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ABORTION-SEEKING BEHAVIOUR AMONG NIGERIAN WOMEN

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Summary. This study used data from a community-based survey to examine women's experiences of abortion in Nigeria. Fourteen per cent of respondents reported that they had ever tried to terminate a pregnancy, and 10% had obtained an abortion. The majority of women who sought an abortion did so early in the pregnancy. Forty-two per cent of women who obtained an abortion used the services of a non-professional provider, a quarter experienced complications and 9% sought treatment for complications from their abortions. Roughly half of the women who obtained an abortion used a method other than D&C or MVA. The abortion prevalence and conditions under which women sought abortions varied by women's socio-demographic characteristics. Because abortion is illegal in Nigeria except to save the woman's life, many women take significant risks to terminate unwanted pregnancies. Reducing the incidence of unwanted pregnancy and unsafe abortion can significantly impact the reproductive health of women in Nigeria.

Introduction

Induced abortion is illegal in Nigeria, except when performed to save a woman's life, but the behaviour is not uncommon. It is estimated that about 610,000 abortions occurred and about 25 out of 1000 women of childbearing age obtained an abortion in the country in 1996 (Henshaw *et al.*, 1998). Given the increase in Nigeria's population over this period, if the abortion rate is assumed to be constant between 1996 and 2006, 760,000 abortions will occur in 2006. Unfortunately, many of these abortions happen under unsafe conditions and constitute a major source of maternal morbidity and mortality. About 44% of women having abortions in Nigeria are believed to experience complications, according to a 1996 study (Makinwa-Adebusoye *et al.*, 1997), and induced abortion is a cause of chronic pelvic inflammatory disease, ectopic pregnancy and secondary infertility among Nigerian women (Olatubosun & Okonofua, 1986; Ladipo, 1989; Okonofua, 1994). Consequently, unsafe abortion is a

significant cause of maternal mortality as it accounts for at least 12% of maternal deaths in the country (Okonofua *et al.*, 1999; Oye-Adeniran *et al.*, 2002; WHO, 2004). Some small-scale studies in Nigeria have documented the debilitating health effects of unsafe abortion on women's health (Konje *et al.*, 1992; Mitsunaga, *et al.*, 2005). Nevertheless, policy-makers are yet to sufficiently grasp the magnitude of the problem and to allocate adequate resources to promoting the reproductive health of women (Feyisetan & Bankole, 2002).

In addition to its effects on the health and well-being of women, unsafe abortion is also taking its toll on society. The high proportion of hospital gynaecological admissions resulting from complications of unsafe induced abortion imposes a heavy burden on the fragile health care system. Moreover, the system often lacks the human and financial resources required to effectively treat patients of abortion complications.

Available evidence from national surveys suggests that the number of abortions in the country remains high, and is perhaps increasing, because couples want fewer children than they once did (Westoff & Bankole, 2002). In spite of the trend towards declining fertility preferences, contraceptive use remains low, and Nigerian women are having about 0·5 children more than they want to have, on average. About 15% of all births (including the current pregnancy) in the 5 years preceding the 2003 Nigeria Demographic and Health Survey (NDHS) were mistimed or unwanted compared with 10% of births in the 5 years prior to the 1990 NDHS (Federal Office of Statistics & IRD/Macro International, 1992; National Population Commission & ORC Macro, 2004). In addition, in 2003, about one-third of married women aged 15–49 did not want to have a child within the next two years but were not using modern contraception (Hussain *et al.*, 2005). Unmet need for effective contraceptive methods was even higher (about 50%) among sexually active unmarried women, as most did not want to have a child and only about one-third were using modern contraception (Hussain *et al.*, 2005). When people begin to want smaller families – and continue to hold long-standing values and motivations to achieve healthy spacing of births and avoid premarital births – they will use a combination of means, such as modern or traditional methods of family planning and abortion, to achieve their preferred family size (Berer, 2000). Unless adequate measures are taken to prevent unwanted pregnancy, the incidence of unsafe abortion and the attendant problems are likely to rise.

Since abortion is allowed in Nigeria only to save the life of a woman, how do hundreds of thousands of women who obtain abortions annually in Nigeria obtain the service? In fact there is little recent, national-level, empirical evidence on this important issue, and current understanding derives mainly from older studies that were typically conducted in a few hospitals or in one or two states of the country (Adetoro *et al.*, 1991; Okonofua *et al.*, 1999). Previous studies support the conclusion that many abortions in the country are carried out 'clandestinely by poorly trained individuals ….', and find that some unsafe abortions are undertaken by women themselves; or they may seek the service of a non-medical person or that of a health worker in unhygienic conditions (Okonofua *et al.*, 1999). A 1998–99 study of women obtaining family planning and antenatal services in three hospitals in Benin State, south-west Nigeria, found that just over a quarter had terminated their first

pregnancy, and a quarter of these women had complications at the time of the abortion (Mitsunaga *et al.*, 2005). Abortions performed under such conditions may involve insertion of a solid object into the uterus, an improperly performed dilation and curettage (D&C) procedure, ingestion of harmful substances, or exertion of external force.

In a 1996 survey, a sample of health professionals were interviewed to obtain their perceptions about the conditions under which abortions take place in Nigeria. The health professionals believed that physicians were the most commonly seen (32%) by women who wanted an abortion, followed by chemists and nurses/midwives (23% and 21%, respectively) (Makinwa-Adebusoye *et al.*, 1997). The health professionals also conveyed the perception that D&C is the method most commonly used by physicians, while non-physicians most commonly used herbal solutions or indigenous medicine (Makinwa-Adebusoye *et al.*, 1997).

