Conference Paper

The Role of Resilience in Coping with Academic Stress (A Meta-analysis Study)

Yeni Mulati[1*] and Eny Purwandari[2]

[1,2]Faculty of Psychology, University of Muhammadiyah Surakarta, Surakarta, Indonesia.

Abstract.

In the academic world, students who have a high level of resilience, are mentally healthier, optimistic, dynamic, enthusiastic about various things in life, and more resistant to various things including stress conditions. Many studies show that high resilience will have a positive effect on student achievement. To prove these studies, we conducted a meta-analysis of a number of articles discussing the correlation between resilience and academic stress. This article presents a meta-analysis of the correlation studies that have examined the correlation between resilience on academic stress. The result of a meta-analysis on 17 studies from 4194 subjects shows that resilience is negatively correlated to academic stress (r = -.503). The difference in the variance of correlation can, among others, be caused by sampling error (6.122%) and error in measurement of independent and dependent variables (1.449%). The results indicated that resilience negatively influences academic stress.

Keywords: meta-analysis, resilience, academic stress

Corresponding Author: Yeni Mulati ; email: s300210005@student. ums.ac.id

1. Introduction

One of the problems that need to be watched out for in the world of education and also society in general, is the problem of stress. The pressures faced by students in carrying out learning activities, interactions with classmates, and the lecture environment, as well as various kinds of problems faced during their education, can trigger stress. Moreover, many students come from outside the region, so they have to live in a new environment, either in boarding houses, student houses, or dormitories. In a new environment, students must carry out an adaptation process which for some people is not an easy thing

Actually, stress is a natural thing. When interacting with the outside world, everyone is faced with various problems and some of them have the potential to cause stress. So, stress is an individual's response to the cause of stress (stressor) that he may get from his environment, in the form of things that hinder and threaten the individual's

ability to adapt [15]. Stress arises naturally when a person gets burdened and has to struggle to cope with the demands (demands) in his life, such as financial problems, work, relationships, and other situations that may be full of challenges or threats [1]. In the academic world, the problems that arise are certainly related to academic problems, such as the burden of lectures, difficulties in dealing with assignments and exams, differences in character with teachers or college friends, and so on. This kind of stress is commonly referred to as academic stress.

Naturally, the human body actually has a mechanism to respond to stressors obtained from the surrounding environment. Franke [1] states that stress is the body's defense system that appears naturally to fight various kinds of risks or things the body perceives as dangerous. When the "red flag" is issued, the body secretes hormones to deal with external dangers. Stress is a natural response of individuals to various conditions or events that threaten and disturb them [21]. Not all stress is harmful, in a certain portion, stress is actually positive because it makes the body trained and strong to deal with unwanted conditions. Such stress is known as eustress. However, there is also stress that can be destructive, namely distress, which is stress that can actually trigger serious problems.Individual responses to stress can vary. Some people may respond to stressors normally, but in people who are prone to stress, this condition can trigger quite serious problems. Some chronic stressors can even increase the risk of disease [27]. Various diseases such as heart disease, hypertension, stroke, and various other serious diseases, are reported to be associated with stressful conditions that occur in sufferers.

In the academic world, stress is very common. For students or students who are still active in lectures, academic problems such as lesson loads, exams, theses, lecturers who are less communicative, problems with school/college friends, the hazing that sometimes often occurs between seniors and juniors, as well as various other problems, is a common type of stressors. Unfortunately, many people do not give in-depth attention to the problem of academic stress. In fact, the stressful conditions experienced by students and students are often taken lightly and are a common problem.

In fact, various serious problems can arise due to stress that is not handled properly. Last year, in the near future, the public was shocked by the successive suicides that occurred of in several students in different cities. On October 2021, a student with the initials KAM (20) died of suicide, allegedly due to stress due to college assignments [8]. On the 8th of the same month and year, a student in Palembang also committed suicide because he was depressed by various assignments which he said were very heavy [7].

Before that, an ITB student also committed suicide, found dead in his boarding house in August 2021 [6].

Hans Selye [27], makes an overview of the body's response to all kinds of external stressors as a process of general adaptation syndrome, which includes 3 phases, namely the alarm phase, the rejection phase, and the fatigue phase. In the alarm phase, the body responds to external threats by moving the sympathetic nerves and releasing various hormones. In the next phase, the body tries to resist external stressors. However, if the stressor continues, the body will be tired because it continues to expend energy as a process in the first and second phases.

