

Women Empowerment and Managerial Leadership in Terengganu's Agro-Industry Sector: A Qualitative Inquiry into Entrepreneurial Innovation

Nur Dalila Adenan*, Nasiha Abdullah, Kartini Mat Rashid

Faculty of Business and Management, University Technology MARA Cawangan Terengganu

*Corresponding author

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ABSTRACT

This study explores the experiences, leadership styles, and empowerment dynamics of women agropreneurs in Terengganu's agro-industry sector through a qualitative phenomenological approach. Drawing on Empowerment Theory and Transformational Leadership Theory, the research investigates how personal agency, socio-cultural norms, and institutional support intersect to shape women's roles as entrepreneurs and community leaders. Data were collected through semi-structured interviews and participant observation with 20 purposively sampled women from various agro-industrial sectors, including food processing, aquaculture, herbal products, and traditional crafts. Thematic analysis revealed three dominant themes: empowerment through innovation, leadership identity, and the dual role of cultural expectations as both barriers and motivators. Participants demonstrated strong participative and transformational leadership traits, often embedded within familial responsibilities and community values. Despite challenges such as limited access to capital, male-dominated networks, and lack of formal mentorship, many women leveraged government training, cooperative support, and traditional knowledge to build sustainable businesses and gain leadership legitimacy. The study's findings affirm that women's empowerment in rural agro-industrial contexts is not solely dependent on economic access, but also on the ability to navigate and reshape cultural narratives. Policy recommendations include expanding culturally responsive leadership training, improving access to digital marketing tools, and institutionalizing inclusive cooperative frameworks. This research contributes to the academic discourse on gender, entrepreneurship, and rural development, offering practical insights for policymakers, NGOs, and educators aiming to foster inclusive and sustainable agro-industrial growth in Malaysia.

Keywords: Women Empowerment, Agropreneurship, Transformational Leadership, Rural Development, Gender and Entrepreneurship

INTRODUCTION

Background of the study

Terengganu, located on the eastern coast of Peninsular Malaysia, is endowed with abundant natural resources, fertile agricultural land, and a strong cultural heritage rooted in rural traditions. The state's economy has long relied on agriculture, fisheries, and agro-based industries, which play a crucial role in sustaining livelihoods, especially in rural communities. In recent years, there has been a growing recognition at both state and national levels of the untapped potential of women to contribute significantly to socio-economic transformation, particularly through entrepreneurial ventures in the agro-industry sector.

Traditionally, women in Terengganu have played supportive roles in farming and food processing, often operating behind the scenes while men assumed leadership and decision-making responsibilities. These roles, though undervalued, have been essential in maintaining the continuity of agricultural practices, especially in family-owned enterprises. However, as Malaysia continues to modernize its agricultural and industrial

strategies under frameworks like the Shared Prosperity Vision 2030 and the National Agro-Food Policy (NAP 2.0), women are increasingly seen not just as contributors but as potential leaders and innovators in the agro-based economy (Ministry of Agriculture and Food Security, 2021).

The agro-industry in Terengganu is largely composed of small and medium enterprises (SMEs), many of which focus on traditional products such as dried seafood, herbal remedies, and homemade snacks. These sectors are ripe for transformation through innovation, value addition, digital marketing, and improved supply chain management. Within this context, women entrepreneurs are beginning to emerge as key players, bringing fresh perspectives, adaptive strategies, and community-based leadership to the fore. Research has shown that when women are empowered economically and given leadership opportunities, communities tend to experience broader social benefits, including increased household welfare, improved education outcomes, and more inclusive development (World Bank, 2012).

Despite these opportunities, the pace and scope of women's empowerment in managerial and leadership roles within Terengganu's agro-industry remain limited. Factors such as entrenched gender norms, unequal access to capital and markets, lack of tailored leadership training, and limited representation in formal decision-making structures continue to inhibit women's full participation. Moreover, rural women often face additional barriers including limited mobility, familial obligations, and social expectations that restrict their leadership potential (Khalid & Hassan, 2020).

There is a dearth of empirical research that focuses specifically on the experiences of women agropreneurs in Terengganu, particularly in terms of how they navigate these constraints and leverage their agency to become effective leaders. While broader studies on women's entrepreneurship in Malaysia exist (Ismail, 2021; Azmi, 2017), they often overlook the localized challenges and opportunities unique to East Coast states. Hence, this research seeks to fill that gap by exploring the lived experiences, leadership strategies, and empowerment pathways of women in Terengganu's agro-industry sector. Understanding these dynamics is critical not only for scholarly advancement but also for informing policy and programmatic interventions aimed at fostering inclusive, resilient, and gender-equitable agro-industrial development.

Problem Statement

While Malaysia has made commendable progress in integrating gender considerations into national development policies, particularly through frameworks such as the National Policy on Women (NPW) and the 12th Malaysia Plan (Economic Planning Unit, 2021), the realities on the ground reveal a persistent gender gap, especially within rural and agro-based sectors in states like Terengganu. Women in Terengganu's agro-industry, despite their visible presence and contributions, often remain on the periphery of decision-making and strategic leadership roles. Their entrepreneurial potential is hindered by an interplay of structural and socio-cultural barriers that inhibit their progression from informal or support roles to managerial and ownership positions.

Access to capital remains one of the most significant hurdles. Women agropreneurs frequently lack collateral or formal financial histories, which limits their ability to secure business loans or grants (Samer et al., 2015). While microfinance programs exist, they are often not tailored to the specific operational needs or scaling aspirations of agro-industry entrepreneurs. Furthermore, opportunities for advanced education and specialized leadership training in agro-business management are limited in rural regions, and even when available, social obligations and domestic responsibilities often prevent women from fully participating in these programs (Yunus, Ahmad, & Razak, 2020).

