TITLE

Age matters: Differential impact of service quality on contraceptive uptake among post-abortion clients in Kenya

AUTHORS

Paula Tavrow[1], Mellissa Withers[2] and Kara McMullen[3]

[1] Adjunct Assistant Professor, Department of Community Health Sciences, School of Public Health, University of California at Los Angeles, Box 951772, Los Angeles, CA 90095-1772 USA, phone (1-310-794-4302), fax (1-310-794-1805), ptavrow@ucla.edu

[2]Visiting Scholar, Center for Southeast Asian Studies, University of California at Los Angeles, 11274 Bunche Hall, Box 951487, Los Angeles, CA 90095-1487 USA, phone (1-916-709-3249), mellwit@yahoo.com

[3] Project Manager, Colorado School of Public Health, University of Colorado at Denver, 13001 E. 17th Place, Aurora CO, 80045 USA, phone (1-303-724-4388), kara.mcmullen@ucdenver.edu

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ABSTRACT

CONTEXT: We analyzed the impact in a Kenyan township of high quality, user-friendly, comprehensive sliding-scale post-abortion services on clients' uptake of contraception. ***METHODS*:** Data were drawn from detailed physician records in a private clinic which served 1,080 post-abortion clients in 2006. All clients received confidential family planning counseling and were offered a complete range of contraceptives at no additional cost. ***RESULTS:*** 25% of clients were below age 19. Prior to the abortion, no client aged 10-18 reported having used contraception, as compared to 60% of clients aged 27-46. After the abortion and family planning counseling session, only 6% of clients aged 10-18 chose a method, as compared to 96% of clients aged 27-46, even though contraception was free, the provider strongly promoted family planning to everyone, and all clients had just experienced an unwanted pregnancy. Significant predictors of contraceptive uptake post-abortion were: having a child, a previous termination, prior contraceptive use, and being older than 21. ***CONCLUSIONS:*** These findings suggest that availability, affordability, and youth-friendliness are not sufficient to overcome psycho-social barriers to contraceptive use for sexually-active Kenyan adolescents. To reduce unwanted pregnancies among teens, more attention may be needed to developing youth-friendly communities that support responsible sexuality among adolescents.

KEYWORDS: abortion, contraception, adolescents, Kenya, rural

INTRODUCTION

While most regions of the world have achieved dramatic declines in fertility in the past three decades, sub-Saharan Africa has lagged. This can in part be attributed to the ongoing HIV/AIDS epidemic, which sapped attention and resources from family planning services, information and communication. Currently, sub-Saharan Africa has the world's highest total fertility rate (5.2), the highest estimated level of unmet need (25 percent) and lowest rate of modern contraceptive use among married women (17 percent) (Cleland et al. 2011; UNICEF 2008; Population Reference Bureau 2008). About 39 percent of all pregnancies in the region are unintended, which rises to about 50 percent for adolescent pregnancies (Singh et al. 2009; Guttmacher 2010).

Nearly a decade ago, Caldwell and Caldwell (2002) declared that "the single most serious problem with existing sub-Saharan African family planning programs is their neglect of adolescents' needs." Premarital sexual activity among African female adolescents is estimated at 50 percent, which is considerably higher than activity among their counterparts in Asia (12 percent) and Latin America (25 percent) (UNFPA 2003; Hindin & Fatusi 2009; Bearinger et al. 2007). However, the use of effective modern contraception among sexually-active young African women is considerably lower than elsewhere (Boyd 2006; Singh et al. 2010). The predominant method reported by African adolescents is the condom, which is often used inconsistently and has a higher failure rate than other methods (Blanc et al. 2009). This puts African adolescents at high risk of unwanted pregnancies, which in turn can lead to increased demand for abortions. Because abortion in Africa is generally illegal except to save a woman's life or to preserve physical or mental health (Ipas 2004), many girls feel compelled to undergo

self-induced or illicit terminations. More than 25 percent of the estimated 4.2 million annual abortions in Africa occur among girls aged 15 to 19 years (Shah & Aman 2004; Dahlback et al. 2007), most of which would be classified by World Health Organization as unsafe (WHO 2007).