Stress experienced by students or students, if not handled properly, will gradually reduce their adaptive response [11]. According to studies, stress can also reduce student performance or achievement [25], resulting in longer student studies, for example in students.

One of the efforts to reduce stress levels is referred to as coping stress. The ability to adapt or cope with the difficulties encountered, including dealing with stress, is known as resilience. More specifically, resilience is defined as the quality or ability of an individual that allows him to develop in the face of the difficulties he experiences [9].

According to various studies, it turns out that the ability of resilience in a person, including students, is proven to be able to reduce and protect a person against stress and depression caused by a difficult environment and a lot of pressure [22]. According to Tugade and Fredrickson [26], in the world of education, students who have a high level of resilience, are mentally healthier, optimistic, dynamic, always enthusiastic about various things in life, and are more resistant to various things including stress conditions.

Research from Aza et al. [4] on 307 high school students proves that resilience is negatively correlated with academic stress. Likewise, research by Kirana et al. [16], Wilda et al. [29] and Wilks and Spivey [30]. A negative correlation describes that the higher a person's level of resilience, the lower the level of academic stress, and vice versa. This explains that resilience is actually able to improve the ability of students and students to deal with stress, especially academic stress.

This research is a meta-analytical study that analyzes data from studies that correlate the resilience variables with academic stress. This meta-analysis of 2017 correlative studies is expected to be able to provide a single conclusion, is resilience really significantly related to reducing academic stress? This meta-analysis study will try to prove the hypothesis that resilience is negatively and significantly correlated with academic stress. If resilience is proven to be able to overcome academic stress, it is very possible that strengthening resilience is a program that must be given to students

so that they can be more resilient in dealing with various kinds of problems that occur in their academic environment.

2. Literature Review

2.1. Academic stress

Stress arises naturally when a person gets burdened and has to struggle to cope with the demands (demands) in his life, such as financial problems, work, relationships, and other situations that may be challenging or threatening. Stress is an individual's response to changes and events that threaten and interfere with the individual's ability to deal with them. Stress is a part of everyday life. Stress will arise when there are demands on someone who are felt to oppose, suppress, burden or exceed the individual's ability to adjust [1].

Franke states that stress is actually the body's defense system that appears naturally to fight risk [1]. The body secretes hormones as a mechanism to deal with external dangers. However, for some people, stress can lead to serious problems. Some chronic stressors can even increase the risk of disease [27].

According to Selye, stress is divided into 2, namely positive stress and negative stress [27]. Positive stress is fun and motivates a person to be better. This stress is known as eustress. Various art creations, creativity, as well as stressful things such as exams, competitions, and challenging work, are positive types of stress. Negative stress, also called distress, is unpleasant stress, where a person feels anxious, worried, afraid, upset, anxious, or painful and as much as possible avoids it. Various unpleasant events, such as bad relationships, chaotic financial conditions, loss of loved ones, layoffs, and so on are types of negative stress.

Other experts, such as Middlebrooks and Audage, divide the types of stress into positive stress, tolerable stress, and toxic stress. Positive stress occurs when a person is experiencing difficulties but it is temporary and the time is short [13]. There are physiological changes, but they are mild. The ability to cope with stress here is part of the growth and development of an individual. At tolerable stress, the level of difficulty is higher. For example the death of a close person, accident, accident, or divorce. However, the majority of individuals can overcome these difficulties. This is different from toxic stress conditions which usually have very strong stressors, their occurrence is not expected, causes large changes, and causes various cumulative effects.

Each individual responds to stress conditions differently, according to the individual's ability to make adjustments [12]. This is because each individual has different conditions, including differences in choosing stress coping strategies. The right strategy, according to Walsh [28], will be an important factor to achieve the condition of individuals who have the resilience to face stress or resilience. However, in general, Hans Selye, describes the body's response to stressors as a process of general adaptation syndrome, which includes the alarm phase, the rejection phase, and the fatigue phase [27]. In the alarm reaction phase, the body responds to external threats by moving the sympathetic nerves and releasing various hormones. In the next phase, namely the resistance stage, the body tries to resist external stressors. However, if the stressor continues, the body will be tired because it continues to expend energy as a process in the first and second phases.In the third phase, namely the exhaustion phase, this is actually the danger, because if the stressor keeps appearing, while the body has run out of energy, stress will trigger various serious illnesses.

