

THE INFLUENCE OF SELF-REGULATION ON GENERAL SELF-EFFICACY: THE MEDIATING ROLE OF MENTAL WELL-BEING AMONG UNIVERSITY STUDENTS

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Abstract. Mental health has become a pressing issue in higher education, with university students increasingly vulnerable to stress, anxiety, and reduced academic engagement. While self-regulation and general self-efficacy are recognized as key determinants of academic adjustment, the mechanisms linking these constructs remain underexplored. This study investigates the influence of self-regulation on general self-efficacy, emphasizing the mediating role of mental well-being among university students. A total of 380 valid responses were collected from undergraduate students in Pekanbaru, Indonesia, using validated scales for self-regulation, mental well-being, and general self-efficacy. Structural Equation Modeling (SEM) with AMOS 26 was employed to test the hypothesized relationships. The findings reveal that self-regulation significantly predicts both mental well-being and general self-efficacy. Furthermore, mental well-being demonstrates a positive and significant mediating effect on the relationship between self-regulation and general self-efficacy. These results underscore the importance of mental well-being as a psychological resource that strengthens the pathway between self-regulatory competence and efficacy beliefs. Theoretically, this study extends self-regulated learning models by integrating mental health as a mediating construct, while practically, it highlights the need for higher education institutions to design interventions that foster both self-regulatory skills and psychological well-being. By positioning mental well-being as both an outcome of self-regulation and a driver of self-efficacy, the study provides actionable insights for enhancing student resilience and academic success, particularly in the post-pandemic era.

Keywords: self-regulation; mental well-being; general self-efficacy; higher education, SEM

I. INTRODUCTION

Mental health is widely recognized as a multidimensional construct, encompassing cognitive, emotional, and social capacities that enable individuals to sustain balance and function effectively in everyday life (Galderisi et al., 2015; Granlund et al., 2021). The World Health Organization (WHO, 2022) defines mental health as a state of well-being that enables individuals to cope with stress, realize their potential, work productively, and contribute to their communities. This perspective emphasizes that mental health is not merely the absence of psychological disorders but also the presence of positive psychological resources, such as resilience, adaptive coping strategies, and cognitive abilities. Previous studies Keyes (2007) and Dodge et al. (2012) have underscored that well-being and psychological functioning are deeply interconnected, particularly within socio-environmental contexts such as education, where students face substantial academic and emotional demands (Auerbach et al., 2018).

The mental health of university students has emerged as a pressing global concern. Empirical evidence from Auerbach et al. (2018) and Ibrahim et al. (2013) indicates that tertiary-level students are at higher risk of stress, anxiety, and depression compared to the general population. Recent studies further suggest that academic pressure, financial strain, and post-pandemic transitions to hybrid learning exacerbate these vulnerabilities (Sato et al., 2023). Poor mental health among students is associated with reduced academic engagement lower achievement (Eisenberg et al., 2009), and increased dropout rates (Kitzrow, 2003). Conversely, students with higher levels of well-being are more resilient and more likely to succeed academically (Seligman et al., 2009), underscoring the urgent need for targeted interventions.

In this regard, psychological constructs such as self-regulation and general self-efficacy have been widely studied. Miao & Ma (2022) and Andrade & Brookhart (2016) highlight that self-regulation enables students to manage their learning by setting goals, monitoring progress, and adjusting strategies. Empirical research confirms that self-regulation is

positively associated with academic performance (Zimmerman & Kitsantas, 2014) and is strengthened by general self-efficacy, which enhances motivation and persistence (Bandura, 1977; Jia & Tu, 2024; Liao et al., 2014). Collectively, these findings position self-regulation and general self-efficacy as pivotal mechanisms in academic success.

Despite this substantial body of work, notable research gaps remain. While prior studies (Chemers et al., 2001; Honicke & Broadbent, 2016), have examined the effects of self-regulation and general self-efficacy on learning outcomes, few have investigated their combined influence. Moreover, studies exploring the mediating role of mental well-being in explaining how self-regulation translates into greater academic general self-efficacy are scarce. This gap is particularly salient in the post-pandemic context, where student mental health challenges have intensified (Son et al., 2020). Addressing this gap is essential for both advancing theoretical understanding and informing practical interventions in higher education.

Against this backdrop, the present study investigates the effect of self-regulation on students' academic general self-efficacy, with a particular focus on the mediating role of mental well-being. By exploring these interrelationships, this study seeks to contribute to the broader discourse on student development. Theoretically, it extends existing models of self-regulated learning by integrating mental health as a mediating construct. Practically, the findings may inform the design of counseling programs and academic support strategies that enhance resilience, strengthen self-regulatory skills, and promote holistic well-being among university students.

