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Enhancing Fishermen's Sustainable Livelihoods: The Role of Financial Literacy, Networking, and Funding Decisions

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ABSTRACT

This study aims to examine the effect of financial literacy and networking on sustainable livelihood, with funding decisions as a mediating variable among motorized boat fishermen in West Sulawesi, Indonesia. A quantitative approach, employing survey methods, was used to collect data from 150 respondents, which were then analyzed using Structural Equation Modeling (SEM). The results indicate that financial literacy and networking have significant direct effects on sustainable livelihood, and both variables also significantly influence funding decisions. Furthermore, funding decisions have a significant impact on sustainable livelihood and act as a mediating variable in the relationship between financial literacy and networking with sustainable livelihood. These findings suggest that enhancing financial knowledge and social capital among fishermen can improve funding strategies and strengthen livelihood sustainability. The study provides empirical support for development programs focusing on financial capacity building and community-based networking as effective tools to improve economic resilience in coastal communities. The results contribute to the theoretical discourse on sustainable livelihood and offer practical implications for policymakers and stakeholders in the fisheries sector seeking to develop inclusive, targeted, and sustainable development interventions.

1. INTRODUCTION

As the world's largest archipelagic state, Indonesia possesses vast marine resources, encompassing approximately 1.92 million km² of land area, 3.1 million km² of territorial and inland seas, and 2.7 million km² of Exclusive Economic Zone [1]. With a coastline stretching over 81,000 kilometers, Indonesia has the longest tropical coastline globally. West Sulawesi, located along the western coast of Sulawesi Island, contributes significantly to this maritime landscape, with approximately 750 kilometers of coastline. Of its six regencies, five are coastal, and the majority of the population relies on capture fisheries for their livelihoods. However, climate change has increasingly disrupted fishing activities, as unpredictable and prolonged extreme weather—such as storms, high waves, heavy rain, and lightning—forces fishermen to limit or cancel their sea expeditions. These abrupt changes often occur after fishermen have already invested significant funds in fuel and equipment, resulting in substantial economic losses. Consequently, the uncertain income caused by these disruptions has contributed to rising poverty levels among coastal communities in West Sulawesi.

Despite the abundance of marine resources and the strategic role of fishermen in boosting the national fisheries sector, many coastal areas in Indonesia remain pockets of poverty [2]. This paradox reflects structural issues in resource distribution and equitable access, as fishermen often struggle with limited control over production and market chains [3]. The sustainable livelihood approach has emerged as a response to these systemic challenges, aiming to enhance the well-being of vulnerable communities, such as small-scale fishermen, by leveraging various livelihood assets—human, natural, physical, financial, and social capital. By strengthening these assets, communities are better equipped to generate continuous income, adapt to environmental and economic shocks, and reduce vulnerability to climate change, disasters, and market volatility. According to Chambers and Conway [4], a sustainable livelihood is one that can cope with and recover from stresses and shocks, maintain or enhance its resource base, and provide viable opportunities for both current and future generations. This approach not only fosters economic resilience but also plays a crucial role in poverty reduction and local development.

Fishing communities, particularly small-scale capture fishermen, often possess limited knowledge and skills confined to traditional seafaring practices passed down through generations [2]. This narrow skill set, coupled with a lack of financial literacy, poses significant barriers to achieving economic resilience. Many fishermen tend to spend their daily income without saving, fall into consumptive debt traps, and lack emergency funds to withstand seasonal storms and economic shocks. Studies have found that a vast majority of fishermen in regions such as Brebes, Tegal, and Pekalongan lack even basic financial knowledge, with over 85% having no savings account [5]. Similarly, Artadi et al. [6] reported a financial literacy rate of only 64.18% in Gorontalo Utara, with education and age being key influencing factors. This low level of financial awareness impedes their ability to manage fluctuating incomes and increases their vulnerability to exploitative informal lending.

According to the Human Capital Theory, financial literacy is a critical component of human capital, as it enhances individuals' ability to make rational economic decisions and improve their livelihoods [7]. Financial literacy enables fishermen to manage personal, household, and fishing enterprise finances effectively, strengthening their capacity to mitigate risk and seize economic opportunities. As emphasized by DFID [8], sustainable livelihoods depend heavily on the efficient management of financial assets.

Empirical studies [9-11] consistently emphasize the vital role of financial literacy in enhancing livelihood sustainability, especially within vulnerable, resource-dependent communities. Financial literacy is believed to improve individuals' ability to manage income, plan investments, and reduce vulnerability to financial crises [12, 13]. However, other studies [14] have found that improvements in financial literacy do not always translate into significant changes in economic behavior, particularly in the absence of inclusive financial institutions or supportive socio-cultural contexts.

