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Financial Inclusion, Household Decision-making and Child Health Outcome in Nigeria

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Abstract: This study aims to investigate the impact of financial inclusion and household decision-making on child health outcomes in Nigeria. Specifically, it explores how financial inclusion—measured through mobile phone usage for financial transactions, bank account ownership, and mobile digital payment methods—interacts with women's decision-making power regarding earnings and household purchases to influence child health. Using data from the 2018 IPUMS-NDHS dataset, the analysis considers both rural and urban divides to assess disparities in financial inclusion and its effects on child mortality. The study employs logistic regression analysis to examine the relationship between financial inclusion, household decision-making, and child health. The findings reveal that households with mobile phones for financial transactions have significantly lower odds of child mortality, while bank account ownership has no significant effect. Regional disparities are apparent, with women in rural areas more likely to face financial exclusion and associated negative health outcomes for their children. Additionally, the study finds that women who have decision-making power over household purchases are less likely to experience child mortality in their households. In conclusion, the study emphasizes the need for financial empowerment of women as a critical strategy to improve family well-being and reduce child mortality. Expanding access to mobile financial platforms and enhancing women's decision-making authority are recommended to promote better health outcomes for children in Nigeria.

Keywords: Financial inclusion, Household Decision Making, Child Health, Child Mortality, Women, women empowerment, Nigeria

1. Introduction

Across the globe, tremendous shifts in financial payment methods have been recorded, with the use of digital platforms involving mobile banking, online transactions, etc., replacing traditional practices like paying by cheque or cash (Tay, Tai & Tan, 2022; Senyo et al., 2023). Financial inclusion for women is reinforced in international conventions and declarations that stipulate equal rights for women and prohibit policies and regulations that constrain social cohesion (Ojo, 2022). Financial inclusion has been regarded as an important instrument for improving the status of women, promoting empowerment, and reducing poverty and vulnerability in households (Ibrahim & Aliero, 2020; Maity, 2023). In Africa, the status and roles of women have undergone substantial shifts, significantly impacting the dynamics of families, communities, and the economy (Jayachandran, 2021). Along with enhancing women's empowerment, financial inclusion also plays a crucial role in household decision-making processes, which significantly impacts various aspects of family life, particularly children's health outcomes (Arnold & Gammage, 2019; Kim, 2022).

Children's health is a sensitive indicator of household prosperity and a window into larger socioeconomic conditions (Sahiledengle et al., 2022). It is closely related to elements such as diet, access to medical treatment, sanitary standards, and overall living conditions (Bakibinga & Matanda, 2022; Khonje et al., 2022). The decisions made within families have a significant influence on children's health, growth patterns, and future opportunities (Kong & Yasmin, 2022). The health outcomes of children are consistently correlated with women's empowerment, household decision-making, and gender. Empowered women are more likely to prioritize their children's health, resulting in increased access to healthcare facilities, higher immunization rates, and better adherence to preventive health practices. In contrast, households where women's voices are silenced tend to allocate less money towards children's health, limiting their potential for growth and development (Ara, Maqbool, & Gani, 2022).

Financial inclusion for women and household decision-making is essential as nations strive for inclusive and sustainable development (Ojo, 2022; Datta & Sahu, 2023). Women's roles in healthcare and childcare services are crucial for household development (Akseer et al., 2020). The interaction between household decision-making and child health outcomes is complex and requires in-depth investigation. Women have made tremendous progress toward gender equality and empowerment through their involvement in digital financial services (Tripathi & Rajeev, 2023; Elouardighi & Oubejja, 2023). Moreover, women's involvement in household and

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national decision-making processes signifies a significant transformation that advances gender equality (Lari, Al-Ansari & El-Maghraby, 2022) and promotes inclusive sustainable development (Boluk, Cavaliere & Higgins-Desbiolles, 2019). Despite the extensive discourse on financial inclusion's role in enhancing women's empowerment, many women in Sub-Saharan Africa, especially in Nigeria, still lack bank accounts and access to mobile banking (Akeju, 2022).

