



## Post-traumatic Stress Disorder and Depression during COVID-19 Pandemic among Students: Study at Universitas Negeri Semarang

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### Abstract

The high COVID-19 death rate has an impact on mental disorders. Based on an online self-survey on mental health, found a percentage of 63%, 66% and 80% on anxiety, depression and stress, respectively. We aimed to determine factors related to students' mental health during pandemic. A cross-sectional study was conducted yielding 407 students selected consecutively. Data was collected using a questionnaire on google form. Data were analyzed by logistic regression. The results showed that there was a significant relationship between age and stress symptoms ( $p=0,038$ ) and depression ( $p=0,017$ ), resilience with stress symptoms ( $p=0,040$ ) and depression ( $p<0,001$ ) sleep duration with stress symptoms ( $p=0,005$ ) and social support with depression ( $p<0,001$ ) in student at State University of Semarang. The variable that is most strongly associated with symptoms of stress and depression is resilience. Based on this research, the government and universities must provide psychological services and interventions regularly to identify students who have mental health problems.

### Introduction

The world is currently facing the Covid-19 pandemic. Starting from the emergence of the coronavirus acute respiratory syndrome disease in China at the end of 2019, it has now caused a large global outbreak. On January 30, 2020, WHO declared Covid-19 as the sixth public health emergency of international concern (Lai et al., 2020). The government has implemented public health measures such as lock-down policies, social distancing campaigns, use of face masks, and frequent hand washing with soap; however, the incidence of Covid-19 infection is still increasing. Reports of possible reinfection in Covid-19 patients were also reported and occurred in 14.8% of patients (Azam et al., 2020). Massive transmission and high mortality rate cause physical health problems including mental health disorders. This situation is exacerbated by the implementation of restrictive policies that must be carried out

by the community, such as isolation, social and physical distancing to large-scale social restrictions or known as PSBB. The policy limits the community to social interaction. Previous research, most respondents (89.6%) agreed that it is better for people to stay at home to face the Covid-19 outbreak (Prajoko, Supit and Azam, 2021).

The education sector is one of those affected by the restriction policy. The Universitas Negeri Semarang is one of the campuses in Indonesia that responds swiftly to the instructions of the Ministry of Education and Culture, by issuing a circular on preventing the spread of Covid-19 infection and an appeal to conduct teaching and learning activities remotely (online learning). This condition makes students forced to adapt in order to understand the material. In the short term this does not seem to be a problem, but in the long term it will make students bored and depressed, so that it causes students to have mental health

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problems, ranging from anxiety to depression (Komala, Choirunnisa and Syamsiah, 2020).

The current literature shows that people affected by COVID-19 may have a high rate of mental health disorders. Psychological exposure to the Covid-19 outbreak differs from individual traumatic events in terms of the temporal nature of the exposure, where the Covid-19 outbreak has been an ongoing exposure for every member of society. Stressful events such as natural disasters have been known to have a significant impact on mental health and can result in conditions such as post-traumatic stress disorder (post-traumatic stress disorders=PTSD) and depression (Tang et al., 2020). Several factors related to mental health disorders in Covid 19, including age, gender, marital status, education, occupation, income, place of residence, close contact with people with Covid 19, accompanying physical and mental health problems, exposure to news and social media. related to Covid 19, coping styles, stigma, psychosocial support, health communication, health care beliefs, personal protective measures, risk of contracting Covid 19, and chances of survival (Hossain et al., 2020)(Xiong et al., 2020) (Tang et al., 2020) (Cao et al., 2020)(Juliane and Machmud, 2020; Luceño-Moreno et al., 2020)

The Association of Indonesian Mental Medicine Specialists (PDSKJI) conducted a survey on mental health through an online self-examination. The examination includes three mental health disorders, namely anxiety, depression and trauma. The survey results for 5 months of the Covid 19 pandemic obtained 4,010 respondents, 64.8% of respondents experienced mental health disorders due to the Covid 19 pandemic. Based on the survey results until April 23, 2020, respondents experienced anxiety and depression were 63% and 66% due to the Covid 19 pandemic. Furthermore, as many as 80% of respondents have PTSD symptoms due to experiencing or witnessing unpleasant events related to Covid 19. Severe, moderate, and mild PTSD symptoms are 46%, 33% and 2% of respondents, while 19% have no symptoms (Specialist Doctors Association of Indonesian Mental Health, 2020).

