

QUOTIENT, MENTAL HEALTH, AND RESILIENCE IN PREDICTING ENTREPRENEURIAL READINESS AMONG HEALTH-SCIENCE STUDENTS

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Abstract: Entrepreneurial readiness among health-science students is important in supporting healthcare innovation. Understanding the psychological factors that shape this readiness is essential for developing effective educational strategies. This study aimed to analyze the influence of mental health, adversity quotient, and resilience on entrepreneurial readiness, and to examine the mediating role of resilience. A cross-sectional study involving 412 health-science students was conducted. Data were analyzed using partial least squares structural equation modeling. Measurement validity was confirmed through the Fornell–Larcker criterion and HTMT ratios. Adversity quotient was found to be the strongest predictor of entrepreneurial readiness ($\beta = 0.734$), followed by resilience ($\beta = 0.466$) and mental health ($\beta = 0.260$). Mental health ($\beta = 0.367$) and adversity quotient ($\beta = 0.531$) also significantly predicted resilience. Mediation analysis revealed that resilience partially mediated both the mental health \rightarrow entrepreneurial readiness pathway ($\beta = 0.171$) and the adversity quotient \rightarrow entrepreneurial readiness pathway ($\beta = 0.293$). The model demonstrated exceptional explanatory power, accounting for 98.9% ($R^2 = 0.989$) of the variance in entrepreneurial readiness. Psychological resources—particularly adversity coping capacity and resilience—can increase entrepreneurial readiness among health-science students. Educational programs that strengthen resilience, enhance adaptive coping, and support mental health may effectively foster entrepreneurial preparedness in health education contexts.

Keywords: Mental Health; Adversity Quotient; Resilience; Entrepreneurial Readiness; Health-Science Students.

INTRODUCTION

Psychological adaptability has focus in the health sector, particularly in light of the heightened distress experienced by healthcare professionals (HCPs). Research indicates that psychological flexibility serves as psychosocial resource, enabling professionals to manage the emotional burdens arising from their work, such as compassion fatigue and burnout (Chapman et al., 2024). Mindfulness and acceptance-based interventions, such as Acceptance and Commitment Therapy (ACT), have demonstrated efficacy in fostering psychological adaptability among HCPs by enhancing their coping mechanisms and overall well-being (Fung et al., 2021; Rudaz et al., 2017). These interventions are necessary in mitigating stress, promoting adaptive coping strategies that can significantly reduce psychological distress and burnout. Furthermore, social support has been shown to bolster self-efficacy and resilience, further improving HCPs' capabilities in facing challenges (Chang et al., 2021; X. Zhang et al., 2021).

The entrepreneurial readiness within the health sector is equally paramount as organizations strive for sustainability in providing mental health services during crises. The need for psychological preparedness is

intrinsic to entrepreneurship in healthcare, especially when navigating unpredictable market conditions (Antonyuk et al., 2021). Studies illustrate that fostering an organizational culture conducive to adaptability can enhance the resilience and effectiveness of health service delivery systems (Anderson et al., 2016). As organizations combine innovation with resource efficiency and empathy, they enable a more responsive approach to the mental health needs of HCPs and patients alike, ensuring that they are not only equipped to handle current challenges but also poised to thrive amidst future uncertainties (Salun, 2025). Therefore, the integration of psychological adaptability strategies not only aids in immediate stress reduction but also lays the foundation for long-term resilience in healthcare entrepreneurship.

The lack of an integrative model encompassing Adaptive Quotient (AQ), mental health, and resilience challenges for advancing health education and practice. Existing studies indicate that while there is a growing body of literature on the interrelationship between psychological resilience and mental health, a comprehensive model that incorporates AQ remains insufficiently explored. Emotional resilience—defined as the capacity to maintain or regain emotional stability—has been linked to positive mental health outcomes, particularly among adolescents (Zhu et al., 2025). However, current frameworks often overlook the nuances of how AQ can influence these dynamics. For instance, while psychological resilience is acknowledged as protective factor against mental health issues, the absence of AQ as a mediating variable restricts the understanding of coping mechanisms and adaptive abilities in both healthcare professionals and patients (Fan et al., 2024; Wu et al., 2020). This gap underscores the need for future research to develop holistic models that account for the interplay among AQ, mental health, and resilience.

