Mental Health and Substance Abuse Among the Bosnia and Herzegovina Student Population During the COVID-19 Outbreak

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ABSTRACT

Background: Mental health, substance abuse and suicidal ideation present an emerging healthcare problem during COVID-19 pandemic as a result of socio-epidemiological measures, isolations, work modifications, constant media overload with COVID-19 related news and no effective cure for the disease. Objective: The aim of this study was to analyse substance abuse, suicidal ideation and mental health status among university students during the COVID-19 outbreak in Bosnia and Herzegovina. Methods: This cross-sectional study, was conducted via an online anonymous questionnaire based on a Patient Health Questionnaire-4 and Impact of Event Scale-6 which was distributed to the student population of Bosnia and Herzegovina. Results: In total 827 subjects, the majority of whom were female (636), had a high school degree (431), were unemployed (587), lived in an urban environment (747) and had a median age of 23.0 (21.0,32.0), completed the questionnaire. Being female [(OR=1.643, p=0.040); (OR=1.643, p=0.032)], taking sedatives [(OR=1.519, p<0.001); (OR=1.250, p=0.029)] and having high IES-6 score [(OR=2.190, p<0.001); (OR=2.013, p<0.001)] were independent predictors of developing depressive and anxiety symptoms during the COVID-19 outbreak, respectively. Suicidal ideation was present in 71 subjects, with 11 attempting to commit suicide. Sedative (OR=1.381,p=0.005) or alcohol (OR=1.493, p=0.002) use, unemployment (OR=4.551, p<0.001) and depressive symptoms (OR=7.261, p<0.001) were independent predictor of developing suicidal ideation. Conclusion: Bosnia and Herzegovina students show a significant prevalence of anxiety and depressive symptoms, trauma- and stressor-related disorder related to the pandemic, suicidal ideation and substance abuse during the COVID-19 outbreak, especially in association with gender, occupation and abuse of a specific substance. Keywords. COVID-19, mental health, substance-related disorders, depression, anxiety.

1. BACKGROUND

Coronavirus disease 2019 (COVID-19), caused by a novel coronavirus SARS-CoV-2 (1) discovered in December 2019 in Wuhan, has caused a global pandemic as of March 2020 (2). The virus is transmitted in direct or indirect contact via respiratory droplets, airborne, faecal-oral, contaminated surfaces, or blood born and enters human cells by binding itself to ACE2 receptor (3) usually in the lungs (2). After the incubation period of 2-14 days, the disease commonly manifests with flu-like symptoms including fever, fatigue, myalgia, dyspnoea and anosmia (4), whereas only a small proportion of patients develop severe manifestations such as acute respiratory disease syndrome (ARDS), sepsis, shock, multiorgan failure or even death (5).

Considering the modes of transmission, many governments developed strategies to contain the disease and minimize further transmission at the start of the pandemic, such as different types of social distancing, wearing masks indoors and outdoors, quarantines, restrictions of travel, working from home whenever possible, online schooling and closing of bars, restaurants, malls and other places of...
mass gathering (6).

What has been seriously impacted is people’s mental health, regardless of whether they have contracted the disease or not, as a result of socio-epidemiological measures, isolations, work modifications, constant media overload with COVID-19-related news, and no effective cure for the disease (7). A whole new level of fear has been introduced, which is an expected reaction when confronted with such uncertainty in everyday life (8). Feelings of such stress have an impact on one’s behaviour, leaving a person unable to cope with such pressure leading to a search for temporary and instant ‘self-medication’, which they unfortunately find in substance abuse, believing it will help them relax and deal with stress more easily (9). An increase in substance abuse, particularly in alcohol and illicit drugs, has also been reported in one of the surveys conducted in the United States (10). Although social distancing has reduced street drug trafficking, it has pushed customers to seek alternative solutions, which has resulted in certain changes in patterns of substance abuse with frequent substitutions and dilutions, shifting to prescription sedatives and narcotics, benzodiazepines and similar drugs (11).

As a result of non-disease related concerns, suicide and poor mental health are becoming a more serious problem as the pandemic continues to spread with long term consequences for the population, the economy and vulnerable groups. Individuals with a pre-existing mental health issue are more likely to be affected by the pandemic, with symptoms worsening or new mental health problems emerging, primarily depression, anxiety disorders, and post-traumatic stress disorders – all of which are associated with an increased risk of suicide and can affect both infected with SARS-CoV-2 and the general population (12). The stigma towards persons who are either infected with COVID-19 or were in close contact with them, such as medical professionals, may be one of the main causes of further exacerbating of depression, anxiety disorders, and post-traumatic stress disorder (13).