Beyond this, little is known about the steps women take to obtain abortions and the magnitude of the risks they face. For example, how long do women who do not want a pregnancy wait to seek abortion services? Do women involve the partner responsible for the pregnancy in the decision-making? How often do they fail in their initial attempts to terminate a pregnancy and how many women persist by taking additional measures? What consequences do these decisions have on the health of the women? And how many women are ultimately unsuccessful in their attempt to terminate a pregnancy?

This study utilizes data from a recent community-based survey of unwanted pregnancy and abortion among women to examine the process that women undertake in seeking abortion in Nigeria. Using information collected from women themselves, it highlights the key elements of the process: the time interval between the occurrence of the pregnancy and the abortion, the kind of providers seen, the methods used, the number of repeat attempts made and the risk and consequences associated with the process of obtaining an abortion. The study also examines how women's experiences vary according to their socio-demographic characteristics.

Data and Methods

The data used in this paper come from a household-based sample survey of women of reproductive age (15–49 years). The survey was conducted in late 2002 to mid 2003 in eight states in Nigeria. The states (Ekiti, Gombe, Kano, Kogi, Lagos, Imo and Rivers) were selected such that two states came from each of the original four health zones (North-east, North-west, South-east and South-west). Using the rural–urban distribution of women in the 1999 Nigeria DHS as the basis, the state that was mostly urban and the one that was mostly rural were chosen in each of the health zones. To account for recent change in the zoning of the country, the states were selected such that at least one state came from each of the current six geo-political zones (North-East, North-West, North-Central, South-East, South-West and South-South). In each state, 20 enumeration areas (EAs), ten urban and ten rural, were selected. In each of the EAs, 20 households were randomly selected for interview using a systematic random sampling approach. One eligible woman was selected for interview in each household to yield a total sample size of 3200 women. At the end of the

survey, 3020 women were successfully interviewed. The shortfall occurred largely from Rivers State where the interviewers did not complete the interviews by the time the survey officially ended.

Because the same number of urban and rural enumeration areas was chosen, urban residents were over-sampled in the survey. This is reflected in a comparison of the distribution in the sample in the present survey with that of respondents surveyed in the NDHS conducted at approximately the same time (2003). Respondents in the present survey were also more educated than those interviewed in the 2003 NDHS, most likely because of the over-representation of women from urban areas. To correct for this over-sampling, a weight factor was developed and applied to redistribute the present sample by residence, education status and geographic region. The weight factor was created by first determining the proportion of respondents in each combination of urban/rural residence, education and geographic region in the current study and in the NDHS. Then for each woman in the current study, the proportion of the sample she represents was estimated in both this study and the NDHS; her weight is the ratio of the latter proportion to the former proportion.

In the unweighted sample, 51% of respondents resided in urban areas and 58% had obtained at least a secondary school education. When weight is applied, the distribution reflects that of the NDHS sample, in which 34% of the sample population lives in urban areas and 37% have obtained at least a secondary school education.

Data collection was undertaken through a questionnaire administered using a face-to-face interview approach. The questionnaire, which was prepared in English, contains questions on the following topics: socioeconomic and demographic characteristics of respondents; pregnancy and fertility behaviour and preferences; contraceptive use history and intention; sexual initiation and current sexual activity; experiences of unintended pregnancy and induced abortion; knowledge about abortion laws and attitudes towards induced abortion. A total of 75 male and female health professionals, of which 58 were doctors, participated as field supervisors (14) and interviewers (61). The interviewers and field supervisors underwent two one-and-a-half day training sessions. The first covered the nature and purpose of the study, the structure and content of the questionnaire, the interview setting, practice interviews, questionnaire wording, and strategies for conducting a good interview and solving difficult situations. At the end of the first session the supervisors and interviewers were asked to come up with local words for a set of pre-determined key words from the English version of the questionnaire. This was found to be important in order to ensure uniformity in the way the questions were asked in the local language to respondents who do not understand English. The supervisors and interviewers came to the second session with agreed-upon local words for the selected key words. This session focused largely on further discussion of the wording and meaning of the questions in the questionnaires and on practice interviews using the agreed-upon key words.

In order to preserve the respondents' confidentiality, names of interviewees were not recorded on questionnaires or in any documents for this study. In addition, the importance of confidentiality was addressed during the training of interviewers, and all interviewers signed a form agreeing that they would not reveal to others any

information obtained from subjects. Before beginning the interview, the interviewer sought the consent of the respondent by reading to her an inform consent statement which indicated the purpose of the study, the confidentiality of the responses and that participation was voluntary. The research protocol, including study design, questionnaire and informed consent and how the project will ensure confidentiality of respondents, was reviewed and approved by the Institutional Review Board of the Guttmacher Institute and an ethical review panel consisting of five members of the University of Lagos in Nigeria.

The section of the questionnaire that focuses on unwanted pregnancy obtained detailed information on the last abortion experience for women who had ever tried to obtain one. Three questions were used to identify whether or not a woman had attempted to have an abortion. First, women were asked if they have ever had a pregnancy that they did not want. Second, those who answered no to this question were also asked if they have ever had a pregnancy that would have caused difficulties for them because of their circumstances or the opposition of someone else to the pregnancy, even though they may have desired it. Those who said yes to either of the two questions were asked to indicate how many times this had happened. Then they were asked if they had ever done or used anything to stop a pregnancy. Women who said they had were asked detailed information about the process they took the last time they attempted to obtain an abortion.

