

RESEARCH ARTICLE

NON-INTEREST FINANCIAL INSTITUTIONS IN TACKLING FINANCIAL EXCLUSION AND ECONOMIC DEVELOPMENT

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ABSTRACT - This study aims to provide a solution to poverty and financial exclusion in North-East (BAY) states using non-interest financial institutions and financial technology (Fintech) to enhance economic development and accelerate the financial stability of the affected areas destroyed by Boko Haram in North-East Nigeria. This study adopted qualitative and quantitative research techniques to achieve its objectives. The data collected for the research were compiled through a survey. Five hundred (500) questionnaires were distributed; however, four and fifty (450) were valid for the analysis. The study shows a need for an initiative scheme of loan facilities using technological means to enhance financial inclusion and reduce poverty through non-interest financial institutions and financial technology (Fintech) based on direct and mediating variables for sustainable and economic development in the region. The result of this study proposed an integrated model of non-interest financial institution and financial technology (Fintech) platform as a sustainable source of funding businesses and agricultural financial activities to accelerate and promote financial inclusion and reduce poverty in (BAY) states.

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INTRODUCTION

The persistent threat of poverty and financial exclusion encompasses all aspects of human life, from political representation and social opportunities to economic and environmental challenges. Over time, the understanding of poverty has evolved in response to new perspectives and changing contexts (Blocker et al., 2023). Debrunner et al. (2024) have emphasised its connection to social exclusion, especially in developed and developing environments. Maguire-Jack and Sattler (2023) have also explored how poverty indices impact child well-being. Muhammad and Khalil (2021) have shed light on the prevalence of poverty and financial marginalisation across North-East Nigeria. In Africa, financial exclusion and poverty remain pressing issues, as discussed by (Simba et al., 2024); gender issues (Shah, 2020) and Social Protection (Barrientos & Hulme, 2016) have been connected to poverty and linked to financial exclusion. Li et al. (2023), Osabutey and Jackson (2024), and Ozili and Mhlanga (2024) have compelling these on various topics related to poverty in the past and financial exclusion. The evolution of scholarly perspectives on poverty, from an emphasis on income indicators in the 1960s to the inclusion of non-monetary variables in the 1990s and beyond, is a fascinating journey provided by Ben-Arieh and Gross-Manos (2024). One risk factor for managing health issues is poverty (Pearson & Elson, 2015). Lack of access to resources can impact relationships, security, education, health, and life expectancy, among other multiplier effects and links with poverty and financial exclusion. Understanding the complexities and effects of poverty and financial exclusion on individuals and communities is crucial, as well as the root and genesis of finding practical solutions and tackling financial exclusion in the region. Global efforts to combat poverty and raise living standards are stepping up efforts to reforms, initiatives, and sustainable development goals (Bao & Liao, 2024).

Aboramadan (2018) study, countries are evaluated based on development indicators linked to poverty. The issue of poverty in Nigeria has been a focal point for various governments. Despite economic growth and prosperity periods, poverty persists in Nigeria, presenting a significant paradox (Dauda, 2017). This is particularly noteworthy considering Nigeria's abundant natural and human resources and increasing national revenue. However, a considerable portion of the population lives in poverty due to the unequal distribution of wealth and income (Adeleke and Alabede, 2021). According to Dauda (2017), despite documented economic growth, poverty rates have continued to escalate in Nigeria, particularly in the North-West and North-East geopolitical zones, where poverty appears to be most prevalent. This stark reality in Nigeria calls for empathetic understanding and merits considerable concern. Nigeria has introduced various poverty alleviation policies and initiatives, such as Operation Feed the Nation, free primary education, green revolution, low-cost housing, and diverse rural development programs.

Despite extensive efforts, poverty alleviation continues to pose a significant challenge in Nigeria, as some implementation of numerous programmes and initiatives were considered. The interplay between poverty, economic

growth, and development varies in developing. Arisi-Nwugbala, et al. (2016) indicates Nigeria's Structural Adjustment Programme (SAP) and the post-SAP era led to only marginal improvements in living standards. However, Akizhanov (2023) and Adeleke and Alabede (2021) argue that SAP facilitated an unregulated capitalist development model, leading to the proliferation of poverty and inflation through trade liberalization, deregulation, privatization, and commercialization. Inadequate design, inconsistent implementation, policy discrepancies, insufficient funding, and corruption have all contributed to Nigeria's subpar performance in poverty alleviation endeavours. These initiatives often centre on providing financial credit and grants to support Micro, Small, and Medium Enterprises (MSMEs), which grapple with challenges such as high operational costs, deteriorating infrastructure, and competition from more affordable alternatives. The study underscores the potential transformative impact to provide a solution to poverty and financial exclusion in North-East (BAY) states using non-interest loaning financial system and financial technology (Fintech) structure to enhance economic development and accelerate the financial stability of North-East, Nigeria affected by Boko-Haram.

Awareness

Public awareness of financial inclusion is essential, as North-East Nigeria must include those who are financially excluded and cannot access the financial services offered by banks and other financial organizations to create a system that accommodates those who believe, have confidence, and trust in interacting with the system through providing capital and an investment model (Muhammad & Salisu, 2019). According to Joseph & Varghese (2017), banks offer their goods and services to the underprivileged. However, it has yet to be discovered that these individuals were conscious that they were doing so. The availability of technological innovations in the banking sector, such as cell phones, e-commerce, email, ATMs, and plastic money, limited access to financial products and services in rural and distant areas (Shah & Dubhashi, 2015). The reviews were gathered based on the degree of financial literacy and inclusion awareness. The evaluations were gathered based on the following criteria: the degree of financial inclusion through financial literacy, the level of financial inclusion through information and communication technologies (ICT) such as mobile banking and e-banking services, and the contributions made by different intermediaries to the promotion and provision of financial inclusion to rural impoverished people (Muhammad & Salisu, 2019).

According to Koku (2015), banks must take a comprehensive approach to combat financial exclusion by raising public awareness of financial products and education, offering guidance on money management, debt counselling, saving, and accessible credit. Banerjee, and Jackson (2017) asserted that connections between local communities and microfinance organizations are the only way to support financial inclusion. Banks should publicize zero balance accounts widely, employ technology to provide financial services in remote locations, and adapt ATMs to make them easier for the less educated and illiterate (Roy & Singh, 2025). According to Roy and Singh (2025), banks must rethink their customer service strategies to encourage financial inclusion for low-income individuals and treat the policy as a commercial opportunity and corporate social obligation. Previous research on financial inclusion revealed two things: First, it provoked discussion over the distinction between those who are underbanked and those who are smart bankers. Bharti and Malik (2022) indicate financial inclusion is to be effective, this group has to receive much attention. This also calls into question the current financial inclusion performance metrics.