The 2017 Global Findex report indicated that Africa lags behind other regions in financial inclusion (Demirgüç-Kunt et al., 2020). The more recent Global Findex 2022 report revealed that the share of all adults (age 15+) in Africa who own an account rose from 42.6% in 2017 to 55.1% in 2021, while the share of those with accounts in financial institutions increased from 32.8% in 2017 to 39.7% in 2021. Women's account ownership also improved, rising from 36.9% in 2017 to 49.0% in 2021 (Demirgüç-Kunt et al., 2018, 2022). Despite these improvements, gender and locational gaps persist in financial inclusion globally, with gender gaps more prevalent in developing economies like Nigeria, where only about 35% of women were estimated to own an account in 2021 (Demirgüç-Kunt et al., 2022). Institutional beliefs and gender norms often influence how decision-making authority is distributed within households (Azad et al., 2020; Ashraf et al., 2022). The distribution of authority within families, power dynamics, and cultural norms all shape household decision-making, which serves as a microcosm of societal dynamics (Shibata, Cardey & Dorward, 2020). These decisions affect various aspects, such as finances, healthcare options, education, diet, and overall family welfare.

A child's health and survival are closely tied to the financial stability of the household and the decisions made regarding expenditure and healthcare, as children depend on adequate support, care, and basic health provisions from their mothers. Child mortality is also associated with maternal and community factors such as the mother's age, educational level, place of residence, region, household wealth, religion, level of empowerment (through digital financial tools), access to household technology, decision-making, and freedom. There are various ways in which a mother's empowerment affects a child's survival. For example, an empowered mother is more likely to prioritize her child's medical care and nutrition. Empowered mothers also tend to have better mental health and are able to build stronger support networks that provide resources benefiting their children's survival and well-being.

While a growing body of research examines the complex connections between women's empowerment, household decision-making, and child health outcomes, there is limited in-depth research exploring financial inclusion and decision-making as components of women's empowerment. This study explores empowerment through women's access to finance and account ownership, aiming to investigate the intricate relationships between financial inclusion parameters, household decision-making, and child health outcomes. The paper addresses two key questions: First, is there an association between financial inclusion and child health outcomes? Second, is this association influenced by household decision-making power? These questions guide the study's objectives: to examine the association between financial inclusion variables and child health outcomes, investigate the impact of financial inclusion on household decision-making, and assess the contextual factors that facilitate or hinder women's account ownership.

This study has important implications for gender equality, child health policy, and practice. It provides insights that can guide targeted interventions to improve child health outcomes by revealing the complex interactions between financial inclusion, decision-making, and health outcomes within households. It highlights the critical importance of supporting women's access to financial services in order to drive positive changes in household dynamics and priorities, ultimately benefiting the health and well-being of children.

2. Literature Review

2.1. Stylized Facts on Financial Inclusion in Nigeria

Due to the increased adoption of digital solutions as a result of the COVID-19 pandemic and the technological revolution, women are becoming more resilient through financial inclusion. Many are opening bank accounts, increasing their savings, and exploring more business opportunities. Various governments in emerging and developing economies have recently embraced financial technology to increase financial inclusion and integration within their countries. One of the main objectives of utilizing such technology is to reduce poverty and promote household well-being.

The Global Findex 2021 report revealed that despite the improvements made in reducing the gender gap in access to finance in Nigeria, it remains a barrier. Women and vulnerable groups still face challenges such as the inability to use mobile phones and financial accounts effectively. Table 1 reports the changes in financial inclusion variables in Nigeria from 2014 to 2021.

Table 1: Trends in Nigeria's financial inclusion for 2014, 2017, and 2021 datasets

Variables	2014 (%)	2017 (%)	2021 (%)
Financial inclusion (All adults, % age 15+)	44.4	39.7	45.3
Financial institution account (% age 15+)	44.2	39.4	45.1
Mobile money account (% age 15+)	2.3	5.6	8.7
Digital payments made/received in the past year (% age 15+)	36.9	29.7	33.7
Account, by women (% age 15+)	34	27.3	35.0

Sent/received domestic remittances from an account	28	23.5	31.3

Source: The Little Data Book on Financial Inclusion 2018 & the Global Findex Database 2022

Recent improvements have seen the rise of FinTechs in Nigeria, expanding the financial landscape by offering returns on savings, short-term loans, and investible assets with low capital. However, obstacles to financial inclusion in Nigeria include lack of awareness, loss of interest, fear of financial cyber fraud, financial illiteracy, high transaction costs, and low bank branch penetration. Many Nigerians still prefer using cash, a factor attributed to the country's large informal sector, which slows the adoption of financial services.