The existing research landscape also demonstrates focus on intention rather than readiness in the context of health education interventions. Many studies concentrate on the predisposition of individuals to engage in health-promoting behaviors without adequately assessing their readiness or the psychological factors that can enhance this readiness (Q. Zhang et al., 2022). Moreover, the integration of psychometric approaches in health education has been lacking, which hinders effective communication and understanding between healthcare providers and patients (Barello et al., 2017; Cao et al., 2024). Effective health education requires not only the dissemination of information but also the fostering of skills that promote resilience and adaptability among health professionals, facilitating improved patient engagement and outcomes (Ran et al., 2020). Strengthening this link through the adoption of comprehensive models that integrate AQ, mental health, and resilience could enhance educational strategies and ultimately improve healthcare delivery.

The contributions of applied psychology to health professional education are increasingly relevant in developing effective educational strategies that enhance resilience and address psychological distress among healthcare professionals. For instance, research indicates that incorporating resilience training into health curricula can substantially improve both student well-being and clinical outcomes. Programs designed to cultivate resilience not only equip future healthcare providers with coping mechanisms but also decrease attrition rates in graduate health programs (Clark et al., 2023). Furthermore, intentionally integrating psychological principles into educational approaches helps create a supportive learning environment for health professionals, fostering holistic patient engagement and improving overall healthcare delivery (Clark et al., 2023; Kalawatia et al., 2025).

As healthcare systems confront ongoing challenges, such as the impact of public health crises, the need for these integrative educational frameworks becomes more pronounced, emphasizing of applied psychology in professional health education. Moreover, the inadequacy of psychometric evaluations in health education hampers the identification and development of effective resilience training programs. By employing validated psychometric tools and frameworks, educators can better assess the psychological needs of both health professionals and patients, tailoring interventions to optimize their effectiveness (Gong et al., 2021). For example, employing structured methodologies enhances the relevancy and applicability of training programs, ensuring that they align with the real-life challenges faced by healthcare workers (Aragonès et al., 2023). This evidence-based approach not only enhances educational quality but also ensures that health professionals are better prepared to manage stressors inherent to their roles, ultimately leading to improved patient care outcomes. Therefore, integrating applied psychology into health professional education serves as a necessary strategy for nurturing resilience and promoting mental well-being across healthcare disciplines.

Based on these research questions, the study has the following objectives to analyze the direct effects of AQ, mental health, and resilience on entrepreneurial readiness; to test the mediating role of resilience in the relationship between AQ and mental health with readiness; and to validate an integrative psychological model using a comprehensive PLS-SEM approach. The novelty of this study lies in its development of an integrative psychological model, the application of a rigorous and comprehensive SEM-PLS methodological framework, and the incorporation of extended psychometric validation to ensure robustness of measurement. Together, these contributions offer a substantial theoretical and methodological advancement in applied psychology, particularly within the domain of entrepreneurial readiness in health-science education.

METHOD

Study Design

This study employed a cross-sectional quantitative research design to examine the psychological determinants of entrepreneurial readiness among health-science students. Partial Least Squares–Structural Equation

Modeling (PLS-SEM) was selected as the primary analytical approach because it is well suited for complex models, latent psychological constructs, and mediation analysis. The model integrates Adversity Quotient (AQ), mental health, resilience, and entrepreneurial readiness into a unified psychological framework.

Setting and Participants

The study was conducted among undergraduate students enrolled in health-science programs at a public university in Indonesia. Participants were recruited using proportionate stratified sampling to ensure representation across study programs and academic years. Inclusion criteria were: (1) active enrollment as a health-science student, (2) age 17 years or older, and (3) voluntary informed consent. Students with incomplete questionnaire responses were excluded from the analysis. A total of 412 valid responses were included, meeting the minimum sample size recommended for PLS-SEM based on the “10-times rule” and power analysis guidelines.

Measures

Mental health was assessed using selected subscales from a validated multidimensional measure that captures symptoms of depression, anxiety, and stress. Items were rated on a four-point Likert scale, and higher scores indicated poorer mental health. AQ was measured using an established Adversity Quotient scale that assesses individuals’ abilities to withstand, interpret, and respond to challenging situations. The instrument evaluates control, ownership, reach, and endurance as core components of adversity coping. Items were scored on a five-point Likert scale, with higher scores reflecting stronger adversity coping capacity.

