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Peer pressure and academic stress among junior high school students: a cross-sectional study†

Original article

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Abstract: **Objective:** The objective of the study was to explore the connection between peer pressure and academic stress among junior high school students.

Methods: This descriptive correlational study was conducted to investigate the link between perceived peer pressure and academic stress. The study involved a total of 525 adolescents, aged 14–19 years, drawn from 6 public junior high schools (PJHS) in Padang, Indonesia, using purposive sampling. Academic stress and perceived peer pressure were assessed using the Educational Stress Scale for Adolescents (ESSA) and the Perceived Peer Pressure Scale (PPPS).

Results: The findings indicated significant variations in stress levels among students in different grade levels (7th, 8th, and 9th grades) ($P < 0.05$), while there were no noteworthy differences in peer pressure across these grade levels ($P > 0.05$). Additionally, there was a positive correlation observed between perceived peer pressure and academic stress ($r = 0.14$, $P < 0.05$). Furthermore, multiple regression analyses, incorporating demographic variables and perceived peer pressure as independent factors, yielded statistically significant results (adjusted $R^2 = 0.082$, $F = 4.33$, $P < 0.001$). Notably, peer pressure had a direct impact on academic stress among adolescents, with class level and parents' educational background mediating the relationship between academic stress and adolescent behavioral problems.

Conclusions: These findings underscore the importance of addressing both external and internal factors at the individual, family, school, and societal levels to enhance adolescents' psychological resilience and mitigate problem behaviors.

Keywords: *academic stress • adolescents • behavioral problem • Indonesia • peer pressure • students*

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1. Introduction

The COVID-19 pandemic has led to a significant increase in stress and mental health issues among high school students.[1] As much as 61% of adolescents between the ages of 13 and 17 have reported experiencing heightened pressure to achieve outstanding academic grades. This percentage is twice as high as those who feel societal pressure to conform to certain standards of appearance or social acceptance.[2] Adolescents are confronted with a multitude of everyday stressors during this phase of their development. These include physical and sexual changes triggered by puberty, the challenges of academic demands, struggles in establishing and sustaining romantic relationships, decisions regarding future careers, the commencement of their working lives, and a gradual process of becoming more independent from their families.[3]

Research has shown that stress during adolescence can have long-lasting effects, significantly influencing adult behaviors such as alcohol consumption, engagement in violent activities, and even involvement in criminal behavior.[4,5] This not only poses a threat to the behavioral well-being of adolescents but also jeopardizes the peaceful and stable development of society at large. Further, the research has revealed that adolescent stress is influenced predominantly by factors related to individuals, families, schools, and the community. Factors such as strained parent-child relationships, incidents of violence in schools, and broader societal dynamics all play substantial roles in contributing to this issue.[6]

One of the primary sources of stress for the majority of students, particularly those in middle school and high school, is academic stress. This form of stress represents a significant environmental factor affecting students.[7] The shift in the educational landscape from traditional offline learning to online platforms, along with changes in teaching methods, has resulted in students reporting higher levels of academic stress during the COVID-19 pandemic compared to other circumstances.[8] Students are currently experiencing increased academic pressure due to a combination of factors, including heightened peer pressure, rigorous academic standards, and a substantial workload of homework.[9]

As indicated by prior research, adolescents benefit from support provided by their peers, teachers, and family members, as it helps alleviate stress and fosters their overall well-being. Conversely, adverse events are frequently a significant source of stress for teenagers.[10,11] During the teenage years, individuals are particularly susceptible to peer influence. Significantly, the impact of peers is considered one of the key factors contributing to engagement in various risky behaviors.[12] Psychologists refer to the perceived or actual sense of being compelled to behave in a specific manner to align with the norms of one's peer group as 'peer pressure'.[13,14] Findings from previous studies have suggested that the influence of peers is one significant factor contributing to the anxiety stemming from academic pressure.[15]

Numerous studies have identified negative correlations between bullying and academic outcomes, including factors like grade point average, teachers' assessments of intellectual performance, and scores on standardized tests.[16,17] Peer pressure indeed exerts an indirect influence on academic success, primarily through the psychological and environmental strain it places on adolescents. Research has shown that adolescents facing heightened external pressure are more likely to experience discomfort in the school environment. This, in turn, can result in increased emotional challenges and reduced academic engagement.[18]

