	3.4±0.9	3.4±0.8	3.4±0.9		

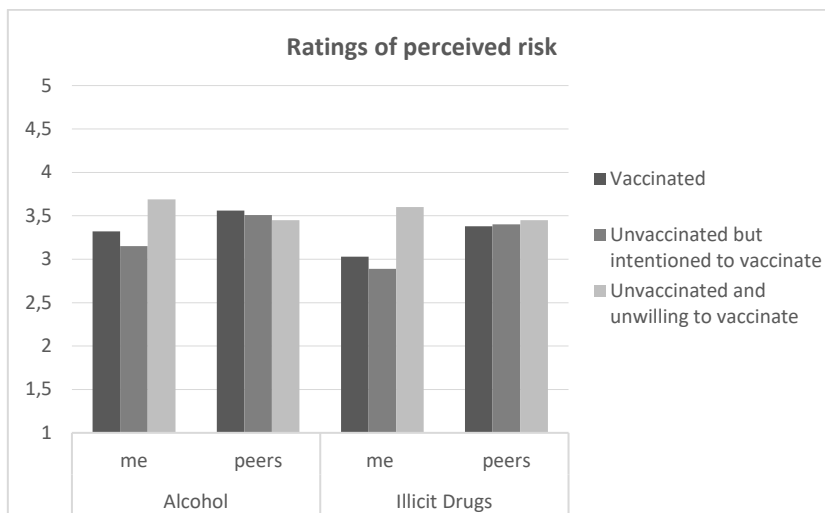
Note. Vaccinated participants: $n = 252$, unvaccinated intended to: $n = 105$, unvaccinated not intended to get vaccination: $n = 35$. One-way ANOVA with bootstrapping (simulated samples = 1000). ^{a,b,c} post-hoc comparisons significant at $p \leq .01$, after Bonferroni correction. * $p \leq .01$; ** $p \leq .001$.

When we compared the three study groups (vaccinated, unvaccinated but willing to vaccinate, unwilling to vaccinate), the results (Table 1) showed that the respondents who were unwilling to get vaccinated were less likely to agree with prevention rules (even if they did not completely disagree) and felt more at risk for job and consumption of illicit drugs, when compared to vaccinated peers especially, but also when compared to their peers who intended to vaccinate. Effect sizes for group differences were substantially relevant for prevention rules, whereas they were small for the remaining items. Nevertheless, when ratings on the perceived risk of increases in alcohol consumption during the pandemic were statistically compared, results from ANOVA for mixed designs 2 (me vs. peers) x 3 (study groups) showed an additional small but significant interaction effect ($\eta^2 = .02, p < .05$), which showed that unvaccinated and unwilling to vaccinate participants reported higher mean ratings on the perceived risk of increases in alcohol use when referring to themselves rather than their peers, compared to both vaccinated and unvaccinated but positively intentioned participants; Figure 1 illustrates the interaction effect. Similarly, a significant interaction effect emerged when perceived risk ratings about illicit drug use were analysed ($\eta^2 = .02, p < .05$) as illustrated in Figure 1; moreover, a significant between groups main effect indicated that young respondents who did not want to

vaccinate reported an overall mean on perceived risk for drug use higher ($M = 3.53$) compared to vaccinated ($M = 3.20$) as well as unvaccinated but willing to vaccinate ($M = 3.14$) participants ($F_{2,412} = 4.06, p < .05, \eta^2 = .02$).

Figure 1

Mean Values for Perceived Risk of Increases in Alcohol and Drugs Use Compared to Before COVID Pandemic, for Themselves (Me) and for Their Peers (Peers) Among the Three Study Groups



Note. 1 = I feel (My peers are) much less at risk of ... than before COVID; 5 = I feel (My peers are) much more at risk of ... than before COVID.

