



Perception, mental health, and social media exposure on adolescents in Indonesia during COVID-19 pandemic

[Percepción, salud mental y exposición a los medios sociales en adolescentes de Indonesia durante la pandemia de COVID-19]

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Abstract

Context: Many adolescents exposed to social media information during the coronavirus pandemic (COVID-19) appeared in Indonesia, especially in Central Java.

Aims: To assess adolescent perceptions of COVID-19 and the prevalence of mental health problems and examine their relationship with social media exposure.

Methods: This study used a cross-sectional design in adolescents aged between 10-24 years in Central Java province and was conducted from May to June 2020. The snowball sampling technique was used to distribute questionnaires online via WhatsApp. The estimated number of samples who filled out the questionnaire was 1357 respondents. The instruments used in this study were WHO-Five Well-Being Index (WHO-5), Generalized Anxiety Disorder (GAD-7), and a questionnaire developed by researchers using the theoretical framework approach Health Belief Model. Multivariable logistic regression was used to identify the relationship between social media exposure with mental health problems and adolescent perceptions after controlling for covariates.

Results: From the results of the study obtained data that were associated with social media exposure in adolescents in Central Java during the pandemic as age ($p = 0.0001$), education ($p = 0.025$), and health conditions ($p = 0.016$). Then social media exposure in adolescents during a pandemic affected perception ($p = 0.0001$) and stress ($p = 0.005$) but did not affect depression ($p = 0.108$).

Conclusions: The findings indicated that social media exposure had a significant effect on perception and stress levels. Adolescents who had higher exposure to social media during the pandemic experienced changes in their perception and reported higher levels of stress. However, the study did not find a significant association between social media exposure and depression among adolescents during the pandemic. This suggests that while social media exposure may influence perception and stress, it may not have a direct impact on depression.

Keywords: adolescents; COVID-19; mental health; perception; social media.

Resumen

Contexto: Muchos adolescentes expuestos a la información de los medios sociales durante la pandemia de coronavirus (COVID-19) aparecieron en Indonesia, especialmente en Java Central.

Objetivos: Evaluar las percepciones de los adolescentes sobre COVID-19 y la prevalencia de problemas de salud mental y examinar su relación con la exposición a los medios sociales.

Métodos: Este estudio utilizó un diseño transversal en adolescentes de entre 10 y 24 años de la provincia de Java Central y se llevó a cabo entre mayo y junio de 2020. Se utilizó la técnica de muestreo de bola de nieve para distribuir cuestionarios en línea a través de WhatsApp. El número estimado de muestras que rellenaron el cuestionario fue de 1357 encuestados. Los instrumentos utilizados en este estudio fueron el Índice de Bienestar de la OMS-Cinco (OMS-5), el Trastorno de Ansiedad Generalizada (TAG-7) y un cuestionario desarrollado por los investigadores utilizando el enfoque del marco teórico Modelo de Creencias de Salud. Se utilizó la regresión logística multivariable para identificar la relación entre la exposición a los medios sociales con los problemas de salud mental y las percepciones de los adolescentes tras controlar las covariables.

Resultados: De los resultados del estudio se obtuvieron datos que se asociaron con la exposición a los medios sociales en adolescentes de Java Central durante la pandemia como la edad ($p = 0,0001$), la educación ($p = 0,025$), y las condiciones de salud ($p = 0,016$). La exposición a los medios sociales en adolescentes durante la pandemia afectó a la percepción ($p = 0,0001$) y al estrés ($p = 0,005$), pero no afectó a la depresión ($p = 0,108$).

Conclusiones: Los resultados indicaron que la exposición a los medios sociales tuvo un efecto significativo en la percepción y los niveles de estrés. Los adolescentes más expuestos a los medios sociales durante la pandemia experimentaron cambios en su percepción y declararon mayores niveles de estrés. Sin embargo, el estudio no encontró una asociación significativa entre la exposición a los medios sociales y la depresión entre los adolescentes durante la pandemia. Esto sugiere que, aunque la exposición a los medios sociales puede influir en la percepción y el estrés, es posible que no tenga un impacto directo en la depresión.

Palabras Clave: adolescentes; COVID-19; salud mental; percepción; medios sociales.