Abasimel (2023) access alone will not yield benefits; one must actively commit to using financial products and services. This strong assurance concerns the use of financial products and services. Microfinance institutions (MFIs) have successfully intervened in financial education in some cases; nonetheless, there has been some debate regarding the best way to deliver this kind of education and who should be in charge. Mobile phone technologies might be more conspicuously shown in locations with higher penetration rates. It is suggested that education should be directed toward the impoverished, who have different budgetary requirements and comprehension abilities. Ozili et al. (2023) conducted a study on the current state of financial inclusion in Nigeria, focusing specifically on economic development. They identified the program's main components and offered recommendations for ways to maximize financial inclusion for the impoverished and unbanked populations. According to Paul (2024) analysis, just 13.8% of respondents have access to bank accounts, and the majority of respondents, of whom there are alarmingly few, need to learn about the plan. 95.08% of males and 78.9% of females did not know about the program. The study found that banks should actively promote zero-balance accounts and put more effort into raising public awareness. Economic development and growth depend on financial awareness and structure (Chen et al., 2021). Since the global financial crisis of 2007–2008, researchers and international organizations have shown great interest in financial inclusion (FI). Early in the new millennium, the public became interested in financial inclusion due to research showing that financial exclusion leads to poverty (De Haan, et al., 2022). In recent years, Financial Inclusion has attracted attention worldwide for its work to end hunger and reduce poverty, fostering a just and stable society where everyone gains from economic growth. Financial inclusion grants adult members of society access to suitable and reasonably priced financial services tailored to their requirements.

Additionally, having access to bank accounts helps farmers save more money, which raises household spending and agricultural output (Demirguc-Kunt, et al., 2023). Members of the poorest rural households find this to be especially significant. Arisi-Nwugbala, et al., (2016), FI is acknowledged as a process that improves the number, quality, and efficiency of intermediate financial services, improving life quality, generating possibilities, and bolstering the economy. Through FI, local savings rise, this boosts investments in nearby companies (Demirguc-Kunt, et al., 2023). The financial inclusion (FI) system benefits the underprivileged and impoverished segments of society by giving them more access to

suitable financial services. On the other hand, people and companies who have limited access to official banking services are forced to rely on their meager income or savings. In some instances, they even turn to riskier informal financial services when making investments.

AWARENESS PROMOTES FINANCIAL INCLUSION AND ENHANCES ECONOMIC DEVELOPMENT

Poverty reduction

Tran et al., (2021) investigate how the growth of state-owned bank branches affects poverty in India's rural areas. The findings indicate that bank branch growth significantly impacts the poverty rate in the regions. Beck, Demircug-Kunt, et al., (2023) use the increase in income of the lowest-income categories and those subsisting on less than USD 1 per day as a dependent variable to examine the impact of FI on poverty. The financial variable is calculated using the GDP/private credit ratio. The study concludes that private credits and decreased poverty are positively correlated. Additionally, they discover that the benefits of FI are asymmetrical, benefiting the poor more than the rich and reducing income inequality. Young and Young (2022) examine the effects of offering financial services to low-income people on company operations, employment, and income in Mexico. They demonstrate that in two years, the number of unofficial enterprises rose by 7.6% while employment—which includes low-income people who support economic growth—increased by 1.4%.

Lotto (2022) demonstrate a substantial correlation between financial inclusion (FI) and GDP growth in Tanzania, with more access to financial services positively impacting economic growth. However, whether FI affects poverty may not be explained by economic growth. Mpofu, (2022) having access to financial services enables households to make investments that will increase their income in the future, promoting growth. Kamran and Uusitalo (2024) forced people to rely on informal money when they lack access to official financial services like loans, savings accounts, insurance, payments, and remittances. Low-income people may incur more outstanding financing charges as a result of this. Tran et al., (2021) evaluates the inter-country relationship between financial inclusion and poverty using data from 160 countries. The results demonstrate that having access to financing considerably lowers poverty. Kelkar and Arthur (2022) research, farmers who experience financial improvement have lower debt levels.

Similarly, Flory (2023) concentrate on banks in Malawi's rural areas and find that increasing FI through commitment savings accounts enhances farmers' capacity to save money for inputs. Ab Ghani, et al., (2021), FI should benefit the underprivileged. Through enhancing their financial self-control and providing access to essential financial services like credit, insurance, and savings, FI assists low-income people in spurring economic growth. They contend financial services lessen poverty and income inequality and promote economic progress. Polloni-Silvea et al., (2021) also examine the connection between Peruvian poverty and FI. Nevertheless, FI has less impact than other elements like communication, information technology, and the internet. Mpofu, (2022) examine the beneficial effects of FI on people's quality of living in 31 nations using the FI index (Demircug-Kunt, et al., 2023). The results demonstrate that low-income and vulnerable populations' income rises when inexpensive financial services are made available to them. The provision of low-cost credit to low-income populations incentivizes loan-taking and the creation of independent local productions, boosting employment and production output. Additional research in the field of agriculture demonstrates the influence of FI on the industry. FI enables farmers to employ new technology and equipment in their production, boosting labour productivity and output by facilitating their access to capital and lowering their debt. The expansion of production output boosts macroeconomic growth and national output. Increased productivity also raises low-income groups' incomes, raising their quality of living.

Anwar et al. (2023) evaluated the effect of finance on reducing poverty using panel data collected from 31 Indonesian regions between 2005 and 2013. The findings indicate that FI hurts poverty and positively impacts investment and economic growth. Soro and Senou (2023), the legal system, education, and credit available to the private sector do not predict the poverty rate in a subset of African nations. FI and economic growth are the primary predictive indicators for the poverty rate in these countries. The impact of FI on the poverty rate is adverse. This suggests that the poverty rate decreases with improved access to financial inclusion for individuals. The outcomes agree with discovered a robust inverse relationship between FI and African poverty, which state that FI decreases poverty and economic disparity in developing Asian nations.