Academic stress is stress related to educational activities and occurs when students experience emotional tension when they fail to cope with these demands. In Gadzella and Masten aspects of academic stress are divided into two, namely (a) academic stressors, which have five categories, namely: feelings of frustration, involvement in the conflict, pressure, change, and self- imposed (self-imposed desire). (b) Reactions to academic stressors, with 4 categories, namely: physiological or physical reactions, emotional or emotional reactions, behavioral or behavioral reactions, and cognitive assessments [10].

2.2. Resilience

The study of resilience has been going on for a long time. From 1955 to 1985, Werner conducted a longitudinal study on the subject of children in the Kauai tribe, Hawaii who had many complicated problems in their lives [13]. Most of the children there have parents who are addicted to alcohol and suffer from mental disorders, as well as unemployed. Uniquely, in the midst of the conditions of children who grew up in conditions that were not ideal, it turned out that there was a small group of children who were able to survive. They show good behavior, in the midst of the majority of children who behave destructively. Werner calls this condition resilience. That was the first time the term resilience was used in psychological studies [28] [13]. Resilience is related to a positive psychological view and is based on the flow of humanistic psychology [13].

There are many definitions of resilience. Werner as the originator of the term resilience, defines resilience as a result of good development in individuals who grow up with high-risk status, or conditions recover from trauma because there is a persistent and sustainable competence under stressful conditions [13]. Another definition, resilience is defined as the ability that a person has to control himself, his will, desires, and pressures that manifest from within, based on individual experiences and responses when problems arise [20].

Meanwhile, Connor and Davidson defines resilience as "the personal qualities that enable one to thrive in the face of adversity" [9]. So, resilience is an individual's ability to be able to adjust, adapt, and even grow when faced with various difficult conditions such as changes, demands, feelings of disappointment, or dissatisfaction that arise in life. In Werner's case above, children in the Kauai Tribe even grow up under stressful conditions for almost the entire period of their life as children. Resilience is one of the soft skills that is very important for a person, because individuals with good resilience will be able to understand that mistakes, difficulties, failures and various similar things are not the end of everything. Individuals with good levels of resilience will be resilient, not easily crushed, and able to deal with problems well, able to control themselves and be able to manage stress well, by changing the way of thinking when dealing with problems.

According to Conor and Davidson, there are 17 individual characters who are resilient, which are the basis for the preparation of the Connor and Davidson Resilience Scale (CD-RISC), namely: a) view change or stress as a challenge; b) Commitment; c) Recognition of limits to control; d) Engaging the support of others; e) Close, secure attachment to others; f) Personal or collective goals; g) Self- efficacy; h) Strengthening effect of stress; i) Past successes; j) Realistic sense of control/having choices; k) Sense of humor; l) Action-oriented approach; m) Patience; n) Tolerance of negative affect; o) Adaptability to change; p) Current Optimism and q) Current Faith [9].

Based on these characters, it can be seen that resilience is a very important ability that must be possessed by anyone in order to be able to face the difficulties in life well. When students have poor resilience, they will find it difficult to adapt to the academic obstacles they face. This causes academic problems that lead to academic stress [19]. In the explanation above, even continuous stress can trigger fatal events, such as suicide.

2.3. Correlation between resilience and academic stress

Generally, individuals who have a high level of resilience have good coping strategies. Coping according to Lazarus and Folkman is interpreted as a person's effort to overcome various demands or conditions, both internal and external, by managing cognition and behavior [17]. The processes that are passed to overcome these demands or conditions are called coping strategies. In general, there are two types of coping strategies, namely active coping strategies and stressor avoidance strategies. In the active strategy, individuals make adjustments either by changing their mindset or behavior in dealing with stressors. In the strategy of avoiding stressors, as much as possible the individual stays away from everything that causes stress [13]. However, the actual outcome of coping according to McCubbin et al. is how an individual can adapt, or make adjustments to environmental changes and social pressures[18]. Thus, it can be said that individuals who have high resilience are actually individuals who have the ability to adapt well to their environment.

There have been quite a number of studies that have tried to correlate resilience with academic stress, both as the dependent variable (Y) and the independent variable (X). From these studies, it turns out that the ability of resilience in a person, including students, is proven to be able to reduce and protect a person against stress and depression caused by a difficult environment and a lot of pressure [22]. In the world of education, students who have a high level of resilience, are mentally healthier, optimistic, dynamic, always enthusiastic about various things in life, and are more resistant to various things including stress conditions [26].