The first case of COVID-19 in Bosnia and Herzegovina was recorded on March 5th, and the nation has since seen over 232,237 cases with 10,508 fatalities as a result of the disease (14). During the early stage of the pandemic, residents of Bosnia and Herzegovina had adequate awareness, reasonably hopeful attitudes and acceptable behaviors about COVID-19 knowledge which has currently changed due to decreasing epidemiological restrictions, risky behavior of the population and increasingly large number of infected persons (15).

2. OBJECTIVE

This study aimed to analyse substance abuse, suicidal ideation, prevalence of anxiety and depressive symptoms among students during the COVID-19 outbreak in Bosnia and Herzegovina; to alert various health and governmental institutions to an emerging mental health problem; and to prevent the emergence of these entities among students in the future.

3. METHODS

This cross-sectional study was performed in the period between November 11th to 23rd 2020 among the university student population of Canton Sarajevo in Bosnia and Herzegovina during the second wave of COVID-19 outbreak. An anonymous online-questionnaire based on Patient Health Questionnaire 4 (PHQ-4) (16) and Impact of Event Scale 6 (IES-6) (17) was distributed using the online survey administration software via university video conferencing systems, as well as university e-mails to the respondents in respect to socio-epidemiological measures at current times.

The questionnaire was tailored to local characteristics and translated to Bosnian/Croatian/Serbian language. The study was approved by the university in Canton Sarajevo in Bosnia and Herzegovina and all procedures were followed in accordance with the Helsinki declaration and subsequent amendments.

Subjects

All respondents were informed about study objectives, anonymity of the data collected in the study and, their voluntary participation, which included online informed consent. University accounts were chosen via random sampling method and to prevent multiple online responses, each official university account could have filled the survey only once. The minimum sample size calculated for our population was 378 students (z=3.78, 95% CI, E=5%). Our sample showed similar gender and age distribution to the whole population. Exclusion criteria were (i) not being a student of the university of Canton Sarajevo in Bosnia and Herzegovina and (ii) not fully filling the questionnaire.

Study instrument and data collection

The questionnaire was divided into five parts, as follows: a) demographic characteristics which included sex, age, previous education level, current occupation, place of birth and current residence; b) substance usage patterns, before and during the COVID-19 pandemic, which included cigarette, marihuana, hookah, alcohol, cocaine, amphetamines, heroin, sedatives (benzodiazepines, barbiturates and Z-drugs) and other prescription drugs; c) PHQ-4; 4. IES-6 and 5. COVID-19 related factors which included current or former COVID-19 diagnosis, COVID-19 testing, symptoms and close relatives/friends with the diagnosis of COVID-19.

Anxiety and depressive symptoms were measured using PHQ-4 questionnaire. Subjects indicated their level of agreement with four statements using the four-point Likert-type scale (“not at all” (0 points), “several days” (1 point), “more than half the days” (2 points), “nearly every day” (3 points)). The score ranged 0-12 with scores ranging 0-2 indicating no psychological distress, score 3-5 indicating mild psychological distress, score 6-8 indicating moderate psychological distress and score 9-12 indicating severe psychological distress. Scoring ≥3 points on first two questions indicated anxiety symptoms and on second two questions depressive symptoms. Cronbach alpha coefficient, calculated from PHQ-4 was $\alpha=0.875$ (n=4) indicating very good internal consistency.

Symptoms of a trauma- and stressor-related disorder (TSRD) related to the pandemic were assessed via IES-6 questionnaire with its score calculated as the mean of the six items with a cut-off point of 1.75 (16). The subjects in-
dicated their level of agreement with the statements (“not at all” (0 points), “a little bit” (1 point), “moderately” (2 points), “quite a bit” (3 points), or “extremely” (4 points)). To check the reliability of the IES-6, Cronbach alpha coefficient was calculated, $\alpha=0.859$ (n=6) indicating a very good internal consistency of the scale.

Statistical analysis
Data were analyzed using the Statistical Package for the Social Sciences (SPSS) v. 23.0. In order to summarize the data, descriptive statistics were conducted. The results were presented in frequencies and percentages for categorical variables, while numerical variables were presented by arithmetic mean±standard deviation for normally distributed data, or by median (25th; 75th quartile) for not normally distributed data. Independent predictors for anxiety symptoms, depressive symptoms and suicidal ideation during COVID-19 pandemic were assessed using binary logistic regression models. Inferential statistics were conducted by the Mann-Whitney U test to test differences in numerical variables between groups of subjects with anxiety symptoms, depressive symptoms and suicidal ideations.

