The Relationship of *Self-resilience* to the Academic Performance of Students of the Faculty of Medicine, University of Muhammadiyah Surabaya During the Covid-19 Pandemic

Djatmiko Diva Talitha Raissa[1], Yuliyanasari Nurma[2], Yelvi Levani[3]
Fakultas Kedokteran Universitas Muhammadiyah Surabaya

ABSTRACT

The rise of covid-19 pandemic cases in Indonesia has caused physical and psychological changes, especially in medical students. In addition, the learning activities of medical students have also changed, due to the lockdown and quarantine, so that learning is carried out online. Medical students must be able to adjust to this learning. This ability is called self-resilience. Because medical students are prone to psychological stress and followed by low self-resilience. High levels of stress can affect concentration, academic performance and cognitive function. Research on self-resilience has never been carried out at the Faculty of Medicine, University of Muhammadiyah Surabaya during the Covid-19 Pandemic.Knowing the Relationship between Self-Resilience and Academic Performance of Students of the Faculty of Medicine, University of Muhammadiyah Surabaya during the Covid-19 Pandemic. This study used an observational analytical method with a cros sectional approach. Data collection is carried out by requesting an ethics permit letter. With the population of all students of the Faculty of Medicine, University of Muhammadiyah Surabaya class of 2018-2021 with a total of 307 students and a sample of 183 students. Statistical test technique using spearmen test. Based on the results of the spearmen test of the relationship of self-resilience to the academic performance of students of the Faculty of Medicine, University of Muhammadiyah Surabaya during the Covid-19 pandemic, a p value of < 0.05 and a value of r = -0.28 were obtained. There is no Relationship between Self-Resilience and Academic Performance of Students of the Faculty of Medicine, University of Muhammadiyah Surabaya during the Covid-19 Pandemic.

Keywords: Self-resilience, academic performance, covid-19

INTRODUCTION

According to Pidgeon & Keye (2014) resilience is the ability of an individual to adapt well in difficult situations or stress (Pidgeon & Keye, 2014). For students, resilience is very important, as life at university can become more complex and demanding, requiring the capacity to cope with learning/life balance, academic/course demands, and financial issues. Thus, students can experience poor levels of mental health (Pidgeon & Keye, 2014). Especially during the COVID-19 pandemic, it has caused significant physical and psychological changes in medical students.

The COVID-19 pandemic has provided major changes in learning activities (Dhahri, et al., 2020). Individuals who can survive certainly have an attitude in dealing with the stress, depression, and anxiety they face. This depends on the individual's ability to adjust to the changes that occur in life. This ability is known as resilience (Septiani & Fitria, 2016). High levels of stress affect concentration levels, academic achievement, and cognitive function (Almojali, *et al*., 2017). Greenhill, *et al*., (2015) say if resilience is needed in academic success (Greenhill, *et al*., 2015). Academic performance or academic achievement itself is an educational result that has been achieved by students, teachers and institutions (Bhagat, 2013).

Slavin (2014) says that for decades educators have said that stress in medical school is a significant problem (Slavin, *et al*., 2014). Thompson, et al., (2018) explained that medical students are prone to psychological stress with a high level followed by low resilience.

METHOD

The method used is observational analytics with a cross sectional approach (Irmawartini & Nurhaedah, 2017). Cross sectional is a study that is carried out in one observation with a predetermined time by the researcher (Sugiyono, 2016). Data processing using *Statistical Package for the Social Science (*SPSS) version 25 for windows. The data is collected first, after that check the completeness of the data (editing), then give a code in each respondent's answer (coding), the last stage is to compile and calculate the data that has been collected.

RESULTS

On the results of the study which include the characteristics of the research subject, descriptive data of research statistics, mean, median, standard deviation, variables obtained, normality tests processed using SPPS version 25.

