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Abstract:

There is a minority of considerations that influence students' academic performance. This research aims to investigate the mediating effect of self-efficacy on the adversity quotient of students that reflects on their academic performance. This comprehensive study identifies determinants and their influences on the academe amongst selected university students. This study used quantitative descriptive design to identify the mediating effect of self-efficacy on the relationship between academic performance and adversity quotient. The data was collected using an adapted Mindfulness-Based Self Efficacy Scale – Revised (MSES-R) and Adversity Quotient survey questionnaire. This study has a sample size of 150 students of the University of Mindanao. By determining the central tendency, the Pearson r and Sobel test revealed that self-efficacy did not significantly mediate the relationship between the adversity quotient and students' academic performance. However, the adversity quotient has a strong significance in academic performance. After carefully synthesizing the findings, the study led to further recommendations to examine variables that affect the student's academic performance.

Keywords: *adversity quotient; self-efficacy; and academic performance*

1. Introduction

Academic performance is a key determinant of a student's future success and opportunities (Mappadang et al., 2022). Researchers, for quite a while, have been trying to understand the various factors that influence academic outcomes. Adversity Quotient (AQ) and self-efficacy have garnered significant attention among these factors. The Adversity Quotient refers to an individual's ability to cope with adversity and challenges, which is crucial for academic success (Molinero et al., 2018). Individuals with higher Adversity Quotient (AQ) will likely exhibit improved problem-solving abilities and greater resilience, which are crucial for academic success. Approximately 216,000 students, or about 8% of all college students nationwide, are balancing employment and academics (CHED, 2022). Recent studies (Roksa & Kinsley, 2018; Verulava & Jorbenadze, 2022; and Hordósy et al., 2018) draw attention to budgetary needs causing enormous pressure and adversities (Faizuddin et al.,2020; Fahimah, 2021; Wan et al., 2021), mental health implications (Verulava et al., 2019; Verulava & Jorbenadze, 2022), sleep deprivation (Madison, 2019; Chiang et al., 2020), and poor academic performance (Shafie, et al., 2022; Macawile, et al., 2022).

Evidently, the academic performance of working students has also garnered discussion in different contexts— proximities correlated to other variables: behavioral patterns (Kassarnig et al., 2018), emotional intelligence (MacCann et al., 2020), and socioeconomic status (Hernández et al., 2020). Thereafter, many occurring concerns have raised a spotlight in the research field, including the takers' most prominent attitudes and motivations.

In relation to attitudes and motivations, the adversity quotient had made a grade and was prevalently conceptualized as a research variable; it was first theorized by Paul Stoltz (1997) and a groundbreaking added information in the year 2000. It has been correlated to multiple fields of interest, such as business, at work, employment, mental health, positive attitudes, and, most importantly, education. Furthermore, it has also been in different research approaches: socio-cultural context (Liem & McInerney, 2018; Liem & Tan, 2018), cognitive and non-cognitive attributes, verbal and visuospatial (Kyttälä et al., 2019). Additionally, dated studies have observed a high indication of adversity quotient in students' academic performances (Kuhon, 2020), whereas a high level of adversity quotient shows better academic performance. Hence, the adversity quotient significantly affects academic achievement, positive attitudes, skills, knowledge, and understanding (Juwita et al., 2020).

As highly proposed in the field, literature has noted the concern with motivation and attitude amongst learners and examination takers. The level of the Adversity Quotient revolves around four dimensions, coined by Stoltz (1997): firstly, control, which directly defines self-control; Additionally, control refers to the amount of control someone feels over a situation causing them problems; evaluating different controls, and realizing that it can provide them power. Secondly, origin and ownership, the cause of the issue, and recognition examine the source of difficulties and the extent to which individuals perceive themselves as the cause. The third dimension is reached; it pertains to an individual who can assess how current issues impact every element of life. Lastly, endurance is when a person thinks challenges and issues will subside soon or are only transitory. These indicators are tested efficaciously to determine the level of coping mechanisms amongst learners, not just in certain situations but also in any examination.