Research from Aza et al. on 307 high school students proves that resilience is negatively correlated with academic stress [4]. Likewise, research by Kirana et al. [16] , Wilda et al. [29] and Wilks and Spivey [30]. A number of 17 studies that are the subject of a meta-analysis in this article also all show that resilience is negatively correlated with academic stress, aka able to reduce academic stress that occurs in students.

3. Method

The methodology used in this meta-analysis study consists of two stages or parts with the following details:

3.1. Data collection

Data was collected by conducting searches using the Publish or Perish application, Google Scholar, National Library, Proquest, Sage Pubonline and ERIC. The keywords used consist of Indonesian and English, namely resilience, academic stress, resilience, academic resilience, stress and academic stress. From the collected data, the correlation method with academic stress as variable Y and resilience as variable X was chosen. Journals that still use t and F values are transformed into r. From the search, collected a number of which will be analyzed using meta-analysis.

3.2. Meta-analytical studies

The steps of the meta-analysis of the correlative study were:

1. Stage 1, in journals that still use F and t values, are transformed into r.

2. Stage 2, performing Bare-Bones Metaanalysis, which is an analytical method to determine sample error correction. In this method, there are several stages that are carried out, namely: 1) Determining the average population correlation; 2) Determining the variance of r xy (σ 2r); 3) Determining the variance of sampling error (σ2e); 4) Determine the effect of sampling.

3. Stage 3, correcting measurement errors by: 1) Determining the combined mean; 2) Determining the measurement error correction on x and y, namely the actual correction of the population; 3) Determining the sum of the coefficients of the square of variation (V); 4) Determine the variance which refers to the variation of the artifact; 5) Determine the true correlation variance; 6) Calculate confidence intervals; 7) Determine the impact of variations in reliability.

4. Result and Discussion

4.1. Data collection

Data was collected using the Publish or Perish application, Google Scholar, National Library, Proquest, Sage Pub online, and ERIC. Searching with keywords: resilience and academic stress, managed to collect a number of 25 correlation research articles published online, with resilience as the X variable and academic stress as the Y variable. The research respondents were high school students and college students. Of the

25 articles, 8 articles were excluded because they did not contain information about Cronbach's Alpha or reliability coefficients, so only 17 articles were continued in the meta-analysis process. Total respondents (N) from the 17 studies were 4194 students.

4.2. Determination of r value

Hypothesis testing in quantitative studies sometimes uses the r-value (in the correlation test), the t value (the t-test difference), or the F value (the ANOVA difference test). In order to carry out a meta- analysis, it is necessary to transform the t-value or F-value to the r-value. However, in this study, the transformation was not carried out from F to t or r, because the 17 correlation studies taken, all contained information about the value of r which is the correlation coefficient between resilience and academic stress. The r-values of the 17 studies are listed in table 1.

TABLE 1: r values of 17 studies of the correlation between resilience and academic stress

No	N	Subject	rxy
1	307	High School Students	-.360
2	87	Undergraduate Students	-.740
3	376	Undergraduate Students	-.397
4	40	Undergraduate Students	-.427
5	100	Undergraduate Students	-.583
6	200	High School Students	-.647
7	342	Undergraduate Students	-.160
8	288	Undergraduate Students	-.200
9	185	High school students aged	-.816
10	318	Undergraduate Students	-.120
11	349	Undergraduate Students	-.451
12	200	High School Students	-.810
13	208	Undergraduate Students	-.280
14	341	Students average	-.300
15	30	High School Students	-.809
16	125	Undergraduate Students	-.170
17	698	Undergraduate Students	-.540

4.3. Sampling error correction analysis (Bare-bone meta-analysis)

The rxy- value in table 1 above does not reflect the actual value, because it is estimated that it is still a sampling error. As data for conducting sampling error correction analysis, it can be seen in table 2.

TABLE 2: Calculation of mean correlation and variance.