Koomson and Danquah (2021) examine the effect of FI on household poverty and susceptibility to poverty in Ghana using data from a survey on living standards in Ghana in 2016–2017. The findings indicate that there are two ways in which FI progress affects household poverty. First, it concerns a 27% decrease in a household's probability of becoming impoverished. Second, it lowers a household's projected probability of poverty by 28%. There are two ways that FI affects poverty: directly and indirectly. By making credit and other financial services more accessible and supplying the resources required for investment, consumption, and economic growth, FI directly contributes to reducing poverty. The ideas of growth and financial stimulation developed by Ilkkaracan et al., (2021) are how the indirect channel functions. Through increased employment and government social spending on health, education, and social security, low-income populations benefit gradually from economic growth spurred by the supply of financial services (Sengupta, et al., 2024). This is known as the indirect channel. On the other hand, misusing cutting-edge financial instruments (such as credit cards, ATMs, and online banking) that facilitate transactions can result in debt and other financial issues, eventually leading to poverty

(Koomson & Danquah, 2021). With benefits including confidentiality, limited spending, improved cash management, and safer savings, FI allows residents to use formal financial services. Instead of employing unofficial saving strategies like keeping cash, gold, and jewellery at home, these advantages encourage people to put their savings into the financial system (Demirguc- Kunt et al., 2023). The financial market will have additional funding sources for these savings, which it can deploy effectively in long-term investment initiatives. In this approach, the financial market promotes increased investment and manages liquidity risk, which is the risk resulting from a lack of cash (Sethi et al., 2025).

Financial inclusion (FI) is necessary to end poverty because it allows the underprivileged to create enterprises and invest in production, raising their income and lowering poverty. Appiah, et al., (2023) states that growing the finance sector encourages capital accumulation, raises savings rates, and creates an environment conducive to luring in foreign investment and economic development. Koomson & Danquah, (2021), enhancing the financial system's investment opportunities, fostering the expansion of small and medium-sized businesses, and extending financial access to the lowest echelons of the income pyramid all contribute to reducing poverty and income inequality.

POVERTY REDUCTION PROMOTES FINANCIAL INCLUSION AND ENHANCES ECONOMIC DEVELOPMENT

Policy Response

The current institutional systems for enforcing contracts and rights of individuals/firms in Nigeria need to be more robust, more manageable, and intractable (Muhammad & Khalil, 2021). Again, the financial and time costs of seeking legal remedies are scary. The laws governing e-transactions in Nigeria are still growing, and it is hoped that before long, the court system will be able to address disputes originating from transactions made on ICT platforms in a prompt and confidence-instilling manner within the country's online communities. Until then, the difficulty of a poor legal framework would likely keep many Nigerians out of the financial sector. The current scenario in Nigeria is that most contemporary amenities that can improve people's standard of living are concentrated in urban regions, while rural populations are largely neglected. This environment needs to inspire young people to settle in rural areas. Indeed, this phenomenon may explain a significant portion of Nigeria's rural population's ICT illiteracy. This rural population is expected to remain financially excluded until appropriate policies are introduced to alter the situation (Muhammad & Salisu, 2019).

Some Policy Options for Improving the Role of ICT in Financial Inclusion the preceding sections demonstrate that ICTs are tools for driving financial inclusion in Nigeria. However, some significant limitations have also been identified. Overcoming these difficulties will necessitate evidence-based policies. This study will present some policy choices and policy thrusts that can help Nigeria achieve its aim of driving financial inclusion through the use of ICTs. To begin, a comprehensive national ICT policy is required to clearly define the goal and objective of ICT in Nigeria, serving as a rallying point and focus. The policy will lay the groundwork for long-term national development. Increasing knowledge and usage of ICTs; supplying and maintaining adequate infrastructural facilities required for ICT development. Such as a dependable supply of electricity and telecommunication services and extensive educational and training programs for the people to provide an adequate supply of laws and policies which provide qualified ICTs adequacy. The emerging ICT-based economy with sustainable regulatory policy ensures the efficiency of the system, institutionalizing structures for effective implementation of ICT strategies and enhances the accessibility of the platform for better operation and infrastructural development. Thus, it encourages the development and use of ICTs and ensures equitable access to the benefits offered by ICTs across all segments of society and vulnerable groups (Dauda, 2017).

It ensures that the government recognizes its overall responsibility for creating a conducive environment for the development of ICTs for national benefits, implementing customer-driven and service-oriented e-government to meet citizens' needs and improve their quality of life, and providing a transparent and credible legal framework for enforcing ICT-based contracts and transactions.

POLICY RESPONSE PROMOTES FINANCIAL INCLUSION AND ENHANCES ECONOMIC DEVELOPMENT

Financial Technology

The unit cost of financial intermediation has remained constant at about 2% of asset value even though technology has improved the functionality and efficiency of other businesses (Osabutey & Jackson, 2024). This was prior to the advent of more recent companies that provide financial services directly to customers, cutting out middlemen like banks and doing so at a cheaper cost per unit. The name FinTech encapsulates the expected upheavals that have shaken the financial system, even though financial technology is not new and incumbents have always had access to new technologies. Innovations in financial services are likely to emerge where client frictions lead to profit opportunities, according to a 2015 World Economic Forum analysis. Where the business strategy is platform-based, data-intensive, capital-light, and scalable is considered the most significant influence. Multiple elements have come together to cause the rise of FinTech and the ensuing disruptions. First, rivals may now provide alternative digital payment services to technological advancements, including integrated billing, next-generation security, and smartphones with contactless payment technologies at the point of sale (Muhammad et al. 2022). With these trustworthy and safe digital payment methods, customers can enjoy convenience and peace of mind. Second, technology has altered how consumers shop.

Instead of waiting in line at the neighbourhood branch, they can now shop online from their homes, meet relationship managers instead of advisors, and perform various financial services through digital banking (Muhammad & Suleiman, 2018).

