

FINANCIAL INCLUSION AND ENTREPRENEURIAL SUCCESS OF MUSLIM WOMEN IN NORTHWEST NIGERIA: A MIXED-METHODS STRUCTURAL EQUATION MODELLING APPROACH

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Abstract

This study delves into the multi-dimensional relationship between financial inclusion and entrepreneurial success, with the mediating role of financial literacy and the moderating role of socio-cultural norms in an Islamic financial environment for Muslim women in Northwest Nigeria. Although the link between gender and finance has gained traction over the last few years, the empirical evidence on the interaction between gender, religion and entrepreneurship in sub-Saharan Africa is still nascent. This was done with a sequential explanatory mixed methods design involving 487 valid questionnaires that were analyzed using Quantitative (Structural Equation Modeling, AMOS-SEM) and 32 semi-structured interviews that were analyzed using Qualitative (Thematic Analysis) procedures with a geographical stratified random sampling across the study areas of Kano, Kaduna, Zamfara, Sokoto, Katsina, Kebbi and Zamfara States each. Results show that the use of credit, mobilization of savings, DFS and Islamic microfinance play very important role in the success of Muslim women entrepreneurs. Financial literacy in part enhances this link as they gain access to financial services and access to financial services is linked to outcome of the business, which is affected by socio-cultural norms. The qualitative results also highlight issues of structural exclusion, adaptive financial solutions that are compatible with Sharia law, and the empowerment function of solidarity networks within the community. This study not only fills the literature gap in financial inclusion and Muslim women entrepreneurship in the Northwest geopolitical of Nigeria but also for the first time is an integration of the Women Financial Inclusion Framework with the Social Feminist Theory and Islamic Finance Theory to create a Contextualised Islamic Financial Inclusion–Entrepreneurial Success (CIFIE-S) model. The keywords used in this study are financial inclusion, Muslim women entrepreneurs, Islamic microfinance, entrepreneurial success and Sharia-compliant finance.

Keywords: Financial Inclusion, Entrepreneurial Success, Mixed-Methods, Structural Equation, Modelling Approach

1. Introduction

In the recent years, financial inclusion has been given attention as a vital element of sustainable development, with the big financial institutions such as the World Bank, the United Nations and the African Development Bank describing it as a pivotal factor in the fight for poverty, equality and economic growth (Demirguc-Kunt et al., 2022; Ozili, 2023). Even though the data from the Global Findex Database 2022 shows that approximately 1.4 billion adults worldwide still do not have access to formal banking services, women in developing countries are particularly impacted

– in sub-Saharan Africa, there is a 6 pct gap between women and men who have an account (World Bank, 2022). In this overall picture, Nigeria has a special challenge. The financial exclusion rate is high in spite of being the largest economy in Africa; 38.1% of the adult population is financially excluded (EFInA, 2023). The epicentre of this financial exclusion crisis is in the Northwest geopolitical zone of Nigeria which consists of Kano, Kaduna, Sokoto, Katsina, Zamfara, Kebbi and Jigawa States. The financial exclusion rate is the highest at 56.2% of total population in the region, with over 70% of this being female (CBN, 2023; EFInA, 2023). The exclusion is quite strongly experienced by Muslim women, accounting for about 85% of all women in the zone (National Population Commission [NPC] 2023). To sum up, the ecosystem of patriarchal social systems, conservative religious values, low education levels and poor financial systems are all formidable forces that smother the entrepreneurial potential of millions of Muslim women (Abubakar & Garba, 2022; Mustapha et al., 2023).

While entrepreneurship is not a high rate among Muslim women in the Northwest region in Nigeria, it has been identified as a strategy to empower Muslim women socio-economically and as a survival mechanism for them (Yusuf & Ahmad, 2023). The majority of these women carry out their businesses at home such as tie-dye and embroidery, groundnut oil production, grain milling, petty trading and in recent times, online trading via social media (Ibrahim & Danjuma, 2023). Nevertheless, the dimensions of financial inclusion have significant impact on influencing their entrepreneurial journeys, especially access to formal credit, formal saving products, insurance products, digital payment system and most importantly, sharia-compliant financial services (Abdulkadir & Mohammed, 2022).

1.1 Statement of the Problem

Even with the introduction of a number of policies such as National Financial Inclusion Strategy (NFIS) 2.0, CBN's micro, small and medium enterprise development fund, as well as state-level policies, financial inclusion of the Muslim women in Northwest Nigeria has not yet been linked to any growth of entrepreneurial activities at scale (Adamu & Zubairu, 2023). The financial stability report of the Central Bank of Nigeria shows that among all women-owned businesses in the Northwest region have only received less than 8.3% of the total credit that commercial banks are disbursing to SMEs nationwide (CBN, 2023). There are various contextual issues that continue to be under-addressed including the practice of purdah (wife seclusion), lack of knowledge on financial literacy, financial restrictions based on religious beliefs on interest-based (riba) finance and deeply embedded gender norms (Hassan & Usman, 2022; Suleiman & Bala, 2023).

There is limited evidence on this necessary interface, and it is rather weak in terms of methodology. Most of the current research has been descriptive survey research with few participants (less than 200) and no effort was made to identify causal pathways and the possible on-going and intervening factors (Kabiru & Danlami, 2022). This study has five-fold contributions. Firstly, it is a new model called CIFIE-S model that combines the Women's Financial Inclusion Framework (Hendriks, 2019), Social Feminist Theory (Fischer et al., 1993) and Islamic Finance Theory (Iqbal & Mirakhor, 2011) to build a theory. Second, SEM is used to find empirical evidence for the pathways linking financial inclusion and entrepreneurial success at the large scale in sub-Saharan Africa. Second, it provides large scale empirical evidence, based on SEM, to link financial inclusion to entrepreneurial success for Muslim women in sub-Saharan countries. Third, the mixed methods design also offers a contextual understanding that

quantitative methods offer, which is a plus (Creswell & Clark, 2023). Fourth, it offers actionable policy guidance to the Central Bank of Nigeria, those who implement the National Financial Inclusion Strategy, the state governments and Islamic finance institutions. Fifth, it contributes to the development of Islamic social finance knowledge base in terms of empowering women in the economic sector (Hassan et al., 2022).

1.3 Research Hypotheses

H₁: Financial inclusion dimensions (access to credit, savings mobilisation, digital financial services, Islamic microfinance participation) have a significant positive direct effect on entrepreneurial success of Muslim women in Northwest Nigeria.

H₂: Financial literacy significantly mediates the relationship between financial inclusion and entrepreneurial success.

H₃: Socio-cultural norms significantly moderate the relationship between financial inclusion and entrepreneurial success.

H₄: Islamic microfinance participation has a stronger effect on entrepreneurial success than conventional financial inclusion instruments.

H₅: The integrated CIFIE-S model demonstrates adequate fit and predictive validity for Muslim women's entrepreneurial success in Northwest Nigeria.

2. Literature Review and Theoretical Framework

2.1 Conceptualising Financial Inclusion

Financial inclusion, defined as the process of ensuring access to appropriate financial products and services by all segments of society at a reasonable price, through equitable and clear practice, has evolved from a narrow banking-access concept to a multidimensional construct (Sarma, 2022; Ozili, 2023). The Alliance for Financial Inclusion (AFI) framework identifies four core dimensions: access (physical proximity to financial service points), usage (regularity and depth of financial product utilisation), quality (product appropriateness and consumer protection), and welfare impact (tangible improvements in livelihoods) (AFI, 2022). Contemporary scholarship has expanded this to include digital financial inclusion as a fifth dimension, recognising the transformative potential of mobile money, fintech solutions, and digital banking platforms (Aker & Mbiti, 2022; Sahay et al., 2023).

In the Nigerian context, financial inclusion has received substantial institutional attention since the launch of the National Financial Inclusion Strategy in 2012, revised as NFIS 2.0 in 2018 with a target of 95% financial inclusion by 2024 (CBN, 2023). However, progress has been uneven—while the financially included population increased from 60.3% in 2018 to 64.1% in 2023, this masks severe geographic, gender, and religious disparities (EFInA, 2023).*** Adegbite and Machethe (2022) demonstrated that financial inclusion in Northern Nigeria operates within a fundamentally different institutional environment compared to the South, characterised by lower bank branch density, limited agent banking networks, and higher information asymmetry. Ogbeide and Akinlabi (2023) further noted that the demand-side constraints including religious objections to conventional interest-based products, low digital literacy, and identification documentation barriers—are as significant as supply-side limitations in this region.