Adolescents' low rate of contraceptive use in sub-Saharan Africa has been attributed to the unique and often overwhelming barriers that youth experience in accessing family planning services. Some of these barriers are related to supply-side factors, such as cost, inconvenient locations or hours of operation, lack of privacy or confidentiality at clinics, and the dearth of outreach services for youth (Paine 2000; Laughaug 2003; Wood & Jewkes 2006; Bearinger et al. 2007; Tylee et al. 2007; Hindin & Fatusi 2009; Singh et al. 2010; Bankole & Malarcher 2010; Mkhwanazi, 2010). Provider-related factors, such as reluctance or unwillingness of providers to give unmarried adolescents contraceptives, provider's judgmental or insensitive attitudes towards adolescents seeking family planning services, and poor communication between adolescents and providers are also significant supply-related barriers to adolescent contraceptive use (Laughaug 2003; Wood & Jewkes 2006; Dahlberg et al. 2007; Otoide et al. 2007; Kipp et al. 2007; Tavrow 2010; Bankole & Malarcher 2010).

To overcome these barriers, efforts have focused on offering "youth-friendly" services (Boyd 2000; Boonstra 2007; Kipp et al. 2007; Tylee et al. 2007; Shaw 2009; Ringheim & Gribble 2010). Youth-friendly services seek to address administrative barriers and improve the quality of family planning services for adolescents through various strategies, such as increasing privacy and confidentiality, improving provider attitudes and communication skills and using peer educators to encourage adolescents to

seek services. While marginal success has been noted in some studies, whether youth-friendly services are sufficient to meet the reproductive health needs of young women in the sub-Saharan African context has yet to be confirmed.

Several studies have demonstrated a correlation between better quality of family planning services and improved contraceptive uptake (Sanogo et al. 2003; RamaRao et al. 2003; Hainsworth & Zilhao 2009). However, these studies' findings were not disaggregated by age or parity to determine if quality had a differential impact on potential users. Some analysts have suggested that the emphasis on supply-side barriers may not overcome psychological, cultural and social barriers to contraceptive use still prevalent in many sub-Saharan African countries, particularly among adolescents (Paine 2000; Laughaug, 2003; Mmari & Magnani 2003; Campbell et al. 2006; Bearinger et al. 2007).

In this paper, our aim was to determine whether access to high-quality, comprehensive, affordable, user-friendly services in an African country could indeed lead to meaningful contraceptive uptake across *all* age and parity groups. We chose to use data from a post-abortion private clinic in a Kenyan township, where virtually all clients could be presumed to have an unmet need for effective contraception since they had just experienced an unwanted pregnancy. We were directed to this clinic by the non-governmental organization (NGO) which had trained the physician in post-abortion care and supplied him with a register to use for recording data on his clients. According to the NGO, the provider's records were exceptionally legible and complete. This clinic was known locally for offering confidential, private, affordable, accessible and compassionate services. Because of the physician's training and his commitment to family planning, the

clinic was well-stocked with a complete range of contraceptive methods, including implants, injectables, pills, condoms, and IUCDs, as well as equipment to perform tubal ligations. Under these circumstances--where supply-related barriers such as access and quality of services were mitigated--and the women's motivation to avoid childbearing at least in the near future was very high, we would be able to assess the extent to which demand-side barriers (such as psycho-social factors, community norms, and so on) might affect contraceptive uptake among sexually-active female adolescents as compared to adult women.

Due to the provider's cooperation and the completeness of his clinic records, this case study presents a rare opportunity in an African township to: (1) delineate the characteristics of the clients who sought and obtained a safe abortion at a private post-abortion facility in a Kenyan township; (2) identify determinants of contraceptive uptake post-abortion; and (3) quantify the residual effects of demand-side barriers on contraceptive use, once supply-side barriers have been largely addressed.

METHODS

Study Location

The data from this study was drawn from a private clinic located on a main road in a small Kenyan township of approximately 60,000 people, about 150 miles from the nearest large city. To preserve anonymity of the clinic, its name and exact location will not be provided. A middle-aged male Kenyan physician had been providing basic medical services (including family planning) there for more than two decades. His assistants were one nurse and a receptionist. The clinic, which was open 365 days per

year, had two rooms and a main waiting area. A large sign painted on the outside stated that it was a medical clinic, but it did not list which services were offered. Although the physician characterized his abortion-related services as "post-abortion" or "menstrual regulation," the vast majority of his clients came for terminations. The physician performed abortions using either manual vacuum aspiration (MVA) or misoprostol (brand name: Cytotec). He offered clients a choice of abortion methods, although he encouraged the use of misoprostol for women at higher gestations. Prior to the availability of misoprostol, he had relied on laminaria for these women.