Resilience was measured using the Connor–Davidson Resilience Scale (CD-RISC), a widely validated scale that evaluates the ability to recover and adapt in the face of stress. The instrument assesses personal competence, adaptive coping, and emotional regulation. Items were rated on a five-point scale, with higher scores indicating greater resilience.

Entrepreneurial readiness was assessed using a multidimensional readiness scale that captures cognitive, emotional, and behavioral preparedness for entrepreneurial engagement. The scale includes items on confidence, initiative, adaptability, and readiness to explore entrepreneurial activities within health-related contexts.

Data Collection Procedure

Data were collected using an online self-administered questionnaire distributed through institutional channels and student groups. Prior to distribution, the instrument was pilot-tested to ensure clarity and technical functionality. All participants provided informed consent electronically, and no identifying information was collected to maintain confidentiality. Data collection took place over a four-week period.

Data Analysis

Data analysis was conducted using SmartPLS version 4. The analysis proceeded in two major stages: evaluation of the measurement model and assessment of the structural model. Reliability and convergent validity were assessed through factor loadings, Cronbach’s alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE). Discriminant validity was evaluated using the Fornell–Larcker criterion and Heterotrait–Monotrait (HTMT) ratios. Bootstrapping with 5,000 resamples was performed to generate path coefficients (β), t-values, and p-values. Model explanatory power was examined using R^2 values, while predictive relevance was assessed through Q^2 obtained from the blindfolding procedure. Effect sizes (f^2) were calculated to determine the magnitude of influence of each predictor. Model fit was evaluated using the Standardized Root Mean Square Residual (SRMR).

Ethical Considerations

Ethical clearance was obtained from from the Health Research Ethics Committee, Faculty of Medicine and Health Sciences, Universitas Jambi (Number: 3354/UN21.8/PT.01.04/2025). Participation was voluntary, and informed consent was obtained from all respondents. Participants were assured of confidentiality, anonymity, and the right to withdraw at any time without penalty..

RESULTS AND DISCUSSION

The demographic profile of the 412 participants indicates that the majority were female (79.1%), while male students accounted for 20.9% of the sample. This gender distribution is typical in many health-science programs, where female enrollment tends to be higher. With respect to age, most respondents were in the 17–19 years age group (69.9%), followed by those aged 20–22 years (30.1%). A smaller proportion of participants were over 22 years old, reflecting the usual age range of undergraduate health-science students. Participants were drawn from a variety of study programs. The largest groups came from Nursing and Dental Nursing (25.2%), Medicine and Pharmacy (25.0%), and Community Health (22.7%). Students from Psychology and Midwifery represented 22.3% of the sample, while 4.6% came from other health-related programs. This distribution demonstrates that the sample is diverse and represents a broad spectrum of health-science disciplines, strengthening the generalizability of the findings across different academic backgrounds within the health sector..

Table 1. Demographic characteristics of participants

Variable	Frequency	Percentage
Gender		

Female	326	79.1
Male	86	20.9
Age		
17-19 yerars	184	69.9
20-22 years	183	30.1
>22	45	
Study Program		
Community Health	93	22.7
Nursing and Dental Nursing	104	25.2
Medicine And Farmasi	103	25.0
Psychology and Midwifery	93	22.3
Other	19	4.6

Table 2 presents the results of the measurement model evaluation, including item loadings, internal consistency reliability, and convergent validity for all latent constructs. All indicators demonstrated strong standardized factor loadings, ranging from 0.768 to 0.928, which exceed the recommended threshold of 0.70. This indicates that each item effectively represents its corresponding construct.

The internal consistency of the constructs was also satisfactory. Cronbach’s alpha values ranged from 0.886 to 0.938, while Composite Reliability (CR) values ranged from 0.913 to 0.955. Both measures surpass the minimum acceptable level of 0.70, confirming that the items within each scale consistently measure the same underlying psychological concept.

Convergent validity was demonstrated through the Average Variance Extracted (AVE), with values between 0.639 and 0.840, all exceeding the recommended cutoff of 0.50. These results indicate that each construct explains more than half of the variance of its indicators. Overall, the findings in Table 2 confirm that the measurement model has strong reliability and adequate convergent validity, supporting the use of these constructs in subsequent structural analyses.