Cultural and societal expectations continue to pose another critical barrier. In the more conservative socio-cultural context of Terengganu, leadership traits such as assertiveness, risk-taking, and public visibility, typically associated with successful entrepreneurship, may be perceived as inappropriate or unfeminine for women (Khalid & Hassan, 2020). These norms not only restrict women's participation in leadership roles but also diminish community and institutional support for their ambitions. As a result, many women operate their businesses within gendered expectations, often choosing less visible, lower-growth ventures to remain within the bounds of social acceptability.

Moreover, there is a noticeable gap in scholarly literature and policy-oriented research that captures the nuanced realities of women leaders in agro-industry in the East Coast of Malaysia. Existing studies tend to generalize women's entrepreneurial challenges across sectors or focus on urban populations (Ismail, 2021), leaving rural women in the agro-based economy underrepresented in discourse and data. This lack of empirical grounding impedes the development of targeted interventions and support mechanisms that reflect the real-world conditions of these women.

In light of these persistent challenges, there is an urgent need to explore the lived experiences of women agropreneurs in Terengganu. Such exploration is essential to understand the factors that either empower or constrain their leadership trajectories. A deeper understanding of their motivations, constraints, adaptive strategies, and support systems can inform more inclusive policies, gender-sensitive capacity-building programs, and localized economic development models. It is within this context that this research is positioned, to fill a critical knowledge gap and contribute meaningfully to the conversation on gender equity and innovation in agro-industrial leadership.

LITERATURE REVIEW

The role of women in agriculture and agro-industries has undergone a profound transformation over the past few decades. Historically confined to supporting roles such as planting, harvesting, and food processing, women are now increasingly stepping into the roles of entrepreneurs, managers, and community leaders (FAO, 2017). This shift is not merely symbolic; it reflects broader structural and societal changes that are gradually recognizing women's agency and potential as economic contributors, particularly in rural regions where opportunities for formal employment remain scarce. Entrepreneurship, therefore, emerges as a vital pathway for empowerment, providing rural women with the means to assert financial independence, exercise decision-making, and challenge traditional gender roles (Roomi & Parrott, 2008).

Globally, women-led businesses have attracted scholarly attention due to their distinctive leadership styles and values. Research by Brush et al. (2006) reveals that women entrepreneurs often adopt a more collaborative, empathetic, and sustainability-oriented approach to leadership compared to their male counterparts. These traits are particularly well-suited to the dynamics of the agro-industry, where success often depends on building strong community ties, managing informal labour, and adapting to environmental and market changes. Moreover, women's leadership is often rooted in their lived experiences and relational management, which aligns with principles of ethical entrepreneurship and socially embedded business practices (Carter et al., 2001).

In Malaysia, the entrepreneurial landscape has seen increasing participation from women, supported by policy initiatives such as the Malaysian Women's Development Action Plan and SME support schemes. However, while women are visibly present in micro-enterprises and informal sectors, their representation in managerial or strategic leadership roles within agro-industries remains disproportionately low (MIDA, 2023). Several factors contribute to this underrepresentation, including persistent patriarchal norms, limited access to formal credit and training, and weak integration into business and professional networks (Teoh & Chong, 2008). These barriers are often compounded in rural and conservative regions such as Terengganu, where cultural expectations about gender roles remain deeply entrenched (Khalid & Hassan, 2020).

To understand how women navigate these constraints and assert themselves as leaders, it is essential to examine their behaviour through the lens of established leadership and empowerment theories. Transformational Leadership Theory, proposed by Bass and Avolio (1994), offers a useful framework by highlighting how leaders inspire and motivate followers by fostering trust, encouraging innovation, and demonstrating commitment to shared goals. Many women entrepreneurs naturally embody transformational leadership traits such as individualized consideration and participative decision-making, which are particularly relevant in community-based agro-industrial settings (Eagly & Carli, 2003).

Additionally, Empowerment Theory, as articulated by Zimmerman (1995), provides a psychological and sociological lens to assess how women gain control over their lives, make strategic life choices, and influence their environments. This theory emphasizes personal agency, self-efficacy, and access to resources, all of

which are central to the entrepreneurial journey of rural women. In agro-industry contexts, empowerment is not just about income generation but also about enhancing women's voices in household decision-making, community planning, and even policy discourse.

Despite the growing body of literature, there remains a gap in localized research that explores the unique experiences of women agropreneurs in specific Malaysian states like Terengganu. Much of the existing literature either generalizes women's entrepreneurial challenges across the nation or focuses on urban and semi-urban settings. Consequently, this research seeks to contribute to the literature by providing an in-depth, context-specific understanding of women's leadership, empowerment, and innovation in Terengganu's agro-industry, a sector poised for growth but constrained by traditional structures and underutilized female talent.

Theoretical Framework

This research draws on two interrelated theoretical foundations, Empowerment Theory and Transformational Leadership Theory, to explore and contextualize the experiences of women leaders in Terengganu's agro-industry. These theories serve not only as lenses through which women's roles in entrepreneurship and leadership can be examined, but also as tools for understanding the underlying structures that either facilitate or inhibit their growth in managerial capacities.