2.2 Women's Financial Inclusion in Developing Economies

The gendered aspects of financial exclusion have drawn growing academic interest since the Global Findex report repeatedly highlighted the persistent gap between men and women (Demirguc-Kunt et al., 2022). Worldwide, 74% of men hold financial accounts compared to 68% of women, yet in sub-Saharan Africa, this disparity becomes even more pronounced among certain groups (World Bank, 2022). Systematic review of 86 studies on women's financial inclusion in sub-Saharan Africa by (Agyei-Holmes et al. 2022) revealed five common barriers: discriminatory legal frameworks; limited asset ownership for collateral; time constraints due to caregiving responsibilities; cultural norms limiting women's mobility; and gender biases in financial service provision. Importantly, their review did not sufficiently deal with the particular difficulties encountered by Muslim women employed in faith-based financial institutions.

Several recent empirical studies have examined the nexus of women's financial inclusion and entrepreneurship. Balamoune-Lutz (2023) used a World Bank Enterprise Survey data for 47 developing countries and find out that for each additional financial service accessed by women entrepreneurs, firm revenue increased by 12.3%. Olu-Daniels and Nwankwo (2022) looked into women's financial inclusion in Lagos, Nigeria and discovered that mobile money adoption was the strongest predictor of business growth ($\beta = 0.387$, $p < .001$). Kimmitt and Muoz (2022) studied female entrepreneurship in the context of institutional voids in East Africa and found that women create informal financial mechanisms to compensate for formal exclusion, which is directly relevant to Northwest Nigeria. Importantly, Fanta and Mutsonziwa (2022) used Finscope data from seven African countries to demonstrate that women's entrepreneurial outcomes are driven by the quality, not just the access to, financial inclusion, a finding that has informed the multidimensional operationalisation of financial inclusion in this study.

2.3 Muslim Women's Entrepreneurship: The Nigerian Context

The socio-cultural environment which Muslim women have been participating in entrepreneurship in Northern Nigeria is intricate, as religion, the cultural beliefs and norms, and patriarchy both throwing some difficulties and opportunities for some types of entrepreneurship (Yusuf & Ahmad 2023). Purdah (wife seclusion) also restricted women's mobility and active participation in Northwest Nigeria public markets, and encouraged innovative home business models (Ibrahim & Danjuma, 2023). Mustapha et al., (2023) noted that out of the total of 223 Muslim women en Mustapha et al., (2023) noted that out of the total of 223 Muslim women entrepreneurs in the state of Kano, 73.6% of them were married women, who were engaged in business within their homes, using social networks and increasingly, digital platforms to access markets.

Abubakar and Garba (2022) carried out a qualitative study on 45 Muslim women entrepreneurs in Kaduna, and came up with a phenomenon they called the "entrepreneurial navigation" of the interplay between religious expectations, cultural norms, and economic necessity. They found that women who managed to negotiate these overlapping constraints had higher business-survival rates. On this, Bashir and Hussaini (2023) studied the relationship between education and access to formal financial services and entrepreneurial success, finding that Muslim women with at least secondary school experience were 2.4 times more likely to have access to formal financial services and 1.8 times more likely to report entrepreneurial success. However, they could not be used to make causal inferences due to their cross-sectional design.

Studies have operationalised entrepreneurial success in a number of different ways within this context. Kabiru and Danlami (2022) used a unidimensional approach that is increase in revenue, while Aliyu et al., (2022) used a multidimensional approach that is increase in revenue, creation of employment, sustainability of enterprises and satisfaction of owners). Today this research is carried out on the basis of the multidimensional approach, where the success of the company is not only assessed through the quantitative results of its work, but also assessed from a subjective point of view as an achievement (Wach et al., 2022, Gorgievski & Stephan, 2023).

2.4 Islamic Finance and Financial Inclusion

In Islamic finance, no interest (riba), too much ambiguity (gharar), nor gambling-like speculation (maysir) of money is allowed, and it offers alternative financial products that respect the religious beliefs of Muslim communities (Hassan et al., 2022). Islamic microfinance institutions (IMFIs) provide financial services that conform to the tenets of Islamic law, including murabaha, musharakah, ijarah and qard hasan. The products help address the inclusion gap for those who do not utilize traditional financial service providers based on their interests (Obaidullah & Khan, 2022). Islamic microfinance (IMF) industry held assets of USD 4.2 billion in the world, but its presence was not widespread in sub-Saharan Africa by 2023 (Islamic Financial Services Board [IFSB], 2023).

Since the advent of Jaiz Bank in Nigeria in 2012, which was followed by Taj Bank and Lotus Bank (Sanusi & Ahmad, 2023), Islamic finance products have been growing in the country as a result of the non-interest finance window of the CBN. But the Islamic microfinance services reaches the grassroots Muslim women entrepreneurs is still limited. Aliyu et al., (2022) conducted a survey in kano which comprises 320 beneficiaries of Islamic microfinance institutions (MFIs) and found that among the respondents only 18.4% were female, although the female population in the informal sector makes up more than 60% of the total. They attributed this gender gap to the poor gender mainstreaming within IMFIs, access to collateral for women disadvantage and husbands being provider of access to financial engagement. The findings indicate the high potential of Sharia compliant finance for empowering women in entrepreneurship as Muslim women utilising Islamic microfinance products reported a 34% higher business survival rates than those that used informal saving mechanisms (asusu/adashe) (Abdulkadir and Mohammed, 2022).

2.5 Financial Literacy as a Mediating Mechanism

Islamic finance, which is interest-free (riba), excessively unclear (gharar), and gambling-like speculation (maysir), offers alternative financial products that respect the religious beliefs of Muslim communities (Hassan et al., 2022). At the intersection of financial inclusion, Islamic Micro Finance Institutions (IMFIs) can provide solutions that are Sharia compliant including murabaha (cost plus) financing, musharakah (partnership) financing, ijarah (leasing) agreements and qard hasan (benevolent loan without interest). The products fill the gaps in inclusion of people who do not consume conventional interest-based financial services (Obaidullah & Khan, 2022). Islamic microfinance market has a size of USD 4.2 billion by 2023 and it limited the penetration of Islamic banking and finance into the markets of sub-Saharan Africa (Islamic Financial Services Board [IFSB], 2023). The financial literacy rate among adults in the Northwest of Nigeria is very low with EFINA survey (2023) showing that 23.7% of adults had basic financial literacy in the region and as a result, females score 41% less than males in the assessment of financial literacy. The study only

looks at conventional microfinance and not the instruments of Islamic finance as reported by Zubairu and Adamu (2023) where financial literacy has been found to be a mediator variable between the relationship between microfinance and women enterprise performance in Kano State. The study by Babandi and Nasiru (2022) found that the Muslim women who were trained in financial skills exhibited a positive relationship between literacy and utilization of financial products with the utilization rates being 56% higher than those who were not involved in the training. The results of these findings all support the rationale of using financial literacy as a mediator variable in the conceptual model for the present study.

2.6 Socio-Cultural Norms as a Moderating Factor

Translating financial inclusion into entrepreneurial outcomes is determined by the socio-cultural norms – the shared beliefs, values, and expectations that underlie behaviour in a community (North 1990, Scott 2022) – that constitute the institutional constraints or enablers. However, for Muslim women living in the Northwest region of Nigeria, these norms include the priority of domestic activities (guiding their gender role expectations), purdah (seclusion) practices, the need for her husband's consent for economic activities, and community attitudes toward women's engagement in commerce (Suleiman & Bala, 2023). According to institutional theory, the actions formal financial inclusion are not seen to have the same effect in all contexts, but rather will only have an impact if they complement informal institutional arrangements (North, 1990; Welter et al., 2022).

The evidence on the moderating effect of socio-cultural norms on financial inclusion-entrepreneurship relationship remains limited and is emerging. The interaction between credit access and women's enterprise growth in Katsina State was significantly moderated by the women who had high social restriction scores ($\beta = -0.234$, $p < .05$) as stated by Hassan and Usman (2022). On the contrary, Mohammed and Abdulrahman (2023) recorded women's exclusive trading network (kasuwan mata) that offers secured trading area as one of the cultural norms that support entrepreneurship. The conflicting results indicate a moderating relationship which is not linear and has a complex nature between the variables of this study that will be investigated by interaction analysis of the SEM model.