To the best of our knowledge, there is a limited body of research that specifically examines the connection between peer pressure and academic stress. There is also a scarcity of studies that delve into the relationship and the underlying mechanisms linking peer pressure and academic stress among high school students across different grade levels. It's important to note that high school students undergo substantial adjustments in their physical, emotional, and social development during the stage of puberty. Moreover, the significant pressure they experience is compounded by the fact that their academic performance plays a pivotal role in determining their eligibility for high school graduation and entry into college.[19,20] This shift in adolescents' experiences deserves our consideration, as it has the potential to lead to psychological challenges and affect their overall physical and mental health. Examining how peer pressure influences the academic stress that teenagers face holds significant implications for both preventing and addressing adolescent academic stress and enhancing their academic performance. Therefore, this study aims to explore the relationship between peer pressure and academic stress among junior high school students.

2. Methods

2.1. Study design

This descriptive correlational study was carried out to investigate the connection between peer pressure and academic stress. The research employed a cross-sectional design, where each participant completed self-assessment questionnaires.

2.2. Participants

Students were recruited from 6 public junior high schools (PJHS) in 6 district areas, including PJHS 5 Padang, PJHS 18 Padang, PJHS 1 Padang, PJHS 33 Padang, PJHS 41 Padang, and PJHS 23 Padang, representing the western, eastern, urban, and suburban parts of Padang, West Sumatra, Indonesia, to complete a questionnaire that assessed academic stress and perceived peer pressure. The estimated sample size was determined using the Raosoft sample size calculator (http://www.raosoft.com/samplesize.html). It was calculated based on a population of junior high school students in West Sumatra Provinces in 2022, which was approximately 201,410. The desired margin of error was set at 5%, and the confidence level was set at 95%. This calculation resulted in a minimum required sample size of 384 participants. However, a total of 525 participants were included in the final report. Inclusion criteria were adolescents aged 11–16 years and willing to participate. Exclusion criteria encompassed adolescents who had either experienced or been diagnosed with a mental health problem. The samples were collected using a proportional stratified random sampling technique.

2.3. Measures

In this research, 3 instruments were employed. The initial instrument was a demographic sheet designed to assess respondent characteristics, including variables such as gender, age, grade level, school of origin, family structure, residence status, maternal education, paternal education, maternal occupation, and paternal occupation. The second instrument, for measuring the perceived academic stress was assessed with The Educational Stress Scale for Adolescents (ESSA) developed by Sun et al.[21] which has been translated into the Indonesian version by Sihotang.[22] On a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree), this instrument has 16 items. This scale has 5 factors: (1) Pressure from the study, (2) Workload, (3) Worry about grades, (4) Self-expectation stress, and (5) Study despondency. Higher scores indicate severe stress. The Cronbach alpha for a total of 16 items on the ESSA scale was 0.81 which indicates good internal consistency.

The third instrument used to measure perceived peer pressure was assessed with The Perceived Peer Pressure Scale (PPPS) developed by Palani and Mani[23] This instrument comprises 30 items on a 5-point Likert scale from 1 (Strongly disagree) to 5 (Strongly agree). This scale has 3 factors: yielding to peer pressure, resistance to peer pressure, and encouragement. Peer pressure is more intense when a student receives a high score and less severe when a student receives a low score. The PPPS underwent translation into Indonesian by a professional English translator. Before initiating the study, a construct validity test was conducted using Pearson correlation with a sample of 30 adolescents from Padang City. The initial analysis revealed that all the items exhibited Pearson correlation coefficients (*r* values) surpassing the critical *r* table value, thus affirming the validity of these 30 items. Additionally, the Cronbach's alpha coefficient for the 30-item PPPS was calculated at 0.94, signifying a high degree of internal consistency.

2.4. Ethical consideration

This study was approved by the ethics committee of the Faculty of Medicine, Universitas Andalas, Padang, Indonesia (IRB approval number: 843/UN.16.2/KEP-FK/2022). All participants provided informed consent.