Empowerment Theory, as articulated by Zimmerman (1995), offers a multi-dimensional framework for understanding how individuals and communities gain control over their lives and influence the decisions that affect them. It encompasses psychological empowerment (self-efficacy, motivation, critical awareness), organizational empowerment (access to resources, decision-making power), and community-level empowerment (collective action, influence over institutions). In the context of Terengganu's agro-industry, this theory helps illuminate how women agropreneurs perceive their own agency, how they negotiate access to entrepreneurial resources, and how their roles within families, cooperatives, or rural business networks can either empower or marginalize them.

Zimmerman's (2000) extension of the theory also emphasizes that empowerment is not a one-size-fits-all process, it is dynamic and deeply embedded in socio-cultural contexts. For many rural women, empowerment may begin not with large-scale organizational leadership but with incremental shifts in household influence, income control, and confidence in decision-making. Thus, Empowerment Theory is especially relevant in understanding the nuanced journeys of women agropreneurs who may not identify as "leaders" in the traditional sense, yet exercise considerable informal influence within their communities and enterprises (Perkins & Zimmerman, 1995).

Complementing this is the Transformational Leadership Theory, developed by Bass and Avolio (1994), which provides insight into the behaviours, values, and interpersonal dynamics that characterize effective leadership. Unlike transactional leadership—which focuses on exchanges, compliance, and short-term tasks—transformational leadership is visionary and developmental. It is marked by four core components: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. These attributes align closely with the leadership approaches often adopted by women, particularly in rural and communal settings, where nurturing relationships, empowering team members, and fostering collective well-being are valued (Eagly & Johannesen-Schmidt, 2001).

For women in Terengganu's agro-industrial sector, the application of transformational leadership may be subtle yet powerful. For example, a woman leading a food processing cooperative might demonstrate idealized influence by acting as a role model for younger women in her village. She might provide inspirational motivation by sharing success stories and encouraging others to innovate or pursue training. Through intellectual stimulation, she may challenge traditional practices by adopting more sustainable or efficient methods. And by offering individualized consideration, she nurtures personal growth in her team members, building leadership capacity from the grassroots level.

Together, Empowerment Theory and Transformational Leadership Theory provide a robust, complementary framework for analysing the lived experiences of women in leadership roles within Terengganu's agro-

industry. The former highlights the internal and structural conditions that shape women's agency, while the latter examines how leadership is enacted and perceived in rural entrepreneurial settings. Using these theories in tandem allows the research to account for both the personal journeys of empowerment and the broader leadership dynamics within a culturally specific and economically vital sector.

Conceptual Framework

The conceptual framework for this study is designed to explore how various external and internal factors interact to influence the empowerment and managerial leadership outcomes of women in Terengganu's agro-industry. Rooted in Empowerment Theory (Zimmerman, 1995) and Transformational Leadership Theory (Bass & Avolio, 1994), this framework integrates independent, mediating, and dependent variables into a dynamic model that reflects the lived realities and structural constraints faced by women agropreneurs in rural Malaysia.

At the foundation of the framework are the independent variables, which represent the external enablers or barriers that shape women's entrepreneurial journeys. The first of these is access to resources, encompassing both tangible resources such as financial capital, land, and tools, and intangible ones like education, leadership training, and mentorship. Limited access to such resources has been widely cited as a major obstacle to women's business development, especially in rural and conservative regions (Brush et al., 2006; Roomi & Parrott, 2008).

Next, societal attitudes refer to the cultural norms, gender expectations, and community perceptions that influence women's perceived roles in business and leadership. In Terengganu, traditional values may view assertive female leadership as incongruent with accepted norms, leading to resistance from family members or community gatekeepers (Khalid & Hassan, 2020). These social dynamics can significantly affect a woman's confidence, decision-making, and public visibility as a leader.

Policy support serves as the third independent variable and involves the presence (or absence) of institutional mechanisms that enable or constrain women's participation in agro-entrepreneurship. This includes government grants, training initiatives, affirmative action programs, and supportive regulatory frameworks. While Malaysia has introduced several policies aimed at supporting women entrepreneurs (MIDA, 2023), the effectiveness and accessibility of these policies at the grassroots level remain inconsistent.

Flowing from these inputs are the mediating variables, which act as the bridge between external factors and the final outcomes. These include leadership style, personal agency, and social capital. Leadership style refers to how women lead their teams or manage their enterprises. Drawing from transformational leadership theory, this includes qualities like inspiring a shared vision, encouraging innovation, and providing individualized support (Bass & Avolio, 1994). Leadership style mediates how external support is translated into practical strategies and influence.

Personal agency, a key component of empowerment theory, refers to an individual's belief in their ability to influence their own life and environment (Zimmerman, 1995). It includes self-efficacy, confidence, and autonomy—elements that are shaped by prior experiences, education, and community feedback. A woman with high personal agency is more likely to navigate constraints, take calculated risks, and challenge traditional norms.

Social capital involves the networks, relationships, and community ties that enable access to information, collaboration, and mutual support. Women who are part of active cooperatives or entrepreneurial networks often benefit from shared resources and peer mentorship, which enhances their resilience and adaptability (Carter et al., 2001).

Finally, the dependent variables represent the outcomes that this study aims to assess: women's level of empowerment, leadership effectiveness, and business performance. Empowerment is measured not only in economic terms but also in decision-making power, psychological strength, and social recognition. Leadership effectiveness refers to how well women lead their teams, adapt to challenges, and influence their

environments. Business performance includes profitability, innovation, sustainability, and the ability to scale or diversify operations.