II. RESEARCH METHODS

Table 1 presents the detailed measurements of each construct in the conceptual model, with items carefully identified, validated, and modified where necessary. To measure self-regulation, nine items were adapted from Zhong et al. (2022). Mental well-being was assessed using fourteen items adapted from Tennant et al. (2007) and Sacgaca et al. (2023). General self-efficacy was measured with ten items adapted from Jia & Tu (2024). All items were rated on a five-point Likert scale ranging from "strongly disagree" to "strongly agree."

Table 1. The measurement items.

Variable	Item	Coding	Source
Self-Regulation	I ask myself questions to make sure I know the material I have been studying.	SR1	Zhong et al. (2022)
	When work is hard I either give up or study only the easy parts.	SR2	
	I work on practice exercises and answer end of chapter questions even when I do not have to.	SR3	
	Even when study materials are dull and uninteresting, I keep working until I finish.	SR4	

Variable	Item	Coding	Source
Mental Well-being	Before I begin studying I think about the things I will need to do to learn.	SR5	Tennant et al. (2007) and Sacgaca et al. (2023)
	I often find that I have been reading for class but do not know what it is all about.	SR6	
	I find that when the teacher is talking I think of other things and do not really listen to what is being said.	SR7	
	When I'm reading I stop once in a while and go over what I have read.	SR8	
	I work hard to get a good grade even when I do not like the blended synchronous course.	SR9	
	I've been feeling optimistic about the future.	MWB1	
	I've been feeling useful.	MWB2	
	I've been feeling relaxed.	MWB3	
	I've been feeling interested in other people.	MWB4	
	I've had energy to spare.	MWB5	
	I've been dealing with problems well.	MWB6	
	I've been thinking clearly.	MWB7	
	I've been feeling good about myself.	MWB8	
	I've been feeling close to other people.	MWB9	
General self-efficacy	I've been feeling confident.	MWB10	Jia & Tu (2024)
	I've been able to make up my own mind about things.	MWB11	
	I've been feeling loved.	MWB12	
	I've been interested in new things.	MWB13	
	I've been feeling cheerful.	MWB14	
	When I exert my best efforts, I consistently demonstrate the ability to resolve issues.	GSE1	
	Despite opposition from others, I possess the capability to attain my desired outcomes.	GSE2	
	For me, maintaining ideals and achieving objectives comes effortlessly.	GSE3	
	I am confident in my ability to effectively manage unexpected situations.	GSE4	
	With my intellect, I am certain that I can navigate unforeseen circumstances.	GSE5	
	By exerting the necessary effort, I am assured of my capacity to address the majority of challenges.	GSE6	
	I am able to confront difficulties calmly, as I trust in my problem-solving abilities.	GSE7	
	When faced with a challenge, I typically identify several potential solutions.	GSE8	
	In times of trouble, I am usually able to devise various coping strategies.	GSE9	
	Regardless of the circumstances, I am adept at handling any situation that arises.	GSE10	

Data for this study were collected from undergraduate students enrolled in various higher education institutions across Pekanbaru. The survey was conducted in the early February, 2025. Given the challenges of accessing the entire population and the heterogeneous distribution of respondents, a convenience sampling technique was employed. This approach is widely used in social and behavioral studies when

resource constraints limit the feasibility of probability-based sampling.

The sample size was determined with reference to the guidelines of , which recommend a minimum of 377 respondents for a population size of approximately 20,000. Accordingly, the 380 valid responses obtained in this study not only meet but also exceed the recommended threshold. Furthermore, this sample size aligns with the recommendations of Hair et al. (2019), who suggest a minimum of 200 respondents or at least ten times the number of indicators for studies employing Structural Equation Modeling (SEM). Thus, the sample size can be considered adequate, ensuring sufficient statistical power and representativeness to support the validity of the multivariate analyses conducted. In addition, the study adhered to established research ethics protocols. Participants were provided with clear information about the objectives of the study, assurances of confidentiality, and the right to withdraw at any time. Informed consent was obtained from all respondents, and institutional approval was secured from the relevant authorities prior to data collection.

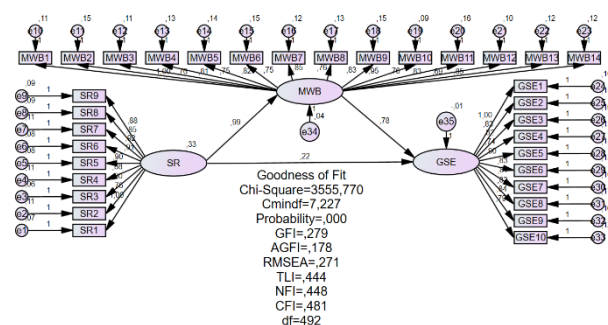
III. RESULT AND METHODS

Following the above procedure, a total of 400 questionnaires were distributed, with 380 usable responses obtained, yielding a 95.0% valid response rate. The respondents represented a balanced gender distribution, with 47.9% males and 52.1% females. In terms of age, 12.4% were aged below 19; 71.6% were between 20–22 years old; and 16.0% were 23 years old and above. Regarding academic year, 26.8% were first-year students, 24.2% were in their second year, 27.6% in the third year, and 21.4% in their fourth year of study.

