Research Square

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What drives desire for more children among parous women in Nigeria? Findings from a nationally representative sample

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Abstract

Background

Previous research has shown that a number of individual characteristics are linked to women's desire for more children. However, few studies have been conducted in developing nations on the community characteristics that drive women's desire to have more children. This study investigates the individual- and community-level factors associated with women's desire for more children in Nigeria.

Methods

Data was extracted from the 2024 Nigeria Demographic and Health Survey (NDHS). A weighted sample size of 20,963 childbearing women was analysed. The outcome variable was women's desire for more children. The explanatory variables were individual-level variables (women's age, education, marital status, parity, and family planning messages) and community-level variables (community type, community education, poverty, women's autonomy, contraceptive use, family planning messages and ethnic diversity). The mixed effect multilevel logistic regression analysis was applied using Stata version 16.

Results

Overall, 66.01% of the women expressed a desire to have additional children. The odds of desire for more children decreased for women aged 40–44 and 45–49 years, those with primary or secondary education, those with multiparity or grand multiparity, those with three or more living children, those whose ideal number of children was one to four, those currently using contraceptives, and those currently working. The odds increased among women whose partners had higher education. Community-level factors reveal that rural residency and a high proportion of poor women in the community increased the odds of desire for more children, whereas residing in communities with a medium or high proportion of educated women decreased these odds.

Conclusions

Women expressed a fairly high inclination to have additional children. This was driven by a number of individual- and community-level factors. These factors should be targeted in the development of targeted interventions for fertility control in the country.

Trial Registration:

Not applicable

Background

In Nigeria, as well as in many other sub-Sahara African countries, fertility preferences and behaviours play a significant role in shaping population dynamics and influencing socioeconomic development (1–3). Fertility rates remain high in Nigeria despite significant declines in recent decades and notable improvements in contraceptive access and utilization (4). Therefore, comprehending the factors driving childbearing women's desire to have additional children is of paramount importance. The country's fertility rate currently stands at 5.3 children per woman (4), and it varies widely across regions, reflecting differences in ethnic groups, socioeconomic conditions, and access to reproductive health services (5).

The desire for children is deeply rooted in the process of family formation around the world (6). Several studies have attempted to unravel the rationale behind this fertility decision. Evidence that women desire to have additional children is widely prevalent in many developing countries (7–10). This implies that childbearing women are strongly concerned about their desire to have more children, which may further jeopardize fertility control efforts and the opportunity to reap demographic dividends in many African countries (11, 12). This underscores further research on the associated drivers of desire for more children in developing countries.

The desire to have additional children is strongly driven by diverse factors, and previous research efforts have identified a range of individual-level characteristics influencing fertility desire among women in Nigeria (7, 13–16) and many other emerging countries (6, 17–21) and have contributed to the development of feasible strategies for controlling fertility. These factors include age, education, marital status, parity, employment status, and access to family planning services. However, the role of community-level factors, such as ethnic diversity, community education, poverty, contraceptive use, family planning messages and community women's autonomy, remains less explored in the Nigerian context. These community-level factors not only reflect broader societal values but also shape individuals' perceptions of ideal family size and fertility norms. However, certain community-level characteristics (place of residence, wealth status, and region) have been found in some studies (6, 18) to potentially drive the desire for more children. Nevertheless, additional community-level characteristics need to be investigated in Nigeria.

This study seeks to close this gap in the literature and provide insights into the community context, as it drives fertility preferences among reproductive-aged women in Nigeria. Understanding the effect of drivers of desire for more children among women is critical for several reasons. First, the outcomes of this research could contribute evidence-based policies and programs aimed at addressing fertility control and women's reproductive health in Nigeria. Second, by understanding the factors driving the desire for more children, stakeholders can develop targeted interventions that empower women to make informed choices about their reproductive future while promoting sustainable development and social progress. Third, this research is timely given Nigeria's

demographic transition and the government's commitment to achieving Sustainable Development Goals 3 (guarantee healthy lives and promote wellbeing for people of all ages) and 5 (attain gender equality and empower all women and girls) (22).

This study is grounded in the theoretical framework of the socioecological model. The theory posits that individual action is driven by several levels of impact, including individual, interpersonal, community, and societal contexts (23). In the context of fertility preferences among childbearing women in Nigeria, socioecological theory helps elucidate the complex interplay between individual characteristics such as age, education, parity and broader environmental factors (e.g., social norms, cultural practices, and community infrastructure) shaping reproductive decisions. Different studies on women's reproductive health have utilized this framework to analyse the drivers of women's reproductive health outcomes (24, 25).