According to the Expectations and Experiences Consumer Trends Survey, nearly two-thirds of US consumers who apply for loans do so partially or entirely online (Ozili, 2022). Furthermore, 19% of customers read loan documentation on mobile phones or tablets, 16% upload documents as requested by lenders, 21% obtain loan application decisions via mobile devices, and 71% are comfortable submitting loan applications online. With digital loans, borrowers can receive credit at a lesser cost, while lenders can save money on administrative costs. Some banks use mobile phone usage data to predict credit risk and provide alternative credit scores, minimizing information asymmetry and perhaps lowering loan costs (Ozili & Mhlanga, 2024). Li et al. (2024) examined the impact of digital loans made by M-Shwari (an utterly digital bank that offers digital loans via mobile phones) in Kenya over two years. They see an upsurge in minor digital loans, particularly among individuals who previously did not qualify. Those who have previously qualified borrowed 37% more. Loan availability strengthens households' resilience to adverse shocks and allows them to maintain the same level of consumption despite challenging unanticipated situations. Jabbie (2021) analyze the US mortgage market and find that FinTech lenders process applications 20% faster without raising lending risk. They can also better adjust to mortgage demand shocks, boosting the possibility of refinancing and providing borrowers with better access. Ipinnaiye and Olaniyan (2023), FinTech lenders have a larger market share in locations with higher mortgage denial rates and lower median credit scores. This shows that FinTech lenders contribute to expanding loan access for the underserved. Eikelenboom and Long (2023), consumer loan platforms have reached areas with fewer bank branches per person and significant levels of competition. They conclude that Fintech lenders can replace credit shortfalls in locations where bank branches are scarce and problematic in the local economy (De Haan et al., 2022).

Carraro, and Ferrone (2021) discovered that traditional lenders discriminate against minorities in the mortgage market by charging higher interest rates, but FinTech firms are far more ready to lend to them. Similarly, Zhou et al., (2023) show that informal Fintech services can help minorities, such as women-owned businesses, gain financial inclusion. Female-owned businesses that have received bank loan rejections are more likely than male-owned businesses to seek alternative sources of finance. They suggest that the findings are especially relevant in Asia and Africa, where women use informal money extensively, and Fintech is an appealing alternative source of finance.

Osabutey and Jackson (2024) discovered that the arrival of FinTech firms that compete with banks in payment processing can impact banks' ability to gather information regarding consumer credit quality. The negative impact primarily affects older and wealthier consumers who rely more on banks. Technologically sophisticated consumers, conversely, benefit the most from the lower cost of payment services. When a FinTech firm sells data rather than lending to customers, the upgraded data offers banks more significant information to assess credit risk, resulting in cheaper consumer costs. According to Flögel and Paul, (2024) justified that FinTechs displace regional banks without keeping the benefits of soft information, improved screening, and monitoring technology, small and medium-sized firms (SMEs) may have less access to funding.

FINANCIAL TECHNOLOGY PROMOTES FINANCIAL INCLUSION AND ENHANCES ECONOMIC DEVELOPMENT

Economic Development

The Nigerian economy has grown steadily over the last ten years, with average GDP growth rates of 7% in the previous five years. Nigeria is the largest economy in West Africa, accounting for 41% of the GDP of the subregion and currently ranking fourth in Africa overall, behind only South Africa, Egypt, and Algeria, which account for 14% of the continent's GDP. With oil reserves estimated at 37 billion barrels, Nigeria was the second-largest petroleum producer in Africa and ranked tenth in the world. Ibrahim and Ayomoh, (2022) indicate 187 trillion cubic feet of gas reserve and possess the sixth-largest natural gas deposit. About 34 solid minerals have been found in Nigeria, including notable uranium reserves. There is also an abundance of arable land and over 44 exportable commodities. Nigeria is listed as the seventh wealthiest nation because of its oil wealth, which makes up 95% of its foreign exchange profits and almost 80% of its budgetary revenues. Ibrahim and Ayomoh, (2022) and the CIA World Fact Book (2013), the country's population was expected to be 168 million in 2012, with a young median age of 18.63 years and 53.83 million workers. She faces difficulties because of an unequal income distribution that has widened the gap between the rich and the poor, even with all the resources at her disposal. Pfeffer and Waitkus (2021) indicate only 10% of the population shares more than half of the nation's wealth (Muhammad & Khalil, 2021). 70.1% of Nigerians were estimated to live in poverty in 2022 despite the country's GDP growing steadily. Remarkably, economists have labeled the GDP increase as "exclusive," given that it has not resulted in any meaningful socioeconomic benefits such as increased employment prospects, decreased rates of poverty, or better living standards for the populace. Due to this uneven expansion, 50.1 million adults, or 57% of the adult population in the nation, can no longer access formal financial services. Insufficient healthcare and limited access to productive assets were found to be major contributing factors to poverty (Zhou et al., 2020).

Real growth will be guaranteed as measures are considered and ensure that Nigeria's social and economic development is inclusive. According to Chen et al. (2021), economic growth will occur more quickly if financial services are available

to every part of the population. Nigerian and other developing-nation governments have placed a high premium on financial inclusion (FI). This is demonstrated by the Federal Government's 2011 announcement of additional funding sources, regulatory changes, and a shifting policy strategy on FI. By 2020, the Nigerian government wants to include all citizens. The FI policy partially achieves the Central Bank of Nigeria's (CBN) goal of preserving external reserves to protect the Naira's value internationally. This goal and others are attainable since FI increases micro, small, and medium-sized businesses access to financing, boosting productivity and increasing non-oil exports, stabilizing the Naira's value.

The term "financial inclusion" (FI) gained prominence in the early 2000s due to a study highlighting poverty as a direct result of financial exclusion. The goal of the FI movement is to guarantee that all adult members of society have easy access to a wide choice of inexpensive financial products tailored to their needs and offered conveniently. These items include payments, savings, credit, insurance, and pensions under our formal and informal financial institutions. The formal and informal financial sectors coexist under Nigeria's dual financial system, with little to no contact between them. As of December 2011, the amount of money outside the banking industry was expected to be N12.67 trillion. According to current statistics, 37.2 million adult Nigerians needed access to formal or informal finance in 2012. Subsequent investigation showed that 80.4% of the excluded population lives in rural areas, 34.0% had no formal education, 54.4% were female, and 73.8% were under 45 (productive age). The financial system plays a crucial role in fostering economic growth and development through financial intermediation, which transfers money from the economy's surplus unit to its deficit unit. Numerous studies have demonstrated that financial development typically boosts economic expansion while lowering poverty and inequality (De Haan et al., 2022).