A similar pattern emerges with networking, as a core component of social capital. According to Social Capital Theory [15], strong social networks—built on trust and cooperation—can enhance collective efficiency, facilitate the exchange of information, and bolster economic resilience. In fishing communities, such networks often take the form of fisher groups, informal connections with traders, and links to institutional actors, enabling adaptive responses to market and environmental uncertainties [16-18]. However, other research [19] warns that excessively strong bonding social capital can lead to exclusivity and hinder access to external, more productive resources.

Previous studies have shown mixed results regarding the influence of financial literacy and networking on sustainable livelihood, suggesting the potential for indirect relationships mediated by other variables, such as funding decisions. In the context of fishing communities, funding decisions are critical for ensuring the continuity of operations, as they relate directly to the selection of appropriate and risk-mitigating financing sources. Adequate financial literacy enables individuals to evaluate funding alternatives rationally, while strong networking facilitates access to external resources through trust and social capital. Thus, funding decisions act as a mediating bridge connecting financial literacy and networking with sustainable livelihood. This study adopts Resilience Theory to explain how financial literacy and networking contribute to sustainable livelihood through funding decisions. The theory highlights the adaptive capacity of individuals and communities in facing challenges, aligning with the study's focus on how coastal fishermen build economic resilience through informed and socially supported financial strategies.

2. CONCEPTUAL FRAMEWORK AND HYPOTHESIS

The conceptual framework of this study is constructed based on Resilience Theory, which emphasizes the capacity of individuals and communities to adapt, recover, and thrive amid adversity. In the context of motorized boat fishermen in West Sulawesi, this research posits that financial literacy and networking serve as key resilience-building factors that enable fishermen to make effective funding decisions, which in turn support sustainable livelihoods. Financial literacy equips individuals with the knowledge and attitudes needed to manage income, savings, and credit wisely, while networking—particularly bonding social capital—provides mutual support and access to internal financial resources. Funding decisions act as a mediating variable that reflects the strategic choices made in response to economic and environmental challenges. Thus, the conceptual model integrates these elements to demonstrate how internal capabilities (literacy and social capital) foster resilience through adaptive financial behavior, ultimately enhancing long-term economic sustainability and intergenerational welfare.

Financial literacy, from the perspective of Human Capital Theory, is a vital asset comprising knowledge and skills that enable individuals to make sound financial decisions, manage resources efficiently, and plan for long-term economic well-being. Meanwhile, Resilience Theory highlights financial literacy as a key factor in enhancing individuals' ability to adapt to economic pressures or crises. Thus, financial literacy not only strengthens economic capacity but also builds resilience in facing risks and uncertainties, ultimately supporting the achievement of sustainable livelihoods. Previous studies have consistently shown the critical role of financial literacy in achieving sustainable livelihood. Akande et al. [9] found a positive and significant relationship between financial literacy and sustainable livelihood, while Stewart-Withers et al. [10] emphasized that poor financial literacy hinders sustainability outcomes. Mukokoma et al. [20] further demonstrated that financial attitudes significantly predict livelihood levels, and Dabo and Gwom [11] confirmed the influence of financial literacy on the sustainability of family businesses in Nigeria. Individuals with strong financial literacy are better equipped to manage income, avoid excessive debt, and build financial security, enabling them to maintain stable livelihoods amid economic and environmental changes. Based on this evidence, the following hypothesis is proposed:

H1: *Financial literacy has a significant effect on sustainable livelihood.*

Based on Social Capital Theory, networking is a form of social capital that reflects relationships and trust, enabling access to information, resources, and economic opportunities. Strong social networks facilitate collaboration and knowledge sharing, which in turn contribute to sustainable livelihoods. Meanwhile, Resilience Theory emphasizes that networking also strengthens individuals' ability to cope with and adapt to stress or crises, making it a crucial factor in sustaining livelihoods over time. A growing body of research highlights the significant role of networking—understood as a form of social capital—in supporting sustainable livelihood. Maas et al. [16] and Abenakyo et al. [21] both found that social capital has a positive influence on access to livelihood assets. Gai et al. [17] emphasized that the greatest strength of sustainable livelihood lies in social capital, while Klaas and Chimucheka [18] confirmed its positive effect on SME performance. Networking enhances access to critical resources, information, and opportunities for collective action, as demonstrated by

