



ANALYSIS OF FACTORS RELATED TO THE STRESS LEVEL OF HIGH SCHOOL STUDENTS FACING THE COVID-19 ENDEMIC ERA

Anisa Catur Wijayanti^{1*}, Ayu Khoirotul Umaroh¹, Sadar Prihandana², Devi Jantika Nur Khasanah¹,
Nur Ayu Sekar Arum Sari¹

¹Public Health Department, Faculty of Health Sciences, Universitas Muhammadiyah Surakarta, Jl. A. Yani, Mendungan, Pabelan, Kartasura, Sukoharjo, Jawa Tengah 57162, Indonesia

²Poltekkes Kemenkes Semarang, Jl. Tirta Agung, Pedalangan, Banyumanik, Semarang, Jawa Tengah 50268, Indonesia

*anisa.wijayanti@ums.ac.id

ABSTRACT

Coronavirus Disease (COVID-19) is an infectious disease that attacks the respiratory system with its spread quite quickly and widely and the efforts made by the Indonesian government by implementing the Large-Scale Social Restrictions (PSBB) policy. The decrease in the incidence of Covid-19 in 2022 has led to changes in learning policies in schools that can increase the risk of stress in adolescents. This study aimed to analyze the relationship between age, sex, vaccine history, academic achievement, length of study, knowledge, attitudes, behavior, and screen time with stress levels in high school students. The study population was high school students from 4 schools in Surakarta and the sample used in this study was 605 respondents and was selected based on purposive sampling techniques. Data collection techniques using questionnaires and data analysis using Chi Square test. The results showed a relationship between sex (POR 2.619 CI: 1.881-3.647), knowledge (POR 0.691 CI: 0.492-0.970), behavior (POR 1.509 CI: 1.086-2.097), and there was no relationship between age, vaccine history, academic achievement, length of study, attitude, screen time with high school students' stress levels. High school students who are female, have less knowledge and behave less well are at risk of experiencing more severe stress. So it is necessary to provide accurate information about Covid-19 to high school students so that they can understand and contribute to making good Covid-19 prevention efforts.

Keywords: covid-19, endemic, high school students, stress

INTRODUCTION

Covid-19 is an infectious disease caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) which can cause clinical manifestations in the respiratory, pulmonary and systemic tracts (Ahmad, 2021). COVID-19 can cause severe symptoms such as Middle East Respiratory Syndrome (MERS) that have never been identified before in humans and animals (Ministry of Health, 2020). Based on global data, on November 13, 2023, there were 771,820,937 confirmed cases of Covid-19, and as many as 6,978,175 deaths (WHO, 2023). Meanwhile, based on data on the incidence of Covid-19 in Indonesia, it is known that there are 6,813,429 confirmed cases with 6,646,827 (97.6%) recovered cases, as many as 161,918 (2.4%) deaths due to Covid-19 and it is known that there are no active Covid-19 cases as of November 13, 2023 (Infection Emerging Ministry of Health, 2023). The results showed that population mobility before the PPKM period decreased and changed to an increase during the new normal period and continued until the PPKM period and this trend occurred in almost all regions in Indonesia (Arifah & Bagus Faisal, 2023).

The Covid-19 pandemic has had an impact on all levels of society, one of which has occurred on students. Policies taken by the government to deal with the pandemic by giving priority to solving public health and safety issues through work activities, conducting worship and education from home (Pujiastuti, 2020). Changes in learning patterns that occur at the primary,

secondary, and upper education levels have problems that cannot be avoided due to limited internet access, even there are obstacles for students not having mobile phones can cause lagging behind the learning process carried out because learning assignments are delivered through the WhattApp application and more. The change in behavior experienced by students during the pandemic which has lasted for approximately 2 years is likely to still occur due to changes in pandemic status to endemic. The occurrence of this change can cause confusion in students because they have to adapt to applicable learning methods that allow students to get used to using online learning but will be forced to do offline learning again.

The changes experienced by students in adjusting the learning process during the Covid-19 pandemic can lead to mental health problems. Mental health problems that can occur include stress, anxiety and even depression (Muslim, 2020). Stress is a condition experienced by a person when there is a mismatch between the demands received and the ability to overcome them (Muslim, 2020). Stressful conditions occur due to pressure to show achievement and excellence in conditions of increasing academic competition so that students become increasingly burdened by various pressures and demands (Susapto, 2018). Factors that influence stress levels include behavior, conflicts with professors and friends, and physical condition (Legiran Et Al. , 2015). In addition, factors that influence the incidence of stress include student domicile, academic achievement and pocket money owned (Ruhmadi Et Al., 2014). Research shows there is a link between age, and visits to health services and levels of academic stress (Susapto, 2018). While factors that are not related to stress include environmental, economic, and family. The results showed gender and GPA were no relationship between academic stress levels (Ruhmadi et al., 2014). Therefore, researchers are interested in analyzing factors related to the stress level of high school students in Surakarta facing the Covid-19 endemic.