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INTRODUCTION

At the end of December 2019, a patient in Wuhan, China, reported pneumonia due to an unknown microbial pathogen (Li et al., 2020). The new Coronavirus was later identified as a pathogen and temporarily named the coronavirus novel 2019 (2019-nCoV) (World Health Organization, 2020a). On January 30 2020, the World Health Organization (WHO) announced that the emergence of the coronavirus novel (2019-nCoV) was a public health emergency of international concern (Public Health Emergency of International Concern - PHEIC) (World Health Organization, 2020b).

Infectious diseases have become one of the main threats to global public health in the 21st century. The disease can have an impact on physical and mental health. Many studies have shown the impact of infectious disease outbreaks on people's mental health, such as severe acute respiratory syndrome (SARS) in 2003 and the 2009 influenza A (H1N1) epidemic. These types of epidemics direct people to experience psychological problems such as stress disorders post-trauma, psychological distress, depression, and anxiety (Centers for Disease Control and Prevention, 2020a).

On April 27, 2020, 2,990,559 people were confirmed to be infected with COVID-19 and caused death in 207,446 people worldwide. The COVID-19 outbreak caused public panic and mental health pressure, with more and more cases being diagnosed and several countries appearing to have confirmed cases and public concerns about infections (Centers for Disease Control and Prevention, 2020b).

COVID-19 cases in Indonesia, as of April 27 2020, had reached 9,096 people, with 765 deaths spread across 35 provinces (National Disaster Management Authority of Republic Indonesia, 2020). In Central Java alone, COVID-19 case number 19 was the fourth rank in Indonesia, with cases of 666 people and the number of dead 58 people (Department of Health of Central Java Province, 2020). By looking at the relatively short distribution process, this number is certainly not small and will continue to grow.

The Ministry of Health of the Republic of Indonesia and the COVID-19 Task Force team continue to strive to raise public awareness about prevention and intervention strategies by providing daily updates on surveillance and active cases on websites and social media. In addition, many private

media or internet users also release and transfer information on media social, such as YouTube, Instagram, and WhatsApp. Social media can cause (e.g.) information overload, which can lead to differences in perception and problems in mental health (Satgas COVID-19 Indonesia, 2020).

WHO points out that the driving factors underlying fear, anxiety, and stigma are triggered by misinformation and rumors, especially those spread through social media. Neria and Sullivan (2011) show that indirect exposure to the media can increase Post-Traumatic Stress Disorder (PTSD). A study by Choi et al. (2017) also shows that exposure to social media might be positively related to the formation of risk perception during the MERS outbreak in South Korea. But no studies examine the relationship between social media exposure and mental health problems and perceptions of COVID-19, especially for adolescents.

The use of social media among adolescents today cannot be avoided anymore. Adolescents use social media almost daily to find information or convey their activities. The results of a survey conducted by Suratman (2018) show the number of adolescents who use Facebook as many as 65 million users, Twitter 19.5 million users, Google+ 3.4 million users, LinkedIn 1 million users, and Path 700 million users (Suratman, 2018).

One psychological impact during the COVID-19 pandemic was psychosomatic, a disorder of the mind that causes physical complaints without having the disease (Xie et al., 2020). One of the psychosomatic causes lately is anxiety triggered by news related to COVID-19. Because every minute, we can be exposed to various news about COVID-19 through social media, WhatsApp groups, and TV news. As a result, the COVID-19 pandemic threatens physical and mental health (Chan et al., 2020).

The high number of COVID cases in Central Java and the large number of adolescents accessing social media can undoubtedly impact adolescent perceptions of COVID-19 and cause mental health problems. Until now, no research has examined the relationship between social media exposure to perceptions and adolescents' mental health in Central Java. This study aimed to describe adolescent perceptions related to COVID-19, the prevalence and distribution of two major mental disorders, anxiety and depression, in adolescents in Central Java and examine this relationship with social media exposure.

MATERIAL AND METHODS

Research design

This study used a cross-sectional method where the independent and dependent variables were taken simultaneously. However, the cross-sectional test is weak in testing the causality relationship between variables. In this study, this weakness was not a problem because the independent variables used were the existing conditions of the respondents.

Population and research sample

The population was adolescents in Central Java aged 10-24. The estimated sample obtained using the Lameshow formula was 1357 adolescents.