Muhammad and Salisu (2019) indicate that a financial system dominated by banks connects the various economic sectors and fosters a high degree of specialization, expertise, economies of scale, and a supportive environment for the execution of a range of government policies, including full employment, non-inflationary growth, exchange rate stability, and balance of payments equilibrium. Financial systems can only accomplish the goal of economic growth when a more significant portion of the population is within the jurisdiction of the state and financial inclusion. As a result, the CBN's goal of monetary and price stability would grow more elusive. A healthy financial system supports economic expansion and establishes a framework for financial intermediation by offering various products and services to individuals with varying needs, including risk management, credit, savings, and payment. By providing tailored financial solutions at a reasonable cost and without requiring extensive documentation, financially inclusive systems facilitate easy access to financial services for a wide range of people, especially the underprivileged and impoverished population segments. With financially inclusive systems, small businesses would be able to take advantage of promising growth opportunities because they would have to rely on their limited earnings, and people with low incomes would be forced to rely on their meager savings for future investments. As a result, income inequality would persist, and most developing countries' economies would grow more slowly. Policies and initiatives to mobilize savings are recognized worldwide as FI catalysts (Barrientos & Hulme, 2016).

Regretfully, the Nigerian government needs a savings mobilization policy; instead, most of its intervention programs and policies are focused on improving credit and have yet to yield the expected outcomes (Muhammad & Khalil, 2021). However, financial development may stifle economic progress if it is not fully inclusive, particularly if it favors the wealthy (Aboramadan, 2018). Interestingly, financial inclusion (FI) gained attention from policymakers on FI for the Unbanked because of its connection to economic growth.

MEDIATING ROLE OF NON-INTEREST FINANCIAL INSTITUTION ADDRESS FINANCIAL EXCLUSION AND ENHANCES ECONOMIC DEVELOPMENT

Model Development

Poverty is when a community lacks the financial resources to sustain a basic standard of living, leading to the deprivation of fundamental human necessities such as healthcare, clean water, medical care, and adequate housing. Each country has its poverty threshold, and achieving sustainable economic growth hinges on promoting fair development and social justice, which are linked to efforts to reduce poverty and generate employment opportunities for marginalized communities (Ipinnaiye & Olaniyan, 2023). Poverty arises from an unequal distribution of social resources and the marginalization of certain groups. Barriers to income, employment, and access to essential services are often exploited, and progress toward wealth equality can be hindered by financial institutions' singular focus on efficiency (Eikelenboom & Long, 2023). Poverty is a global issue whose nature, extent, and transitions are subject to ongoing debate. While India and China have made progress in reducing poverty, questions persist about the accuracy of global poverty estimates, fueled by the presence of both tangible and intangible indicators (Jabbie, 2021). As highlighted, researchers and policymakers face challenges in identifying and assessing the extent of poverty (Sareen, et al., 2020). Given the complexity of the issue, a comprehensive approach to measuring poverty entails examining its various dimensions and concepts (Carraro & Ferrone, 2021). Despite varying definitions, there is widespread agreement that poverty has adverse effects on individuals and communities, leading to social exclusion, isolation, anxiety, hardship, and a lack of essential resources. This underscores the pressing need for efforts to alleviate poverty, as these effects are not just statistics, but real experiences of people (Beckwith, 2015).

The impoverished often lack autonomy and live-in inadequate conditions with limited access to social services, low incomes, and limited opportunities for advancement (Sanders & Scanlon, 2021). Understanding poverty encompasses more than just numbers and statistics; it is about the lived experiences of those affected. Poverty can lead to a profound loss of self-confidence and self-actualization, stripping individuals of their dignity and potential. This cultural detachment causes shame and a lack of intellectual depth (Zhang et al., 2023). It impacts ethics and morality, hindering people's ability to function and embrace core values. However, the implications of poverty go beyond the individual, affecting the fabric of society. Meanwhile, poverty is strongly associated with income and its measurement (Sanders & Scanlon, 2021). Issues of income inequality, gender disparity, and the rural-urban divide have garnered international attention, as vulnerable groups like women and rural dwellers receive disproportionate rewards, a stark reflection of the injustice in our society. This means the benefits they receive are not proportionate to their contributions. Absolute poverty refers to a household's inability to meet basic needs for daily activities, such as clothing, food, shelter, transportation, and education. It is measured by an imaginary Poverty Line (PL) and is grouped into two categories: the poor and the extremely poor. The World Bank adopts a PL of \$1 per person per day. Relative poverty occurs when an individual's income falls short of the population's average income, resulting in lower resources and exclusion from ordinary living patterns and activities. Poverty measurement is dynamic and context-sensitive, reflecting changing societal needs and demands. Luxury may become essential in different countries, and developed countries may not perceive it as such. The international community has recently taken an interest in measuring subjective poverty, recognising the limitations of objective indicators and the importance of understanding the perspectives of people experiencing poverty in policy-making.

Coccia (2018) explored financial inclusion in Europe, suggesting widespread financial sector liberalization could intensify banking competition. However, this has exacerbated the problem. The regulatory aspect of financial inclusion is a concern, as competitive activities of industrial institutions after liberalization can affect financial inclusion. Poor members of society experience financial exclusions, but no significant percentage of adults in Europe with financial exclusion. Muhammad, et al., (2022) developed a comprehensive model, which includes awareness, poverty reduction, social class, household status, age, income, region, ethnicity, gender, education, and employment status, to test the impact of various exclusions and inclusions on the financial business. Srimaneekarn et al., (2022) analysed survey data using logit models and binary logistics. Their findings highlight the informative nature of employment status households, income and homeownership as barriers and the significant roles of marriage status, education, and age. Affleck and Mellor (2006) highlight the importance of financial inclusion in addressing socioeconomic inequality, poverty reduction, and policy response. They use various approaches, including social investment programs, financial technology, microfinance programs, community finance, and community development. However, some individuals choose not to use financial services due to religious, cultural, or social prejudices. Involuntary financial exclusion can occur due to geographical barriers, disadvantageous conditions, product costs, lack of awareness, fear of rejection, and self-exclusion (Muhammad & Salisu, 2019). Evaluating financial inclusion in three dimensions: access to financial offerings, utilization of financial offerings, and high satisfaction with goods and services is crucial for a comprehensive view (Muhammad & Dauda, 2018). Reviewing barriers and limitations to receiving financial services can help find solutions to increasing access to financial services. Therefore, the study investigates the mediating role of non-interest financial system in addressing financial exclusion in North-East and Economic development.

