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Entrepreneurial Traits and Innovation as Predictors of Business Performance: A Study of Women-Owned Microenterprises in Rural Agam Regency

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Abstract

This study examines how entrepreneurial traits—risk-taking and need for achievement— influence the performance of rural women-owned microenterprises in Indonesia, with innovation as a mediating variable. Grounded in trait theory and McClelland's Theory of Needs, it integrates psychological and behavioral perspectives to explore business outcomes in gendered, resource-limited settings. Data were collected from 227 female entrepreneurs in Agam Regency, West Sumatra, via structured questionnaires. PLS-SEM was used to analyze relationships among variables. Findings reveal that both traits positively affect innovation, which in turn enhances entrepreneurial performance. Risk-taking also has a direct impact on performance, while need for achievement operates indirectly through innovation. These results underscore the role of innovation as a key behavioral link between traits and outcomes. Notably, risk-takers may pursue performance through multiple strategies, while high achievers rely on innovation as a path to success. This study contributes to the entrepreneurship literature by contextualizing trait-performance links within rural female entrepreneurship. It offers practical insights for designing targeted programs that strengthen entrepreneurial motivation, innovation capacity, and market communication skills. The findings are relevant for policymakers and development practitioners promoting inclusive economic growth through women's entrepreneurship.

Keywords: Entrepreneurial Traits, Innovation, Rural Entrepreneurship, Women Entrepreneurs, Risk-Taking, Achievement Motivation, Entrepreneurial Performance

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1. INTRODUCTION

Women's participation in entrepreneurship plays a significant role in economic development, particularly in developing countries. With increased access to information, technology, and markets, women have greater opportunities to establish and manage their

own businesses. Social shifts such as heightened awareness of gender equality and women's rights have also driven the creation of more inclusive policies, positioning female entrepreneurship as a vital instrument for empowerment and poverty alleviation (da Costa, et al., 2023; Ingalagi, et al, 2021). In Indonesia, women's economic contribution continues to grow annually, as indicated by rising income levels and increased involvement in micro and small enterprises (BPS, 2020).

Despite these positive trends, female entrepreneurs in developing countries continue to face performance disparities compared to their male counterparts (Aliyu, et al., 2019). Entrepreneurship remains male-dominated, and women encounter both external and internal barriers. Externally, sociocultural norms, religious expectations, and gender-based role assignments limit women's entrepreneurial engagement and business performance (Mozumdar, et al., 2020). Internally, gender stereotypes and lower entrepreneurial self-efficacy often hinder women from fully embracing entrepreneurial roles, as they are perceived as lacking masculine traits associated with business success (Ladge, et al., 2021). Innovation is a key determinant of business performance, growth, and competitiveness. For women entrepreneurs, innovation provides a strategic advantage, enabling them to adapt to market dynamics and resource constraints. However, innovation also requires calculated risk-taking—an entrepreneurial trait often perceived as inconsistent with traditional gender roles (Cardella, et al., 2020; Zastempowski, 2024). Moreover, the need for achievement, another central entrepreneurial trait, plays a crucial role in sustaining motivation and resilience in the face of business challenges (Zeb & Ihsan, 2020).

Female entrepreneurs must therefore balance risk-taking, achievement motivation, and innovation while navigating their dual roles within the household and enterprise. These dynamics are particularly evident in rural regions such as Agam Regency in West Sumatra. According to the website of the West Sumatra Cooperative and MSME Agency, the number of MSME entrepreneurs in Agam Regency tends to increase every year. The number of MSMEs if divided by gender, will produce the following data:

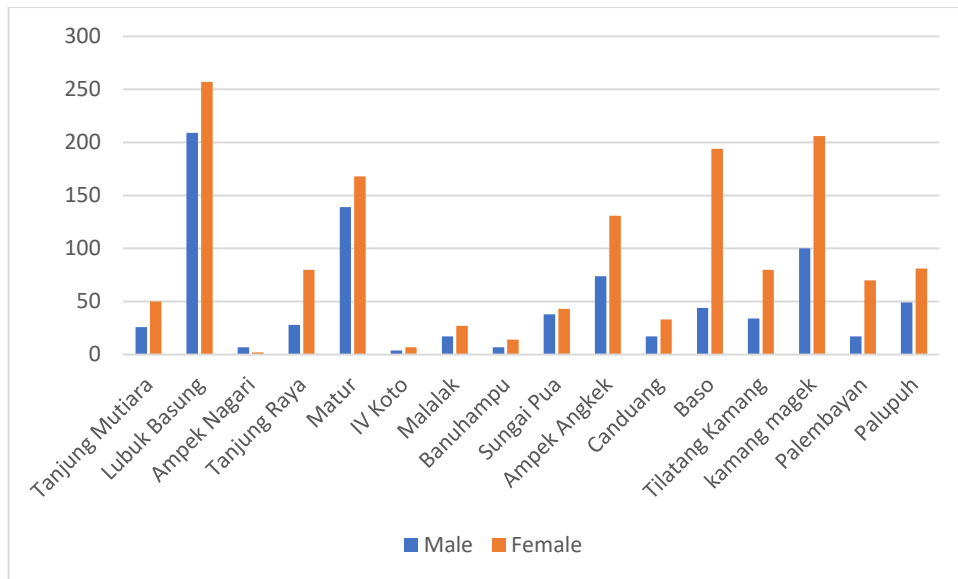


Figure 1. the number of MSME entrepreneurs in Agam Regency

Source: Dinas koperasi & UMKM Agam

Based on the graph above, it can be seen that the number of female entrepreneurs dominates each sub-district in Agam Regency. The total number of entrepreneurs registered with the Agam Regency Cooperative and Small and Medium Enterprises Office is 2,260 people, with details of 1450 women while 810 others are men.

However, research on how entrepreneurial traits influence women's entrepreneurial performance in rural areas remains limited. Most existing studies focus on urban contexts or fail to address the mediating role of innovation in trait-performance relationships. This gap calls for deeper exploration within underrepresented settings like rural Indonesia.

Therefore, this study aims to examine how entrepreneurial traits—specifically risk-taking and the need for achievement—influence the performance of women-owned microenterprises in rural areas, with innovation serving as a mediating variable. This research focuses on Agam Regency as a representative site of rural female entrepreneurship in Indonesia. The findings are expected to advance theoretical insights on female entrepreneurship while informing the design of inclusive, trait-based development programs for rural women entrepreneurs.

1.1. Entrepreneurial Traits and Innovation

Entrepreneurial traits are often conceptualized as a set of personality traits representing one dimension of personality that can predict certain types of behavior, consistent in various situations and stable over time (Vandor, 2021). Entrepreneurial traits can be defined as a disposition to give certain responses in various situations (Şahin, et al., 2019). Since 1960 and 1970, researchers have continued to investigate the factors that encourage individuals to participate in entrepreneurship, namely by identifying individual traits such as the need to participate, locus of control, self-efficacy, risk-taking propensity, family influence, educational influence, work experience, and others (Palmer, et al., 2019).

Risk-taking is one of the most important elements of entrepreneurship. Entrepreneurs need to take measured risks in the early stages of business establishment. As the business grows, the entrepreneur must be able to make potentially risky decisions, taking into account various scales and impacts (Ogbari, 2023)

Zastempowski (2024) states that innovation involves taking risks. (Giaccone & Magnusson, 2022) research shows that firms' propensity to take risks can have a significant impact in describing their capacity to innovate (Ingalagi et al., 2021). The entrepreneur's ability to continue to innovate and the ability to take risks are important for businesses to be at a mature business stage. A previous study conducted by (Linton, 2019) found that the risk-taking propensity of an entrepreneur, helps him to innovate existing products and services by taking a calculated level of risk.