On the other hand, academic performance's primary yardstick for measurement has been the prominent General Point Average (GPA). It has been widely accepted to have a direct correlation with a person's general intelligence and potential for job success. For this reason, GPA is used as a standard indicator of students' academic accomplishment. The conclusions of how the idea of academic performance has been operationalized through GPA are based on a

thorough analysis of the related literature (Stephens & Schaben, 2002; Darling et al., 2005; Galiher, 2006; Torki, 1988; Hijazi & Naqvi, 2006).

For self-efficacy, Bandura's (1977, 1986) outlook on Self-efficacy grounded in Social Cognitive Theory has elucidated the dated study of Rotter (1954), Heider & Simmel (1944), and Flammer (2018) hence, suggests that personal, behavioral, and social/environmental factors interact reciprocally. The perception or belief in one's ability to perform specific skills or act effectively to achieve one's goals (Bandura, 1997) is associated with increased effort, persistence, and self-beneficial behavior (Schwarzer & Jerusalem, 1995). The research adopted the indicators that were carefully deliberated by Cayoun et al. (2022); the following indicators are as follows: emotional regulation refers to a well-modulated instinctive or subconscious emotional reaction, social skills are skills in a larger context of interaction, equanimity is the capacity to normalize challenges and avoid a reaction.

Additionally, distress tolerance avoidance of experiencing sensitivity or discomfort is hampered. On top of that, taking responsibility that pertains to the clarity of interpersonal boundaries and locus of control. Lastly, interpersonal effectiveness is connecting with people in the personal domain of relationships. The variables mentioned above have been prominently discussed in the field of correlational research design; perhaps the availability of references and resources is highly attainable and abundant. Nevertheless, this study may be similar in some parts to the dated studies conducted but is not limited to the determination of the relationship between adversity quotient and academic performance but with the mediating effect of self-efficacy empowered by established theories and principles. Hence, the adversity quotient correlated to performance has been stretched and widened.

This study focuses on determining the relationship between the adversity quotient and working students' academic performance, with self-efficacy as the mediating variable contributing to the existing body of knowledge about the aforementioned variables. Given learners' diversified and constantly changing environment, the ability to regulate emotions, motivation, and resiliency leads to positive performance. Moreover, the grit to believe in their abilities entails not just limited to success and positive attitudes but also a healthy well-being that correlates to a sustainable and consistent positive performance.

The research attempts to determine the mediating effect of self-efficacy on the relationship between the adversity quotient and working students' academic performance. Specifically, the study aims to determine the level of adversity quotient in the four mentioned dimensions and the academic performance of working students. The research is also expected to determine the level of self-efficacy of working students in terms of their performance accomplishments, vicarious experience, verbal persuasion, and physiological information. In addition, this paper seeks to answer whether there is a significant relationship between the Adversity Quotient and students' performance and self-efficacy. Lastly, to verify whether self-efficacy mediates the relationship between adversity quotient and working student's academic performance.

The research is guided by the hypothesis that at a 0.5 level of significance, self-efficacy has no mediating effect on the relationship between adversity quotient and academic performance.

2. Method

2.1 Research Respondents

The bonafide working students from a chosen university in Mindanao, Philippines, who are currently enrolled in the academic year 2023 – 2024 under the College of Teacher Education program outside and inside university premises, were chosen as the study's

respondents. The research employed a purposive sampling technique, and the sample size expected in the study is 150. The sample size of 150 utilized in the study is maximized as the dated researchers frequently employ it since they offer a suitable sample size to draw assumptions (Kibuacha, 2022).

2.2 Instruments

The study utilized adapted survey questionnaires from the established theory and research related to the topic. Firstly, the Adversity Quotient test of Dr. Paul Stoltz (1997) was used in the study retrieved at PEAK Learning (2000) that emphasizes four dimensions: CO2RE (Control. Origin and Ownership, Reach, and Endurance). The questionnaire is comprised of 20 questions with a range from 1 to 5 and divided into four dimensions, with five items for each of the dimensions.