Ethical considerations

This research was approved with Ethical Clearance Letter Number 057/ KEPK/EC/2020. It was issued by the Health Research Ethics Commission at Universitas Negeri Semarang on February 22, 2020.

Data collection

The study used snowball sampling techniques to distribute questionnaires online. The online questionnaire was created using the Google form platform at (https://www.google.com/intl/en_us/forms/about/). The online questionnaire was distributed to circles of friends on WhatsApp. When a participant filled out the questionnaire, they passed it on to a circle of friends on WhatsApp to expand the sample size and distribution.

In this study, three questionnaires were used, namely the WHO-Five Well-Being Index (WHO-5) (Topp et al., 2015), Generalized Anxiety Disorder (GAD-7) (Sapra et al., 2020), and a questionnaire developed by researchers using the theoretical framework approach Health Belief Model (HBM) (Jones et al., 2015). The WHO-5 and GAD-7 questionnaires are standard instruments from WHO, which were adopted into the Indonesian version. For the preparation of the HBM questionnaire, the researcher used a literature review. After the questionnaire was compiled, the linguists and substance experts (health behavior science) were consulted. After making improvements according to the input of experts, validity and reliability tests were then carried out.

Depression was measured using the Indonesian version of the WHO-Five Well-Being Index (WHO-5), which consisted of five question items that reflected the presence or absence of depression symptomatology (Mukhtazr and Mukhtazr, 2020).

Respondents were asked to report their feelings in the past 2 weeks on a 6-point scale starting from every time (5 points) to never (0 points). Points less than 13 indicate depression (World Health Organization, 2020c). Anxiety was measured using scale Indonesian version of Generalized Anxiety Disorder (GAD-7), which consisted of 7 symptoms measured (Spitzer et al., 2006; Xu and Chen, 2018). Participants were asked how often they were disturbed by each symptom during the past two weeks. The response choices were "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 more was the cut-off point for identifying anxiety. All these instruments have been validated for adolescents in Indonesia.

Social Media Exposure (SME) was measured by asking how often respondents during the past week were exposed to news and information about COVID-19 on media social, such as Facebook, Instagram, Twitter, YouTube, WhatsApp, and others. Response options were "less", "often" and "frequently".

Social Media Exposure was divided into three categories, namely less (if using social media <1 h/day), sometimes (if using social media 1-3 h/day), and frequently (if using social media >3 h/day).

Health condition was divided into three categories, namely Not Good (if the respondent in the last 1 month experienced health problems), Good (if in the last 1 month did not experience health problems), Very Good (if more than >3 months did not experience health problems and can carry out normal daily activities).

Perception consists of vulnerability, the seriousness of the impact, the benefits of preventive action, barriers to prevention, and self-confidence to take preventive action (Pérez-Fuentes et al., 2020). The perception was measured using instruments developed by researchers using the theoretical framework approach Health Belief Model. All of the instrument was tested for validity and reliability.

Multivariable logistic regression was used to identify the relationship between exposure to social media with mental health problems and adolescent perceptions after controlling for covariates.

Statistical analysis

The mean and standard deviation (SD) were used to analyze numerical data, and the percentage was used to determine the frequency. To determine the correlation between variables and correlation analysis was used non-parametric statistics. A p-value <0.05 was considered as statistical significance. SPSS version 26 was used as the software for the analysis.

Table 1. Demographic and social media exposure.