2.2. Stylized Facts on Child Health in Nigeria

Given that the majority of children worldwide live in rural areas, regional inequalities in living standards are common (Garcia, 2020; Oris & Farinas, 2016). These disparities impact children's health outcomes. The NDHS 2018 reported that under-five mortality rates were higher in rural areas (157 deaths per 1000 live births) compared to urban areas (92 deaths per 1000 live births) and the national average (132 deaths per 1000 live births). In Nigeria, 37% of children under five are stunted, 7% are wasted, and 22% are underweight (NDHS, 2018). Anaemia affects 68% of children aged 6 to 59 months, with rates higher in rural (73%) than in urban areas (62%). There are also regional disparities, with the Northwest having the highest stunting rate (57%) compared to the Southeast (18%). Kebbi state has the highest stunting rate (66%), while Anambra has the lowest (14%).

2.3. Theoretical Literature

Michael Grossman's influential work on health and human capital (Grossman, 1972) provides a framework for understanding how financial inclusion can influence health through direct channels. The Grossman model, based on human capital theory, views health as a durable stock that individuals can build by investing in time and medical care. Investments in health increase the stock of health but naturally deteriorate over time. Health serves both as a consumer good and an investment: as a consumer good, healthcare spending improves well-being and reduces illness, and as an investment good, it increases the amount of healthy time available for productive activities. Individuals invest in their health until the opportunity cost of producing health equals the return on improved health.

Financial inclusion can directly impact health outcomes in two ways through the Grossman model. First, increased financial inclusion allows individuals to better manage risks from health shocks by utilizing savings and credit for medical services, rather than postponing care due to cost. Second, improved access to savings and credit facilitates investment in education and health, increasing optimal health stocks and improving overall health status.

2.4. Empirical Literature

Research has found a positive relationship between financial inclusion, financial development, and health (Chireshe & Ocran, 2020). In recent years, there has been growing interest in the intricate relationships between financial inclusion, family decision-making, and child health outcomes. Various cultural, regional, and socioeconomic circumstances reveal these connections. Empowered women typically have a greater role in family decisions, particularly concerning children's health. Financial resources can give women more authority over household decision-making and resource distribution (Karlan et al., 2016), and empowered women tend to prioritize their children's health and welfare, resulting in better child health outcomes.

Several studies (Demirgüç-Kunt et al., 2018; IEG, 2015; Ihák & Sahay, 2020; IEG, 2020) suggest that financial inclusion benefits the poor by increasing savings, access to credit for productive investments, and improving households' ability to smooth consumption patterns and manage financial risks. Additionally, research shows that giving women access to private savings accounts increases savings, provides financial freedom, and strengthens their bargaining position within the household (Dupas & Robinson, 2013).

Raj and Saggurti (2014), using data from 43 countries, found that women's empowerment increased the likelihood of seeking pediatric medical care and adhering to recommended immunization schedules. Factors such as community norms and institutional values act as mediators in the relationship between women's empowerment, household decision-making, and child health outcomes. In patriarchal settings, even educated and financially independent women may face challenges in influencing household decisions. Arshad and Nawaz (2020) found that financial inclusion reduced child malnutrition, as households with access to financial resources could better meet their children's healthcare needs. Better child nutrition was associated with women having more control over household income, allowing them to allocate resources according to their children's needs.

Research also indicates that financially independent women tend to play a larger role in household decisions, particularly those affecting children's health (Hendriks, 2019; Abreha & Zereyesus, 2021; Borga, 2023). Studies in Sub-Saharan Africa (Dickson et al., 2022; Comfort, 2022; Onah, Onah & Onah, 2023) show that empowered women are more likely to seek antenatal care, which contributes to better child health outcomes. This study highlights the complex relationships between women's financial inclusion, household decision-making, and child health outcomes. Empirical research suggests that women's use of digital financial services enhances their influence over household decisions affecting children's health, leading to better outcomes. However, contextual factors such as social norms, economic conditions, and healthcare access can weaken this connection.