All women who had attempted to have an abortion were asked to indicate when the last experience took place and to give the reasons for wanting to terminate the pregnancy. They were asked to report the first thing they did to terminate the pregnancy and whether the pregnancy was stopped then. Those who did not succeed with the first attempt were asked about the total number of steps they took to end the pregnancy. All women with abortion experience were asked detailed questions about where they went, who they saw, what was done, cost of providing the services and type of health consequences they experienced, if any, for each step they took from the first to the last.

Information is provided here on the first step women took to induce an abortion, separately for women who did and did not succeed at their most recent abortion attempt. The characteristics of the final step women took are also presented, only for those who succeeded in having an abortion after taking multiple steps. The abortion-seeking experiences of women who attempted an abortion but failed to terminate their pregnancies are also described.

Among women who succeeded in having an abortion, roles of socio-demographic characteristics as determinants of four elements of the abortion-seeking process are investigated: gestational age of the pregnancy at initiation of the abortion attempt, whether the abortion was initially sought from a non-professional provider, health consequences from the initial step and total number of steps taken to obtain an abortion. Using multivariate logistic regression models, the adjusted associations of socio-demographic characteristics with these features of the abortion-seeking process are presented.

To imply causality, the socio-demographic characteristics should ideally be measured as at (or before) the time of the abortion. While some of the characteristics included in this analysis indicate the woman's status at the time of the abortion,

others refer to her status at the time of the survey. The latter were nevertheless included either because they were considered to be relatively stable over time or because they have been found to be important factors in other studies. Therefore, some cautions are necessary in interpreting the results as causal.

The gestational age of the pregnancy was estimated from women's responses to the question 'How many weeks or months pregnant were you before you tried to do something to stop that pregnancy?' First, all responses given in months were converted to weeks – 76% of women reported gestation in terms of months, 11% in terms of weeks, and 13% provided both the months and the weeks of gestation. Then two weeks were added to the number of weeks reported by respondents to adjust for the fact that women tend to count gestation from the time they expected to have had their menstrual period, whereas, on average, pregnancy occurs at the midpoint of the menstrual cycle (Bongaarts & Potter 1983).

Age, union status and number of living children were measured as at the time of the abortion. Region, residence and religion were measured as at the time of the survey. However, they are assumed to change little over time so that they are likely to be the same for the respondents between the time of the abortion and the survey. On the other hand, women's educational attainment is likely to be more fluid and may have changed from the time they sought an abortion to the time of the survey, particularly among women with a large time span between the abortion attempt and the survey. However, given that many Nigerian women, and particularly older women, have low levels of education, their educational status may not have changed substantially since the time of their abortion attempt. A household wealth index was also included. Although this measure was obtained at the time of the survey and is likely to be variable between the time of the abortion and the survey, it was included because of its importance as a measure of ability to afford obtaining a safe abortion. Also included are approval of partner responsible for the pregnancy, year the abortion took place, gestational age (weeks) of the pregnancy and abortion provision by a non-professional person in all or some of the models.

The household wealth index variable was constructed using the approach developed by Filmer & Pritchett (2001). Extensive information on women's household assets, similar to that usually collected in the DHS, was collected in the survey. Specifically, household possessions included are: radio, television, refrigerator, telephone, air conditioner, fan, computer, generator, microwave, cable television, bicycle, motorcycle, car, donkey/camel, horse, canoe/boat, electricity and the material used for the roof. The wealth index was constructed by applying factor analysis to the information on women's household assets, and respondents were classified into the lowest, middle and highest tertiles of wealth. These three categories are referred to as poor, middle class and rich. A dichotomous variable is also used in some analysis, in which the poorest one-third of respondents were defined as poor and the wealthier two-thirds of women were defined as non-poor.

After comparing the characteristics of women who have and have not attempted an abortion in their lifetimes, analysis of the abortion-seeking process and its determinants are limited to women who last sought an abortion between 1990 and 2003, in order to focus on the abortion experience in Nigeria in the relatively recent past.

Table 1. Percentage of women aged 15–49 who have experienced an unwanted pregnancy and who have attempted an abortion, by region

	All women[a]		Region				
			North		South		
	n	%	*n*	%	*n*	%	*p* value
Was pregnant, did not want to be	777	26·2	463	26·5	314	26·5	0·751
Was pregnant, others did not want her to be[b]	42	1·4	19	1·1	23	1·9	0·048
Total	819	27·6	482	27·6	337	28·4	
Attempted an abortion	425	14·3	209	11·7	216	18·2	<0·001
Attempted an abortion 1990–2003	350	11·7	170	9·5	180	15·1	<0·001
Completed an induced abortion	300	10·1	139	7·8	161	13·6	<0·001
Completed an induced abortion 1990–2003	252	8·7	119	6·8	133	11·6	<0·001

[a]Total number of cases 2978.
[b]Asked only of women who said they did not have a pregnancy that they did not want.

Results

Levels of unwanted pregnancy and abortion

A fairly substantial proportion of the 2978 15- to 49-year-old women in the survey (28%) have had at least one pregnancy that either they did not want at the time of conception or that someone else was opposed to (Table 1, Column 2, Row 3). About half of this group, representing 14% of the total sample, reported that they ever tried to terminate a pregnancy (Table 1, Column 2, Row 4) and 37% of the women who had an unwanted pregnancy, or 10% of the sample, successfully induced an abortion. Altogether, 252 women reported that they had had an induced abortion in the recent period prior to the survey (1990–2003).

Although the level of unwanted pregnancy was similar among women in the northern and southern regions of the country, a larger proportion of women in the south ever had an induced abortion (14% vs 8%) (Table 1, Columns 4 and 6, Row 6). This finding is not unexpected given that motivations for fertility limitation and actual fertility decline appear to be stronger in the south than in the north (Feyisetan & Bankole, 2002).