Successful entrepreneurs have a motivation to achieve (Khan, et al., 2021). The need for achievement often drives entrepreneurs to innovate. Innovation is the ability to do things in a better and creative way (Paudel, 2019). An entrepreneur who has a need for achievement will do work to achieve the targets that have been set. In addition, entrepreneurs with high achievement needs want to solve problems, set goals, and really want to succeed as entrepreneurs (Handrito, Slabbinck, & Vanderstraeten, 2020). Successful entrepreneurs are highly competitive, creative and innovative, and have a high business commitment to produce goods or services that meet customer and market needs (Mohd Noor, Yaacob, & Omar, 2024). Research conducted by Zeb & Ihsan (2020) found that people with achievement needs represent themselves as innovating. Achievement needs will provide superior innovation capabilities to achieve the targets that have been set.

1.2. Entrepreneurial Traits and Entrepreneurial Performance

Esfandiar, et al (2019) identified that the main entrepreneurial traits are a high need for achievement, locus of control, orientation to risk-taking, a high level of self-confidence, and innovation. However, the central entrepreneurial traits are risk-taking and need for achievement. This reflects two important characteristics of the entrepreneurial work environment, namely the high level of risk and the imperative to strive for high performance (Vandor, 2021).

SMEs that dare to take risks have a chance of success, even within the limitations of their resources (Games & Rendi, 2019). The ability to take risks in important situations and make decisions is an inherent quality of entrepreneurs (Anwar, et al., 2021). Entrepreneurs with strong belief in themselves to achieve targets by taking risks will result in competitive success through entrepreneurial performance Zeb & Ihsan (2020). Women are more risk-taking, which significantly impacts firm performance and success, especially in developing countries (Zalata, et al., 2022). Shahzad, et al, (2021) found that the internal trait of risk-taking has a significant positive influence on women's business success. In line with that, research Howard & Boudreaux (2024) found that risk taking has an influence on performance.

The need for achievement is a person's motivation in setting goals and excelling in tasks. Individuals with high achievement needs are more competent to work as entrepreneurs (Che Embi, et al., 2019) Individuals who have more achievement needs will make plans first, then work on the best performance (Mahmood, et al., 2020). Individuals with high achievement needs tend to show higher entrepreneurial intentions because they prioritize performance (Laouiti, et al., 2022). Research conducted by Howard & Boudreaux (2024) found that achievement needs have an influence on performance. Research conducted by (Zeb & Ihsan, 2020) found that there is a significant positive relationship between achievement needs and women's entrepreneurial performance.

Although the works of prominent scholars reveal that entrepreneurial traits lead to better performance outcomes and impact innovativeness, these studies do not focus on women entrepreneurs and are mostly from urban areas. This study fills this gap by analyzing the relationship of personality traits namely, risk-taking and need for achievement of women entrepreneurs on innovativeness and performance in a rural area of Agam Regency, West Sumatra Province, Indonesia. Therefore, this study tests the following hypotheses:

- H1: Risk-taking has a positive and significant effect on women's entrepreneurial innovation in rural areas of Agam Regency.
- H2: The need for achievement has a positive and significant effect on women's entrepreneurial innovation in rural areas of Agam Regency.
- H3: Risk-taking has a positive and significant effect on the performance of women entrepreneurs in rural areas of Agam Regency.
- H4: The need for achievement has a positive and significant effect on the performance of women entrepreneurs in rural areas of Agam Regency.

1.3 Innovation

Innovation is the application of skills and techniques that have an impact on small and large changes in products, processes and services, and create new things for organizations (Aliyu et al., 2019). Innovation is a must for MSMEs to be able to develop so that MSMEs can be competitive (Putri et al., 2023). Zastempowski (2024) explains that innovation is currently considered an important factor in increasing competitiveness and achieving competitive advantage which specifically identifies three important types of organizational capabilities: adaptability, absorption capability, and innovation capability. Hendratmi et al., (2024) concluded that innovation capability is the most important for companies, because it allows them to respond effectively and efficiently to market needs and fluctuations in the business environment. innovation is essential for the long-term growth of small companies, especially in today's globally competitive business environment

