

Unmet needs for contraception in formal and informal neighborhoods of Ouagadougou

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Abstract (148 words)

Although fertility remains high in rural Burkina Faso, the fertility transition is well advanced in urban areas (TFR = 3.4 in Ouagadougou 2010 DHS), and contraceptive prevalence is higher in cities (38% current contraceptive users among married women in Ouagadougou 2010 DHS). Little is known about contraceptive use differentials within cities, except that richer and more educated women are more likely to use contraception and to have fewer births. Cities are made of formal and informal neighborhoods, the latter being inhabited more often by poor families and women having migrated from rural areas. In this paper, we will investigate differences in need for contraception and contraceptive use between formal and informal neighborhoods in Ouagadougou, using data from the Ouaga Demographic Surveillance System collected since the end of 2008. The aim of this analysis is to contribute programmatic recommendations for urban family programs working in informal and formal settlements.

Introduction

Although fertility remains high in rural Burkina Faso (6.7 children per women in rural areas according to the Demographic and Health Survey 2010), the fertility transition is well advanced in urban areas: women have 3.4 children on average in the capital city Ouagadougou according the last DHS. The level of fertility is driven down by a later age at marriage for women in the city (median age at marriage = 20.0 in Ouagadougou against 17.6 in rural areas, 2003 DHS) and higher contraceptive use within marriage (38% current contraceptive users among married women in Ouagadougou against 11% in rural areas, 2010 DHS). Pre-marital fertility rates remain low, even in the city (Sawadogo, 2001).

Contraceptive use in urban Africa has retained little attention so far from researchers and programmatic actors, because its prevalence is on average higher in cities than in rural areas. However, socioeconomic disparities are important in cities, and poor urban residents may have difficulties accessing family planning services. Moreover, since the continent is undergoing rapid urbanization, the sheer number of poor urban residents is increasing rapidly. In Burkina Faso, 26% of the population is residing in urban areas (2006 census), and 20% of the urban population is living under the poverty line against 52% in rural areas (INSD 2009). About 5% of the 12 million inhabitants of Burkina Faso in 2006 can thus be labeled as “urban poor” (about 600 000 individuals). In 2030, the country is expected to count 29 million people (Guengant 2009, medium projection), and 40% of them are expected to live in cities. Under the assumption of a constant urban poverty rate, there will be 2.5 million urban poor in Burkina Faso in 2030. It becomes therefore urgent to study the specificities of contraceptive demand, contraceptive use and service delivery in African cities, especially for the poorest segment of the population.

Ouagadougou, like other African cities, is growing rapidly: it counted 170 000 inhabitants in 1975 and 1.5 million in 2006 according to census data; 5.8 million people are expected to live in the capital by 2030. The growth of Ouagadougou has been accompanied by an impressive geographical expansion, and its peripheries are the home of the younger generations of native Ouagalese and of migrants coming predominantly from rural Burkina Faso (Fournet et al. 2008, Boyer and Delaunay 2009). If part of these new peripheries are formal (and sometimes wealthy) neighborhoods, part of them are illegal settlements: the latter are called “quartiers non lotis” in the local idiom. These informal neighborhoods are devoid of public services (water, schools, health centers, etc.). They are estimated to provide a home to 33% of the population of Ouagadougou in 2008 (Boyer and Delaunay 2009).

In this paper, we will investigate the differences in women’s contraceptive need and use between formal and informal neighborhoods in Ouagadougou, controlling for other indicators of socio economic well-being and demographic characteristics (wealth of the household, women’s place of birth, age, marital status, educational level, number of children). We will use data from the Ouagadougou Demographic Surveillance System (Ouaga DSS). The Ouaga DSS is a platform of research and interventions following since the end of 2008 about 80 000 people at the periphery of Ouagadougou, half of them living in informal neighborhoods.

