Academic Stress Scale: Contruction And Psychometric Analysis

Fajar Sodiq[1], Aftina Nurul Husna[2], Hermahayu[3]

Psychology Study Program, Faculty of Psychology and Humanities, Muhammadiyah University of Magelang, Magelang, Indonesia, 59214

Email: sodiqfajar4@gmail.com[1]; anhusna@ummgl.ac.id[2], hermahayu@ummgl.ac.id[3]

ABSTRACT

Stress is part of the psychological that can be experienced by every individual. Stress experienced by students towards activities or situations in higher education can be referred to as academic stress. Students who experience extreme stress can have an unfavorable effect on the learning process and student achievement. This study aims to develop a student academic stress scale. The scale preparation in this research was based on 4 aspects of academic stress, namely: cognitive, affective, physiological and behavioral. In this research, data was obtained by distributing the academic stress scale that is being developed using a simple random sampling technique. The validity test was carried out by referring to Aiken's V formula (v ≥0.70) and the reliability test using the Alpha Cronbachs internal consistency method (rXY≥ 0.3). Based on the try-out test with N = 82 (30 students and 52 female students), the value of α = 0.943 was obtained with 36 final items, consisting of 18 favorable items and 18 unfavorable items. There are still shortcomings in the results of this research, such as the final items which are still quite large, so in the next research it is hoped that it can be tested again on a larger sample to increase the reliability and validity of this academic stress measuring tool.

Keywords: Stress, Academic Stress, Reliability, Students

INTRODUCTION

In general, stress is a person's psychological reaction to challenges in life that burden one's life and are not in accordance with one's expectations, thus disrupting life well-being (Mumpuni Y & Wulandari A, 2010). Stress is a part of psychology that can be experienced by every individual. In the face of various threatening situations, psychological and physiological reactions can appear as a response to stress. Feelings of anxiety, physical and emotional distress, tension and worry experienced by students due to academic demands from teachers/lecturers and parents to get good grades, complete assignments on time and unclear demands for homework assignments and an uncomfortable classroom environment are referred to as academic stress (Mulya & Indrawati, 2016).

Students who experience extreme stress or indicate depression need serious attention and treatment because it can have an adverse effect on the learning process and student achievement (Legiran et al., 2015).

According to Fink (2016) there are two factors that affect academic stress, namely: a) Biological factors, stress is caused by excessive brain activity or work. The biological response to stress involves the activation of three main systems in the brain that are interrelated. The influential brain systems are brain sensory, homeostatic, and adrenaline hormones. b) Environmental Factors, environmental factors that cause stress are social status, social roles and the surrounding environment. The higher a person's social status and role, the higher the burden and pressure that must be borne by that person. Like a student, the higher the level of education, the higher the tasks and responsibilities that must be faced which can trigger academic stress.

Alvin (2007) suggests that external factors such as more dense lessons will cause an increase in stress levels in students. In Indonesia, there is no development of an academic stress scale so that the writing of this scale is needed to find out the extent of students' academic stress levels that can affect learning and achievement in students.

The preparation of the scale in this study is based on 4 aspects of academic stress, namely: cognitive, affective, physiological and behavioral. In accordance with the aspects of academic stress according to Robotham (2008) namely: a). Cognitive aspects include stress conditions caused by difficulty focusing on the learning process and having negative thoughts about oneself from the surrounding environment. Such as, confusion, inability to concentrate and poor task collection performance, forgetfulness and unusual thoughts. b). Affective aspects include negative feelings and low self-confidence due to stress. Such as anxiety, fear, irritability, deep sadness, depressed, feeling doubtful, feeling embarrassed, low ability or potential, so that they feel unable to meet academic demands. c). Physiological aspects related to physiological responses due to stress that usually occur are feeling pain in the body and decreased physical fitness. Such as headaches, indigestion, loss of appetite, poor sleep, nightmares and increased sweat production. Physically, stressful conditions appear with a flushed face, pallor, body weakness, feeling unwell, heart palpitations, trembling, stomach pain, dizziness, body stiffness and cold sweats. d). Behavioral aspects include behaving negatively and starting to avoid people around them (antisocial). Such as easily blaming others, finding fault with others, being indifferent, procrastinating on tasks and starting to engage in excessive and risky pleasure-seeking activities.

Based on the theoretical explanation above, this study aims to develop a student academic stress scale which is expected to help the evaluation process related to the level of student academic stress.

METHOD

2.1. Stages of Psychological Measurement Tool Development

the measurement area. By recognizing the limits of measurement and the existence of clear dimensions, the psychological scale will measure comprehensively and relevantly, thus supporting the validity of the scale content. In the preparation of this scale, researchers determined 4 aspects of academic stress, namely: cognitive, affective, physiological and behavioral aspects.

Then, continued by determining the attributes and behavioral indicators related to academic stress. The next stage is blue-print writing. Blue print is prepared to be used as a description of the contents of the scale & become a reference for the compiler of the scale in order to remain in the correct scope of measurement.