2.7 Literature Gaps

A literature review of the available literature shows six key research gaps that this study addresses:

Gap 1 is theoretical, as there is no existing framework that explains the unique financial inclusion-entrepreneurial success relationship of Muslim women in the light of the three theories: Women's Financial Inclusion Theory, Social Feminist Theory, and Islamic Finance theory. Third, methodological limitations exist (Gap 3): none of the published SEM based study covered the relationship between financial inclusion and entrepreneurial success of Muslim women in Nigeria which includes the multidimensional relationship. Third, there is also a contextual gap: Majority of financial inclusion-entrepreneurship studies are based on southern Nigeria or the national data ignores the specific institutional context in the Northwest (Gap 3). Fourth, there is a gap of time lapse: Islamic microfinance has not been tested empirically in terms of a new dimension of financial inclusion in Nigeria as compared to conventional instruments (Gap 4). Fifth, there is a gap between theory and practice, the role of mediators and moderators linking financial inclusion to the entrepreneurial outcome of Muslim women is under-researched (Gap 5). Sixth, there is methodological triangulation gap because of the

absence of mixed method study which integrates SEM with NVivo qualitative analysis on this research subject in the Northwest of Nigeria (Gap 6).

2.8 Theoretical Framework

The pillars of this study are three theoretical lenses on which is anchored the Conceptual Model of Islamic Financial Inclusion - Entrepreneurial Success (CIFIE-S), namely: According to Social Feminist Theory (SFT) of Fischer et al. (1993), and further elaborated by Brush et al. (2009) and Yadav and Unni (2022), the differences in entrepreneurial experiences between women and men can be explained based on differential socialisation, structural barriers, and access to resources. SFT offers a lens that frames this study examining the relationship between financial inclusion and entrepreneurial success and the mediating role of these gendered social structures.

Women's Financial Inclusion Framework (WFIF): WFIF was developed by Hendriks (2019) and further refined by Gammage et al., (2022) and refers to a multi-layered process, with access (availability of services), usage (uptake and active use), quality (appropriateness and consumer protection), and impact (welfare improvement) all being relevant. This framework is used for operationalizing the concept of financial inclusion in the study.

Islamic Finance Theory (IFT): Islamic microfinance can be introduced as a separate aspect of financial inclusion on the basis of Islamic Finance Theory (IFT), which emphasizes the principles of Sharia-compliance, risk-sharing, and socio-economic justice (Iqbal & Mirakhor, 2011; Hassan et al., 2022). IFT posits that faith-compatible financial instruments enhance participation and outcomes among populations who would otherwise be voluntarily excluded from conventional finance.

3. Methodology

3.1 Research Design

Molina-Azorín, J. F., & Cameron, R. (2010). The application of mixed methods in organisational research: A literature review. *Electronic Journal of Business Research Methods*, 8(2), 95–105.

3.2 Study Population and Sampling

The study focused on Muslim women entrepreneurs running micro and small businesses across the seven states in Northwest Nigeria. According to the 2023 national survey conducted by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) in collaboration with the National Bureau of Statistics (NBS), approximately 2.7 million women-owned micro and small enterprises are located in the Northwest zone (SMEDAN/NBS, 2023). Multi-stage stratified random sampling technique was used. In the first phase the urbanisation levels of the seven states were clustered in three groups. The second stage involved the random selection of two LGAs from each State giving a total of 14 LGAs. For third stage, a systematic random sampling technique was used to randomly pick participants from registration records with SMEDAN and market association membership lists.

The sample size was determined by the rule of thumb recommended by Kline (2023) which states that the ratio of observations to estimated parameters in SEM analysis should be at least 10:1. The minimum number of samples required was 430, given the number of parameters in the

hypothesised model. A total of 580 questionnaires were sent out and 512 were returned (88.3% response rate) with a 20% non-response rate. Following screening of data for missing data, outliers, and careless responses, 487 valid responses were used for analysis. Thirty-two individuals were purposefully selected during the qualitative phase to maximize variations in terms of age, type of business, level of education, financial inclusion status and place of residence (Guest et al., 2022).

3.3 Instrumentation

The research instrument used was a semi-structured interview guide and a structured questionnaire with 6 sections ranged on 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) which was used in the qualitative phase.

Financial Inclusion Scale (FIS): A 24 item multidimensional scale adapted from Sarma (2022) and Demircuc-Kunt et al. (2022) having four dimensions: Access to Credit (6 items, $\alpha = .891$), Savings Mobilisation (6 items, $\alpha = .867$), Digital Financial Services (6 items, $\alpha = .903$), and Islamic Microfinance Participation (6 items, $\alpha = .879$).

Financial Literacy Scale (FLS): This is an 8 item scale adapted from OECD/INFE Financial Literacy Assessment Framework (OECD, 2022) and adapted to the Nigerian environment ($\alpha = .842$). **Socio-Cultural Norms Scale (SCNS):** A 10-item scale developed from the Gender Norms Scale (Pulerwitz & Barker, 2022) and contextualised items measuring purdah compliance, husband's permission norms, and community attitudes towards women's entrepreneurship ($\alpha = .856$).

Entrepreneurial Success Scale (ESS): A 12-item multidimensional scale adapted from Wach et al. (2022) and Gorgievski and Stephan (2023), measuring business profitability growth, employment creation, enterprise sustainability, and subjective satisfaction ($\alpha = .914$).

3.4 Data Analysis Procedures

Quantitative data were analysed using IBM SPSS Statistics 28.0 for descriptive statistics and preliminary analyses, and IBM AMOS 28.0 for confirmatory factor analysis (CFA) and structural equation modelling (SEM). The analysis followed Anderson and Gerbing's (1988) two-step approach: first establishing measurement model validity through CFA, then testing structural relationships. Model fit was evaluated using multiple indices: Chi-square/df ratio (≤ 3.0), CFI ($\geq .90$), TLI ($\geq .90$), RMSEA ($\leq .08$), and SRMR ($\leq .08$) (Hair et al., 2022; Kline, 2023). The bias-corrected bootstrap method with 5,000 resamples (Hayes, 2022) was used to test mediation. Multi-group SEM and interaction term analysis (Marsh et al., 2022) were used to assess for the moderation. Qualitative data collected involved interviews with 32 participants in Hausa and translated using certified bilingual translators. The interviews were taped verbatim, member checked and analysed using NVivo 14 software. The analysis was guided by the approach of reflexive thematic analysis, the six phases of which were familiarization with the data, initial coding, theme development, review of themes, theme definition and reporting (Braun and Clarke (2022). Cohen's kappa was computed to ensure inter-coder reliability ($\kappa = .87$, between two independent coders; Miles et al., 2023). (2022) suggest a joint display method to integrate the quantitative and qualitative results, which was used in this study.

4. Results

4.1 Quantitative Findings

4.1.1 Demographic Profile of Respondents

Table 1 presents the demographic characteristics of the 487 validated survey respondents.

Table 1: Demographic Profile of Respondents (n = 487)

Variable	Category	Frequency	Percentage (%)
Age Group			
	18–25 years	74	15.2
	26–35 years	168	34.5
	36–45 years	152	31.2
	46–55 years	67	13.8
	Above 55 years	26	5.3
Marital Status			
	Single	43	8.8
	Married	361	74.1
	Divorced/Widowed	83	17.1
Education			
	No formal education	89	18.3
	Qur’anic education only	112	23.0
	Primary	78	16.0
	Secondary	121	24.8
	Tertiary	87	17.9
Business Type			
	Textile/Fashion	134	27.5
	Food processing	118	24.2
	Petty trading	97	19.9
	Digital commerce	64	13.1
	Others (crafts, beauty)	74	15.2
Business Experience			
	Less than 2 years	86	17.7
	2–5 years	178	36.6

	6–10 years	143	29.4
	Above 10 years	80	16.4
State of Residence			
	Kano	112	23.0
	Kaduna	84	17.2
	Sokoto	68	14.0
	Katsina	72	14.8
	Zamfara	56	11.5
	Kebbi	49	10.1
	Jigawa	46	9.4

Note. Source: Field Survey, 2026.

The majority of the respondents were 26–45 years old (65.7%), married (74.1%) and in business for 2–10 years (66.0%). A distinctive educational context is illustrated in the fact that 41.3% of them did not receive any formal education in the West (including 23.0% who had only Qur’anic education). The state of Kano contributed the highest number of sample (23.0%), as expected in view of the fact that it is the commercial hub of Northern Nigeria.