Methods

Study design

The current study analysed secondary data from the Nigeria Demographic and Health Survey (NDHS) 2024 dataset. The NDHS is a nationally representative survey conducted by the National Population Commission of Nigeria and ICF International. The survey adopted a cross-sectional research approach. It covers the entire population residing in noninstitutional dwelling settings across the country. The dataset offers data on demographic, socioeconomic, and health-related indicators for women of childbearing age (15–49 years) across Nigeria.

Sampling procedure and sample size

The 2024 NDHS utilized a two-phase stratified sampling approach. The survey classified the country into 36 existing states and the Federal Capital Territory (FCT). The states were further classified into urban and rural areas. The first phase included the selection of 1,400 enumeration areas (EAs), and the second phase included the selection of a constant number of 30 households in every single cluster using a probability proportional to size. A total of 42,000 households were selected, of which 17,310 came from urban areas and 24,940 from rural areas. The study analysed a weighted sample of 20,963 women of childbearing age. The 'svy' command in Stata was used for applying the survey weights and adjusted for the survey design. It accounts for the unequal probabilities of selection and nonresponse patterns inherent in survey sampling.

Outcome variables

Parous women (mothers with at least one child within the five years of the survey), aged 15–49 years who were currently married or cohabiting were the study's target population. Desire for an additional child was defined as mothers who indicated interest in giving birth to an additional child. Women who wanted (another) child were defined as those who desired more children, while those who wanted no more were classified as those who wanted no more. The variable was dichotomized: 1 represents those who wanted more, and 0 otherwise. Women who were not able to conceive, undecided or unknown were removed from the study because they were uncertain about their fertility preferences.

Explanatory variables

The explanatory parameters were categorized into two categories: individual- and community-level factors.

Individual-level factors

The following variables constitute the individual-level factors: women's age, education, partner's education, household wealth index, exposure to family planning messages, contraceptive use, decision-making autonomy, parity, ideal number of children, number of living children and working status. Age was categorized into 5-year groups: 15–19, 20–24, 25–29, 30–34, 35–39, 40–44 and 45–49 years. Education was specified as no education, primary, secondary or education. Household wealth was reclassified as poor, middle and rich. This approach has been used by other authors (26). Exposure to family planning messages was derived through four media sources: television, radio, newspaper and mobile phones. Those who had heard family planning messages in the last few months through any of the sources were classified as those who were exposed, whereas those who had never heard family planning messages from any of the four sources were clustered as those who were not exposed. Those who used contraceptives were grouped as those who were currently using any of the contraceptive methods and those who were not using any method.

Decision-making autonomy was derived from four variables (the person who usually decides on how to spend the respondent's earnings, the person who usually decides on the respondent's health care, the person who usually decides on large household purchases and the person who usually decides on visits to family or relatives). This variable was grouped as respondent alone (if the decision was made solely by the respondent) and otherwise (if the decision was made by any other person). Parity was expressed as primiparity (one child), multiparity (two–four children) and grand multiparity (five or more children). This approach has been used somewhere else (27). The ideal number of children and the number of living children were grouped as 1–2, 3–4 and 5 + children. Working status was stated as working and not working.

Community-level factors

The community-level factors are community type (urban or rural), the ethnicity diversity index, the community level of poverty, the community level of educated women, the community level of women's autonomy, the community level of women's exposure to messaging on family planning and the

community level of women's contraceptive use. The community type was used as captured in the dataset, and detailed information on the technique for calculating the ethnicity diversity index is available elsewhere (26). Other community-level factors were derived through aggregation of each of the selected women's characteristics at the cluster level. A community was used as a proxy cluster in this study. In each community, the average response from all the women was allocated to each woman for each variable. These community variables were grouped into tertiles 1 (low), 2 (moderate) and 3 (high). This technique has been extensively used for the generation of community-level features in DHS datasets (7, 24–26, 28, 29).

Data Analysis

Descriptive statistics were used to summarize the demographic parameters (individual- and community-level factors) of the respondents via numbers and percentages. Cross tabulations of the research variables were carried out. The Unadjusted Odds Ratio (UOR) was used to assess association between the outcome variable and each explanatory variable. Significant variables at this level were selected for further analysis. Owing to the hierarchical structure of the data, individuals are nested within communities. A mixed effect multilevel logistic regression model was employed to examine factors influencing women's desire to have additional children in Nigeria.

Four models were fitted. The first model is an empty model in which no explanatory variables are included. The second and third models included the individual- and community-level variables. The last model, which is the full model, includes both individual- and community-level factors. The model included fixed effects (measures of association) and random effects (measures of variation). Adjusted Odds ratios (aOR), probability values (p-values) and 95% confidence intervals were used to present fixed effect findings. The Intra-Cluster Coefficient (ICC) and Variance Partition Coefficient (VPC) were used to present the results of the random effects. Stata version 16 statistical software was used to analyse the data.