2.2. Variable Operationalization

Academic stress, defined as a state of individual stress resulting from perception and assessment of academic stressors related to science and education in college. The blueprint is based on aspects and behavioral indicators of academic stress.

Table 1. Academic Stress Scale Blueprint

Aspects and Indicators of Behavior	Amount		Total	%
	Fav	*Unfav*		
1. Cognitive a. Difficulty focusing attention on the learning process. b. Negative thoughts	3	3	6	25%
2. Affective 1. Negative feelings 2. Low self-confidence	3	3	6	25%
3. Physiological a. Feeling pain in certain parts of the body b. Decreased physical fitness	3	3	6	25%
4. Behavior a. Negative behavior b. Started avoiding people around	3	3	6	25%
Total			24	100%

2.3. Characteristics of Participants

The number of samples in this study were 82 people, consisting of 30 students and 52 female students in Magelang with an age range of 18-24 years.

Tabel 2. Characteristics of Respondents by Age

Description	Respondent	%
18-20 years old	47	57,3%
21-23 years old	30	36,5%
24 years old	5	6,2%
Amount	82	100,0%

2.4. Data Collection Methods

In this research, data was obtained by distributing the academic stress scale that is being developed using a simple random sampling technique. This scale contains 48 items consisting of 24 favorable items and 24 unfavorable items. The writing of the items is done based on the blue-print that has been made. The format of writing items in this study is in the form of statements, with the response format referring to the Likert scale model. which consists of 5 answer choices in the form of STS (Very unsuitable), TS (Unsuitable), R (Undecided), S (Suitable), SS (Very suitable). For the answer score given by the respondent as follows; Very unsuitable; 1, Unsuitable: 2, Undecided; 3, Appropriate; 4, Very appropriate; 5. The researcher placed the items randomly to prevent measurement bias in this study.

The preparation of the academic stress scale was carried out with the help of Google form. With the following design;

Saya merasa tidak mampu mengikuti materi yang *
disampaikan oleh dosen

○ Sangat Tidak Sesuai

○ Tidak Sesuai

○ Ragu-ragu

○ Sesuai

○ Sangat Sesuai

Then the distribution of the scale was carried out using the help of the Whatsapp application. The total number of questionnaires collected was 82 subjects and all the data was complete so that the data obtained was valid.

2.5. Data Analysis Technique

Data analysis in this study was carried out with; Content validity is carried out by referring to Aiken's V formula with a value of $v \geq 0.70$. Followed by a reliability test by calculating based on the Cronbach alpha internal consistency method by looking at the r value ($r \geq 0.3$). Data analysis was carried out with the help of SPSS Statistics 23.

## RESULT AND DISCUSSION
3.1. Content Validity
In the item writing stage, the initial preparation was carried out by writing 48 items consisting of 24 favorable items and 24 unfavorable items. Based on the results of the content validity test by experts, the aitems obtained were invalid after calculating V Aiken's with a standard value of $v < 0.5$ as many as 5 consisting of 2 favorable aitems and 3 unfavorable aitems. The raters also provide input so that the writing of the items is arranged according to the correct subject predicate object and description (SPOK) so that it is easily understood by the reader.
3.2. Description Statistics
The data obtained from the frequency analysis results are as follows;

Amount (N)	Mean (M)	Std Deviasi (SD)
82	130,07	7,16

Then in the normality test, the data obtained followed a normal curve.

Histogram

Mean = 130.07
Std. Dev. = 7.17
N = 82
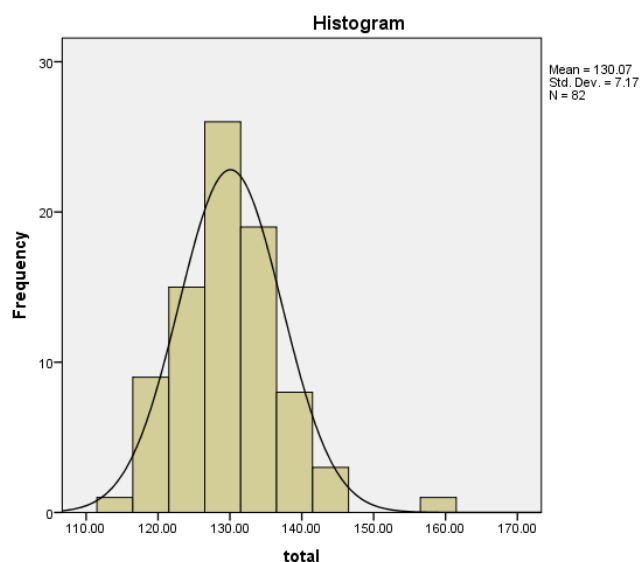
3.3. Reliability of Academic Stress Scale

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.932	0.937	43

Based on the results of the first stage of reliability calculation using the alpha coefficient with the SPSS Statistics 23 test, a value of 0.932 was obtained. This value indicates that all items meet the requirements as good items because they have an $\alpha > 0.9$ value, which means that the internal consistency is good or reliable.