Variables	N(%)	Social media exposure			P-value
		Less	Sometimes	Frequently	
Overall	1357 (100)				
Gender					
Male	405 (29.8)	168 (41.5: 38.9-44.1)	202 (49.9: 47.2-52.6)	35 (8.6: 7.1-10.1)	0.065
Female	952 (70.2)	355 (37.3: 37.3-39.9)	536 (56.3: 53.7-58.9)	61 (6.4: 5.12-7.68)	
Age (years)					
10-14	83 (6.1)	31 (37.3: 34.7-39.9)	37 (44.6: 41.9-47.3)	15 (18.1: 16.0-20.2)	0.0001
15-18	495 (36.5)	208 (42.0: 39.4-44.6)	251 (50.7: 48.0-53.4)	36 (7.3: 5.9-8.7)	
19-24	779 (57.4)	284 (36.5: 33.9-39.1)	450 (57.8: 55.2-60.4)	45 (5.8: 4.6-7.0)	
Education					
Primary education	92 (6.8)	40 (43.5: 41.0-46.0)	39 (42.4: 39.9-44.9)	13 (14.1: 12.3-15.9)	0.025
Middle education	1225 (90.3)	465 (38.0: 35.5-40.5)	680 (55.5: 53.0-58.0)	80 (6.5: 5.3-7.7)	
Higher education	40 (2.9)	18 (45.0: 42.5-47.5)	19 (47.5: 45.0-50.0)	3 (7.5: 6.1-8.9)	
Marriage					
No Married	1345 (99.1)	518 (38.5: 35.9-41.1)	733 (54.5: 51.9-57.1)	94 (7.0: 5.6-8.4)	0.243
Married	9 (0.7)	3 (33.3: 30.8-35.8)	5 (55.6: 53.0-58.2)	1 (11.1: 9.5-12.7)	
Divorce/widow/widower	3 (0.2)	2 (66.7: 64.2-69.2)	0 (0: 0-0)	1 (33.3: 30.8-35.8)	
Occupation					
Not yet working	16 (1.2)	6 (37.5: 34.9-40.1)	9 (56.2: 53.6-58.8)	1 (6.2: 5.0-7.4)	0.247
Students	1269 (93.5)	493 (38.8: 36.2-41.4)	690 (54.4: 51.8-57.0)	86 (6.8: 5.4-8.2)	
Employee	49 (3.6)	16 (32.7: 30.2-35.2)	29 (59.2: 30.2-35.2)	4 (8.2: 6.7-9.7)	
General employees	13 (1.0)	3 (23.1: 20.9-25.3)	7 (53.8: 52.2-56.4)	3 (23.1: 20.9-25.3)	
Teacher	10 (0.7)	5 (50.0: 47.4-52.6)	3 (30.0: 27.6-32.4)	2 (20.0: 17.8-22.2)	
Region type					
Rural	948 (69.9)	369 (38.9: 36.3-41.5)	505 (53.3: 50.7-55.9)	74 (7.8: 6.4-9.2)	0.200
Urban	409 (30.1)	154 (37.7: 35.1-40.3)	233 (57.0: 54.4-59.6)	22 (5.4: 4.2-6.6)	
Health condition					
Not good	51 (3.8)	20 (39.2: 36.6-41.8)	28 (54.9: 52.3-57.5)	3 (5.9: 4.7-7.1)	0.016
Good	661 (48.7)	262 (39.6: 37.0-42.2)	368 (55.7: 53.1-58.3)	31 (4.7: 3.6-5.8)	
Very good	645 (47.5)	241 (37.4: 34.8-40.0)	342 (53.0: 50.4-55.6)	62 (9.6: 8.1-11.1)	

Social Media Exposure: Less (if using social media <1 hour per day); Sometimes (if using social media for 1-3 hours daily); Frequently (if using social media > 3 hours per day). Health condition: Not Good (if the respondent in the last 1 month experienced health problems); Good (if in the last 1 month not experience health problems); Very Good (if more than> 3 months did not experience health problems and can carry out normal daily activities).

RESULTS

Table 1 shows the demographic of respondents and social media exposure. This study involved 1357 respondents, who were drawn randomly from the entire population in Central Java Province. Out of 1357 respondents, the mean age was 19.1 ± 2.5 years (32.3 ± 10.0 years, range: 10–24). The proportion of "less", "sometimes", and "frequently" SME was 38.5% (95% CI: 35.9-41.1%), 54.4% (95% CI: 51.7-

57.1%), and 7.10% (95% CI: 5.7-8.5%), respectively. As shown in Table 1, it is known that the largest proportion of men "sometimes" of SME was 49.9% (95% CI: 47.2-52.6%), and the largest proportion of women also "sometimes" of SME was 56.3% (95% CI: 53.7-58.9%). Based on age, the highest percentage of respondents was 19-24 years old, namely 57.4%. Among respondents aged 19-24, the largest proportion "sometimes" of SME was 57.8% (95% CI: 55.2-60.4%). Based on education, the highest

