



Women's Perceptions of Education, Household Income and Child Spacing in Funtua Local Government Area, Katsina State, Nigeria

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ABSTRACT

Background: Short birth intervals remain common in Nigeria, yet evidence from the north on how women understand the roles of education and household income in child spacing is thin. **Objectives:** This study examined women's perceptions of the relationship between education, household income and child spacing in Funtua Local Government Area (LGA), Katsina State, Nigeria. **Methods:** A cross-sectional survey design was adopted, supplemented by key-informant interviews with health workers. A structured questionnaire was administered through non-probability (judgmental) sampling to women of reproductive age in three health facilities and the community. Of the 381 questionnaires distributed, 354 were returned (92.9% response rate). Quantitative data were analysed using frequencies, percentages, 95% confidence intervals and exact binomial tests of agreement against 50%, while interview accounts were summarised thematically. **Results:** Between 73% and 89% of respondents agreed with seven of the eight statements concerning education, awareness, cultural norms and household income. Agreement was lowest (58%) for the statement that wealthy couples have little time for many children. Agreement exceeded 50% for all statements, with exact binomial tests yielding p-values below 0.01. **Conclusion:** Respondents perceive education and household income as important factors influencing child spacing, while limited awareness and educational opportunities are perceived as more significant barriers than tradition. However, because the study used non-probability sampling and measured perceptions rather than actual behaviour, the findings should be interpreted cautiously. Strengthening girls' education and improving affordable access to child-spacing services are important priorities emerging from the study.

Keywords: Child spacing; women's education; household income; birth interval; Funtua; Katsina State

1. Introduction

Child spacing is the practice of allowing an interval between one birth and the next. The interval matters for health. A systematic review and meta-analysis by Conde-Agudelo et al. (2006) found that interpregnancy intervals shorter than 18 months and longer than 59 months were associated with a higher risk of adverse perinatal outcomes than intervals of 18 to 23 months. A WHO technical consultation recommended an interval of at least 24 months after a live birth before attempting the next pregnancy (World Health Organization [WHO], 2006). Short intervals also carry nutritional risks for mothers and children (Dewey & Cohen, 2007).

Short birth intervals remain common in Nigeria. According to the 2018 Nigeria Demographic and Health Survey, as reported by Weghom et al. (2022), about 25% of births followed a short

interval (under 24 months) and the median birth interval was 30.9 months.

Education and household income are the two socioeconomic factors most often linked to fertility behaviour. Evidence from northern Nigeria on how they relate to birth spacing is thin, and little of it asks how women themselves understand these relationships.

This paper reports a study of women of reproductive age in Funtua LGA, Katsina State. It examines women's perceptions of education and household income in relation to child spacing, and asks two questions: Do women perceive that the level of education affects child spacing? Do they perceive that household income does so? The study is guided by Caldwell's theory of intergenerational wealth flows (Section 2).

2. Literature Review

2.1 Education and Child Spacing

Education is among the strongest correlates of fertility behaviour. Hirschman (1994) reviews the main explanations of fertility change, and Bongaarts (2010) examines why fertility differs by education in sub-Saharan Africa. Jejeebhoy and Sathar (2001) show that the relationship between women's autonomy and reproductive behaviour varies with religion and region in India and Pakistan. Education is therefore not a single mechanism. It may change the cost and value of children, widen women's access to information and services, and strengthen their voice within marriage.

The direction of its effect on birth intervals is not settled. Kim (2010) analyses the relationship between education and birth spacing in Indonesia, while Bumpass et al. (1986) reported that educated women in Korea had shorter second-birth intervals. Studies from East Africa, such as that of Bbaale and Mpuga (2011) on Uganda, link women's education to contraceptive use and lower fertility, and more recent work from Uganda reports an inverse relationship between female education and fertility preference across the 2006, 2011 and 2016 survey rounds (Kizza & Wasswa, 2024). Such differences warn against assuming a simple positive effect, and they make local evidence valuable.

Evidence from Nigeria points to the importance of socioeconomic circumstances. Using the 2018 Nigeria Demographic and Health Survey, Wegbom et al. (2022) found only slight rural-urban differences in short birth intervals, and reported that wealth index and antenatal care visits were significant only in rural Nigeria. Studies of this kind document patterns and associations from survey data. They say little about how women themselves understand and weigh education and household economic circumstances when they make decisions about spacing, and that gap motivates the present study.

Education also operates through social context. Malhotra (2012) examines the connection between gender relations and fertility and argues that it should be studied in both directions. On that view, schooling alone may not shift reproductive decisions where women have little economic independence or bargaining power. This matters in Funtua, where most respondents in the present study were not in paid work.