Iqbal & Rizqulloh (2020) previously conducted research on mental health in

students at the State University of Semarang. The research sample came from 44 students. These students are all members of the Unnes Sex Care Community (UKM) Universitas Negeri Semarang for the 2019-2020 period. There were 63.6% of respondents indicated that they had mental health disorders. The conditions or problems that most often arise are 59% (45% - 73%) feel tense, anxious or worried, 50% (42% - 58%) find it difficult to sleep, 50% (42% - 58%) feel tired, 9% (1% - 17%) of the total respondents had thoughts of ending their life in the last 30 days (Iqbal and Rizqulloh, 2020). This study aims to determine the mental health status and the factors associated with it after the Covid-19 pandemic in students at the Universitas Negeri Semarang.

### Method

The type of research used is analytic observational with a cross-sectional study design. This research was conducted from June to July 2021. The population in this study was 31,022 active undergraduate students at the State University of Semarang. Questionnaires were distributed through the social media platforms of the State University of Semarang internal groups, such as Facebook, WhatsApp, Instagram, Twitter, including sharing links from friends to friends. The inclusion criteria in this study were students from the class of 2017 to 2020 (2nd to 8th semesters) and responded to the questionnaire and were willing to become respondents after reading the informed consent provided on the form. Exclusion criteria are respondents who are incomplete or unable to fill out the questionnaire to completion. The minimum sample size required in this study is 348 students. Samples were taken using a consecutive sampling technique on all college students of the State University of Semarang in 8 faculties who responded completely.

The research instrument used to obtain the required data is a questionnaire. This section of the psychosocial questionnaire contains demographic data consisting of name, gender, age, semester level, history of previous chronic diseases (asthma, diabetes mellitus, hypertension, heart disease, kidney disease, immune disorders and other respiratory diseases), residence status, exposure to social

media and sources of information related to Covid 19 and family income, occupation, parental dependents and sleep duration. The measuring instrument used to measure social support in this study is the Multidimensional Scale of Perceived Social Support (MSPSS); self-resistance was measured using the The Brief Resilience Scale (BRS) questionnaire. The Impact of Event Scale: Revised (IES-R) was used to measure the severity of PTSD symptoms in the past seven days. Depression was measured using the DASS-21 questionnaire (Depression Anxiety Stress Scale-21).

The data collection technique used a survey method with an online questionnaire distribution approach which was published in the form of a google form which was distributed through social media consisting of college students from Universitas Negeri Semarang. After filling out the questionnaire, the student is expected to share the link with other students. Based on the questionnaires that have been distributed, a total of 409 respondents who filled out the questionnaires, of which 2 respondents did not fill out the questionnaire completely while 407 respondents filled out the questionnaire completely and were included in the final analysis. Data processing is carried out using the application of SPSS for Windows

version 24. Data analysis used chi square test with cell pooling and logistic regression. The research procedure has been approved and received ethical clearance Number: 104/KEPK/EC/2021 by the Health Research Ethics Commission, Department of Public Health, Faculty of Sports Science, State University of Semarang and each respondent received an online explanation through the provision of information before filling out the questionnaire, stating that they agreed by clicking the agree button to fill out the questionnaire.

## Results and Discussion

Universitas Negeri Semarang has eight faculties consisting of the Faculty of Education, Faculty of Languages and Arts, Faculty of Social Sciences, Faculty of Mathematics and Natural Sciences, Faculty of Engineering, Faculty of Sports Science, Faculty of Economics and Faculty of Law. Students of the Universitas Negeri Semarang come from various parts of Indonesia. The Covid-19 pandemic has had an impact on people's lives, one of which is the education sector. Distance learning is an option for the Universitas Negeri Semarang during the Covid 19 pandemic and has been implemented for 1 year.

Table 1. Frequency Distribution of Respondents Characteristics

| Variable                                | Frequency | Percentage (%) |
|---|-----------|----------------|
| <b>Gender</b>                           |           |                |
| Female                                  | 339       | 83,3           |
| Male                                    | 68        | 16,7           |
| <b>Age</b>                              |           |                |
| 15 – 20 years old                       | 209       | 51,4           |
| 21 – 25 years old                       | 198       | 48,6           |
| <b>Semester Level</b>                   |           |                |
| Semester 2                              | 97        | 23,8           |
| Semester 4                              | 81        | 19,9           |
| Semester 6                              | 134       | 32,9           |
| Semester 8                              | 95        | 23,3           |
| <b>Previous Chronic Disease History</b> |           |                |
| Any                                     | 46        | 11,3           |
| None                                    | 361       | 88,7           |
| <b>Residential Area</b>                 |           |                |
| City                                    | 133       | 32,7           |
| Village                                 | 274       | 67,3           |
| <b>Residence Status</b>                 |           |                |
| Boarding house or rent house            | 63        | 15,5           |