percentage of respondents had middle education, namely 90.3%. For respondents with middle education, the largest proportion "sometimes" of SME, was at 55.5% (95% CI: 53.0-58.0%). Based on the marriage status, the highest percentage of respondents were unmarried, 99.1%. For no marriage respondents, the largest proportion was "sometimes" of SME, 54.5% (95% CI: 51.9-57.1%). Based on occupational, the highest percentage of respondents were students, 93.5%. Among student respondents, the largest proportion "sometimes" of SME was 54.4% (95% CI: 51.8-57.0%). Based on region type, the highest percentage of respondents who live in rural areas was 69.9%. Among respondents who lived in rural areas, the largest proportion was "sometimes" of SME, which was 53.3% (95% CI: 50.7-55.9%). Based on health conditions, the highest percentage of respondents declared a good condition, namely 48.7%, and in very good condition was 47.5%. For respondents with good conditions, the largest proportion "sometimes" of SME was 55.7% (95% CI: 53.1-58.3%). Based on the statistical analysis results, it was known that the factors associated with the frequency of use of social media were age, education, and health conditions.

Respondents, other than students and workers, used social media to entertain or seek information. Most students used social media to do assignments or take online classes during the analyzed period. For workers (including teachers), most social media use was to do their work or assignments because they must work from home (WFH) during this COVID-19 pandemic. Teachers must continue to teach their students through social media or special programs according to the provisions of the agency.

Table 2 shows the prevalence of perception during the COVID-19 pandemic and related factors. Of 1357 respondents, those with good perception were $94.8 \pm 1.2\%$ (range: 93.6-96%), and those with bad perception were $5.2 \pm 1.2\%$ (range: 4.0-6.4%). In theory, what affected a person's perception were gender, age, education, marriage status, occupation, region type, and health condition. Of the 1287 respondents who had good perceptions, 71.3% were women. The risk of women having a good perception was 2.5 times (range: 1.5-4.0) greater than men's. Among respondents with good perceptions, 36.1% were aged 15-18, and 57.7% were aged 19-24. Based on education, respondents with good perceptions, 90.1% had middle education, and based on marriage status, respondents who had good perceptions, 99.2 was no marriage. Unmarried respondents were at risk of having a good perception 37.6 times greater than respondents who divorced/widow/widower (range: 3.4-419.4). Based on occupation, respondents with a

good perception of 93.6% were students, and based on region type, respondents with a good perception of 70.5% lived in rural areas. People who lived in risky rural areas had a good perception of 1.7 times greater than respondents who lived in urban areas (range: 1.03-2.76). Based on health conditions, respondents with good perceptions were 49.3% in good condition and 47.3% in very good condition. People who were in good condition were at risk of having a good perception of 0.3 times than respondents who were in not good (range: 0.1-0.7), and people who were in very good condition were at risk of having a good perception of 0.4 times than respondents who were in not good (range: 0.2-0.9). Based on the statistical analysis results, it is known that the factors related to perception were gender, marital status, type of residence, and health conditions. The perception that a person has will influence the person's attitude and behavior. People with good perceptions during the COVID-19 pandemic will think positively and always try to take COVID-19 prevention measures. In addition, a good perception will also make a person always think positively, which could increase body immunity (Dantzer et al., 2018).

Table 3 shows the prevalence of stress during the COVID-19 pandemic and related factors. Of the 1357 respondents, those with low stress were $74.5 \pm 2.3\%$ (72.2-76.8%), and those with high stress were $23.2 \pm 2.3\%$ (range: 23.2-27.8%). In theory, what affects a person's stress level were gender, age, education, marriage status, occupation, region type, and health condition. Of the 1011 respondents who had low stress, 67.5% were women. The risk of women having low stress is 1.7 times greater than men's (range: 1.3-2.3). Among the respondents with low stress, 39.5% were aged 15-18, and 53.2% were aged 19-24. Based on education, respondents with low stress, 89.2% had middle education, and based on marriage status, respondents with a good perception were 98.9 was no marriage. Respondents aged 10-14 had a 2.4 times (range: 1.3-4.4) greater risk of low stress than those aged 19-24. Based on occupation, respondents who had low stress, 92.7% were students, and based on region type respondents who had low stress, 71.3% lived in rural areas. Based on health conditions, respondents with low stress were 44% in good condition and 53.4% in very good condition. People who were in good condition were at risk of having low stress 0.5 times than respondents who were in not good (range: 0.3-0.9), and people who were in very good condition were at risk of having low stress 0.2 times than respondents who were in not good (range: 0.1-0.4). Based on the statistical analysis results, it was known that the factors associated with the stress level in society are gender, age, and health conditions.

