



Analysis of Factors That Contribute to The Formation of Academic Hardiness of University Students

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Abstract: This research aims to identify and analyze factors that contribute to academic hardiness in students with the 3C of Hardiness concept which includes aspects of commitment, control and challenge. The method used in this research is a cross-sectional survey with a quantitative approach, where data is collected using a standardized academic hardiness scale. The research sample consisted of 500 students spread across three state universities in West Sulawesi province. Data analysis was carried out using confirmatory factor analysis (CFA) to test the validity and contribution of each factor. The research results show that the control aspect is the factor that makes the biggest contribution to academic hardiness, with a standardized variance coefficient value of 0.605. Meanwhile, the social support indicator has the greatest influence, with a value of 0.854. These findings provide a basis for further research in designing guidance and counseling service models based on empirical evidence, by considering the main factors that contribute significantly to student academic hardiness. Apart from that, the results of this research can be a guide for guidance and counseling staff in designing more adaptive services, according to student needs.

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Introduction

Universities have a central role in developing the academic quality, character and creativity of students. One of the main roles of higher education is to shape the character of students who are strong and have integrity. As a normative institution, higher education is seen as a “center of excellence” which means being a center in education, research, service, and character development by adhering to the principles of neutrality and responsible academic freedom. Higher education must be placed at the forefront of character building efforts, so as to produce students who are resilient, resilient, and adaptive (Epstein & Salinas, 2004). Especially in the context of the university environment, character development related to psychological well-being is a key factor that needs to be strengthened by students to be better prepared to face various changes in an increasingly complex world (Hurlock, 2017).

This is in line with the direction of higher education policy as stated in Law Number 12 of 2012 Article 4 concerning the function of Higher Education, namely developing abilities and forming dignified national character and civilization in order to make the nation's life more intelligent. However, unfortunately, the efforts of universities in carrying out the function of character formation are still not optimal. Many universities focus more on academic aspects, while student character development, especially regarding psychological well-being, is often considered secondary and does not receive the attention it deserves. This condition certainly contributes to increasing academic stress among students. The academic environment is one of the causes of stress for students. Stress can arise from various aspects



of life, including demands related to academic activities (Busari, 2016). These demands include evaluation of the learning process, the number of tasks that must be completed, lack of control, and expectations that are too high (Deci et al., 2025). In addition, sources of stress can also come from within the individual, such as personality and mindset (Albana, 2007). Wilks (2008) research supports this, explaining that academic stress is the result of a combination of high academic demands and low academic resilience. On a broader level, students are also faced with various challenges in the 21st century. Arum, R., Roksa, J., & Cook, A. (2016) stated that the rapid development of information technology requires students not only to understand the subject matter, but also to master various digital tools and skills. In addition, the increasingly fierce competition in the job market adds to the psychological pressure. Interpersonal skills, creativity, and critical thinking abilities are increasingly expected to be the main requirements in the world of work which makes students feel the need to achieve more than just achieving academic grades (Kumar et al., 2013). On the other hand, the continuously updated curriculum changes as an educational standard also exacerbate the problem.

Various studies have shown that academic resilience has a significant influence on the level of stress experienced by students. (Putri & Sawitri, 2017) found that academic resilience plays an important role in reducing academic stress, with a contribution of 39% to variations in stress levels in final year students at the Surabaya State Polytechnic of Shipping. In addition, according to (D'mello & Govindaraju, n.d. 2016) also confirmed that students with high academic resilience are more effective in managing academic pressure. Furthermore, (Yunita & Monalisa, 2022) revealed a significant negative relationship between academic resilience and academic stress in final semester students at the University. In addition, research on various groups of students shows that academic resilience serves as a moderator or protective factor in the relationship between stress and health (Kobasa et al., 1982). In other words, the higher one's academic resilience, the lower the level of academic stress experienced. The novelty of this research lies in the analysis of factors that influence students academic hardiness, by considering internal and external variables, such as motivation, self-efficacy, social support, and academic pressure. This research uses a standardized academic hardiness scale to provide more objective insight into the development of educational policies in higher education, especially in efforts to improve the quality of creative and adaptive learning in the era of globalization which is full of academic pressures and challenges.