METHOD

This research is a quantitative research with Cross sectional design. This research was conducted in October 2022 – February 2023 in 4 high schools in Surakarta. The population in this study was all students from 4 high schools in Surakarta with a sample of 605 respondents. The type of data used in this study is quantitative data compiled in a questionnaire instrument and have been tested for validity and reliability which includes respondents' characteristics, history of the Covid-19 vaccine (history of conducting covid-19 vaccination carried out by respondents), academic achievement (average value of student learning outcomes in the last two semesters based on report card scores), length of study (length of time used to study in a day), knowledge (students' understanding of Covid-19 with Alpha Cronbach 0.78, symptoms, mode of transmission) with Alpha Cronbach 0.67, attitude (attitude held by respondents regarding covid-19) with Alpha Cronbach 0.75, behavior with Alpha Cronbach 0.68, screen time (using the Smartphone Addiction Scale / SAS instrument) has been tested for validity and reliability by (Kwon et al., 2013), and stress level (using the Perceived Stress Scale / PSS instrument) from (Cohen, 1994) has been tested for validity and reliability by (Lee, 2012) . The data collection techniques using questionnaires given to high school students from 4 high schools in Surakarta. The bivariate analysis uses the Chi Square test.

RESULTS

Table 1.
Frequency Distribution of Research Variables

Characteristics of Respondents	f	%
Age		
15	60	9,9
16	360	59,5
17	151	25
18	34	5,6
$\bar{X}\pm SD$	16.26±0.711	
Min-mak	15-18	
Gender		
Man	261	43,1
Woman	344	56,9
Vaccine history		
Never	11	1,8
Ever	594	98,2
Academic Achievement		
Enough	196	32,4
Good	409	67,6
Length of study		
≥9 hours/day	459	76,1
<9 hours/day	144	23,9
$\bar{X}\pm SD$	9.27±2.373	
Min-mak	1-15	
Knowledge		
Less	203	33,6
Good	402	66,4
Attitude		
Less	215	35,5
Good	360	59,5
Behaviour		
Less	245	40,5
Good	360	59,5
Screen time		
Low	280	46,3
Tall	325	53,7
Stress Level		
Heavy	329	54,4
Low	276	45,6

Table 1. The frequency distribution showed that most of the respondents aged 16 years as many as 360 respondents (59.5%), female as many as 344 respondents (56.9%), most of them had vaccinated as many as 594 respondents (98.2%), students had good academic achievement of 409 respondents (67.6%), had a long length of study for ≥9 hours per day as many as 459 respondents (76.1%), good knowledge as many as 402 (66.4%), Good attitude 360 (59.4%), good behavior 325 (53.7%), high screen time 325 (53.7%), and severe stress levels also 329 (54.4%).

The results of bivariate analysis of factors related to the stress level of high school students in Surakarta include:

Table 2.
Factors related to the Stress Level of High School Students in Surakarta

Variable	Stress Level				Total		POR (95% CI)	P Value
	Heavy		Low		f	%		
	f	%	f	%				
Age								
<16 years old	38	63,3	22	36,7	60	100	1,508 (0,869-2,617)	0,142
≥16 years old	291	53,4	254	46,6	545	100		
Gender							2,619 (1,881-3,647)	0,001
Woman	222	64,5	122	35,5	344	100		
Man	107	41	154	59	261	100		
Vaccine History							1,478 (0,428-5,103)	0,534
Never	7	63,6	4	36,4	11	100		
Ever	322	54,2	272	45,8	594	100		
Academic Achievement							0,982 (0,698-1,383)	0,919
Enough	106	54,1	90	45,9	196	100		
Good	223	54,5	186	45,5	409	100		
Duration of Study (per day)							1,162 (0,798-1,690)	0,433
≥9 hours	253	55,1	206	44,9	459	100		
<9 hours	74	51,4	70	48,6	144	100		
Knowledge							0,691 (0,492-0,970)	0,032
Less	98	48,3	105	51,7	203	100		
Good	231	57,5	171	42,5	402	100		
Attitude							0,818 90,586-1,142	0,238
Less	110	51,2	105	48,8	215	100		
Good	219	56,2	171	43,8	390	100		
Behaviour							1,509 (1,086-2,097)	0,014
Less	148	60,4	97	39,6	245	100		
Good	181	50,3	179	49,7	360	100		
Screen time							0,729 (0,528-1,007)	0,55
High	165	50,8	160	49,2	325	100		
Low	164	58,6	116	41,4	280	100		