Literature and hypotheses

The literature shows that women migrating from rural areas to cities in Africa have higher fertility intentions than natives, and thus lower need for contraception, while having lower fertility goals and outcomes than women who remained in rural areas (Chattopadhyay et al. 2006). In the Ouaga DSS, 41% of residents aged 15 or more were born in rural Burkina Faso in formal neighborhoods, and 64% in informal ones (Rossier et al. 2011a). The literature also shows wealthier and more educated women have a higher demand for fertility control, and fewer births. In the neighborhoods followed by the Ouaga DSS, 36% of adults aged 15 and more never went to school in formal areas, and 59% in informal ones (Rossier et al. 2011a). Moreover, 27% of households are defined as poor in the formal areas of the Ouaga DSS, against 66% in informal ones, according to a proxy indicator of wealth constructed with data on the possession of goods (Rossier et al. 2011 b). Because informal neighborhoods are more frequently inhabited by women born in rural areas, uneducated women, and poorer women, we expect women to have lower needs for contraception there.

However, as mentioned, Ouagadougou is a rapidly expanding city, and new neighborhoods are constantly growing at its fringes. Peripheral informal neighborhoods in Ouagadougou are areas of future urban development, and its inhabitants hope to obtain a legal plot of land one day by living there. First results of the Ouagadougou Demographic Surveillance System (Rossier et al. 2011a) show that most inhabitants of informal neighborhoods are (informal) owners of the plot of land they occupy, and are predominantly made of either young families (families with small children) or single men trying to establish themselves. Married women have higher desires for fertility control than unmarried one in this context where part of unmarried women abstains from sexual relations. The need for contraception may therefore be higher in informal neighborhoods than in formal ones because most women in reproductive ages living there are married.

At the same time, premarital sex is becoming more common on the continent, especially in cities (Gupta 2003; Mensch et al. 2006, Delaunay and Guillaume 2007). According to the 2003 DHS, 35% of single women aged 15 to 24 had sexual intercourse during the past year in urban Burkina Faso (against 19% in rural areas). We thus expect some need for contraception among unmarried women in both types of neighborhoods. Since unmarried women in reproductive ages are rare in informal areas, we expect unmarried women's need for family planning to be of numeric importance especially in formal areas.

The next question we want to answer is: what proportion of women's needs for family planning is met by contraceptive use in both types of neighborhoods? Women living in informal areas may have more difficulties in accessing contraception: they are more likely to be migrants from rural areas, poor, and uneducated. Their knowledge of contraceptive methods and delivery facilities may thus be lower; these women are also located farther away from health facilities and pharmacies. These difficulties would translate into a higher unmet need for family planning in informal neighborhoods. On the other hand, women living in formal neighborhoods are more likely to use contraception when they want to avoid a pregnancy, because they are more educated and closer to health infrastructures. However, this advantage may be true only for married women. Single young women, even when they live in formal neighborhoods, are indeed likely to use (medical) contraception infrequently. Research on the reproductive health of non-married youth in Africa shows that this population sub group experiences many difficulties in using contraception (Cleland and Ali 2006,

Guiella Woog 2006, Bankole et al 2007), resulting in very high rates of unsafe induced abortion especially among young urban dwellers (Rossier et al. 2006, Kabore et al. 2009, Sedgh et al. 2011).

Altogether, because these two factors of unmet need for family planning (that is, need for family planning and contraceptive use) act in opposite directions, it remains to be seen whether poor, migrant, uneducated women and women living in informal neighborhoods have greater unmet need for family planning in Ouagadougou compared to more advantaged ones.

Data and methods

In 2010, the population of the Ouagadougou Demographic Surveillance System (www.issp.bf/OPO) was estimated at 79,444 residents, half of them living in informal neighborhoods. After an initial census in 2008-2009 (Round 0), we collected data on all vital events (births, deaths, migrations, unions) during two rounds (Round 1 in 2009 and Round 2 in 2010). At Round 2, in the frame of a representative health survey, we collected data on contraceptive need and use from 758 women aged 15 to 49.