4. RESULTS
After excluding 25 cases due to exclusion criteria, a total of 827 subjects were included in the study. Our study participants were predominantly female (656), had a high school degree (451), were unemployed (587), lived in an urban environment (747) and were with a median age 23.0 (21.0, 32.0). The sample included 159 subjects who reported being COVID-19 positive, 293 subjects who were tested for COVID-19, 268 subjects who had at least one symptom of COVID-19 and 520 subjects who had a COVID-19 positive friend. All other demographic characteristics are displayed in Table 1.

### Table 1. Sex, education level, occupation, living environment and COVID-19 related factors of subjects with and without anxiety symptoms and with or without depressive symptoms

| Variables                  | Subjects with anxiety symptoms N=298 | Subjects without anxiety symptoms N=529 | Subjects with depressive symptoms N=263 | Subjects without depressive symptoms N=564 |
|----------------------------|--------------------------------------|----------------------------------------|----------------------------------------|------------------------------------------|
| Sex                        |                                      |                                        |                                        |                                          |
| Female                     | 248 (83.2%)                          | 388 (73.3%)                            | 205 (77.9%)                            | 431 (76.4%)                              |
| Male                       | 50 (16.8%)                           | 141 (26.7%)                           | 58 (22.1%)                            | 133 (23.6%)                              |
| Education level            |                                      |                                        |                                        |                                          |
| High school                | 157 (52.7%)                          | 274 (51.8%)                            | 143 (54.4%)                            | 288 (51.1%)                              |
| Bachelor's degree          | 96 (32.2%)                           | 166 (31.3%)                           | 83 (31.5%)                            | 179 (31.7%)                              |
| Master's degree            | 43 (14.4%)                           | 77 (14.5%)                            | 36 (13.7%)                            | 84 (14.9%)                               |
| PhD degree                 | 2 (0.7%)                             | 12 (2.4%)                             | 1 (0.4%)                              | 13 (2.3%)                                |
| Occupation                 |                                      |                                        |                                        |                                          |
| Unemployed                 | 216 (72.4%)                          | 371 (70.2%)                            | 204 (77.5%)                            | 383 (68.2%)                              |
| Employed                   | 82 (27.6%)                           | 158 (29.8%)                           | 59 (22.5%)                            | 181 (31.8%)                              |
| Living environment         |                                      |                                        |                                        |                                          |
| Urban environment          | 267 (89.6%)                          | 480 (90.7%)                            | 240 (91.2%)                            | 507 (89.9%)                              |
| Rural environment          | 31 (10.4%)                           | 49 (9.3%)                             | 23 (8.8%)                             | 57 (9.1%)                                |
| COVID-19 related factors   |                                      |                                        |                                        |                                          |
| COVID-19 diagnosis         | 68 (22.8%)                           | 91 (17.2%)                            | 51 (19.4%)                            | 108 (19.1%)                              |
| COVID-19 testing           | 117 (39.3%)                          | 176 (33.3%)                           | 90 (34.2%)                            | 203 (36.0%)                              |
| At least one COVID-19 symp-| 118 (39.6%)                          | 150 (28.3%)                           | 102 (38.8%)                           | 166 (29.4%)                              |
| toms                      | 189 (63.4%)                          | 331 (62.6%)                           | 163 (61.9%)                           | 357 (63.3%)                              |

Statistical analysis
Data were analyzed using the Statistical Package for the Social Sciences (SPSS) v. 25.0. In order to summarize the data, descriptive statistics were conducted. The results were presented in frequencies and percentages for categorical variables, while numerical variables were presented by arithmetic mean±standard deviation for normally distributed data, or by median (25th; 75th quartile) for not normally distributed data. Independent predictors for anxiety symptoms, depressive symptoms and suicidal ideation during COVID-19 pandemic were assessed using binary logistic regression models. Inferential statistics were conducted by the Mann-Whitney U test to test differences in numerical variables between groups of subjects with anxiety symptoms, depressive symptoms and suicidal ideations.
majority of whom were female (205), had a high school degree (145), were unemployed (204) and lived in an urban environment (240). Additional demographic characteristics, as well as the association between depressive symptoms and COVID-19 related factors are displayed in Table 1. Independent predictors for the development of depressive symptoms in association with COVID-19 are displayed in Table 2. Subjects with depressive symptoms were significantly younger (median = 22.0 vs. 24.0, U = 62800.0, p = 0.001) than those that didn’t have depressive symptoms.