Hashi and Krasniqi describe that there are five types of innovation in entrepreneurship, namely creating organizational change by developing new products or changing existing products, finding new methods to reduce costs, fostering organizational innovation, identifying market roles and increasing productivity (Prima Lita et al., 2020). The importance of innovation underscores the notion that successful entrepreneurs must possess creative and innovative characteristics (Ayesha et al., 2021). Continuous innovation provides strategic solutions to the challenges faced by women entrepreneurs. It serves as a primary driver of competition and market efficiency in dynamic environments, allowing enterprises with strong competitive advantages to survive and achieve superior performance (Edeh et al., 2020). Innovation is widely associated with business performance, and entrepreneurial theory often positions entrepreneurs as innovators. Within this paradigm, the entrepreneur is seen

as a key agent of innovation—someone who establishes a new business based on novel ideas and perceives them as viable opportunities (Zeb & Ihsan, 2020)

Individuals with a measured risk-taking ability are more likely to achieve optimal performance by fostering innovation in their ventures. This capability also enables them to face uncertainty with greater confidence, seek new opportunities, and continuously develop more effective strategies. Innovation becomes a key mechanism for achieving competitive advantage and long-term success.

Innovation is closely linked to an individual's desire for achievement and drive for optimal performance. Entrepreneurs with a strong need for achievement tend to engage in innovative business practices to deliver superior products and services, ultimately enhancing their overall performance. The continuous desire for self-improvement serves as a critical motivator in the innovation process, pushing individuals to create better and more relevant solutions.

H5: Innovation has a positive and significant effect on the performance of rural women entrepreneurs in Agam Regency.

H6: Innovation mediates the effect between risk-taking and the performance of rural women entrepreneurs in Agam Regency.

H7: Innovation mediates the effect between need for achievement and the performance of rural women entrepreneurs in Agam Regency.

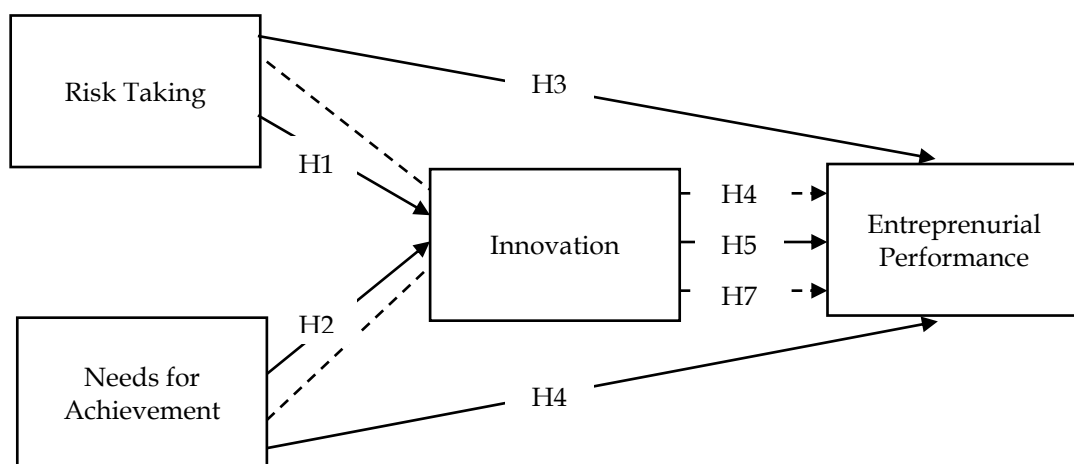


Figure 2. Conceptual Framework

This model illustrates the hypothesized relationships among entrepreneurial traits, innovation, and entrepreneurial performance. Risk-taking and need for achievement are proposed as independent variables that influence entrepreneurial performance directly and indirectly through the mediating role of innovation.

2. METHOD

This study adopts a quantitative explanatory research design aimed at analyzing the influence of entrepreneurial traits – specifically risk-taking and the need for achievement – on the performance of women-owned microenterprises, with innovation as a mediating variable. The explanatory approach is appropriate for identifying causal relationships between latent constructs and is commonly used in behavioral, entrepreneurship, and management research. Data were collected using a structured questionnaire distributed to selected female entrepreneurs in rural areas of Agam Regency, West Sumatra, Indonesia.

