


Resilience as a Moderator of Perceived Stress and Coping Strategies in Sophomore College Students Post-COVID-19 Pandemic

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INTRODUCTION

The COVID-19 pandemic has resulted in various negative impacts on global life. It commenced with the implementation of social distancing policies, compelling educational institutions like universities to adapt. This adaptation led to the emergence of online learning methods, often referred to as the e-learning (Oducado et al., 2021). E-learning has been effectively implemented since 2019 and continues into 2023. During this period, the transition from online to in-person learning is gradually taking place. This shift also affects various activities at universities, including sophomore students who initially began their education online.

The term 'sophomore' is commonly used in higher education, particularly in the United States, to denote students in their second year of study at a college or university (Perez, 2020). The sophomore year is a crucial stage in a student's academic development. By this point, they have become acclimated to the campus environment, gained an understanding of the education system, and often delve into more specialized courses within their chosen field of study. During their second year, students also have the opportunity to engage in extracurricular activities, internships, or deeper research, all of which can enrich their knowledge and experiences beyond the classroom. Moreover, many sophomores start planning their career paths and preparing for more intensive academic years ahead.

Considering COVID-19's status as a pandemic, it is crucial to recognize its significant impact on societal well-being. Initially, the Indonesian government implemented various strategies to mitigate the pandemic's spread, including social distancing, which involves avoiding physical contact and refraining from large gatherings. This shift to social distancing prompted educational institutions, such as colleges and universities, to adapt by introducing online classes ([Oducado et al., 2021](#)).

Online classes encouraged students to stay at home to break the chain of virus transmission. E-learning, also known as online learning, is an educational approach in which course materials are delivered through digital platforms and information technology. This approach allows students to access course content, participate in discussions, and complete assignments online without the need to be physically present on campus ([Cavinato, 2021](#)). Online resources, including videos, reading materials, discussion forums, and online assignments, are utilized to facilitate interaction between instructors and students, as well as among students, within a virtual environment. While social distancing measures, mask usage, and academic institution regulations have started to return to pre-pandemic conditions, some institutions continue to implement online learning. Sophomore students, currently in their third to sixth semesters, are those who initially experienced full online learning upon entering and are now transitioning back to the in-person learning ([Cao et al., 2022](#)).

The pandemic's regulations have given rise to various problems and negative impacts, leading to stress. Stress can be described as a generally unfavorable and negative condition or state that makes individuals feel uncomfortable due to demands, threats, and burdens associated with that condition or state ([Lazarus & Folkman, 1984](#)). An individual's perceived stress is closely linked to how they perceive and evaluate various situations they encounter. Some individuals may cope with certain conditions without experiencing the same significant impact as others, and this is where cognitive processes come into play. To understand individual variations in assessing different conditions, we need to examine the cognitive processes that mediate between the occurrence of an event and an individual's reaction, along with the factors that influence this mediation. Events that hold significance for individuals prompt them to assess these events, and such assessments involve cognitive processes that encompass mental activities related to consideration, discrimination, and decision-making based on past experiences. These cognitive processes in assessment are intertwined with memory aspects, which can be categorized into short-term and long-term memory ([Weiten, 2013](#)).

Short-term memory (STM), also referred to as working memory, is responsible for temporarily storing information for a brief period. STM has limited capacity and short storage duration, typically ranging from a few seconds to several minutes. Long-term memory (LTM) is the memory system that allows the storage of information over a longer period, ranging from several hours to a lifetime. LTM has a much larger capacity than STM. Information that has been processed and transferred from STM to LTM tends to be more permanent and can be accessed more slowly but over a longer period. LTM is conceptualized as part of the tripartite memory model, which includes sensory memory, short-term memory, and long-term memory. LTM can also be divided into several types, such as episodic memory (memory of specific events in one's life) and semantic memory (general knowledge about the world). In the context of assessment, everything categorized in long-term memory will be reprocessed by cognition to determine an individual's judgment and perception of a certain thing ([Kalat, 2011](#)).

Cognition and its relationship with stress can be phenomenologically explained in three types: primary appraisal, secondary appraisal, and reappraisal ([Lazarus & Folkman, 1984](#)). Primary appraisal discusses how individuals consider whether a situation is irrelevant (if it is irrelevant, individuals usually won't dwell on it), benign-positive (individuals see the positive side of the event/condition experienced), or stressful. Secondary appraisal deals with the consideration of steps that can be taken to cope with this event, and this is closely related to how individuals cope with stress. Reappraisal is

related to a change in an individual's perspective on something based on new relevant information. In this study, the emphasis is on primary appraisal as the dynamics of understanding perceived stress.