Based on Table 2. The results of bivariate analysis found that there was a relationship between gender, knowledge, behavior and stress levels of high school students in Surakarta. And there was no association between age, vaccine history, academic achievement, length of study, attitude and screen time was not related to the stress level of high school students in Surakarta. The results showed women had a risk of experiencing stress 2,619 higher than men (95% CI: 1,881-3,647). The results of this study are in line with research (Wilujeng et al., 2023) showing that there is a relationship between gender and stress levels in adolescents at SMP Brawijaya Smart School. Gender can have a role in the occurrence of stress in adolescents. It is known the difference in response between men and women when facing pressure. Women's brains have a negative level of alertness response to stress. In women, stress can trigger the emergence of certain hormones that can cause anxiety, anxiety and fear. While men in general can face and can enjoy stress as a competition, even in a condition the presence of stress can provide a positive encouragement in facing something so that it can be concluded that when women get pressure or face pressure can cause stress (Brizendine et al., 2007).

The knowledge in this study is the understanding of high school students about Covid-19 which consists of understanding, causes, ways of transmission, and prevention. One example of knowledge that can contribute to efforts to prevent Covid-19 is knowledge related to lifestyles such as physical activity and consumption of nutritious foods in the form of vegetables and fruits so that when someone has good knowledge about prevention efforts related to lifestyle, the lifestyle that will be applied daily will be better than someone who has lower knowledge (Permatasari Et Al., 2021). The results showed that there was a relationship between the level of knowledge and the stress level of high school students in Surakarta. It is known that the level of knowledge in a person is related to anxiety or stress experienced, where the lower a person's level of knowledge, the higher the level of anxiety or stress that will be experienced because they do not know what to do and what to avoid (Kaplan et al., 1997). Good knowledge will cause a positive correlation to attitudes that are reflected in one's behavior. The results of (D'prinzessin, 2021) different studies were shown by those showing no association of knowledge level with stress level ($p = 0.204$)

The results showed that there was a relationship between behavior and stress levels of high school students in Surakarta. In line with research (Mar'atussholihah, 2022) shows there is a relationship between the behavior of broken home students and stress levels. And in line with research conducted by yang yang showed that stress levels have a very weak relationship with excessive added sugar consumption behavior in adolescent girls at SMAN 9 Bogor. The results showed that one attempt to lower stress levels in students was by listening to music. Music therapy can be used in clinical, educational and social spheres as well as patients who need treatment, education and intervention on social and psychological aspects. The positive thing that results from Kutai (Wiciyuhelma et al., 2022) (Azzahra et al., 2023) high instrument music therapy is the emergence of a sense of comfort and calm and also a sense of relaxation caused.

The results showed no relationship between age, vaccine history, academic achievement, length of study, attitude and screen time with the stress level of high school students in Surakarta. It is known based on age, some high school students who have severe stress are ≥ 16 years old, this happens because the older the age, the higher the learning load, including the more the burden of learning and taking as well as schoolwork owned. In line with the results of the study showed students who had the most severe stress levels in students who had a length of study of ≥ 9 hours per day as many as 253 respondents (55.1%). The results showed no relationship between attitude and stress level of high school students in Surakarta. The attitude in this study is action or response to Covid-19 prevention behavior. This can be influenced by resilience, self-esteem, and self-efficacy which are internal factors in a person. Resilience attitude refers to the implementation carried out by a person in the form of a protective attitude that includes psychosocial processes that make a person able to carry out a positive adaptation process so that it will minimize the occurrence of stress contained in aspects of one's internal behavior and is different from the implementation of Covid-19 prevention behavior. In addition to resilience attitudes that can minimize stress levels, there are other attitudes that play a role in minimizing (Graber et al., 2015) stressors, namely self-esteem and self-efficacy which show an individual's attitude in assessing and believing in his ability for what is being faced (Missasi & Izzati, 2019).