On the other note, to effectively gauge self-efficacy, the study utilized the Mindfulness-Based Self Efficacy Scale - Revised (MSES-R) Questionnaire that was retrieved from the study of Cayoun et al. (2022), which is composed of 22 items with a 5-point scale, it is designed and supported with the theory of Self-efficacy by Bandura (1977). In relation to this, the questionnaire is a revised version of the 35-item self-report questionnaire. The questionnaire is divided into six subscales: emotion regulation, distress tolerance, equanimity, taking responsibility, social skills, and interpersonal effectiveness. The questionnaire uses a 5-point Likert scale ranging from 1 to 5. Both utilized a scale range of: 1.00 – 1.79 as “Very Low”, 1,80 – 2.59 as “Low”, 2.60 – 3.39 as “Moderate”, 3.40 – 4.19 as “High” and 4.20 – 5.00 as “Very High”.

Additionally, as of the academic year 2020-2021, the new grading system has been implemented whereas; <75 converted as 1.0 with a failure remark, 75-79 average converted to 2.0 with a remark of “C- Average” remark, 80 to 84 average converted 2.5 with a remark of “C+” which indicates “Good”, 85-89 average is converted to 3.0 with a remark of “B- Very Good”, 90 to 95 average is converted to 3.5 with a remark of “Distinction,” and lastly, 96 to 100 average is converted to 4.0 with a remark of “High Distinction”.

2.3 Design and Statistical Method

The study utilized a quantitative correlational design employing mediation analysis. This is the most appropriate design as the correlational design aims to prove the occurrence of a relationship and its intensity between two or more quantifiable variables (Fraenkel et al., 2012) that objectively supports the determination of the relationship between adversity quotient and working students’ academic performance, adversity quotient, and self-efficacy. On the other hand, the mediating analysis is utilized to determine the mediating effect of the third variable in the relationship between the adversity quotient and working students’ academic performance.

Meanwhile, mean and standard deviation were identified from the gathered data. Additionally, Pearson r was utilized to determine the correlation of the variables mentioned in the first part of the research. Furthermore, the Sobel test was applied to determine the mediating effect among the independent and dependent variables.

3. Result and Discussion

3.1. Level of Adversity Quotient Components

Table 1 shows the descriptive statistics of the Adversity Quotient (AQ) measures, control, ownership, reach, endurance, and total AQ score. The overall mean score of 3.56 indicates a high level of perceived adversity management. This implies that students have a

high ability to cope with adversity and challenges. The highest mean score of 3.71 of the participants on the ownership dimension showed that they strongly believed in taking responsibility and being in control of the things that happen in their lives. This is consistent with Scott et al. (2023), who emphasized that individuals take action to improve their situation if they own their problems. The lower mean score of 3.48 for control indicates that students think they can shape things in adverse situations.

The findings show that the subjects possess a moderate to high adversity quotient. This indicates that individuals think they have control over their situation and can be blamed for the results; based on Bandura's self-efficacy theory (2019), such beliefs are significant elements of resilience and coping mechanisms and indicators for behavior and motivation management. As Bandura's self-efficacy theory (2019) points out, these beliefs are essential to resilience and coping, highlighting the role of perceived control over one's environment in driving behavior and motivation.

Table 1: The Level of Adversity Quotient Components

Indicators	Mean	SD
Ownership	3.71	0.719
Endurance	3.61	0.703
Control	3.48	0.730
Reach	3.42	0.801
Overall	**3.56**	**0.499**

3.2. Level of Student's Academic Performance

Presented in Table 2 is the level of student's academic performance with a score of 3.07 General Point Average (GPA) which has a mean of 3.07 indicating an 85-90 scale in the new grading system and with a grade description of "Very Good". The results strongly suggested that the participants excel academically despite facing adversities and work responsibilities.