2.5. Statistical analyses

Descriptive statistics were performed to describe participants' characteristics with percentages, mean scores, and standard deviation (SD) to define the study variables. The normality assumption was verified through the Kolmogorov–Smirnov test, which confirmed a normal distribution of the data. Additionally, we conducted assessments to check the assumptions required for multiple linear regression analysis. These assessments encompassed examining linearity, independence of errors, homoscedasticity, and multicollinearity. The outcomes indicated that the variance inflation factor (VIF) values were below the threshold of 5, signifying the absence of significant multicollinearity. A one-way analysis of variance (ANOVA) was conducted to assess potential variations in academic stress and peer pressure among different classes. Pearson's correlation analysis was employed to examine the anticipated relationships between perceived peer pressure and academic stress. Multiple linear regression analysis was utilized to identify the factors influencing academic stress. These statistical analyses were carried out using the IBM SPSS version 20 software program (IBM Corp., Chicago, IL, USA).

3. Results

3.1. Sample characteristics

Table 1 presents the sociodemographic characteristics of the survey participants. The study encompassed 525 junior high school students, with 255 (48.6%) being male and 270 (51.4%) female. A majority of the respondents, approximately 51.0%, were early adolescents, and approximately 36.6% were in grade 7. A significant

Variable	F	%
Gender		
Male	255	48.6
Female	270	51.4
Age (years)		
11–13 (Early adolescents)	268	51.0
14–16 (Middle adolescents)	257	49.0
Class level		
7th	194	36.6
8th	151	28.8
9th	182	34.3
School origin		
PJHS 5 Padang	87	16.6
PJHS 18 Padang	88	16.8
PJHS 1 Padang	92	17.5
PJHS 33 Padang	90	17.1
PJHS 41 Padang	77	14.7
PJHS 23 Padang	91	17.3
Family structure		
Nuclear family	470	89.5
Reconstructed family	36	6.9
Single parent	19	3.6
Residence status		
Living with parents	500	95.2
Living with other families	19	3.6
Living alone	6	1.2
Maternal education		
Illiterate	6	1.1
Primary school	28	5.3
Junior high school	70	13.3
Senior high school	278	53.0
College	143	27.2
Paternal education		
Illiterate	12	2.3
Primary school	55	10.5
Junior high school	83	15.8
Senior high school	261	49.7
College	114	21.7
Maternal occupation		
Civil servant	57	10.9
Private employees	23	4.4
Others	93	17.7
Unemployment	352	67.0
Paternal occupation		
Civil servant	64	12.2
Private employees	68	13.0
Others	376	71.6
Unemployment	17	3.2

Note: PJHS, public junior high schools.

Table 1. Characteristic of participant (n = 525).

portion of the participants had parents who were still together (89.5%) and the majority lived with their parents (95.2%). Regarding parental education, most fathers had completed senior high school (53.0%), while nearly half of the mothers had done the same (49.7%). The predominant occupational status among parents was unemployment (71.3%). For fathers, the primary occupational status included freelance work, honorarium-based roles, contractors, and similar categories (71.6%), whereas a considerable proportion of mothers (67.0%) were unemployed.

3.2. Descriptive statistics of the study variables

Table 2 presents an overview of the study's variables categorized by class year. Across all class levels, the most prominent source of stress was academic pressure, with consistent mean scores (Mean = 11.98, SD = 3.44 for all classes). The second most stressful factor was concern about grades, again showing consistent mean scores (Mean = 11.94, SD = 2.59 for all classes). These trends were mirrored within each class year, where academic pressure and grade-related worries consistently ranked as the top stressors. In contrast, resistance to peer pressure emerged as the most significant factor across all classes, with a consistent mean score (Mean = 46.82, SD = 6.45). This pattern was also consistent when analyzing each class separately, with resistance to peer pressure maintaining its position as the most prominent stress factor (Mean scores ranging from 46.72 to 47.38, with corresponding SDs).

Table 2 further demonstrates significant differences in stress levels among participants in grades 7, 8, and 9 ($P < 0.05$), except for stress related to academic pressure. Specifically, first- and second-year students reported lower levels of academic stress, concern about grades, self-expectation stress, and study-related despondency compared to their third-year counterparts. However, in terms of stress related to academic pressure and workload, second-year students had the highest scores among the 3 grade levels, surpassing both first- and third-year students. In contrast, there were no statistically significant differences observed in peer pressure levels among students across different grade levels ($P > 0.05$).