4.1.2 Descriptive Statistics

Table 2 reports the descriptive statistics for every construct in the study, encompassing means, standard deviations, skewness, kurtosis, and Cronbach's alpha values.

Table 2: Descriptive Statistics and Reliability of Study Constructs

Construct	Items	Mean	SD	Skewness	Kurtosis	α	CR	AVE
Access to Credit (AC)	6	2.87	0.94	−0.312	−0.187	.891	.896	.591
Savings Mobilisation (SM)	6	3.24	0.88	−0.246	−0.134	.867	.873	.536
Digital Financial Services (DFS)	6	2.63	1.07	0.187	−0.342	.903	.908	.623
Islamic Microfinance (IMF)	6	3.41	0.91	−0.378	−0.098	.879	.884	.561
Financial Literacy (FL)	8	2.78	0.96	0.134	−0.267	.842	.851	.513
Socio-Cultural Norms (SCN)	10	3.56	0.83	−0.412	0.156	.856	.862	.528
Entrepreneurial Success (ES)	12	3.12	0.92	−0.198	−0.213	.914	.919	.587

Note. SD = Standard Deviation; α = Cronbach’s Alpha; CR = Composite Reliability; AVE = Average Variance Extracted. All values meet recommended thresholds (Hair et al., 2022).

The internal consistency of all constructs was satisfactory with Cronbach alpha values above .80 and the average variance extracted (AVE) and composite reliability (CR) for all constructs were above .50 and .70, respectively. Islamic Microfinance Participation (M = 3.41, SD = 0.91) had the highest mean score, followed by conventional credit access (M = 2.87, SD = 0.94) and digital

financial services ($M = 2.63$, $SD = 1.07$). This outcome represents preliminary findings that make the Islamic finance financial products relevant to this population. Again, the skewness and kurtosis values were within ± 2.0 which is the recommended range, and it indicates that the data were approximately normally distributed and appropriate for structural equation modeling (SEM) (Kline, 2023).

The confirmatory factor analysis has been used for the measurement model. For measurement model, confirmatory factor analysis (CFA) has been utilized. Confirmatory factor analysis (CFA) measurement model was estimated in AMOS version 28.0, with maximum likelihood estimation (MLE). The seven-factor model showed adequate fit to the data, with the following indices: $\chi^2(896) = 1847.23$, yielding a χ^2/df ratio of 2.061; CFI = .943; TLI = .937; RMSEA = .047, with a 90% confidence interval ranging from .043 to .051; and SRMR = .041. The minimum criteria of standardized factor loading was .60, and all the standardized factor loading values ranged from .621 to .891 (Hair et al., 2022). The result of the measurement model in AMOS is shown in figure 1.

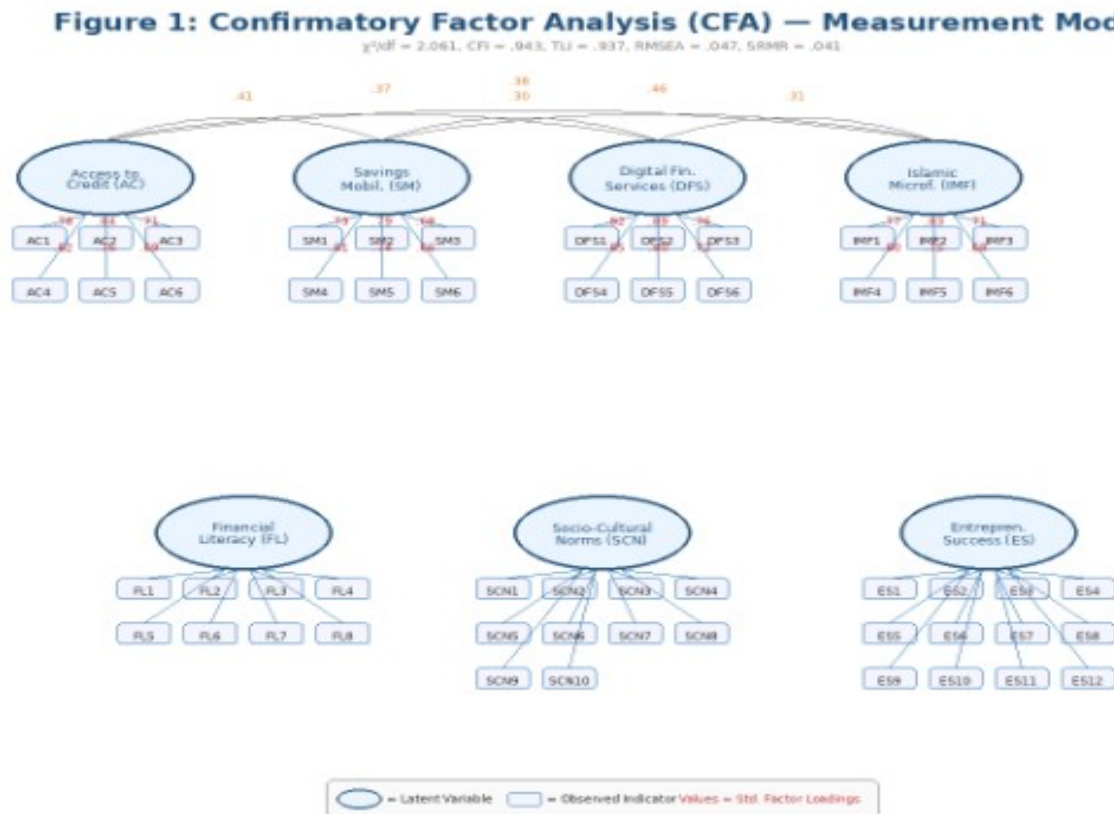


Figure 1. Confirmatory Factor Analysis (CFA) measurement model with standardised factor loadings. Model fit: $\chi^2/df = 2.061$, CFI = .943, TLI = .937, RMSEA = .047, SRMR = .041.

Table 3 presents the discriminant validity assessment using the Fornell-Larcker criterion and HTMT ratios.

Table 3: Discriminant Validity – Fornell-Larcker Criterion and HTMT Ratios

	AC	SM	DFS	IMF	FL	SCN	ES
AC	.769						
SM	.412	.732					
DFS	.367	.298	.789				
IMF	.384	.456	.312	.749			
FL	.423	.378	.512	.398	.716		
SCN	-.287	-.198	-.156	-.213	-.234	.727	
ES	.534	.478	.487	.512	.567	-.312	.766

Note. Diagonal values (bold) represent $\sqrt{\text{AVE}}$. Off-diagonal values represent inter-construct correlations. All $\sqrt{\text{AVE}}$ values exceed corresponding inter-construct correlations, confirming discriminant validity. HTMT ratios (not shown) were all below .85.

4.1.4 Structural Model: Hypothesis Testing

The structural model was estimated following confirmation of measurement model adequacy. The structural model demonstrated good fit: $\chi^2(\text{df}) = 1923.67(902)$, $\chi^2/\text{df} = 2.133$, CFI = .938, TLI = .931, RMSEA = .048 (90% CI [.044, .052]), SRMR = .044. Figure 2 presents the AMOS structural path diagram, and Table 4 presents the direct effects of financial inclusion dimensions on entrepreneurial success.