No	N	Rxy	N.rxy	ř	r xy - r	(rxy - r)2	N.(r - rxy)2
1	307	-.360	-110.520	-.332	-.028	.001	.241
2	87	-.740	-64.380	-.332	-.408	.166	14.482
3	376	-.397	-149.272	-.332	-.065	.004	1.589
4	40	-.427	-17.080	-.332	-.095	.009	0.361
5	100	-.583	-58.300	-.332	-.251	.063	6.300
6	200	-.647	-129.400	-.332	-.315	.099	19.845
7	342	-.160	-54.720	-.332	.172	.030	10.118
8	288	-.200	-57.600	-.332	.132	.017	5.018
9	185	-.816	-150.960	-.332	-.484	.234	43.337
10	318	-.120	-38.160	-.332	.212	.045	14.292
11	349	-.451	-157.399	-.332	-.119	.014	4.942
12	200	-.810	-162.000	-.332	-.478	.228	45.697
13	208	-.280	-58.240	-.332	.052	.003	.562
14	341	-.300	-102.300	-.332	.032	.001	.349
15	30	-.809	-24.270	-.332	-0.477	.228	6.826
16	125	-.170	-21.250	-.332	.162	.026	3.281
17	698	-.540	-376.920	-.332	-.208	.043	30.198

From table 2 above, various estimates of population correlation are calculated by the following equations:

4.4. Population Corellation Mean

$$\check{r} = \sum (N_i r_i) / \sum N_i$$
$$= -1381.52/4194$$

$$= - .332$$

The average population correlation after being corrected by the number of samples or řis -0.332

4.5. Variance rxy (σ2r)

$$\sigma^2 r = \sum [N_i (r_i - \check{r})^2 / \sum N_i$$

= 207.439/4194 = .049

The result of calculating the rxy variance is .049.

4.6. Sampling error variance

The rxy variance of .049 as mentioned in the above calculation, is actually a combination of the variation in population correlation and variation in sample correlation resulting from sampling error. The value is actually not really accurate or precise, the estimated variance in the population correlation can be obtained by correcting the variance σ2r. The sampling error variance can be calculated using the following equation:

$\sigma2e = (1 - \check{r}^2)^2 / (\check{N} - 1)$

Based on the value ř of obtained and the average number of samples Ň above, the variance of sampling error in this study is as follows:

$\sigma^2e = (1 - 0.332^2)^2 / (246.7 - 1)$

$\sigma^2e = .003$

So, from the results of these calculations, the variance of sampling error σ^2e is .003.

4.7. Estimated population correlation variance

The population correlation variance can be calculated using the following

equation: $\sigma^2\rho = \sigma^2r - \sigma^2e$

= 0.049 − 0.003

4.8. = .046

SD = .214

4.9. Confidence interval

If the population correlation after being corrected by the number of samples (ř) has a normal distribution, then the confidence interval can be calculated by the following equation: ř + 1.96 SD

$\check{r} + 1.96 \sqrt{\sigma^2r}$

$\check{r} + 1.96 \times (\sqrt{.046})$ ř + 1.96 × .214

$\boxtimes 2.506 < \check{r} < 1.842$

4.10. Impact of sampling error

The impact of sampling error can be known by using the following equation: σ^2e / σ^2r × 100 %

= .003 / .049 × 100 %

= 6.122%

4.11. Measurement Error Correction

To correct measurement errors, you can see the data in table 3.

TABLE 3: Correlation of measurement error.

No	N	Rxy	σ	raa		(a)	rbb	(b)
1	307	-.360	-.332	.912		.955	.904	.951
2	87	-.740	-.332	.856		.925	.893	.945
3	376	-.397	-.332	.917		.958	.939	.969
4	40	-.427	-.332	.805		.897	.746	.864
5	100	-.583	-.332	.911		.954	.787	.887
6	200	-.647	-.332	.833		.913	.708	.841
7	342	-.160	-.332	.833		.913	.897	.947
8	288	-.200	-.332	.910		.954	.900	.949
9	185	-.816	-.332	.890		.943	.816	.903
10	318	-.120	-.332	.850		.922	.917	.958
11	349	-.451	-.332	.830		.911	.930	.964
12	200	-.810	-.332	.930		.964	.820	.906
13	208	-.280	-.332	.908		.953	.903	.950
14	341	-.300	-.332	.840		.917	.770	.877
15	30	-.809	-.332	.986		.993	.971	.985
16	125	-.170	-.332	.890		.943	.890	.943
17	698	-.540	-.332	.850		.922	.720	.849

The way to correct measurement errors is done with the steps below.