Characteristics of women sampled

The socio-demographic characteristics of the women in the survey who had ever had sexual intercourse, as well as the prevalence of abortion among the women according to their characteristics, are presented in Table 2. Just over three-quarters of the sexually initiated women (76%) were married and 68% had at least one child.

Table 2. Percentage distribution of ever sexually active women aged 15–49, and percentage of women who ever sought and obtained induced abortions, by socio-demographic characteristics

			Percentage of women in each category of characteristics who:			
	Total sample		Attempted an abortion		Successfully had an abortion	
Socio-demographic characteristics	%	*n*	%	*p* value	%	*p* value
Age						
<20	11·8	318	22·0		16·1	
20–24	21·4	576	14·2		10·7	
25–29	19·3	520	14·1		10·0	
30–34	19·5	525	15·5		10·8	
35–39	12·8	344	17·2		11·5	
≥40	15·1	406	14·3	0·03	9·9	0·10
Parity						
Nulliparous	21·9	591	24·9		20·2	
1–3 live births	37·4	1011	14·2		10·2	
≥4 live births	40·6	1097	11·9	<0·001	6·9	<0·001
Educational status						
None	33·2	902	8·8		4·9	
Some or all primary school	32·7	886	13·1		8·9	
Some or all secondary school	25·3	686	24·6		18·9	
Some or all university	8·8	239	25·6	<0·001	20·3	<0·001
Wealth						
Low	50·0	1357	13·3		8·2	
Middle	28·4	770	14·8		11·6	
High	21·6	587	22·4	<0·001	17·0	<0·001
Residence						
Urban	33·5	910	16·2		11·8	
Rural	66·5	1803	15·4	0·61	10·7	0·38
Region						
North	61·6	1672	12·5		8·4	
South	38·4	1042	20·7	<0·001	15·6	<0·001
Religion						
Catholic	20·0	540	26·9		20·5	
Protestant/spiritual/Pentecostal	35·4	957	17·8		12·5	
Muslim	43·9	1186	8·9		5·6	
Traditional/other	0·8	21	14·3	<0·001	9·5	<0·001
Marital status						
Single	16·2	440	33·0		24·9	
Married	76·5	2073	12·2		8·6	
Divorced/separated/widowed	7·3	196	14·2	<0·001	6·7	<0·001
Ever used contraception						
Yes	29·3	794	29·2		21·8	
No	70·7	1914	10·0	<0·001	6·7	<0·001
Total	100·0	2714	15·8		11·1	

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Fifty-six per cent of the women had little or no schooling and 50% were categorized as poor. Forty-four per cent were Muslim and 55% were Christian. Just under 30% had ever used a modern or traditional method of contraception.

Characteristics of women who sought and obtained an abortion

Close to 16% of sexually initiated women reported that they had ever attempted an abortion. The proportion was higher among nulliparous women (25%), women who had attended secondary school or university (25–26%), and women who had never been married (33%). Catholic women were more likely than women of other faiths to have attempted an abortion (27%). It is important to bear in mind that women's characteristics at the time of the survey may not necessarily reflect their characteristics at the time of the abortion attempt. Thus, whereas a quarter of the women with at least secondary school education had attempted an abortion, they may or may not have achieved that level of schooling at the time of the abortion attempt.

Eleven per cent of sexually initiated women had ever successfully induced an abortion. The patterns of abortion prevalence (proportions who had an abortion) were similar to those of attempted abortion; both abortion prevalence and attempted abortions were relatively higher among single, nulliparous, relatively well-educated women, non-poor women and Catholic women.

The abortion-seeking process, 1990–2003

First step taken to obtain abortion. In order to look more closely at women's abortion-seeking behaviours, women's most recent abortion attempts from 1990 to the time of survey are examined. Just over 80% of the 350 women who attempted an abortion in that period did so in the first trimester of their pregnancies (Table 3). Forty-three per cent of women went to a private hospital or clinic when seeking an abortion. Private clinics include well-staffed facilities and small, private practices of providers with various degrees of training. Another 24% turned to a traditional provider and 23% sought care from a chemist.

Just over a third of women underwent a D&C or manual vacuum aspiration (MVA) when seeking an abortion. The large preponderance of this group reported that they had undergone a D&C, but it is possible that some of these women obtained MVA procedures and were unaware of the specific medical terms for the different procedures. Another quarter ingested a remedy or inserted an object vaginally in an effort to induce an abortion and about 18% took misoprostol (Cytotec) or other tablets.

Women living in the north were less likely than those in the south to seek an abortion in the first trimester of pregnancy (68% vs 92%, respectively), and were more likely to seek care from a traditional healer (38% vs 11%). The most common methods in the north were ingesting a remedy or inserting an object (35%), in contrast to the south where curettage and aspiration were the most frequently used methods (47%).