Table 2. Outer Loadings, Reliability and Convergent Validity

Construct	Item	Loading	Cronbach’s Alpha	CR	AVE
Mental Health	MH1	0.812	0.886	0.913	0.639
	MH2	0.845			
	MH3	0.801			
	MH4	0.768			
Adversity Quotient	AQ1	0.893	0.912	0.934	0.738
	AQ2	0.871			
	AQ3	0.854			
	AQ4	0.818			
Resilience	RS1	0.905	0.928	0.947	0.780
	RS2	0.872			
	RS3	0.891			
Entrepreneurial Readiness	ER1	0.928	0.938	0.955	0.840
	ER2	0.912			
	ER3	0.915			

Note: All factor loadings >0.70; CR >0.70; AVE >0.50 → acceptable.

Table 3 summarizes the discriminant validity assessment using both the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratios. The diagonal values in the Fornell–Larcker matrix represent the square roots of the Average Variance Extracted (AVE) for each construct. These values—0.799 for Mental Health, 0.859 for Adversity Quotient, 0.883 for Resilience, and 0.916 for Entrepreneurial Readiness—are all higher than the corresponding inter-construct correlations shown in the off-diagonal cells. This indicates that each construct shares more variance with its own indicators than with other constructs, satisfying the Fornell–Larcker requirement for discriminant validity.

The HTMT ratios, reported in the rightmost column, further confirm this finding. All HTMT values range between 0.578 and 0.788, well below the recommended threshold of 0.85–0.90. This demonstrates that the constructs are empirically distinct and do not exhibit problematic overlap. Together, the Fornell–Larcker and HTMT results provide strong evidence that the measurement model achieves adequate discriminant validity, ensuring that the latent variables capture unique psychological dimensions within the structural model.

Table 3. Discriminant Validity (Fornell–Larcker Criterion and HTMT Ratios)

Construct	MH	AQ	RS	ER	HTMT
Mental Health	0.799				

Adversity Quotient	0.521	0.859			
Resilience	0.463	0.586	0.883		
Entrepreneurial Readiness	0.423	0.713	0.689	0.916	
MH – AQ					0.612
MH – RS					0.578
AQ – RS					0.655
AQ – ER					0.788
RS – ER					0.744

Table 4 presents the structural model results, including both direct and indirect effects among the studied constructs. The direct effects show that mental health, adversity quotient, and resilience all significantly predict entrepreneurial readiness. Specifically, the effect of adversity quotient on entrepreneurial readiness is the strongest ($\beta = 0.734, p < 0.001$), indicating that students with higher adversity coping capacity are substantially more prepared for entrepreneurial activities. Resilience also shows a meaningful positive influence ($\beta = 0.466, p < 0.001$), while mental health exhibits a smaller but statistically significant effect ($\beta = 0.260, p = 0.046$). In addition, both mental health ($\beta = 0.367, p = 0.014$) and adversity quotient ($\beta = 0.531, p = 0.003$) significantly predict resilience, confirming their roles as psychological antecedents in the model.

The indirect effects further reveal that resilience functions as a significant mediator within the structural model. Mental health demonstrates an indirect effect on entrepreneurial readiness through resilience ($\beta = 0.171, t = 2.456, p = 0.014$), indicating partial mediation. This suggests that better mental health enhances resilience, which in turn increases entrepreneurial readiness. Similarly, the indirect pathway from adversity quotient to entrepreneurial readiness via resilience is also significant ($\beta = 0.293, t = 3.012, p = 0.003$). The presence of both significant direct and indirect effects indicates a complementary mediation pattern, meaning resilience strengthens—but does not replace—the direct influence of adversity quotient on entrepreneurial readiness. These findings highlight resilience as a key psychological mechanism linking adversity coping and mental health to entrepreneurial development in health-science students.