Perceived stress refers to the feelings or thoughts individuals have regarding their level of stress at a specific point or under certain conditions (Lazarus & Folkman, 1984). Meanwhile, coping strategies are understood as an individual's responses to various stressors, such as chronic illnesses, life-threatening diagnoses, natural disasters, and challenges or difficult exams (Carver, 1997). Resilience can be defined as an individual's ability to face challenges and difficulties in life, behaving positively and adaptively in response, and having the capacity to recover from adverse events (Glass et al., 2020).

Coping strategies are closely related to the inclination to confront and manage situations perceived as threatening, and Perceived Stress is a part of this (Morales-Rodriguez et al., 2021). Some common coping strategies individuals use to deal with such situations include seeking social support, as is often seen among college students (Lechner et al., 2020). Several studies have explained that individuals with good Resilience are closely linked to lower levels of depression and anxiety, and both of these are long-term effects of high Perceived Stress (Keech et al., 2018). Coping Strategies are closely intertwined with Resilience because both variables examine adaptability as a central component.

Resilience can be defined as a personal quality that helps individuals develop the capacity to face difficulties, so the success of coping with stress can be seen through an individual's level of resilience (Connor & Davidson, 2003). Other researchers have found that resilience is the ability to endure challenging and stressful situations, encouraging individuals to adapt to their circumstances by managing and recovering from difficult situations collectively (Reivich & Shatte, 2003). Another definition suggests that resilience is the ability to survive, adapt, cope with, and solve problems after experiencing hardships (Grotberg, 1995). Resilience exists within individuals as a protective factor for mental health.

Several factors that can influence resilience come from both internal factors such as knowledge, gender, cultural connections, and external factors such as society and family. Other researchers also explain that factors contributing to the development of resilience include encouragement from those around, cultural influences, and personal support. Experts and researchers have also stated that factors affecting resilience include an individual's human strength, as well as optimism and self-esteem (Missasi & Izzati, 2019). Individual strength refers to a person's capacity to utilize their resources to cope with various challenges in life, while self-esteem supports an individual's belief in themselves.

In challenging and problem-filled situations, individuals are forced to become resilient, meaning they can endure and overcome difficulties to achieve their desired goals (Andriani & Kuncoro, 2020). Therefore, students experiencing stress due to academic pressure and sudden changes in their environment due to the COVID-19 pandemic are expected to have resilience to maintain a positive outlook on life and cope with problems positively, thereby avoiding despair (Fasa, 2019). By having good resilience, students can remain productive in the face of challenging situations, especially for sophomores experiencing a drastic transition post-COVID-19 pandemic in the context of education. Students are expected to possess resilience to bounce back from pressure, stress, and depression they may experience and to interact calmly with others and their surroundings (Jannah & Rohmatun, 2020). Strong resilience skills will impact better academic achievements, stability in academic performance, and the ability of students to effectively engage in curricular and co-curricular activities. This is important to note because students, especially sophomores, are expected to engage in extracurricular activities such as joining organizations and participating in arts and sports activities. These co-curricular activities are also designed to help students develop various soft skills needed to be productive in the working world after graduation, especially when working within organizations.

Rationale of Study

The transition from online to offline learning has indeed created perceived stress, which manifests through behaviors such as sadness, stress, decreased interest in things, and feelings of worthlessness (Graupensperger et al., 2020). Additionally, research indicates that as many as 79% of sophomore students experience stress, depression, anxiety, and frustration due to the earlier shift from in-person to online learning resulting from the early onset of the COVID-19 pandemic (Liu, 2020). It is important to understand that as students take on increasing responsibilities compared to their previous educational levels, stress levels also tend to rise. Stress among sophomore students, who are in their second year of college, is a complex phenomenon influenced by various academic and non-academic factors (Ozsaban et al., 2019).

Increasing academic demands, the need to adjust to more specialized and in-depth coursework, and expectations of high performance can contribute to this stress. Additionally, non-academic aspects such as changes in social environments, personal life, and considerations about future careers can also trigger stress during this phase. Social support from peers and family, as well as the development of effective time management and coping skills, can help sophomore students face and overcome the stress they experience during this crucial period in their educational journey (Ozsaban et al., 2019).