Understanding these links is essential for developing informed policies and programs that support gender equality and children's health, particularly as nations work toward sustainable development goals.

Peng and Mao (2023), using data from the China Family Panel and the Digital Financial Inclusion Index of China, found that digital financial inclusion reduces the probability of urban households falling into relative poverty. The study suggested that digital financial inclusion promotes entrepreneurship and financial market participation among urban households. It also indicated that increased income flows could be translated into wealth accumulation, helping households avoid falling into poverty.

Banerjee, Maruta, and Donato (2023) found a direct positive effect of financial inclusion on health outcomes, based on data from 61 developing and transitional economies spanning 2011–2017. The study concluded that financial inclusion is a more effective policy tool in societies with higher poverty and income inequality, as it enables vulnerable populations to invest in health capital and manage risks from health shocks.

Similarly, Koomson, Kofinti, and Laryea (2024) found that financial inclusion reduces multidimensional child poverty in Ghana, based on findings from the living standards household datasets. Their study indicated that financial inclusion particularly reduces child poverty among boys and rural children, with the largest effect seen in improving children's living conditions, followed by health- and education-related deprivations.

3. Methodology

3.1. Data Source

This study uses a dataset from the IPUMs-Demographic and Health Survey (DHS) database for Nigeria, which was sourced from a cross-sectional study. Responses from the nationally selected samples in the NGBR7BFL.DTA recode files were considered relevant to the study. The analysis was conducted using 127,545 observations across all six geopolitical regions of Nigeria.

3.2. Description of Variables

Outcome Variable: The dataset focuses on households with children born within the five years preceding the survey year (2018). The outcome variable is the hazard of child death in families, which serves as the dependent variable in the analysis. It is derived from the question "b5- Child Alive," where 1 indicates households with the death of a child.

Explanatory Variables: The main explanatory variables are factors associated with financial inclusion and decision-making within households. Literature indicates that financial inclusion is measured by factors such as opening an account with a financial institution and using mobile phones for financial transactions. These include questions related to "having an account in a bank or other financial institution," "owning a mobile telephone," "using a mobile telephone for financial transactions," and "household decision-maker on earnings and large household purchases." Other control variables include individual and community characteristics such as place of residence, region, education, and religion. These variables have the potential to influence individual decision-making and the use of financial instruments.

3.3. Method of Analysis

Both statistical and descriptive methods were used to measure the association between the outcome variable and its explanatory factors, using Stata software version 17.0. Logistic regression was employed for the analysis

Following the above preamble, assuming that Y represents the response of household i with respect to the outcome of the independent variables x_i,….. x_{ni}

Also, let $Y = 1$ capturing the probability of the household with child mortality, and $Y = 0$, otherwise.

Thus, applying the logit method, the likelihood density for the household is presented in the following manner:

$$P\ (Y = 1|x_i,\ldots, x_n) = f(P(Y = 1|x_i,\ldots, x_n) \ldots\ldots\ldots\ldots\ldots\ldots(1)$$

The function of f represents the logit distribution function such that it leads to:

$$P\ (Y = 1|x_i,\ldots, x_n) = \frac{\exp(\propto_0+\propto_1 x_1+,\ldots,+\propto_n x_n)}{1+\exp(\propto_0+\propto_1 x_1+,\ldots,+\propto_n x_n)} \ldots\ldots\ldots\ldots.. (2)$$

The logit(x) is expressed as: logit(x) = logit($\frac{x}{1-x}$)

logit($P(Y = 1|x_i,\ldots, x_n)$ =$\propto_0+\propto_1 x_1+, \ldots, +\propto_n x_n$

4. Results and Discussion of Findings

The descriptive analysis in Table 2 presents the characteristics of the respondents. A total of 127,545 respondents, consisting of women within childbearing ages (15-49), were analyzed, with the majority (67-70%) from the Northern part of Nigeria, and the remainder from the Southern region. About 65% of respondents reside in rural areas, while 35% live in urban areas.