The reason most often cited by women for seeking an abortion was not being married (26%). Another 19% cited problems with their partners – their partners left,

Table 3. Percentage distribution of women aged 15–49 who attempted an abortion according to region and characteristics of the first step taken, and percentage who experienced complications and successful terminations, 1990–2003

	Percentage distribution of all women who attempted an abortion				Percentage whose abortion attempt: Was successful		Resulted in complications[a]	
	Total	North	South	*p* value	%	*p* value	%	*p* value
Gestational age at 1st abortion attempt (n=330)								
<12 weeks	80·6	68·3	92·3		81·5		20·1	
≥12 weeks	19·4	31·7	7·7	<0·001	50·0	<0·001	50·0	<0·001
Provider of abortion service (n=329)								
Private hospital/clinic	43·0	34·0	51·5		97·8		24·2	
Public hospital/clinic	3·0	4·4	1·8		80·0		0·0	
Chemist	22·7	19·5	25·7		74·7		20·7	
Native doctor/traditional healer	23·9	38·4	10·5		46·1		25·0	
Self or friend (at home)	7·3	3·8	10·5	<0·001	62·5	<0·001	50·0	0·06
Action taken (n=338)								
D&C/vacuum aspiration	35·4	23·2	46·9		98·3		23·9	
Misoprostol/other tablets	18·0	12·2	23·4		77·0		20·0	
Injection	13·3	20·7	6·3		81·8		12·5	
Ingested remedy or inserted object	25·4	35·4	16·0		46·3		35·4	
Other/don't know	8·0	8·5	7·4	<0·001	50·0	<0·001	44·4	0·05
Complications from procedure[b]								
Bleeding (n=295)	4·4	5·2	3·8	0·55	76·9	0·71	na	
Pain (n=313)	11·1	13·1	9·3	0·29	77·1	0·89	na	
Injury (n=244)	7·3	5·4	8·6	0·36	77·8	0·33	na	
Fever (n=250)	8·4	6·1	9·9	0·30	80·0	0·39	na	
Any complication (n=256)	25·3	29·8	22·2	0·17	81·5	0·30	na	

Table 3. *Continued*

	Percentage distribution of all women who attempted an abortion				Percentage whose abortion attempt: Was successful		Percentage whose abortion attempt: Resulted in complications[a]	
	Total	North	South	*p* value	%	*p* value	%	*p* value
Primary reason for abortion (*n*=328)								
Too young/in school	16·9	11·9	21·3		83·9		28·9	
Not married	26·1	34·6	18·5		79·1		18·5	
To stop/space births	16·9	18·9	15·2		75·0		29·3	
Partner left/didn't want/not with father	18·7	11·3	25·3		75·4		21·2	
Other[c]	20·8	22·6	19·1	<0·001	66·2	0·03	35·4	0·31
Discussed abortion decision with someone (*n*=343)								
Yes	63·6	44·3	81·8		78·2		24·0	
No	36·4	55·7	18·2	<0·001	69·4	0·07	27·1	0·59
Partner/husband approved (*n*=315)								
Yes	60·3	42·2	79·2		79·8		21·8	
No or did not know	39·7	57·8	20·8	<0·001	69·8	0·05	29·7	0·17
Number of steps taken in abortion attempt (*n*=338)								
1	82·8	89·1	76·9		81·8		25·2	
2 or more	17·2	10·9	23·1	0·003	46·6	<0·001	27·0	0·75
All abortion attempts	100·0	100·0	100·0		74·7		25·3	

[a]Includes both successful and unsuccessful attempts.
[b]A woman may report more than one complication. Complications include severe bleeding, severe pain, moderate or severe fever and injury.
[c]Includes economic reasons, health reasons and pregnancy was caused by rape.

did not want to have a child, or were not responsible for the pregnancy. Equal proportions of women indicated that they were too young to have a child or were seeking to stop or space births (17%).

More than a third of the women did not discuss the possibility of getting an abortion with anyone, and nearly 40% did not tell their partner or did not have their partner's approval to have an abortion. Women in the north were far more likely than women in the south to seek an abortion without the knowledge or support of another person (56% vs 18%).

One quarter of the women who sought an abortion experienced complications following their initial attempt. A woman's probability of experiencing complications was associated with the gestational age at which she sought the abortion, the provider she went to and procedure she underwent. Fifty per cent of the women who sought the abortion after the first trimester experienced a complication, as did fifty per cent of women who attempted the abortion alone or with a friend. Thirty five per cent of women who ingested a remedy or inserted an object experienced a complication. It is notable that a sizeable proportion (24%) of women who underwent a D&C also experienced complications following the procedure.

Eighty-three per cent of women who sought an abortion made a single attempt at doing so. Perhaps surprisingly, women in the south who sought an abortion were more likely to take multiple steps (23%) than women in the north (11%). This might reflect a greater motivation to have an abortion in the south or greater access to multiple ways to obtain an abortion.

Women who successfully terminated a pregnancy. Seventy-five per cent of women who sought abortions ultimately succeeded in terminating their pregnancies. The probability of success was associated with the gestational age, the provider used, the procedure undertaken and whether the woman had her partner's support in seeking the abortion.

Among the 224 women who successfully terminated a pregnancy in one step, 88% sought the abortion in the first 12 weeks of gestation, 60% obtained an abortion at a private hospital or clinic and more than half underwent aspiration or curettage (Table 4, column 2). Twenty-five per cent experienced a complication and 8% sought treatment for complications.