Table 2. Prevalence of perception during the COVID-19 pandemic and related factors.

Variables	Prevalence (95% CI)	Adjusted odds ratio (95% CI)
Overall	94.8 (93.6-96.0)	
Gender		
Female	96.3 (95.1-97.5)	1 (ref)
Male	91.4 (89.8-93.0)	2.478(1.528-4.021)
Age (years)		
10-14	95.2 (94.0-96.4)	1 (ref)
15-18	93.9 (92.7-95.1)	1.274 (0.437-3.715)
19-24	95.4 (94.2-96.6)	0.957 (0.332-2.758)
Education		
Primary education	96.7(95.7-97.7)	1 (ref)
Middle education	94.7 (93.5-95.9)	1.662 (0.512-5.395)
Higher education	95.0 (93.8-96.2)	1.561 (0.251-9.724)
Marriage		
No Married	94.9 (93.7-96.1)	1 (ref)
Married	100.0 (100.0)	0.949 (0.938-0.961)
Divorce/Widow/widower	33.3 (30.8-35.8)	37.559 (3.364-419.358)
Occupation		
Not yet working	93.8 (92.6-95.0)	1 (ref)
Students	94.9 (93.7-96.1)	0.810 (0.105-6.225)
Employee	93.9 (92.7-95.1)	0.978 (0.095-10.125)
General employees	92.3 (90.9-93.7)	1.250 (0.071-22.132)
Teacher	100.0 (100.0)	0.938 (0.826-1.264)
Region type		
Rural	95.7 (94.5-96.9)	1 (ref)
Urban	92.9 (91.5-94.3)	1.688 (1.034-2.757)
Health condition		
Not good	86.3 (84.5-88.1)	1 (ref)
Good	95.9 (94.7-97.1)	0.268 (0.110-0.649)
Very good	94.4 (93.2-95.6)	0.372 (0.156-0.883)

A person's stress level is influenced by the person's ability to manage thoughts and cope with the stress experienced (coping strategies). A person's emotional maturity is influenced by sex, age, and health condition. This emotional maturity will affect people's ability to stress coping strategies. People with high-stress levels during the COVID-19 pandemic will cause their immune conditions be suppressed, thereby increasing the risk of contracting COVID-19 (Manchia et al., 2022).

Table 4 shows the prevalence of anxiety during the COVID-19 pandemic and related factors. Of the 1357 respondents, those with low anxiety were $70.2 \pm 2.4\%$ (67.8-72.6%), and those with high anxiety were $29.8 \pm$

2.4% (27.4-32.2%). In theory, what affects a person's stress level were gender, age, education, marriage status, occupation, region type, and health condition. Of the 953 respondents with low anxiety, 68.6% were women. Among the respondents with low anxiety, 38.2% were aged 15-18, and 55.5% were aged 19-24. Based on education, of respondents who had low anxiety, 89.7% had middle education, and based on marriage status, respondents who had low anxiety 99.2 was no marriage. Based on occupation, respondents with low anxiety 92.9% were students, and based on region type, respondents with low anxiety 70.5% lived in rural areas. Teachers were at risk of having 0.75 times low anxiety than

Table 3. Prevalence of stress during the COVID-19 pandemic and related factors.