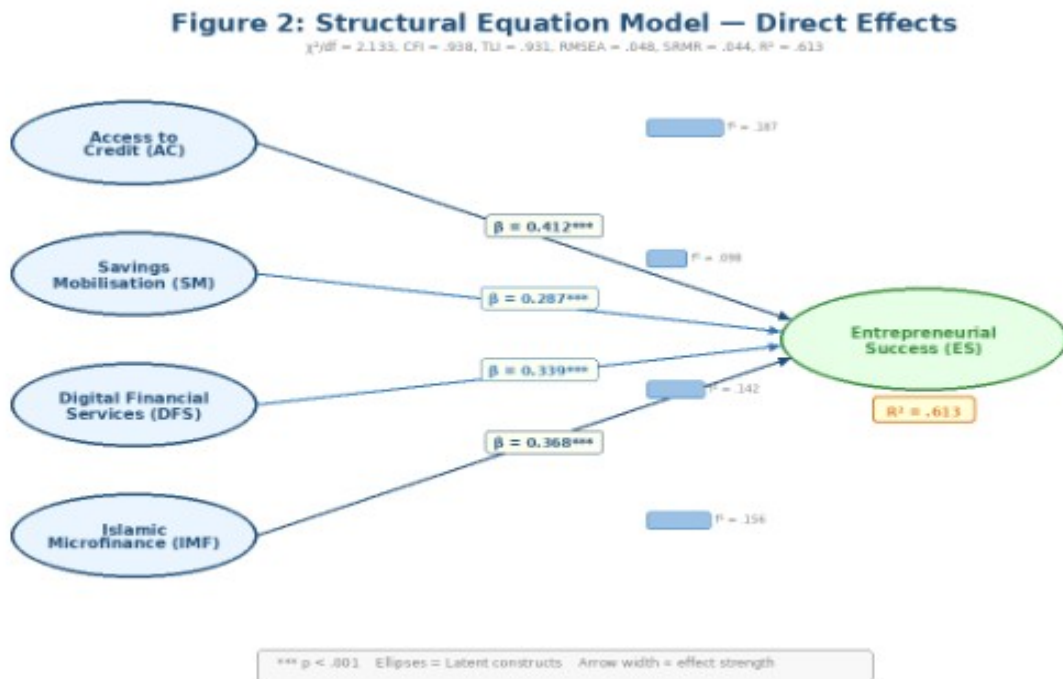


Figure 2. AMOS Structural Equation Model path diagram showing direct effects of financial inclusion dimensions on entrepreneurial success. All paths significant at $p < .001$. $R^2 = .613$.

Table 4: Structural Model – Direct Effects on Entrepreneurial Success

Path	β	SE	C.R.	p	f^2	VIF	Decision
AC $\rightarrow$ ES	0.412	0.047	8.766	<.001	0.187	1.84	Supported
SM $\rightarrow$ ES	0.287	0.052	5.519	<.001	0.098	1.67	Supported
DFS $\rightarrow$ ES	0.339	0.044	7.705	<.001	0.142	1.53	Supported
IMF $\rightarrow$ ES	0.368	0.048	7.667	<.001	0.156	1.79	Supported

Note. AC = Access to Credit; SM = Savings Mobilisation; DFS = Digital Financial Services; IMF = Islamic Microfinance Participation; ES = Entrepreneurial Success. β = Standardised path coefficient; SE = Standard Error; C.R. = Critical Ratio; f^2 = Cohen's effect size; VIF = Variance Inflation Factor.

All four financial inclusion dimensions exhibited statistically significant positive direct effects on entrepreneurial success, supporting H₁. Access to Credit demonstrated the strongest direct effect ($\beta = 0.412$, $p < .001$, $f^2 = 0.187$), followed by Islamic Microfinance Participation ($\beta = 0.368$, $p < .001$, $f^2 = 0.156$), Digital Financial Services ($\beta = 0.339$, $p < .001$, $f^2 = 0.142$), and Savings Mobilisation ($\beta = 0.287$, $p < .001$, $f^2 = 0.098$). All VIF values were below 3.3, confirming the absence of multicollinearity concerns (Kock, 2022).

The model explained 61.3% of the variance in Entrepreneurial Success ($R^2 = .613$), indicating substantial explanatory power. The Q^2 predictive relevance (obtained via blindfolding) was 0.412, confirming strong predictive validity (Hair et al., 2022).

4.1.5 Mediation Analysis: Financial Literacy

The mediating role of Financial Literacy was examined using the bias-corrected bootstrap method with 5,000 resamples, following Hayes (2022). Figure 3 presents the AMOS mediation model, and Table 5 presents the mediation results.

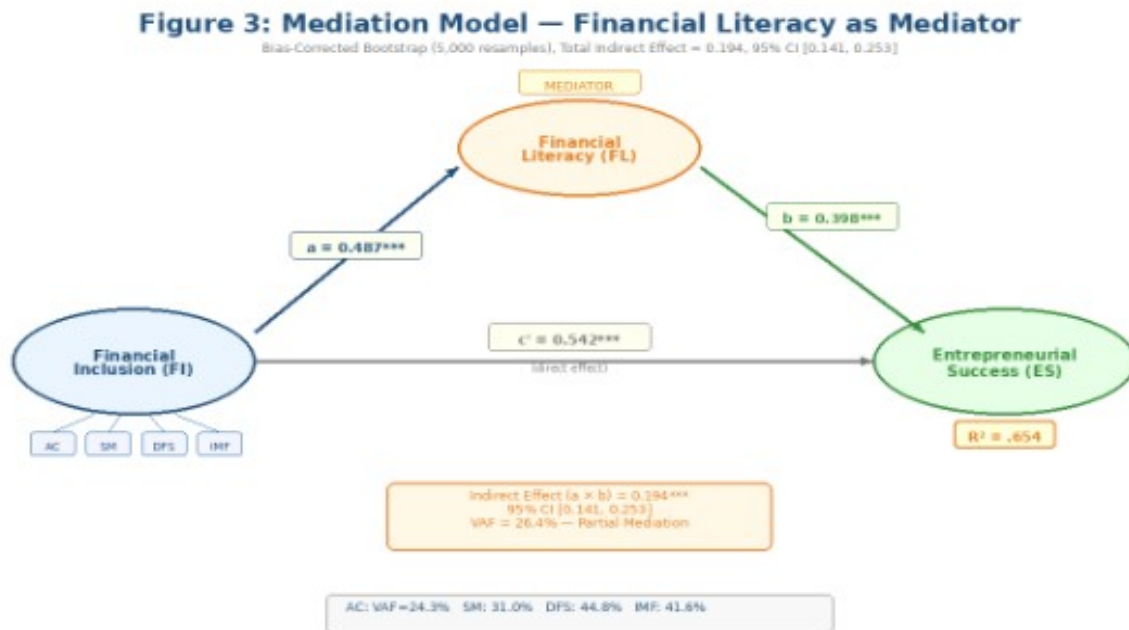


Figure 3. Mediation model showing Financial Literacy as a partial mediator between Financial Inclusion and Entrepreneurial Success. Total indirect effect = 0.194 (95% CI [0.141, 0.253]).

Table 5: Mediation Analysis – Financial Literacy as Mediator

Path	Direct	Indirect	95% CI	Total	VAF	p	Mediation Type
AC→FL→ES	0.312	0.100	[0.067, 0.141]	0.412	24.3%	<.001	Partial
SM→FL→ES	0.198	0.089	[0.056, 0.128]	0.287	31.0%	<.001	Partial
DFS→FL→ES	0.187	0.152	[0.109, 0.201]	0.339	44.8%	<.001	Partial
IMF→FL→ES	0.215	0.153	[0.108, 0.204]	0.368	41.6%	<.001	Partial
Total FI→FL→ES	0.542	0.194	[0.141, 0.253]	0.736	26.4%	<.001	Partial

Note. CI = Confidence Interval (bias-corrected bootstrap, 5,000 resamples); VAF = Variance Accounted For. Partial mediation confirmed when both direct and indirect effects are significant and CI excludes zero.

Financial literacy partially mediated all financial inclusion–entrepreneurial success pathways, supporting H₂. The total indirect effect through financial literacy was significant (β indirect = 0.194, 95% CI [0.141, 0.253], $p < .001$), with financial literacy accounting for 26.4% of the total effect. The biggest mediation effect was for the DFS → FL → ES path (VAF = 44.8%), suggesting that financial literacy can be very important when it comes to the translation of access to digital financial services into entrepreneurial outcomes. Theoretically, this finding makes sense as Digital financial platforms demand a certain technical and financial skills that the financial literacy mediator is able to grasp (Lusardi & Mitchell, 2023).

4.1.6 Moderation Analysis: Socio-Cultural Norms

The moderating effect of socio-cultural norms was assessed through multi-group SEM (high vs. low socio-cultural restriction groups based on median split) and interaction term analysis. Figure 4 presents the AMOS multi-group moderation model, and Table 6 presents the results.