2.2 Household Income and Child Spacing

Household wealth shapes spacing partly through access to health information and services. Yohannes et al. (2011) studied birth intervals in Southern Ethiopia and examined economic and social correlates; Acharya (2010) examined demographic factors and fertility behaviour in western Terai, Nepal, including husbands' occupations. Fayehun and Omololu (2011) show that child spacing in Nigeria varies by ethnic group and by the sex of the preceding child, which is a reminder that economic factors operate within cultural settings.

Two broad arguments link income to spacing. Better-off couples may use services more because they can afford them and are better informed. Alternatively, they may limit family

size because of the rising cost of raising and educating each child, a mechanism emphasised in the demographic transition tradition (Notestein, 1945; Mason, 1997). Poorer households may rely on children for labour and old-age support, which weakens the incentive to space births. This second argument leads directly to the theory adopted here.

2.3 Theoretical Framework: Intergenerational Wealth Flows

The study is anchored in Caldwell's theory of intergenerational wealth flows (Caldwell, 1976, 1980, 2005). The theory holds that fertility behaviour depends on the direction in which resources move between generations. Where wealth flows predominantly from children to parents, through labour, support in old age and security, parents have an economic incentive to bear many children. Fertility falls when the flow reverses and parents must invest heavily in each child's schooling and upkeep. Mass education and changing family relationships are central to that shift.

Two features of the theory suit this study. First, it gives education a causal role, as a force that changes the economic value of children and the relationship between spouses, and not merely as a marker of status. Second, it treats income and poverty differently from one another. A woman in a poor household that depends on children for support may have good reason to resist spacing, whereas a better-off couple facing the costs of schooling may have reason to seek it. Some health workers interviewed in Funtua described exactly this expectation among poorer parents.

The framework also has limits. Empirical tests of the theory have been mixed, and it concerns the number of children more directly than the timing of births. Complementary economic accounts treat childbearing as a response to the costs and benefits of children (Becker, 1960; Easterlin, 1975), and Bongaarts's (1978) framework reminds us that socioeconomic factors act on spacing only through proximate behaviours such as contraception and breastfeeding. This study therefore treats education and income as distal factors whose perceived association with spacing it examines, and not as proven causes.

3. Methodology

3.1 Study Area, Design and Population

The study was conducted in Funtua LGA, Katsina State, in north-western Nigeria. It used a cross-sectional design that combined a questionnaire survey with interviews. The target population was women of reproductive age.

3.2 Sampling and Sample Size

Respondents were selected by judgmental (non-probability) sampling. Research assistants approached women who met the study's criteria at three health facilities, namely Sarkin Maska Shehu General Hospital, Funtua Comprehensive Primary Healthcare and Marabar Maska Primary Healthcare, and in the community among women who do not attend hospitals during pregnancy. For a population above 100,000, the Krejcie and Morgan (1970) table gives a required sample of 384 at the 95% confidence level. Because the sample was not drawn at random, that figure was used as a guide to scale and not as a basis for statistical generalisation. A total of 381 copies were distributed (150, 85, 66 and 80 across the four settings) and 354 were returned and analysed, a return rate of 92.9% (Table 1).

Interviews were conducted in Hausa with six health workers, two at each of the three health facilities.

3.3 Instruments, Validity and Reliability

Data were collected with a structured questionnaire and an interview guide. The questionnaire covered respondents' characteristics and their opinions on statements about education, awareness and cultural norms, and household income, each rated on a four-point

scale (strongly agree, agree, disagree, and strongly disagree). The instrument was pilot-tested on five women who were not part of the final sample, and internal consistency was assessed with Cronbach's alpha, giving coefficients of 0.83, 0.78, 0.91 and 0.94 for four sets of items. With so few pilot respondents these coefficients are indicative only.

3.4 Ethical Considerations

Ethical approval for the study was obtained from the Department of Sociology, Federal University Dutsin-Ma. Informed consent was obtained from the women after the purpose and objectives of the study had been explained to them. They were told that participation was voluntary, that declining would have no consequences for their treatment, and that the information they gave would be kept confidential and anonymous. They were also told that they could withdraw at any point if they chose to.

3.5 Data Analysis

Questionnaire responses were summarised with frequencies and percentages. For each statement, agreement (strongly agree plus agree) was set against disagreement, and the proportion agreeing is reported with a 95% Wilson confidence interval and an exact binomial test against 50%. Because the sample is not a probability sample, these statistics describe the 354 respondents and show the strength of the majority view. They do not support generalisation to all women in Funtua, and they do not test relationships between variables. Interview accounts were grouped by theme.