Table 1. Characteristics of the Research Subject

No	Characteristic	Sum	Percentage
1	Gender		
	Male	52	28.4%
	Female	131	71.6%
2	Age		
	17-19	91	49.7%
	20-22	87	47.5%
	23-25	5	2.8%
3	Force		
	2018	36	19.7%
	2019	29	15.9%
	2020	61	33.3%
	2021	57	31.1%

Based on gender characteristics, respondents with male sex were obtained as many as 52 students with a percentage of 28.4%. Meanwhile, in the female sex, 131 students were obtained with a percentage of 71.6%. Characterization based on age, the most respondents with an age range of 17-19 years were obtained as many as 91 students (49.7%), and the least in the age range of 23-25 years, namely with a total of 5 students (2.8%). Based on the batch, the questionnaire was filled more in the class of 2020 with a total of 61 students (33.3%), and the least in the class of 2019 with a total of 29 students (15.9%).

Table 2. Overview of Self-Resilience Class of 2018-2021

No	Angkatan	Komponen *Self-Resilience*			Rerata Skor Total
		P (±SD)	R (±SD)	A (±SD)	*Self-Resilience*
1	2018	59,6 (±6,45)	44,2 (±6,20)	24,1 (±7,03)	128
2	2019	60,3 (±5,63)	45,5 (±4,22)	20,4 (±5,87)	126
3	2020	60,3 (±5,95)	47,9 (±5,40)	20,7 (±6,65)	128
4	2021	60,5 (±4,52)	46,8 (± 4,22)	21,4 (±5,61)	128

Information: Component P (*perseverance*), Component R (*Reflecting and adaptive help seeking*), component A (*negative affect and emotional response*)

Based on table 2, the lowest average total self-resilience score in the class of 2019 is with a

score of 126. The highest total self-resilience score was obtained in the class of 2018, 2020, and the class of 2021.

Table 3. Overview of Academic Performance of the Entire Class of 2018-2021

Academic Performance	Sum (%)
Satisfying	1 (1%)
Very Satisfying	97 (53%)
Praise (Cumlaude)	85 (46%)
Total	**183 (100%)**

In table 3, a research sample of 183 students from all batches was obtained. The most academic performance obtained on very satisfactory scores consisted of 97 (53%) students from all classes of 2018-2021. The highest average total *self-resilience* score is found in very satisfactory academic performance with a score of 128.

Table 4. Results of the Relationship of *Self-resilience* to Academic Performance

Academic Performance	Average *self-resilience* score	*Self-resilience* spearmen test and academic performance
Satisfying	118	p= 0,354
Very Satisfying	128	r= -0,28
Praise (Cumloade)	127	

The highest average total *self-resilience* score is found in the academic performance score is very satisfactory with a score of 128. Spearmen test between *self-resilience* and academic performance, using nonparametric spearmen tests of p = 0,354 and r = -0,28.

DISCUSSION

Based on the results of the research, the number of students of the Faculty of Medicine, University of Muhammadiyah Surabaya who met the inclusion criteria was 183 students from the class of 2018-2021. The data obtained were then analyzed using SPSS version 25 using a spearman correlation test.

Bias is a deviation in collecting data, analyzing data, interpreting and publishing that can lead to incorrect conclusions. (Simundic, 2013). To avoid bias in the study, this study has used inclusion criteria and the questionnaire has been tested for reliability and validity, so that this

study is in accordance with the target. In this study, researchers used consecutive sampling, namely data that has been determined by the researcher (Rinaldi & Mujianto, 2017). This study covers the entire batch of students of the faculty of medicine, University of Muhammadiyah Surabaya. Data was obtained by 183 students from all batches. With a total of 307 students in total.

Cassidy's ARS-30 questionnaire which was adapted in the Indonesian version was once used by final semester students by Wardhana & Kurniawan (2018) (Kumalasari, *et al*., 2020). The Indonesian version of ARS-30 has 3 dimensions, namely Perseverance, which is the response of individual behavior in the face of academic difficulties. The reflecting and adaptive help seeking dimension is the cognitive response of individuals in the face of academic difficulties. And the negative affect and emotional response dimension is the emotional response of the individual in the face of academic difficulties (Kumalasari, *et al*., 2020).