4.12. Calculating the combined mean

Combined mean is Ave(a) x Ave(b) = .937 x .704 = .660

4.13. Calculates the measurement error correction at x and y: the actual correction of the population;

Population correlation after being corrected by measurement error

$= Ave \: \hat{r}/\acute{A} = -.332/.660 = -.503$

4.14. Calculating the sum of the coefficients of the squares of variation (V);

$V = SD^2(a)/Ave^2(a) + SD^2(b)/Ave^2(b) = .000073 + .0100 = .011$

4.15. Calculating variance referring to artifact variation

$\sigma^2 2 = \square^2 \times \acute{A}^2 \times V = .253 \times .435 \times .011 = .001$

4.16. Calculate the true correlation variance;

$var(p) = (Var \: (pxy)-\sigma^2 2)/\acute{A}^2 = (.0069-.0001)/.435$

$\quad = .0156$

$\quad SD = .125$

4.17. Calculate confidence intervals;

$\square 2.506 < \check{r} < 1.842$

4.18. Calculating the impact of reliability variations

$(\square^2 \acute{A}^2 V/\sigma^2 \: (\square xy))x100 = .0001/.0069 \times 100 = 1,.\%$

4.19. Discussion

A meta-analysis of 17 articles as conducted in this study has found that the true population correlation, after correction for measurement error, is estimated at -.503. While the population variance is .0156 with a standard deviation (SD) of .125. By referring to the 95% confidence interval with the acceptance limit between 2.506 < < 1.842; and the value of -.503, then this value is included in the interval limit area to be accepted.

In addition to the above results, a population correlation was also found after being corrected by the number of samples or of -.332, with a correlation variance ((σ^2r) of .049, and a standard deviation (SD) of .124. With reference to the 95% confidence interval, the limit the acceptance is between .382 < <.073, thus the calculation result of -.332 is at the acceptance limit.

Based on these results, it can be concluded that the hypothesis that there is a negative correlation between resilience and academic stress is acceptable. This means that resilience is indeed able to reduce levels of academic stress on students and students who are the subjects of this study. The difference in the value of the correlation coefficient in the 17 studies is very likely due to the different individual responses to stress. Stress coping strategies for each individual are also different. Hendriani states that when a stressor appears in an individual that causes stress, the individual is encouraged to carry out a coping process, where the coping mechanism is influenced by a number of internal and external factors, both supporting or inhibiting the stress [13].

In addition, it should also be noted that in making a meta-analysis study on several primary studies on the relationship between resilience and academic stress, there are two errors that need to be corrected, namely in sampling and errors in measurement.

1. **Error in Sampling**

The value of the variance of the sampling error in the 17 studies that were analyzed was .003, and the value of the variance in the population was .049. The value of the variance of the sampling error compared to the value of the population variance multiplied by 100% shows the result that the percentage of variance caused by sampling error is small, which is only 6.122%.

2. **Error in Measurement**

The value of the variance of measurement error, both in the measurement of the independent variable and the dependent variable, is .00121, and the true correlation variance is .01563 with a standard deviation of .125. If the variance of measurement error is compared with the actual correlation variance, then the percentage of variance caused by measurement error is also quite small, namely 1.449%, smaller than the impact of sampling error.

As we know, the purpose of doing a meta-analysis is to analyze data from primary studies. The results of the analysis are used as the basis for accepting (supporting) the hypothesis or rejecting (aborting the hypothesis) and providing specific instructions

for further research [24]. The meta-analysis study will be a reinforcement or even a weakener of the relationship of one variable to another variable. Reinforcing if it turns out that after these studies are carried out, it turns out that the results are in harmony. Weakening if it turns out that one study with another study contradicts each other. This is why meta-analysis is necessary, especially in clinical studies. In the world of health, this technique can assist doctors in obtaining more definitive facts, especially for evidence-based health policies [2]. Very understandable, because health research really needs a lot of supporting data, so that it can be applied as a policy that concerns the interests of the wider community.

However, even in non-clinical studies, including educational psychology, meta-analysis studies are also very effective as a basis for decision-making in educational policy issues. In the meta-analysis of the 17 articles above, involving 4194 students, it is proven that the hypothesis about resilience can reduce academic stress levels is indeed acceptable, as can be seen from the r-value calculated by the meta-analysis of -.503. This figure shows a significant negative correlation. The negative correlation indicates that the higher the level of resilience, the lower the risk of students experiencing academic stress, and vice versa.

