The Effect of Social Media Exposure on Depression and Anxiety Disorders in Facing Covid-19 Pandemic

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ABSTRACT

Background: WHO has designated Covid-19 as a pandemic, this has an effect on mental health when people are stuck at home and it is unknown when the social distancing rule ends. This affects the quality of student learning faced with stressors in dealing with lecture material and exposure to Covid-19 information from social media. This study aims to predict the effect of social media exposure on depression and anxiety disorders in health students in the face of the Covid-19 pandemic.

Methode: This research is a cross sectional study with a sample of students majoring in health in Indonesia in May 2020. Data were collected using a questionnaire through an online survey. Data were analyzed using multivariate logistic regression with Stata 13.

Result: Results from the study found that there was a significant effect of social media exposure on depression (OR=1.64; CI 95%=1.05 hingga 2.57; p=0.031) and anxiety disorders (OR=1.64; CI 95%=1.18 to 3.40; p=0.008) in dealing with the Covid-19 pandemic.

Conclusion: Exposure to social media during this pandemic can increase the risk of depression and anxiety disorders in college students. So, it is expected that students also need to know the steps to protect themselves from excessive stress and panic in the midst of the Covid-19 outbreak.

Keywords: Social media, Depression, Anxiety, Covid-19

BACKGROUND

The first COVID-19 was reported in Indonesia on March 2. Data for March 31, 2020 showed that there were 1,528 confirmed cases and 136 fatal cases. The COVID-19 mortality rate in Indonesia is 8.9%, this figure is the highest in Southeast Asia(Kementerian Kesehatan Republik Indonesia, 2020). Physical distancing is a setting that is applied to avoid the spread of the corona virus more widely. This makes more time spent on social media (Pragholapati, 2020).

Social media is an activity carried out by its users online, in which there is content that is useful for users (Nasrullah, 2015). Around 75% of internet users in Indonesia, access social media every time they connect to the internet(Pusat Kajian Komunikasi Universitas Indonesia, 2015). Internet users in Indonesia on average have more than one social media account and access at least around 1-3 hours per day(Bidjuni & Wowiling, 2015).

The use of social media has positive and negative impacts. The positive impact of social media is that it makes it easier for us to interact with many people, expanding relationships, distance and time is no longer a problem, it is easier to express ourselves, information dissemination can take place quickly, costs are cheaper (Cahyono, 2016). Together with academic information that is often shared through social media, news about

Covid-19 goes around massively and uncontrollably on various social media and has the potential to cause social media fatigue to students (Rahardjo, Qomariyah, Mulyani, & Andriani, 2020).

The use of social media with a long period of time can affect mental health in adolescents(Kelly, Zilanawala, Booker, & Sacker, 2018). Together with some analysis and mis-information, it can raise concerns among the masses. On the other hand, challenges and stress can trigger common mental disorders, such as anxiety and depression(Zandifar & Badrfam, 2020).

Depression is a mental disorder that occurs for at least two weeks with the main symptoms of decreased mood and loss of interest or anhedonia(Indra, Dundu, & Kairupan, 2019). Data from the World Health Organization (WHO) in 2015 found 322 million people worldwide suffer from depression, which is equivalent to 4.4% of the entire world population (World Health Organization, 2017). While anxiety is a condition where someone faces an uncertain situation regarding the ability to face an object (Annisa & Ifdil, 2016; Alrubayae et al., 2020; Altarawneh et al., 2020; Ariantjelangi, 2020; Bakytbekovich & Seisenbekovich, 2020). When people experience anxiety tend to become unfocused on the tasks done so will disrupt daily activities such as at school, at work, or at home.

Without the Covid-19 pandemic, students majoring in health have experienced a lot of pressure that comes from the target of educational achievement that must be fulfilled, not only theoretical learning but also practical learning. With the existence of government regulations that require work and study from home this will add to the burden of health students to meet their learning targets. Based on the above problem, the researcher wants to examine "The Effect of Social Media Exposure on Depression and Anxiety Disorders in Facing Covid-19 Pandemic".