The division of *self-resilience* scores is divided into 3, namely the low category with a score of 30-60, a medium value of 61-120, a high value of 121-180. For academic performance, it is divided into 3, namely satisfactory, very satisfactory and praise (laude). The results of the total *self-resilience* questionnaire of each factor are added up and then in each batch will be sought on average. Academic performance data in the form of semester IP is requested for the academic section, processed according to academic performance measurements. After the data is collected, it is processed using SPSS version 25 using a *spearman.*

In table 1, the characteristics of the study subjects on gender in this study were more filled with female sex with a total of 131 students (71,6%) and 52 male students (28,4%). In Oliveira's research (2017) on *self-resilience* factors related to medical students. In the characteristics of the female sex have a higher *self-resilience*, this can be due to the characteristics of women who are more sensitive. But the study also mentioned that in other studies it says the opposite, namely *self-resilience* is higher in male medical students in China and Italy (Oliveira, *et al*., 2017). In contrast to Luibl's research (2021) which said that men have higher *self-resilience* values than women (Luibl, *et al*., 2021).According to Oktasari (2021) men and women have different points of view in overcoming the problems at hand. Men tend to use logic when facing problems, while women tend to solve problems by looking at the emotional impact that arises (Oktasari & Wahyudin, 2021).

In table 2, the average total *self-resilience* score in each batch has a value that does not differ much in the class of 2018, 2020, and 2021 has a self-resilience score of 128 while in the class of 2019 it has a value of 126. So that this study is not much different from the findings in the Tempski study (2015) that the level of *self-resilience* in students in each batch does not

have a significantly different value (Tempski, *et al*., 2015). Research conducted at the Faculty of Medicine, University of Indonesia (FMUI) also has insignificant values between batches in years 1-6. The average score in batches 1-6 is between 64.76-67.60 (Findyartini, *et al*., 2021). According to Tempski (2015) this can happen because educational strategies to increase *self-resilience* in medical students are still rarely done (Tempski, *et al*., 2015).

It can be seen in table 3 that medical students of the University of Muhammadiyah Surabaya still have a relatively high *self-resilience* score. Having a high *self-resilience* can reduce stress (Kermott, *et al*., 2019). Even though during the Covid-19 pandemic, this does not interfere with the *self-resilience* of students to continue to seek knowledge. But it is different from research conducted on medical students in Poland which says that the majority of medical students have low levels of *self-resilience* and high levels of fatigue during the covid-19 pandemic (Forycka, *et al*., 2022). In addition, in the research of medical students in Portugal during the Covid-19 pandemic, more had moderate scores with 236 students (51%), low scores of 28% with 129 students, and a score of 21% with 97 students (Duarte, *et al*., 2022).

In table 4 in this study, it was found that the total average of perseverance, reflecting and adaptive help seeking factors, and negative affect and emotional response or the highest *self-resilience* score score was obtained in the very satisfactory achievement index with a score of 128. The value is higher than the laude achievement index, which is 127. According to Kasthala (2019) this can be caused by *self-confidence*, in students who have lower performance relatively have high *self-confidence*, so they can know their lack of effort and can try harder (Kasthala, *et al*., 2019). According to Sari (2020) that having a high level of *self-resilience* can make things better and can reduce the academic pressure felt (Sari, et al., 2020).Students who have a high *self-resilience* score tend to be able to rise from the difficulties faced so that they can solve problems well so that they can reduce vulnerability to depression during the COVID-19 pandemic (Zhao, *et al*., 2021).