**Suicidal ideation, substance abuse and TSRD**

Out of the total sample, 71 subjects reported having suicidal thoughts and ideas, with 11 attempting to commit one. The manner in which subjects attempted suicide has not been reported. Independent predictors for having suicidal ideation during the COVID-19 pandemic are displayed in Table 2. Suicidal ideation was more common in younger students (median = 21.5 vs. 24.0, U = 17687.0, p = 0.001) than in older students.

Regarding substance abuse during COVID-19, our study sample consumed cigarettes (298), vaping and alternate tobacco heating system (such as electric cigarettes etc.) (61), hookah (100), alcohol (289), marihuana (99), cocaine (27), amphetamines (29), ketamine (6) and sedatives (lorazepam, diazepam, bromazepam, phenobarbitone, zolpidem) (160). Substance abuse patterns during COVID-19 pandemic in association with psychological distress are displayed in Table 3. Substances that were independent predictors for development of anxiety symptoms, depressive symptoms, suicidal ideation and TSRD are displayed in Table 2.

TSRD was detected in 287 subjects, the majority of whom were female (258), had a Bachelor’s degree (102), were unemployed (169), and lived in an urban environment (268). Among all TSRD subjects, 50 were diagnosed with COVID-19, 112 were tested for COVID-19, 106 had COVID-19 symptoms, and 187 subjects had a close friend who was COVID-19 positive. Independent predictors for development of TSRD are displayed in Table 2. Subjects with TSRD were significantly younger (median = 23.0 vs. 24.0, U = 67887.5, p = 0.006) than those who didn’t have TSRD.

**5. DISCUSSION**

This study investigated present mental health status, suicidal ideation and substance abuse among the university student population of Canton Sarajevo in Bosnia and Herzegovina during the COVID-19 outbreak in the country. Subjects who reported anxiety symptoms in association with COVID-19 were more likely to be females, to have depressive symptoms, to have a COVID-19 diagnosis, to use sedatives, and to have a positive IES-6 test result. On the other hand, subjects who reported depressive symptoms in association with COVID-19 were more likely to be females, have anxiety symptoms, be unemployed, use sedatives or alcohol, and score higher on IES-6 test. In comparison to the period before the COVID-19 pandemic, our population consumes less or the same quantity of cigarettes, hookah, alcohol and marihuana and consumes more sedatives. Suicidal ideation was more likely to occur among the unemployed, in subjects with depressive symptoms and those who used alcohol or sedatives. Only a small percentage (15.5%) of

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**Table 2. Independent predictors associated with the development of anxiety and depressive symptoms, suicidal ideas and TSRD during the COVID-19 outbreak in the country determined by binary logistic regression models**

| Variables | Odds ratio | 95% CI    | p-value |
|-----------|------------|-----------|---------|
| Anxiety symptoms in association with COVID-19 | | | |
| Female sex vs male sex | 1.643 | 1.024-2.635 | 0.040 |
| Sedative consumption (yes vs no) | 1.519 | 1.230-1.876 | <0.001 |
| COVID-19 diagnosis (yes vs no) | 1.594 | 1.010-2.517 | 0.045 |
| Depressive symptoms (yes vs no) | 8.060 | 5.473-11.871 | <0.001 |
| Positive IES-6 test score (yes vs no) | 2.190 | 1.771-2.708 | <0.001 |
| The model was not statistically significant $X^2=5.088$, $p=0.748$; it explained 46.8% (Nagelkerke R2) and correctly classified 80.0% of cases. |

**Depressive symptoms in association with COVID-19**

| Variables | Odds ratio | 95% CI    | p-value |
|-----------|------------|-----------|---------|
| Female sex (yes vs no) | 1.643 | 1.042-2.589 | 0.032 |
| Sedative consumption (yes vs no) | 1.250 | 1.023-1.527 | 0.029 |
| Positive IES-6 test score (yes vs no) | 2.013 | 1.623-2.497 | <0.001 |
| Anxiety symptoms (yes/no) | 8.137 | 5.488-12.063 | <0.001 |
| Unemployed vs employed | 2.425 | 1.322-4.451 | 0.004 |
| Alcohol consumption (yes vs no) | 1.251 | 1.014-1.544 | 0.037 |
| The model was not statistically significant $X^2=6.039$, $p=0.463$; it explained 45.1% (Nagelkerke R2) and correctly classified 80.0% of cases. |