A previous study was conducted on 212 students in the United States to understand how they apply coping strategies to deal with perceived stress. The results of this research showed that 77% of participants chose to talk to family and friends to cope with stress. Furthermore, about 57% of them chose to relax, and 51% chose to exercise as an alternative. Some participants also tried other approaches, such as consuming alcohol (39%), smoking (37%), and using illicit drugs (15%), although the numbers were not significant. There was also a small percentage of participants (6%) who did not take any action as a coping mechanism, while some sought help from professionals (Pierceall & Keim, 2007). This study revealed the application of coping strategies that were perceived as less adaptive and suboptimal resilience levels.

Study Aims and Hypotheses

Based on the description above, this research aims to investigate and elucidate the influence of coping strategies on perceived stress, with resilience serving as a moderator, among sophomore students in the post-COVID-19 pandemic period. To summarize the research objective, the following hypothesis is formulated: “The influence of coping strategies on perceived stress is moderated by resilience among sophomore students in the post-COVID-19 pandemic era”.

METHODS

Design

This study employed a quantitative cross-sectional survey design. Using this method, data were collected concurrently through an online questionnaire to investigate the impact of coping strategies on perceived stress among sophomore students, with resilience as the mediating factor.

Participants and Procedure

This research focused on Sophomore students, including both female and male students, who were currently in their 3rd to 6th semesters and transitioning from online to offline learning. Primary data was collected using a non-random sampling technique. In non-random sampling, sample selection is based on specific criteria predetermined by the researcher, such as certain relevant characteristics or the specific research objectives. In this case, data collection was done through the distribution of questionnaires or surveys.

Instruments

Coping Strategies

In this study, coping strategies were measured using the Brief COPE to assess the level of coping strategies individuals possess. The aspects of Brief COPE consist of adaptive coping, referring to efforts to change the source of stress, and can be described as action-oriented coping (taking active steps to deal with stress) (Furman et al., 2018). This measurement tool has been tested for reliability and yielded Corrected Item Total Correlation (CITC) scores ranging from .517 to .800, with a Cronbach's Alpha value of .757.

Perceived Stress

In this research, perceived stress was assessed using the Perceived Stress Scale (PSS). The aspects of the PSS related to individual life situations can be evaluated as perceptions of stress. The PSS consists of Perceived Stress and Perceived Control (Ribeiro Santiago et al., 2020). This measurement tool has been tested for reliability and yielded Corrected Item Total Correlation (CITC) scores ranging from .439 to .846, with a Cronbach's Alpha value of .920.

Resilience

The assessment of resilience in this study was conducted using the Brief Resilient Coping Scale (BRCS) to determine the quality of an individual's resilience. This measurement tool is a unidimensional (Sinclair & Wallston, 2004). The reliability of this measurement tool has been tested and yielded Corrected Item Total Correlation (CITC) scores ranging from .525 to .793, with a Cronbach's Alpha value of .860.

Data Analysis

The data for hypothesis testing in this study were analyzed using quantitative data analysis techniques with statistical methods. The statistical method employed was Moderated Regression Analysis (MRA). Moderated Regression Analysis (MRA) is a statistical method used to examine how the relationship between independent and dependent variables can be moderated by one or several moderator variables. This analysis measures how the effect of the independent variable on the dependent variable can change depending on the value of the moderator variable. In various studies, MRA is used to test moderation effects in various fields such as psychology, economics, and social sciences (Żerebecki & Oprea, 2022).