3.3. Correlation between perceived peer pressure with academic stress

Table 3 presents the pairwise correlations between all the elements of perceived peer pressure and academic stress. Perceived peer pressure showed a positive and significant correlation with academic stress (r = 0.14),

Variables	7th year-class (n = 192)	8th year-class (n = 151)	9th year-class (n = 182)	Total (n = 525)	P-value
Academic stress	52.80 (10.30)	55.49 (9.27)	56.12 (9.61)	54.65 (9.79)	0.001**
Pressure from study	11.70 (3.37)	12.50 (3.54)	11.72 (3.38)	11.94 (3.44)	0.059
Workload	8.68 (2.79)	9.89 (2.45)	9.33 (2.71)	9.26 (2.70)	<0.001***
Worry about grades	11.48 (2.81)	11.88 (2.41)	12.49 (2.45)	11.94 (2.59)	0.001**
Self-expectation stress	10.68 (2.93)	11.09 (2.49)	11.69 (2.70)	11.14 (2.71)	0.006**
Study despondency	10.09 (2.78)	10.12 (2.26)	10.89 (2.92)	10.31 (2.52)	0.048*
Perceived peer pressure	96.02 (11.37)	95.77 (10.44)	96.89 (11.00)	95.90 (10.42)	0.675
Yielding to peer pressure	28.34 (5.32)	27.86 (6.72)	28.20 (6.12)	28.06 (5.72)	0.403
Resistance to peer pressure	46.72 (6.43)	46.80 (6.59)	47.38 (6.83)	46.82 (6.45)	0.993
Peers encouragement	20.95 (5.36)	21.10 (3.41)	21.30 (3.80)	21.02 (3.67)	0.234

Note: One-way ANOVA was performed; *P < 0.05; **P < 0.01; ***P < 0.001; SD, standard deviation.

Table 2. Descriptive statistics of the study variables in each class (M ± SD).

Variables	1	1a	1b	1c	1d	1e	2	2a	2b	2c
1	1									
1a	0.71***	1								
1b	0.69***	0.51***	1							
1c	0.58***	0.14**	0.20***	1						
1d	0.71***	0.29***	0.31***	0.38***	1					
1e	0.76***	0.40***	0.39***	0.40***	0.51***	1				
2	0.14**	0.20***	0.03	0.03	0.11*	0.11*	1			
2a	0.17***	0.25***	0.17***	−0.11*	0.06	0.17***	0.62***	1		
2b	0.01	0.02	−0.14**	0.10*	0.06	−0.01	0.71***	−0.01	1	
2c	0.14**	0.13**	0.07	0.08	0.10*	0.06	0.63***	0.21***	0.27***	1

Note: Pearson correlation was performed; *P < 0.05; **P < 0.01; ***P < 0.001; 1 = Academic stress; 1a = Pressure from study; 1b = Workload; 1c = Worry about grades; 1d = Self-expectation stress; 1e = Study despondency; 2 = Perceived peer pressure; 2a = Yielding to peer pressure; 2b = Resistance to peer pressure; 2c = Peers encouragement.

Table 3. Correlations between perceived peer pressure and academic stress.

pressure related to academic demands (r = 0.20), self-imposed expectations stress (r = 0.11), and the feeling of despondency related to studying (r = 0.11).

The tendency to succumb to peer pressure had a positive and significant relationship with academic stress (r = 0.17), pressure associated with academic demands (r = 0.25), workload stress (r = 0.17), and study-related despondency (r = 0.17). However, it exhibited a negative and significant correlation with concerns about grades (r = –0.11).

In contrast, resistance to peer pressure displayed a negative and significant correlation with workload stress (r = –0.14) and a positive and significant correlation with concerns about grades (r = 0.10). Furthermore, the factor of peer encouragement had a positive and significant relationship with academic stress (r = 0.14), pressure related to academic demands (r = 0.13), and self-imposed expectations stress (r = 0.10).