The questions asked were those of the 2003 DHS. Women in need of family planning are defined as women who are in a union or ever had sex when not married, are not pregnant, and do not want a child in the next two years at the time of the survey. The question on current contraceptive use is phrased as follows, as in the 2003 DHS:

“En ce moment, faites-vous quelque chose ou utilisez-vous une méthode pour éviter de tomber enceinte ? » (several answers possible, the respondent enumerates the methods used)

In addition to this classical question, we introduced four new ones to pick up on natural method use, naming them (withdrawal, periodic abstinence, exclusive breastfeeding, postpartum abstinence), and then asking women whether they were currently using each of them (whatever their previous answers). Women indeed often forget to mention natural methods when talking about family planning, because they do not view these methods as “contraception”. The use of natural methods is however often large at the time medical contraception is introduced in a population. Researchers working on the first contraceptive surveys in France to follow the diffusion of medical contraception in that country added questions on natural methods to be sure to measure them correctly (Rossier and Leridon 2004, Sardon 1986). We followed this example here. When a woman declared using several methods at the same time, we classified her according to the most effective method; the ranking of methods we used is to be found in Table 6.

The independent variables used are: women’s age, marital status (living in a union or not¹), number of previous live births, educational attainment, place of birth, type of neighborhood (formal or informal), and a wealth indicator at the household level constructed based on the ownership of several goods (refrigerators, televisions, bicycle, motorcycle) (see Rossier, Soura et al 2011b for a description of this proxy measure of poverty).

¹ Individuals are “in union” when the partners are cohabitating, or when they have performed one or several marriage ceremony (civil, religious, traditional). Given a social bias towards linking unions to marriage ceremonies in this context, some women reported as “never married” are nevertheless cohabitating with their partner.

We perform a series of bivariate analyses to examine the distribution of women’s need for family planning across neighborhood types and varied subgroups of the population. We then examine what different modes of questioning contribute to reports of contraceptive use. Finally, we perform a series of multivariate analyses (logistic regressions) to contrast women using medical methods against all others, and women using any methods against women using no method at all. All the results are weighted.

Results

Altogether, 58% of women in the sample wants to avoid a pregnancy at the time of the survey (Table 1). Also, 8% of women are pregnant and 22% want to be pregnant in the next two years. As expected, the proportions of pregnant women / women seeking a pregnancy in the next two years are lower in the 15-19 age group, higher when women are in their 20s, and decreases thereafter. Besides, as much as 49% of women aged 15 to 19 never had sexual intercourse: these data underline the fact that a fair share of young women still practice premarital abstinence in the city (Rossier, Sawadogo, Soubeiga, 2011). As a combined effect of these different dimensions, need for contraception increases with age; however, about one third of women aged 15 to 19 still are in need for contraception according to our figures.

Table 1. Need for family planning according to age, health survey 2010, Ouaga DSS

| | | Age | | | | | | | Total |
|--|---|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | |
| WOMEN NOT EXPOSED TO PREGNANCY RISK | Never had sexual intercourses | 49% | 9% | 2% | 2% | 0% | 0% | 0% | 12% |
| | Currently pregnant | 5% | 15% | 8% | 6% | 4% | 4% | 0% | 8% |
| | Sub total | 54% | 24% | 10% | 8% | 4% | 4% | 0% | 20% |
| WOMEN EXPOSED TO THE RISK OF PREGNANCY | Willingness to have a child in the next two years | 18% | 26% | 30% | 22% | 20% | 6% | 3% | 22% |
| | Women who do not want to have a child in the next two years | 28% | 50% | 60% | 70% | 76% | 91% | 97% | 58% |
| | Sub total | 46% | 76% | 90% | 92% | 96% | 96% | 100% | 80% |
| n | | 137 | 177 | 166 | 99 | 70 | 54 | 32 | 735 |

The picture is similar when looking at need for family planning by marital status. The figures for never married women are very close to those for women aged 15 to 19: 44% never had sex and one third (32%) are in need of family planning, that is, ever had sex and want to avoid a pregnancy. Still, about one unmarried woman out of four are either pregnant (4%) or want a child in the next two years (20%), indicating that a share of unmarried women are in relationships which they see as close to

family formation (see Rossier, Sawadogo, Soubeiga, 2011). Divorced or widowed women are a group with high needs for family planning, but they are also a group which is numerically low in the study areas (Rossier et al 2011a).