SUBJECT AND METHOD
1. Design and Participants

This research is quantitative research with cross-sectional design and non experimental. This cross-sectional study was online conducted during Mei, 2020. The participants of this study were 430 students who were reached using an online questionnaire. The online questionnaire link was distributed in a snowball way using relations between researchers and lecturers to be distributed to students at several universities. Online questionnaires were distributed containing informed consent, participant identity, and a number of scales of each variable. In the introduction to the online questionnaire mentioned the inclusion criteria of participants, namely students majoring in health in Indonesia. There is also a statement that gives freedom for prospective participants to skip the link obtained if it is not acceptable. There is no compulsion to distribute or fill out this online questionnaire.

2. Measurement

Social Media Exposure. Social media exposure was measured by asking how often respondents during 3 months were exposed to news and information about COVID-19 on social media, such as sepertiTelevisi, Web, Whatsapp, Instagram and etc.

Depression. Depression was assessed using The Chinese Well-Being Index (WHO-5), which consists of positive word items that reflect the presence or absence of well-being rather than depressive symptomatology. Participants were asked to report the existence of these positive feelings in the last 2 weeks on a 6-point scale ranging from all times (5 points) to no time (0 points). Scores that add up to under 13 indicate depression(WHO

Collaborating Centre in Mental Health, 2020). Depression can be measured in several ways, and WHO-5 is considered effective[14,15].

Anxiety Disorders. Anxiety can be assessed using a generalization disorder scale (GAD-7)(Xu dan Chen, 2018), which consists of 7 symptoms. Participants were asked how often they were disturbed by each symptom during the past 2 weeks. The response options are "not at all," "several days," "more than half a day," and "almost every day," each getting a score of 0, 1, 2, and 3. A score of 10 or greater is the cut off point which makes sense to identify cases of anxiety (Gao et al., 2020).

Covariates. The following covariates were included in this study: gender, age, income, red area zone category (the existence of patients confirmed covid), implementation of Large - scale Social Restriction.

3. Data processing and analysis

After checking the collected data visually, data were coded, entered and cleaned using Microsoft Office Excel software. The data entered was exported to STATA version 13 software for analysis. Frequency and percentages were calculated to describe the different characteristics of the study subjects. Logistic regression was performed for independent variable with outcome variable. Odds ratios were calculatedand p value < 0.05 was considered statistically significant.

4. Ethical considerations

Officially written approval letter from Research Ethics Comission Faculty of Medicine University of Islamic Al-Azhar Mataram was obtained prior to the data collection. Before informed consent obtained, the clear description of the study title, procedure and duration, possible risks and benefits of the study were explained for the study subjects. and the responses of interviewee`s were kept confidential.

RESULT
Participant Characteristic

Of all 430 participants, the proportion of "low" and "high" of social media exposure was 28.14% (121 subject) and 71.86% (309 subject). As shown in **Table 1**, more than 70% of them (74.88%) were female, and most (55.81%) were aged ≥ 20 years. Many participants (50.93%) had income ≥ Rp 1,956,200,-, more than half of them were live in red zone district. Most of their homes 51.63% impose Large-scale Social Restriction. The frequency of depression was 53.72% and anxiety disorders 46.51%.