The education status of the respondents shows that about 50% had no formal education, 20% had primary education, 24% had secondary education, and only about 6% attained higher education. Approximately 12% of women are heads of their households. Regarding mobile phone usage, about 52% reported not having a mobile

phone, less than 10% used their phones for financial transactions, and only about 17% had a financial institution account.

On work status and decision-making, although 74% of respondents indicated they were currently working, only about 53% stated they made decisions about their own earnings, and about 35% of women reported being decision-makers on large household purchases. In 55% of households, purchasing decisions were made by the husband.

Table 2: Descriptive Statistics

		Respondents		Respondents with Child Death	
	Variable	**Total out of 127545**	**%**	**Total out of 18220**	**%**
mothers age	15-19 years	1461	1.14%	156	0.85%
	20-24 years	8543	6.70%	983	5.40%
	25-29years	19007	14.90%	2261	12.40%
	30-34years	23618	18.52%	3078	16.90%
	35-39years	26740	20.96%	3663	20.10%
	40-44years	23696	18.58%	3720	20.42%
	45-49years	24480	19.20%	4359	23.92%
Region	Northcentral	21656	16.97%	2413	13.24%
	Northeast	26293	20.61%	4114	22.58%
	Northwest	39928	31.30%	8510	46.70%
	Southeast	14072	11.03%	1166	6.39%
	South-south	12436	9.75%	1011	5.54%
	Southwest	13160	10.31%	1006	5.52%
Place	Urban	44111	34.58%	4605	25.27%
	Rural	83434	65.42%	13615	74.73%
Education	No education	63699	49.94%	11806	64.79%
	Primary	25311	19.84%	3318	18.21%
	Secondary	30756	24.11%	2599	14.26%
	Higher	7779	6.10%	497	2.72%
Religion	catholic	11135	8.73%	894	4.90%
	otherch	39316	30.82%	3650	20.03%
	islam	75942	59.54%	13560	74.40%
	tradition	677	0.53%	105	0.57%
	other	475	0.37%	11	0.06%
House-headship	Male	111626	87.52%	16523	90.68%
	Female	15919	12.48%	1697	9.31%
Mobile Phone	Ownership	62309	48.85%	6574	36.08%
	no mobile phone	65236	51.15%	11646	63.90%
Financial Inclusion	Use mobile phone for financial transactions	12419	9.74%	869	4.70%
	Does not use mobile phone	49890	39.12%	5705	31.31%
	no response	65236	51.15%	11646	63.91%
	Has bank account	20591	16.14%	1684	9.24%
	Does not have bank account	106954	83.86%	16536	90.75%
Work Status	Currently working	94493	74.09%	12861	70.59%
	Not currently working	33052	25.91%	5359	29.41%
Decision maker on respondent earnings	Respondent	68350	53.59%	9612	52.76%
	Husband of respondent	7023	5.51%	1045	5.73%
	no response	52172	40.90%	7563	41.50%
Decision maker on household large purchases	Respondent	45534	35.70%	5037	27.65%
	Husband respondent	71257	55.87%	11834	64.95%
	no response	10754	8.43%		

Author's compilation from IPUMS-NDHS 2018 datasets

A total of 18,220 under-five deaths (14%) were reported among the 127,545 respondents included in this study, as shown in Table 2. The highest child mortality rates were observed among women aged 30 to 49, households in the Northwest and Northeast regions, rural residents, women without formal education, women practicing Islam or non-Catholic Christian faiths, households headed by men, women without mobile phones, women who do not use mobile phones for financial transactions, women without bank accounts, and households where the husband makes the majority of household purchase decisions. These findings are consistent with the 2018 NDHS report, which indicates that children of mothers without education are more likely to die young (170 deaths per 1,000 live births) compared to children of mothers with more than secondary education (56 deaths per 1,000 live births). Across geopolitical zones, as reported in Table 1, the Northwest and Northeast had the highest rates of child mortality, aligning with the NDHS 2018 report. Financial empowerment, as reflected in account ownership and

Table 3: The Dimensions of Mother's Characteristics, Financial Inclusion and Household Decision on Child Mortality