Table 2. Need for family planning according to marital status, health survey 2010, Ouaga DSS

| | | Marital status | | | Total |
|------------------|---|----------------|---------|---------------------|-------|
| | | Never Married | Married | Divorced or widowed | |
| Unexposed | Never had sexual intercourses | 44% | 0% | 0% | 12% |
| | Currently pregnant | 4% | 10% | 0% | 8% |
| Exposed | Wants a child in the next two years | 20% | 24% | 0% | 22% |
| | Does not want a child in the next two years | 32% | 66% | 100% | 58% |
| N | | 201 | 507 | 27 | 735 |

Needs for family planning in formal and informal neighborhoods

Altogether, women's need for family planning is higher in informal neighborhoods than in formal ones (63% against 54% of women aged 15 to 49) (Table 3), and this despite the fact that women living in informal areas are less educated, poorer and were more often born in rural areas. This difference is significative.

Table 3. Need for family planning according to type of area, health survey 2010, Ouaga DSS

| | | Type of neighborhood | | Total |
|------------------|---|----------------------|----------|-------|
| | | Formal | Informal | |
| Unexposed | Never had sexual intercourses | 18% | 5% | 12% |
| | Currently pregnant | 6% | 10% | 8% |
| Exposed | Wants a child in the next two years | 22% | 21% | 22% |
| | Does not want a child in the next two years | 54% | 63% | 58% |
| N | | 390 | 345 | 735 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|--------|----|-----------------------|
| Pearson Chi-Square | 32,814 | 3 | ,000 |
| Likelihood Ratio | 34,822 | 3 | ,000 |
| Linear-by-Linear Association | 15,111 | 1 | ,000 |
| N of Valid Cases | 735 | | |

This counterintuitive result is explained by the fact that the female population in reproductive ages living in informal areas is predominantly married (only 12% of women aged 15 to 49 interviewed in the health survey are never married in informal neighborhoods against 41% in formal ones). Among never married women, a much higher proportion are pregnant (and presumably cohabiting with their partner or some of its family members) in informal neighborhoods (43%) compared to never married women in formal neighborhoods (3%) (Table 4).

Table 4. Need for family planning type of area and marital status, health survey 2010, Ouaga DSS

| Type of neighborhood | | Never Married | Married | Divorced widowed | Total |
|----------------------|---|---------------|---------|------------------|-------|
| Formal | Never had sexual intercourses | 44% | 0% | 0% | 18% |
| | Currently pregnant | 3% | 8% | 0% | 6% |
| | Wants a child in the next two years | 21% | 24% | 0% | 22% |
| | Does not want a child in the next two years | 31% | 68% | 100% | 54% |
| | Total | 100% | 100% | 100% | 100% |
| | n | 159 | 218 | 13 | 390 |
| | | 41% | 56% | 3% | 100% |
| Informal | Never had sexual intercourses | 43% | 0% | 0% | 5% |
| | Currently pregnant | 43% | 0% | 0% | 5% |
| | Wants a child in the next two years | 7% | 11% | 0% | 10% |
| | Does not want a child in the next two years | 14% | 23% | 0% | 21% |
| | Total | 42 | 289 | 14 | 345 |
| | n | 12% | 84% | 4% | 100% |

To state this result differently, in formal neighborhoods, one quarter (24%) of the demand for family planning (50 women out of 211) comes from unmarried women. In informal neighborhoods, only 7% of the demand for family planning (15 women out of 218) comes from unmarried women.

Contraceptive use

The 2010 DHS preliminary report gives the proportion of women in union (aged 15 to 19) using a method of contraception in Ouagadougou: 37.6% of married women use a method and 32.5% use a modern method. When computing comparable figures from our sample, we find that 31% of all married women aged 15 to 49 use a modern method of contraception. These numbers statistics are close, which indicates that married women’s contraceptive use patterns in informal neighborhoods may not be different from those of more advantaged women.