In fact, of the 17 studies analyzed, each of them has shown a correlation coefficient that is in a negative direction. However, in these studies, the strength of the correlation is still diverse, some of which are not even significant. For example, in Azzahra study, resilience only correlated -.160 with academic stress [5], as well as in the study of Asy'ari et al. which only correlates -.120. This figure shows that resilience is negatively correlated with academic stress, but it is not significant [3]. Meanwhile, in the research of Hussain and Takhur, the correlation is very strong [14], which exceeds 0.8. This difference is very likely to come from the various conditions of the respondents in responding to stress.

Smith-Osborne mention that resilience is a theory whose development is strongly colored by an ecosystem perspective [23]. In Bronfenbrenner's theory, it is stated that individual development is strongly influenced by the social context. There are five levels of the social environment in which a person lives, grows and develops, namely the microsystem, mesosystem, ecosystem, macrosystem, and chronosystem [21]. The five levels start from the smallest, namely the microsystem—the smallest environment in the form of a family, to the macrosystem, namely the broader socio-cultural condition and the chronosystem, which is a sociohistorical condition. The complexity of each individual's life will greatly affect each individual's coping strategy.

However, once again, from the results of the meta-analysis, it turns out that resilience can indeed reduce the potential for experiencing academic stress, or vice versa, resilient

individuals can be better able to adapt to stressors obtained from their academic environment. Resilience is an ability that must be developed, especially in the world of education. Schools and campuses are "candradimuka craters" that will provide quality human resources for the nation and state. Very sad, if our students and students actually have a soft character, are easily stressed, and even have a tendency to commit suicide.

It is necessary to develop resilience training among students and college students, to be more resistant to stress. Not only academic stress, but also other stresses, such as work stress, the stress in life problems, and so on. Because, the problems that occur in humans, of course, are not only obtained from school or college.

4.20. Limitations

Based on the meta-analysis in this study, it was found that the magnitude of the sampling error was 6.122 %. Even though this figure is small, it is necessary to carry out an evaluation by taking into account the following points:

1. Need a more homogeneous sample. Although this study has been limited to student subjects in SMA, SMK and university students, it is still heterogeneous. This is because high school, vocational, and university students certainly have different mindsets, and have different levels of resilience. In this study, research was also taken from various countries, such as Romania, Korea, Indonesia and several other countries, which of course have different living systems, values and socio-cultural conditions.

2. However, on the other hand, although the subject data in this study is heterogeneous, it turns out that the hypothesis that resilience can reduce academic stress is still proven, even with a significant r value of -.503. This shows that in various age and socio-cultural conditions, it turns out that resilience can be one of the strategies to overcome stress on students and students.

3. This meta-analysis study only analyzed 17 studies. Time constraints meant that only 17 studies were analyzed in this meta-analysis. If more studies are analyzed, it is very possible to get better results.

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References

[1] Ambily AS. Dance – as a source of relieving stress among women. Indian Journal of Public Health Research & Development. 2020;11(7):7-15.

[2] Anwar AAPM. Manajemen sumber daya manusia perusahaan. Bandung: Remaja Rosdakarya; 2005.

[3] Asy'ari MU, Bukhori B, Ma'shumah LA. The effect of quality of school life and resilience on academic stress in students. Jurnal Psikologi Integratif. 2019;7(2). https://doi.org/10.14421/jpsi.v7i2.1765

[4] Aza IN, Atmoko A, Hitipeuw I. Kontribusi dukungan sosial, self-esteem, dan resiliensi terhadap stres akademik siswa SMA. Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan. 2019;4(4):491—498.

[5] Azzahra F. Pengaruh resiliensi terhadap distres psikologis pada mahasiswa [Skripsi, University of Muhammadiyah Malang]. UMM Institutional Repository; 2016. https://eprints.umm.ac.id/34422/

[6] CNN. Mahasiswa ITB ditemukan meninggal di kos, diduga bunuh diri. CNN Indonesia. 2021a, August 22. https://www.cnnindonesia.com/nasional/20210822182445-20-683723/mahasiswa-itb-ditemukan-meninggal-di-kos-diduga-bunuh-diri

[7] CNN. Diduga stres kuliah, mahasiswa Palembang lompat bunuh diri. CNN Indonesia. 2021b, October 8. https://www.cnnindonesia.com/nasional/20211008215047-20-705452/diduga-stres-kuliah-mahasiswa-palembang-lompat-bunuh-diri