3.4. Multiple linear regressions for academic stress scores

Table 4 presents the outcomes of multiple regression analyses for each component of academic stress, with all demographic characteristics and perceived peer pressure factors serving as independent variables. All of these models yielded statistically significant results. For the total academic stress score, the model was statistically significant (adjusted R^2 = 0.082, F = 4.33, P < 0.001). Specifically, 4 factors were identified as statistically significant contributors to the total academic stress score. Regarding the "Pressure from study" factor, the model was statistically significant (adjusted R^2 = 0.58, F = 3.301, P < 0.001) and included 2 significant variables. For the "Workload" factor, the model was significant (adjusted R^2 = 0.105, F = 5.39, P < 0.001) and comprised 5 significant variables. The "Worry about grades" factor exhibited statistical significance in its

Independent variables	Pressure from study	Workload	Worry about grades	Self-expectation stress	Despondency	Academic stress
Demographics						
Gender	−0.014	−0.002	0.070	0.086	0.081	0.063
Age (years)	0.033	−0.072	−0.032	−0.098	−0.042	−0.054
Class year	−0.014	0.156**	0.150**	0.174**	0.110*	0.160**
School origin	−0.090*	−0.145**	−0.075	−0.012	−0.054	−0.107*
Family configuration	0.025	0.04	0.005	0.056	0.095*	0.059
Living status	0.043	0.096*	−0.024	−0.029	0.005	0.027
Mother education	0.017	0.033	−0.081	0.040	−0.026	−0.013
Father education	0.025	0.100	0.155**	0.052	0.064	0.103*
Mother occupation	−0.009	0.003	−0.022	−0.009	−0.086	−0.034
Father occupation	−0.009	0.010	−0.021	−0.042	−0.032	−0.028
Family income	−0.002	0.026	0.093	0.019	−0.042	0.025
Peer pressure						
Yielding to peer pressure	0.237***	0.183***	–0.094*	0.075	0.179***	0.176***
Resistance to peer pressure	–0.003	−0.183***	0.063	0.033	–0.015	–0.035
Peers encouragement	0.086	0.085	0.098*	0.086	0.026	0.117**

Note: *$P < 0.05$; **$P < 0.01$; ***$P < 0.001$.

Table 4. Standardized coefficients (β) in multiple linear regressions for academic stress scores ($N = 525$).

model (adjusted $R^2 = 0.080$, $F = 4.24$, $P < 0.001$) and featured 4 significant variables. The "Self-expectation stress" factor had a statistically significant model (adjusted $R^2 = 0.038$, $F = 2.46$, $P = 0.002$) with only 1 significant variable. Lastly, the "Despondency" factor had a statistically significant model (adjusted $R^2 = 0.048$, $F = 2.89$, $P < 0.001$) with 3 significant variables (Table 4).

For the overall academic stress score, the most substantial independent variables included yielding to peer pressure ($\beta = 0.176$), class year ($\beta = 0.160$), and peer encouragement ($\beta = 0.117$) (Table 4). Yielding to peer pressure was notably linked with higher scores in the "Pressure from study" ($\beta = 0.237$), "Workload" ($\beta = 0.183$), and "Despondency" ($\beta = 0.179$) factors, while yielding to peer pressure was associated with lower scores in the "Worry about grades" factor ($\beta = -0.094$). In the context of the "Workload" factor, yielding to peer pressure ($\beta = 0.183$), resistance to peer pressure ($\beta = 0.183$), class year ($\beta = 0.156$), and school origin ($\beta = -0.145$) were the most influential variables associated with higher scores (Table 4).

4. Discussion

The primary objective of this study was to explore the association between peer pressure and academic stress among junior high school students. Our research findings reveal a robust connection between peer pressure and academic stress. This aligns with prior research, which suggests that peer pressure has a dual impact. While it can serve as a source of motivation for adolescents, excessive peer pressure can also erode their self-esteem and generate discomfort.[24] During their developmental stages, adolescents typically grow more distant from their families and form closer bonds with their peer groups. Peer groups play a pivotal role in shaping adolescents' social competencies and personalities. Positive support from peers is linked to favorable adjustments in their future personal development abilities. However, it's important to note that peer pressure exerts a significant influence on individuals, and all adolescents must navigate decision-making in response to peer pressure. At times, peer pressure may enhance positive coping mechanisms, but conversely, it can become a stressor that negatively impacts adolescents' developmental skills.[25]