Model Specification

Below is the multilevel mixed effect binary logistic regression model's mathematical formulation.

$$Log\left[\frac{\pi_{ij}}{1-\pi_{ij}}\right] = \beta_0 + \beta_1 X_{1ij} + \ldots . \beta_n X_{nij} + u_{oj} + e_{ij}$$

The log of the odds that women in the jth community would choose not to have additional children is represented by the value π_{ij}, whereas the log of the odds that they would like to have more children is represented by (1- π_{ij}). β_0 represents the intercept's log odds, β_1, … β_n are shifts in the desire to have additional children brought on by both personal and community parameters; individual and community independent variables are denoted by X_{1ij}... X_{nij}; random errors at the community level are denoted by u_{oj}; and the error term or residuals are denoted by e_{ij}.

Model Diagnosis

Akaike's information criterion (AIC) and the Bayesian information criterion (BIC) were used to check the goodness of fit of the model. The variance inflation factor (VIF) was used to evaluate the multicollinearity of the variables included in the model. However, there were no multicollinearity issues with any of the variables. Statistical analyses were performed for significance at the 5% ($p < 0.05$) and 95% confidence intervals.

Results

Socio-demographic profile of Respondents by desire for more children

Table 1 presents the percentage of childbearing women in Nigeria who wish to have additional children. The overall prevalence of the desire for additional children among these women stands at 66.01%, indicating that a substantial majority of childbearing women in Nigeria want more children. This prevalence, however, is not uniform and varies according to various individual- and community-level characteristics. Table 1 displays the proportion of women who want to have additional children as well as the association's unadjusted odds ratio between the individual- and community-level factors and the desire to have additional children. The desire to have additional children was highest among women aged 15–19 years (98.38%) and decreased consistently as the age of the women increased, reaching its lowest point among women aged 45–49 years (20.26%).

Table 1
Distribution of desire for more children by explanatory variables

Explanatory variables			Crosstabulation of desire for more desire			Unadjusted bivariate logistic regression	
	Freq.	%	Freq	%	Chi2	Crude odds ratio	95% CI
Age in 5-year groups							
15–19	675	3.22	666	98.38	785.8091*	1	-
20–24	2950	14.07	2846	96.62		0.471*	0.223–0.996
25–29	4326	20.64	3873	89.74		0.144*	0.070–0.297
30–34	4211	20.09	3066	73.27		0.045*	0.022–0.093
35–39	3738	17.83	2011	53.48		0.019*	0.009–0.039
40–44	2965	14.14	972	33.39		0.008*	0.004–0.017
45–49	2098	10.01	404	20.26		0.004*	0.002–0.009
Highest educational level							
no education	8195	39.09	6182	74.97	77.963*	1	-
primary	2684	12.80	1461	57.18		0.466*	0.387–0.514
secondary	7280	34.73	4557	63.84		0.590*	0.527–0.659
higher	2804	13.38	1638	59.02		0.481*	0.425–0.544
Husband/partner's education level							
No education	7138	34.05	5404	75.37	71.701*	1	-
Primary	2262	10.79	1259	58.43		0.459*	0.399–0.529
Secondary	7396	35.28	4553	62.91		0.554*	0.498–0.617
Higher	4167	19.88	2622	63.35		0.565*	0.501–0.637
Wealth index							
Poor	8290	39.55	6395	77.35	158.254*	1	-
Middle	4025	19.20	2552	66.07		0.570*	0.499–0.652
Rich	8648	41.25	4891	57.02		0.389*	0.347–0.435
Total children ever born							
Primiparity	3263	15.57	3190	97.71	972.001*	1	-
Multiparity	10467	49.93	7513	73.24		0.064*	0.048–0.085
Grand multiparity	7233	34.50	3135	45.02		0.019*	0.015–0.025
Number of living children							
0	215	1.03	212	97.72	779.656*	1	-
1–2	7502	35.79	6924	92.31		0.280	0.072–1.091
3–4	7273	34.69	4384	61.77		0.038*	0.010–0.149
5+	5973	28.49	2318	40.83		0.016*	0.004–0.063
Ideal num children							
0	775	3.70	571	73.91	68.647*	1	-
1–2	494	2.36	220	45.87		0.299*	0.214–0.418
3–4	6240	29.77	3624	58.57		0.499*	0.388–0.641
5+	13454	64.18	9423	71.18		0.871	0.682–1.114
Exposed to any FP message							
Not exposed	15629	74.56	10669	69.44	53.605*	1	-
Exposed	5334	25.44	3169	60.62		0.677*	0.620–0.740