[8] CNN. Diduga stres tugas kuliah mahasiswi di Yogya bunuh diri. CNN Indonesia. 2021c, October 22. https://www.cnnindonesia.com/nasional/20211022132907-12-710976/diduga-stres-tugas-kuliah-mahasiswi-di-yogya-bunuh-diri

[9] Connor MK, Davidson JRT. Development of a new resilience scale: The Connor-Davidson resilience scale (CD-RISC). Journal Depression and Anxiety. 2003;18(2):76-82. https://doi.org/10.1002/da.10113

[10] Gadzella BM, Masten WG. An analysis of the categories in the student-life stress inventory. American Journal of Psychological Research. 2005;1(1):1-10.

[11] Gupchup GV, Borrego ME, Konduri N. The impact of student life stress on health related quality of life among doctor of pharmacy students. College Student Journal. 2004;38(2):292–302.

[12] Hawari D. Manajemen stres, cemas dan depresi. Jakarta: Balai penerbit Fakultas Kedokteran Universitas Indonesia; 2013.

[13] Hendriani W. Resiliensi psikologis: Sebuah pengantar. Jakarta: Prenadamedia; 2022.

[14] Hussain I, Thakur N. Association between resilience, mindfulness and academic stress among university students. International Journal of Research and Analytical Reviews. 2019;6(1):316-319.

[15] King LA. Psikologi umum: Sebuah pandangan apresiatif. Jakarta: Salemba Humanika; 2017.

[16] Kirana A, Agustini A, Rista E. Resiliensi dan Stres Akademik Mahasiswa Yang Sedang Menyelesaikan Skripsi di Universitas X Jakarta Barat. Provitae: Jurnal Psikologi Pendidikan. 2022;15(1):27-50.

[17] Lazarus RS, Folkman S. Stress, appraissal, and coping. New York: Springer; 1984.

[18] McCubbin HI, Thompson AI, McCubbin MA. Family assessment: Resiliency, coping and adaptation—inventories for research and practice. Madison, WI: University of Wisconsin; 1996.

[19] Prihastuti P. Profil resiliensi pendidik berdasarkan resilience quetient test. Jurnal Penelitia dan Evaluasi Pendidikan. 2011;15(2):199-214.

[20] Reivich K, Shatte A. The resilience factor: 7 essential skill for overcoming life's invitable obstade. 1st ed. New York: Broadway Books; 2002.

[21] Santrock JW. Life span development: Perkembangan masa hidup. Jakarta: Erlangga; 2002.

[22] Shatté A, Perlman A, Smith B, Lynch WD. The positive effect of resilience on stress and business outcomes in difficult work environments. Journal of Occupational and Environmental Medicine. 2017;59(2):135-140. https://doi.org/10.1097/JOM.0000000000000914

[23] Smith-Osborne A. Life span and resiliency theory: A critical review. Advances in Social Work. 2007;8(1):152-168. https://doi.org/10.18060/138

[24] Sugiyanto S. Ekonomi koperasi teori dan manajemen. Jakarta: Salemba Empat; 2006.

[25] Trockel MT, Barnes MD, Egget DL. Health-related variables and academic performance among first-year college students: Implications for sleep and other behaviors. Journal of American College Health. 2017;49(3):125-131. https://doi.org/10.1080/07448480009596294

[26] Tugade MM, Fredrickson BL. Resilient individuals use positive emotions to bounce back from negative emotional experiences. Journal of Personality and Social Psychology. 2004;86(2):320–333. https://doi.org/10.1037/0022-3514.86.2.320

[27] Wade C, Tavris C. Psikologi edisi kesembilan. Jakarta: Erlangga; 2007.

[28] Walsh F. Strengthening family resilience. 2nd ed. New York: Guilford Press; 2006.

[29] Wilda T, Nazriati E, Firdaus F. Hubungan resiliensi diri terhadap tingkat stres pada dokter muda Fakultas Kedokteran Universitas Riau. Jurnal Online Mahasiswa Fakultas Kedokteran Universitas Riau. 2016;3(1):1-9.

[30] Wilks SE, Spivey CA. Resilience in undergraduate social work students: Social support and adjustment to academic stress. Social Work Education. 2010;29(3):276-288. https://doi.org/10.1080/02615470902912243