4. Results

4.1 Questionnaire Administration and Response

Table 1 shows the distribution and return of questionnaires. Overall, 354 of 381 copies were returned (92.9%).

Table 1. Questionnaire Administration and Return

Setting	Distributed	Returned	Return Rate (%)
Sarkin Maska Shehu General Hospital	150	145	96.7
Funtua Comprehensive Primary Healthcare	85	79	92.9
Marabar Maska Primary Healthcare	66	62	93.9
Women who do not attend hospitals	80	68	85.0
Total	381	354	92.9

4.2 Characteristics of Respondents

Table 2 describes the respondents. Nearly half (49%) were aged 26 to 35 years, the peak childbearing years. About two-thirds (65%) had primary education or less, and 12% had tertiary education. Most (67%) described themselves as housewives, and about a third (32%) engaged in some income-yielding activity.

Table 2. Characteristics of Respondents (N = 354)

Characteristic	Category	N	%
Age (years)	14-25	56	16
	26-35	173	49
	36-45	78	22
	46-50	46	13
	51 and above	1	0.3
Education	No formal education	49	14
	Primary	181	51
	Secondary	83	23
	Tertiary	41	12
Occupation	Civil servant	18	5
	Business	44	12
	Housewife	238	67
	Petty trading	51	14
	Other	3	1

Note. Percentages are calculated from the counts (N = 354) and may not sum to 100 because of rounding.

4.3 Perceptions of Education, Awareness, Norms and Income

Table 3 presents respondents' opinions on eight statements. In the text, agreement means strongly agree and agree combined, and percentages are calculated from the counts (N = 354).

Education: Seventy-three per cent agreed that people with post-secondary education tend to bear few children, and 81% agreed that the higher the level of education, the fewer the children couples want. Awareness and norms: Seventy-four per cent agreed that lack of family planning knowledge results in women bearing many children, and 73% agreed that the norms and tradition of the people are not against child spacing. Household income: Eighty-two per cent agreed that better-off couples tend to bear fewer children, and 77% that women from poor backgrounds are more likely to reject family planning. Opinion was more divided on why better-off couples limit family size: 58% agreed that wealthy couples have little time for many children, while 89% agreed that rich women space births for fear of poverty.

Table 3. Respondents' Opinions on Education, Awareness, Norms and Income, n (%), N = 354

Statement	SA	A	DA	SD
A. Education				
People with post-secondary education tend to bear few children	162 (46)	96 (27)	61 (17)	35 (10)
The higher the level of education, the fewer the children couples want	114 (32)	172 (49)	14 (4)	54 (15)
B. Awareness and cultural norms				
Lack of family planning knowledge results in women bearing many children	178 (50)	84 (24)	53 (15)	39 (11)
The norm and tradition of the people is not against child spacing	192 (54)	67 (19)	70 (20)	25 (7)
C. Household income				
The better off the couple, the fewer the children they tend to bear	199 (56)	92 (26)	9 (3)	54 (15)

Statement	SA	A	DA	SD
Women from poor backgrounds are more likely to reject family planning	101 (29)	172 (49)	45 (13)	36 (10)
Wealthy couples do not have much time to attend to many children	147 (42)	59 (17)	67 (19)	81 (23)
Rich women observe child spacing for fear of poverty	224 (63)	92 (26)	26 (7)	12 (3)

Note. SA = strongly agree, A = agree, DA = disagree, SD = strongly disagree. Percentages are calculated from the counts and may not sum to 100 because of rounding.

4.4 Strength of Agreement

Table 4 shows how strongly respondents agreed with each statement. The proportion agreeing ranged from 58% to 89%, and exceeded 50% on every statement. Exact binomial tests against 50% were significant for all eight statements ($p < 0.01$ in each case), the weakest result being for the statement that wealthy couples have little time for many children (58%, 95% CI 53% to 63%, $p = 0.002$). These tests show that the majority view among the 354 respondents is unlikely to be a chance pattern. Because the sample was not drawn at random, they do not show that the same proportions hold across Funtua LGA, and because they treat each statement separately, they say nothing about whether agreement differs by respondents' education or occupation.

Table 4. Proportion Agreeing with Each Statement (N = 354), 95% Confidence Interval and Exact Binomial Test Against 50%

Statement	Agree, n	Agree, % (95% CI)	p
People with post-secondary education tend to bear few children	258	72.9 (68-77)	< 0.001
The higher the level of education, the fewer the children couples want	286	80.8 (76-85)	< 0.001
Lack of family planning knowledge results in women bearing many children	262	74.0 (69-78)	< 0.001
The norm and tradition of the people is not against child spacing	259	73.2 (68-78)	< 0.001
The better off the couple, the fewer the children they tend to bear	291	82.2 (78-86)	< 0.001
Women from poor backgrounds are more likely to reject family planning	273	77.1 (72-81)	< 0.001
Wealthy couples do not have much time to attend to many children	206	58.2 (53-63)	0.002
Rich women observe child spacing for fear of poverty	316	89.3 (86-92)	< 0.001

Note. Agree = strongly agree plus agree. Confidence intervals are Wilson intervals. The sample is non-probabilistic, so the intervals describe sampling variability only if respondents are treated as a random sample, and should not be used to generalize to Funtua LGA.