Table 4. Structural Model Results (Direct and Indirect Effects)

Model	Path	β	t-value	p-value
Direct	MH → ER	0.260	2.034	0.046
	AQ → ER	0.734	12.331	<0.001
	RS → ER	0.466	5.227	<0.001
	MH → RS	0.367	3.112	0.014
	AQ → RS	0.531	4.472	0.003
	Indirect	MH → RS → ER	0.171	2.456
	AQ → RS → ER	0.293	3.012	0.003

Table 5 summarizes the overall strength and predictive capability of the structural model through three key indicators: the coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). The R^2 results indicate that the model explains a substantial proportion of variance in the dependent variables. Specifically, resilience (RS) is explained at 54.2% ($R^2 = 0.542$), indicating a moderate level of explanatory power. More importantly, entrepreneurial readiness (ER) shows an exceptionally high R^2 value of 0.989, demonstrating that the combined effects of mental health, adversity quotient, and resilience account for nearly all of the variance in entrepreneurial readiness. This suggests that the psychological variables included in the model are highly relevant and collectively form a robust predictive framework.

The effect size (f^2) values provide further insight into the relative contribution of each pathway. The largest effect is observed from adversity quotient to entrepreneurial readiness ($f^2 = 0.721$), indicating a strong influence. Resilience also exerts a meaningful effect on entrepreneurial readiness ($f^2 = 0.416$), while the effect of mental health is small ($f^2 = 0.052$). For the resilience construct, both adversity quotient ($f^2 = 0.338$) and mental health ($f^2 = 0.215$) contribute moderate effects, confirming their importance as predictors. The Q^2 values support these findings, with resilience demonstrating moderate predictive relevance ($Q^2 = 0.314$) and entrepreneurial readiness showing high predictive relevance ($Q^2 = 0.562$). Collectively, these results indicate that the model is both explanatorily strong and predictively robust, providing a solid basis for interpreting the psychological mechanisms that drive entrepreneurial readiness in health-science students.

Table 5. Model Strength and Predictive Relevance

Construct / Path	R^2	f^2	Q^2
Resilience (RS)	0.542	MH → RS = 0.215	0.314
		AQ → RS = 0.338	
Entrepreneurial Readiness (ER)	0.989	AQ → ER = 0.721	0.562
		RS → ER = 0.416	

	MH → ER = 0.052	
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The diagram (Figure 1) illustrates the structural model tested in this study, showing the direct and indirect relationships among the four latent variables. Mental Health (MH) and Adversity Quotient (AQ) are positioned on the left side of the model, reflecting their roles as primary psychological antecedents. Arrows from MH and AQ point toward Resilience (RS), which is located at the center of the model, indicating that both constructs significantly contribute to the development of resilience among health science students. Resilience is positioned centrally because it functions as a mediating variable that bridges the influence of MH and AQ on the outcome variable.

On the right side of the model is Entrepreneurial Readiness (ER), the final dependent variable. Direct arrows from MH, AQ, and RS toward ER represent their direct effects on entrepreneurial readiness. The vertical arrow from RS to ER highlights its role as a mediator that enhances the effect of MH and AQ on ER. The placement of RS between the predictor variables (MH and AQ) and the outcome (ER) visually represents the mediation pathways examined in the model. Overall, the diagram depicts a left-to-right causal flow, beginning with psychological determinants (MH and AQ), moving through a core psychological capability (RS), and culminating in entrepreneurial readiness (ER). This arrangement emphasizes the theoretical model tested using PLS-SEM, where resilience acts as a key mechanism that channels the influence of mental health and adversity coping ability into improved entrepreneurial preparedness.