The ability of individuals to maintain resilience and adapt in the face of academic challenges and demands, while managing stress with a motivating and courageous attitude is referred to as academic hardiness (Maddi, 2016). Ontologically, the theory of academic hardiness develops from the basic theory of hardiness which initially refers to the psychological resilience of individuals in facing life challenges which is then adapted to the context of the academic environment (Maddi, 2006). Academic hardiness integrates two cognitively oriented approaches, namely the resilience theory of Reivich & Shatte (2002) and the academic motivation theory of Charles E Skinner. (1958). These two theories complement each other in providing a framework for understanding how individuals respond to academic demands in educational institutions. (Benishek et al., 2005) academic hardiness as a personality characteristic that allows individuals to be able to survive, strong and stable in the face of various academic demands, challenges and obstacles. Academic hardiness serves to be able to change negative stressors into more positive experiences (Abdollahi et al., 2018).

In the context of academic hardiness theory, an individual's ability to face academic challenges can be seen from three main aspects. First, the commitment aspect shows the



extent to which individuals are able to dedicate themselves to learning activities and maintain consistency in achieving optimal personal growth. Second, the control aspect relates to an individual's ability to control or suppress impulses that have the potential to interfere with academic behavior. Third, the challenge aspect describes the extent to which individuals are willing to explore various activities that focus on the learning process. These three aspects are the basis for understanding a person's academic hardiness (Benishek, L., & Lopez, 2001). These three aspects need to be optimally developed so that students have the courage and strong motivation in facing academic pressure. This development not only helps students survive challenging situations, but also encourages them to adapt and thrive in a dynamic academic environment. This process involves various strategies, such as hardy coping, hardy social interaction, and hardy self-care, which have been proposed in research (Maddi, 2006). The 3Cs of Hardiness concept consisting of commitment, control, and challenge has been widely studied as an important factor in increasing students' academic resilience in facing academic pressure and stress (Bonanno, 2005). Based on this background, this research aims to analyze the 3Cs Hardiness factors which contribute to the formation of Academic Hardiness in students. This research will also explore how academic resilience can help students manage academic stress and improve their psychological well-being.

Research Method

This research is quantitative research that uses a survey method. The research design applied is a cross-sectional survey, namely a method that allows data to be collected over a certain period of time without any intervention or manipulation of research variables (Cresswell, 2018). This design was chosen to obtain a comprehensive picture of the phenomenon under study in actual conditions at the time of data collection. The research population is students who live in West Sulawesi Province. To ensure optimal representation of the population, the sampling technique used is random sampling, which allows each individual in the population to have an equal opportunity to be selected as a respondent. The research sample consisted of 500 students from three state universities in West Sulawesi Province. The research sample is described in more detail in Table 1 below

Table 1. Research Sample

Institutions	Frequency	Age	Years Class
Universitas Sulawesi Barat	125	19-20 years	2024
Institut Agama Islam Negeri Majene	125	21-22 years	2023
Universitas Terbuka Majene	125	23-24 years	2022
Universitas Tomakaka Mamuju	125	≥ 24 years	2021

Furthermore, the research instrument used in this research is the academic hardiness scale which was developed based on the theoretical synthesis proposed by (Benishek, L., & Lopez, 2001) and (Kobasa et al., 1982). This instrument consists of various aspects and indicators which are explained in more detail in Table 2 below.

Table 2. Aspects and Indicators of Academic Hardiness

Aspect	Indicator
Commitment	Consistency
	Self-motivation
	Active participation
	Time management
	Independence
Controlling	Ability to delay gratification
	Emotion regulation



Challenges	Focus and concentration
	Discipline
	Self-reflection
	Environmental changes
	Limited resources
	Social support
	Task burden
	Pressure to perform