4.5 Interview Findings

The health workers' accounts largely agreed with the survey. A doctor reported that women who sought advice on spacing at his hospital were mostly those with post-secondary education. Another interviewee said that many women reject spacing because they do not know why it matters. One doctor attributed the high level of illiteracy among rural women to traditions that keep girls out of school and confine them to housework. On income, interviewees said that wealthy parents limit their children because of the cost of raising them and because of busy work schedules, and that poorer parents expect children to support them in old age. On fear of poverty, however, one interviewee disagreed with the survey result and

said that it was education, and not fear of poverty, that made the wealthy accept spacing.

5. Discussion

The study set out to examine women's perceptions of the relationship between education and child spacing and between household income and child spacing. It did not measure women's autonomy, decision-making power or contraceptive use, and the discussion is confined to what was measured.

Education: Most respondents agreed that education is associated with fewer children, and the health workers interviewed said the same. This is consistent with a large literature that links women's schooling to lower fertility (Bongaarts, 2010; Jejeebhoy & Sathar, 2001; Bbaale & Mpuga, 2011), and with recent survey evidence from Uganda (Kizza & Wasswa, 2024). It is also consistent with Caldwell's theory, in which schooling changes the economic value of children and the balance of power within the family. The result should be read with care. The evidence from Korea shows that education does not always lengthen intervals (Bumpass et al., 1986), and what respondents believe about education is not the same as what educated women do. The sample is also mostly women with little schooling (65% primary or below), so the views of highly educated women are lightly represented.

Awareness and norms: Respondents placed the main obstacle in limited knowledge and schooling and not in tradition, since 73% agreed that local norms are not against spacing. This does not conflict with the view of one interviewed doctor that tradition keeps rural girls out of school. The survey statement concerned attitudes to spacing and not to schooling, and a community can accept spacing while still limiting girls' education. Tradition may therefore act indirectly, through schooling, even where it does not oppose spacing itself. A second reading of the 73% is that respondents, who were mostly approached at health facilities, were more receptive to spacing than women in general, and that social desirability shaped their answers. The survey cannot separate these explanations.

Household income: Respondents agreed that better-off couples have smaller families (82%) and that poor women are more likely to reject family planning (77%), which fits the wealth-flows argument that poorer parents rely on children for support. The two reasons offered for why wealthy couples limit family size were not equally supported: 58% agreed with lack of time and 89% with fear of poverty. One interviewee rejected the fear-of-poverty explanation and attributed the behaviour of the wealthy to education. The survey and the interviews therefore diverge on this point, and the data cannot settle it. Using national survey data, Wegbom et al. (2022) found that wealth index was significant for short birth intervals only in rural Nigeria, which suggests that the economic factors respondents described may not operate uniformly across settings. These are also opinions about other couples. Because respondents' own incomes were not measured, the study cannot show that income affects spacing in Funtua.

Limitations: The sample was non-probabilistic and drawn largely from health facilities, so it over-represents women who use health services and cannot be generalized to the LGA. The data are cross-sectional and based on opinion. The study did not test associations between respondents' characteristics and their opinions or birth intervals, so it describes the strength of opinion and does not identify determinants. The questionnaire was pilot-tested on only five women, so its reliability coefficients are indicative only.

6. Conclusion and Recommendations

Women in Funtua LGA associate higher education and higher household income with smaller families and with acceptance of child spacing, and they place the main barrier in limited knowledge and schooling and not in tradition. Because the sample is non-probabilistic and the data are perceptions, the findings are indicative and should be tested with larger,

probability-based studies that measure education, income and birth intervals directly.

Four recommendations follow from the findings. First, because respondents and health workers alike link schooling to acceptance of spacing, state and local governments and community leaders should strengthen the enrolment and retention of girls in school. Second, health facilities should offer spacing counselling to all women, and not only to those with more schooling, in language and formats that suit women with limited education, and should extend outreach to women who do not attend facilities. Third, because poverty was widely linked to rejection of family planning, spacing services should be affordable and accessible, particularly in outlying areas and low-income communities. Finally, further research in other parts of the state is needed, with probability sampling and measured outcomes.

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