Note: * $p < 0.05$

Explanatory variables			Crosstabulation of desire for more desire			Unadjusted bivariate logistic regression	
	Freq.	%	Freq	%	Chi2	Crude odds ratio	95% CI
Household Decision making							
Otherwise	9923	47.34	7098	73.38	176.476*	1	-
Respondents alone	11040	52.66	6740	61.70		0.584*	0.540–0.633
Current contraceptive method							
Not using	16005	76.35	11370	73.72	498.168*	1	-
Using	4958	23.65	2468	49.95		0.386*	0.355–0.421
Currently working							
No	7146	34.09	5662	78.95	339.322*	1	-
Yes	13817	65.91	8176	60.56		0.410*	0.372–0.451
Type of place of residence							
urban	9086	43.34	5158	57.27	241.714*	1	-
rural	11877	56.66	8680	74.48		2.178 *	1.972–2.404
Community Diversity							
low	7360	35.11	5031	71.34	11.965*	1	-
medium	6921	33.02	4512	66.05		0.782*	0.673–0.908
high	6682	31.88	4295	63.82		0.709*	0.619–0.812
Community Poverty							
low	7266	34.66	3894	53.90	156.084*	1	-
medium	5234	24.97	3298	64.80		1.574*	1.380–1.796
high	8463	40.37	6646	78.55		3.132*	2.771–3.540
Community Education							
low	8737	41.68	6958	79.39	222.126*	1	-
medium	6458	30.81	3805	59.51		0.381*	0.334–0.436
high	5768	27.52	3075	53.24		0.296*	0.262–0.334
Community women autonomy							
low	6538	31.19	4478	71.29	9.347*	1	-
medium	6639	31.67	4311	66.19		0.788*	0.680–0.914
high	7786	37.14	5049	64.94		0.746*	0.654–0.850
Community contraceptive use							
low	8127	38.77	6257	77.26	126.221*	1	-
medium	6648	31.71	4238	64.19		0.528*	0.458–0.608
high	6188	29.52	3343	54.37		0.351*	0.308–0.399
Community family planning message							
low	8073	38.51	6071	76.00	66.099*	1	-
medium	6684	31.88	4181	63.93		0.560*	0.485– 0.646
high	6206	29.60	3586	59.67		0.467*	0.409–0.534
Outcome (Desire for more children)							
Wants no more	7125	33.99					
Desire for more	13838	66.01					

Note: * $p < 0.05$

[Insert Table 1]

The desire was higher among women with no formal education (74.97%) than among those with primary (57.18%), secondary (63.84%) or higher (59.02%) education, and it was higher among women whose partners had no formal education (75.37%) than among those whose partners had primary (58.43%), secondary (62.91%) or higher (63.35%) education. Similarly, the desire was higher among women from poor households (77.35%) than among those from middle-income (66.07%) or rich (57.02%) households. The desire to have additional children decreased consistently with parity, from 97.71% among primiparous women to 73.24% among multiparous women and 45.02% among grand multiparous women, and it decreased consistently with the number of living children, from 97.72% among women with no living children to 92.31% among those with one to two living children, 61.77% among those with three to four living children and 40.83% among those with five or more living children.

Women who considered five or more children as their ideal number showed a strong propensity to have additional children (71.18%), compared with those whose ideal number was one to two (45.87%) or three to four (58.57%) children. The desire for more children was also higher among women who were not exposed to any family planning messages (69.44%) than among those who were exposed (60.62%), higher among those who did not make household decisions themselves (73.38%, versus 61.70% among those who made decisions alone), higher among those who were not currently using contraceptives (73.72%) than among those who were using contraceptives (49.95%), and higher among women who were not currently working (78.95%) than among those who were working (60.56%).

At the community level, the desire for more children was higher among women who resided in rural areas (74.48%) than among those in urban areas (57.27%); it decreased with increasing community ethnic diversity, from 71.34% among women from low-diversity communities to 63.82% among those from high-diversity communities; it decreased with increasing community education, from 79.39% among women from communities with a low proportion of educated women to 53.24% among those with a high proportion; and it increased with community poverty, from 53.90% among women from communities with a low proportion of poor women to 78.55% among those with a high proportion. The desire for more children also decreased with an increasing community proportion of women's autonomy (from 71.29% to 64.94%), an increasing community proportion of contraceptive use (from 77.26% to 54.37%) and an increasing community proportion of women exposed to family planning messages (from 76.00% to 59.67%). The results of the chi-square tests indicated a significant association between the desire to have additional children and all the individual- and community-level factors examined (see Table 1).