In this research, the data analysis technique used is confirmatory factor analysis (CFA), which is designed to test the multidimensionality of a theoretical construct. Confirmatory Factor Analysis (CFA) is one of the two main approaches to factor analysis. CFA is a method where the model is formed first, the number of latent variables is determined first and requires parameter identification (Wijanto, 2008). The measurement method in this research was applied in two stages known as the two-step approach. In the first stage, first-order Confirmatory Factor Analysis (CFA) is carried out, namely a measurement model that shows that a latent variable can be measured by one or more observed variables. This analysis aims to ensure that each indicator used in the research is able to explain the construct being measured well. Next, in the second stage, a second order Confirmatory Factor Analysis (2nd CFA) was carried out. This analysis aims to test the relationship between first level latent variables, which are then considered as indicators of second level latent variables. In second-order CFA, the measurement model consists of two levels, namely: 1) First-order CFA: At the first level, latent variables act as main factors that directly influence or underlie observed variables as indicators. 2) Second order CFA: At the second level, the latent variables formed do not have to be directly related to the observed variables, but rather represent the relationship between several first level latent variables. The validity of this indicator can be assessed based on the critical ratio (CR) of the regression weight, with a recommended minimum limit of 0.5. Meanwhile, reliability testing is carried out to ensure that the research instrument has a high level of consistency in measuring the construct under study without any errors. An instrument is declared reliable if it meets the criteria for an acceptable level of reliability, namely construct reliability (CR) value ≥ 0.7 and average variance extraction (AVE) value ≥ 0.5 . adequate (Wijanto, 2008 & Hair et al., 2008).

Results and Discussion

Before carrying out analysis using Confirmatory Factor Analysis (CFA), the first step is to test the basic assumptions to ensure that the data used meets the requirements for further analysis. One of the assumption tests carried out is the normality test which aims to find out whether the distribution of data in this study follows a normal distribution. This normality test is important in Confirmatory Factor Analysis (CFA) because it affects the accuracy of parameter estimates and the validity of the analysis results. The normality test results are presented in Table 3 below.

Table 3. Normality Test

Aspect	Indicator	Min	Max	Skew	C.R.	Kurtosis	C.R.
Commitment	K1	2.000	5.000	.262	1.624	-1.139	-3.527
	K2	2.000	5.000	.123	.764	-.918	-2.843
	K3	2.000	5.000	.046	.286	-.948	-2.936
	K4	2.000	5.000	.071	.442	-.996	-3.082
	K5	2.000	5.000	-.084	-.521	-.950	-2.941
Controlling	PD1	2.000	5.000	-.225	-1.393	-.588	-1.820
	PD2	2.000	5.000	.023	.145	-.969	-2.998

Challenges	PD3	2.000	5.000	-.087	-.539	-1.153	-3.569
	PD4	3.000	5.000	-.050	-.308	-1.012	-3.134
	PD5	2.000	5.000	.112	.692	-.979	-3.030
	T1	2.000	5.000	-.551	-3.409	.117	.363
	T2	2.000	5.000	-.222	-1.375	-.174	-.538
	T3	2.000	5.000	.115	.712	-.988	-3.058
	T4	2.000	5.000	-.163	-1.010	-.506	-1.567
	T5	1.000	5.000	-.175	-1.084	-1.103	-3.416
						7.646	2.567

Based on the results presented in Table 3, it is known that the entire critical ratio value to the skewness value is 2.567. This value is within the range that meets the statutory limit, namely ≤ 2.58 , so it can be concluded that the distribution of indicator data for the academic violence variable in this study follows a normal distribution pattern. Furthermore, the results of the Confirmatory Factor Analysis (CFA) analysis in this research can be visualized in the form of a model that describes the relationship between latent variables and their constituent indicators. This model aims to ensure the suitability of theory with empirical data obtained from research. A representation of the Confirmatory Factor Analysis (CFA) model that has been tested can be seen in Figure 1 below

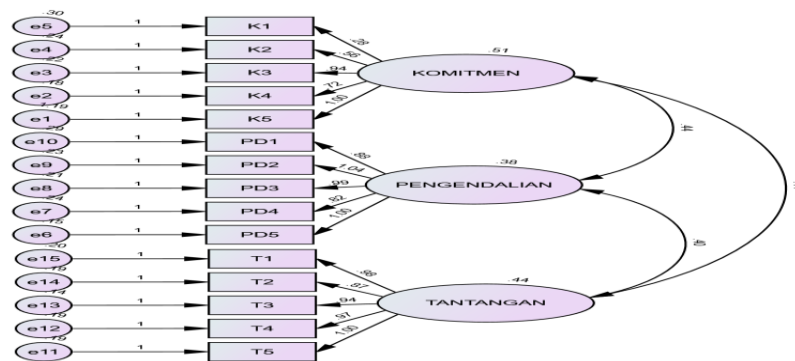


Figure 1. CFA Preliminary Model

Based on the initial Confirmatory Factor Analysis (CFA) model figure presented earlier, it can be seen that the results of the measurement model in confirmatory factor analysis can be further evaluated through the results shown in Table 4 below.