Logistic regression, with vaccinated (coded as 1)/not vaccinated as outcome variable and the quantitative study variables backward selected as predictors, revealed that the odds of being vaccinated increased when a respondents agreed with distancing as a necessary prevention rule, when they believed that their behaviour affects other people, and when older, with a Nagelkerke index of goodness of fit for the model of Pseudo- $R^2 = .09$ ($p < .001$). When the outcome variable was unvaccinated but positively intentioned vs. unvaccinated and negatively intentioned to vaccinate (coded as 1), logistic regression showed that the likelihood of rejecting vaccination was related to disagreeing with wearing masks and to a higher perceived risk as to job chances and illegal substances use compared to before the COVID pandemic; the Nagelkerke index of goodness of fit for the model of Pseudo $R^2 = .25$ ($p < .001$) and indicated that these predictors substantially differentiated participants who were willing vs. unwilling to get vaccinated.

Table 2

Logistic Regression Model of Significant Predictors of Being Vaccinated or Being Intentioned to Vaccinated if Still Unvaccinated

	<i>Vaccinated vs. Unvaccinated</i>
age	1.14 (1.03-1.25)**
Social distancing	1.54 (1.24-1.90)***
My behaviour affects other people	1.29 (1.01-1.63)*
	<i>Unvaccinated positively vs. negatively intended to get vaccinated</i>
Wearing masks	0.56 (0.39-0.81)**
Job at risk	1.70 (1.05-2.75)*
At risk for drugs use	1.72 (1.12-2.63)*

Note. Expected betas and 95% CI are reported; Wald test of significance. Vaccinated vs Unvaccinated: $n = 421$; Unvaccinated positively vs. negatively intended to get vaccinated: $n = 138$. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Discussion

We conducted our study during the summer 2021, when wearing face masks was no longer mandatory in open spaces, whereas social distancing still was strongly recommended in Italy. The present field study involved 16- to 25-year-old youth who were enjoying their nightlife in a city centre, thus being apparently poorly sensitive to the risk of getting infected. They reported being vaccinated and thereby being protected to some extent in 65 per cent of cases, with a lower percentage among younger respondents who were in the age of high school. We expected that youth exposing themselves to a risk context for COVID infection would report lower vaccination rates compared to national data, but the results here observed showed that rates were in line with available national data, that is, 71.3 per cent among 20-29-years-old people, and 52.1 per cent among 12-19-years-old adolescents, at September 21st 2021 (ISS Report 2021-9-24). The present finding might depend on the extensive vaccination campaign that the Italian Government officially started on December 2020 as well as on the introduction of the COVID green pass, which has become mandatory since May 16th, 2021, in order to freely access several services, including public transport, health services, work place, grocery stores as well as recreative places such as bars and restaurants. Actually, the introduction of the green pass significantly boosted vaccinations, among 18- to 50-years old adults, likely to get rid of restrictive policies (Euser et al., 2022). The present results also showed no socio-demographic differences due to gender or occupation, in accordance with studies on COVID vaccine hesitancy conducted worldwide as well as in Italy (Barello et al., 2020).

On average, the present young sample agreed with the basic prevention rules, although those participants who were unvaccinated and reluctant to get vaccinated

agreed less, compared to their vaccinated peers. The present finding is consistent with previous survey studies conducted worldwide and confirms that vaccination and adherence to COVID prevention rules are associated with each other (Taylor & Asmundson, 2021). Similarly, the finding that the present young respondents had concerns about salient areas of their lives such as future, job, and psychological well-being is fully consistent with worldwide surveys and reports warning against increased levels of unemployment among emerging adults as well as the consequent uncertainty about their future (OECD, 2020, 2021; CENSIS, 2021) and evidencing how psychological difficulties have been remarkably increased since the pandemic occurred (Deeker, 2022; De France et al., 2022). In addition, we found that the participants who did not want to get vaccinated especially felt at risk for job and consumption of illicit drugs more than they did before the pandemic, compared to their peers. Although we did not directly ask whether they actually used drugs, generally this finding is consistent with studies showing an increase in cannabis use during the pandemic, though more mixed results have been found on the use of social drugs such as ecstasy and opioid hard drugs (Benschop et al., 2021). Generally, however, poor attention has been paid to differences in drug consumption between vaccinated vs. unvaccinated individuals in the general population, but studies on PWID (people who inject drugs) indicate that rates of vaccination are lower compared to the general population (Iversen et al., 2022). Overall, our study suggests that unvaccinated youth deserve attention.