**Suicidal ideas in association with COVID-19**

| Variables | Odds ratio | 95% CI    | p-value |
|-----------|------------|-----------|---------|
| Sedative consumption (yes vs no) | 1.381 | 1.103-1.731 | 0.005 |
| Alcohol consumption (yes vs no) | 1.493 | 1.154-1.932 | 0.002 |
| Unemployed vs employed | 4.551 | 2.302-8.996 | <0.001 |
| Depressive symptoms (yes vs no) | 7.261 | 3.909-13.489 | <0.001 |
| The model was not statistically significant $X^2=4.988$, $p=0.463$; it explained 45.1% (Nagelkerke R2) and correctly classified 80.0% of cases. |

**TSRD in association with COVID-19**

| Variables | Odds ratio | 95% CI    | p-value |
|-----------|------------|-----------|---------|
| Female sex vs male sex | 1.622 | 1.067-2.465 | 0.024 |
| Urban environment vs rural environment | 2.521 | 1.344-4.728 | 0.004 |
| Anxiety symptoms (yes vs no) | 3.143 | 2.158-4.577 | <0.001 |
| Depressive symptoms (yes vs no) | 3.523 | 2.408-5.154 | <0.001 |
| Sedative consumption (yes vs no) | 1.304 | 1.086-1.565 | 0.007 |
| The model was not statistically significant $X^2=6.294$, $p=0.748$; it explained 51.5% (Nagelkerke R2) and correctly classified 74.8% of cases. |

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consumption patterns during COVID-19 pandemic in association with mild, moderate and severe psychological distress

Table 3. Cigarette, vaping and alternate heating systems, hookah, marihuana, alcohol, cocaine, amphetamines and sedatives consumption patterns during COVID-19 pandemic in association with mild, moderate and severe psychological distress

| Variables                        | Mild psychological distress | Moderate psychological distress | Severe psychological distress |
|----------------------------------|-----------------------------|--------------------------------|-------------------------------|
|                                  | L  | S   | M   | L  | S   | M   | L  | S   | M   |
| Cigarette                        | 24 (10.6%) | 41 (18.1%) | 17 (7.5%) | 11 (8.0%) | 28 (20.4%) | 17 (12.4%) | 10 (8.4%) | 28 (23.7%) | 18 (15.2%) |
| Vaping and alternate heating system | 5 (2.2%) | 7 (3.1%) | 3 (1.3%) | 0 (0.0%) | 7 (5.1%) | 1 (0.7%) | 5 (4.2%) | 5 (4.2%) | 6 (5.0%) |
| Hookah                           | 22 (9.7%) | 6 (2.6%) | 2 (0.9%) | 7 (5.1%) | 5 (3.5%) | 1 (0.7%) | 14 (11.8%) | 5 (4.2%) | 3 (2.5%) |
| Marihuana                        | 5 (2.2%) | 13 (5.7%) | 7 (3.1%) | 4 (2.8%) | 5 (3.5%) | 10 (7.2%) | 6 (5.0%) | 8 (6.7%) | 11 (9.3%) |
| Alcohol                          | 34 (14.9%) | 31 (13.6%) | 12 (5.2%) | 31 (22.6%) | 23 (16.8%) | 8 (5.8%) | 17 (14.4%) | 26 (22.0%) | 10 (8.4%) |
| Cocaine                          | 1 (0.4%) | 0 (0.0%) | 2 (0.8%) | 2 (1.4%) | 0 (0.0%) | 1 (0.7%) | 3 (2.5%) | 1 (0.8%) | 5 (4.2%) |
| Amphetamines                     | 2 (0.8%) | 1 (0.4%) | 1 (0.4%) | 1 (0.7%) | 2 (1.4%) | 0 (0.0%) | 5 (4.2%) | 1 (0.8%) | 5 (4.2%) |
| Sedatives                        | 12 (5.2%) | 23 (10.1%) | 16 (7.0%) | 10 (7.2%) | 2 (1.4%) | 19 (13.8%) | 6 (5.0%) | 16 (13.5%) | 32 (27.1%) |

Table 3. Cigarette, vaping and alternate heating systems, hookah, marihuana, alcohol, cocaine, amphetamines and sedatives consumption patterns during COVID-19 pandemic in association with mild, moderate and severe psychological distress.

subjects with suicidal ideation have attempted to commit suicide. Subjects with TSRD were more likely to be female, younger, live in an urban environment, had depressive and anxiety symptoms and use sedatives.