Tabel 1. Participant characteristic

Variabel	Criteria	Frequency (n)	Percentage (%)
Gender	Male	108	25.12
	Female	322	74.88
Age (years)	< 20	190	44.19
	≥ 20	240	55.81
Income	< Rp 1,956,200,-	211	49.07
	≥ Rp 1,956,200,-	219	50.93
Red zone	No	195	45.35

		N	%
	Yes	235	54.65
Large-scale Social	No	208	48.37
Restriction	Yes	222	51.63
Social Media Exposure	Low	121	28.14
	High	309	71.86
Depression	No	199	46.28
	Yes	231	53.72
Anxiety disorders	No	230	53.49
	Yes	200	46.51

Bivariate Analysis Social Media Exposure

Analysis results found that the proportion of high social media exposure among male (52.78%) was lower than among women (78.26%). Female students are 3.22 times more likely to be exposed to social media than male student.The proportion of high social media exposure among aged ≥20 years was higher than aged <20 years.Participants with more low income had higher proportion of high social media exposure than who with high income. Participants who are live in red zone had higher proportion of high social media exposure. Participants who live in a place that is enforced Large -scale Social Restriction had higher proportion of high social media exposure than others.

Tabel2. Participants characteristic and social media exposure

Variabel	Social Media Exposure				Total		OR	p
	Low		High					
	N	%	N	%	N	%		
Gender								
Male	51	47.22	57	52.78	108	100.00	3.22	<0.001
Female	70	21.74	252	78.26	322	100.00		
Age (years)								
< 20	46	38.02	144	46.60	190	100.00	0.70	0.107
≥ 20	75	61.98	165	53.40	240	100.00		
Income								
< Rp 1,956,200,-	54	25.59	157	74.41	211	100.00	0.78	0.249
≥ Rp 1,956,200,-	67	30.29	152	69.41	219	100.00		
Red zone								
No	60	30.77	135	69.23	195	100.00	1.27	0.269
Yes	61	25.96	174	74.04	235	100.00		
Large -scale Social Restriction								
No	68	32.69	140	67.31	208	100.00	1.55	0.042
Yes	53	23.87	169	76.13	222	100.00		

Depression and Social Media Exposure

Multivariate analysis found that depression increase in student aged ≥20 years (OR=0.61; CI 95%=0.41to 0.91; p=0.016), income ≥ Rp 1,956,200,-(OR=0.60; CI 95%=0.41to 0.89; p=0.012), high social media exposure (OR=1.64; CI 95%=1.05to 2.57; p=0.031). About the focus of this study, higher frequency of social media exposure was insignificantly positively associated with depression after controlling for all covariates. Gender, red zone, Large-scale Social Restriction area has no significant effect on depression.

Tabel3. Multivariate ananlysis of several variables with depression

Variabel	OR	CI (95%)		p
		Lower	Upper	
Gender (female)	0.78	0.49	1.25	0.306
Age (≥20 years)	0.61	0.41	0.91	0.016
Income (≥ Rp 1,956,200,-)	0.60	0.41	0.89	0.012
Red zone (Yes)	0.98	0.66	1.46	0.929
Large-Scale Social Restriction (Yes)	1.27	0.85	1.88	0.242
Social media exposure (High)	1.64	1.05	2.57	0.031
N Observasi= 430				
Log Likelihood= -286.23				

As shown **Table 3**,there is effect of student age(OR=0.61; CI 95%=0.41to 0.91; p=0.016) on depression. Student aged ≥20 years are 0.61 times more likely to be depression than aged < 20 years. Analysis result show that there is effect of income (OR=0.60; CI 95%=0.41hingga 0.89; p=0.012) on depression. Student with higher income are 0.60 times more likely to be depression than lowest income. There is effect of high social media exposure (OR=1.64; CI 95%=1.05hingga 2.57; p=0.031) on depression. Students with high social media exposure are 1.64 times more likely to be depression than low exposure.

Anxiety Disorders and Social Media Exposure

As shown **Table 4**, multivariate analysis found that anxiety disorders increase in student aged ≥20 years (OR=0.40; CI 95%=0.26to 0.60; p<0.001), red zone(OR=1.59; CI 95%=1.05to 2.40; p=0.027), Large-scale Social Restriction(OR=1.89; CI 95%=1.17to 2.63; p=0.031), and high social media exposure (OR=1.64; CI 95%=1.18to 3.40; p=0.008). About the focus of this study, higher frequency of social media exposure was insignificantly positively associated with anxiety disorders after controlling for all covariates. Gender and incomehas no significant effect on depression.