Then the aitems that have a value in rxy <0.3, namely (3,11,20,25, 38,39,42) are removed. The results obtained:

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.943	0.946	36

The results of calculations carried out on 82 students as respondents with a composition of 30 students and 52 female students. Followed by the aitem selection stage based on the value of $rx \geq 0.3$, 7 aitems were obtained, at the first stage the value of $\alpha = 0.932$. Thus, aitem reduction was carried out, so that the aitems that met the criteria amounted to 36. After recalculating, a value of $\alpha = 0.943$ was obtained, which means that this scale has good internal consistency or reliabilit

Aspect	*Favorable Items*	*Unfavorable Items*
Cognitif	1. When attending lectures I find it difficult to focus 2. My attention is divided when the lecturer asks me to answer a question. 3. I feel unable to follow the material delivered by the lecturer 4. When I am too busy with activities outside of college I feel unable to do my assignments.	1. When I get a difficult task I am able to focus on it until the task is completed 2. I can concentrate fully when attending lectures 3. It does not matter to me when the lecturer teaches with a method that I do not like 4. I understand most of the material given by the lecturer 5. I find it easy to do assignments from lecturers even though they are difficult for my friends.
Affective	1. I get angry easily when I am unable to do my assignments 2. I feel unable to do difficult assignments from lecturers 3. I get nervous when I have to answer the lecturer's verbal questions 4. I have doubts about my ability to do well in exams	1. I stay calm when facing the exam period 2. When presenting in front of the class, I feel confident that I can deliver the material well. 3. I feel happy when I can help friends complete assignments 4. It doesn't matter to me when there is an impromptu exam 5. I feel able to perform my best when presenting in front of the class
Physiological	1. When working on exam questions my heart flutters 2. When I am asked to make a presentation, I feel sick to my stomach because I am nervous. 3. I can't sleep well when I'm facing the end of semester exam 4. When I get too many assignments from the lecturer, my body feels weak 5. I don't feel energized when attending lectures 5. 6. I feel lethargic when I have to participate in activities from the campus	1. I can do various lecture activities with a fit body 2. My blood pressure is normal even though I am facing exams 3. My sleep quality is good
Behavior	1. I am often late in submitting assignments 2. I am often absent from class because I have too many assignments. 3. I don't care when I get a bad grade on an assignment 4. 4. I prefer to be alone on campus rather than mingle with my classmates	1. When I get homework from my lecturer, I do it that day. 2. I always come on time when attending lectures 3. When I get a bad grade on an exam, I ask the lecturer for a grade correction. 4. I feel happy to discuss with campus friends 5. When group work is required to complete an assignment, I don't worry when I get members that I don't know well

The following is a list of items that meet the criteria (rxy> 0.3)

The preparation of the academic stress scale is carried out following the stages that have been determined. Thus, producing a valid and reliable scale. The final results obtained show that this scale has an internal consistency, with a value of $\alpha = 0.943$. With the final items obtained a total of 36 items, consisting of 18 favorable items and 18 unfavorable items.

Academic stress is an emerging response caused by stimuli, namely challenges and academic demands that cause tension, feelings of discomfort and changes in behavior levels. So with this scale it is hoped that it can find out the extent of the level of academic stress experienced by students. Things that need to be considered in the preparation of this scale is the suitability between the aspects of academic stress with the items written and it is hoped that in future research the number of respondents will be increased so that the reliability of the scale is even better.

CONCLUSION
There are still shortcomings in the results of this research, such as the final items which are still quite large, so in the next research it is hoped that it can be tested again on a larger sample to increase the reliability and validity of this academic stress measuring tool.

REFERENCE

Alvin N. (2007). *Handling Study Stress : Panduan agar Anda Bisa Belajar bersama Anak-anak Anda*. Alex Media Komputido.

Fink, G. (2016). *Stress: Concept, Cognition, Emotion, and Behavior Handbook of Stress*. Elsevier B.V.

Legiran, A., Zalili, M., & Bellinawati, N. (2015). Faktor Resiko Stres dan Perbedaannya pada Mahasiswa Berbagai Angkatan di Fakultas Kedokteran Universitas Muhammadiyah Palembang. *Jurnal Kedokteran dan Kesehatan*, *2*(2), 197–202.

Mulya, H., & Indrawati, E. (2016). Hubungan antara motivasi berprestasi dengan stres akademik pada mahasiswa tingkat pertama Fakultas Psikologi Universitas Diponegoro Semarang. *Jurnal Empati*, *5*(2), 296–302.

Mumpuni Y, & Wulandari A. (2010). *Cara Mengatasi Kegemukan*. Yogyakarta: Andi.

Robotham. (2008). Stress among higher education students: towards a research agenda. *Higher Education*, *56*(6), 735–746.