Compared to the similar US study (18), our population had more anxiety symptoms (56.0% vs 25.5%), more depressive symptoms (31.8% vs 24.3%) and more TSRD (34.7% vs. 26.3%), all of which could be linked to the massive increase in COVID-19 mortality and morbidity since the pandemic began. On the other hand, differing data collecting dates (June vs November) may reveal a development of mental health issues in the whole population, not only specifically in Bosnia and Herzegovina. Studies show that COVID-19 has affected population's sleep, nutrition, substance abuse, worsened chronic conditions and affected their socioeconomical stability which further affects mental health and worsens already prevalent depressive symptoms and anxiety (19). Females were more likely to experience anxiety symptoms, depressive symptoms, and TSRD which was also shown in a New Zealand study (20). Female mental health is an emerging problem which could be explained by increased awareness of the severity of the COVID-19 pandemic, constant anticipation of a negative impact of the disease on close friends or family members and increased child care demands as a result of all socioepidemiological measures (21). The same study (20) found a lower rate of suicidal ideation (8.6% vs 6.1%) and suicide attempts (2.1% vs 15.5%), which could be attributed to possibly better mental health support programs available in New Zealand compared to Bosnia and Herzegovina such as online counselling, or simply being unable to reach a physician due to specific healthcare restrictions and rules that had been introduced in the period of the pandemic.

Our findings are similarly consistent with earlier screening for depressive symptoms among university students in Bosnia and Herzegovina (22). More research is needed since these studies use different screening questionnaires (PHQ-4 vs Beck Depression Inventory) and hence lack exact information on the prevalence of this entity among students. There is lack of data, regarding the prevalence of other examined entities in this study, prior to the COVID-19 pandemic.

In terms of substance abuse, our findings show a decrease in hookah consumption among all subject who were experiencing any level of (mild-severe) psychological distress. This could be the results of lockdown measures, reduced outings and socializing, the closure of hookah bars and prohibition of hookah serving in such establishments, or awareness of how a shared hookah pipe can pose a risk to its consumer as a path of COVID-19 transmission (23). On the other hand, use of vaping and other heating systems has increased over the same time period, indicating a possible alternative to hookah or other tobacco products that can be consumed privately and are rarely shared, making them safer in terms of virus spread. Marihuana use increased in subjects experiencing moderate to severe psychological distress suggesting a possible coping mechanism for dealing with stress. The decrease in cocaine use could be attributed to both the increased marihuana use mentioned above and the increase in sedative consumption, implying that cocaine may have been less available during the lockdown, so consumers sought out for alternatives such as those two. People who used sedatives prior to the pandemic may have needed a dosage increase due to new stressful circumstances. Also, an increase in sedatives prescriptions by physicians could have contributed to the increase in composition, but the justification for this should be investigated further. We also discovered lower alcohol consumption, which could be explained by the social distancing measures in place, which resulted in fewer social gatherings and events, and thus less social drinking.

When compared to the US study (18), our sample had a higher rate of TSRD, particularly among females, those living in urban environments and those with anxiety and depressive symptoms. According to studies (24), the implementation of strict socioepidemiological interventions such as lockdowns and social distancing practices prevented further COVID-19 spread in metropolitan areas, but the same measures are linked to an increase in COVID-19 fear, poor mental health, development of depressive and anxiety symptoms (8), creating an ongoing "circulus vicious" that further affects TSRD.

Limitation of the study
Our study has several limitations. Firstly, there is lack of...
mental data on the subjects’ anxiety symptoms, depressive symptoms and substance abuse prior to the COVID-19 outbreak, which could affect results. Future studies should include a thorough interview and medical history of individuals to assess any correlations between former diagnosis and COVID-19 outbreak. Secondly, the cross-sectional study design makes determining causality difficult. The final limitation is that our study was limited to subjects who had access to internet and social media platforms, so it may not have reached older and more vulnerable populations.

6. CONCLUSION

In conclusion, students of Bosnia and Herzegovina show a significant increase in anxiety symptoms, depressive symptoms, TSRD, suicidal ideation and substance abuse during COVID-19 outbreak in the country particularly in association with sex, occupation and substance abuse. During these times, these entities pose an emerging secondary health problem. Governmental institutions should take preventive measures to limit the spread of mental health illnesses during the COVID-19 pandemic.

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CONCLUSION

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