The results also showed no relationship between screen time and the stress level of high school students in Surakarta. Screen time is the amount of time spent using electronic media, smartphones, television, computers, or video games. This is in line with research conducted by those who state there is no relationship between (Aulia, 2019) screen time and a person's stress level because there has been a change in times to digitalization which indirectly requires someone to access digital devices more often such as smartphones, televisions, and computers.

A person's screen time cannot be used as a benchmark because the problem that occurs is not how much time a person spends using electronic media but is related to what is watched or listened to because there are some content that is deliberately made to trigger a person's stress level such as violent content and eye fatigue. Conversely, if what is accessed is related to entertainment, then when (Endrayanti et al., 2021)(Pujiastuti, 2020)screen time is high, it can be a coping stress for someone because it can divert the feeling of fatigue that is being experienced. The results of different studies found that the use of social media can cause the occurrence of eating disorders, anxiety to depression(Mahmudah & Purnamasari, 2023)(Gunawan et al., 2022). Factors that can influence the emergence of psychological impacts include age, gender, intensity of social media use, addiction to social media, education level, history of previous mental health disorders, and also idealization of body image.

CONCLUSION

The respondents of this study were mostly 16 years old as many as 360 respondents (59.5%) with an average age of 16.26 years and based on gender some respondents were female as many as 344 respondents (56.9%). The results of the analysis found that there was a relationship between gender, knowledge, behavior and there was no relationship between age, vaccine history, academic achievement, length of study, attitude, screen time with the stress level of high school students in Surakarta. It is necessary to provide information about the problem of Covid-19 to high school students so that they can understand and can contribute to making efforts to prevent Covid-19.

REFERENCES

- Ahmad, Z. (2021). *Praktis Covid-19 Patogenesis, diagnosis dan tatalaksana* (2nd ed.). FK Unsrri Palembang.
- Arifah, I., & Bagus Faisal, I. (2023). *Mobilitas Penduduk dan Kasus Positif Covid-19 Pulau Jawa dan Bali Sebelum dan Selama PPKM Jawa-Bali*. *Jurnal Kesehatan*, 16(2), 115–126. <https://doi.org/10.23917/jk.v16i2.2049>
- Aulia, D. A. (2019). *Faktor-faktor yang Mempengaruhi Adiksi Smartphone pada Remaja* [Skripsi]. Universitas Islam Negeri Syarif Hidayatullah.
- Azzahra, S., Andriani, D. A., Yusnanda, B., Yusuf, J. N., & Masnina, R. (2023). *Inovasi Mendengarkan Musik Tingkalan Kutai Untuk Terapi Stress Pada Siswa Yang Akan Menghadapi Ujian Tulis Berbasis Komputer*. *Jurnal Kesehatan*, 16(1), 73–81.
- Brizendine, L., Cahyati, A., & Satrio, M. (2007). *The Female brain mengungkap misteri otak perempuan* (A. Cahyani, Ed.; 1st ed.). Ufuk Press.
- Cohen, S. (1994). *PERCEIVED STRESS SCALE Evidence for Validity: Higher PSS scores were associated with (for example)*. www.mindgarden.com
- D'prinzessin, C. A. (2021). *Hubungan Tingkat Pengetahuan Tentang Covid-19 terhadap Tingkat Stres dan Kecemasan pada Mahasiswa Farmasi Universitas Sumatera Utara Angkatan 2017* [Skripsi]. Universitas Sumatera Utara.
- Endrayanti, R., Febriyanti, W., Sari, I. A., & Gita, A. P. A. (2021, May 29). *Hubungan antara Pengetahuan dan Sikap Penggunaan Gadget dengan Kelelahan Mata Mahasiswa FIK UMS masa Pandemi Covid-19*. *Prosiding Seminar Nasional Kesehatan Masyarakat Universitas Muhammadiyah Surakarta 2021*.