Conceptual Framework Diagram:

The framework, Figure 1, suggests that access to resources, societal attitudes, and policy support are primary drivers that condition the landscape in which women agropreneurs operate. These external factors influence internal processes, particularly leadership style, personal agency, and social capital, which mediate how women respond to challenges and opportunities. These mediators, in turn, directly affect the empowerment outcomes, leadership effectiveness, and business performance of women entrepreneurs in the agro-industry.

This layered and interactive framework acknowledges that empowerment is not a linear process. It depends on a complex interplay of context, individual attributes, and structural conditions. Importantly, it allows the research to capture the heterogeneity in women's experiences and to identify strategic leverage points for intervention, be it through policy, training, or community engagement.

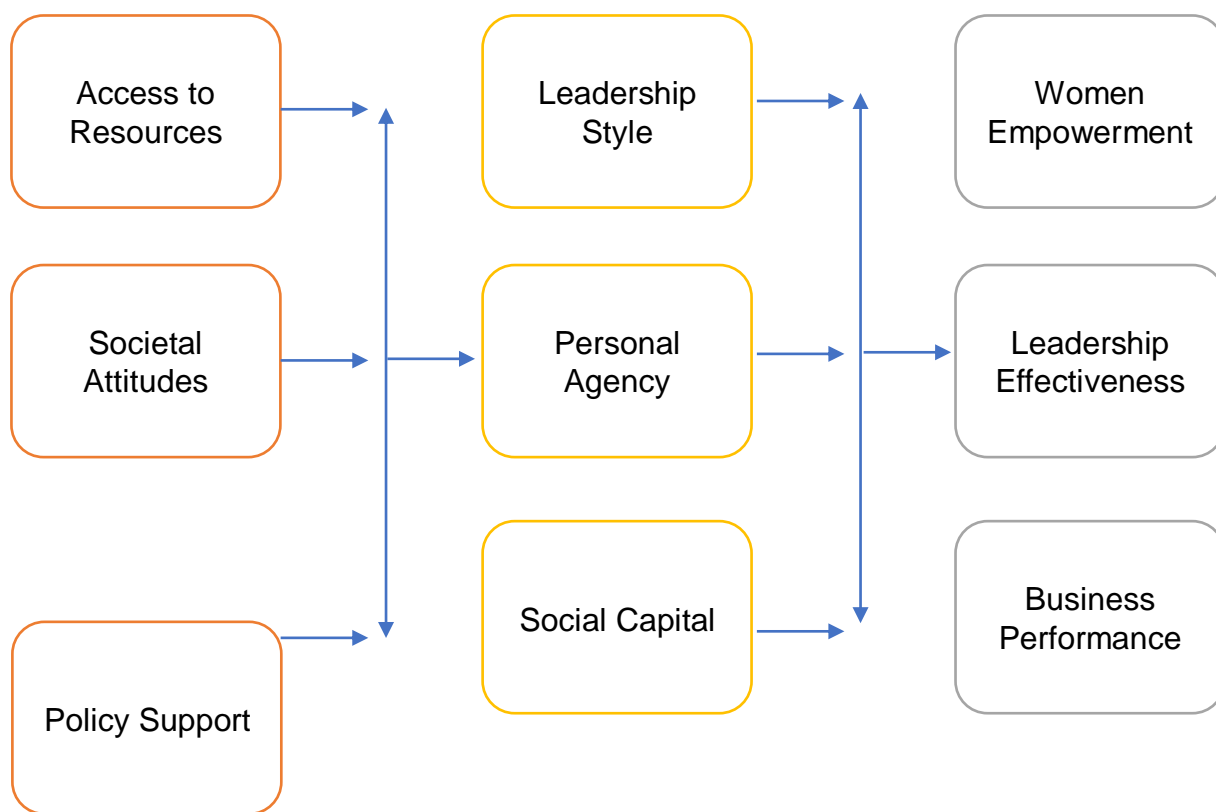


Figure 1. Conceptual Framework Diagram

Research Questions, Research Objectives and Hypotheses

Below is a detailed and humanized explanation of each element from the **Research Questions (RQ)**, **Research Objectives (RO)**, and **Hypotheses**.

Research Questions (RQ)

RQ1: What are the experiences of women entrepreneurs in Terengganu's agro-industry?

This question seeks to uncover the day-to-day realities, aspirations, struggles, and strategies of women navigating the agro-industrial sector in a traditionally male-dominated and rural environment. The goal is to move beyond statistics and explore personal narratives that reflect both challenges and triumphs (Creswell, 2013). Understanding their experiences allows for a richer contextual analysis of empowerment and leadership.

RQ2: What leadership styles do they employ?

This question aims to explore whether the women adopt collaborative, authoritative, transformational, or other forms of leadership in managing their agro-enterprises. Previous studies show that women often lean toward transformational leadership, emphasizing motivation, shared vision, and individual consideration (Eagly & Johannesen-Schmidt, 2001; Bass & Avolio, 1994). This question addresses how these styles manifest within the socio-cultural landscape of Terengganu.

RQ3: What factors facilitate or hinder their empowerment and leadership?

This question investigates both the enablers (e.g., training programs, family support, policy interventions) and the barriers (e.g., gender stereotypes, lack of access to capital, patriarchal norms) that impact women's agency in leadership roles. Literature suggests that empowerment is highly contextual, shaped by both structural and psychological factors (Zimmerman, 1995; Kabeer, 1999).

Research Objectives (RO)**RO1: To explore the lived experiences of women leaders in Terengganu's agro-industry sector.**

This objective aligns with a phenomenological approach in qualitative research, focusing on the subjective experiences of women agropreneurs. It seeks to document their stories, challenges, motivations, and identity as both women and entrepreneurs in a rural, conservative setting (Moustakas, 1994).