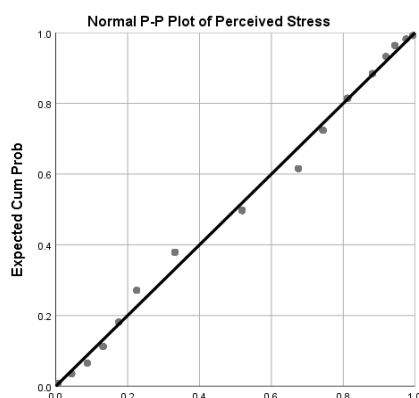


Figure 1. Normality Test

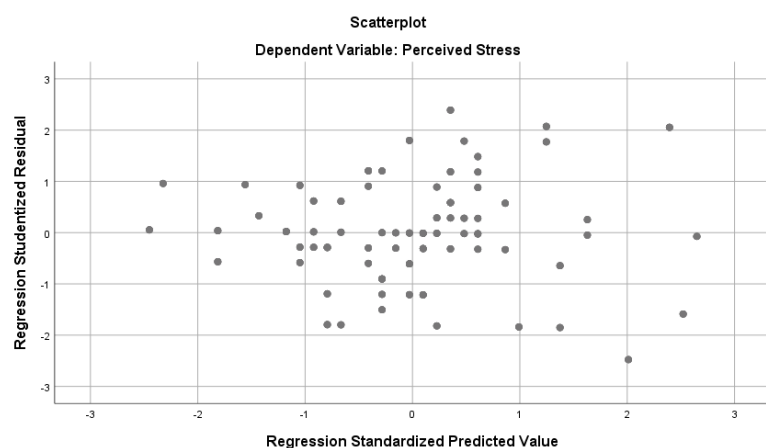


Figure 2. The Heteroskedasticity Test

Table 1. Multicollinearity Test

Variabel	Colinierity Statistics	
	<i>Tolerance</i>	<i>VIF</i>
Perceived Stress	.961	1.041
Coping Strategies	.954	1.409
Resiliensi	.954	1.409

Table 2. Multiple Linear Regression Analysis

Model	<i>U</i>	<i>SE</i>	<i>SB</i>	<i>T</i>	<i>F</i>
(Constants)	28.324	2.332		12.147	.001
Coping Strategies	-.006	.021	-.140	-.285	.776
Resilience	.314	.087	.182	3.598	.001

Table 3. Moderated Regression Analysis

Model	<i>U</i>	<i>SE</i>	<i>SB</i>	<i>t</i>	<i>F</i>
(Constants)	17.598	1.673		10.522	.001
Coping Strategies *Resilience	.043	.000	1.438	222.801	.001
Perceived Stress *Resilience	-.009	.001	-.755	-10.722	.001

Tabel 4. Coefficient of Determination Without and With the Resilience Variable

Model	<i>Adjusted R Square</i>
Coping Strategies	.070
Coping Strategies*Resilience	.392

RESULTS AND DISCUSSION

Results

Observing Figure 1, we can see that the points on the plot follow a diagonal line pattern, suggesting that the data distribution is approximately normal. The following scatter plot is used to test the heteroscedasticity statistical assumption. Referring to Figure 2, the evenly scattered points above and below the value of 0 on the Y-axis suggest the absence of heteroskedasticity. The result of the multicollinearity test assumption is shown in the following table. Based on Table 1, it can be concluded that there is no multicollinearity, as the collinearity tolerance values are greater than .1 and the VIF statistics are less than 10.0. The result of multiple linear regression analysis is shown in the following table.

Based on Table 2, the significance values for Coping Strategies are greater than .05, indicating a negative influence on Perceived Stress. Meanwhile, Resilience has a positive relationship with Perceived Stress. Following is the result of moderated regression analysis for the hypothesis testing.

Based on Table 3, it can be concluded that the significance value for the interaction variable between Coping Strategies and Resilience is .001, and the significance value for the variable Perceived Stress and Resilience is also .001. Both of these significance values are less than .05, indicating that Resilience moderates the relationship between Coping Strategies and Perceived Stress in sophomore students.

Based on Table 4, the Adjusted R-Square value between the Coping Strategies and Perceived Stress variables is .070. This can be assumed to mean that Coping Strategies have a 7% influence on Perceived Stress. In Table 4, it can also be seen that the Adjusted R-Square value for the variable with the moderator is 0.392 or 39.2%. This means that the independent variable (Coping Strategies) and the moderation variable (Resilience) can explain the dependent variable (Perceived Stress). This indicates that Resilience has a significant impact on the correlation between Coping Strategies and Perceived Stress.

Discussion

Considering the results of the statistical analysis using regression analysis, it is evident that there is a significant correlation between the Coping Strategies and Perceived Stress variables. After conducting the regression analysis on the main variables, moderation regression analysis was performed by adding the Resilience variable as a moderator. Through moderation regression analysis, it can be concluded that Resilience significantly influences the degree of the relationship between Coping Strategies and Perceived Stress. Comparing the two regression analyses, there is a differentiation in the values which will be explained in the following paragraph. The results of the regression analysis without involving the moderator variable indicate that Coping Strategies only influence the Perceived Stress variable by 7%. On the other hand, with the addition of the Resilience variable as a moderator, the degree of influence of Coping Strategies on Perceived Stress increases to 39.2%, with the remaining 60.8% determined by various other variables.