Ofolsha et al. [22] and Mahato and Jha [23]. Additionally, studies such as those by Chen et al. [24] and Binder and Schöll [25] show that strong social networks promote trust, cooperation, and adaptive strategies essential for livelihood resilience. The importance of bridging and linking social capital in improving access to aid and institutional support, as discussed by Panday et al. [26], Sseguya et al. [27], and Hossain and Banik [28], further underlines networking's critical role. Based on this evidence, the following hypothesis is proposed:

H2: *Networking has a significant effect on sustainable livelihood.*

According to the Pecking Order Theory, individuals tend to prioritize funding sources in a specific order—starting with internal funds, followed by debt, and finally external equity—to minimize risk and dependence. This approach reflects prudence in financial management. Meanwhile, Resilience Theory emphasizes that wise funding decisions can enhance an individual's ability to adapt to economic uncertainty, thereby strengthening resilience and supporting sustainable livelihoods. Yazdanfar and Öhman [29] and Asare and Angmor [30] highlight that high debt ratios, especially short-term loans, negatively impact financial performance and profitability. Conversely, studies by Botta [31], Li et al. [32], and Manyanga et al. [33] suggest that an optimal capital structure, which balances internal and external financing, can enhance financial outcomes in SMEs. Moreover, Ullah et al. [34] found that various funding sources—including trade credit, loans, and equity—contribute differently to financial performance, with trade credit being most influential. Government support, as evidenced by Nor et al. [35] and Bakhtiari [36], also plays a vital role in enabling access to external financing and enhancing competitiveness. Furthermore, Sahu et al. [37] demonstrate that well-managed credit access, such as microloans, significantly improves livelihoods and economic empowerment. These findings suggest that effective funding decisions not only strengthen financial performance but also contribute to long-term livelihood sustainability. Therefore, the following hypothesis is proposed:

H3: *Funding decisions have a significant effect on sustainable livelihood.*

From the perspective of Resilience Theory, financial literacy is an internal capacity that helps individuals cope with economic pressures and uncertainties. A strong understanding of financial concepts enables individuals to assess funding risks and make wise, adaptive financing decisions. The higher the level of financial literacy, the greater the individual's resilience and flexibility in choosing appropriate funding sources, reflecting the application of resilience principles in financial behavior. Borgia and Newman [38] highlighted that attitudes toward external control and risk influence the capital structure of SMEs, which is closely linked to funding decisions. Chinen and Endo [39] and Sevim et al. [40] emphasized that a lack of financial literacy often leads to poor financial decisions, including excessive borrowing. Kara et al. [41] and Hasan et al. [42] found that sufficient financial literacy improves access to financing from various sources such as banking institutions, microfinance, and fintech. Moreover, Candiya Bongomin et al. [43] and Carpena et al. [44] demonstrated that attitudes and knowledge within financial literacy significantly influence household credit decisions. Therefore, higher financial literacy enhances one's ability to select appropriate funding sources and avoid financial missteps. Based on these considerations, the following hypothesis is proposed:

H4: *Financial Literacy has a significant effect on Funding Decisions.*

Within the framework of Resilience Theory, networking is seen as social capital that enhances individuals' adaptive capacity in facing economic challenges, including funding decisions. Through strong social networks, individuals gain access to information, support, and alternative sources of financing, enabling them to make wiser and more responsive funding choices. Networking also serves as a platform for sharing experiences and survival strategies, enriching their ability to evaluate various financing options. Machirori and Fatoki [45] found that networks positively contribute to debt financing access and SME performance in South Africa, while Nguyen and Ramachandran [46] identified a close link between networks and capital structure in Vietnamese SMEs. Borgia and Newman [38] noted that business owners with strong social networks tend to rely less on credit due to their ability to access external resources through informal channels. Ferrer et al. [47] also emphasized that networks played a crucial role in funding decisions on crowdlending platforms during the COVID-19 pandemic. Moreover, research by Gautier et al. [48], Di Maggio et al. [49], Bin-Nashwan et al. [50], and Guo et al. [51] confirmed that both physical and digital networks improve information flow, influence funding strategies, and attract more financial support. Based on this evidence, the following hypothesis is proposed:

H5: *Networking has a significant effect on Funding Decisions.*

From the perspective of Resilience Theory, financial literacy is an internal capacity that helps individuals cope with economic pressures. With strong financial literacy, individuals are better able to assess funding risks and make wise, adaptive financing decisions. These sound funding decisions enhance economic resilience and support efficient resource management to maintain long-term financial stability. Studies by Chinen and Endo [39], Kara et al. [41], and Hasan et al. [42] emphasize that strong financial knowledge enhances access to credit and promotes informed financial behaviors, while inadequate literacy often leads to poor debt choices and financial mismanagement. Furthermore, appropriate funding decisions—supported by sound financial knowledge—can optimize resource use, maintain financial stability, and ultimately contribute to long-term livelihood sustainability. In this context, financial literacy plays a mediating role by influencing funding decisions, which in turn affect the economic resilience and sustainability of individuals or enterprises. Based on this rationale, the following hypothesis is proposed:

H6: *Financial Literacy significantly affects Sustainable Livelihood through Funding Decisions.*

From the perspective of Resilience Theory, networking serves as social capital that enables individuals to access information and alternative funding sources, allowing them to make wiser and more adaptive financing decisions. These sound funding decisions strengthen economic resilience and support risk management, ultimately contributing to sustainable livelihoods by enhancing the capacity to cope with economic changes and pressures. Strong networking has been shown to positively influence SMEs' capital structure [46], which in turn impacts financial performance and long-term business sustainability. Through networks, entrepreneurs gain access to diverse financing channels, including trade credit, short- and long-term loans, and informal funding—resources that are crucial in making sound funding decisions. These decisions are directly tied to financial performance, as indicated by various studies [29, 30, 34], which link appropriate financing strategies to improved profitability and asset returns. A robust network also facilitates knowledge sharing, trust building, and access to government or external support [35, 36], all of which contribute to sustainable livelihood outcomes. Thus, strategic networking strengthens funding decisions, enhances financial stability, and ultimately supports livelihood sustainability. Based on this, the following hypothesis is proposed:

H7: *Networking significantly affects Sustainable Livelihood through Funding Decisions.*

3. METHODOLOGY

This research employs an explanatory approach to examine the causal relationships among variables by testing hypotheses. The exogenous variables include financial literacy and networking, while the endogenous variables are sustainable livelihood and financing decisions, with financing decisions also serving as a mediating variable.

Financial Literacy in this study refers to the ability of individuals, particularly fishermen, to understand and use financial information to manage their finances effectively. Referring to Candiya Bongomin et al. [43], this variable is measured through four indicators: knowledge, skills, attitude, and behavior, using a total of 15 statement items.

Networking is defined as the ability of fishermen to build and utilize social relationships to support their economic activities. Based on the works of Putnam [15], Woolcock and Narayan [52], and Szreter and Woolcock [53], networking is assessed through three indicators: bonding (within homogeneous groups), bridging (across heterogeneous groups), and linking (across social hierarchies), with 9 statement items.

Funding Decisions describe the methods used by fishermen to obtain financial resources to support their business operations. This variable, adapted from Mac an Bhaird and Lucey [54] and Myers [55], includes two indicators: internal funding (personal savings or own capital) and external funding (loans or aid), measured through 6 statement items.

Sustainable Livelihood refers to the ability of fishermen to maintain or improve their livelihood by coping with shocks and stresses, and ensuring long-term income generation. Based on Chambers and Conway [4], the variable includes three indicators: capability, equity, and sustainability, using 13 statement items.

Data were collected using a Likert scale to measure respondents' attitudes, opinions, and perceptions regarding each statement. According to Sugiyono and Orang [56], the Likert scale scores range from 1 (Strongly Disagree) to 5 (Strongly Agree), providing a structured and quantifiable measurement approach.

A quantitative method with a positivist paradigm is used, based on empirical data to allow generalization to the population. The study population comprises groups of marine capture fishermen using motorized boats across five regencies in West Sulawesi, with a sample size of 357 respondents determined using the Slovin formula and selected through cluster random sampling. Data were collected via surveys using Likert-scale questionnaires and supported by documentation from relevant literature. Data analysis employed Structural Equation Modeling (SEM) using SPSS 21 and AMOS 23, including validity and reliability tests, descriptive analysis, confirmatory factor analysis, normality and outlier tests, model fit evaluation, and hypothesis testing to assess both direct and indirect effects among variables.

4. RESULTS

4.1 SEM analysis

Table 1. Goodness of fit test for the full SEM model

Goodness of Fit Index	Cut-Off Criteria	Model Result	Assessment
Chi-Square	Preferably small	133.695	Marginal
Probability (p-value)	≥ 0.05	0.000	Marginal
RMSEA	≤ 0.08	0.072	Good
GFI	≥ 0.90	0.944	Good
AGFI	≥ 0.90	0.899	Nearly Good
CMIN/DF	≤ 2	2.785	Marginal
TLI	≥ 0.90	0.946	Good
CFI	≥ 0.95	0.961	Good

Source: AMOS Output, 2024

The results of the Goodness of Fit analysis show that the Chi-Square value of 133.695 with a probability of 0.000 indicates that the model fit is less than ideal (Table 1). However, considering the sensitivity of this indicator to large sample sizes, its interpretation should not stand alone. Therefore, support from other fit indices is needed to assess the overall model fit more comprehensively.