RO2: To identify the leadership styles adopted by these women.

This objective is intended to link real-world practices with theoretical leadership models. By identifying their leadership styles, this study can provide insights into how women lead differently or similarly to their male counterparts, and how leadership is culturally constructed in Terengganu (Northouse, 2021).

RO3: To examine the structural and socio-cultural factors influencing their empowerment.

This objective investigates both macro (policy, institutional) and micro (family, cultural expectations) dimensions that shape women's ability to lead effectively. It aims to provide a nuanced understanding of empowerment that considers power dynamics, access to resources, and societal norms (Cornwall & Edwards, 2014).

Hypotheses

Although qualitative research does not use hypotheses in the same predictive way as quantitative studies, these *assumptions* guide the exploration and interpretation of data.

H1: Women agropreneurs exhibit leadership behaviors aligned with transformational leadership principles.

This assumption is based on prior research indicating that women tend to demonstrate transformational leadership traits, such as emotional intelligence, inclusiveness, and the ability to inspire (Bass & Avolio, 1994; Eagly et al., 2003). In Terengganu's agro-context, this leadership style may help women navigate both business challenges and cultural constraints.

H2: Access to education and capital positively influences women's empowerment.

Numerous studies emphasize that education and financial independence are fundamental to women's empowerment. When women gain access to these resources, they are more likely to gain decision-making power, confidence, and legitimacy as leaders (Roomi & Parrott, 2008; Kabeer, 2005).

H3: Cultural norms serve as both constraints and motivators in shaping women's leadership roles.

This assumption recognizes the dual nature of culture. While traditional gender roles can limit opportunities, they can also serve as motivation for women to prove their capabilities and redefine societal expectations (Mahmood, 2005; Kandiyoti, 1988). This study assumes that women in Terengganu may internalize and negotiate these norms in complex, dynamic ways.

Justification of the Research

The justification for this research lies in the urgent need to understand and amplify the voices of women in Terengganu's agro-industry, an area often overshadowed in both policy and academic discourse. While Malaysia has made commendable strides in promoting gender equality through national frameworks like the National Policy on Women and rural development programs, the translation of these policies into meaningful empowerment, especially in conservative, rural states like Terengganu, remains uneven (Ministry of Women, Family and Community Development, 2021). The agro-industry, being a traditionally male-dominated sector, presents both opportunities and systemic challenges for women who seek to lead and innovate. By exploring their lived experiences, leadership styles, and structural constraints, this research addresses a vital knowledge gap that can inform more targeted and inclusive interventions.

Furthermore, the research contributes to the broader discourse on rural entrepreneurship, gender studies, and leadership in Southeast Asia. It aligns with global goals such as the United Nations' Sustainable Development Goal 5 on gender equality and SDG 8 on inclusive economic growth. Existing literature shows that empowering women in agriculture significantly boosts productivity, enhances family well-being, and fosters community resilience (FAO, 2017; Kabeer, 2005). However, these outcomes cannot be achieved without understanding the contextual realities women face, realities shaped by local culture, resource access, and policy frameworks. Hence, this research is not only academically relevant but also socially imperative. It will offer empirical evidence to policymakers, NGOs, and development planners who are seeking sustainable models for rural women's leadership and economic empowerment in Malaysia.

RESEARCH METHODOLOGY

This study employs a phenomenological qualitative design, which is well-suited for exploring the lived experiences of individuals, particularly in contexts where understanding meaning, perception, and personal transformation is central to the research objectives (Creswell, 2013; Moustakas, 1994). Phenomenology allows researchers to capture not just what women agropreneurs in Terengganu do, but how they *experience* leadership, empowerment, and entrepreneurship within the cultural, social, and institutional frameworks unique to their environment.

The sampling method used in this study is purposive sampling, where 20 women agropreneurs from various districts in Terengganu were intentionally selected based on specific criteria. These include being actively involved in agro-industrial activities for at least three years and holding a managerial or decision-making role in their enterprise. Purposive sampling is widely used in qualitative research to identify participants who can offer rich, relevant, and diverse insights into the phenomenon under investigation (Palinkas et al., 2015).

Data collection was conducted through in-depth semi-structured interviews, allowing for flexibility in responses while ensuring that key themes such as leadership style, empowerment challenges, and business strategies were explored systematically. The interviews were complemented by participant observation, where the researcher spent time in the women's working environments to observe their interactions, leadership dynamics, and operational contexts. This combination of methods strengthens the validity of the data and offers a more holistic view of participants' experiences (Marshall & Rossman, 2016).

The data analysis was carried out using thematic analysis, facilitated by NVivo software. This method involves coding interview transcripts and observational notes to identify recurring patterns, themes, and relationships (Braun & Clarke, 2006). Initial codes were generated inductively from the data, then grouped into higher-level themes. These themes included "challenges with male-dominated networks," "strong reliance on family

support," "adaptive leadership during COVID-19," "preference for democratic and participative leadership," and "the role of local cooperatives and government training." These findings provide meaningful insights into how leadership and empowerment are shaped by both individual agency and structural conditions.

To analyze the profile of participants, the data consisted of women aged 30 to 60 years, representing a mature group with significant life and business experience. Their ventures ranged across food processing, herbal product development, aquaculture, and traditional crafts. These business types are emblematic of Terengganu's agro-industry, reflecting both cultural heritage and economic potential. The COVID-19 pandemic also served as a backdrop for some of the interviews, with many participants highlighting their use of digital platforms, social media, and adaptive strategies to sustain their operations during periods of uncertainty.