Table 4. CFA Measurement Model

Aspect	Indicator	SFL	Information	Cr	Ave
Commitment	K1	0.548	Valid	0.76	0.56
	K2	0.77	Valid		
	K3	0.819	Valid		
	K4	0.628	Valid		
	K5	0.338	Not Valid		
Controlling	PD1	0.847	Valid	0.88	0.60
	PD2	0.717	Valid		
	PD3	0.8	Valid		
	PD4	0.802	Valid		
	PD5	0.715	Valid		
Challenges	T1	0.836	Valid	0.91	0.68
	T2	0.832	Valid		
	T3	0.854	Valid		
	T4	0.796	Valid		
	T5	0.825	Valid		

Based on the results in Table 4, the measurement model using the Confirmatory Factor Analysis (CFA) validity test shows that the commitment aspect consists of four main forming factors, namely K1 (consistency), K2 (self-motivation), K3 (active participation), and K4 (time management). These four factors were confirmed as forming aspects of commitment because they had factor loading values that met the CFA criteria, namely ≥ 0.5 . However, factor K5 (independence) has a loading factor value of ≤ 0.05 , so it cannot be considered as a forming factor of the latent aspect of commitment. Furthermore, if we look at the results of the reliability test, the commitment aspect has a Construct Reliability (CR) value of $0.76 \geq 0.70$ and an Average Variance Extracted (AVE) value of $0.56 \geq 0.50$. Thus, the commitment aspect in this research can be categorized as a reliable construct.

Furthermore, in the control aspect, CFA analysis shows that there are five main forming factors, namely P1 (ability to delay gratification), P2 (emotional regulation), P3 (focus and concentration), P4 (discipline), and P5 (self-reflection). All of these factors have a loading factor value of ≤ 0.5 , so they can be confirmed as factors forming the control aspect. From the results of the reliability test, the control aspect has a Construct Reliability (CR) value of $0.88 \geq 0.70$, and an Average Variance Extracted (AVE) value of $0.60 \geq 0.50$. Therefore, the control aspect in this research is categorized as a reliable construct. Meanwhile, the challenge aspect in this research consists of five forming factors, namely T1 (environmental changes), T2 (resource limitations), T3 (social support), T4 (task load), and T5 (pressure to achieve). All of these factors have a loading factor value of more than 0.5, so they can be categorized as factors forming the challenge aspect. From the results of the reliability test, the challenge aspect has a Construct Reliability (CR) value of $0.91 \geq 0.70$, and an Average Variance Extracted (AVE) value of $0.68 \geq 0.50$. Therefore, the challenge aspect in this research is categorized as a reliable construct. The results of the CFA evaluation model are presented in Figure 2 below.

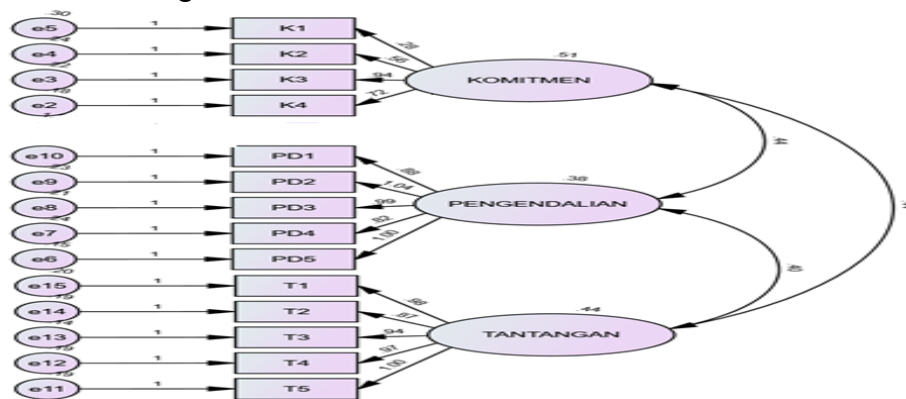


Figure 2. CFA Evaluation Model

Next, the initial goodness of fit index analysis in this research is used to evaluate the extent to which the model developed is in accordance with the empirical data. The results obtained from this analysis provide an overview of the level of suitability of the model based on various statistical indicators that have been determined. The indices displayed in this table reflect the quality of the model in explaining the relationship between latent variables and their indicators. The following are the results of the goodness of fit analysis of the initial model index which are presented in Table 5 below.