|   |     |      |
|---|-----|------|
| Living with parents                                       | 344 | 84,5 |
| <b>Parent's Job</b>                                       |     |      |
| Not working   | 10  | 2,5  |
| Entrepreneur/farmer/labor/fisherman                       | 238 | 58,5 |
| Private employees   | 73  | 17,9 |
| Indonesian Civil Servant/Police/ARMY                      | 65  | 16,0 |
| Retired   | 21  | 5,2  |
| <b>Parental Dependence</b>                                |     |      |
| 1 child   | 123 | 30,2 |
| 2 children  | 180 | 44,2 |
| 3 children  | 78  | 19,2 |
| ≥ 4 children  | 26  | 6,40 |
| <b>Parents' Income</b>                                    |     |      |
| Less than IDR 1.500.000,00                                | 115 | 28,3 |
| IDR 1.500.000,00 - IDR 2.500.000,00                       | 104 | 25,6 |
| IDR 2.500.000,00 - IDR 3.500.000,00                       | 87  | 21,4 |
| More than IDR 3.500.000,00                                | 101 | 24,8 |
| <b>Family Economy Status</b>                              |     |      |
| Low   | 215 | 52,8 |
| High  | 192 | 47,2 |
| <b>Media Exposure and Information Related to Covid-19</b> |     |      |
| <15 minutes/day   | 270 | 66,3 |
| 15-29 minutes/day   | 87  | 21,4 |
| 30-59 minutes/day   | 22  | 5,4  |
| 60-119 minutes/day  | 6   | 1,5  |
| ≥ 120 minutes/day   | 22  | 5,4  |
| <b>Sleep Duration</b>                                     |     |      |
| <5hours/night   | 61  | 15,0 |
| ≥5 - <7 hours/night                                       | 217 | 53,3 |
| ≥ 7 - 8 hours/night                                       | 115 | 28,3 |
| ≥ 8 hours/night   | 14  | 3,4  |
| <5hours/night   | 61  | 15,0 |
| <b>Social Support</b>                                     |     |      |
| Low   | 31  | 7,6  |
| Medium  | 162 | 39,8 |
| High  | 214 | 52,6 |
| <b>Self-Restraint</b>                                     |     |      |
| Low   | 112 | 27,5 |
| Normal  | 277 | 68,1 |
| High  | 18  | 4,4  |
| <b>PTSD Symptoms</b>                                      |     |      |
| Low   | 133 | 32,7 |
| High  | 274 | 67,3 |
| <b>Depression Level</b>                                   |     |      |
| Normal  | 178 | 43,7 |
| Minor   | 42  | 10,3 |
| Medium  | 69  | 17,0 |
| Severe  | 46  | 11,3 |
| Very Severe   | 72  | 17,7 |

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Souces: Primary Data 2021

Most of the respondents in this study were female (83.3%), aged 15 – 20 years (51.4%), 6th semester students (32.9%), had no previous history of chronic disease (88.7%). ), lives in rural areas (67.3%), lives with parents (84.5%), works as entrepreneurs, farmers, laborers or fishermen (58.5%), parents have 2 dependent children (44.2% ), parents' income is less than Rp. 1,500,000 (28.3%), low family economic status (52.8%), length of exposure to media and information related to covid-19 <15 minutes/day (66.3% ), the average sleep duration in one month 5 - <7 hours/night (53.3%), high social

support (52.6%), and normal self-restraint (68,1%).

Based on the results of the study, it is known that respondents who have PTSD symptoms are at high risk (52.8%), while respondents who have PTSD symptoms are at low risk (32.7%). Depression is divided into several levels of depression, namely mild depression (10.3%), moderate depression (17.0%), major depression (17.7%), and very severe depression (17.7%). While respondents who are normal or not depressed (43.7%).