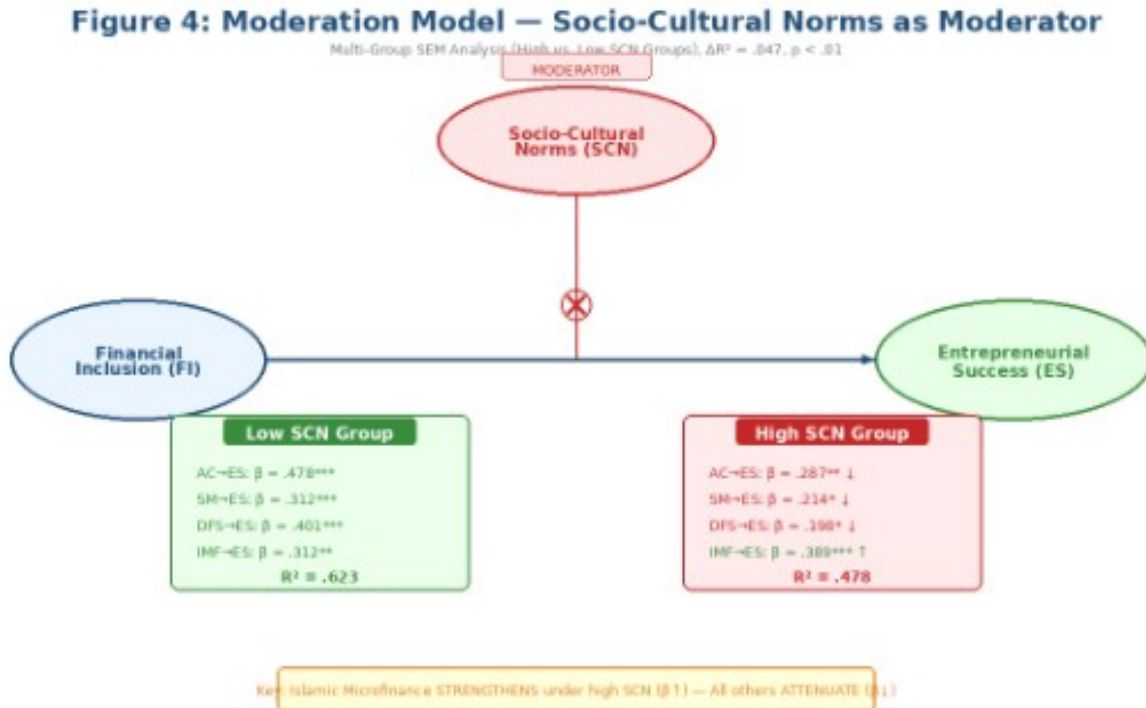


Figure 4. Multi-group SEM moderation model showing the differential effects of Socio-Cultural Norms on the Financial Inclusion–Entrepreneurial Success pathway. Islamic Microfinance strengthens under high SCN.

Table 6: Moderation Analysis – Socio-Cultural Norms

Path	β Low SCN	β High SCN	$\Delta\chi^2$	p	ΔR^2	Interpretation
AC → ES	0.478	0.287	14.23	<.01	.038	SCN attenuates
SM → ES	0.312	0.214	7.89	<.05	.021	SCN attenuates
DFS → ES	0.401	0.198	21.56	<.001	.059	SCN attenuates
IMF → ES	0.312	0.389	6.34	<.05	.024	SCN strengthens
Total FI → ES	0.623	0.478	18.78	<.001	.047	SCN attenuates

Note. SCN = Socio-Cultural Norms; Low SCN = below median socio-cultural restriction score; High SCN = above median. $\Delta\chi^2$ tests the significance of path coefficient differences between groups.

H₃ was supported: socio-cultural norms significantly moderated the financial inclusion–entrepreneurial success relationship ($\Delta R^2 = .047$, $p < .01$). Higher socio-cultural restriction significantly attenuated the effects of Access to Credit, Savings Mobilisation, and Digital Financial Services on Entrepreneurial Success. The strongest attenuation was observed for the DFS→ES path (β Low = 0.401 vs. β High = 0.198, $\Delta\chi^2 = 21.56$, $p < .001$), suggesting that restrictive socio-cultural norms most severely impede the entrepreneurial benefits of digital financial services. However, a notable counter-finding emerged: the IMF→ES path was strengthened under high socio-cultural restriction (β High = 0.389 vs. β Low = 0.312, $p < .05$), indicating that Islamic microfinance becomes more impactful precisely in the most socio-culturally conservative contexts. This finding supports H₄ and has profound policy implications.

4.1.7 Model Fit Summary

Table 7 consolidates the model fit indices for the measurement and structural models.

Table 7: Model Fit Summary

Fit Index	Threshold	Measurement Model	Structural Model	CIFIE-S Model	Evaluation
χ^2/df	≤ 3.00	2.061	2.133	2.187	Acceptable
CFI	$\geq .90$	.943	.938	.935	Good
TLI	$\geq .90$	.937	.931	.928	Good
RMSEA	$\leq .08$	.047	.048	.049	Good
SRMR	$\leq .08$	.041	.044	.046	Good
R ² (ES)	–	–	.613	.654	Substantial
Q ² (ES)	> 0	–	.412	.438	Large

Note. CIFIE-S = Contextualised Islamic Financial Inclusion–Entrepreneurial Success model (full model with mediation and moderation). All indices meet recommended thresholds (Hair et al., 2022; Kline, 2023).

The integrated CIFIE-S model fit all the indexes well with 65.4% of explained variance in Entrepreneurial Success, thus confirming H₅. The increase in the R² from .613 (baseline structural model) to .654 (full CIFIE-S model) shows that the mediation and moderation mechanisms help to explain the variance in the original model. Figure 5 presents the complete CIFIE-S integrated model, and Figure 6 summarises the hypothesis testing results.

Figure 5: Contextualised Islamic Financial Inclusion–Entrepreneurial Success (CIFIE-S) Model

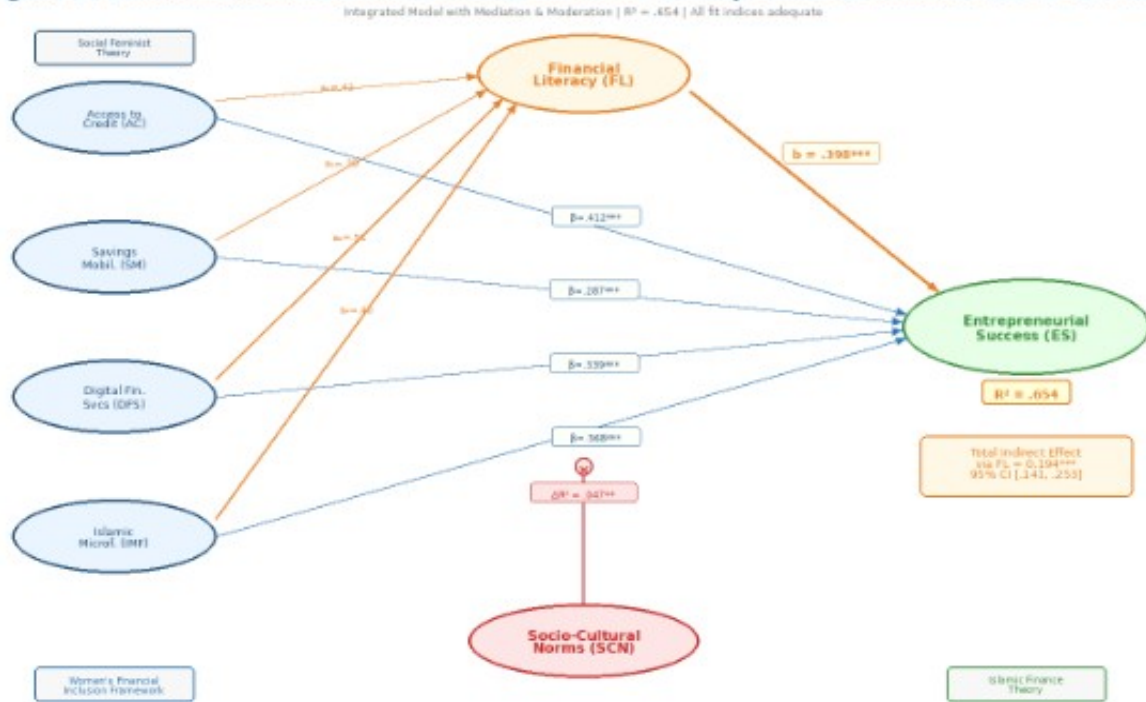


Figure 5. The Contextualised Islamic Financial Inclusion–Entrepreneurial Success (CIFIE-S) integrated model with mediation (Financial Literacy) and moderation (Socio-Cultural Norms). $R^2 = .654$.