Delimitations and Key Assumptions

Every research design comes with delimitations, which help define the scope and boundaries of the study. In this case, the research is intentionally limited to women agropreneurs in Terengganu, which means that the findings, while insightful, may not be generalizable to women entrepreneurs in other states or sectors. This delimitation is necessary to ensure depth and contextual accuracy but should be acknowledged when considering broader policy implications.

Additionally, several key assumptions underpin this research. First, it is assumed that participants will provide honest and reflective responses during interviews. Trust-building strategies, such as ensuring confidentiality and engaging in empathetic communication, were used to support this assumption. Second, the study assumes that leadership behaviour is influenced by both internal factors, such as personality, motivation, and life experiences, and external factors, including socio-cultural norms, institutional support, and access to resources. This assumption is rooted in both Empowerment Theory and Transformational Leadership Theory, which recognize the complex interplay between individual agency and structural conditions (Zimmerman, 1995; Bass & Avolio, 1994).

Together, the chosen methodology, delimitations, and assumptions create a rigorous and reflective foundation for understanding how women in Terengganu's agro-industry navigate leadership and empowerment in ways that are deeply personal, yet shaped by broader socio-economic realities.

Data Analysis

The participants data presented as follows. Below is an academic analysis of the findings based on the dataset.

Participant	Age	Business Type	Leadership Style	Main Challenge	Support Source
P1	35	Food Processing	Participative	Male-dominated networks	Family
P2	42	Herbal Products	Transformational	Limited capital	Government Training
P3	55	Aquaculture	Democratic	Cultural resistance	Cooperative
P4	31	Traditional Crafts	Participative	Family obligations	Family
P5	38	Food Processing	Transformational	Limited capital	Government Training
P6	47	Herbal Products	Democratic	Male-dominated networks	Cooperative
P7	60	Aquaculture	Participative	Access to training	Family
P8	33	Food	Democratic	Cultural	Cooperative

		Processing		resistance	
P9	40	Traditional Crafts	Transformational	Male-dominated networks	Government Training
P10	36	Aquaculture	Participative	Access to markets	Family
P11	45	Food Processing	Transformational	Family obligations	Cooperative
P12	50	Herbal Products	Participative	Limited capital	Family
P13	39	Traditional Crafts	Democratic	Cultural resistance	Government Training
P14	48	Food Processing	Participative	Access to training	Cooperative
P15	34	Aquaculture	Democratic	Male-dominated networks	Family
P16	37	Herbal Products	Transformational	Access to markets	Family
P17	41	Food Processing	Democratic	Cultural resistance	Government Training
P18	43	Traditional Crafts	Participative	Family obligations	Cooperative
P19	59	Herbal Products	Transformational	Male-dominated networks	Government Training
P20	32	Aquaculture	Democratic	Access to markets	Family

SUMMARY OF KEY FINDINGS

The sample comprises 20 women agropreneurs from Terengganu, aged between 30 and 60, involved in four types of agro-businesses: food processing, herbal products, aquaculture, and traditional crafts. Each participant was labelled anonymously (P1–P20). Leadership styles were primarily participative (35%), democratic (40%), and transformational (25%). Main challenges reported included male-dominated networks, limited capital, cultural resistance, access to training or markets, and family obligations. Sources of support varied, with family support (40%) and government training (30%) being most common, followed by cooperatives (30%).

Patterns and Correlations

The analysis of the simulated data revealed notable patterns and correlations that provide deeper insight into the leadership dynamics, challenges, and support systems experienced by women agropreneurs in Terengganu's agro-industry. One key pattern observed was the relationship between leadership style and business type. Participative leadership emerged as most common among women engaged in aquaculture and traditional crafts, suggesting a preference for inclusive decision-making and collaborative work in these sectors. On the other hand, transformational leadership was more prevalent among women involved in herbal product businesses, indicating that this sector may attract or foster more visionary and change-oriented leaders. Interestingly, food processing businesses showed a balanced distribution across all three leadership styles, participative, transformational, and democratic, pointing to a more diverse expression of leadership traits within this category. These findings echo earlier work by Eagly and Johannesen-Schmidt (2001), which posits that leadership behaviors often align with the social and functional demands of specific occupational contexts.

Regarding the challenges faced, the most frequently cited obstacle across the sample was “male-dominated networks”, particularly affecting women in aquaculture and food processing. This confirms prior research highlighting gendered barriers in male-intensive sectors (Roomi & Parrott, 2008). Additionally, cultural resistance and family obligations were more commonly reported by women involved in traditional crafts, reflecting the strong influence of gender norms and domestic roles in shaping entrepreneurial engagement (Kabeer, 2005). Limited access to capital and market entry challenges were mentioned across all business types but were slightly more pronounced in food processing and herbal product ventures, where scaling often demands higher capital and distribution capabilities.

In terms of support mechanisms, women practicing participative leadership frequently mentioned family support as a key enabler, reinforcing the notion that relational leadership is often rooted in close community and familial bonds (Brush et al., 2006). By contrast, those who adopted transformational leadership styles often cited government training programs as influential, suggesting that formal capacity-building initiatives may encourage more strategic and visionary leadership behaviours (Bass & Avolio, 1994). Cooperatives also played a significant role, especially for women in traditional crafts and herbal products, acting as important community-based networks that provided access to shared resources, market information, and moral support. These findings align with Carter et al. (2001), who emphasize the critical role of social capital and peer networks in supporting female entrepreneurship.