Table 2. Bivariate Analysis of PTSD Symptoms

| Variable Name                           | PTSD Symptoms |      |     |      | PR   | 95% CI     | P value* |
|---|---------------|------|-----|------|------|------------|----------|
|   | High          |      | Low |      |      |            |          |
|   | N             | %    | N   | %    |      |            |          |
| <b>Gender</b>                           |               |      |     |      |      |            |          |
| Female                                  | 228           | 67,3 | 111 | 32,7 | 1,01 | 0,58-1,77  | 1,000    |
| Male                                    | 46            | 67,6 | 22  | 32,4 |      |            |          |
| <b>Age</b>                              |               |      |     |      |      |            |          |
| 15-20 years old                         | 151           | 72,2 | 58  | 27,8 | 1,59 | 1,05-2,41  | 0,038    |
| 21-25 years old                         | 123           | 62,1 | 75  | 37,9 |      |            |          |
| <b>Semester Level</b>                   |               |      |     |      |      |            |          |
| Semester 2                              | 71            | 73,2 | 26  | 26,8 | 0,69 | 0,41-1,15  | 0,197    |
| Not Semester 2                          | 203           | 65,5 | 107 | 34,5 |      |            |          |
| <b>Status of residence</b>              |               |      |     |      |      |            |          |
| Boarding house or rent house            | 39            | 61,9 | 24  | 38,1 | 1,32 | 0,76-2,31  | 0,395    |
| Living with parents                     | 235           | 68,3 | 109 | 31,7 |      |            |          |
| <b>Family Economy Status</b>            |               |      |     |      |      |            |          |
| Low                                     | 145           | 67,4 | 70  | 32,6 | 0,98 | 0,65-1,49  | 1,000    |
| High                                    | 129           | 67,2 | 63  | 32,8 |      |            |          |
| <b>Exposure to Covid 19 information</b> |               |      |     |      |      |            |          |
| ≥ 15 minutes/day                        | 99            | 72,3 | 38  | 27,7 | 1,41 | 0,90-2,21  | 0,161    |
| < 15 minutes/day                        | 175           | 64,8 | 95  | 35,2 |      |            |          |
| <b>Sleep Duration</b>                   |               |      |     |      |      |            |          |
| <7 hours/night                          | 200           | 71,9 | 78  | 28,1 | 1,91 | 0,33-0,81  | 0,005    |
| ≥7 hours/night                          | 74            | 57,4 | 55  | 42,6 |      |            |          |
| <b>Social Support</b>                   |               |      |     |      |      |            |          |
| Low                                     | 129           | 66,8 | 64  | 33,2 | 1,04 | 0,68-1,57  | 0,927    |
| High                                    | 145           | 67,8 | 69  | 32,2 |      |            |          |
| <b>Self-restraint</b>                   |               |      |     |      |      |            |          |
| Low                                     | 61            | 54,5 | 51  | 45,5 | 0,24 | 0,66-0,87  | 0,040    |
| Normal                                  | 198           | 71,5 | 79  | 28,5 | 0,50 | 0,14-1,77  | 0,414    |
| High                                    | 15            | 83,3 | 3   | 16,7 |      | Comparator |          |

\* Chi-square test

Souces: Primary Data 2021

Table 2 presents a cross tabulation that describes the relationship between characteristics and risk factors associated with the appearance of PTSD symptoms in respondents. The table shows a significant relationship with PTSD symptoms according to the Chi-square test on the variables of age, sleep duration and self-resistance. While the variables of gender, semester level status, residence status, family

economic status, exposure to information about COVID-19, and social support did not show a significant relationship with the emergence of PTSD symptoms. Ones Age 15-20 years old who have PTSD symptoms have a higher proportion than those aged 21-25 years, as well as sleep duration of less than 7 hours a day and low self-esteem has a higher proportion than the comparison group.

Table 3. Bivariate Analysis of Depression

| Variable Name                           | Depression |      |        |      | PR   | 95% CI     | P value* |
|---|------------|------|--------|------|------|------------|----------|
|   | Depression |      | Normal |      |      |            |          |
|   | N          | %    | N      | %    |      |            |          |
| <b>Gender</b>                           |            |      |        |      |      |            |          |
| Female                                  | 191        | 56,3 | 148    | 43,7 | 0,98 | 0,58-1,65  | 1,000    |
| Male                                    | 38         | 55,9 | 30     | 44,1 |      |            |          |
| <b>Age</b>                              |            |      |        |      |      |            |          |
| 15-20 years old                         | 130        | 62,2 | 79     | 37,8 | 0,60 | 0,41-0,90  | 0,017    |
| 21-25 years old                         | 99         | 50,0 | 99     | 50%  |      |            |          |
| <b>Semester Level</b>                   |            |      |        |      |      |            |          |
| Semester 2                              | 60         | 61,9 | 37     | 38,1 | 0,73 | 0,46-1,17  | 0,248    |
| Not Semester 2                          | 169        | 54,5 | 141    | 45,5 |      |            |          |
| <b>Residence Status</b>                 |            |      |        |      |      |            |          |
| Boarding house or rent house            | 32         | 50,8 | 31     | 49,2 | 1,28 | 0,75-2,22  | 0,416    |
| Living with parents                     | 197        | 57,3 | 147    | 42,7 |      |            |          |
| <b>Family Economy Status</b>            |            |      |        |      |      |            |          |
| Low                                     | 130        | 60,5 | 85     | 39,5 | 0,69 | 0,47-1,03  | 0,088    |
| High                                    | 99         | 51,6 | 93     | 48,4 |      |            |          |
| <b>Exposure to Covid 19 information</b> |            |      |        |      |      |            |          |
| < 15 minutes/day                        | 150        | 55,6 | 120    | 44,4 | 1,09 | 0,71-1,65  | 0,765    |
| ≥ 15 minutes/day                        | 79         | 57,7 | 58     | 42,3 |      |            |          |
| <b>Sleep Duration</b>                   |            |      |        |      |      |            |          |
| <7 hours/night                          | 161        | 57,9 | 117    | 42,1 | 0,81 | 0,53-1,23  | 0,381    |
| ≥7 hours/night                          | 68         | 52,7 | 61     | 47,3 |      |            |          |
| <b>Social Support</b>                   |            |      |        |      |      |            |          |
| Low                                     | 136        | 70,5 | 57     | 29,5 | 0,32 | 0,21-0,48  | 0,001    |
| High                                    | 93         | 43,5 | 121    | 56,5 |      |            |          |
| <b>Self-restraint</b>                   |            |      |        |      |      |            |          |
| Low                                     | 39         | 34,8 | 73     | 65,2 | 9,35 | 2,55-34,31 | 0,001    |
| Normal                                  | 175        | 63,2 | 102    | 36,8 | 2,91 | 0,82-10,30 | 0,140    |
| High                                    | 15         | 83,3 | 3      | 16,7 |      | Comparator |          |