The RMSEA index value of 0.072 falls within the acceptable range, as it is below the cut-off value of 0.08. This suggests that the model has a relatively low approximation error and a reasonably good fit with the data. Additionally, the GFI (0.944) and TLI (0.946) values exceed the minimum threshold of 0.90, indicating a strong model fit to the empirical data.

The AGFI value of 0.899 is slightly below the expected standard (≥ 0.90), indicating a nearly acceptable fit. Meanwhile, the CMIN/DF value of 2.785 slightly exceeds the ideal limit (≤ 2), but it can still be tolerated given the complexity of the model and the sample size used.

Finally, the CFI value of 0.961, which surpasses the recommended standard of ≥ 0.95, further supports the conclusion that the model demonstrates a very good fit. Overall, most of the goodness-of-fit indices yield satisfactory results, indicating that the SEM model used in this study is adequately fit for hypothesis testing and further analysis.

4.2 Direct effect hypothesis test

Table 2. Results of direct effect hypothesis test

Hypothesis	Estimate	S.E.	C.R.	P-Value	Information
FL → SL	0.152	0.054	2.83	0.005	Significant
N → SL	0.375	0.062	6.029	***	Significant
FD → SL	0.269	0.076	3.543	***	Significant
FL → FD	0.272	0.056	4.853	***	Significant
N → FD	0.241	0.062	3.871	***	Significant

Source: Processed AMOS calculation results, 2024
Note:
FL: Financial Literacy; N: Networking;
FD: Funding Decisions; SL: Sustainable Livelihood

Based on the results of the hypothesis test shown in Table 2, the following is a detailed explanation of each hypothesis tested in this study:

4.2.1 The effect of financial literacy on sustainable livelihood

The analysis results show that financial literacy has a significant effect on sustainable livelihood, with an estimated coefficient of 0.152, standard error (S.E.) of 0.054, and a critical ratio (C.R.) of 2.83. The p-value of 0.005 confirms the statistical significance of this relationship. This indicates that better financial literacy among fishermen contributes to improved livelihood sustainability. Therefore, hypothesis 1 stating financial literacy significantly affects sustainable livelihood is supported by the data.

4.2.2 The effect of networking on sustainable livelihood

Networking was found to have a statistically significant impact on sustainable livelihood, with an estimated value of 0.375, S.E. of 0.062, and a C.R. of 6.029. The p-value is highly significant (***), suggesting a strong and positive relationship. This result confirms that strong social connections and trust within the community help strengthen the livelihood resilience of fishermen. Thus, hypothesis 2 that networking significantly influences sustainable livelihood is supported.

4.2.3 The effect of funding decisions on sustainable livelihood

The third hypothesis tested whether funding decisions influence sustainable livelihood. The analysis showed an estimated coefficient of 0.269, S.E. of 0.076, and a C.R. of 3.543. The p-value was highly significant (***), indicating a robust statistical relationship. This demonstrates that good financial decision-making—such as the use of internal funding—supports long-term livelihood sustainability. Therefore, this hypothesis 3 is supported by the data.

4.2.4 The effect of financial literacy on funding decisions

The analysis revealed that financial literacy significantly affects funding decisions, with an estimated coefficient of 0.272, S.E. of 0.056, and a C.R. of 4.853. The highly significant p-value (***) confirms the strength of this relationship. This suggests that fishermen with stronger financial knowledge are more capable of making sound decisions about funding their fishing operations. Thus, hypothesis 4 stating that financial literacy significantly affects funding decisions is supported.

4.2.5 The effect of networking on funding decisions

Networking also showed a significant influence on funding decisions, with an estimated coefficient of 0.241, S.E. of 0.062, and a C.R. of 3.871. The very small p-value (***) highlights the statistical significance of this effect. This indicates that strong social ties facilitate access to informal funding sources and improve financial cooperation among fishermen. Therefore, hypothesis 5 that networking significantly influences funding decisions is supported by the data.

4.3 Mediation hypothesis test

Here are two concise paragraphs explaining the results of the mediation hypotheses analysis based on Table 3.

The mediation analysis using the Sobel Test confirms that funding decisions significantly mediate the relationship between financial literacy and sustainable livelihood. The Sobel test statistic was 2.861, with a two-tailed p-value of 0.0042 ($p < 0.05$), indicating a statistically significant mediation effect. This means that part of the impact of financial literacy on sustainable livelihood occurs through better funding decisions. Individuals with higher financial literacy are more likely to make informed financial decisions, which in turn enhances the sustainability of their livelihoods. Therefore, the hypothesis that financial literacy affects sustainable livelihood through funding decisions is supported by the data.