Table 2. Level of Student's Academic Performance

	N	**Mean**	**SD**
General Point Average	150	3.07	0.418

Furthermore, the result supported Balcuit & Lopio's (2022) study, which stated that working students are likely to achieve a distinction GPA, driven by factors such as their level of adversity-coping abilities, time management skills, and motivation. The level of adversity-coping abilities, time management skills, and motivation are the factors driving them for the duration of their collegiate years. These factors influence the students' sense of reality, particularly in the practical aspect, that is being driven by those primary factors being disclosed.

3.3. Self-Efficacy and Related Constructs

The third table presents the descriptive statistics of self-efficacy and related constructs like equanimity, emotional regulation, distress tolerance, social skills, self-efficacy, and taking responsibility. The overall mean score of 3.20 indicates that self-efficacy and related constructs are at a moderate level and need further development and support. Self-efficacy, the focus of this research, has an average score of 3.17, reflecting moderate confidence in their capacity to meet academic challenges and adversity. The result implies that respondents felt fairly capable but struggled to become confident enough to accomplish academic tasks.

Table 3. Self-Efficacy and Related Constructs

	Mean	SD
Equanimity	3.81	0.817
Emotional Regulation	3.58	0.830
Distress Tolerance	3.27	0.850
Social Skills	3.25	0.769
Self-Efficacy	3.17	0.825
Taking Responsibility	3.14	1.053
Overall Mean	**3.20**	**0.857**

The result is consistent with the broaden-and-build hypothesis of Fredrickson (2024), which posits that emotional flourishing can facilitate improvement in performance as well as management of stress. This also confirms Bandura's (2020) prediction that self-efficacy beliefs drive academic achievement and that purposeful actions can reinforce it. The difference in taking responsibility could indicate the selected respondents' differential levels of personal accountability, which could be affected by personal traits or external variables such as support networks and learning environments. This finding aligns with mind research conducted by Tao et al. (2022), which established that individuals with a growth mindset are more inclined to engage in ownership of their learning and continue despite challenges.

3.4. Correlation between Adversity Quotient and GPA

Table 4 compares the relationship of the adversity quotient with GPA and finds a significant relationship between GPA and various measures of AQ. Lastly, GPA and AQ as variables are significantly interrelated (Spearman's rho = 0.184, $p < 0.05$). Additionally, higher AQ scores account for enhanced students' performance, particularly in Ownership and Endurance.

Table 4.1. Correlation between Adversity Quotient and GPA

							GPA
Control	Spearman's rho	—					-0.165*
	df	—					148
	p-value	—					0.043
Ownership	Spearman's rho	0.618**	—				-0.180*
	df	148	—				148
	p-value	< .001	—				0.028
Reach	Spearman's rho	0.292**	0.155	—			-0.107
	df	148	148	—			148
	p-value	< .001	0.059	—			0.191
Endurance	Spearman's rho	0.166*	0.159	0.384**	—		-0.036
	df	148	148	148	—		148
	p-value	0.042	0.052	< .001	—		0.663
AQ	Spearman's rho	0.740**	0.687**	0.672**	0.565**	—	-0.184*
	df	148	148	148	148	—	
	p-value	< .001	< .001	< .001	< .001	—	

p-value	< .001	148		
		0.024		

The relevance of AQ to academic achievement is the focus of ancillary studies, as the result aligns with the notion of Stoltz (1997), that students with a greater adversity quotient are more able to manage tough situations and persevere through academic challenges. In addition, the results affirm the study of Tang and Zhu (2024) that academic achievement can be highly explained by self-efficacy.

Increased resilience does not necessarily equate to greater academic achievement, as indicated by the positive relationship between Adversity Quotient and GPA. It relates to Dweck's (2019) Growth Mindset Theory, that offers one explanation which proposes that learners with high AQ are more concerned with learning and self-improvement than with grades. This is aligned with the understanding that resilience helps learners deal with setbacks and failure, a recipe for long-term achievement but not necessarily always represented by short-term success in academia.