\* Chi-square test

Souces: Primary Data 2021

Table 3 presents a cross-tabulation of characteristics and risk factors according to depressive symptoms. The table shows a significant relationship with depressive

symptoms from the results of the Chi-square test on the variables of age, social support, and self-restraint. While the variables of gender, semester level status, residence status, family

economy status, and exposure to information about COVID-19 did not show a significant relationship with the emergence of depressive symptoms. Based on the results of the study, it was found that there was a significant relationship between age and symptoms of PTSD ( $p= 0.038$ ) and depression ( $p= 0.017$ ) in college students at Universitas Negeri Semarang. These results are in line with research (Cao et al., 2020) who stated that the risk factor for mental health disorders was higher i.e., the younger the age group, they were more likely to develop psychological distress. College students are in the transition period of late adolescence and early adulthood. In their teens, they have to adapt to many things. The pandemic situation shows that teenagers face many problems at home and outside the home that must be overcome. Likewise, the demands for obligations as a student are high. If many problems are not resolved, it is likely that teenagers will be disappointed, have no respect for themselves, and consider themselves a failure. If this situation continues, it will cause health problems (Cao et al., 2020).

The increased negative impact on mental health can be attributed to sudden lifestyle changes and impaired social activity. Other stressors include changing face-to-face classes to online, and changes in living arrangements. According to Notoatmodjo (2012), sufficient age will affect maturity in thinking so that individuals are also mature in acting under any conditions. As they get older, students are less likely to experience mental health problems, this is because the older they are, the more experiences they have, and students' social adaptability and psychological resilience increase.

Students are in the transition period of late adolescence and early adulthood. In their teens, they have to adapt to many things. The pandemic situation shows that teenagers face many problems at home and outside the home that must be overcome. Likewise, the demands for obligations as students are high. If many problems are not resolved, it is likely that teenagers will be disappointed, have no respect for themselves, and consider themselves a failure. If this situation continues, it will cause health problems. Based on the results of the

study, it was found that there was a significant relationship between self-restraint with PTSD symptoms ( $p=0.040$ ) and depression ( $p<0.001$ ) in State University students of Semarang. This research is supported by research conducted previously by Chi et al. (2020) lower levels of resilience reported significantly higher levels of anxiety, depression, and PTSD.

Resilience is an individual's ability to overcome difficulties and solve problems with positive emotions. It can increase an individual's understanding of happiness and improve psychological health. In the current situation, individuals with high resilience show "mental immunity", which allows them to resist the psychosocial influences of major events. Resilience should be promoted in students because it can reduce their psychological symptoms (Chi et al., 2020). Resilience can be seen as a measure of the ability to cope with stress so that it can be an indicator in dealing with anxiety, depression, and stress reactions (Connor and Davidson, 2003). Resilience is presented as a possible protective factor against symptoms of posttraumatic stress disorder, anxiety and depression. Basically every individual has the ability to face every difficulty in his life. Because every individual must experience difficulties and there is no one who lives in the world without a problem or difficulty. The ability to face adversity will further strengthen him. Someone who has strong resilience will survive during this pandemic (Grothberg, 1999).