RESEARCH METHODS

A survey was conducted among three states affected by Boko Haram (Borno, Adamawa, and Yobe) households in northeast Nigeria, using a Structure Equation Modeling using questionnaires to collect data on socioeconomic characteristics, financial inclusion, and access to NIFIs. Descriptive and regression analyses were used to identify and analyse the relationship between NIFI usage and poverty reduction, Awareness, policy response, financial technology, financial inclusion, and economic development. The study was based on a sample size of 450 respondents, confirmed the study's reliability and highlighted the significant role of NIFI usage in poverty reduction. AMOS and SPSS software were used and analysed, along with validity and reliable tests, further confirming the study's reliability.

Table 1. Reliability test from 200 respondents in the pilot study

Variable	No. of Item (s)	Cronbach's Alpha
Awareness	(6)	0.701
Poverty reduction	(5)	0.742
Policy Response	(6)	0.705
Financial Technology	(5)	0.781
Non-Interest Financial Institution	(5)	0.712
Economic Development	(5)	0.720

Table 1 above indicates that the reliability of the provided variables ranged between 0.701 and 0.781, which was above the range of the cut-off point as indicated by Hair et al., (2003). Therefore, the study's pilot test indicates absolute loading and is strongly recommended for the research combination, as the variables meet the expectations threshold of 0.7 above. Furthermore, the reliability test of Cronbach's was still examined after the data compilation for consistency of internal

reliability under Cronbach’s alpha as final data was gathered. Table 2 of the regression analysis presented in the research is based on a relatively positive R square of 0.697 at 68.6% and an adjusted R square of 67.6%. The R square is tested to justify the model credibility of the variables used in the research, providing a solid foundation for the results. Therefore, the predicted variables may be considered for research (Ozili, 2022).

Table 2. Model credibility

<i>Model credibility based on R-squared</i>					
Regression statistics					
Multiple R	0.823				
R Square	0.697				
Adjusted R square	0.686				
Standard Error	0.2272				

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		Sig
	B	Std. Error	Beta	t	
(Constant)	0.111	0.028		3.964	0.000
Awareness (AW)	0.318	0.050	0.311	6.347	0.000
Poverty Reduction (PO)	0.265	0.054	0.243	4.905	0.000
Policy Response (PR)	0.230	0.046	0.220	4.968	0.000
Financial Technology (FT)	0.221	0.052	0.235	4.250	0.000

Table 3. Assessment of normality

Construct	Item	Skewness	CR	Kurtosis	CR
Awareness	AW6	-1.195	-9.074	1.458	5.537
	AW5	-.728	-5.530	-.178	-.674
	AW4	-.899	-6.829	.416	1.579
	AW3	-.938	-7.121	.245	.928
	AW2	-1.043	-7.921	.754	2.864
	AW1	-.944	-7.171	.097	.368
Poverty Reduction (PO)	PO5	-.793	-6.022	.101	.382
	PO4	-.817	-6.206	.460	1.745
	PO3	-.970	-7.363	.717	2.721
	PO2	-.630	-4.783	-.072	-.272
	PO1	-.892	-6.773	.326	1.237
	Policy Response (PR)	PR6	-.953	-7.240	.669
PR5		-1.008	-7.656	1.122	4.259
PR4		-1.003	-7.613	.399	1.515
PR3		-.953	-7.234	.283	1.074
PR2		-1.228	-9.326	.783	2.975
PR1		-1.505	-11.426	1.806	6.858
Financial Technology (FT)	FT5	-.825	-6.268	.205	.777
	FT4	-1.133	-8.605	1.221	4.637
	FT3	-1.116	-8.471	.990	3.759
	FT2	-.984	-7.469	.922	3.502
	FT1	-1.134	-8.612	.874	3.320
Non-Interest Financial Institution (NFI)	NFI5	-.807	-6.128	.615	2.335
	NFI4	-.891	-6.769	.726	2.756
	NFI3	-.821	-6.234	.098	.373
	NFI2	-.931	-7.071	.695	2.640
	NFI1	-1.086	-8.247	.698	2.649
Economic Development (ED)	ED5	-.805	-6.112	.242	.921
	ED4	-.701	-5.325	.084	.319
	ED3	-.534	-4.058	.031	.119
	ED2	-.665	-5.047	.307	1.166
	ED1	-1.034	-7.850	.358	1.361

Table 3, the result of the assessment of the normality, has shown that the kurtosis and skewness have met the threshold of ± 2 and ± 7 , as shown in the above table. Therefore, the assessment threshold of each has been met, and in the range of demand, skewness ranged between ± 2 and ± 2 (Tabachnick, 2007). Kurtosis is considered ± 7 to ± 7 as recommended by (Yi et al., 2013).

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Table 4 demonstrates the loadings of all factors used in the study, which indicates the absolute loading based on the threshold recommended at 0.5 above (Ho, 2006). Therefore, the factor loadings based on construct items indicate the absolute loadings in which no construct was recorded below 0.5, which indicates the stable structure of the model.

Table 4. Factor loadings of the items in CFA model

Variables	Item (s)	Factor Loading
Awareness	AW1	0.699
	AW2	0.734
	AW3	0.552
	AW4	0.691
	AW5	0.591
	AW6	0.617
Poverty Reduction	PO1	0.613
	PO2	0.608
	PO3	0.681
	PO4	0.644
	PO5	0.558
Policy Response	PR1	0.641
	PR2	0.725
	PR3	0.769
	PR4	0.832
	PR5	0.713
	PR6	0.623
Financial Technology	FT1	0.685
	FT2	0.674
	FT3	0.679
	FT4	0.635
	FT5	0.663
Non-Interest Financial Institution	NFI1	0.649
	NFI2	0.765
	NFI3	0.686
	NFI4	0.703
	NFI5	0.609
Economic Development	ED1	0.627
	ED2	0.585
	ED3	0.674
	ED4	0.500
	ED5	0.644

Table 5 indicates the chi-square statistic suggests a good fit, and the other indices suggest a relatively good fit. The RMSEA indicates 0.041 that the residuals are relatively less, suggesting that the model is providing a good explanation of the data. The CFI and TLI indicate that the model provides a good fit at 0.9 compared to an independent model, and GFI and AGFI 0.9 suggest that most of the variance in each observed variable is explained by the latent variables. Remember to consult your research question, study design, and theoretical framework when interpreting these indices to ensure that you're making informed decisions about your measurement model's goodness of fit.