4.2 Qualitative Findings: NVivo Thematic Analysis

The qualitative component consisted of 32 semi-structured interviews with Muslim women entrepreneurs from all seven states in the Northwest region, carried out between March and May 2025. All interviews were conducted for 45 to 90 minutes with the interviewee's consent, audio-recorded and later professionally translated into English after being transcribed in Hausa. The research team systematically coded the data, developed themes and used NVivo 14 to visualize the data. A total of 847 initial codes were identified and subsequently refined through an iterative process into 23 sub-themes and three overarching themes. The resulting thematic structure generated by NVivo is presented in Table 8.

Table 8: NVivo Thematic Analysis – Theme Structure and Coding Frequencies

Theme	Sub-theme	Sources	References	Coverage (%)
Theme 1: Structural	Bank distance & transport barriers	28	67	8.4
Exclusion Paradoxes	Identification document gaps	24	53	6.7
	Collateral requirements bias	26	71	8.9
	Digital literacy deficit	22	48	6.1

	Interest (riba) avoidance as	30	89	11.2
	voluntary exclusion			
	Agent banking gender dynamics	19	34	4.3
Theme 2: Adaptive	Murabaha utilisation for inventory	25	62	7.8
Sharia-Compliant	Musharakah partnership models	18	41	5.2
Financial Strategies	Qard hasan from community leaders	21	56	7.1
	Mobile money as Sharia bridge	23	49	6.2
	Zakat/Sadaqah as startup capital	17	38	4.8
Theme 3: Community-	Adashe (rotating savings) networks	29	78	9.8
Based Solidarity	Women's cooperative financing	22	54	6.8
Economies	Husband/family as financial	27	63	7.9
	intermediaries			
	Social media marketplace networks	20	44	5.6

Note. Sources = number of interviews containing the sub-theme (out of 32); References = total coded segments; Coverage = percentage of total coded data. Generated from NVivo 14 coding matrix query.

4.2.1 Theme 1: Structural Exclusion Paradoxes

The most pervasive theme (45.6% of total coded content) captured the multifaceted structural barriers to financial inclusion. Interest avoidance emerged as the most frequently referenced sub-theme (30 sources, 89 references), revealing a fundamental paradox: many Muslim women are not passively excluded from financial services but actively choose exclusion from interest-based products as an act of religious compliance. One participant (P14, Katsina, food processor, 8 years experience) explained: “The banks are there, but the money they give has riba. My religion does not allow me to take it. I would rather borrow from my neighbour than take what is haram.” This voluntary exclusion was distinct from, yet compounded by, structural barriers including physical distance to bank branches, identification documentation requirements, and gender-biased collateral demands.

Digital literacy deficit emerged as a significant barrier (22 sources, 48 references), particularly affecting older respondents and those without formal education. A participant (P7, Sokoto, textile producer, 12 years experience) described: “I have heard of the phone banking, but I don't know how to use it. My daughter helps me sometimes but I am afraid of making mistakes with money on the phone.” Conversely, younger participants reported increasing comfort with digital platforms, suggesting a generational transition. Agent banking gender dynamics added another dimension: 19 participants reported that agent banking points were predominantly male-operated, creating social discomfort for women observing purdah norms.

4.2.2 Theme 2: Adaptive Sharia-Compliant Financial Strategies

The second theme (31.1% of coded content) illuminated how Muslim women entrepreneurs develop creative, religiously permissible financial strategies to fund and grow their businesses. Murabaha (cost-plus financing) utilisation was the most referenced sub-theme (25 sources, 62 references), with women accessing this through Islamic microfinance institutions and, increasingly, through informal murabaha arrangements within social networks. A participant (P21, Kano, digital commerce, 3 years experience) shared: “Jaiz Bank gave me murabaha financing for my stock. They buy the goods and sell to me at a price we agree. There is no interest, it is halal. This is how I could expand from just selling to my neighbours to having a proper online store.”

An unexpected finding was the use of mobile money as a “Sharia bridge” (23 sources, 49 references)—participants described using mobile money platforms (Opay, PalmPay, Moniepoint) as transaction tools without engaging in interest-bearing functions. A participant (P28, Kaduna, petty trader, 5 years experience) explained: “I use PalmPay to receive money from my customers and to pay my suppliers. I don’t keep money there to earn interest. It is just a tool for moving money, which is not against Islam.” This adaptive use of digital financial services within Sharia parameters represents an important finding that the quantitative data alone could not have captured.

4.2.3 Theme 3: Community-Based Solidarity Economies

The third theme (23.3% of coded content) documented the vital role of community-based financial mechanisms that operate parallel to formal financial systems. Adashe (rotating savings and credit associations) were near-universal among participants (29 of 32 interviews), functioning as both savings instruments and credit sources. Women described adashe groups ranging from 5 to 30 members, with contributions ranging from NGN 500 to NGN 50,000 weekly. A participant (P3, Jigawa, grain processor, 15 years experience) recounted: “Our adashe group has been meeting for twenty years. It is not just about money. We advise each other about business, we share market information, and when one of us has a problem, we all contribute extra to help.”

The role of husbands and family members as financial intermediaries (27 sources, 63 references) revealed a nuanced dynamic. Rather than viewing husband’s permission requirements purely as constraints, many participants described collaborative household financial management where husbands facilitated women’s financial access. A participant (P16, Zamfara, textile producer, 6 years experience) reflected: “My husband is the one who went to the bank to open an account for me and who collects my NIRSAL loan papers. He supports my business because the money helps our family. We decide together how to invest.” This finding complicates simplistic narratives of patriarchal suppression, suggesting that within conservative social structures, collaborative models can facilitate women’s financial inclusion.

4.2.4 NVivo Word Cloud and Coding Comparison Analysis

The NVivo word frequency analysis across all 32 interview transcripts generated a word cloud with the most frequently occurring terms being: money (f = 342), business (f = 318), bank (f = 287), children (f = 234), husband (f = 223), interest/riba (f = 219), Islamic (f = 198), savings (f = 187), phone (f = 176), help (f = 167), market (f = 156), and fear (f = 148). The prominence of “fear” as a high-frequency term warranted further examination: coding comparison analysis

revealed that fear was coded in three distinct contexts—fear of riba (religious transgression), fear of debt (economic vulnerability), and fear of technology (digital unfamiliarity). Table 9 presents the NVivo coding comparison between urban and rural participants.

Table 9: NVivo Coding Comparison – Urban vs. Rural Participants

Sub-theme	Urban Refs	Urban %	Rural Refs	Rural %	Kappa (κ)	Sig.
Bank distance barriers	12	17.9%	55	82.1%	.78	.001
Digital literacy deficit	9	18.8%	39	81.2%	.81	.001
Interest avoidance	41	46.1%	48	53.9%	.84	.001
Murabaha utilisation	38	61.3%	24	38.7%	.76	.003
Mobile money as bridge	32	65.3%	17	34.7%	.73	.007
Adashe participation	34	43.6%	44	56.4%	.89	.001
Social media marketplace	36	81.8%	8	18.2%	.91	.001

Note. Refs = number of coded references; % = proportion of total references for that sub-theme; Kappa (κ) = inter-coder reliability coefficient. Urban participants (n = 14); Rural participants (n = 18).

The coding comparison reveals significant urban-rural divergences. There were significant differences between rural and urban respondents, with rural people referring to bank distance barriers more (82.1%) and urban people more (81.8%) referring to social media marketplaces, mobile money as Sharia bridge (65.3%) and murabaha utilisation (61.3%). There was more even spread of interest avoidance across urban and rural settings. (46.1% vs. 53.9%), confirming it as a universal concern rather than a rurality-specific phenomenon. These qualitative findings contextualise the SEM results by revealing the lived mechanisms through which financial inclusion dimensions operate differently across the urban-rural spectrum.

4.3 Mixed-Methods Integration: Joint Display

Following Guetterman et al.'s (2022) joint display methodology, Table 10 integrates quantitative and qualitative findings to demonstrate convergence, expansion, and complementarity.