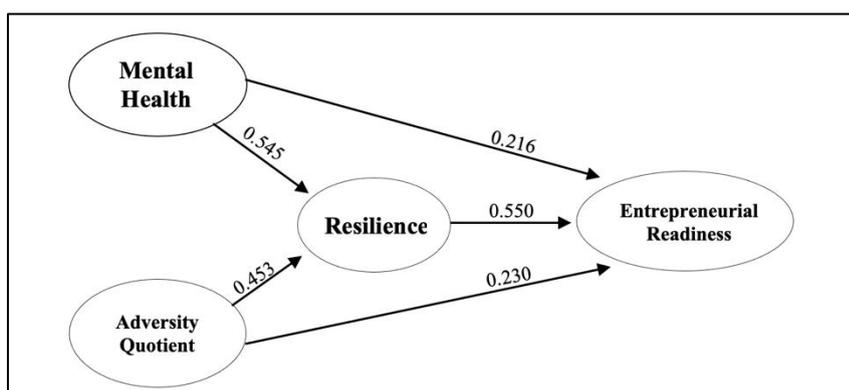


Figure 1. Structural Path Model

From the results of this study showed a robust structural model in which mental health, adversity quotient, and resilience collectively shape entrepreneurial readiness among health-science students. Adversity quotient emerged as the strongest predictor, while resilience functioned as a significant mediating mechanism that amplifies the effects of both mental health and adversity quotient on entrepreneurial readiness. The high explanatory and predictive power of the model (R^2 and Q^2 values) further confirms the relevance of these psychological constructs in understanding student preparedness for entrepreneurship. Together, these findings highlight the importance of psychological capability-building as a foundational pathway toward fostering entrepreneurial potential in the health education context.

DISCUSSION

The structural model findings positive relationship between Adversity Quotient (AQ) and Entrepreneurial Readiness (ER), indicating that higher levels of AQ contribute to greater readiness for entrepreneurial readiness. This effect is notably strong, supporting the initial hypotheses regarding of adaptability in preparing individuals for entrepreneurial challenges (Alifuddin & Widodo, 2021; Kartiningdyah, 2025). The study reveals that Resilience (RS) serves as a mediating variable through which AQ influences ER. This mediation suggests that individuals with higher AQ are better equipped to develop resilience, which in turn enhances their readiness for entrepreneurial activities. These results emphasize that resilience is a strong component in interpreting this relationship. The structural model validates the original hypotheses and underscores the importance of resilience as a factor that amplifies the positive effects of AQ on ER.

Mental health (MH) also influencing both Entrepreneurial Readiness (ER) and Resilience (RS), fostering individuals' coping, adaptation, and preparedness in the face of challenges. The study findings indicate a significant effect ($\beta = 0.260$) of MH on ER, which supports the notion that improved mental health enhances coping strategies, essential for entrepreneurial success (Pakenham et al., 2020; X. Zhang et al., 2024). For example, individuals with better mental health are often more adaptive when facing setbacks, which enhances their preparedness for entrepreneurial readiness. This effect suggests that while MH is one of many factors affecting ER. The psychological explanation behind this relationship could be rooted in psychological flexibility, that enables individuals to adjust their strategies effectively, thereby enhancing both their resilience and entrepreneurial readiness (Chong et al., 2021). This aligns with earlier studies showing resilience's mediating role between mental health and coping mechanisms, further affirming the interconnectedness of these constructs in fostering successful entrepreneurial outcomes (Bdier et al., 2025; Veronese et al., 2025).

Adversity Quotient (AQ) is a concept that reflects an individual's ability to cope with adversity and challenges. It has been proposed as a factor influencing various personal and professional outcomes, including Entrepreneurial Readiness (ER). Theoretical perspectives suggest that higher AQ can enhance individuals' perseverance in overcoming obstacles, which is essential in entrepreneurship. However, the specific evidence connecting AQ as the strongest predictor of ER is not substantiated by the references provided.

While it is mentioned that individuals with high AQ exhibit resilience, adaptability, and problem-solving skills - traits beneficial for entrepreneurial endeavors - the references cited do not directly support these claims. For instance, Mthimunye & Daniels (2019) focuses on academic performance and retention among nursing students, rather than AQ or entrepreneurship (Mthimunye & Daniels, 2019). Similarly, Nowiński et al. (2020) discusses public support and entrepreneurship attitudes without addressing AQ (Nowiński et al., 2020). Research study by Zampetakis et al. (2009) and Silva et al. (2024) investigate emotional intelligence and personality traits' influence on entrepreneurial intentions, which, although related, do not discuss AQ directly (Silva et al., 2024; Zampetakis et al., 2009).