Variables	Prevalence (95%CI)	Adjusted odds ratio (95%CI)
Overall	74.5 (72.1-76.9)	
Gender		
Male	81.2 (79.0-83.4)	1 (ref)
Female	71.6 (69.2-74.0)	1.714 (1.287-2.282)
Age (years)		
10-14	84.3 (82.3-86.3)	1 (ref)
15-18	81.4 (79.2-83.6)	1.229 (0.652-2.317)
19-24	69.1 (66.6-71.6)	2.412 (1.309-4.444)
Education		
Primary education	80.4 (71.9-76.7)	1 (ref)
Middle education	73.6 (71.2-76.0)	1.472 (0.866-2.502)
Higher education	87.5 (85.7-89.3)	0.587 (0.202-1.711)
Marriage		
No Married	74.3 (71.9-76.7)	1 (ref)
Married	88.9 (87.3-90.5)	0.362 (0.045-2.907)
Divorce/Widow/widower	100.0	0.743 (0.721-0.767)
Occupation		
Not yet working	87.5 (85.7-89.3)	1 (ref)
Students	73.8 (71.4-76.2)	2.480 (0.561-10.971)
Employee	79.6 (77.4-81.8)	1.795 (0.349-9.220)
General employees	84.6 (82.6-86.6)	1.273 (0.154-10.530)
Teacher	100.0	0.875 (0.727-1.053)
Region type		
Rural	76.1 (73.9-78.3)	1 (ref)
Urban	70.9 (68.5-73.3)	1.303 (1.005-1.691)
Health condition		
Not good	51.0 (48.5-53.5)	1 (ref)
Good	67.3 (64.8-69.8)	0.505 (0.285-0.895)
Very good	83.7 (81.7-85.7)	0.202 (0.112-0.364)

respondents who are not yet working (range: 0.6-0.9). Based on health conditions, respondents with low anxiety were 44.2% in good condition and 53.1% in very good condition. People in very good condition were at risk of having low stress 0.3 times more than respondents who were not good (range: 0.2-0.5). Based on the statistical analysis results, it is known that the factors associated with community anxiety are occupation and health conditions. A person's anxiety level is influenced by the person's ability to manage thoughts and cope with the stress experienced (coping strategies) (Onieva-Zafra et al., 2020). The ability to manage thoughts can be influenced by occupation and health conditions. This

emotional maturity will affect people's ability in stress coping strategies, thereby reducing the risk of experiencing high anxiety. People with high anxiety during the COVID-19 pandemic will cause their immune conditions to be suppressed, thereby increasing the risk of contracting COVID-19 (Boaventura et al., 2022).

There was a significant difference in SME between people with poor perception and those with good perception ($p = 0.0001$). As shown in Table 5, it was known that the largest proportion of people with "less" good perception of SME was 57.1% (95% CI: 54.6-59.6%), while the largest proportion of people with "sometimes" good perception of SME was 55.6%

Table 4. Prevalence of anxiety during the COVID-19 pandemic and related factors.

Variables	Prevalence (95% CI)	Adjusted odds ratio (95% CI)
Overall	70.2 (67.8-72.6)	
Gender		
Male	73.8 (71.4-76.2)	1 (ref)
Female	68.7 (66.2-71.2)	1.285 (0.991-1.668)
Age (years)		
10-14	72.3 (69.9-74.7)	1 (ref)
15-18	73.5 (71.1-75.9)	0.939 (0.558-1.580)
19-24	67.9 (65.4-70.4)	1.233 (0.745-2.040)
Education		
Primary education	75.0 (72.6-77.4)	1 (ref)
Middle education	69.8 (67.3-72.3)	1.298 (0.797-2.114)
Higher education	72.5 (70.1-74.9)	1.138 (0.492-2.634)
Marriage		
No Married	70.3 (67.9-72.7)	1 (ref)
Married	66.7 (64.2-69.2)	1.181 (0.294-4.746)
Divorce/Widow/widower	66.7 (64.2-69.2)	1.181 (0.107-13.064)
Occupation		
Not yet working	75.0 (72.6-77.4)	1 (ref)
Students	69.7 (67.2-72.2)	1.302 (0.417-4.062)
Employee	75.5 (73.1-77.9)	0.973 (0.264-3.590)
General employees	69.2 (66.7-71.7)	1.333 (0.260-6.828)
Teacher	10 (100.0)	0.750 (0.565-0.995)
Region type		
Rural	70.9 (68.5-73.3)	1 (ref)
Urban	68.7 (66.2-71.2)	1.109 (0.862-1.426)
Health condition		
Not good	51.0 (48.5-53.5)	1 (ref)
Good	63.7 (61.2-66.2)	0.593 (0.335-1.050)
Very good	78.4 (76.2-80.6)	0.286 (0.160-0.510)

(95% CI: 53.1-58.1%). The largest proportions of people with low stress, medium stress, and high stress were "sometimes" of SME, each 52.2% (95% CI: 49.7-54.7%); 57.4% (95% CI: 54.9-59.9%); and 72.4% (95% CI: 70-74.8%). There was a significant difference in SME between people with low, medium, and high stress ($p = 0.005$). The largest proportions in people with low anxiety, medium anxiety, and high anxiety were "sometimes" of SME, 53.1% each (95% CI: 50.6-55.6%); 55.4% (95% CI: 52.9-57.9%); and 63.4% (95% CI: 60.9-65.9%). There was no significant difference in SME between people with low, medium, and high anxiety ($p = 0.108$).