Table 10: Joint Display – Integration of Quantitative and Qualitative Findings

Dimension	Quantitative Finding	Qualitative Finding	Integration
Access to Credit	$\beta = 0.412, p < .001$ Strongest direct predictor	Collateral bias, riba avoidance as barriers; murabaha as alternative pathway	Convergent: Credit access matters most, but religious framing reshapes how access is pursued
Digital Financial Services	$\beta = 0.339$; Strongest mediation via FL (VAF=44.8%)	Digital literacy deficit; Mobile money as “Sharia bridge”; Urban-rural digital divide	Complementary: SEM shows FL mediates; interviews reveal WHY—digital tools require specific literacy
Islamic Microfinance	$\beta = 0.368$; Strengthens under high SCN	Murabaha widely used; Qard hasan from community; Zakat as startup capital	Expansion: Quantitative shows stronger effect in conservative contexts; qualitative reveals diverse Islamic instruments beyond formal IMFI
Socio-Cultural Norms	Moderator: $\Delta R^2 = .047$; Attenuates most paths but strengthens IMF	Husband as intermediary (not only barrier); Collaborative household models; Purdah driving home-based innovation	Divergent/Expansion: SEM shows attenuation; interviews reveal norms as BOTH constraining AND enabling

Note. Joint display following Guetterman et al. (2022). Integration types: Convergent = findings agree; Complementary = findings add different but compatible layers; Expansion = qualitative extends quantitative; Divergent = findings present different perspectives.

5. Discussion

5.1 Direct Effects of Financial Inclusion on Entrepreneurial Success

The finding that all four financial inclusion dimensions significantly and positively predict entrepreneurial success advances the empirical literature on financial inclusion–entrepreneurship nexus in developing economies. The most significant effect of Access to Credit ($\beta = 0.412$) confirms the findings of Balamoune-Lutz (2023), and Olu-Daniels and Nwankwo (2022), which showed that credit is the most powerful financial inclusion dimension for enterprise formation. The significant impact of Islamic Microfinance Participation ($\beta = 0.368$) is new and empirical, as there is no previous study that quantified the relationship between Islamic Microfinance Participation and the other variables in a SEM approach. This finding supports the theoretical argument of Islamic Finance Theory (Hassan et al., 2022), which maintains that Sharia compliant instruments can be effective financial inclusion tool for Muslim population. The relatively small (but still high) impact of Savings Mobilisation ($\beta = 0.287$) is different from what Fanta and Mutsonziwa (2022) found in their seven-country study of Africa, which concluded that savings was the strongest financial inclusion predictor. This separation may be

due to the context of Northwest Nigeria where informal savings instruments (adashe) may be more prevalent than in other parts of the country which may buffer the marginal effect of formal savings instruments. The qualitative results corroborate this conclusion: regardless of what formal savings product their entrepreneurs use, women who are highly involved in adashe may reap entrepreneurial benefits from savings, which reduces the impact found on formal savings mobilisation.

The financial literacy as a mediating mechanism will be discussed.

The capacity perspective on financial inclusion (Lusardi & Mitchell, 2023) is well supported by the finding that financial literacy is a partial mediator for all the financial inclusion-entrepreneurial success pathways. The fact that financial literacy accounts for 44.8% of the relationship between the DFS and ES is important from a theoretical perspective, indicating that the financial literacy needed to effectively use DFS is more high than that needed for the other financial inclusion dimensions (AC→ES) which accounted for 24.3%. This study contributes to Kaiser et al.'s (2022) meta-analysis, in that it offers dimension-specific mediation estimates within a population that has not been explored. This is complemented by the qualitative results which show that financial literacy in this context not only involves knowledge of mainstream financial products and services, but also “Islamic financial literacy” where financial products and services are understood in terms of their sharia-compliant product structure, how they differ from conventional products and services and how to assess whether they are compliant with Islamic principles. The above conceptualisation of financial literacy has not yet been fully reflected in the existing scales and is an important direction for scales to be developed in the future (Antara et al., 2022).

5.3 Socio-Cultural Norms: A Complex Moderator

One of the most interesting findings from this study is that the financial inclusion-entrepreneurial success relationship is significantly moderated by the socio-cultural norms, and that the moderation effects vary across the dimensions. The reduction of AC, SM and DFS pathways in highly restricted socio-cultural settings is in line with the institutional theory's prediction of the role of informal institutions as limiting the effectiveness of formal economic mechanisms. (North, 1990; Welter et al., 2022). Hassan and Usman's (2022) finding of attenuated credit effects under social restriction in Katsina State is confirmed and extended to additional financial inclusion dimensions.

However, the counter-finding that Islamic Microfinance Participation becomes more effective under high socio-cultural restriction (β High = 0.389 vs. β Low = 0.312) is a novel and theoretically significant result. In the most conservative settings in which conventional financial products are subject to formal and informal constraints, this implies that sharia-compliant financial products might be filling an important institutional gap. (Kimmitt & Muoz, 2022). The qualitative data support this interpretation: participants in the most restrictive socio-cultural environments reported that Islamic microfinance was not only their preferred but often their only acceptable financial engagement pathway. This finding has profound implications for financial inclusion policy design in conservative Muslim-majority contexts.

5.4 Theoretical Contributions: The CIFIE-S Model

The validated CIFIE-S model makes a distinctive theoretical contribution by demonstrating that financial inclusion-entrepreneurial success dynamics among Muslim women cannot be

adequately explained by any single theoretical lens. The integration of Social Feminist Theory (explaining gendered structural barriers), the Women's Financial Inclusion Framework (providing dimensional structure), and Islamic Finance Theory (accounting for faith-based financial preferences) produces a more comprehensive explanatory framework than any predecessor model. The model's substantial explanatory power ($R^2 = .654$) and adequate fit indices confirm its empirical validity for this population, while its theoretical architecture is potentially generalisable to other Muslim-majority developing contexts.

6. Conclusion, Implications, and Recommendations

6.1 Conclusion

This study has provided the first comprehensive mixed-methods examination of the financial inclusion–entrepreneurial success nexus among Muslim women in Northwest Nigeria. Through the integration of SEM-based quantitative analysis with NVivo-supported qualitative inquiry, the study has established that financial inclusion dimensions—access to credit, savings mobilisation, digital financial services, and Islamic microfinance participation—significantly predict entrepreneurial success, with financial literacy serving as a partial mediating mechanism and socio-cultural norms functioning as a complex, differential moderator. The development and validation of the CIFIE-S model provides a robust theoretical and empirical foundation for understanding and promoting Muslim women's entrepreneurial success through contextualised financial inclusion strategies.

6.2 Policy Implications and Recommendations

First, the Central Bank of Nigeria should mainstream Islamic microfinance as a core pillar of the National Financial Inclusion Strategy, recognising that for significant segments of the Northwest population, Sharia-compliant instruments are not an alternative to financial inclusion but its prerequisite. The finding that Islamic microfinance becomes more effective in the most conservative contexts underscores its irreplaceable role.

Second, digital financial inclusion interventions in the Northwest must be accompanied by targeted digital and financial literacy programmes, particularly for women with limited formal education. The strong mediation of financial literacy on the DFS→ES pathway indicates that technology deployment without capability building will produce limited entrepreneurial outcomes.

Third, financial inclusion policy must move beyond gender-neutral frameworks to address the specific institutional context of Muslim women. This includes designing female-friendly agent banking networks (including female agents in purdah-observant communities), developing mobile-first financial products that are explicitly marketed as Sharia-compliant, and leveraging existing community-based financial mechanisms (adashe groups) as entry points for formal financial engagement.

Fourth, state governments in the Northwest should establish Islamic Women's Enterprise Development Funds, co-financed by zakat and waqf institutions, that provide integrated packages of Sharia-compliant financing, financial literacy training, and digital skills development.

6.3 Limitations and Future Research

Several limitations of this study point to directions for future research. The cross-sectional nature of the design prevents strong causal conclusions, highlighting the need for longitudinal panel studies that can clarify the temporal sequence of how financial inclusion influences pathways to entrepreneurial success over time. Although the area studied is the Northwest of Nigeria which gives it contextual depth, its generalisability would be restricted to other Muslim majority areas, and comparative studies across Nigeria's geopolitical zones and other West African countries are recommended. Common method bias is found due to the use of self-reported measures and future studies should use objective measures of business performance from enterprise registries or financial institutions. Last, the micro-level nature of the study may be complemented by meso- and macro-level analysis of institutional quality and regulatory frameworks and Islamic finance ecosystem development (Abubakar & Garba, 2022; Ozili, 2023). Further studies are also needed to develop and validate an Islamic Financial Literacy Scale that will encompass the distinctive knowledge aspects needed to effectively interact with Sharia-compliant financial products.

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