Women who needed to make more than one attempt before successfully aborting their pregnancies tended to be further along in their pregnancies when they initiated their abortion attempt and were more likely to initially seek help from a chemist or traditional provider. They were far more likely to initially seek an abortion by ingesting tablets or a remedy or by inserting an object into the uterus than women who succeeded in aborting at their first attempt. Nearly 20% of them received treatment for complications they experienced along the way. The following case study presents an actual experience of one of the respondents:

> Ruth was an 18-year-old single woman. She became pregnant at the age of 16, but she didn't want to have a child at the time mainly because she would have to drop out of school. She discussed ending her pregnancy with a friend, as well as with her partner. Ruth made several attempts to end the pregnancy. On the first attempt, she went to the home of a traditional healer where she consumed a native concoction which caused her to bleed mildly. When this attempt

Table 4. Percentage distribution of women aged 15–49 years who successfully induced an abortion, according to characteristics and number of steps taken to complete abortion, 1990–2003

	All completed abortions	Abortions completed in one step	Abortions completed in two or more steps	
			First step	Last step
Gestational age at abortion attempt (n=243)				
<12 weeks	86·9	88·4	73·9	69·6
≥12 weeks	13·1	11·6	26·1	30·4
Provider of abortion service (n=249)				
Private hospital/clinic	54·6	60·2	9·1	76·9
Public hospital/clinic	3·1	3·3	1·3	16·4
Chemist	22·4	19·0	50·1	3·0
Native doctor/traditional healer	14·0	12·2	28·4	3·7
Self or friend (at home)	5·9	5·3	11·1	0·0
Action taken (n=251)				
D&C/vacuum aspiration	46·3	51·8	3·9	92·9
Misoprostol/other tablets	18·6	16·8	34·6	3·3
Injection	14·5	14·1	13·8	0·0
Ingested remedy or inserted object	15·2	12·7	36·3	3·8
Other/don't know	5·3	4·6	11·3	0·0
Complications from procedure[a]				
Bleeding (n=238)	4·0	3·1	12·3	0·0
Pain (n=242)	11·3	12·0	5·8	0·0
Injury (n=208)	6·8	7·0	4·5	4·5
Fever (n=214)	7·6	8·0	3·7	11·7
Any complication (n=199)	24·5	24·6	23·1	12·2
Discussed abortion decision with someone (n=250)				
Yes	65·8	64·8	na	72·0
No	34·2	35·2	na	28·0
Partner approved of abortion (n=234)[b]				
Yes	62·5	61·0	na	72·9
No or partner did not know	37·5	39·0	na	27·1
Received treatment for complications (n=222)[b]				
Yes	8·6	7·6	na	18·6
No	91·4	92·4	na	81·4

[a]A woman may report more than one complication.
[b]Question was asked once of each woman regardless of number of steps required to induce abortion.

failed, she made a second attempt by swallowing pills given to her by a chemist. The mild bleeding continued, but her pregnancy did not end, so she made a final attempt with a nurse who inserted an object into her cervix and then pulled the fetus out. This attempt ended Ruth's pregnancy, but not without several complications including mild injuries, moderate fever and severe pain.

Table 5. Percentage distribution of women aged 15–49 with failed abortion attempts according to region and characteristics of the first step taken, 1990–2003

	Failed abortion attempts			
	Total	North	South	*p* value
Gestational age at 1st abortion attempt (*n*=81)				
<12 weeks	60·0	44·2	78·4	
≥12 weeks	40·0	55·8	21·6	0·002
Provider of abortion service (*n*=75)				
Private hospital/clinic	4·1	2·8	5·4	
Public hospital/clinic	2·7	5·6	0·0	
Chemist	26·0	11·1	40·5	
Native doctor/traditional healer	54·8	80·6	29·7	
Self or friend (at home)	12·3	0·0	24·3	<0·0001
Action taken (*n*=81)				
D&C/vacuum aspiration	1·3	0·0	2·5	
Misoprostol/other tablets	17·5	5·0	30·0	
Injection	8·8	15·0	2·5	
Ingested remedy or inserted object	56·3	67·5	45·0	
Other/don't know	16·3	12·5	20·0	0·01
Complications from procedure[a]				
Bleeding (*n*=56)	5·4	4·2	6·3	0·73
Pain (*n*=67)	11·8	2·9	20·6	0·02
Injury (*n*=35)	11·4	0·0	13·8	0·33
Fever (*n*=34)	12·1	0·0	14·8	0·32
Any complication (*n*=37)	32·4	25·0	34·5	0·61
Discussed abortion decision with someone (*n*=84)				
Yes	54·8	29·5	82·5	
No	45·2	70·5	17·5	<0·0001
Partner/husband approved (*n*=74)				
Yes	48·6	33·3	68·8	
No or did not know	51·4	66·7	31·3	0·003
Number of steps taken in abortion attempt (*n*=81)				
1	61·7	81·0	41·0	
2 or more	38·3	19·0	59·0	<0·0001
Total	100·0	100·0	100·0	

[a]A woman may report more than one complication.

Women who failed in their abortion attempts. Compared with women who succeeded in terminating their pregnancies, women who failed in their abortion attempts were more likely to seek a termination after the first trimester, to seek help from a traditional healer, and to ingest a remedy or insert an object vaginally in their abortion attempts. For example, 40% sought the abortion at or after the 12th week of gestation and 55% went to a native doctor or traditional healer (Table 5). Use of a traditional provider was more prevalent in the north, where 81% of women who

failed in their abortion attempt reported using this type of provider. By contrast, only 30% of women in the south used a native doctor or traditional healer, and 41% sought their abortions from a chemist.

Fully 70% of women in the north who unsuccessfully attempted an abortion had not discussed the issue of having an abortion with anyone, whereas only 18% of women in the south were alone in their attempt. It is also notable that, even among women who failed to terminate their pregnancies, those in the north were far less likely than those in the south to make repeat attempts at terminating the pregnancy (19% vs 59%). The account below depicts the ordeal of one of the respondents who failed in her attempt to obtain an abortion:

> Risi, a 27-year-old married woman with three young children, became pregnant while she was not using contraception and felt it would not be practical to keep the pregnancy for economic reasons. She didn't tell her husband that she intended to terminate the pregnancy because she feared that he would object. At three months gestation, she discussed ending her pregnancy with a friend who recommended that she took dry gin and aspirin. After taking these products, Risi experienced moderate pain and mild fever, but she was still pregnant, so she sought help from a local chemist. He gave her brine and tablets to ingest. However, even after experiencing some bleeding and pain, she did not succeed in ending her pregnancy and gave birth several months later.