The results showed that there was a significant relationship between sleep duration and PTSD symptoms ( $p=0.005$ ) in college students at Universitas Negeri Semarang. While the results of statistical analysis on the depression variable showed no significant relationship between sleep duration and depression ( $p = 0.381$ ) in college students at the State University of Semarang. These results are in line with previous studies which found that short sleep duration was found to have a strong relationship with PTSD, but contradicted the results of depression where in Tang's study it was found that short sleep duration also had a strong relationship with depression (Tang et al., 2020). The strong association between short sleep duration and PTSD in this study, however,

is in agreement with previous studies in veterans (Swinkels et al., 2013). As it is assumed that sleep duration mediates mental health problems, severe exposure can worsen sleep duration, which in turn can lead to depression or PTSD (Tang et al., 2020). Another study found that nighttime sleep duration was not associated with mental health on any of the scales relevant to reports of anxiety, depression, or somatic complaints (Milojevich and Lukowski, 2016). Given the demonstrated association between sleep duration and mental health problems in this study, in which sleep duration was associated with PTSD but not depression, other specific sleep-related behaviors not analyzed in this study may also have an effect.

The results showed that there was a significant relationship between social support and depression ( $p < 0.001$ ) in students at Universitas Negeri Semarang. The results of the analysis on PTSD symptoms ( $p = 0.927$ ) showed that there was no significant relationship between social support and PTSD symptoms in college students at the State University of Semarang. Low perceived social support was significantly associated with an increased risk of anxiety and depressive symptoms. People with low perceived social support are at high risk of experiencing psychological distress, whereas high perceived social support has a positive effect during the COVID-19 epidemic (Cao et al., 2020).

Research of Swinkels et al., (2013), conducted before the pandemic, the results showed that there was a significant relationship caused by social support that was both protective and curative to depression. When individuals feel the burden due to pressure from outside or inside, for example the burden of college, value demands can affect the mood of the individual, if the individual cannot handle this problem it will cause acute stress and can become depressed if there is no treatment for the individual. Social support plays a role in external support that comes from parents, friends and special people. Social support can provide a feeling of security, comfort for the individual's psychology, if this is well received by individuals who are experiencing problems; the possibility of depression is small (Swinkels et al., 2013).

Theoretically, the social support received tends to describe the individual's ability to cope with problems both mentally and physically by refuting stress triggers. The social support normally associated with coping with mental problems may not be sufficient to protect a person from PTSD symptoms in a worldwide pandemic with no predictable endpoint, and the effects of a pandemic cannot be controlled by a single individual. In addition, the pandemic simultaneously impacts multiple areas (financial, relational, and health) with this stress potentially exacerbating PTSD symptoms.

The results showed that there was no relationship between gender and symptoms of PTSD and depression in college students at the State University of Semarang. This research is in line with research conducted by Zhang and Ma (2020) found no significant difference in IES scores between female and male (Zhang and Ma, 2020). Likewise, according to Chen et al (2020), gender did not affect anxiety and depression. This difference indicates that male and female college students experience the same mental health disorders and negative emotions as a result of the epidemic.

Different from research of Tee et al. (2020) which said that mental health disorders tend to be more common in women than men. This is due to biological factors, especially hormonal, making them more susceptible (Tee et al., 2020). According to research by Liu et al. (2020), female gender has been identified as the strongest predictor of post-traumatic stress disorder symptoms after the pandemic. Other studies have shown that the negative impact of the COVID-19 pandemic and rates of depression are higher in female than male (Sønderskov et al., 2020).

Seligman and Roshanhan (1989), described several reasons for the differences in depression between male and female, who were the first female to be more expressive about telling male about depression symptoms. The second reason is biological activity of chemical enzymes, biological factors, and every month there is premenstrual depression that affects women's emotional condition. The third reason is related to hopelessness that causes depression, women feel hopeless more easily than male, so



depression is more common in female. The last reason, female think more rigidly than male, so female worry more and explain the bad things that are happening in their lives, while male take more action and think less of rigid things.

The results showed that there was no significant relationship between semester level and symptoms of PTSD and depression in college students at the State University of Semarang. The results found in the literature review show that first-year students have higher levels of psychological symptoms compared to senior students (Ratunuman, David and Opod, 2021). First-year students may experience mental health disorders due to lack of parental support related to the chosen major, as well as a transition period between high school and college and adaptation to online learning methods and the surrounding environment, relationships and changing lifestyles. Students who have psychological disorders are not able to follow the learning process optimally. Several problems arise related to the online lecture system, such as readiness, mastery of technology, signals, and other obstacles. This happens not only for first semester students who have adjustment problems in learning, changes in environmental conditions, plus the presence of stressors that can cause depression. However, 4th, 6th and 8th semester students also have the same problem coupled with the higher the semester level, the more it affects the learning materials that must be mastered and understood.