In the results of the study, there was no relationship between *self-resilence* and the cademic performance of students of the Faculty of Medicine, University of Muhammadiyah Surabaya during the Covid-19 pandemic. This research is in line with Kubrusly's research (2019) which does not show a relationship between *self-resilience* and academic performance. In research Kubrusly (2019) said that these results could occur due to incoherent information obtained in students. Because the academic performance value shows the numerical interval value, and this academic performance is not the actual value. In addition to the achievement index, things that can be considered are external factors of the achievement index or academic performance such as student psychology factors, the relationship between lecturers and students, student

abilities and the environment around students either at campus or at home (Kubrusly, *et al*., 2019).

According to Wu (2013) said that it is important to provide an environment of compassion, a healthy and supportive environment for children while growing up. This is done to avoid stress that cannot be controlled and provide opportunities for children to be able to face challenges (Wu, *et al*., 2013). In addition, social support also has an important role in *self-resilience*. In kubrusly's research (2019) mentioned a positive relationship between *self-resilience* and social support, such as support from family, teachers (lecturers) and peers (Kubrusly, et al., 2019).

This research is not in line with the previous research sadoughi (2018) which said that there is a positive correlation between *self-resilience* and academic performance. Omana's research (2010) which assessed the *self-resilience* of students on a regular basis and remedial rough anatomy in first semester students also found no relationship between *self-resilience* and academic performance (Omana, *et al*., 2010).One of the reasons for the difference with the previous study is that Sadoughi's research (2018) only examines new students and uses pearson correlation test research methodology and simultaneous regression analysis. Meanwhile, this study took respondents from old students to new students, namely the class of 2018-2021 and used the spearmen test methodology.

This study did not find a relationship between *self-resilience* and academic performance, this could be caused by external student factors such as the family environment, social environment and school or campus environment. Arofah (2020) said that environmental and family factors can improve student academic performance (Arofah , *et al*., 2020). The family factor is the first education received by a child, so that education will be used as the basis for attending education at school or campus (Saleh, 2014).

CONCLUSION

The *self-resilience* score on students of the Faculty of Medicine, University of Muhammadiyah Surabaya during the Covid-19 pandemic was in the high category.

The academic performance of the students of the faculty of medicine, University of Muhammadiyah Surabaya mostly has very satisfactory scores.

There was no *self-resilience* relationship found on the academic performance of students of the Faculty of Medicine, University of Muhammadiyah Surabaya during the Covid-19 pandemic.

REFERENCE

Abdulghani, H. M. *et al*., 2011. Stress and its Effects on Medical Students: A Cross-sectional Study at a College of Medicine in Saudi Arabia. *Journal of Health, Population and Nutrition,* 29(5), pp. 516-522.

Almojali, A. I. *et al*., 2017. The prevalance and asociation of stress with sleep quality among medical student. *Journal of Epidemiology and Global Health,* 7(3), pp. 169-174.

Arofah , I., Ningsi, B. A. & Masyhudi, L., 2020. Analisis Faktor Yang Mempengaruhi Prestasi Akademik Mahasiswa. *Open Journal System,* 15(5), pp. 4511- 4522.

Babic, R. *et al*., 2020. Resilience in Health and Illness. *Psychiatria Danubina,* 32(2), pp. 226-232.

Bhagat, V., 2013. Extroversion and Academic Performance of Medical Students. *International Journal of Humanities and Social Science Invention,* 2(3), pp. 55-58.

Catur, M. M. S. P., Rahmatika, A. & Oktaria, D., 2018. Faktor-Faktor yang Memengaruhi Prestasi Akademik pada Mahasiswa Kedokteran Tahap Preklinik. *Jurnal Ilmiah Mahasiswa Kedokteran Indonesia,* 6(2), p. 109.

Dewi , G. K. & C, B. H., 2015. Resiliensi Pada Remaja Yatim Piatu Yang Tinggal Di Panti Asuhan. *Spirits,* Volume 5, pp. 29-36.

Dhahri, A. A. *et al*., 2020. The psychological impact of COVID-19 on medical education of final year students in Pakistan: A cross-sectional study. *Annals of Medicine and Surgery,* Volume 60, pp. 445-450.