Finally, being aware that our own behaviour has an impact on others significantly differentiated vaccinated from unvaccinated respondents; conversely, merely wanting to have fun did not change among the study groups. We did not assess personality characteristics, nevertheless, this result of ours is consistent with studies showing that Conscientiousness – with Responsibility being a basic facet – but not Extraversion – with Impulse Expression such as liveliness being a basic facet (Di Blas, 2005) – as a personality factor predicts positive vs. negative attitudes towards COVID vaccination (Lin et al., 2020; Murphy et al., 2021). Such a finding is consistent with Italian and EU vaccination campaigns, which underlie that vaccination is a responsible decision that allows both the individual and the community to be protected (Barello et al., 2020).

In the present field study, the young participants were interviewed when they actually stayed overnight in an entertainment area full of youth having fun. Such a sample is therefore unique compared to most published empirical studies and has the advantage of revealing attitudes towards preventive measures among respondents who were just exposing themselves to a higher risk of infection, even though the prevalence of COVID generally is lower in summer compared with other seasons. Overall, the present findings suggest that COVID prevention measures need to pay more attention and more support to young people who do not want to vaccinate and help them deal with a general feeling of uncertainty about their future and well-

being, including the use of legal and illegal substances, and job opportunities in the face of the current pandemic situation.

Limitations

The present study is exploratory and has several limitations. First, it relied on single items to assess young participants' attitudes, behaviours and perceptions of risk. Second, it relied only on the self-report method. Third, we did not collect data from young people who usually avoid going to crowded places during the pandemic, nor could we compare the available data with pre-pandemic reports. Fourth, effect sizes for group differences and interaction effects are small and need to be replicated. Therefore, further studies are needed to cross-validate the present findings by using valid and reliable psychological instruments, collecting systematic objective data, and observing fluctuations and changes during the current pandemic and in the post-pandemic period.

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Noćni život i cijepljenje protiv bolesti COVID-19: Terenska studija na uzorku mladih Talijana u noćnome izlasku tijekom ljeta 2021. godine

Sažetak

U ovome smo istraživanju opisali stope cijepljenja protiv bolesti COVID-19, stavove prema ponašanjima važnima za prevenciju te bolesti i percipirani rizik u odnosu na različita područja osobne dobrobiti i zlouporabe droga tijekom pandemije na uzorku sudionika u dobi od 16 do 25 godina ($N = 411$). Sudionici su ispunili kratki upitnik samoprocjene za vrijeme noćnoga izlaska tijekom ljeta 2021. godine na gradskoj lokaciji gdje je vladala velika gužva. Rezultati su pokazali da je 64 % sudionika izjavilo da je cijepljeno. Među necijepljenim sudionicima oni koji se nisu željeli cijepiti manje su bili suglasni s pravilima prevencije, osjećali su se više izloženima riziku zlouporabe droga i smatrali su da je manja vjerojatnost da dobiju ili zadrže posao u usporedbi s cijepljenim vršnjacima i vršnjacima koji su bili necijepljeni, ali s pozitivnim namjerama za cijepljenje. Zaključno, sadašnji nalazi potvrđuju da su mladi tijekom pandemije osjećali da im je ugrožena dobrobit te da mladi koji se nerado cijepe zaslužuju više pažnje. Potrebno je pojačati kampanje za promociju cijepljenja u društvenim kontekstima gdje je vjerojatnost za dobivanje ili zadržavanje posla manja, a rizik od zlouporabe droga veći.

Ključne riječi: cijepljenje protiv bolesti COVID-19, preventivna ponašanja, konzumacija droge, percepcija rizika, adolescencija

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