Based on the results of the study, second semester students were the respondents with the highest mental health disorders. Several problems arise related to the online lecture system, such as readiness, mastery of technology, signals, and other obstacles. Studying from home results in several important things, namely 1) lack of sleep due to many tasks; 2) too much time in front of a cellphone or laptop which causes a lack of quality interaction with family, 3) increased laziness and motivation to learn; 4) difficulty to concentrate and lose focus during learning; 5) Feeling tired quickly; and 6) Less able to divide the time. In addition, almost all respondents stated that the internet network is often an obstacle in the learning system at home (Fatimah, S., and Mahmudah, 2020).

The results showed that there was no significant relationship between residence status with symptoms of PTSD and depression in college students at Universitas Negeri Semarang. These results are in accordance with research conducted by Sutjiato et al. (2015), a significance value of 1,000, then there is no relationship between residence and students' mental disorders (Sutjiato, Kandou and Tucunan, 2015). The results of this study indicate that respondents who live in boarding houses are not necessarily more prone to mental health problems than those who live with their families. This is because in the boarding house there are many peers who have a sense of the same fate and think that friends understand their desires more so that they help each other and share. Likewise, respondents who live with their families do not necessarily have mental health problems. It could be that at home, they experience a lot of pressure from parents who are too demanding. In addition, the environment around the house is not supportive during the online lecture period.

Students who live with their parents even though they have family support as a source of strength for students in dealing with the pressures and heavy burdens they face. On the other hand, this can also be caused by the possibility that students who live with their families are actually forced, pressured, or demanded to get good grades and even the highest grades during the lecture process. This is what causes the level of depression in students who live with their parents to be quite high. This result is different from previous research which showed that not living with family was associated with a higher likelihood of experiencing mental health problems (living alone: OR, 1.12; 95% CI, 1.06-1.18;  $P < 0.001$ ; living together with roommates: OR, 1,23; 95% CI, 1,13-1,35;  $P < .001$ ) (Wathelet et al., 2020).

The results showed that there was no significant relationship between family economic status with symptoms of PTSD ( $p=1,000$ ) and depression ( $p= 0.088$ ) in college students at the State University of Semarang. The results of this study are supported by research which states that there is no significant relationship between financial condition and the level of depressive symptoms (Ni et al.,

2020). The family economy status is not a guarantee that the higher the economic level, the less mental health problems. According to Diržytė, Rakauskienė, dan Servetkienė (2017), groups with low economic status are believed to be able to overcome the difficulties encountered due to economic factors with the help of resilience.

The economic changes that have occurred due to the COVID-19 pandemic cannot be accepted by all families. There are families who do not have enough savings to deal with emergencies. The unemployment rate is rising, and to stay in the economy, the government must step in by increasing government spending, to increase consumer demand and investment. However, estimating the economic costs of global disease is now ambiguous as pandemics have a spiraling effect on both national and global economies meaning any economic shock to one country quickly spreads to other countries through the increased trade and financial relations associated with globalization.

The results of the study found that there was no significant relationship between exposure to social media and sources of information related to Covid 19 with PTSD symptoms and depression in college students at State University of Semarang. The null relationship between time spent watching television and mental health suggests that social media may have a special role in adverse mental health during epidemics. Ni and colleagues found that spending more than 2 hours per day on Covid 19 related news via social media was associated with anxiety and depression among community-based adults (Ni et al., 2020). The same result was obtained by Wathélet et al. (2020), that satisfaction with the information received is significantly associated with high levels of distress, stress, anxiety, and depression. The more time students spend reading the

news, the more likely they are to have mental health disorder.

The internet is used to simplify daily routines such as doing online learning, remote work and sports. Social media is an inseparable component of human life in this modern era. Many of them can spend hours on social media platforms such as Facebook, Twitter, Instagram, Tiktok, and other social media. However, caution is needed in spending excessive time looking for Covid 19 news on social media given the infodemic and emotional transmission through online social networks (Kramer, Guillory and Hancock, 2014). According to the perception of respondents, 61% have the perception that the sources accessed provide up-to-date and accurate information based on evidence. A total of 38% doubt the accuracy of the information, and 1% perceives that the sources accessed do not provide current and accurate information that is based on evidence. Being wise in sorting and choosing Covid-19 information on social media is considered capable of preventing or anticipating the occurrence of hoax news in the community.