Table 4.2. Correlation between Adversity Quotient and Self-Efficacy

		Control	Ownership	Reach	Endurance	AQ
ER	Spearman's					
	rho	0.202*	0.090	-0.161*	0.023	0.034
	df	148	148	145	148	148
	p-value	0.013	0.274	0.049	0.781	0.683
EQ	Spearman's					
	rho	0.223**	0.243**	0.207*	0.434**	0.366**
	df	148	148	145	148	148
	p-value	0.006	0.003	0.011	< .001	< .001
SS	Spearman's					
	rho	0.097	0.085	0.071	0.043	0.048
	df	149	148	148	148	148
	p-value	0.236	0.303	0.385	0.599	0.557
DT	Spearman's					
	rho	0.246**	0.217**	0.059	0.202*	0.243**
	df	148	148	148	145	148
	p-value	0.002	0.008	0.477	0.013	0.003
TR	Spearman's					
	rho	0.255**	0.135	0.093	0.036	0.141
	df	148	148	148	145	148
	p-value	0.002	0.099	0.256	0.649	0.085
IE	Spearman's					
	rho	0.287**	0.130	0.053	0.093	0.173*
	df	145	148	148	148	148
	p-value	< .001	0.114	0.523	0.259	0.034
SE	Spearman's					
	rho	0.313**	0.205*	0.035	0.169*	0.215**
	df	148	148	148	145	148
	p-value	< .001	0,011	0.574	0.038	0.006

Note. *p < .05, **p < .01, ***p < .001

The table presents the correlation between adversity quotient and self-efficacy, along with its components. AQ shows a positive and significant correlation with SE (Spearman's rho = 0.215, p = 0.006). Among AQ components, Control (ρ = 0.313, p < 0.001) and Endurance (ρ = 0.169, p = 0.038) are significantly correlated with SE, suggesting that higher levels of Control and Endurance are associated with greater self-efficacy.

A negative correlation with Reach indicates that students who see adversities as more pervasive might be weak in emotional regulation. This is consistent with Bandura's (2019) work, which shows the significance of perceived control in regulating stress and emotions. In support of this argument, Kadovic et al. (2022) observed that those with greater control over stressful events exhibited stronger emotional regulation and fewer anxiety symptoms. This supports the contention that a sense of control can temper the emotional effects of adversity.

Furthermore, Resilience is accentuated in securing emotional stability because there is a strong positive correlation between adversity quotient and emotional quotient. High AQ scores mean that individuals manage stress and adopt a happy approach to life more effectively, says Stoltz (1997), so student well-being and learning could be aided by therapies raising AQ. Resilience training improves university students' emotional resilience and reduces tension, according to Gong et al. (2023). Still, Lopez-Zafra et al. (2019) note that external environment and social support also affect emotional stability, suggesting an even stronger complex correlation between EQ and AQ.

3.5. Mediation Estimates of Self-Efficacy

Table 5. Mediation Estimates

Effect	Label	Estimate	Self-Efficacy	Z	P	% Mediation
Indirect	a x b	0.0246	0.0198	1.24	0.214	8.40
Direct	c	0.2679	0.0907	2.96	0.003	91.60
Total	**c + a x b**	**0.2925**	**0.0898**	**3.26**	**0.001**	**100.00**

The table shows an analysis that reveals that self-efficacy has only slightly mediated the relationship between adversity quotient and academic performance among students; this quotes an 8.40% total effect, suggesting self-efficacy does not significantly mediate the relationship between adversity quotient and academic performance. Moreover, the direct effect of the adversity quotient on academic performance is shown to be a strong and significant number at 91.60%, which indicates that the Adversity Quotient directly influences academic performance. Overall, the total effect of adversity quotient on students' academic performance is highly significant, and a higher adversity quotient is associated with better academic performance.