Socio-demographic determinants of abortion-seeking behaviour. After controlling for other socio-demographic characteristics, the most significant predictors of seeking an abortion after the first trimester of pregnancy were not being married at the time of the abortion, seeking an abortion without the partner's support or consent, and residing in the north. The odds of seeking an abortion after the first trimester were 2·6 times higher for unmarried women compared with married women, and 6·4 times as high for women in the north as for women in the south (Table 6).

The use of non-professional abortion care providers varied with women's age, parity and wealth status in multivariate analysis. The odds of adolescent women turning to a non-professional provider were 2·6 times as high as the odds among older women, and poor women had a 2·4-fold greater odds of using a non-professional provider than non-poor women. Women who sought their abortion in the most recent period prior to survey and those who did not have their partner's support had more than twice the odds of using a non-professional provider as women who had their last abortion earlier in time, controlling for other factors.

Whether or not women who obtained abortions experienced complications was not highly dependent on women's socio-demographic characteristics in multivariate analyses. Only parity and gestational age were significant determinants of this outcome. Women with 1 to 3 children had an odds ratio of experiencing complications of 0·4 compared with women of higher parity. Women seeking an abortion after the first trimester had nearly four times the odds of having a complication as women who had an abortion in the first trimester.

The type of provider used when an abortion was initiated is the most important determinant of the number of steps a woman took to obtain an abortion in Nigeria. Women who first attempted to obtain their abortions from non-professional providers had sixteen times the odds of requiring more than one step to complete the abortion, as those who initially saw a professional provider, after controlling for other factors

Table 6. Odds ratios of the associations of socio-demographic characteristics with gestational age, type of abortion provider, health consequence at initial abortion attempt, and number of steps taken to end pregnancy, 1990–2003

	Model 1	Model 2	Model 3	Model 4
Socio-demographic characteristics	Twelve or more weeks of gestation	Non-professional provider at first attempt	Moderate or severe complications	Two or more attempts to end pregnancy
Age at time of attempt				
<20	1·28	2·59***	0·67	0·77
20 or older (Ref.)				
Union status at time of attempt				
In union (Ref.)				
Not in union	3·59***	1·10	1·09	0·68
Residence				
Urban (Ref.)				
Rural	1·21	0·36	0·61	0·81
Region				
North	6·41***	0·79	1·48	0·50
South (Ref.)				
Religion				
Catholic	1·56	1·87	0·52	0·42
Protestant	3·81*	1·80	1·10	0·97
Muslim (Ref.)				
Traditional/other	1·12	—	—	—
Number of living children at time of attempt				
0	2·97*	0·56	0·50	0·75
1–3	2·10	0·40**	0·39*	0·77
4+ (Ref.)				
Educational status				
<Secondary	1·10	1·00	0·83	1·07
Secondary or higher (Ref.)				

Table 6. *Continued*

Socio-demographic characteristics	Model 1 Twelve or more weeks of gestation	Model 2 Non-professional provider at first attempt	Model 3 Moderate or severe complications	Model 4 Two or more attempts to end pregnancy
Wealth				
Low	2·05	3·42***	2·37	0·67
Middle	1·18	1·49	1·48	0·54
High (Ref.)				
Partner's approval of attempt				
Approved (Ref.)				
Disapproved/was not informed	2·24**	2·37***	1·32	0·30***
Year of the attempt				
1990–1994	1·25	1·22	0·73	0·36
1995–1999 (Ref.)				
2000–2003	1·63	2·19***	1·32	0·93
Gestation age of pregnancy at first attempt				
<12 weeks (Ref.)				
12 weeks or more		1·50	3·86***	2·90**
Saw non-professional provider at first attempt				
No (Ref.)				
Yes			0·98	15·61***
Number of cases	384	372	293	367

Ref. = reference category.
*$p \leq 0{\cdot}1$; **$p \leq 0{\cdot}05$; ***$p \leq 0{\cdot}01$.

including the gestational age at abortion and the year in which the abortion occurred. Interestingly, women who sought their abortions without the partners' knowledge or support had 0·3 odds of requiring additional measures to try to obtain the abortion, compared with women who had their partner's support. It may be that women who undertook this process alone and failed after the initial attempt were more likely to carry the pregnancy to term than women who had the help of their partners in seeking an abortion.

Discussion

In Nigeria, as in most countries in sub-Saharan Africa, the nature and magnitude of the impact of unsafe abortion on women's health, family well-being and societal resources are yet to be fully appreciated. Under Nigerian law it is a criminal offence to perform or obtain an abortion except to save a woman's life; in addition, religious doctrines prohibit abortion and social norms oppose the practice. Therefore, most women seek abortions clandestinely and a high proportion seek care under unsafe conditions. The goal of this paper is to contribute to a better understanding of the circumstances surrounding abortion in Nigeria by using empirical evidence, based on women's own reporting, to shed light on the measures women take and the risks they face to obtain an abortion.

Findings from this study show that 14% of women of reproductive age in Nigeria reported that they had attempted an abortion, and about 10% of all interviewed women had, in fact, had an abortion. Given that abortion is restricted by law, it is likely that some women did not report their abortion experiences and that the above figures are underestimates of the level of induced abortion experience among women in the country. Nevertheless, these findings are comparable to those from another community-based study conducted in the towns of Jos and Ife in 1995–1996, in which 20% of women reported that they had attempted an abortion and 11% successfully terminated a pregnancy (Okonofua *et al.*, 1999).