The impact of social media on a person is different. Many factors affect the size of the impact of social media on the person, such as the length of time in using social media, a person's emotional level, mood and physical health. The less time people spend on social media, the more people will feel happier and calmer than people who spend a lot of time on social media. Not only disturbing mental health, uncontrolled use of social media also causes illness and even insomnia.

According to Özdin & Bayrak Özdin (2020), in his research not following new news about Covid 19 can be considered as avoidance behavior. Many Turkish television channels present news broadcasts and programs about the pandemic. At the same time, there is more content about the pandemic on social media (Özdin and Bayrak Özdin, 2020).

Table 4. Multivariate Analysis Factors associated with PTSD symptoms

| Variable   | B      | Wald  | P value | PR    | (95% CI)       |
|------------|--------|-------|---------|-------|----------------|
| Resilience | -1,430 | 4,693 | 0,030   | 0,239 | (0,066– 0,873) |
| Constant   | 1,609  | 6,476 | 0,011   | 5,000 |                |

Based on Table 4, it is known that the variable that has the strongest contribution to predicting high-risk PTSD symptoms is self-resilience, the value of  $p=0.030$  ( $p<0.05$ ) which states that there is a significant relationship between resilience and PTSD symptoms in

college students at the State University of Semarang. The PR score is 5,000, which means that students who have low resilience tend to have a risk of experiencing PTSD symptoms 5,000 times compared to respondents who have high Self-resilience.

Table 5. Multivariate Analysis Factors Associated with Depression

| Variable        | B      | Wald   | P value | PR    | (95% CI)      |
|-----------------|--------|--------|---------|-------|---------------|
| Social support  | 1,225  | 9,194  | 0,002   | 3,404 | (1,542-7,514) |
| Self-resilience | -2,472 | 12,777 | <0,001  | 0,084 | (0,022-0,327) |
| Constant        | 1,185  | 3,287  | 0,070   | 3,272 |               |

Based on the results of multivariate analysis (Table 4.39) it is known that there are 2 remaining variables, namely social support and self-resilience. The results of the logistic regression test on the variables of social support and self-defense respectively showed p values, namely  $p=0.002$  and  $p<0.001$  ( $p<0.05$ ), which stated that there was a significant relationship between social support and self-resilience with depression in college students at Universitas Negeri Semarang. The Wald value of the social support and self-resistance variables are 9,194 and 12,777, respectively. Of the two variables, the variable that has the strongest contribution to predict depression is resilience. This is because social support has the smallest p-value ( $p<0.01$ ) or the largest Wald value (12,777). The PR value is 0.084, which means that students who have high resilience have a risk of experiencing depression 0.084 times compared to respondents who have low resilience. Resilience is a protective factor that affects the level of depressive symptoms in college students at the State University of Semarang.

The Covid-19 outbreak has had an impact on students. Students can adapt to these difficulties, because these students have resilience. Self-resilience can be used to deal with bad situations, uncertain conditions, and the challenge of drastic changes in new habits due to the Covid-19 pandemic so that it does not cause problems that lead to negative (Subair et al.,2015). Humans who are more capable of coping with extreme events are slightly more vulnerable to risk. The more vulnerable a system is, the lower the individual's ability to adapt and shape change (Subair et al.,2015).

Every human being needs self-restraint to be able to rise from the difficulties or failures faced in life. Usually difficulties or failures will indeed make people feel down to mental disorders, but with the ability of resilience in humans, people will see the meaning of these difficulties or failures and avoid mental disorders. (Nasution, 2011). Resilience is needed to be able to overcome the pressures of the Covid-19 pandemic and recover to a normal level of function. Self-resilience is very important to face today's challenges together at the community level, including in the field of education (Vinkers et al., 2020). In other words, resilience is needed by students to be able to adapt to difficult and stressful situations in the academic environment by trying to show and develop their potential for the better, including during the pandemic. The obstacle and weakness of this research is that filling out the questionnaire is done online. So the data is based on self-reports that rely on the honesty and sincerity of the respondents which can lead to information bias in the study and non-strict random sampling can reduce the representativeness and reliability of the results.

### Conclusion

The study concluded that the incidence of PTSD symptoms in respondents was 67.3% while moderate-severe depressive symptoms were 46%. Symptoms of PTSD are related to age, sleep duration and resilience while depression is associated with age, social support and self-resilience. The variable that has the strongest contribution to predicting PTSD and depression symptoms is resilience.

So it is recommended that the government and educational institutions should collaborate to solve this problem by providing psychological services of good quality and on time to students. Students are also expected to take full advantage of online counseling facilities provided by universities or the government.

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