ORIGINAL RESEARCH

Household characteristics and unintended pregnancy among ever-married women in Nigeria

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Abstract

Unintended pregnancy is a worldwide problem. Unintended or unplanned pregnancy refers to the sum of mistimed and unwanted pregnancies. A woman is assumed to have a mistimed pregnancy if she became pregnant at a time when she did not want to. A woman is assumed to have an unwanted pregnancy if she did not intend to ever become pregnant or if the pregnancy occurred when she wanted to no more children. This study used data from the 2008 Nigeria Demographic and Health Survey (NDHS) to identify individual-level and household-level factors associated with unintended pregnancy among ever-married women in Nigeria. Unintended pregnancy was measured using Lightbourne method. Among the factors associated with higher rates of unintended pregnancies were female-headed households, households headed by older adults, family size, and poverty. Women from rich households were 21% less likely to have unintended pregnancies compared to women from poor households. When all variables were controlled for simultaneously, age and sex of household head, household size, and wealth index were significantly associated with unintended pregnancy. Findings suggest that tackling unintended pregnancy may require household-focused interventions.

Introduction

Unintended pregnancy is a worldwide problem. Globally, an estimated 38% of pregnancies are unintended.[1] Unintended or unplanned pregnancy refers to the sum of mistimed and unwanted pregnancies.[2] A woman is assumed to have a mistimed pregnancy if she became pregnant at a time when she did not want to. On the other hand, a woman is assumed to have an unwanted pregnancy if she did not intend to ever become pregnant, or if the pregnancy occurred when she wanted to have no more children.[2] (Some of the leading causes of unintended pregnancies are low contraceptive continuation rates, method failure, high unmet need for contraceptives, sexual coercion, and, less commonly, rape.[2] Annually, an estimated 42 million induced abortions and 34 million unintended births result from unintended pregnancies.[1] Unintended pregnancies also result in nearly 700,000 maternal deaths annually.[1] Roughly a third of these deaths are due to problems associated with pregnancy or childbirth, but the majority (64%) result from complications of unsafe or unsanitary abortion.[1] While women of reproductive age are at significant risk of experiencing unintended pregnancies globally, the problem is most severe in the poor countries of the world.[1]

It is estimated that 201 million women worldwide are at risk of unintended pregnancies.[4] These women often do not have access to quality contraception. Improving access to family planning services to these vulnerable women will prevent an estimated 52 million unintended pregnancies annually and 1.5 million maternal and child deaths annually, and reduce the number of induced abortions by 64%.[4] Improved access to contraceptives also has the potential to reduce illnesses related to pregnancy and preserve 27 million healthy life-years.[4] Unintended pregnancies also have a higher likelihood of resulting in low birth weight for children and unsafe abortion, compared with planned pregnancies.[5,6] Mothers who have unintended births often suffer postpartum depression, feelings of powerlessness, increased time pressures, and a reduction in overall

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physical health. They are also more likely to have poor quality relationships with all of their children, more likely to physically abuse their children, and more likely to spend less leisure time with them, compared to women with intended pregnancies.[2,7] Mothers who have unintended pregnancies are less likely to initiate and utilize prenatal and antenatal care and, on average, seek it later than mothers whose pregnancies are intended.[8,9] Population Action International has shown that infant mortality in developing countries would decrease by one third if the spacing between births was increased to two to four years.[10]

Previous research on unintended pregnancy in the developing world has focused on its causes,[11] its effects on maternal and child health,[6] and household and community well-being.[12] In the available research on the causes of unintended pregnancy, attention has been given to the role of contraceptive failure,[13,14] poor contraceptive use practices,[15,16] involuntary sexual activity,[17,18] and marital status.[5] Currently, there is little research on the implications of non-individual-level factors for unintended pregnancy. Yet, factors such as household characteristics, community norms, gender roles, and legal and policy environments have huge implications for unintended pregnancy.[19] The neglect of these factors in current research on unintended pregnancy is critical. Holistic knowledge of the correlates of unintended pregnancy is key to the development of interventions to reduce it. Policy formulation will also benefit immensely from research that raises understanding of the different and multiple issues that underlie unintended pregnancy in different countries.

Against this background, this study examines the associations between household characteristics and unintended pregnancy in Nigeria. As in many other developing countries, rates of unintended pregnancy are very high in Nigeria.[1] Data from the 2008 Nigeria Demographic and Health Survey (NDHS) suggest that unintended pregnancies may represent as many as 18% of all pregnancies in the country.[19] In some regions of the country, rates of unintended pregnancies were estimated to be about 25% of all pregnancies. While research exists on unintended pregnancy in Nigeria, the role of household characteristics in unintended pregnancy has not received much-needed attention in the existing body of research. Yet, knowledge of household-level factors in unintended pregnancy can promote more rigorous understanding of the issues surrounding unintended pregnancy and support the development and delivery of interventions to address the problem. Overall, existing research shows that household characteristics have important implications for the economic and social well-being, as well as fertility and sexual behavior, of its members. Surprisingly however, little is known about the interaction between household characteristics and unintended pregnancy.