Additional findings from this study indicate that third-year students experience the highest levels of academic stress, concerns about grades, self-imposed expectations stress, and study-related despondency when compared to their first- and second-year counterparts. This pattern aligns with earlier research, which has observed that as students progress to higher levels of education, they encounter increased pressure related to their workload, as they prepare for final exams and fret over their final grades. This heightened pressure is often a result of the heightened expectations for performance at advanced stages of education.[26] Moreover, it is well-documented that adolescents' general stress levels often stem from their experiences within the school

environment and their relationships with their parents. Within the school setting, stressors can arise from interactions with peers and teachers. Studies have shown that bullying, social exclusion, and conflicts are common stressors experienced by adolescents.[27]

Students are frequently subjected to a myriad of tests as they strive to gain admission to higher educational institutions. This process places them under immense pressure from various sources, encompassing interpersonal relationships, academic expectations, and scholastic responsibilities. Students who bear an excessive burden of academic stress are at risk of experiencing emotional disturbances that, over time, may culminate in mental health disorders such as depression.[28] It is noteworthy that students often engage in problematic behaviors when they find themselves grappling with intense psychological pressures. According to a previous study, severe problem behaviors encompass acts such as violence, suicide, and criminal activities, all of which can inflict substantial harm upon the physical, mental, and socio-emotional development of teenagers. These behaviors also have far-reaching consequences for their families, schools, and society at large, inflicting irreparable damage.[29]

Furthermore, this study revealed that fathers' education levels may play a role in influencing academic stress among students. This observation aligns with the principles of social learning theory, which posits that parents serve as the primary sources of inspiration and information for their children. Children not only observe and absorb their parents' actions but also their expressions and emotions.[30] When faced with similar situations, a child will often apply the learned behaviors and emotions modeled by their parents.[31] Parents experiencing burnout are inclined to exhibit a range of negative symptoms when interacting with their children, including emotional detachment, emotional indifference, and a desire to disengage from parental responsibilities. Children always closely observe and internalize these reactions, which can manifest in their everyday activities. In the context of education, children may develop similar signs of academic stress as a reflection of what they have learned from their parents.[32]

Finally, it's crucial to emphasize that the study's findings underscore a robust connection between peer pressure and academic stress. Peer pressure initially elevates the likelihood of conflicts among students, leading to reduced subjective happiness. Subsequently, this heightened stress level increases the probability of adolescents engaging in problematic behaviors. Academic stress can have detrimental effects on individuals' overall well-being and further elevate the risk of teenagers partaking in negative behaviors. Therefore, there is a paramount need to prioritize the enhancement of adolescents' subjective well-being. For instance, educational institutions can introduce psychological courses, enhance psychological education for adolescents, and foster the development of their character strengths. Simultaneously, mental health education should be integrated into the regular curriculum, actively guiding young individuals toward healthy mental growth and the formation of their unique personalities. Additionally, parents should pay attention to this aspect when raising their children, as family relationships play a pivotal role in adolescents' happiness and overall well-being.

5. Conclusions

The study underscores the importance of continuous monitoring of students' academic stress levels. It highlights that class level and parents' educational backgrounds serve as mediators in the relationship between academic pressure and adolescents' problematic behaviors. Simultaneously, peer pressure exerts a direct influence on academic stress in adolescents. These findings underscore the necessity of a holistic approach that combines both external and internal factors at various levels, including the individual, family, school, and society, to bolster adolescents' psychological resilience and deter problematic behaviors. For example, educational institutions can implement psychological courses, enhance psychological education for adolescents, and nurture their character strengths. Also, parents should prioritize emotional management when interacting with their children to reduce the likelihood of conflicts between parents and children and create a harmonious and affectionate family environment.

Implication for nursing practice

The study's findings suggest several key implications for nursing practice, particularly in school settings. Nurses can support adolescent well-being by implementing peer support programs and stress management workshops. Conducting mental health screenings and offering parent education sessions are vital for identifying and addressing academic stress. Collaborating with school staff to create a supportive environment prioritizing student mental health is also crucial. By implementing these strategies, nurses can empower adolescents to thrive academically and emotionally in school.

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Authors contribution

All authors contributed equally to this study in substantial contributions to the conception or design of the work, analysis, or interpretation of data for the work; drafting of the work; and final approval of the version to be published.

Ethical approval

This study was approved by the ethics committee of the Faculty of Medicine, Universitas Andalas, Padang, Indonesia (IRB approval number: 843/UN.16.2/KEP-FK/2022).

Conflicts of interest

All contributing authors declare no conflicts of interest.

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