Duarte, I. *et al*., 2022. The Mediating Role of Resilience and Life Satisfaction in the Relationship between Stress and Burnout in Medical Students during the COVID-19 Pandemic. *Int. J. Environ. Res. Public Health,* Volume 19, pp. 1-13.

Essangri, H. *et al*., 2021. Predictive Factors for Impaired Mental Health among Medical Students during the Early Stage of the COVID-19 Pandemic in Morocco. *American Journal of Tropical Medicine and Hygiene,* 104(1), pp. 95-102.

Findyartini, A. *et al*., 2021. The relationships between resilience and student personal factors in an undergraduate medical program. *BMC Medical Education,* 21(113), pp. 1-10.

Forycka, J. *et al*., 2022. Polish medical students facing the pandemic—Assessment of resilience, well-being and burnout in the COVID-19 era. *PLoS ONE ,* 17(1), pp. 1-16.

Greenhill, J. *et al*., 2015. Towards an understanding of medical student resilience in longitudinal integrated clerkships. *BMC Medical Education,* 15(1), pp. 1-9.

Herrman, H. *et al*., 2011. What Is Resilience?. *The Canadian Journal of Psychiatry,* 56(5), pp. 258-265.

Hijon , A. C., 2017. Academic resilience : a transcultural perspective. *Procedia - Social and*

Behavioral Sciences, Volume 237, pp. 594-598.

Irmawartini & Nurhaedah, 2017. *Metodologi Penelitian.* 1 ed. Jakarta: Kementerian Kesehatan Republik Indonesia.

Kasthala, S. B., Elmitt, N., Smyth, L. & Moore, M., 2019. Predicting future performance in medical students. A longitudinal study examining the effects of resilience on low and higher performing students. *Medical Teacher,* pp. 1-8.

Kermott, C. A. *et al*., 2019. Is Higher Resilience Predictive of Lower Stress and Better Mental Health Among Corporate Executives?. *PLoS ONE,* 14(6), pp. 1-14.

Kubrusly, M. *et al*., 2019. Resilience in the Training of Medical Students in a University With a Hybrid Teaching-Learning System. *Revista Brasileira de Educacao Medica,* 43(1), pp. 358-366.

Kumalasari, D., Luthfiyanni, N. A. & Grasiaswaty, N., 2020. Analisis Faktor Adaptasi Instrumen Resiliensi Akademik Versi Indonesia : Pendekatan Eksploratori dan Konfirmatori. *Jurnal Penelitian dan Pengukuran Psikologi,* 9(2), pp. 84-95.

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), pp. 197-202.

Lin, Y. K., Lin, C. D., Lin, B. Y.-J. & Chen, D. Y., 2019. Medical Students' Resilience: a Protective Role on Stress and Quality of Life in Clerkship. *BMC Medical Education,* 19(1), pp. 1-9.

Liu, H., Zhang, C., Ji, Y. & Yang, L., 2018. Biological and Psychological Perspectives of Resilience: Is It Possible to Improve Stress Resistance?. *Frontiers In Behavioral Neuroscience,* Volume 12, pp. 1-12.

Luibl, L. *et al*., 2021. Resilience and sense of coherence in first year medical students - a cross-sectional study. *BMC Medical Education,* 21(142), pp. 1-10.

Murphey, D., Barry, M. & Vaughn, B., 2013. Positive Mental Health: Resilience. *Child Trends,* pp. 1-6.

Novotny, S. & Křeménková, L., 2016. The relationship between resilience and academic performance at youth placed at risk. *Československá Psychologie: Časopis Pro Psychologickou Teorii a Praxi,* 60(6), pp. 553-566.

Oktasari, M. & Wahyudin, H., 2021. Uji Konstruk dan Pengukuran Resiliensi Berdasarkan Jenis Kelamin Menggunakan Analisis Pemodelan Rasch. *Enlighten: Jurnal Bimbingan Konseling Islam,* 4(1), pp. 42-53.