Other services available at the clinic included the treatment of sexually-transmitted infections, pregnancy tests, and family planning counseling and services. A nearly complete range of family planning methods were available, including Jadell and Norplant implants, Depo Provera injections, intrauterine contraceptive devices (IUCDs), tubal ligation using laparoscopy, spermicides, condoms, emergency contraception and several types of oral contraceptives. The clinic also had numerous family planning posters on the wall and leaflets available to clients.

In calculating the fee for abortion services, the physician used a sliding scale based on his assessment of the client's ability to pay, whether the client had been a victim of incest or rape, and the amount returning clients had paid in the past. His "target" fee for an abortion was 2500 Kenya shillings (about US$35), although he usually charged considerably less. He informed all clients that the fee included any family planning method she chose, including sterilization, and strongly encouraged all of them to avoid another abortion by using contraception. The physician did not charge less if the client opted not to take a contraceptive method post-abortion.

Data Description and Analysis

We chose to use this clinic's data for the study because of the physician's meticulous and very legible hand-written records in a post-abortion register, his willingness to be a key informant, and the high number of clients he saw per year. In addition, the physician took family planning counseling very seriously and discussed at length the available methods which each client who had received an abortion. The data recorded in the register included client age, parity, marital status, prior terminations, gestational age, diagnosis (menstrual regulation or incomplete abortion), type of abortion procedure (MVA or Cytotec), fee charged, prior contraceptive use and contraceptive method accepted (if any). The physician did not keep detailed records of patients who came for other reproductive health services.

Our data collection methods consisted of two in-depth interviews with the physician and a six-month retrospective review of all post-abortion care clinical records from January to June 2006. During this period, the doctor recorded 1,080 visits of girls and women who came for abortion-related services, of which he labeled 98 percent as MR (for "menstrual regulation") and 2 percent as IA (for "incomplete abortion") in the registers because of the legal restrictions on abortion in Kenya. He provided abortion-related services seven days per week, with seven clients per day on average (range: 0 to 16 clients). He also saw clients for other medical issues, but did not keep detailed records on them. He stated that he did not have many clients coming for incomplete abortion, because most went to a nearby government hospital which offered post-abortion services free of charge.

To quantify the predictors of whether a woman would choose to use contraception post-abortion, we dichotomized both the dependent and independent variables. For the dependent variable, we assigned it a value of 1 if the client accepted a form of contraception and a 0 if she left the clinic without taking any contraceptive method. For the independent variables, we dichotomized age using the median of the sample, with 21 years of age or younger assigned a value of 0, and older than 21 years of age assigned a 1, hypothesizing that women older than 21 would face less stigma in acquiring contraception. We dichotomized marital status as currently married (1) or not (0), presuming that married women are more likely to be sexually active and require future contraception. We assigned a value of 0 for having no children and a 1 for having at least one child, speculating that those who already have a child would be less worried about the possible effects of contraception on their fertility. Similarly, we assigned a 0 for no prior contraceptive use and a 1 for having previously used a form of modern contraception, because women who had previously been contraceptors would have already surmounted fears about contraception. For prior pregnancy terminations, we assigned 0 for no prior terminations and a 1 for at least one previous termination, hypothesizing that having experienced the need for an abortion more than once would predispose a woman to use contraception in the future. We dichotomized gestational age according to the median of the sample: pregnancies 15 weeks of less were assigned 0 versus pregnancies 16 weeks or more were given 1, with the hypothesis that those had higher gestational ages had more difficulties accessing the clinic and hence would be more inclined to use contraception subsequently. The type of abortion procedure was dichotomized as either manual vacuum aspiration (0) or Cytotec (1), to determine if those

using misoprostol were more inclined to also use contraception. Lastly, we dichotomized the abortion fee by the median, with a value of 0 for lower fee (100-1500 Kenyan shillings) and 1 for higher fee (greater than 1500 Kenya shillings), to test whether the physician was more encouraging of contraceptive use for those who paid more.

All data were entered into SPSS 11.0 and analyzed using chi-square and logistic regression. This study received institutional review board approval from the University of California at Los Angeles.