Table 5. Goodness of fit indices of measurement model

Fit index	Modified Model	Recommended value	Acceptable value	Source
X ² /df	2.293	<3.00	>5.00	(Yi et al., 2013)
p-value	0.000	>0.05	>0.000	(Hair et al., 2019)
GFI	0.981	>0.90	>0.800	(Hoyle, 2000)
AGFI	0.922	>0.90	>0.800	Yi et al., 2013)
CFI	0.922	>0.90	>0.900	(Ho, 2006)
TLI	0.914	>0.90	>0.900	(Ho, 2006)
RMSEA	0.041	<0.08	<0.100	(Lomax, 2010)

Table 6. Reliability and convergent validity

Variables	No. of Items	Composite Reliability	AVE	Cronbach's Alpha
Awareness	(6)	0.865	0.717	0.809
Poverty reduction	(5)	0.786	0.713	0.757
Policy Response	(6)	0.897	0.768	0.861
Financial Technology	(5)	0.812	0.746	0.799
Non-Interest Financial Institution	(5)	0.818	0.771	0.808
Economic Development	(5)	0.777	0.845	0.740

Reliability indicates the consistency of a measurement instrument over time and across different contexts. In other words, it assesses whether the instrument produces similar results when used with the same group of participants. A reliable measure is free from errors and variations, allowing for accurate conclusions to be drawn. Moreover, internal consistency measures how well the items on a scale or questionnaire correlate with each other. Test-retest reliability measures the consistency of the measure over time. Cronbach's alpha: A statistical coefficient that measures internal consistency (typically ranges from 0 to 1). Therefore, the Cronbach's alpha of each variable indicates the threshold above 0.7; composite reliability has also shown the same range above 0.7 as recommended by (Yi et al., 2013), while average variance extracted (AVE) has loaded above the threshold, which indicates the goodness of reliability and validity of data used.

Table 7. Discriminant validity

Variables	(1)	(2)	(3)	(4)	(5)	(6)
Awareness	0.514					
Poverty reduction	0.792	0.508				
Policy Response	0.727	0.727	0.589			
Financial Technology	0.775	0.735	0.772	0.556		
Non-Interest Financial Institution	0.774	0.714	0.750	0.848	0.594	
Economic Development	0.666	0.695	0.627	0.808	0.818	0.714

Discriminant validity is a type of construct validity that assesses whether a measure is distinct from other measures that should theoretically be unrelated to it. In other words, it examines whether a measure is not measuring the same underlying construct or phenomenon as another measure. In discriminant validity, the goal is to show that a measure is not simply a proxy for another measure or construct. This is important because it helps to ensure that the overlap between measures does not confound the results of a study. Discriminant validity indicates to which extent the construct is distinct from each other. Therefore, the discriminant value should not exceed 0.85

Figure 2 above indicates that direct measurement involves measuring the absolute relationship between the two constructs directly, without any intermediate variables. This approach is often used when we have a clear and well-defined theoretical relationship between the constructs. At the same time, indirect measurement involves measuring the absolute relationship between the two constructs indirectly through mediating variables. This approach is often used when the direct relationship between the constructs is challenging to measure or when we want to control for other variables that may influence the relationship.

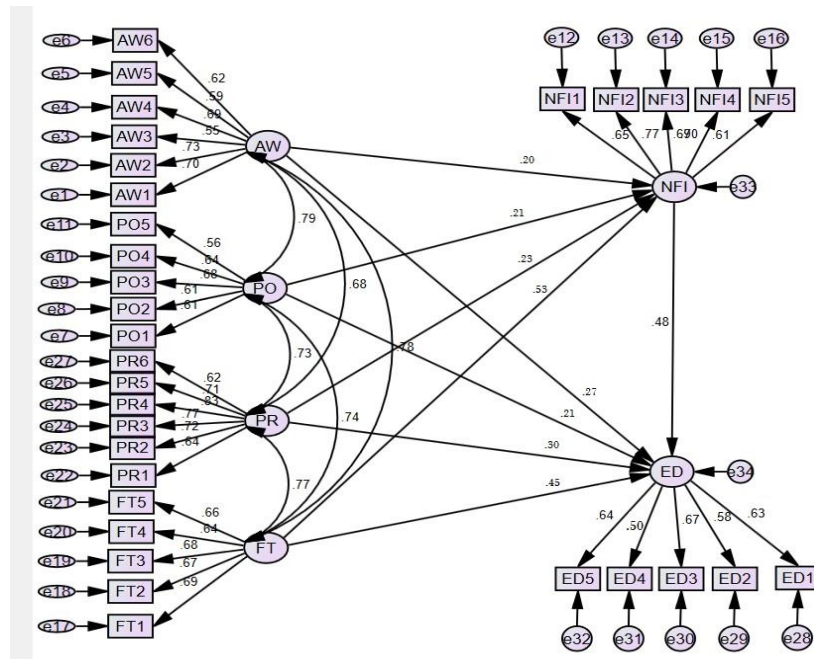


Figure 2. Testing relationship

Table 8. Direct effect of the Hypotheses

Path	Estimate	S.E	CR	p-value	Decision
AW → ED	0.270	0.095	2.842	0.005	Supported (H1)
PO → ED	0.210	0.071	2.958	0.004	Supported (H2)
PR → ED	0.301	0.800	1.672	0.065	Rejected (3)
FT → ED	0.450	0.080	5.625	0.000	Supported (H4)
AW → NFI	0.201	0.074	2.716	0.010	Supported (H5)
PO → NFI	0.231	0.086	2.453	0.020	Supported (H6)
PR → NFI	0.231	0.095	2.431	0.030	Supported (H7)
FT → NFI	0.510	0.088	5.795	0.000	Supported (H8)
NFI → NFI	0.480	0.097	4.948	0.000	Supported (H9)

The direct effect of the hypotheses indicates that the path analysis shows the estimate of the indirect effects of multiple variables on an outcome variable through a series of intermediate variables on how awareness affects non-financial institutions and enhances economic development. These direct effects lead to a range of positive outcomes, including increased awareness, poverty, policy response, financial technology, and non-financial institutions to enhance economic development. Moreover, AW, PO, PR, and FT have a significant relationship with Non-financial Institutions, and AW, PO, and FT are significantly related to economic development, except Policy response rejected hypothesis H3, as shown in Table 8.