Table 3. Mediation test results with Sobel test

Independent → Mediator → Dependent	Sobel Test Statistic	One-Tailed P-Value	Two-Tailed P-Value	Significance Description
FL → FD → SL	2.861	0.0021	0.0042	Significant ($p < 0.05$)
N → FD → SL	2.617	0.0044	0.0089	Significant ($p < 0.05$)

Source: Processed AMOS calculation results, 2024

Similarly, the analysis shows that funding decisions also significantly mediate the relationship between networking and sustainable livelihood. The Sobel test statistic was 2.617, with a two-tailed p-value of 0.0089 ($p < 0.05$), confirming the presence of a significant indirect effect. This suggests that strong networking helps improve financial decision-making, which ultimately contributes to more sustainable livelihoods. These findings indicate that both financial literacy and networking influence sustainable livelihood not only directly but also indirectly through the mediating role of funding decisions, supporting the theoretical model proposed in this study.

5. DISCUSSIONS

5.1 The influence of financial literacy on sustainable livelihood

The findings of this study reveal that financial literacy significantly influences the sustainable livelihood of motorized boat fishermen in West Sulawesi, with financial attitude emerging as the most dominant indicator. A positive financial attitude, reflected in behaviors such as saving income in banks, utilizing bank credit to purchase boats or upgrade fishing equipment, and securing additional business capital, illustrates a high level of financial awareness and responsibility. This proactive mindset allows fishermen not only to meet their short-term economic needs but also to develop long-term strategies for coping with challenges such as seasonal storms or market price fluctuations. Consequently, financial literacy, particularly in the form of positive financial attitudes, strengthens their ability to achieve sustainable livelihoods by promoting economic resilience, stability, and intergenerational well-being. This finding supports Human Capital Theory, which asserts that investment in individual capacity—such as knowledge, skills, and attitudes—enhances long-term productivity and economic welfare. The findings of this study support the Resilience Theory, as they demonstrate that financial literacy—particularly a strong financial attitude—enhances the capacity of motorized boat fishermen in West Sulawesi to adapt to economic challenges and sustain their livelihoods. Behaviors such as saving, managing credit wisely, and planning for future needs reflect a proactive and flexible mindset, which aligns with the core of Resilience Theory: the ability to absorb shocks, adapt, and transform in response to adversity. Thus, the results affirm that financial literacy plays a critical role in strengthening individual and household resilience, enabling fishermen to cope with uncertainties and maintain long-term livelihood sustainability.

5.2 The influence of networking on sustainable livelihood

The results of this study indicate that networking has a significant influence on the sustainable livelihood of motorized boat fishermen in West Sulawesi, with bonding emerging as the strongest indicator. Strong bonding reflects close social ties among fishermen within their communities, characterized by mutual trust, solidarity, and a strong spirit of cooperation—evident in their willingness to share information about fishing plans and maintain supportive relationships in daily life. In the context of sustainable livelihoods, this social cohesion serves as crucial social capital, enabling access to moral, material, labor, and informational support needed to withstand economic and environmental pressures. Such bonding also fosters more responsible and collaborative financial practices, such as group savings or joint ventures, which in turn enhance economic resilience and long-term sustainability. These findings align with Social Capital Theory, which emphasizes that well-established social networks function as strategic resources for strengthening economic independence and resilience. Moreover, these findings are consistent with Resilience Theory, which emphasizes the importance of social systems and networks in enabling individuals and communities to recover from disturbances and maintain long-term well-being. Therefore, the study supports the theory by showing that strong social ties (bonding) contribute to collective resilience and play a strategic role in sustaining livelihoods under pressure.