The findings of this study align with the assertion that resilience plays a significant role in shaping the selection and efficacy of coping strategies ([Pierceall & Keim, 2007](#)). Individuals with high resilience are inclined to employ effective coping mechanisms when dealing with stress. The utilization of effective coping strategies can assist individuals in mitigating their perceived stress levels. Those with elevated resilience often demonstrate greater proficiency in employing coping strategies due to their enhanced cognitive, affective, and behavioral capabilities. A tangible illustration of this phenomenon is observed in individuals with high resilience facing financial challenges. In such circumstances, these individuals tend to adopt problem-focused coping strategies, such as actively seeking information and solutions to address their financial issues. The effectiveness of these coping strategies contributes to a successful resolution of the financial problems, leading to a reduced perception of stress by the individual.

The findings of this study further substantiate the assertions of previous research regarding the significant role of social support, emanating from family and friends, as a moderator in the relationship between coping strategies and perceived stress ([Ozsaban et al., 2019](#)). Individuals with robust social support are inclined to employ effective coping strategies when dealing with stress. This is attributed to their heightened confidence and ability to manage stress. Such individuals demonstrate greater effectiveness in utilizing coping strategies, as they can seek support and assistance from others in times of stress. Consequently, individuals with ample social support often experience a diminished perception of stress, driven by feelings of love, acceptance, and value. To illustrate this point, consider a scenario where an individual faces academic failure. If the individual lacks social support from family and friends, they may feel isolated and unsupported. In response, they may resort to less effective, emotion-focused coping strategies such as self-blame and hopelessness. These coping mechanisms prove ineffective in helping the individual cope with failure, leading to a heightened perception of stress.

Implications

The results of the analysis also indicate that sophomore students already possess adaptive coping strategies, likely due to having been enrolled in college for at least a year. This reflects an adaptation or adjustment process. This can certainly lead to differences compared to new students or those in their final semester, considering that each category of students also faces different stressors. It is assumed that new students may have a lower level of Coping Strategies that are not yet optimal, while on the other hand, final semester students may experience higher Perceived Stress due to external pressure to graduate quickly ([Babicka-Wirkus et al., 2021](#)).

Perceived Stress among final semester students, who are in the final stage of their college studies, can arise from a combination of factors such as intense academic pressure, preparation for the transition to the workforce, and high personal expectations. At this stage, final semester students

are often confronted with final assignments such as the thesis or research projects that require a significant time commitment and effort. Additionally, they may feel the need to achieve good academic performance in preparation for entering the workforce or pursuing further studies. Personal expectations, parental expectations, and feelings of uncertainty about the future after graduation can also contribute to the perceived level of stress. In facing this, it is important for final semester students to develop adaptive stress management strategies, seek social support, and maintain a balance between academic demands and other aspects of their lives ([Maharani et al., 2023](#)).

Although it should be noted that an individual's coping status is dynamic, this study attempts to examine that by managing one's resilience effectively, it can support one's tendency to engage in adaptive Coping Strategies. As Sophomore students who are currently undergoing a drastic transition, it is hoped that they can always be sensitive to the quality of their resilience, coping choices, and the level of stress perception they possess ([Wu et al., 2020](#)). By being able to integrate these coherently, productivity as a student will be achieved steadily. For Sophomore students on their academic journey, they are still considered to be in the middle of the road towards graduation, so stable productivity will greatly support Sophomore students in succeeding in their studies until graduation. Productivity for Sophomore students, who are in their second year of college, involves an efficient balance between academic demands and other aspects of life. At this stage, students need to develop strong time management skills to cope with increasingly complex study loads while still allocating time for social activities, recreation, and personal development. Productivity also involves the ability to plan and execute academic tasks effectively, utilize available resources, and create an optimal learning environment. By maintaining a healthy sleep pattern, avoiding procrastination, and taking sufficient breaks, Sophomore students can enhance their productivity in achieving academic goals and holistic self-development.

Limitations and Suggestion for Future Research

In future research, it would be valuable for scholars to explore the diverse backgrounds of students, encompassing both freshmen and seniors, while also considering the distinctions between urban and rural environments in relation to how individuals perceive stress, employ coping strategies, and exhibit resilience. Such an inclusive approach holds the potential to provide a deeper and more comprehensive comprehension of the ways in which contextual and demographic factors impact the experiences of stress among students. This broader perspective can facilitate the development of targeted interventions and support systems to enhance students' well-being.

CONCLUSION

This study demonstrates that resilience plays a moderating role in the relationship between coping strategies and perceived stress among sophomore students. Individuals with high resilience are more inclined to choose adaptive coping strategies, while those with low resilience tend to adopt maladaptive coping strategies. This underscores the importance of resilience in shaping responses to stress and the selection of appropriate coping strategies.

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AUTHOR CONTRIBUTION STATEMENT

Both authors made equal contributions and approved the final version of the manuscript.

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