	Model 1			Model 2			Model 3			Model 4		
Child Mortality	**Odds ratio**	**std.Err.**	**P>|t|**	**Odds ratio**	**std.Err.**	**P>|t|**	**Odds ratio**	**std.Err.**	**P>|t|**	**Odds ratio**	**std.Err.**	**P>|t|**
15-19 years	0.443	0.0391	0									
20-24 years	0.515	0.0202	0									
25-29years	0.578	0.0169	0									
30-34years	0.657	0.0174	0									
35-39years	0.726	0.0183	0									
40-44years	0.822	0.0205	0									
45-49years	1	(omitted)										
Northcentral	1.225	0.051	0									
Northeast	1.503	0.062	0									
Northwest	2.099	0.084	0									
Southeast	1.205	0.059	0									
South-south	1.048	0.051	0.337									
Southwest	1	(omitted)										
Urban	0.774	0.016	0									
Rural	1	(omitted)										
No education	1.518	0.089	0	2.427	0.14	0						
Primary	1.543	0.09	0	1.769	0.1	0						
Secondary	1.293	0.072	0	1.177	0.07	0						
Higher	1	(omitted)		1	(omitted)							
Other church	3.59	1.106	0									
Catholic	2.971	0.923	0									
Islam	4.548	1.408	0									
Tradition	3.657	1.195	0									
Other	1	(omitted)										
Female headed	0.931	0.032	0.036									
Male headed	1	(omitted)										
No mobile phone	1.351	0.069	0	1.611	0.08	0	2.246133	0.10884	0			
Ownership	1	(omitted)		1	(omitted)		1	(omitted)				
Does not use mobile phone for financial transactions	1.134	0.054	0.009	1.231	0.06	0	1.384566	0.06474	0			
Use mobile phone for financial transactions	1	(omitted)		1	(omitted)		1	(omitted)				
Does not have bank account	1.014	0.038	0.712	1	0.04	1	1.327493	0.0473	0			
Has bank account	1	(omitted)		1	(omitted)		1	(omitted)				
Not currently working	1.002	0.026	0.943							0.8463	0.021	0
Currently working	1	(omitted)								1	(omitted)	
Respondent decide on earning spending	1.009	0.042	0.828							1.146	0.0277	0
Husband of respondent decide on respondent earning	1.064	0.027	0.013							1.0693	0.0428	0.09
Respondent decide on household expenditures	0.866	0.036	0.001							0.7952	0.0295	0
Husband decides on household expenditures	0.823	0.035	0							1.2582	0.0441	0
_cons	0.024	0.008	0	0.062	0	-56	0.07323	0.00259	0	0.1636	0.0058	0
No of Observation	127545			No of Observation	127545		No of Observation	127545		No of Observation	127545	
F(28, 127517) =	143.83			F(6, 127539) =	386.13		F(3, 127542) =	515.62		F(5, 127540) =	152.98	
Prob > F =	0.0000			Prob > F =	0.0000		Prob > F =	0.0000		Prob > F =	0.0000	

Author's compilation from IPUMS-NDHS 2018 datasets

the use of mobile phones for financial transactions plays a crucial role in promoting access to healthcare and household welfare, both of which contribute to improved child health.

Table 3 presents the effects of financial inclusion and decision-making on child mortality. In Model 1, the age of mothers shows a significant association with child death, with younger mothers (below the ages of 44-49, the reference point) having lower odds of experiencing child mortality. This suggests that younger mothers are more likely to provide better health outcomes for their children compared to older mothers. Regional disparities are also evident, with children in the Northwest and Northeast regions having the highest odds of child mortality. Urban residency is associated with lower odds of child mortality, while mothers with no education or only primary education have a higher likelihood of child mortality. Religion was found to have a significant influence on child mortality, with households practicing Islam having the highest risk of child death compared to other religions in Nigeria.

Regarding the influence of mobile phones on child health, mothers without mobile phones were found to have about a 35% higher likelihood of child death compared to those with mobile phones. Additionally, the use of mobile phones for financial transactions in households was associated with a significantly lower risk of child mortality, while bank account ownership showed no significant effect. These findings suggest that mobile phones can serve as both financial and communication platforms, providing critical information, help, and support for child health. Women who make decisions regarding household purchases were also found to have a significant association with child mortality, indicating that decision-making power not only promotes gender equality but also enhances household well-being, as evidenced in Models 1 and 4. These results are consistent with earlier studies (Rahman, Saima, & Goni, 2015; Asif et al., 2022).