3.6. Path Estimates of Adversity Quotient (AQ), Grade Point Average (GPA), and Self-Efficacy (SE)

Table 6. Path Estimates

	Label	Estimate	SE	Z	P

AQ → GPA	a	-0.153	0.0672	-2.27	0.023
GPA → SE	b	-0.161	0.1083	-1.49	0.137
AQ → SE	c	0.268	0.0907	2.96	0.003

The path estimates in the table provide insights into the relationships between Adversity Quotient (AQ), Grade Point Average (GPA), and Self-Efficacy (SE). The data show that the relationship between AQ and GPA (Path a) is negative and statistically significant. This finding suggests that a higher Adversity Quotient is associated with a lower GPA. On the other hand, the relationship between GPA and SE (Path b) is negative but not statistically significant. This indicates that GPA does not significantly predict Self-Efficacy in this model. Finally, the direct relationship between AQ and SE (Path c) is positive and statistically significant. This implies that a higher Adversity Quotient is associated with higher Self-Efficacy.

The results suggest that while AQ significantly predicts both GPA and SE, the direction of these relationships differs. Specifically, AQ has a negative impact on GPA but a positive impact on SE. The non-significant relationship between GPA and SE suggests that academic performance (as measured by GPA) does not strongly influence students' self-efficacy in this context. The finding that AQ positively influences SE aligns with research by Safi'I et al. (2021), who found that individuals with higher adversity quotients tend to have greater self-efficacy because they are better equipped to cope with challenges and setbacks. This supports the idea that AQ contributes to resilience and confidence in overcoming obstacles, a key component of self-efficacy.

Conversely, stress-coping mechanisms could be responsible for the inverse relationship between AQ and GPA. High Adversity Quotient (AQ) students, as explained by Mwivanda and Kingi (2019), are likely to engage in demanding tasks or activities, which would lower their GPA in the short term. Yet, in the long run, this could lead to greater self-efficacy and resilience overall. It is worth noting that SE and GPA are weakly correlated, yet they contradict the popular belief that better academic achievement would enhance self-efficacy. Additionally, it was discovered through a study conducted by Schunk and Dibenedetto (2020) that personal struggle and mastery experience are stronger contributors to self-efficacy compared to grades. It can be interpreted that GPA would not always effectively predict self-efficacy.

4. Conclusion and Recommendation

The level of adversity quotient among working students was found to be moderately high across the four dimensions (control, ownership, reach, and endurance). The ownership dimension showed the highest among the four dimensions, suggesting that working students have a strong sense of responsibility and accountability when dealing with challenges.

Further, the academic performance of the working students, as measured by their GPA, was found to be "Very Good" on average, indicating that despite the adversities associated with study-work balance, the students are performing well.

The level of self-efficacy among working students was moderate, with equanimity being the highest trait and taking responsibility the lowest. This indicates that while students generally feel stable and composed under stress, there is room for personal accountability and interpersonal effectiveness improvement.

There is a significant relationship between adversity quotient and academic performance; students with a higher GPA correlate positively to ownership and endurance. As a result, students who apply ownership of their challenges and believe that adversities are temporary tend to perform better academically.

The study's result proved a significant relationship that mediates adversity quotient and self-efficacy. Lastly, adversity quotient and academic performance are mediated by self-efficacy. Nonetheless, the effect of mediation was the slightest, recommending that although self-efficacy impacts a role in this relationship, the direct notion of adversity quotient explicitly contributes to better academic performance, linking with self-efficacy acting a secondary role.

Based on the findings, the following recommendations follow:

1- Educational institutions should focus on developing Adversity Quotient (AQ) programs.
2- To determine the adversity quotient as the mediating variable between the relationship of self-efficacy and organizational climate or work engagement.
3- For the low mean scores, it is recommended that educational institutions implement programs that enhance both the adversity quotient and self-efficacy of working students.
4- Providing individualized support services, including personalized counseling, is essential for students struggling with low AQ and self-efficacy, as it can help address specific needs and improve their academic outcomes.
5- Further research is needed to explore other potential mediators between AQ and academic performance, as investigating additional psychological and environmental factors could offer a more comprehensive understanding of the dynamics involved.

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