Table 9. Mediation effect outcome

Variable IV	Direct effect X→Y	Indirect effect X-M-Y	Effect Mediation z-value	Degree of Mediation	Result	Decision
Awareness	0.270 (sig:0.005)	0.480 (sig:0.000)	2.464 (sig:0.013)	AW-NFI-ED	Partial	Mediated
Poverty Reduction	0.210 (sig:0.004)	0.480 (sig:0.000)	2.539 (sig:0.011)	PO-NFI-ED	Partial	Mediated
Policy Response	0.310 (sig:0.065)	0.480 (sig:0.000)	3.092 (sig:0.05)	PR-NFI-ED	FULL	Mediated
Financial Technology	0.450 (sig:0.000)	0.480 (sig:0.000)	3.715 (sig:0.000)	FT-NFI-ED	Partial	Mediated

DV=Economic Development (ED), M=Non-Interest Financial Institution (NFI)

If the z-value is greater than 1.96 then the Mediating variable (M) is significant between the DV and IV

The mediation effect of NIFIs in addressing financial exclusion and economic development highlights the importance of improving financial literacy, poverty reduction, policy response, and financial technology in providing financial services to marginalized groups in North-East Nigeria. NIFIs can contribute to increased entrepreneurship, household income, job creation, and economic development. In the above analysis, the mediation effect is significant, indicating that the relationship between independent, mediating and dependent variables towards economic development. The

relationship between awareness, poverty reduction, and financial technology was partially mediated by the variables mentioned above. However, the policy response indicates that Full mediation. Moreover, the policy response rejected a direct relationship but accepted it as an indirect relationship through the mediating relationship of non-interested financial institutions towards economic development. This suggests that NIFIs play a crucial role in addressing financial exclusion and promoting economic growth.

DISCUSSION

The direct effect of non-interest financial institutions (NIFIs) on economic development is the relationship between NIFIs and economic growth without considering any mediating variables. One or more variables mediate the indirect relationship between NIFIs and economic development. In this case, we are considering the mediating role of financial literacy, poverty reduction, policy response, and financial technology. The total effect of NIFIs on economic development is the sum of the direct and indirect effects.

The findings of this study highlight the critical role that NIFIs play in addressing financial exclusion and promoting economic development in providing financial services and improving financial literacy, Poverty reduction, Policy response, and financial technology through NIFIs to increase financial inclusion, which is a crucial driver of economic development. The study's findings also suggest that NIFIs' provision of financial services can have a positive impact on household income, entrepreneurship, poverty reduction and job creation. All of which are important indicators of economic development. Additionally, the study's results suggest that NIFIs can play a crucial role in reducing poverty and improving living standards by providing access to financial services and promoting financial inclusion. The study's findings have important implications for policymakers and regulators who seek to promote financial inclusion and economic development. The study shows a need for an infrastructural initiative scheme of loan facilities using technological means to enhance financial inclusion and reduce poverty through non-interest loaning system and financial technology (Fintech) for sustainable and economic development in the region.

The study assessed the data normality, which is based on maximum likelihood based on the Skewness and Kurtosis of items used in the research. The factor loadings of the constructs were loaded above the threshold of 0.05 as recommended (Tabachnick, 2007). The measuring model is more favourable with the more significant factor loading. The extracted average variance, Cronbach Alpha, and composite reliability had perfect fits and satisfied the model's requirements for validity and reliability. The evaluation of model fit of GFI, AGFI, IFI, CFI, TLI, and RMSEA are perfectly loaded as recommended by (Byrne, 2013). Moreover, tables indicate the results' direct effect and mediation. The hypotheses were supported, except H3 was rejected on the direct effect between PR and ED, which is considered the same thing. Therefore, the mediating results indicate partial mediation of three scenarios: Awareness, Poverty, and financial technology. At the same time, the Policy response has full mediation. The study verified the relationship between the dependent and independent variables (poverty, awareness, policy response, and financial technology) to promote financial inclusion in Northern Nigeria. The government needs to license more non-interest financial services, such as Non-interest Loan systems, to boost SMEs in the northern region. The study shows that Islamic financial institutions can improve financial inclusion with sustainable development by providing opportunities for the Northern vulnerable, especially those affected by Boko Haram, to invest modestly in the system and address the region's exclusion.

The study also examined the following factors (Poverty reduction, Awareness, Policy response, financial technology, Non-interest Financial Institutions, and Financial Inclusion) to examine the relationship between Financial Inclusion and the Mediating Role of Non-interest financial institutions in Nigeria. Specifically, financial exclusion in Nigerian Financial Institutions was derived from poverty, lack of awareness or less understanding, and religious factors preventing many people from enrolling in conventional financial institutions. However, the government policy is not only for regulators to impose policies on a financial institution but also to consider the supervision of the system that is needed to be more efficient. Doing so may help the system determine the status of financial institutions to hire a manager that would bring the best solution to promote financial inclusion, which enables the system to accommodate every angle and hire a better manager to perform a better action and promote financial inclusion. The study also revealed that the development of pertinent literature intended to address the problems and obstacles associated with the financial inclusion program for which Islamic financial institutions are seen as a potential remedy had made the most significant contribution to the financial institutions.

CONCLUSION

The main conclusion of the study further revealed the significance of education and income earning as a significant part of economic development in Islamic financial institutions, that understanding financial regulation has determined education. In contrast, income-earning is determined by the participants' capacity and assesses the poverty level within the society. Moreover, the study adds to the body of knowledge by providing an understanding of the function of Islamic financial institutions as a factor in Nigeria's financial inclusion. The study indicates unbiased standards for assessing non-Interest financial systems' efficacy in fostering financial inclusion in Nigeria. Additionally, through evaluating financial services, the study's framework can be examined and applied to solve the issue of financial exclusion and reduce poverty, develop windows for awareness, financial technology and manage religious bigotry by providing people's needs through their separate ways and beliefs in the country. The results suggested that policymakers should ensure that non-interest

financial institutions operate fairly transparently and provide quality financial services through access to financial services, advocate for financial literacy, skill and knowledge development, access to financial products, entrepreneurship, household income, and job creation. Therefore, the utilization of such activities generates and provides solutions to tackle financial literacy and increase financial inclusion and economic development in North-East Nigeria.

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CONFLICT OF INTEREST

We acknowledge and declare no any potential conflicts of interest

AUTHOR CONTRIBUTIONS

Muhammad T: Introduction, Methodology, result and conclusion

Zahra M. B: Review literature and Methodology

Babakura B: Result interpreting and finding

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