Oliveira, A. C. P. d., Machado, A. P. G. & Aranha, R. N., 2017. Identification of factors associated with resilience in medical students through a cross-sectional census. *BMJ Open,* 7(11),

pp. 1-9.

Omana, R. E. E. *et al*., 2010. Resilience Does Not Predict Academic Performance in Gross Anatomy. *Anatomical Sciences Education,* 3(4), pp. 168-173.

Pidgeon, A. M. & Keye, M., 2014. Relationship between Resilience, Mindfulness, and Psychological Well-Being in University Student. *International Journal of Liberal Arts and Social Science,* 2(5), pp. 27-32.

Rinaldi, S. F. & Mujianto, B., 2017. *Metodologi Penelitian dan Statistik.* 1 ed. Jakarta: Kementerian Kesehatan Republik Indonesia.

Sadoughi, M., 2018. The Relationship between Academic Self-Efficacy, Academic Resilience, Academic Adjustment, and Academic Performance among Medical Students. *Journal of Education Strategies in Medical Sciences,* 11(2), pp. 7-14.

Saleh, M., 2014. Pengaruh Motivasi, Faktor Keluarga, Lingkungan Kampus, dan Aktif Berorganisasi Terhadap Prestasi Akademik. *Jurnal Phenomenon,* 4(2), pp. 109-141.

Sari, S. P., Aryansah, J. E. & Sari, K., 2020. Resiliensi Mahasiswa dalam Menghadapi Pandemi Covid 19 dan Implikasinya terhadap Proses Pembelajaran. *Indonesian Journal of Guidance and Counseling,* 9(1), pp. 17-22.

Sastroasmoro, S. & Ismael, S., 2014. *Dasar-Dasar Metodologi Penelitian Klinis.* 5 ed. Jakarta: Sagung Seto.

Septiani, T. & Fitria, N., 2016. Hubungan Antara Resiliensi Dengan Stres Pada Mahasiswa Sekolah Tinggi Kedinasan. *Jurnal Penelitian Psikologi,* Volume 7, pp. 59-76.

Simundic, A.-M., 2013. Bias in research. *Biochemia Medica,* 23(1), pp. 12-15.

Slavin, S. J., Schindler, D. L. & Chibnall, J. T., 2014. Medical Student Mental Health 3.0: Improving Student Wellness Through Curricular Change. *Academic Medicine,* 89(4), pp. 573-577.

Sugiyono, 2016. *Metode Penelitian Kuantitatif, Kualitatif dan R&D.* Bandung: PT Alfabet.

Tempski, P. *et al*., 2015. Relationship among Medical Student Resilience, Educational Environment and Quality of Life. *PLOS ONE,* 10(6), pp. 1-13.

Thompson, G., Wrath, A., Trinder, K. & Adams, G. C., 2018. The Roles of Attachment and Resilience in Perceived Stress in Medical Students. *Canadian Medical Education Journal,* 9(4), pp. 69-77.

Ulfah, E., Bakhtiar & Irma, H. T., 2018. Resiliensi Wanita Penderita Kanker Payudara Stadium Lanjut. *Jurnal Al-Qalb,* Volume 10, pp. 119-129.

Universitas Muhammadiyah Surabaya, 2019. *Pedoman Akedemik Tahun Akademik 2019/2020.* Surabaya: Universitas Muhammadiyah Surabaya.

Wu, G. *et al*., 2013. Understanding Resilience. *Frontiers In Behavioral Neuroscience,* Volume 7, pp. 1-15.

Zhao, L. *et al*., 2021. Coping Styles for Mediating the Effect of Resilience on Depression Among Medical Students in Web-Based Classes During the COVID-19 Pandemic: Cross-sectional Questionnaire Study. *J Med Internet Res,* 23(6), pp. 1-12.