- Graber, R., Pichon, F., & Carabine, E. (2015). *Psychological resilience: State of knowledge and future research agendas*. Overseas Development Institute.
- Gunawan, I. A. N., Suryani, & Shalahuddin, I. (2022). Dampak Penggunaan Media Sosial Terhadap Gangguan Psikososial Pada Remaja: A Narrative Review. *Jurnal Kesehatan*, 15(1), 78–92. <https://doi.org/10.23917/jk.v15i1.17426>
- Infeksi Emerging Kemenkes. (2023, November 13). Peta Sebaran Covid-19. <https://Covid19.Go.Id/Peta-Sebaran>.
- Kaplan, H. I., Sadock, B. J., Grebb, J. A., & Kusuma, W. (1997). *Sinopsis Psikiatri Ilmu Pengetahuan Perilaku Psikiatri Klinis Jilid II*. (7th ed.). Erlangga.
- Kementerian Kesehatan RI. (2020). *Pedoman Kesiapsiagaan Menghadapi Coronavirus Disease (COVID-19)* (L. Aziza, A. Aqmarina, & M. Ihsan, Eds.). Direktorat Jenderal Pencegahan dan Pengendalian Penyakit (P2P).
- Kwon, M., Kim, D.-J., Cho, H., & Yang, S. (2013). The Smartphone Addiction Scale: Development and Validation of a Short Version for Adolescents. *PLoS ONE*, 8(12), e83558. <https://doi.org/10.1371/journal.pone.0083558>
- Lee, E.-H. (2012). Review of the Psychometric Evidence of the Perceived Stress Scale. *Asian Nursing Research*, 6(4), 121–127. <https://doi.org/10.1016/j.anr.2012.08.004>
- Legiran, Azis, M. Z., & Bellinawati, N. (2015). Faktor Risiko Stres dan Perbedaannya pada Mahasiswa Berbagai Angkatan di Fakultas Kedokteran Universitas Muhammadiyah Palembang. *Jurnal Kedokteran Dan Kesehatan*, 2(2), 197–202.
- Mahmudah, N., & Purnamasari, N. (2023). Pengaruh Konten Tiktok terhadap Tingkat Stres pada Remaja Akhir. *Jurnal Pendidikan Tambusai*, 7(1), 778–786.
- Mar'atussholihah, S. (2022). Hubungan Perilaku Anak Broken Home dengan Tingkat Stres pada Siswa SMAN 9 Pandeglang dan SMKN 6 Pandeglang [Skripsi]. Universitas Islam Negeri Syarif Hidayatullah.
- Missasi, V., & Izzati, I. D. C. (2019). Faktor yang mempengaruhi resiliensi. In F. Tentama (Ed.), *Seminar Nasional Magister Psikologi Universitas Ahmad Dahlan*. Universitas Ahmad Dahlan.
- Muslim, M. (2020). Manajemen Stress pada Masa Pandemi Covid-19. *Jurnal Manajemen Bisnis*, 23(2), 199–209.
- Permatasari, A., Nirwasita, S. F., Widyastomo, A., & Gita, A. P. A. (2021, June 21). Hubungan Pengetahuan dengan Pola Hidup Mahasiswa Kesehatan Masyarakat UMS 2018 sebelum dan selama Pandemi. *Prodising Seminar Nasional Kesehatan Masyarakat Universitas Muhammadiyah Surakarta*.
- Pujiastuti, S. (2020, July 3). Dampak Covid-19 terhadap Pendidikan Anak. <https://Surveymeter.Org/Id/Node/568>.

- Ruhmadi, E., Suwartika, I., & Nurdin, A. (2014). Analisis Faktor yang Berhubungan dengan Tingkat Stress Akademik Mahasiswa Reguler Program Studi D III Keperawatan Cirebon Poltekkes Kemenkes Tasikmalaya. *Jurnal Keperawatan Soedirman*, 9(3), 173–189.
- Susapto, D. (2018). Faktor-faktor yang Mempengaruhi Tingkat Stres pada Mahasiswa Tingkat Akhir Universitas Muhammadiyah Magelang 2018 [Skripsi]. Universitas Muhammadiyah Magelang.
- WHO. (2023, November 13). WHO Coronavirus (COVID-19) Dashboard. https://Covid19.Who.Int/?Adgroupsurvey={adgroupsurvey}&gclid=Cj0KCQiAjMKqBhCgARIsAPDgWlww3oSj9Hn7njcM706thXZ_sSU58QwwKI9sineqqvEp_SCnfQvvx8caAr70EALw_wcB.
- Wiciyuhelma, Ilmi, I. M. B., Fatmawati, I., & Sufyan, L. (2022). Hubungan Tingkat Stres Dengan Perilaku Konsumsi Gula Tambahan Berlebih Pada Remaja Putri. *Jurnal Endurance*, 6(2), 393–401. <https://doi.org/10.22216/jen.v6i2.117>
- Wilujeng, C. S., Habibie, I. Y., & Ventyaningsih, A. D. I. (2023). Hubungan antara Jenis Kelamin dengan Kategori Stres pada Remaja di SMP Brawijaya Smart School. *Smart Society Empowerment Journal*, 3(1), 6. <https://doi.org/10.20961/ssej.v3i1.69257>