In the reminder of the analyses, we will work only with women defined as in need of pregnancy prevention (n=429) (women aged 15 to 49, who ever had sex, not pregnant and who do not want a child in the next two years). When using the classical question on current contraceptive use, we find that 50% (215) of them use a method of contraception, 63% a modern method and that unmet need does not vary with age (Table 5).

When we add all the women who answered positively to one of the follow up questions on natural methods, the share of women with met needs of family planning increases sharply, from 50% to 76%

(Table 5 and 6). The difference in reports is especially striking at younger ages: young women more often underreport their contraceptive methods. The new questioning approach yields a rate of met need of 58% for women aged 45 to 49 (against 52% in the classical approach), while the same figures are respectively 79% of met need and 53% among women aged 15 to 19. As a result, a trend by age emerges for unmet need of family planning: unmet need increases at older reproductive ages (for women aged 40 and over). This trend is likely, since women in older reproductive ages in this context may perceive themselves as less fertile and be less proactive in trying to avoid a conception.

Table 5. Unmet need for contraception, classical question on current contraceptive use, health survey 2010, Ouaga DSS

| | | Age | | | | | | | Total |
|-------------------------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | |
| Women who use contraception methods | No | 47% | 44% | 52% | 58% | 47% | 51% | 48% | 50% |
| | Yes | 53% | 56% | 48% | 42% | 53% | 49% | 52% | 50% |
| Total | | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| N | | 38 | 89 | 100 | 69 | 53 | 49 | 31 | 429 |

Table 6. Unmet need for contraception, classical question on current contraceptive use with follow up questions on natural methods, health survey 2010, Ouaga DSS

| | | Age | | | | | | | Total |
|-------------------------------------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | |
| Women who use contraception methods | No | 21% | 19% | 23% | 17% | 23% | 37% | 42% | 24% |
| | Yes | 79% | 81% | 77% | 83% | 77% | 63% | 58% | 76% |
| Total | | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| N | | 38 | 89 | 100 | 69 | 53 | 49 | 31 | 429 |

In the rest of the analysis, we use contraceptive use figures collected with the “new” approach. We categorize contraceptive methods in two ways. First we distinguish modern methods versus traditional methods like in the DHS (Table 6a); we also distinguish medical methods, versus the condom, versus natural methods (Table 6b).

The condom is a method used mainly by young women in our sample: close to one third (27%) of contraceptive users aged 15 to 19 are condom users, compared to none among women aged 40 and over (Figure 1). In the opposite, medical methods of contraception are quite common among older contraceptive users (50% of women aged 40 years and older), but rare among the youngest contraceptive users (10%).

Natural methods are popular at every age. Periodic abstinence is the most often used natural method in our sample, at every age: a quarter (24%) of users relies on this method. Breastfeeding is also common: 12% of contraceptive users rely on it. Breastfeeding is an official family planning method in Burkina Faso: post-partum women are instructed they do are protected from pregnancies in the first 6 month after a birth, if they are breastfeeding and if the baby is not taking solid food. Withdrawal is practically unknown in this population.

Table 6a. Contraceptive methods used by age, health survey 2010, Ouaga DSS, all methods