Measures of Association

Findings from the mixed effect analysis of the factors associated with the desire to have additional children among childbearing women in Nigeria are displayed in Table 2. Considering the fixed effects parameters of the full model, which included both individual- and community-level factors, the findings revealed that women aged 40–44 years [aOR: 0.20, 95% CI: 0.097–0.415] and 45–49 years [aOR: 0.08, 95% CI: 0.037–0.159] had significantly lower odds of desiring an additional child than women aged 15–19 years did, whereas the odds among women aged 20–24, 25–29, 30–34 and 35–39 years did not differ significantly from those among the youngest women. The odds of desiring additional children were significantly lower among women with primary [aOR: 0.76, CI: 0.643–0.891] and secondary [aOR: 0.85, CI: 0.719–0.998] education than among women without formal education, although the odds among women with higher education were not significantly different [aOR: 1.05, CI: 0.849–1.298].

Table 2
Individual and community factors associated with demand for more children in Nigeria

Fixed effects parameters	Model 0	Model 1	Model 2	Model 3
	Empty model	Individual variables	Community variables	Individual/community variables
		aOR (95% CI)	aOR (95% CI)	aOR (95% CI)
Explanatory variables				
Age in 5-year groups				
15–19		1		1
20–24		1.80 (0.859–3.782)		1.94 (0.919–4.078)
25–29		1.58 (0.767–3.251)		1.77 (0.854–3.653)
30–34		0.83 (0.405–1.713)		0.98 (0.472–2.016)
35–39		0.42* (0.208–0.883)		0.51 (0.247–1.057)
40–44		0.16* (0.080–0.340)		0.20* (0.097–0.415)
45–49		0.06* (0.030–0.129)		0.08* (0.037–0.159)
Highest educational level				
no education		1		1
primary		0.62* (0.528–0.723)		0.76* (0.643–0.891)
secondary		0.63* (0.544–0.738)		0.85* (0.719–0.998)
higher		0.78* (0.634–0.950)		1.05 (0.849–1.298)
Husband/partner's education level				
No education		1		1
Primary		0.87 (0.735–1.020)		0.98 (0.828–1.158)
Secondary		0.94 (0.809–1.080)		1.09 (0.937–1.261)
Higher		1.09 (0.915–1.297)		1.22* (1.019–1.454)
Wealth index				
Poor		1		1
Middle		0.63* (0.547–0.718)		0.92 (0.784–1.077)
Rich		0.57* (0.488–0.654)		1.05 (0.871–1.268)
Total children ever born				
Primiparity		1		1
Multiparity		0.15* (0.115–0.203)		0.15* (0.111–0.198)
Grand multiparity		0.10* (0.071–0.140)		0.09* (0.067–0.132)
Number of living children				
0		1		1
1–2		0.31 (0.090–1.103)		0.31 (0.088–1.103)
3–4		0.05* (0.013–0.165)		0.05* (0.013–0.160)
5+		0.02* (0.005–0.074)		0.02* (0.006–0.071)
Ideal num children				
0		1		1
1–2		0.05* (0.032–0.069)		0.05* (0.036–0.077)
3–4		0.24* (0.188–0.314)		0.27* (0.209–0.386)
5+		0.96 (0.753–1.212)		0.99 (0.776–1.259)

Note: * $p < 0.05$

Fixed effects parameters	Model 0	Model 1	Model 2	Model 3
	Empty model	Individual variables	Community variables	Individual/community variables
Exposed to any FP message				
Not exposed		1		1
Exposed		1.04 (0.937–1.151)		1.06 (0.959–1.193)
Household Decision making				
Otherwise		1		1
Respondents alone		0.89* (0.809–0.976)		0.93 (0.839–1.025)
Current contraceptive method				
Not using		1		1
Using		0.59* (0.532–0.652)		0.63* (0.563–0.695)
Currently working				
No		1		1
Yes		0.84 (0.750–0.931)		0.87* (0.780–0.972)
Type of place of residence				
urban			1	1
rural			1.19* (1.063–1.328)	1.26* (1.094–1.456)
Community Diversity				
low			1	1
medium			1.07 (0.964–1.198)	1.03 (0.897–1.182)
high			1.09 (0.979–1.222)	0.92 (0.795–1.055)
Community Poverty				
low			1	1
medium			1.11 (0.977–1.262)	1.15 (0.968–1.365)
high			1.41* (1.173–1.690)	1.52* (1.165–1.974)
Community Education				
low			1	1
medium			0.51* (0.442–0.597)	0.51* (0.417–0.628)
high			0.52* (0.430–0.621)	0.45* (0.345–0.574)
Community women autonomy				
low			1	1
medium			0.88* (0.791–0.985)	0.87 (0.758–1.006)
high			0.87* (0.785–0.972)	0.88 (0.758–1.011)
Community contraceptive use				
low			1	1
medium			0.82* (0.720–0.924)	0.87 (0.743–1.020)
high			0.66* (0.574–0.760)	0.84 (0.697–1.010)
Community family planning message				
low			1	1
medium			0.90 (0.797–1.009)	0.97 (0.835–1.128)
high			0.98 (0.862–1.121)	1.06 (0.890–1.264)