The population of this study consists of women entrepreneurs who operate microenterprises in rural subdistricts of Agam Regency. Respondents were selected using a non-probability purposive sampling technique, with the following inclusion criteria: (1) the business is owned by a woman, and (2) located in one of the following subdistricts – Banuhampu, Sungai Pua, Tilatang Kamang, or Baso. According to the Cooperative and SME Agency of Agam Regency, the total number of women entrepreneurs in the targeted areas was 1,443 individuals.

Based on Isaac and Michael's sample size determination table with a 10% margin of error, a minimum of 227 respondents was selected for this study. The data collection instrument was a structured questionnaire developed based on previously validated measures from the literature. The instrument includes four main constructs: risk-taking, need for achievement, innovation, and entrepreneurial performance. Risk-taking was measured using three items adapted from Zeb & Ihsan (2020). These items reflect the entrepreneur's tendency to seek high rewards through high-risk ventures, engage repeatedly in calculated risks, and invest significant personal capital in business opportunities. The need for achievement was measured using five items as adapted by R. U. Khan et al (2021), capturing behavioral tendencies such as striving to do one's best, working toward clear and challenging goals, and persistently seeking optimal performance outcomes. Innovation was assessed using five items adapted from Bradley, et al. (2012), covering aspects of product and process

differentiation, unmet customer needs, cost strategy, and market positioning. Entrepreneurial performance was measured with five items derived from Games et al. (2023) and Ahmad et al. (2010) which include indicators of increased sales, business growth, profitability, debt control, and financial satisfaction.

All constructs were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). After measurement validity was confirmed, the model was tested using structural equation modeling (SEM) with Partial Least Squares (PLS). PLS-SEM is suitable for small samples and non-normal data. PLS is widely adopted due to its ability to model complex relationships and generate robust estimates even under non-ideal statistical conditions.

3. RESULTS AND DISCUSSION

3.1 Demographic Profile of Respondents

The respondents in this study were owners of Micro, Small, and Medium Enterprises (MSMEs) located in rural areas of Agam Regency. The respondents who participated in this research were categorized based on several criteria, including age, education level, type of business, business location, business age, number of employees, and the monthly income of the business owner. The following presents a descriptive overview of the respondents' characteristics based on the questionnaire results:

Table 1
Demographic Profile of Respondents

Category	Description	Frequency (F)	Percentage (%)
Age (years)	17-25	35	15%
	26-30	22	10%
	31-40	57	25%
	> 40	113	50%
Education	Elementary School	29	13%
	Junior High School	23	10%
	Senior High School	124	55%
	Diploma	3	1%
Types of Business	Bachelor's Degree	46	20%
	Master's Degree	2	1%
	Food	101	44%
	Handcraft	6	3%

Category	Description	Frequency (F)	Percentage (%)
Location of Business	general trading	72	32%
	Baverages	13	6%
	Miscellaneous small-scale enterprises	35	15%
	Banuhampu	124	55%
	Sungai Pua	53	23%
	Tilatang Kamang	27	12%
	Baso	23	10%
Firm Age (Years)	1 Tahun	31	14%
	2-5 Tahun	55	24%
	6-10 Tahun	35	15%
	> 10 Tahun	106	47%
Number of Employees	1-2	206	91%
	3-5	10	4%
	6-10	7	3%
	> 10	4	2%
Income	IDR 2.000.000 – IDR 3.500.000	93	41%
	IDR 3.500.001 - IDR 5.000.000	60	26%
	IDR 5.000.001 – IDR 10.000.000	50	22%
	IDR 10.000.001 - IDR 20.000.000	24	11%

3.2 Descriptive Statistics

The frequency distribution displays the number of responses for each questionnaire item, aiming to identify which items received the highest level of response from participants. This distribution can be further analyzed using the mean (average) values to determine overall response tendencies.