5.3 The impact of funding decisions on sustainable livelihoods

The findings of this study reveal that funding decisions have a significant influence on the sustainable livelihood of motorized boat fishermen in West Sulawesi, with internal funding emerging as the strongest indicator. This reflects the fishermen's ability to rely on personal savings, retained earnings, or peer-based informal loans to finance their fishing activities—demonstrating financial independence and prudence in managing operational costs. By prioritizing internal sources of financing, fishermen are less vulnerable to high-risk external funding and are better positioned to maintain economic stability in the face of market or environmental uncertainties. This strategic financial behavior contributes positively to their ability to sustain and grow their livelihoods over time. Internal funding not only reduces debt-related burdens but also promotes long-term economic planning, enabling fishermen to invest in their children's education, develop skills for future generations, and expand their businesses sustainably. These findings align with the Pecking Order Theory, which posits that individuals prefer using internal funds over external financing to avoid financial risk. With internal funding emerging as the most dominant indicator. This suggests that fishermen who prioritize the use of personal savings, retained earnings, or informal community-based loans demonstrate a higher degree of financial autonomy and strategic foresight in managing their economic activities. Such reliance on internal resources reduces exposure to the risks associated with external borrowing, thereby enhancing financial stability and resilience in the face of fluctuating market conditions or environmental challenges. This behavior aligns strongly with Resilience Theory, which underscores the importance of self-sufficiency, adaptive capacity, and proactive risk management in ensuring long-term well-being. By using internal funding as a strategy to stabilize and grow their livelihoods, these fishermen exemplify resilient economic behavior. Therefore, the results of this study clearly support the principles of Resilience Theory by showing that internal funding mechanisms empower fishermen to recover from adversity, plan for the future, and sustain their livelihoods across generations.

5.4 The influence of financial literacy on funding decisions

The results of this study indicate that financial literacy significantly influences funding decisions among motorized boat fishermen in West Sulawesi, with the highest contribution coming from the dimension of financial attitude. This reflects the fishermen's strong psychological disposition toward managing money, savings, spending, and debt—evidenced by their willingness to save part of their income in banks, and to consider bank credit for purchasing boats, upgrading fishing equipment, or starting additional income-generating businesses. A positive financial attitude enables individuals to carefully assess funding alternatives, evaluate associated risks and benefits, and prioritize fund utilization more rationally. Consequently, fishermen with higher financial literacy are more inclined to make prudent funding decisions, particularly by utilizing internal sources such as savings and retained earnings. This internal financing not only enhances financial independence but also reduces reliance on high-risk external funding. The ability to manage internal funds wisely ensures more flexible and sustainable business operations, contributing to long-term economic resilience. These findings support hypothesis 1 that financial literacy plays a vital role in shaping sound funding decisions. They also align with previous studies [38, 41] and this behavioral pattern aligns strongly with Resilience Theory, which emphasizes adaptive capacity, self-reliance, and proactive strategies in overcoming adversity. By prioritizing internal financing, fishermen reduce their vulnerability to external financial shocks and build a stronger foundation for long-term economic survival and adaptability. Therefore, this finding supports the core tenets of Resilience Theory, demonstrating that higher financial literacy—particularly through a positive financial attitude—enhances funding decisions in ways that foster resilience and sustainable livelihoods.

5.5 The influence of networking on funding decisions

The findings of this study indicate that networking has a significant influence on the funding decisions of motorized boat fishermen in West Sulawesi, with bonding emerging as the most dominant dimension. Strong bonding reflects close social ties among fishermen in their communities, characterized by trust, solidarity, and active communication—such as sharing sailing plans and providing mutual financial assistance. This supportive social environment enables the development of reliable and adaptive internal funding mechanisms, including the use of personal savings, peer-to-peer loans among fishermen, and participation in group savings schemes like rotating savings and credit associations. Through strong social networks, fishermen gain access to information, motivation, and alternative funding sources that are more accessible and less financially burdensome. Effective networking enhances confidence and independence in making funding decisions, reduces reliance on high-risk external institutions, and improves the efficiency of operational fund management. These findings are consistent with previous research by Nguyen and Ramachandran [46] and Gautier et al. [48], which emphasize the crucial role of social networks in expanding access and improving the quality of financial decision-making. This finding strongly supports Resilience Theory, which emphasizes the role of social capital and community cohesion in enabling individuals to adapt to and recover from financial or environmental shocks. The presence of robust social networks empowers fishermen to make funding decisions that are both flexible and sustainable, reinforcing their long-term economic resilience. Thus, the results affirm that strong community bonding not only enhances funding outcomes but also aligns with and validates the principles of Resilience Theory.