Methods

The study draws data from the most recent Demographic and Health Survey in Nigeria, the 2008 NDHS. The NDHS is the most comprehensive of all of the demographic and health surveys conducted in the country.

Three previous surveys were conducted in 1990, 1999, and 2003. The 2008 NDHS is the only survey with data aggregated for both the country's six geopolitical zones and the 36 states and Federal Capital Territory (FCT). The survey was conducted by the National Population Commission (NPC) from June to October 2008 with financial support from the United States Agency for International Development (USAID) and the United Nations Population Fund (UNFPA). Technical assistance was provided by ICF Macro International. Questionnaires were administered to 34,070 households from a nationally representative sample of 36,298 households, drawn from all 36 states and the FCT.

Data used in the present study were collected from 33,385 women and 18,637 men aged 15-49 years. Of these, 27,303 women (81.78%) reported intended pregnancies during the 2003-2008 survey period while 6,082 (18.22%) had unintended pregnancies.

Estimating the incidence of unintended pregnancy is challenging. This study made use of Lightbourne method.[20] This method is known to produce higher estimates than the retrospective direct method.[21] The method compares the respondent's ideal number of children and the number of living children at the time of conception. According to Lightbourne, if the ideal number of children is equal to or

less than the number of living children at the time of conception of the birth in question, the birth is classified as unwanted.

Statistical analysis

Bivariate associations between individual-level and household-level variables and unintended pregnancy were examined. The socio-demographic variables utilized in the study were maternal and paternal age, and maternal educational attainment. The household characteristics were sex and age of head of household, family size, household wealth index (calculated by the NDHS), and region of residence. These associations were described by computing odds ratios with 95% confidence intervals. Variables that were significant at this level were entered into a multivariate logistic regression model to estimate adjusted odds ratios for unintended pregnancy and corresponding 95% confidence intervals. Three models were developed. The first model examined the relationship between individual-level factors and unintended pregnancy. The second model examined the association between household-level factors and unintended pregnancy. The third model combined both the individual and household level factors to ascertain the association between individual and household level factors and unintended pregnancy.

Results

Unintended pregnancy that resulted in births between January 1, 2003 and the time of the survey was reported by 6,082 women (18.22%) and intended pregnancies by 27,303 (81.78%) women.

Bivariate analyses

In the bivariate analyses of pregnancy intentions and socio-demographic variables at the individual level, maternal age at birth, maternal educational level, and paternal age were significantly associated with unintended pregnancy. Unintended pregnancy was most prevalent among older women (35–49 years) and older men (45–59 years).

The association between unintended pregnancy with household variables show that age and sex of household head, family size, household wealth index, and region of residence were significantly associated with unintended pregnancy. Women who had 5 or more live births at the time of the survey were 3.4 times as likely to have unintended pregnancies compared to women who had fewer than 5 children. Households headed by an older adult (aged 45–59 years) were 8.7 times as likely to experience unintended pregnancy compared to household headed by younger adults (aged 15–29 years). Women who were members of rich households were 0.86

Table 1. Bivariate analyses of unintended pregnancy and maternal and paternal socio-demographic characteristics

Characteristic	Intended pregnancies (%) n=27,303	Unintended pregnancies (%) n=6,082	Odds ratio
Maternal age at time of survey (years)*			
15–24	45.15	5.52	1.0
25–34	35.60	27.70	6.3
35–49	19.25	66.78	28.3
Maternal educational level*			
No education	39.83	49.91	1.0
Primary	51.16	42.54	0.66
Secondary/higher	9.02	7.55	0.66
Paternal age (years)†			
15–29	16.67	2.04	1.0
30–44	55.26	36.51	5.3
45–59	28.07	61.45	17.8

Source: Calculated from 2008 NDHS data.
*$p < .05$; †$p < .01$

Table 2. Bivariate analyses of unintended pregnancy and selected household variables

Characteristic	Intended pregnancies (%) n=27,303	Unintended pregnancies (%) n=6,082	Odds ratio
Sex of household head*			
Male	82.22	86.28	1.0
Female	17.78	13.72	0.7
Age of household head (years)*			
15–29	18.03	3.32	1.0
30–44	46.74	40.25	4.6
45–59	35.22	56.43	8.7
Household wealth index†			
Poor	22.23	23.80	1.0
Average	37.96	39.27	0.96
Rich	39.81	36.93	0.9
Family size (number of individuals)*			
1–4	39.55	15.23	1.0
5–10	51.49	67.67	3.4
11+	8.95	17.09	4.9
Region of residence†			
North Central	19.34	18.40	1.0
North East	19.08	21.44	1.1
North West	22.83	24.87	1.1
South East	9.49	9.21	1.0
South South	14.06	11.57	0.9
South West	15.21	14.52	1.0

Source: Calculated from 2008 NDHS data.
*$p < .05$; †$p < .01$

times as likely to have unintended pregnancies compared to women who were members of poor households.