Table 2
Descriptive Statistics

	N	Min	Max	Mean
Risk taking	227	29,7	3,63	3,30
Needs for achievement	227	4,04	4,36	4,22
Inovation	227	3,6	4	3,84
Performance	227	3,6	3,8	3,74

3.3 Description of Smart PLS Results

3.3.1 Measurement Model

3.3.1.1 Convergent Validity

After the initial elimination process, the indicators for each variable were found to be valid and ready for subsequent testing. The following table presents the outer loading values after the first stage of indicator removal

Table 3
Outer Loading after Removal

	Innovation	Needs For Achievement	Entrepreneurial Performance	Risk Taking
I1	0,765			
I2	0,628			
I3	0,764			
I4	0,688			
EP1			0,872	
EP2			0,861	
EP3			0,783	
EP5			0,796	
NFA1		0,803		
NFA2		0,833		
NFA3		0,775		
NFA4		0,621		
RT2				0,809
RT3				0,761
RT1				0,776

3.3.1.2 Average Variance Extracted (AVE)

The results of the outer loading analysis indicate that all loading factor values exceed 0.60, demonstrating indicator validity for each construct. Consequently, further analysis can be conducted. The Average Variance Extracted (AVE) values for each construct are presented in the table below:

Table 4:
Average Variance Extracted (AVE)

	<i>Average variance extracted (AVE)</i>
Innovation	0,509
Needs for Achievement	0,581
Entrepreneurial Performance	0,687
Needs for Achievement	0,612

The findings indicate that all constructs exhibit AVE values above the threshold of 0.50, signifying that all items are appropriate for use in subsequent measurement and analytical procedures

3.3.1.3 Discriminant Validity

To assess discriminant validity, three methods were employed: cross loadings, the Fornell-Larcker criterion, and the Heterotrait-Monotrait Ratio (HTMT). Cross loadings help determine the discriminant power of each construct by examining the extent to which an indicator loads more strongly on its associated construct than on others. The cross loading results are shown in the table below:

Table 5
Heterotrait-Monotrait Ratio (HTMT)

	Innovation	Needs For Achievement	Entrepreneurial Performance	Risk Taking
I1	0,765	0,365	0,239	0,281
I2	0,628	0,249	0,230	0,246
I3	0,764	0,429	0,297	0,215
I4	0,688	0,417	0,074	0,101
EP1	0,217	0,201	0,872	0,237
EP2	0,176	0,238	0,861	0,260
EP3	0,351	0,199	0,783	0,189
EP5	0,237	0,148	0,796	0,227
NFA1	0,381	0,803	0,150	0,263
NFA2	0,466	0,833	0,223	0,324
NFA3	0,359	0,775	0,132	0,308
NFA4	0,348	0,621	0,205	0,164
RT2	0,228	0,275	0,191	0,809
RT3	0,304	0,377	0,156	0,761
RT1	0,164	0,169	0,295	0,776

Next steps is examing discriminant validity base on fornell larkerr value. The results show:

Table 6
Fornell Larckerr

	Innovation	Needs For Achievement	Entrepreneurial Performance	Risk Taking
Innovation	0,714			
Needs for Achievement	0,516	0,762		
Entrepreneurial Performance	0,303	0,238	0,829	
Needs for Achievement	0,298	0,351	0,274	0,782

Output from Fornell Larcker appropriate to for next procedure. Every indicators has high validity despite other indicators. Validity discriminant from HTMT as below:

Table 7
Heterotrait Monotrait Ratio (HTMT)

	<i>Heterotrait-Monotrait Ratio (HTMT)</i>
Needs for Achievement<-> Innovation	0,707
Entrepreneurial Performance <-> Innovation	0,377
Entrepreneurial Performance <-> Needs for Achievement	0,292
Risk Taking <-> Innovation	0,432
Risk Taking <-> Needs for Achievement	0,483
Risk Taking <-> Entrepreneurial Performance	0,362

3.3.1.3 Reability test

The reability in research instrument. The coefficient value of 0.6 or less indicates unsatisfactory internal consistency reliability, whereas it is considered reliable if the value is >0.60 (Birks, 2007) . The value of Cronbach's Alpha in the present study is over 0.60 which means that reliability is achieved.