Note: * $p < 0.05$

Fixed effects parameters	Model 0	Model 1	Model 2	Model 3
	Empty model	Individual variables	Community variables	Individual/community variables
Random effects parameters	Empty	Individual	Community	Full model
Variance	0.703	0.423	0.306	0.432
95% CI	(0.62–0.79)	(0.34–0.52)	(0.26–0.36)	(0.35–0.53)
ICC (%)	17.61	11.38	8.52	11.60
Log Likelihood	-12820.32	-7797.48	-12511.55	-77708.66
Model fit Statistics				
AIC	25644.64	15650.96	25053.11	15499.31
BIC	25660.54	15873.58	25172.36	15825.28
Note: * $p < 0.05$				

[Insert Table 2]

Conversely, the odds of desiring additional children were significantly greater among women whose husbands/partners had higher education [aOR: 1.22, CI: 1.019–1.454] than among women whose partners had no formal education; the odds associated with partners having primary [aOR: 0.98, CI: 0.828–1.158] or secondary [aOR: 1.09, CI: 0.937–1.261] education were not statistically significant. Household wealth status was not significantly associated with the desire for additional children [middle: aOR 0.92, CI 0.784–1.077; rich: aOR 1.05, CI 0.871–1.268]. Parity and the number of living children were strongly associated with the desire for additional children. The odds of desiring additional children were significantly lower among women who were multiparous [aOR: 0.15, CI: 0.111–0.198] and grand multiparous [aOR: 0.09, CI: 0.067–0.132] than among primiparous women.

Similarly, compared with women with no living children, the odds decreased significantly among those with three to four [aOR: 0.05, CI: 0.013–0.160] and five or more [aOR: 0.02, CI: 0.006–0.071] living children, whereas the odds among women with one to two living children did not reach statistical significance [aOR: 0.31, CI: 0.088–1.103]. Women whose ideal number of children was one to two [aOR: 0.05, CI: 0.036–0.077] or three to four [aOR: 0.27, CI: 0.209–0.386] had significantly lower odds of desiring additional children than women with no ideal number of children, whereas the odds among women whose ideal number was five or more were not statistically significant [aOR: 0.99, CI: 0.776–1.259].

Women who were currently using contraceptives had significantly lower odds of desiring additional children than those who were not using contraceptives [aOR: 0.63, CI: 0.563–0.695]. Women who were currently working also had significantly lower odds of desiring additional children than those who were not working [aOR: 0.87, CI: 0.780–0.972]. Exposure to family planning messages [aOR: 1.06, CI: 0.959–1.193] and making household decisions alone [aOR: 0.93, CI: 0.839–1.025] were not significantly associated with the desire for additional children.

At the community level, women who resided in rural areas had significantly greater odds of desiring additional children than those in urban areas [aOR: 1.26, CI: 1.094–1.456]. The odds of desiring additional children were significantly greater among women from communities with a high proportion of poor women [aOR: 1.52, CI: 1.165–1.974] than among those from communities with a low proportion of poor women, although the odds among women from communities with a medium proportion of poor women were not significant [aOR: 1.15, CI: 0.968–1.365]. Conversely, women from communities with a medium [aOR: 0.51, CI: 0.417–0.628] or high [aOR: 0.45, CI: 0.345–0.574] proportion of educated women had significantly lower odds of desiring additional children than those from communities with a low proportion of educated women.

Community ethnic diversity [medium: aOR 1.03, CI 0.897–1.182; high: aOR 0.92, CI 0.795–1.055], community women's autonomy [medium: aOR 0.87, CI 0.758–1.006; high: aOR 0.88, CI 0.758–1.011], community contraceptive use [medium: aOR 0.87, CI 0.743–1.020; high: aOR 0.84, CI 0.697–1.010] and community exposure to family planning messages [medium: aOR 0.97, CI 0.835–1.128; high: aOR 1.06, CI 0.890–1.264] were not significantly associated with the desire for additional children.