Social media has become an integral part of daily life for adolescents in Indonesia (Rakhmawati et al., 2021). During the pandemic, social media has played a significant role in disseminating information about the virus and providing a platform for individuals to connect and share their experiences. However, social media exposure during the pandemic negatively affects adolescent mental health (Marciano et al., 2022). Social media exposure during the pandemic is associated with increased symptoms of anxiety and depression among adolescents (Lee et al., 2022).

The research of this study was in line with a study conducted by Budury et al. (2020) that social media exposure was significantly associated with increased

Table 5. Perception, stress, anxiety, and social media exposure.

Variable	N(%)	Social media exposure			P-value
		Less	Sometimes	Frequently	
Overall	1357 (100)				
Perception					
Not Good	70 (5.2)	40 (57.1: 54.6-59.6)	22 (31.4: 28.9-33.9)	8 (11.4: 9.8-13.0)	0.0001
Good	1287 (94.8)	483 (37.5: 35.0-40.0)	716 (55.6: 53.1-58.1)	88 (6.8: 5.4-8.2)	
Stress					
Low	1011 (74.5)	409 (40.5: 38.0-43.0)	528 (52.2: 49.7-54.7)	74 (7.3: 5.9-8.7)	0.0050
Medium	270 (19.9)	99 (36.7: 34.2-39.2)	155 (57.4: 54.9-59.9)	16 (5.9: 4.7-7.1)	
High	76 (5.6)	15(19.7: 17.5-21.9)	55 (72.4: 70.0-74.8)	6 (7.9: 6.5-9.3)	
Anxiety					
Low	953 (70.2)	379 (39.8: 37.3-42.3)	506(53.1: 50.6-55.6)	68 (7.1: 5.7-8.5)	0.1080
Medium	303 (22.3)	117 (38.6: 36.1-41.1)	168 (55.4: 52.9-57.9)	18 (5.9: 4.7-7.1)	
High	101 (7.4)	27 (26.7: 24.3-29.1)	64 (63.4: 60.9-65.9)	10 (9.9: 8.3-11.5)	

Social Media Exposure: Less (if using social media <1 hour per day); Sometimes (if using social media 1-3 hours per day); Frequently (if using social media >3 hours per day).

symptoms of anxiety and depression among Indonesian adolescents during the pandemic. The study also found that social media exposure was associated with decreased life satisfaction and social support, which are important protective factors for mental health.

A study conducted by Reihm et al. (2019) found that adolescents who spend more than three hours per day on social media may be at heightened risk for mental health problems, particularly internalizing problems.

CONCLUSION

From the results of the study obtained data that are associated with social media exposure in adolescents in Central Java during the pandemic are age ($p = 0.0001$), education ($p = 0.025$), and health conditions ($p = 0.016$). Then social media exposure in adolescents during a pandemic affects perception ($p = 0.0001$) and stress ($p = 0.005$) but does not affect depression ($p = 0.108$). With a variety of psychological conditions that could have arisen in adolescents during the COVID-19 pandemic, the regulation of the use of social media is important to note.

Adolescents' perceptions and mental health were significantly affected by social media exposure. The study found that increased social media use was associated with increased anxiety and stress. Additionally, exposure to COVID-19-related news on social media was associated with increased stress and anxiety.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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AUTHOR CONTRIBUTION:

Contribution	Nugroho E	Nisa AA	Cahyati WH	Najib
Concepts or ideas	x	x	x	x
Design	x	x	x	x
Definition of intellectual content	x	x		
Literature search	x			x
Experimental studies	x		x	
Data acquisition	x		x	
Data analysis	x		x	
Statistical analysis	x		x	
Manuscript preparation	x	x	x	x
Manuscript editing	x	x	x	x
Manuscript review	x	x	x	x

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