Table 8:
Reliability Test

	Cronbach's alpha	Composite reliability (rho a)	Composite reliability (rho c)
Innovation	0,679	0,696	0,805
Needs for Achievement	0,755	0,769	0,846
Entrepreneurial Performance	0,848	0,850	0,898
Risk Taking	0,683	0,682	0,825

3.3.2 Measurement Model

Upon completion of the outer model assessment, where all measurement instruments demonstrated validity and reliability, the next step involved evaluating the structural model through the examination of R-square values and path coefficients

3.3.2.1 Coefficient of Determination (R²)

The structural model evaluation in this study yielded the following R-square value:

Table 9
R-Square

Entrepreneurial Performance	0,132
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The R-square value of 0.132 for the entrepreneurial performance construct suggests a moderate level of explanatory power, as per the aforementioned classification. This indicates that the exogenous constructs included in the model account for approximately 13.2% of the variance in entrepreneurial performance. The remaining 86.8% of the variance is attributed to other factors not captured by the current model, implying the presence of additional antecedents or contextual variables that warrant further investigation

3.3.3 Hypothesis Testing

3.3.3.1 Path Coefficient

The structural model illustrates the relationships between the latent constructs under investigation. Path coefficients represent the magnitude and direction of the relationships between variables. A relationship is considered statistically significant if the T-statistic exceeds 1.645 for a one-tailed hypothesis at a significance level (p-value) below 0.05, corresponding to a 95% confidence level.

This study examines both direct and indirect effects within the structural model. The results of the hypothesis testing are presented in the following table:

Table 10
Path Coefficient

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Description
Innovation -> Entrepreneurial Performance	0,216	0,218	0,086	2,507	0,006	significant
Needs for Achievement -> Innovation	0,470	0,475	0,085	5,524	0,000	significant
Needs for Achievement-> Entrepreneurial Performance	0,060	0,066	0,076	0,782	0,217	insignificant
Risk Taking -> Innovation	0,133	0,136	0,080	1,663	0,048	significant

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values	Description
Risk Taking -> Entrepreneurial Performance	0,189	0,196	0,075	2,531	0,006	significant
Needs for Achievement -> Innovation -> Entrepreneurial Performance	0,102	0,103	0,045	2,277	0,011	significant
Risk Taking -> Innovation -> Entrepreneurial Performance	0,029	0,030	0,022	1,283	0,100	insignificant

3.3.4 Discussion

This study investigated how psychological traits, specifically risk-taking and need for achievement, affect innovation and subsequently entrepreneurial performance among rural women entrepreneurs in Agam Regency, Indonesia. The findings offer nuanced insights into how internal dispositions translate into business outcomes within the constraints of a rural socio-economic context, contributing to the growing discourse on gendered entrepreneurship in emerging economies.

Risk taking Enhance Innovation and Performance through Proactive Behavior

The significant positive relationship between risk-taking and innovation reinforces the view that risk-taking is not merely a personality trait but a behavioral catalyst for strategic action. Female entrepreneurs who exhibit risk-taking tendencies are more likely to break away from conventional business practices and attempt novel solutions – whether through product diversification, investment in unfamiliar technologies, or exploring niche markets. This echoes Sundermeier (2024), who posits that women entrepreneurs often need to engage in bold, legitimizing actions to establish credibility in the entrepreneurial ecosystem. These findings are consistent with Zeb & Ihsan (2020), who emphasized that risk-taking behavior enables women to act strategically even within resource-constrained environments.

Interestingly, risk-taking was also found to significantly influence entrepreneurial performance directly, as well as indirectly through innovation. This dual-path influence suggests a layered mechanism: risk-taking women are not only braver in facing uncertainty but also more capable of converting that mindset into innovative actions that yield measurable

business outcomes. In rural areas, where institutional support is limited, this ability to act decisively becomes an essential advantage. Similar results were found by Games and Rendi (2019), who argued that calculated risk-taking contributes to business survival and growth. However, the present study diverges slightly from Yoopetch (2021), who found that women in more restrictive cultural contexts tend to exhibit lower risk appetites, indicating that local culture may modulate how risk-taking translates into business practices.