Data testing based on Structural Equation Modeling (SEM) as suggested by Hair et al. (2006) requires a normality assumption test to ensure that the data are suitable for further modeling, where data are considered normally distributed if the critical ratio (CR) for skewness falls within the ± 2.58 range. Based on the AMOS 26 output, the CR skewness values of all variables were within the acceptable threshold, while the multivariate CR value of 2.405 also met the criteria, indicating that the dataset is normally distributed and appropriate for subsequent analysis. At the estimation stage of SEM, the covariance matrix was employed as input data, as it provides more valid comparisons across samples or populations and yields more accurate standard errors compared to the correlation matrix (Hair et al., 2014). With a sample size of 380 respondents, the estimation method applied was Maximum Likelihood Estimation (MLE). Furthermore, the results of the measurement model test demonstrated that all indicators were valid, with factor loadings exceeding the minimum threshold of 0.500, where the highest loading value reached 0.908 and the lowest was 0.757, thereby confirming that all research indicators possess adequate validity.

Structural model analysis was conducted to evaluate the parameters representing the causal relationships among the latent variables. Figure 1 presents the full structural model, including the standardized loading estimates for each path in the study titled The Influence of Self-Regulation on general Self-Efficacy: The Mediating Role of Mental Well-Being among University Students.

Figure 1. Full Structural Model of The Influence of Self-Regulation on General Self-Efficacy: The Mediating Role of Mental Well-Being among University Students



The results of the overall model fit test indicate that the model does not fully meet the required goodness-of-fit criteria. The Chi-Square statistic (3555.770; $df = 249$) is significant, which is common in large samples due to its sensitivity to sample size. However, several key fit indices fall short of acceptable thresholds. Specifically, the p -value (0.00), Cmin/DF (7.227), and RMSEA (0.271) indicate poor fit. Likewise, incremental fit indices such as GFI (0.279), AGFI (0.178), CFI (0.481), and TLI (0.444) are well below the recommended cut-off value of ≥ 0.90 . Taken together, these findings suggest that the structural model does not achieve an adequate level of fit. Consequently, model modification is necessary—such as removing indicators with low factor loadings or correlating error terms based on the modification indices provided by AMOS—to improve the model's overall goodness of fit (table 2).

Table 2. Overall Model Fit

No	Fit Index	Cut-off Value	Test Result	Model Fit
1.	Chi square	-	3555,770	Fit
2.	Degree of Freedom	-	249	Fit
3.	p -value	> 0.05	0.00	Not fit
4.	Cmin/DF	< 2.00	7,227	Not fit
5.	Root Mean Square Error of Approximation	< 0.08	0.271	Not Fit
6.	Goodness of Fit Index	≥ 0.90	0.279	Not Fit
7.	Adjusted Goodness of Fit	≥ 0.90	0.178	Not Fit
8.	Comparative Fit Index	≥ 0.90	0.481	Not Fit
9.	Tucker Lewis Index	≥ 0.90	0.444	Not Fit

The structural model was tested using IBM AMOS 26, with significance determined by a critical ratio (C.R) above 1.96 or a p -value below 0.05. The results, presented in Table

3. demonstrate that self-regulation positively and significantly influences general self-efficacy ($\beta = 0.222$; $p < 0.05$). Moreover, self-regulation exerts a positive and significant effect on mental well-being ($\beta = 0.990$; $p < 0.05$). Mental well-being, in turn, has a positive and significant impact on general self-efficacy ($\beta = 0.777$; $p < 0.05$). These findings provide empirical support for the mediating role of mental well-being in the relationship between self-regulation and general self-efficacy. In doing so, the study highlights mental well-being as a critical psychological resource that enhances students' general self-efficacy through effective self-regulation.

Table 3. Overall Model Fit

		Estimate	S.E.	C.R.	P	Label
MWB <-- SR		,990	,086	11,442	***	par_31
GSE <-- MWB		,777	,106	7,349	***	par_32
GSE <-- SR		,222	,094	2,368	,018	par_33

The findings of this study provide compelling evidence of the significant role of self-regulation in enhancing general self-efficacy. The positive association between these two constructs supports Bandura's (1977) social cognitive theory, which emphasizes self-regulation as a key mechanism in shaping individuals' beliefs in their capabilities. This result is consistent with previous studies indicating that students who demonstrate stronger self-regulation tend to develop higher academic self-efficacy and achieve better adjustment in academic settings (Chemers et al., 2001; Honicke & Broadbent, 2016). Thus, self-regulation emerges as a critical psychological competence that contributes directly to students' confidence in handling academic challenges.