In Model 2, focusing on the effects of financial inclusion and education, the results show that after controlling for regional and individual demographic factors, the educational level of mothers influences both mobile phone ownership and their use for financial transactions, strengthening the association with child mortality. Model 3 further indicates that, after controlling for educational attainment, women without mobile phones have greater odds of child mortality. Similar findings have been reported in several studies conducted in Sub-Saharan Africa and Asia (Arthur, 2019; Khan, Bari & Raza, 2019).

The results in Table 4, which examines the effects of individual and community characteristics on bank account ownership, reveal that women living in urban areas have higher odds of owning a bank account compared to those in rural areas. Women with lower educational attainment (below higher education) have significantly lower odds of owning a bank account, while those with mobile phones have a much higher likelihood of account ownership. In Models I and II, women who are currently employed show higher odds of owning a bank account. Additionally, women who have decision-making power over their earnings and the authority to make large household purchases also have higher odds of owning a bank account compared to those without such authority. These findings suggest a strong link between women's empowerment and bank account ownership.

Table 4: Household Decision and Financial Inclusion Results

Has bank account	Model 1 Odds Ratio	Std.Err.	P>|t|	Model 2 Odds ratio	std.Err.	P>|t|
Urban	1.916877	0.038973	0.000			
Rural	1	(omitted)				
No education	0.0121761	0.000547	0.000			
Primary	0.0360569	0.001397	0.000			
Secondary	0.1076945	0.003758	0.000			
Higher	1	(omitted)				
Ownership of mobile phone	6.571688	0.219481	0.000			
No mobile phone	1	(omitted)				
Currently working	1.297418	0.044817	0.000	1.253808	0.03303	0.000
Not currently working	1	(omitted)		1	(omitted)	
Respondent decide on earning spending	1.217492	0.037951	0.000	1.90371	0.044337	0.000
Husband of respondent decide on respondent earning	1.176477	0.063723	0.003	1.6758	0.071376	0.000
Respondent decide on household expenditures	0.7750048	0.029929	0.000	0.671635	0.020298	0.000
Husband decides on household expenditures	0.5599593	0.022019	0.000	0.230139	0.007258	0.000
_cons	0.6046476	0.036556	0.000	0.248935	0.007652	0.000
No of Observation 127545				No of Observation 127545		
F(10, 127535) = 2145.63				F(5, 127540) = 1257.51		
Prob > F = 0.0000				Prob > F = 0.0000		

Author's compilation from IPUMS-NDHS 2018 datasets

5. Conclusion

This study examines the impact of financial inclusion on children's health outcomes across households. It considers how bank account ownership can empower women by increasing their decision-making power over spending their earnings and making household purchases. The findings reveal that enhancing platforms for women's inclusion in financial activities, along with their right to operate financial accounts and use mobile phones for financial transactions, positively affects children's welfare. In Nigeria, child mortality remains prevalent, especially in rural areas, highlighting the need to explore diverse ways to simplify health-related payments through digital financial systems for better and easier access to healthcare. The global embrace of mobile payment systems emphasizes the importance of including rural populations in the benefits of digitalization. To reduce childhood mortality and improve child health, policies, programs, and interventions aimed at empowering women are crucial.

Based on the study's findings, it is recommended that, in addition to developing a coordinated healthcare system and providing children with affordable access to quality healthcare services, female involvement in household decision-making should be promoted through economic and educational opportunities. Furthermore, the government should develop financial products specifically designed to address children's health needs, such as child health savings accounts, and implement parent financial education programs focusing on financial planning for health.

6. Study Limitations and Suggestions for Further Research

This study acknowledges the limitation of being set in a single-country context, even as it underscores the potential of financial inclusion and women's empowerment through household decision-making in reducing child mortality in Nigeria. For future research, a multi-country approach could be considered to enhance the generalizability of the findings. Additionally, expanding the scope to include other contextual factors would facilitate the development of more comprehensive and effective policies to address the wide array of individual and community factors influencing child development and health outcomes globally.

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