| Methods | Age | | | | | | | Total |
|----------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | |
| Modern methods | 37% | 38% | 44% | 46% | 44% | 35% | 50% | 42% |
| Sterilization woman | 0% | 0% | 0% | 0% | 2% | 0% | 0% | 0% |
| Sterilization man | 3% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Pills | 7% | 15% | 16% | 18% | 17% | 23% | 17% | 16% |
| IUD | 0% | 0% | 1% | 2% | 2% | 0% | 0% | 1% |
| Injection | 0% | 10% | 14% | 14% | 15% | 10% | 11% | 11% |
| Implant | 0% | 4% | 6% | 5% | 0% | 3% | 22% | 5% |
| Condom | 27% | 8% | 6% | 7% | 7% | 0% | 0% | 8% |
| Tablets | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Traditional methods | 63% | 63% | 56% | 54% | 56% | 65% | 50% | 58% |
| Breastfeeding | 17% | 17% | 10% | 11% | 5% | 13% | 11% | 12% |
| Periodic abstinence | 13% | 22% | 30% | 26% | 27% | 26% | 6% | 24% |
| Withdrawal | 0% | 1% | 0% | 0% | 0% | 0% | 0% | 0% |
| Abstinence | 33% | 22% | 16% | 18% | 24% | 26% | 33% | 22% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| N | 30 | 72 | 77 | 57 | 41 | 31 | 18 | 326 |

Table 6a. Contraceptive methods used by age, health survey 2010, Ouaga DSS, groups of methods

| Methods | Age | | | | | | | Total |
|-----------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|
| | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | |
| Medical methods | 10% | 29% | 38% | 39% | 37% | 35% | 50% | 34% |
| Condom | 27% | 8% | 6% | 7% | 7% | 0% | 0% | 8% |
| Natural methods | 63% | 63% | 56% | 54% | 56% | 65% | 50% | 44% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| N | 30 | 72 | 77 | 57 | 41 | 31 | 18 | 326 |

Abstinence also is common (22%), especially at the extreme ends of the reproductive life span. However, questions about this “natural method” may need further refinements in future surveys: indeed, women seem to have reported here instances of voluntary abstinence (premarital and postpartum), which can be assimilated to voluntary pregnancy prevention, as well as cases of

involuntary abstinence (when the partner is absent, in case of sickness, when the partners do not get along, etc.), which should not be classified as an action towards pregnancy prevention.

Figure 1: Use of the condom, medical methods and natural methods by age, health survey 2010, Ouaga DSS

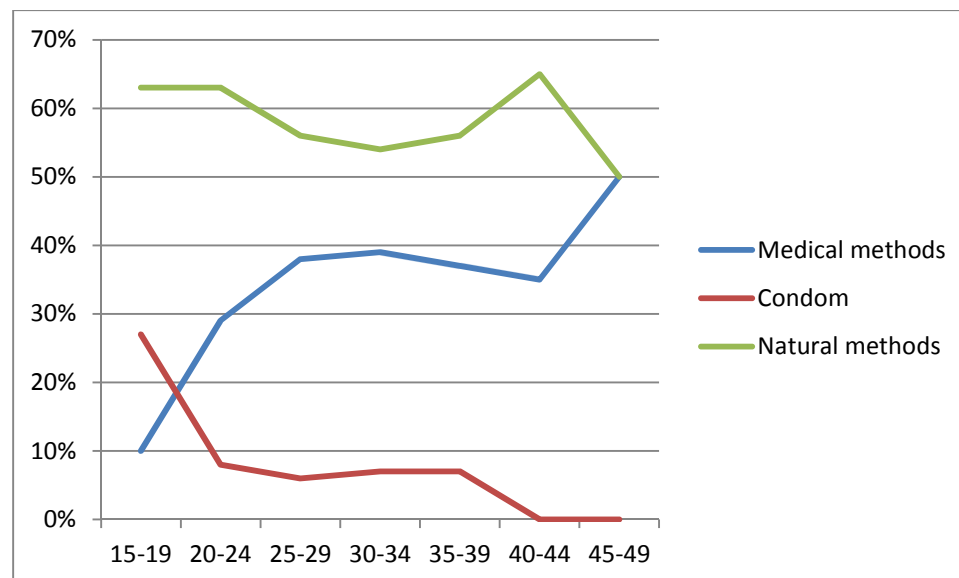


Table 7. Use of any methods, all women in need of family planning, health survey 2010, Ouaga DSS