Interestingly, the study also demonstrates an exceptionally strong effect of self-regulation on mental well-being ($\beta = 0.990$). This finding suggests that students with higher self-regulation skills are more likely to sustain positive emotions, resilience, and overall psychological balance. Previous literature emphasizes the importance of self-regulation as a predictor of emotional stability and engagement in learning (Zimmerman & Kitsantas, 2014; Miao & Ma, 2022). Nevertheless, the unusually high path coefficient raises methodological concerns. It is possible that measurement overlap or multicollinearity between constructs may have inflated the effect size. Future research should further investigate these relationships using alternative modeling approaches or longitudinal data to ensure robustness.

Another important contribution of this study lies in highlighting mental well-being as a mediator in the relationship between self-regulation and general self-efficacy. The mediation results indicate that mental well-being functions as a psychological resource that amplifies the positive influence of self-regulation on students' efficacy beliefs. This finding resonates with prior research that conceptualizes well-being as a balance of emotional, psychological, and social resources (Dodge et al., 2012; Keyes, 2007). Moreover, it aligns with the perspective of

positive psychology and positive education (Seligman et al., 2009), which underline the importance of fostering well-being as a pathway to optimizing students' learning outcomes and personal development.

The results also carry significant practical implications for higher education institutions. Given the rising prevalence of mental health concerns among university students globally (Auerbach et al., 2018; Ibrahim et al., 2013), supporting self-regulation and mental well-being becomes increasingly urgent. Academic programs and student support services can integrate interventions such as mentoring, counseling, and classroom strategies that enhance self-regulated learning (Andrade & Brookhart, 2016). Furthermore, embedding well-being initiatives within academic contexts could strengthen students' resilience and reinforce their self-efficacy. Such strategies may be particularly relevant in the post-pandemic era, where the interplay between mental health, self-regulation, and learning success is increasingly complex (Sagaca et al., 2023; Sato et al., 2023).

Finally, this study contributes to the growing body of research by presenting a conceptual model that integrates self-regulation, mental well-being, and general self-efficacy. While earlier studies have primarily examined direct relationships, this study advances the literature by empirically validating the mediating role of mental well-being. However, limitations should be acknowledged. The model focuses exclusively on three constructs, and additional factors such as social support (Eisenberg et al., 2009), academic motivation (Liao et al., 2014), or technology-enhanced learning environments (Jia & Tu, 2024) may provide a more comprehensive understanding of students' academic adjustment. Moreover, the contextual generalizability of the findings should be tested across diverse cultural and institutional settings, given the variability in students' mental health experiences across countries (Galderisi et al., 2015).

IV. CONCLUSIONS

This study provides empirical evidence on the interplay between self-regulation, mental well-being, and general self-efficacy among university students. The findings confirm that self-regulation directly and positively influences students' general self-efficacy, supporting Bandura's (1977) social cognitive theory and prior research that positions self-regulation as a key determinant of academic adjustment and success. More importantly, the results highlight the mediating role of mental well-being, indicating that students with stronger self-regulatory skills are more likely to maintain psychological balance and, consequently, develop higher levels of self-efficacy. This mediation underscores the importance of mental well-being as a psychological resource that strengthens the pathways between self-regulation and efficacy beliefs. Theoretically, the study contributes to the literature by extending self-regulated learning models to incorporate mental well-being as a mediating mechanism. While previous research has largely focused on direct

relationships between self-regulation and academic outcomes, this study demonstrates that well-being operates as a critical bridge that enhances students' confidence in managing academic demands. Practically, the findings suggest that higher education institutions should design interventions that not only build students' self-regulatory skills but also cultivate mental well-being. Integrating counseling services, resilience training, and classroom strategies that foster emotional balance can enhance students' overall academic efficacy and success. Nevertheless, some limitations warrant caution. The exceptionally high coefficient between self-regulation and mental well-being raises concerns of measurement overlap, suggesting the need for future research to refine constructs and test the model across diverse cultural and institutional settings. Moreover, incorporating additional factors such as social support, motivation, or technology-mediated learning could provide a more comprehensive understanding of students' academic development. In conclusion, this study reinforces the intertwined roles of self-regulation, mental well-being, and self-efficacy in higher education. By recognizing mental well-being as both an outcome of self-regulation and a driver of efficacy, educators and policymakers can better support students in navigating academic challenges, particularly in the post-pandemic era where mental health has become a critical determinant of academic resilience and achievement.

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