Table 5. Goodness of Fit Indeks Model Awal

Goodness of Index	Cut-off Value	Results Model	Description
Chi Square (CMIN/DF)	Estimated to be small	939.159	
GFI	≥ 0.90	0.559	Close Fit



RMSEA	≤ 0.05	0.407	Close Fit
AGFI	≥ 0.90	0.304	Close Fit
NFI	≥ 0.90	0.487	Close Fit
TLI	≥ 0.90	0.664	Close Fit
CFI	≥ 0.90	0.871	Close Fit
IFI	≥ 0.90	0.873	Close Fit
PNFI	≥ 0.90	0.644	Close Fit
PGFI	≥ 0.90	0.538	Close Fit

The results of the goodness of fit analysis are summarized in Table 5 showing that each initial index is in the close fit category. Therefore, further evaluation of the model was carried out. This model evaluation aims to identify possible modifications or improvements so that the model is able to describe the structure of relationships between constructs more accurately. The following are the results of the goodness of fit analysis of the evaluation model index which are presented in Table 6 below.

Table 6. Goodness of Fit Index Evaluation Model

Goodness of Index	Cut-off Value	Results Model	Description
Chi Square (CMIN/DF)	Diharapkan kecil	218.438	
GFI	≥ 0.90	0.971	Good Fit
RMSEA	≤ 0.05	0.041	Good Fit
AGFI	≥ 0.90	0.981	Good Fit
NFI	≥ 0.90	0.913	Good Fit
TLI	≥ 0.90	0.934	Good Fit
CFI	≥ 0.90	0.945	Good Fit
IFI	≥ 0.90	0.946	Good Fit
PNFI	≥ 0.90	0.756	Close Fit
PGFI	≥ 0.90	0.632	Close Fit

Based on the model evaluation results presented in Table 6, it shows that most of the indices have met the good fit criteria, which shows that the model developed has a good level of conformity with empirical data. By fulfilling most of the model's feasibility criteria, it can be concluded that this model has achieved an optimal level of suitability in representing the relationship between the analyzed variables. By knowing the distribution of these contributions, further interpretation can be made regarding the factors that most influence the latent variables being analyzed. Complete results of standardization of variance coefficients are presented in Table 7 below.

Table 7. Table of Standardized Coefficients

			Estimate
K_	<---	Academic Hardiness	.461
PD_	<---	Academic Hardiness	.605
T_	<---	Academic Hardiness	.516
K4	<---	K_	.770
K3	<---	K_	.819
K2	<---	K_	.628
K1	<---	K_	.338
PD5	<---	PD_	.847
PD4	<---	PD_	.717
PD3	<---	PD_	.800
PD2	<---	PD_	.802
PD1	<---	PD_	.715
T5	<---	T_	.836
T4	<---	T_	.832
T3	<---	T_	.854