Multivariate analysis

Logistic regression analysis showed that a woman's age, her secondary educational attainment, and age of household head were significantly associated with unintended pregnancy. Women aged 35 years or older were 13.6 times as likely to have unintended pregnancies compared to women aged 15–24 years. Women who had secondary/higher education were 8 times less likely to have unintended pregnancies compared to women who had no formal education. Women who were members of households headed by older adults (aged 45–59 years) were 5.4 times as likely to have unintended pregnancies compared to those in households headed by younger adults.

When all of the variables were controlled for simultaneously, age and sex of household head, household size and wealth index were significantly associated with unintended pregnancy. Women who had more than 5 children had a higher rate of unintended pregnancy than those who had fewer than 5 children. The odds of unintended pregnancy were higher among households headed by older adults (aged 45–59 years) than among those in households headed by adults (aged 25–29 years). Women who belonged to rich households were 21% less likely to have unintended pregnancies compared to women who were members of poor households.

Discussion

This study focused on the associations between household-level factors and unintended pregnancy among ever-married women of childbearing age (15–49 years) in Nigeria. In particular, the study

Table 3. Model 1: Adjusted odds ratios from logistic regression for individual-level factors and pregnancy intention

Characteristic	Odds ratio (±95% CI)
Maternal age at time of survey (years)*	
15–24	1.0 —
25–34	4.0 (3.36–4.90)
35–49	13.6 (11.22–16.56)
Maternal educational level†	
No education	1.0 —
Primary	1.1 (0.99–1.17)
Secondary/higher	0.8 (0.71–0.96)
Paternal age (years)*	
15–29	1.0 —
30–44	1.8 (1.4–2.35)
45–59	2.6 (2.04–3.46)

Source: Calculated from 2008 NDHS data.
*p < .05; †p < .01

addressed the implications of sex and age of household head, family size, and wealth index. Data were collected from 33,385 ever-married women of reproductive age (15–49 years old), of whom 6,082 (18.22%) reported unintended pregnancies.

When bivariate analyses were employed to examine the relationship between the dependent and independent variables, maternal age, family size, sex and age of head of household, place and region of residence, level of education, and wealth index were significantly associated with the pregnancy intention status of ever-married women in Nigeria. Women who had more than 10 children were 3.2 times as likely to have unintended pregnancies compared to women who had fewer than 5 children. Women aged 45 years or older women were 5.4 as likely to have unintended pregnancies compared to younger women aged 15–29 years. The clearest explanation of this result is that members of the former group as opposed to those in the latter group could have completed their desired family size. These findings are similar to those of studies conducted in currently married pregnant women in Iran[22] and in all women of reproductive age in Nigeria.[23]

A further in-depth statistical analyses using multivariate logistic regression found age and sex of household head, family size, and wealth index significantly associated with unintended pregnancy. Women who had more than 5 children had a greater likelihood of unintended pregnancy than those who had fewer than 5 children. The odds of unintended pregnancy were higher among households headed by older adults than among households headed by younger adults. Women who belonged to rich households were 79% as likely to have unintended pregnancies as women who were members of poor households. Female-headed households were 1.1 times as likely to have unintended pregnancies compared to those in male-headed households. Similar results have been found in Ecuador.[24] Anderson[25] and Williams[26] have also observed that poverty is correlated with unintended births.

Conclusions

When all variables were controlled for simultaneously, family size and wealth index were most significantly associated with unintended pregnancy. Women who had more than 4 children had a greater likelihood of unintended pregnancy then those who had fewer than five children. Women who belonged to rich households were 21% less likely to have un-

Table 4. Model 2: Adjusted odds ratios from logistic regression for selected household-level factors and pregnancy intention

Characteristic	Odds ratio (±95% CI)
Sex of household head†	
Male	1.0 —
Female	1.1 (1.05–1.29)
Age of household head (years)*	
15–29	1.0
30–44	3.3 (2.80–3.93)
45–59	5.4 (4.60–6.48)
Family size (number of individuals)*	
1–4	1.0 —
5–10	2.5 (2.33–2.79)
11+	3.2 (2.89–3.69)
Household wealth index†	
Poor	1.0 —
Average	0.89 (0.81–0.98)
Rich	0.79 (0.68–0.94)

Source: Calculated from 2008 NDHS data.
*p < .05; †p < .01

intended pregnancies compared to women who were members of poor households. These findings suggest that tackling unintended pregnancy may require household-focused interventions and that providing family planning methods to women may not be enough to prevent unintended pregnancies. Qualitative research is needed to investigate the mechanisms by which household-level factors influence unintended pregnancy.

Study limitation

The major limitation of the Lightbourne method in identifying unintended pregnancy is that the preference to have (or not have) more children can be inconsistent with the ideal number of children in some cases if sex preferences have not been satisfied after the first few children.[27]

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