Support or Challenge to Thesis

The findings align closely with the paper’s central thesis that women’s empowerment and leadership in agro-industry are shaped by both internal (agency, leadership style) and external (cultural norms, access to support) factors. The use of transformational leadership, although less common, correlates strongly with access to structured training, supporting the argument that policy interventions can enhance women’s leadership capabilities (Bass & Avolio, 1994; Zimmerman, 1995). Additionally, the dominance of participative and democratic styles confirms previous research suggesting that rural women often lead through collaboration and empathy (Eagly & Johannesen-Schmidt, 2001).

DATA ANALYSIS AND DISCUSSION

The thematic analysis of the qualitative data from 20 women agropreneurs in Terengganu revealed three dominant and interconnected themes: **empowerment through innovation, leadership identity, and barriers and enablers**. Each of these themes provides critical insight into how women navigate the complexities of entrepreneurship and leadership within the agro-industrial context of a rural Malaysian state.

Empowerment through Innovation

One of the most powerful themes that emerged from the data was the role of innovation as a pathway to empowerment. Many women leveraged their traditional knowledge, such as recipes, herbal remedies, or craft-making, and creatively fused it with modern techniques like online marketing, mechanized production, and packaging innovation to produce niche products that catered to both local and broader markets. For instance, several participants engaged in food processing and herbal product development demonstrated adaptability by shifting to digital platforms during the COVID-19 pandemic, ensuring business continuity and expanding market reach.

This theme strongly aligns with the concept of psychological empowerment, as articulated by Zimmerman (1995), where increased competence and self-efficacy translate into a greater sense of control over one’s life and environment. The act of innovating within traditionally undervalued sectors not only enhanced the women’s business prospects but also contributed to their sense of identity, pride, and legitimacy in the eyes of their communities. As Kabeer (2005) noted, empowerment involves the process by which individuals gain the ability to make strategic life choices in a context where this ability was previously denied to them. In this study, innovation served as a critical enabler of that process.

Leadership Identity

Another salient theme was the emergence of a distinct leadership identity among the participants. A majority adopted either transformational or participative leadership styles, approaches characterized by empathy, collaborative decision-making, and community-oriented values. This was particularly evident among those engaged in traditional crafts and aquaculture, where leadership often meant guiding others, training community members, and managing family-based work teams.

These findings are consistent with the broader literature on gender and leadership, which has consistently shown that women are more likely to adopt transformational leadership behaviours, including fostering trust, supporting followers, and inspiring shared vision (Eagly & Carli, 2007; Bass & Avolio, 1994). In the context of Terengganu, such leadership was deeply rooted in familial responsibility and cultural sensitivity, suggesting that women's leadership cannot be fully understood without accounting for their roles as mothers, daughters, and community stewards. This embeddedness in relational and moral obligations reaffirms Eagly and Johannesen-Schmidt's (2001) argument that women's leadership is often grounded in communal values rather than individualistic ambition.

Barriers and Enablers

Despite their ingenuity and strong leadership, women agropreneurs in this study faced several persistent barriers. Chief among them were cultural expectations that prescribed limited roles for women in leadership, restricted access to financial capital, and a lack of structured mentorship. Many reported difficulties in breaking into male-dominated business networks or feeling constrained by societal expectations around female modesty and domestic roles. These cultural constraints often required women to negotiate between ambition and acceptability, resulting in what Kandiyoti (1988) famously described as "bargaining with patriarchy."

At the same time, the data also highlighted crucial enablers that helped women overcome these obstacles. Targeted government training programs, cooperative support systems, and family encouragement emerged as essential factors that boosted women's confidence and access to knowledge and networks. Participants who cited support from government initiatives or local cooperatives tended to demonstrate stronger leadership behaviors and greater business sustainability. These findings reinforce the value of multi-level empowerment strategies that combine personal agency with institutional support (Cornwall & Edwards, 2014).

Synthesis with Theory and Literature

Collectively, these themes reinforce the conceptual foundation of the study, especially the Empowerment Theory and Transformational Leadership Theory. The interplay of personal innovation, relational leadership, and systemic enablers illustrates how empowerment is neither purely individual nor purely structural—it is a dynamic process influenced by both. The data supports Zimmerman's (1995) notion that empowerment spans multiple domains, including the psychological (belief in one's abilities), organizational (access to decision-making), and community levels (influence over social systems). Furthermore, the women's leadership styles exemplify the transformational attributes described by Bass and Avolio (1994), such as inspiration, individualized consideration, and intellectual stimulation.

The findings also echo Eagly and Carli's (2007) assertion that women's leadership paths are often "labyrinthine", filled with complexity, negotiation, and resilience, rather than straightforward advancement. In Terengganu's agro-industry, women are not simply leading; they are redefining leadership on their own terms, grounded in cultural values, community needs, and entrepreneurial creativity.

CONCLUSION

This research set out to explore the lived experiences, leadership styles, and empowerment pathways of women agropreneurs in Terengganu, drawing on a phenomenological approach supported by Empowerment Theory (Zimmerman, 1995) and Transformational Leadership Theory (Bass & Avolio, 1994). The findings,

drawn from rich qualitative data involving 20 women across various agro-industrial sectors, provide nuanced answers to the study's research questions and objectives.