Measures of Variation

The random effects (measure of variation) results are presented in Table 2. The model goodness-of-fit was validated by the AIC and BIC, with the full model, which combined individual- and community-level factors, providing a markedly better fit (AIC: 15,499.31; BIC: 15,825.28) than the empty model (AIC: 25,644.64; BIC: 25,660.54) and the community-only model (AIC: 25,053.11; BIC: 25,172.36), and a broadly comparable fit to the individual-only model (AIC: 15,650.96; BIC: 15,873.58). Additionally, the statistical importance of random effects was expressed in the log likelihood. The empty model revealed considerable disparities in the odds of desire for more children among women across communities [variance: 0.703, CI: 0.62–0.79].

The Intra-Cluster Coefficient (ICC) revealed that 17.61% of the total variance in the odds of desire for more children was attributable to community-level factors [ICC: 17.61%]. The between-cluster variation decreased to 11.38% in the individual-level-only model (Model 1) and decreased further to 8.52% in the community-level-only model (Model 2), before increasing again to 11.60% in the full model (Model 3), which included both individual- and community-level drivers. This finding indicates that a substantial proportion of the variation in the odds of desire for more children among the childbearing women included in the analysis is attributable to the joint contribution of individual- and community-level factors (see Table 2, Model 3).

Discussion

The findings of this study shed light on the individual- and community-level factors influencing the desire for more children among childbearing women in Nigeria. Drawing upon socioecological theory (23), which emphasizes the interconnectedness between individual behavior and the environment, this discussion highlights the multifaceted nature of fertility preferences and the complex interplay of social, cultural, economic, and demographic factors shaping reproductive decisions. The study revealed that 66.01% of the women desired more children. This result is consistent with earlier studies (7, 8). However, the prevalence reported in this study was higher than that reported in other previous studies (17, 18). The variations in prevalence could be attributable to different paths, including different scopes and geographical locations. The high prevalence of desire for more children among women in this study could be attributable to the cultural value placed on large families in Nigeria and sub-Saharan Africa countries (1).

The study revealed that women's desire for more children was inversely correlated with several individual-level factors, including age, own educational attainment, parity and the number of living children. In line with earlier findings (1, 6), women with primary or secondary education expressed significantly less desire to have more children than women with no formal education, although the odds among women with higher education did not differ significantly from those among women with no education. Higher job aspirations, greater access to family planning information and services, and the economic ramifications of large family sizes are all frequently associated with education. Interestingly, and in contrast with women's own schooling, women whose husbands/partners had higher education had significantly greater odds of desiring more children, which may reflect greater economic capacity among more educated households to support larger families or greater male influence over reproductive decision-making in the Nigerian context.

Household wealth status, however, was not significantly associated with the desire for more children once individual- and community-level factors were jointly considered, suggesting that its bivariate association with fertility desire may be confounded by other factors such as education and parity. Women who had many duties and responsibilities related to parenthood, reflected in higher parity and a greater number of living children, were less inclined to desire more children. Consistent with previous studies (13), higher parity and a greater number of living children were among the strongest predictors of a lower desire for additional children. Additionally, age was significantly associated with fertility desire, with women aged 40 years and above indicating significantly lower odds of desiring more children than younger women. Women who were currently using contraceptives and those who were currently working also had significantly lower odds of desiring more children, which may reflect greater exposure to family planning services and competing economic priorities associated with employment. These findings underscore the importance of age, education, parity, contraceptive use and economic engagement in shaping fertility preferences (21).

In addition to individual characteristics, this study explores the role of community-level factors in influencing fertility desire among women in Nigeria. Contrary to expectation, women who resided in rural areas had significantly greater odds of desiring more children than those in urban areas, which is consistent with the persistence of pronatalist norms, greater reliance on children for household labour, and comparatively limited access to family planning services in rural Nigerian communities. Similarly, women from communities with a high proportion of poor women had significantly greater odds of desiring more children than those from communities with a low proportion of poor women, reflecting the tendency of economically disadvantaged communities to valorise large family sizes as a form of social and economic security.

Conversely, women from communities with a medium or high proportion of educated women had significantly lower odds of desiring more children, underscoring the role of community-level education in diffusing norms that favour smaller families, independent of women's own educational attainment. Community ethnic diversity, community women's autonomy, community contraceptive use and community exposure to family planning messages were not significantly associated with the desire for more children once other individual- and community-level factors were accounted for, suggesting that these factors may exert less independent influence on fertility desire in the fully adjusted model.