| Logistic regression | | B | S.E. | Wald | df | Sig. | Exp(B) |
|---------------------|------------------------|--------|------|--------|----|-------------|--------|
| Age | 15-24 | | | | | | 1 |
| | 25-34 | -,181 | ,363 | ,247 | 1 | ,619 | ,835 |
| | 35-44 | -,792 | ,477 | 2,755 | 1 | ,097 | ,453 |
| | 45-49 | -2,021 | ,633 | 10,213 | 1 | ,001 | ,132 |
| Birth Place | Ouagadougou | | | | | | 1 |
| | Autres villes BF | -,211 | ,564 | ,139 | 1 | ,709 | ,810 |
| | Rural area in Burkina | -,467 | ,344 | 1,843 | 1 | ,175 | ,627 |
| | Exterieur | -,549 | ,421 | 1,698 | 1 | ,193 | ,578 |
| Marital status | married | -,688 | ,686 | 1,006 | 1 | ,316 | ,502 |
| Educational level | None | | | | | | 1 |
| | Primary | -,118 | ,339 | ,122 | 1 | ,727 | ,888 |
| | Secondary and Tertiary | ,520 | ,409 | 1,621 | 1 | ,203 | 1,683 |
| Type of zone | non lotie | -,247 | ,317 | ,604 | 1 | ,437 | ,781 |
| classe | Poor | | | | | | 1 |
| | Medium | ,085 | ,293 | ,084 | 1 | ,771 | 1,089 |
| | High | -,488 | ,549 | ,790 | 1 | ,374 | ,614 |
| Live births | None | | | | | | 1 |
| | 1-3 | 1,094 | ,718 | 2,325 | 1 | ,127 | 2,987 |
| | >3 | 1,751 | ,801 | 4,779 | 1 | ,029 | 5,763 |
| | Constant | 1,400 | ,534 | 6,878 | 1 | ,009 | 4,055 |

What are the factors associated with contraceptive use among women in need of family planning (single and married women taken together)? An analysis of the characteristics of women who do use *any* methods (modern and traditional) versus women who do not use any methods show that the only difference is that women at the oldest reproductive ages are less likely to protect themselves, and that women with more than three live births are more likely to use any method (Table 7). This last result shows that practices of family limitation are common in Ouagadougou, as expected. It is important to underline that non married women are as likely to use a method as married ones, when natural methods are taken into account. Finally, we see that when we take both types methods (modern and traditional) into account, there are no socioeconomic differential in unmet need.

Table 8. Modern method use, married women in need of family planning, health survey 2010, Ouaga DSS

| Logistic regression: | | B | S.E. | Wald | df | Sig. | Exp(B) |
|--------------------------|----------------------|-------|------|-------|----|-------------|--------|
| Age | 15-24 | | | | | | 1 |
| | 25-34 | ,024 | ,316 | ,006 | 1 | ,941 | 1,024 |
| | 35-44 | -,097 | ,371 | ,068 | 1 | ,794 | ,908 |
| | 45-49 | -,238 | ,553 | ,185 | 1 | ,667 | ,788 |
| Birth Place | Ouagadougou | | | | | | 1 |
| | Other cities Burkina | -,548 | ,541 | 1,023 | 1 | ,312 | ,578 |
| | Rural Burkina | -,630 | ,305 | 4,280 | 1 | ,039 | ,532 |
| | Foreign | -,526 | ,392 | 1,808 | 1 | ,179 | ,591 |
| Educational level | None | | | | | | 1 |
| | Primary | ,202 | ,315 | ,409 | 1 | ,523 | 1,223 |
| | Secondary + | ,914 | ,350 | 6,805 | 1 | ,009 | 2,494 |
| Zone | Formal | | | | | | 1 |
| | Informal | ,300 | ,289 | 1,074 | 1 | ,300 | 1,350 |
| Poverty indicator | Poor | | | | | | 1 |
| | Medium | ,742 | ,276 | 7,213 | 1 | ,007 | 2,100 |
| | Rich | ,124 | ,561 | ,049 | 1 | ,825 | 1,132 |
| Constant | | -,950 | ,447 | 4,513 | 1 | ,034 | ,387 |

Note: the number of live birth was not related to contraceptive use and dropped in the last model.