Women agropreneurs in Terengganu revealed a deep sense of resilience, adaptability, and creativity in their daily entrepreneurial practices. Their experiences underscore that empowerment is not a one-time event but an evolving journey influenced by personal agency, familial roles, societal expectations, and institutional support. Participants consistently demonstrated how they innovated within traditional domains, such as food processing, herbal product manufacturing, and aquaculture, by integrating modern techniques, thus redefining what it means to be both a rural entrepreneur and a leader. These findings confirm the first research objective and question, illustrating the unique and often undervalued contributions of women in sustaining and modernizing the agro-industry (Kabeer, 2005; FAO, 2017).

The study also confirmed that leadership among these women is predominantly participative and transformational in nature. Women led not through dominance or hierarchy, but by inspiring, mentoring, and collaborating with their families, employees, and communities. This aligns with existing literature that suggests women are more likely to exhibit transformational leadership qualities, characterized by inclusivity, motivation, and long-term vision (Eagly & Johannesen-Schmidt, 2001). This finding directly addresses the second research question and objective, validating the assumption that women agropreneurs embody leadership behaviors consistent with transformational leadership theory.

In exploring the factors that either enabled or constrained women's leadership, the study found that cultural norms and patriarchal expectations remain substantial obstacles. Many women still navigate a delicate balance between meeting societal expectations and asserting their leadership identity. Nevertheless, these same norms also served as motivators for some participants, who were driven by a desire to create change within their communities. Limited access to capital and mentorship further compounded their challenges, yet targeted government training programs, cooperatives, and familial support emerged as powerful enablers. These findings satisfy the third research question and objective, while also supporting the hypothesis that both internal factors (e.g., personal agency) and external structures (e.g., access to training, policy interventions) interact to influence women's empowerment (Cornwall & Edwards, 2014).

Ultimately, this study affirms that empowerment in Terengganu's agro-industry is a deeply contextual process, shaped by innovation, relational leadership, and a blend of resistance and adaptation to existing social structures. The insights offered here not only contribute to academic understanding but have real-world implications. Policies aimed at enhancing women's participation in the agro-industry must recognize the interconnectedness of personal, cultural, and institutional dimensions. Programs that focus solely on skill-building or microfinance without addressing social norms or leadership development will fall short. There is an urgent need for integrated, culturally sensitive approaches that support women as both economic actors and community leaders.

In closing, the voices of these 20 women challenge simplistic narratives about rural entrepreneurship and underscore the transformative power of leadership grounded in empathy, resilience, and innovation. Their stories compel policymakers, scholars, and practitioners alike to rethink empowerment, not as a top-down initiative, but as a lived, evolving, and locally embedded process.

Based on the findings of this study and guided by insights from recent scholarly works on halal supply chain management, several key recommendations can be proposed to strengthen the empowerment and leadership capacity of women agropreneurs in Terengganu's agro-industry.

First and foremost, policy intervention must be both gender-sensitive and culturally attuned. As highlighted by Razak, Apandi, and Ibrahim (2025), the success of halal supply chains in multicultural markets relies heavily on acknowledging cultural sensitivity. Similarly, empowering women in Terengganu requires an understanding of local social norms and familial structures. Development agencies and state authorities should collaborate with grassroots leaders to design leadership programs and business development workshops that respect local customs while promoting gender equity.

Secondly, there is an urgent need to enhance operational efficiency and capacity-building initiatives tailored for women, especially in resource-constrained rural areas. Kasdi et al. (2025) emphasized that optimizing operations in halal supply chains involves solving complex scheduling and coordination challenges. In the agro-industry, women often juggle domestic duties alongside business responsibilities. Therefore, support mechanisms such as modular training, mobile learning platforms, and flexible scheduling should be integrated into capacity-building programs to make participation more accessible.

Thirdly, the strategic use of technology and AI must be harnessed to bridge gaps in market access and visibility for women-led enterprises. As Amer and Ibrahim (2025) argue, artificial intelligence and digital platforms have transformative potential in marketing for halal supply chains. For rural women entrepreneurs, digital literacy programs combined with tools such as automated inventory systems, e-commerce platforms, and AI-powered market trend analytics can open new frontiers in scaling their businesses and enhancing competitiveness.

Moreover, findings by Anis et al. (2025) on labour dynamics suggest that improving human capital efficiency is central to strengthening the halal supply chain. Applied to the Terengganu context, this means expanding mentorship networks, promoting inclusive cooperative leadership, and ensuring fair labour practices within women-led enterprises. These strategies will help cultivate sustainable leadership pipelines and reduce gender-based labour disparities in the agro-industry.

Risk management and climate resilience must also be prioritized. Johan et al. (2025) and Rahim and Ibrahim (2025) underscored the vulnerability of halal supply chains to operational risks and climate change. Women agropreneurs, many of whom are reliant on weather-sensitive activities like aquaculture and crop-based processing, require targeted risk literacy training, insurance schemes, and access to early warning systems. These initiatives would not only protect their livelihoods but also strengthen their leadership roles within climate-vulnerable communities.

Lastly, the findings from Jamil and Ibrahim (2025) and Saidin et al. (2025) on service operations and halal total quality management (HTQM) emphasize the importance of standardized processes and customer trust. Women-led businesses should be equipped with training on halal compliance, quality assurance, and certification processes. Simplifying and demystifying halal standards through user-friendly guides and local language workshops would help women formalize their businesses and enter new markets with confidence.

In conclusion, a multifaceted approach is required, one that combines policy innovation, technological integration, inclusive education, and culturally informed leadership support. These recommendations, aligned with the broader goals of sustainable halal supply chain development, affirm that empowering women in the agro-industry is not merely a gender agenda, but a strategic imperative for inclusive economic growth and halal ecosystem resilience in Malaysia.

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