T2	<---	T ₋	.796
T1	<---	T ₋	.825

Based on the model evaluation results presented in Table 7, it can be seen that the standardized variance coefficient values for each aspect and indicator indicate the relative level of contribution in forming the construct under study. The results of this analysis reveal that the aspect with the greatest contribution is the control aspect, with a value of 0.605, followed by the challenge aspect with a value of 0.516. Meanwhile, the aspect with the lowest contribution is the commitment aspect, which has a value of 0.461. Apart from that, if we look at the level of contribution of each indicator, the indicator with the largest contribution is T3, namely social support with a value of 0.854. On the other hand, the indicator with the lowest contribution is K1, namely consistency, with a value of 0.540. These results provide insight into the factors that are most influential in forming the academic hardiness variable construct, which can then be used as a basis for decision making or further model development. The results of data analysis show that the control aspect makes the most dominant contribution to student academic hardiness. Individuals who have a high level of control tend to achieve psychological well-being more easily. The ability to control themselves well allows them to respond to academic pressure more adaptively and resiliently. In this way, they can face challenges more effectively and maintain balance in their academic life (Wanita et al., n.d.). Individuals with the trait of hardiness have a tendency to view events as something that can be controlled. The challenges faced are not only considered obstacles, but are also part of the process that need to be addressed and managed well. Awareness of one's own ability to achieve positive academic results is an important part of the control aspect, where individuals utilize their emotions and skills to manage academic stress effectively (Benishek et al., 2005; Maddi, 2006).

Furthermore, the results of data analysis also show that the indicator that has the largest contribution to the academic hardiness variable is T3/social support. This finding is in line with research conducted by Susanto & Kiswantomo, (2020) which shows that social support such as from friends around can make a person assess the demands of life positively, such as believing that he is able to manage the demands that exist in life, considering demands as normal, and tending to be willing to involve himself in facing demands to achieve goals. Theoretically, academic hardiness can be predicted from social support. Myers et al (2009) stated that hardiness can be learned from the surrounding environment. One of the social agents who interact directly with individuals is peers (Aisyah & Febriana, 2016). Meanwhile, previous research examining the relationship between social support from peers and the academic world still produces different results. In Sivandani's research, Ebrahimi & Vahidi (2013) showed that social support cannot predict individual academic achievement. Meanwhile, other research regarding the relationship between social support from peers and academic resilience shows that there is a relationship between these two variables (Kartika Permata Sari et al., 2016). High academic hardiness can be seen from the positive social support of peers. College students need emotional support to deal with stress (Sanderson, 2013)

Social support is one factor that can help individuals face various challenges, including academic pressure experienced by students. Social support allows individuals to share problems, find solutions, and get emotional encouragement that can reduce distress. In the student context, social support can come from family, peers, lecturers, or a supportive campus environment. When students feel supported, they tend to have better resilience in dealing with academic and psychological stress. However, previous research shows that the relationship between social support and levels of distress is not always direct. Knisely &



Northouse (1994) stated that there are other factors that can mediate this relationship. In this case, personality hardiness is one of the variables that can play an important role in determining how much social support can influence an individual's level of distress. Personality hardiness refers to an individual's ability to survive in stressful situations while maintaining commitment, control and challenges as part of life (Jotwani, n.d.) The results of this research provide an in-depth contribution to the development of guidance and counseling science, especially in understanding the dynamics of increasing academic hardiness in students and what factors influence it. Apart from that, this research also opens up opportunities for counselors in higher education to explore learning counseling guidance models or programs that are relevant in various cultural contexts.

Conclusion

The research results showed that the control aspect was the factor with the largest contribution to academic hardiness, with a standardized variance coefficient value of 0.605. On the other hand, the social support indicator has the most significant influence, with a value of 0.854. These findings provide an important basis for further research in designing and developing empirical evidence-based guidance and counseling service models or programs, taking into account the main factors that contribute significantly. In addition, the results of this research can be a guide for educational practitioners and guidance and counseling personnel in designing more adaptive services, according to student needs and the context of higher education in Indonesia.

Recommendation

Academic hardiness functions to protect students from academic pressure and stress which can affect their performance and well-being. The academic resilience scale can be used to explore the extent to which students have academic resilience, but it should be noted that the respondents in this study came from West Sulawesi Province. Therefore, generalization of the results of this study needs to be done with caution and taking into account the specific cultural context. Current research tends to be limited to studies based on opinion, experience, and validation of concepts related to student academic hardiness. Meanwhile, research that focuses on solutions to increase academic resilience is still very minimal. Therefore, future research is expected to be able to develop intervention models that aim to increase students' academic resilience, while still taking into account existing cultural backgrounds. The findings from this research also provide benefits for counselors in higher education, especially in designing and developing intervention programs in the Guidance and Counseling Service Unit. With a more appropriate and culturally based approach, the program can create a more comfortable, creative and innovative learning process for students, and help them avoid academic stress conditions that can disrupt their well-being and academic development.

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