Achievement Motivation Stimulates Innovation, but is not Always Sufficient for Performance

The need for achievement significantly influences innovation, indicating that intrinsically motivated women seek improvement and are open to change. Achievement-oriented individuals are typically characterized by high standards, goal orientation, and a desire for feedback, which can all foster a culture of innovation within their businesses (Biswas & Verma, 2021). These findings align with Khan et al (2021) who emphasized that high achievement motivation propels entrepreneurs to innovate and seek excellence.

However, the non-significant direct effect of need for achievement on performance highlights a crucial gap: motivation alone is not enough to guarantee improved business outcomes. While Zeb & Ihsan (2020) found a significant relationship in urban Pakistani contexts, our findings suggest that this linkage may not hold in rural Indonesian settings. This result nuances the generalizability of previous research and underscores the need to contextualize entrepreneurial motivation. Factors such as limited access to capital, constrained markets, and gender norms may act as structural barriers that dilute the impact of psychological traits on tangible business results.

Innovation as a Central Lever in Entrepreneurial Success

The significant effect of innovation on performance further validates the critical role of innovation in small business success. Innovation here is not limited to technological advancement but includes low-cost, high-impact adaptations such as product repositioning, refined marketing messages, and distribution strategies tailored to local constraints. These "frugal innovations" are particularly relevant for rural women entrepreneurs who must operate within tight financial and logistical limitations. This result confirms prior findings by Bradley et al. (2012) and Aliyu et al. (2019), who recognized innovation as a strategic differentiator for micro and small enterprises.

Moreover, descriptive findings suggest that many of these women are able to differentiate themselves not only through product variety but also through effective communication—a dimension often overlooked in traditional innovation models. Being able to articulate product value in a persuasive and culturally resonant way provides a competitive edge in informal markets where trust and familiarity dominate consumer decisions.

Innovation as Mediating Mechanism : A Pathway for Transformation

The mediation analysis revealed that innovation fully mediates the relationship between risk-taking and entrepreneurial performance. This indicates that while risk-taking behavior plays a crucial role, its impact on performance becomes evident only when it is accompanied by innovative actions. In other words, the willingness to face uncertainty must be translated into concrete innovations—such as new strategies, processes, or offerings—to generate meaningful business outcomes. This finding is supported by Imran et al., (2019), who demonstrated that risk-oriented behavior contributes to performance only when combined with adaptive and innovative approaches.

Conversely, innovation did not mediate the relationship between need for achievement and performance. This result contrasts with Biswas & Verma (2021), who proposed innovation as a robust mediating variable in performance models involving psychological traits. It is possible that women with high achievement needs may channel their drive into alternative performance pathways—such as strengthening customer relationships, improving quality, or increasing operational efficiency. This invites further research into other potential mediators, such as perseverance, long-term orientation, or strategic goal-setting.

4. Conclusion and Implications

This study provides empirical evidence on the role of entrepreneurial traits—specifically risk-taking and need for achievement—in influencing the entrepreneurial performance of rural women-owned microenterprises in Indonesia, with innovation serving as a mediating variable. The findings reveal that both risk-taking and achievement motivation significantly contribute to innovation, which in turn positively impacts business performance. However, only risk-taking directly enhances entrepreneurial performance, while the effect of achievement motivation operates indirectly through innovation.

These findings advance the theoretical understanding of entrepreneurship by affirming the relevance of psychological trait theories and integrating them with behavioral innovation perspectives. Specifically, the study enriches the application of McClelland's Theory of Needs and the Resource-Based View (RBV) within the context of rural, gendered entrepreneurship. It highlights the distinct pathways through which personal traits translate into business outcomes, suggesting that innovation plays a more central role for high achievers, whereas risk-takers may leverage other strategies beyond innovation to achieve performance gains.

From a practical perspective, the results underline the need for targeted entrepreneurial development programs that go beyond financial support. Interventions should focus on enhancing entrepreneurial self-efficacy, fostering intrinsic motivation, and nurturing innovation capabilities—especially among women in rural areas who face structural and cultural constraints. Moreover, innovation support should not only emphasize product or process improvement but also the strategic communication of value to customers. Policymakers, development agencies, and business support organizations are encouraged to design inclusive programs that build both psychological capital and market capabilities to drive sustainable performance among women entrepreneurs in rural economies.

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