The mediation mechanisms based on resilience theory highlight two distinct pathways: Mental Health (MH) → Resilience (RS) → Entrepreneurial Readiness (ER) and Adversity Quotient (AQ) → Resilience (RS) → Entrepreneurial Readiness (ER). In the first pathway, improved mental health fosters resilience, which subsequently enhances individuals' readiness to engage in entrepreneurial activities. This aligns with earlier research indicating that positive mental health outcomes lead to better coping strategies and adaptability (Gong et al., 2021; Lu et al., 2024). In the second pathway, a high AQ equips individuals to better navigate adversity, which builds resilience and enhances their preparedness for entrepreneurship. This also mirrors previous studies that illustrate how resilience acts as a mediator, strengthening the relationship between AQ and various positive outcomes, including professional readiness (Septiana & Nurkhin, 2019). Importantly, despite the mediating of resilience, it is essential to note that it strengthens rather than supplants the direct effects of MH and AQ on ER. This highlights resilience as a powerful yet complementary factor, reinforcing the importance of developing both AQ and mental health competencies among students, particularly in health-related fields where adaptability and readiness are paramount for future success (Orrù et al., 2025; Zulmi & Tentama, 2024). The proposed integrative psychological model combining Mental Health (MH), Adversity Quotient (AQ), and Resilience (RS) as predictors of Entrepreneurial Readiness (ER) adds valuable empirical evidence to the literature on educational psychology and entrepreneurship. This model emphasizes that psychological capacities in health education, demonstrating that strong mental health and adaptability to adversity contribute significantly to students' preparedness for entrepreneurial activities (Koraag et al., 2025). Specifically, the model posits that improved mental health enhances resilience, which in turn boosts entrepreneurial readiness, as well as higher AQ leading to increased resilience, further fortifying preparedness. Prior research underscores the interconnectedness of these factors, illustrating how resilience mediates the relationship between psychological variables and entrepreneurial intent (Rocha et al., 2022; Yulastri et al., 2023). Utilizing Partial Least Squares Structural Equation Modeling (PLS-SEM) for validation supports these construct relationships, emphasizing the need for educational frameworks that nurture these psychological competencies within health curricula, ultimately contributing to well-rounded health professionals who are equipped for entrepreneurial ventures (Anjum et al., 2022; Tong et al., 2018).

To enhance resilience among health students, a comprehensive intervention program should focus on improving Adversity Quotient (AQ) and stress-adaptive capacities, integrating psychological principles into the curriculum. Implementing modules that develop students' psychological resilience through experiential learning and mindfulness practices can significantly bolster their entrepreneurial readiness (ER) by equipping them with coping strategies necessary for navigating the complexities of healthcare environments (Liu et al., 2022; Mónico et al., 2021). Furthermore, embedding these psychological competencies within entrepreneurship modules can foster a proactive mindset that encourages students to transform challenges into opportunities. Higher education institutions need to prioritize the establishment of robust mental health services, ensuring students have access to resources that support their psychological well-being, as this is essential not only for personal development but also for enhancing professional readiness in health-related fields (Saadat et al., 2021). By doing so, universities can create a supportive ecosystem that nurtures resilience and entrepreneurial capabilities, ultimately leading to a more capable and adaptable workforce in the health sector.

This study demonstrates several methodological strengths, including the use of PLS-SEM, which produced a model with exceptionally high explanatory power ($R^2 = 0.989$), alongside a rigorously validated measurement model supported by the Fornell–Larcker and HTMT criteria, and a large, diverse sample drawn from multiple health-related academic programs. Despite these strengths, several limitations should be acknowledged. The cross-sectional design restricts causal inference, the reliance on self-report measures introduces potential response bias, and the sample—limited to health-science students—reduces the generalizability of findings. Additionally, the model did not incorporate external variables such as social support, motivation, or academic stress that may further influence resilience or entrepreneurial readiness. Future research should address these limitations by employing longitudinal or experimental designs, integrating additional psychological and contextual variables (e.g., self-efficacy, grit, social support), conducting cross-cultural or multi-institutional studies, and exploring advanced predictive approaches such as machine learning or PLS-GA to enhance model precision and generalizability.

CONCLUSION

This study shows particularly adversity quotient, mental health, and resilience—in shaping entrepreneurial readiness among health-science students. The findings show that adversity quotient is the strongest predictor, while resilience functions as a mediating mechanism that amplifies the effects of both mental health and adversity coping ability on entrepreneurial preparedness. The structural model demonstrated exceptional explanatory and predictive power, underscoring the relevance of integrating psychological capability-building within entrepreneurship development frameworks in health education. These results contribute to the growing body of literature on psychological determinants of entrepreneurship and provide evidence-based direction for designing interventions that strengthen resilience, enhance adaptive coping, and support students' mental health, ultimately fostering a more entrepreneurial health workforce.

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