5.6 The influence of financial literacy on sustainable livelihood through funding decisions

The findings of this study reveal that financial literacy significantly influences sustainable livelihood among motorized boat fishermen in West Sulawesi, with funding decisions acting as a mediating variable. The highest score in the financial attitude dimension reflects the fishermen's positive and prudent mindset in managing money—demonstrated by their habits of saving, avoiding consumptive debt, and planning expenditures wisely. This financial attitude encourages reliance on internal funding sources, such as personal savings and community-based lending, reducing dependence on high-risk external financing. As a result, fishermen are able to make more independent and informed funding decisions, which directly support the continuity and resilience of their fishing activities. These funding choices enable them to operate sustainably, invest in long-term necessities such as children's education or business equipment, and prepare for the future. This confirms the mediating role of funding decisions in linking financial literacy to sustainable livelihood, as prudent financial behavior leads to sound funding strategies, which in turn foster greater economic and social sustainability. These results are supported by previous studies [38, 41], which highlight how financial literacy enhances funding decisions that improve financial stability and long-term livelihood. This chain of influence—from financial literacy to funding decisions to sustainable livelihood—strongly supports Resilience Theory, which emphasizes adaptive capacity, self-reliance, and the ability to recover and thrive amid uncertainty. Thus, the mediating role of funding decisions not only confirms the behavioral pathway through which financial literacy operates but also affirms the core principles of Resilience Theory by demonstrating how internal strengths can lead to sustainable and resilient outcomes.

5.7 The influence of networking on sustainable livelihood through funding decisions

The findings of this study reveal that strong networking—particularly in the form of bonding social capital—plays a crucial role in supporting the sustainable livelihood of motorboat fishermen in West Sulawesi through well-informed financial decision-making. The strong social ties among fishermen, built on trust, mutual cooperation, and shared information, foster collective financial practices such as group savings and informal lending. These practices enhance access to internal funding sources that are more secure and flexible, thereby enabling financing decisions that align with the specific needs and financial capacities of the fishermen. Community-based and self-managed funding decisions contribute to greater business stability and long-term sustainability. Thus, networking not only has a direct influence on sustainable livelihood but also exerts an indirect effect through the mediating role of financial decision-making. This finding aligns with existing theories and prior research that emphasize the complementary relationship between strong social networks and sound financial decisions in strengthening economic resilience, improving welfare, and promoting sustainable livelihoods. This outcome strongly supports Resilience Theory, which posits that social capital and community cohesion enhance a group's ability to adapt, recover, and thrive amidst adversity. In this case, the fishermen's strong social bonds empower them to navigate financial uncertainty and environmental volatility more effectively. Therefore, the study affirms that networking, through its mediation via funding decisions, aligns with and reinforces the principles of Resilience Theory by promoting collective adaptability, economic resilience, and sustainable well-being.

5.8 Research implications

Theoretically, the findings of this study reinforce the Human Capital Theory, Social Capital Theory, Pecking Order Theory, and Resilience Theory by demonstrating that financial literacy, networking, and funding decisions play critical roles in supporting the sustainable livelihoods of fishermen. Financial literacy enhances an individual's capacity to make wise financial decisions, while networking provides social support and access to alternative financing. Prudent funding decisions—especially those prioritizing internal sources—reflect risk efficiency and strengthen economic resilience.

Practically, the results highlight the need for cross-sector collaboration among government agencies, NGOs, and financial institutions to expand fishermen's financial literacy, develop fisher-friendly financial products, strengthen social networks through community forums, and promote the adoption of financial technology that facilitates inclusive access to formal financial services.

6. CONCLUSIONS

Based on the findings of this study, it can be concluded that financial literacy, networking, and funding decisions play a crucial role in enhancing the sustainable livelihood of fishermen. Higher levels of financial literacy and stronger networking significantly improve the quality of funding decisions, which in turn positively impact the fishermen's ability to sustain their livelihoods. Specifically, improved financial literacy enables fishermen to make more informed and responsible financial decisions, while robust social networks provide access to information, support, and financial resources. Furthermore, the quality of funding decisions serves as a key mediating factor that links both financial literacy and networking to sustainable livelihood outcomes.

This study offers a distinctive contribution to the literature on sustainable livelihoods among small-scale marine capture fishermen by empirically testing the mediating role of funding decisions in the relationship between financial literacy, social networking, and sustainable livelihood. Unlike many previous studies, this research focuses specifically on fishermen operating motorized boats across five coastal districts in West Sulawesi Province—an area that remains underrepresented in academic discourse.

Despite limitations, such as the generally low educational level of respondents and the absence of vessel tonnage classification, this study successfully demonstrates that both financial literacy and networking not only have direct effects on sustainable livelihood but also exert significant indirect effects through improved funding decisions. This finding provides a new perspective on how capacity building in financial decision-making processes can serve as a strategic lever to enhance economic resilience in coastal fishing communities.

Moreover, the research highlights practical challenges in field data collection among marginalized groups and offers methodological insights for future research—specifically, the need for simplified instruments and tailored enumerator training. By recommending the inclusion of gross tonnage as a distinguishing variable in future models, the study also lays the groundwork for more targeted and equitable policy interventions. These elements collectively underscore the study's novel approach and practical relevance in designing inclusive development strategies for sustainable marine livelihoods.

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