These findings can be contextualized within the broader sociopolitical and economic landscape of Nigeria. Economic factors, such as poverty and unemployment, may also influence fertility preferences, with women in economically disadvantaged settings often facing greater barriers to accessing family planning services and education. Moreover, contextual disparities in fertility preferences may exist, reflecting variations in cultural norms, religious beliefs, and access to healthcare infrastructure across Nigeria's diverse communities.

Policy implications

The high overall predominance of the desire for additional children among Nigerian women has significant implications for the country’s demographic trends, healthcare system, and economic development. These findings highlight the importance of enhancing women's education and access to family services as strategies to restrain fertility desires. Policies aimed at improving access to education and family planning resources can empower women to make informed reproductive decisions, potentially leading to more sustainable population growth and improved overall well-being for families. Efforts to improve educational opportunities, enhance economic conditions, and expand access to healthcare and family planning services, particularly in rural and underserved communities, are essential. Additionally, understanding these dynamics helps in tailoring public health interventions to address the specific needs and preferences of women on the basis of their educational and economic backgrounds.

The findings from this study provide vital suggestions for strategies and practices designed to promote reproductive health and empower women to make informed decisions about their fertility. Interventions targeting individual-level factors, such as education and family planning service accessibility, can help empower women to have more power over their reproductive lives (Cleland et al., 2006). Additionally, efforts to address community-level factors, including community poverty and community women’s autonomy, may involve community-based interventions, advocacy campaigns, and capacity-building initiatives aimed at challenging harmful gender norms and promoting reproductive autonomy (United Nations, 2015). Strengthening healthcare systems to ensure universal access to high-quality reproductive health services, including family planning counselling, contraceptive commodities, and maternal healthcare, is critical.

Additionally, targeted interventions aimed at addressing sociocultural barriers, promoting gender equality, and empowering women to make informed reproductive choices are essential for advancing reproductive rights and achieving sustainable development goals (UN, 2015). Tailored communication and outreach programs that respect specific individual- and community-level contexts can also help address high fertility desires, promote sustainable population growth, and improve maternal and child health outcomes in Nigeria. Effective family planning programs should consider factors such as age, education, income, and residence to address the underlying motivations and barriers to family planning.

Strengths and limitations of the study

It is critical to recognize this study's limitations, including the cross-sectional nature of the data, which precludes causal inference. Longitudinal studies are needed to explore the dynamic nature of fertility preferences over time. Furthermore, qualitative research approaches can offer a more profound understanding of the underlying motivations and contextual factors shaping fertility desires among Nigerian women. In conclusion, this study contributes to our understanding of the determinants of fertility preferences among childbearing women in Nigeria, highlighting the importance of addressing both individual- and community-level factors to promote reproductive health and well-being.

Conclusion

There was a fairly high prevalence (66.01%) of desire to have another child among childbearing women in Nigeria. The study revealed that the drivers of the desire to have additional children operate at both the individual and community levels, with women's age, education, parity, number of living children, contraceptive use and working status, as well as community residence, community poverty and community education, being key correlates. Interventions for fertility control and policies aimed at promoting reproductive health and empowering women should consider these factors.

Abbreviations

aOR adjusted Odds Ratio

AIC Akaike's information criterion

BIC Bayesian information criterion

ICC Intra-Cluster Correlation

NDHS Nigeria Demographic and Health Survey

Declarations

Ethics approval and consent to participate

The NDHS 2024 was approved IN Nigeria and the United States of America. In Nigeria, it was approved by the National Health Research Ethic Committee (NHREC) with NHREC Approval Number NHREC/01/01/2007-07/08/20233. In the USA, it was approved by the ICF Institutional Review Board (IRB). The 2024 NDHS adhered strictly to the Declaration of Helsinki and the Belmont Report. All participants in the survey were informed about the objectives of the survey, assured of confidentiality of responses provided. Participants also provided both written and verbal consent statement prior to participation. In the case of minors, parental/guardian permission were obtained in addition to child assent. Participation in the survey was voluntary, and respondents were informed that they could withdraw at any time without consequence. The analyzed dataset was anonymized and are publicly available. Access was authorized by ICF.

Consent for publication

Not applicable

Data availability and materials

The analyzed data analyzed is available for public use via https://www.dhsprogram.com/data/dataset/Nigeria_Standard-DHS_2024.cfm?flag=0

Competing interests

The author declares no competing interest.

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Author contributions

SAR and BLS developed the concept. SAR, TO, OMO, and OAO reviewed literature. SAR, TO, and BLS performed data analysis. TO, AOA, and OMO interpreted and write out the results. SAR, OMO, AOA, and AOA discussed the findings. All authors proof-read the manuscript for spelling and grammar. All authors approved the submitted manuscript.

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