Tabel4. Multivariate ananlysis of several variables with anxiety disorders

Variabel	OR	CI (95%)		p
		Lower	Upper	
Gender (female)	0.70	0.43	1.14	0.152
Age (≥20 years)	0.40	0.26	0.60	<0.001
Income (≥ Rp 1,956,200,-)	0.71	0.48	1.07	0.105
Red zone (Yes)	1.59	1.05	2.40	0.027
Large-scale Social Restriction (Yes)	1.89	1.17	2.63	0.007
Social media expsure	1.64	1.18	3.04	0.008
N Observasi= 430				
Log Likelihood= -273.34				

Table 3 show that there is effect of student age (OR=0.40; CI 95%=0.26 to 0.60; p<0.001) on anxiety disorders. Student aged ≥20 years are 0.40 times more likely to be depression than aged < 20 years. Analysis result show that there is effect of red zone (OR=1.59; CI 95%=1.05 to 2.40; p=0.027) on anxiety disorders. Students who lived in red zone are 1.59 times more likely to be anxiety disorders. There is effect of Large-scale Social Restriction (OR=1.89; CI 95%=1.17 to 2.63; p=0.031) on anxiety disorders. Participants who live in a place that is enforced Large -scale Social Restriction are 1.59 times more likely to be anxiety disorders than others. There is effect of high social media

exposure (OR=1.64; CI 95%=1.18 to 3.40; p=0.008) on anxiety disorders. Students with high social media exposure are 1.64 times more likely to be anxiety disorders than low exposure.

DISCUSSION

During this coronavirus pandemic, most people realized the importance of preventive measures, the importance of social distance and following the advice of other governments to limit the spread of infection. However, there is increasing concern among the public about various information regarding COVID-19 infections. People have a higher need to overcome their mental health difficulties [17,18]. The internet can be used for consultation or counseling and to restore daily routines during the Covid-19 pandemic. But spending too much time looking for COVID-19 news on social media that makes us always remember infodemic transmission also has an emotional impact. Our findings indicate that where anxiety or depression can cause contemplation on social media. Compared between the time spent watching television and mental health shows social media may have a specific role in mental health that is detrimental during the epidemic [19, 20].

The use of social media has an indirect relationship to anxiety and depression through symptoms of lack of sleep. However, research also shows that there is a direct relationship between social media use and depression and anxiety. Teens with excessive media exposure can increase the risk of experiencing anxiety and depression due to feelings of depression and isolation[21,22,23]. The use of compulsive social media actually triggers fatigue of social media which ultimately leads to depression and anxiety. We found a strong linear relationship between increased use of several social media platforms and depression and anxiety (Dhir, Yossatorn, Kaur, & Chen, 2018).

There are several reasons people use many social media platforms. One of them is that participation in various social media platforms can provide multitasking benefits between platforms. The second reason is that each social media platform has different written rules, cultural assumptions, and features, so sometimes we can get more diverse information. While in this case, misjudgment or miscommunication can occur on social media there is a risk that misinterpreted or insensitive language can be substantially magnified. When the number of platforms used increases, individuals may experience potentially negative mood and emotional disorders that lead to symptoms of depression or anxiety[24,25].

5.   CONCLUSION

Our findings show there are high prevalence of mental health problems, which positively associated with high social media exposure during the COVID-19 outbreak. These findings implicated the parents and university need pay more attention to mental health among student while facing COVID-19. Fellow students are expected to care about one another. Besides that, students can also consul to mental health services by varied channel including hotline, online consultation, online courseand outpatient consultation. The next implication is monitoring and filtering out false information and promoting accurate information though cross-section collaborations.

CONFLICT OF INTEREST
No conflict of interest in this study.

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