Regarding the use of modern contraception among married women in need of family planning (Table 8), we find the expected relations: women born in rural areas, women in the poorest wealth category and less educated women are less likely to use modern methods, everything else being constant. Age is not significantly related to modern method use, probably because two effects (an age and a generation effect) are confounded here: young women are less keen on medical methods and prefer the condom and natural methods (fear of sterility), while older women may be more interested in principle by medical methods, but may be less familiar with family services because they were socialized at a time when family planning messages and promotion did not exist. It is also interesting to underline that being wealthy, once the level of education is controlled for, is not linked to higher use of modern methods (as opposed to being in a middle wealth category), which show that the ideal of small families is only partly diffused in this city.

Women living in informal neighborhoods are not less likely to use modern contraception, everything else being constant; in the contrary, they tend to be more likely to use these methods, but this effect is not significant. This result means that a greater distance to health centers is not related to lower use of modern methods by in itself. Other analyses of data from the same survey confirm that individuals living at the periphery of Ouagadougou are not disadvantaged, in terms of access to health care, by living further away from health centers nor by living in informal neighborhoods (Nikiema et al. 2011).

Table 9. Unmet need for family planning in formal and informal areas

| | Formal areas | Informal areas | Total |
|--------------------|--------------|----------------|-------|
| Modern method | 29,9% | 33,5% | 31,7% |
| Traditional method | 46,4% | 42,2% | 44,3% |
| Unmet need for FP | 23,7% | 24,3% | 24,0% |
| Total | 100% | 100% | 100% |
| N | 211 | 218 | 429 |

Chi-Square Tests

| | Value | df | Asymp. Sig. (2-sided) |
|------------------------------|-------|----|-----------------------|
| Pearson Chi-Square | ,898 | 2 | ,638 |
| Likelihood Ratio | ,899 | 2 | ,638 |
| Linear-by-Linear Association | ,393 | 1 | ,530 |
| N of Valid Cases | 429 | | |

Altogether, despite the fact that women in informal neighborhoods are more often poor, uneducated and coming from rural areas, which would tend to decrease their use of modern methods of contraception, unmet need for family planning is not significantly greater in these areas, whether one considers only modern methods, or traditional and modern methods together (Table 9). Further analyses are needed to pick on what makes women living in the informal neighborhoods of Ouagadougou especially keen on use contraceptive methods, despite their personal characteristics. One explanation could be that many families living in informal neighborhoods in that context (at least those who are informal owners of their plots), whatever their characteristics, may be in a trajectory of upward mobility, which would make them more likely to reduce their family size and to use contraception (Schneider and Schneider, 1984).

Conclusion

This analysis looked at differences in the demand for and use of contraception in formal and informal areas of Ouagadougou. Altogether, we found that the reliance on natural methods is still high today in the capital city, and that the idea of family limitation is not yet translated by a higher use of contraception among the richer women, everything else being controlled for. These results call for renewed efforts in family planning demand creation and service environment in the urban context. Our results also show that programs geared at married women (necessary in both types of

neighborhoods) will be met with interest by women in the informal neighborhoods of Ouagadougou, since they already seem quite proactive in seeking ways to avoid pregnancies, perhaps because this population is made predominantly by individuals on an upward social mobility trend. Another important finding is that special programs should be designed for unmarried youth, which are especially reluctant to use medical methods and do not use the condom systematically. In formal neighborhoods, we estimate that as much as a quarter of the demand for family planning comes from unmarried women. For the time being, such programs may not be as necessary in informal neighborhoods, where the number of unmarried young women is small, due to the selection of new families into these areas. However, in one or two decades, the characteristics of individuals living in informal neighborhoods are likely to change, and to resemble more those of the rest of the city.

Finally, this work illustrates the interest of taking into account when studying contraceptive use in Africa 1) non married women and 2) natural method use. Unless these two topics are taken seriously, demand for family planning will be greatly underestimated in that context, and preferences for natural methods also may be under appreciated.

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