This paper corroborates other studies which show that abortion is more prevalent among younger than older women and the primary reason these women seek abortions in the recent past is to avoid early births (Bankole *et al.*, 1998). Nearly half of women cited either their single status or the fact that they were still in school as the primary reason for seeking an abortion. Some hospital-based studies show that up to 80% of patients admitted for complications associated with abortions were adolescents (Adewole, 1992). Young people are increasingly deciding to delay marriage and childbearing and to obtain more education and better job prospects. As this trend increases, the incidence of abortion among young women is likely to rise unless their use of contraception increases (Oye-Adeniran *et al.*, 2005). A study based on focus group discussions with adolescent women noted that young Nigerian women resort to abortion to prevent unwanted births because they perceive the adverse effects of modern contraceptives on fertility to be persistent, while they regarded abortion as an immediate solution with little long-term impact (Otoide *et al.*, 2001). This suggests that young women need better education and counselling to help them understand the benefits of contraception, to address any misconceptions about methods and to advise them if they do experience side-effects. With the spread of HIV/AIDS in countries of

sub-Saharan Africa, including Nigeria, efforts to promote the sexual and reproductive health of adolescent women should be a high priority given their vulnerability to unwanted pregnancy and STIs.

Contrary to general perception, women who obtain abortions in Nigeria tend to do so relatively early in their pregnancies: 87% sought abortions before the 12th week of gestation. However, while taking action early in the pregnancy may reduce the risk of complications associated with unsafe abortions, a high proportion of Nigerian women are seeking abortions from untrained providers. Just over half of women who attempted an abortion used an untrained provider, and 40% initiated their abortion attempt by ingesting a remedy, receiving an injection, or inserting an object vaginally. Women who seek abortion from untrained providers or induced the abortion themselves may be doing so either to avoid stigma or because of the higher cost of obtaining the service from qualified providers. There is a need for better information and education, especially among women with little formal education, to acquaint them with the potential risk of seeking abortions from untrained providers or trying to induce abortions by themselves.

Overall, 10% of women who successfully induced an abortion made two or more attempts before finally succeeding. Even among women who made only one attempt, a significant proportion experienced complications, suggesting that many of those one-time attempts were unsafe. Both protracted abortion-seeking processes and complications experienced by women who make one attempt may have far reaching implications in terms of costs to the woman, her family and society of treating post-abortion complications and opportunity costs, including loss of productivity. A recent study of women admitted into 33 urban hospitals for abortion-related reasons and their health care providers found that the cost to patients alone of treating complications from induced abortions was about 13,800 Naira (US$115), on average (Henshaw *et al.*, 2005).

One-quarter of women who had an abortion experienced at least one complication, and 9% sought treatment for complications from their abortion procedure. The nature and severity of the health consequences of unsafe abortion can vary widely depending on the circumstances around the abortion procedure. The present study did not obtain information on the specific medical complications experienced because it was limited to women's self-reports. However, a 2003 study of physicians' reports on 496 women admitted for abortion complications in urban hospitals found high levels of numerous complications, including retained products of conception (50%), haemorrhage (34%), fever (35%), sepsis (34%), pelvic infection (22%), instrumental injury (11%), shock (4%) and death (3%) (Henshaw *et al.*, 2005). The experience of complications and the use of health care facilities to treat them are indicative of the burden of unsafe abortions on women, their families and the health care resources of Nigeria.

The study presented here did not find a significant difference in the risk of complications (any complication) by whether abortions were performed by trained or non-trained providers. However, findings from another study indicated that some types of complications may be associated with type of provider. That study found that the likelihood of heavy bleeding after an abortion did not differ by type of provider, but abortions provided by doctors were less likely to result in a fever compared to those provided by non-doctors (Mitsunaga *et al.*, 2005).

The findings of this study show that many Nigerian women are taking significant risks to terminate unwanted pregnancies. As noted earlier, many women have died as a result of unsafe abortion while others have suffered serious health consequences. Unless the issue is addressed, this trend is likely to continue. Reducing the incidence of unwanted pregnancy and unsafe abortion can significantly impact the reproductive health of women in Nigeria. Policy and programme efforts can advance this aim by focusing on expanding knowledge about and access to contraceptive services as well as providing education and information aimed at addressing obstacles to contraceptive demand. Family planning programmes should provide a wide range of contraceptive methods, educate women about the various methods that exist and their side-effects, help them decide which would be best for them and then set up the services and supply systems necessary to make each method consistently available. Counselling of women choosing a contraceptive method should emphasize the long-term safety of modern methods.

While the effort to reduce unwanted pregnancy and abortion should be intensified as a matter of priority, there is an equally urgent need to equip hospitals with the ability to provide adequate post-abortion care, including necessary equipment and drugs to attend to different types of complications and contraceptive counselling and services, for women who are hospitalized for abortion complications. National policies should emphasize the availability and used of manual vacuum aspiration (MVA) at public and private health facilities that attend to women seeking care for incomplete abortions, as well as ensuring that post-abortion care services include mandatory contraceptive counselling for women on how to prevent future unwanted pregnancies. At the same time, to ensure safe implementation of criteria under which abortion is legally permitted (to save a woman's life), access to safe and effective services is of prime importance. This can be achieved in part by training providers in safe abortion techniques, particularly the use of MVA for first-trimester abortions. Further research aimed at providing empirical evidence of the health consequences and the social and economic burden of unsafe abortion in the country as a whole is needed to further support the efforts of policy-makers and programme planners to improve conditions for women in Nigeria.

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