RESULTS

The demographic and service-related characteristics of the total sample (n=1,080) are shown in Table 1. To assess differences by age, we analyzed the data by age quartile. For the total sample, the mean age was 23 years, with a range of 10 to 46 years. Half of the clients were 21 or younger. About 73 percent of the women were single, 20 percent were married and 7 percent were separated, divorced or widowed. About 61 percent of the women had never had a child, while about 14 percent had one child and 25 percent had 2 or more children. About 8 percent reported having had a prior pregnancy termination. The mean estimated gestational age of the pregnancy was nearly 11 weeks, with a range from 2 to 30 weeks. The physician performed almost three-quarters of the abortions using manual vacuum aspiration and the remaining 27 percent using misoprostol. The mean fee, including the abortion and a contraceptive method of choice, was 1,261 Kenya shillings, which was the equivalent of US$17.26. The range in sliding scale fees was 100 to 5000 Kenya shillings (US$1.36 to US$68.49).

We found significant differences by age category for all characteristics except fee charged for service. Less than five percent of the women aged 21 years or below were married, compared to about 20 percent among women aged 22 to 26 and about 58 percent among women aged 27 and above. As expected, the vast majority of younger women did not have any children: about 94 percent of women 21 and younger were childless, as compared to only 29 percent of women 22 or older. Of women aged 27 or older, more than half had four or more children. Regarding abortion services, younger women were much more likely to come for services at later gestational ages: about 45 percent of adolescents came in after the first trimester, compared to 30 percent or less of women in the other age categories. The delay in coming to the clinic may have been due to a number of factors, such as slower recognition of the pregnancy and of the decision to obtain an abortion, less knowledge of how to access services, and fewer resources. Younger women were disproportionately more likely to receive misoprostol than manual vacuum aspiration, largely because they arrived at the clinic at a higher gestation.

Table 2 shows contraceptive use prior to and after the abortion. Only about one in five women overall reported previously using a modern contraceptive method. No adolescent aged 10 to 18 reported ever using a method, and only 4 percent of young women aged 19 to 21 said they had used a method before. This contrasts with about 22 percent of women aged 22 to 26 and 60 percent of women older than 26 reporting that they had ever used a contraceptive method. After the abortion, about 45 percent of the total sample chose a contraceptive method, more than double the proportion of clients who had used a method previously. The three most popular methods post-abortion were: injectables (21 percent of all women), and oral contraceptives (13 percent) and

sterilization (6 percent). Nearly 40 percent of women in the older age category chose a permanent or long-term method of contraception, which is unusually high for African women. Despite being offered any method they desired in a private and confidential setting, less than 7 percent of adolescents opted for a contraceptive method post-abortion. This contrasts dramatically with contraceptive uptake in the other age quartiles, which were 21 percent (for women aged 19 to 21), 63 percent (for women aged 22 to 26) and 96 percent (for women aged 27 to 46).

To estimate predictors of contraceptive uptake post-abortion, we first developed odds ratios for each independent variable. We then entered them simultaneously into a logistic regression model, in order to determine their odds ratios after controlling for all other variables. As shown in Table 3, all variables (except fee charged) had significant unadjusted odds ratios. After controlling for the other variables, four variables remained significant. Having at least one child was the most significant positive predictor of contraceptive uptake among these abortion clients. The odds of contraceptive uptake were nearly 19 times greater among women with at least one child as compared to those with no children. Having had at least one previous termination was also significantly positively associated with contraceptive uptake: the odds of accepting a contraceptive method were 11 times greater among women who had a previous termination. In addition, women who had previously used a contraceptive method were 10 times more likely to adopt a method post-abortion.

Finally, being older than 21 years was significantly positively associated with the outcome variable. The odds of leaving the clinic with a contraceptive method were 4 times greater among women who were older than 21 years, which indicated that age was

an important predictor. Marital status, gestational age, abortion procedure and fee were not found to be significant in the adjusted model. This analysis confirmed the physician's contention that neither clients' advanced gestational age (which made the abortion more complex) nor the fee they paid influenced whether he promoted contraception to them. Further analysis of a reduced model (age, marital status, and parity) showed that marital status was no longer a significant predictor of contraceptive uptake once parity was added. Parity and marital status were highly correlated.

DISCUSSION

Our intent was to provide evidence about the relative influence of supply-side versus demand-side barriers on the post-abortion contraceptive choices of adolescents and adult Kenyan women who had access to confidential, comprehensive and high-quality family planning information and services. This case study examined women's contraceptive uptake following an abortion in a setting in which many of the commonly cited supply-side barriers to contraceptive use were addressed. The physician was a kindly and competent provider, who spent considerable time counseling each client on her family planning options in a confidential and caring manner. He offered all girls and women a complete range of free contraceptive methods, and strongly encouraged every client to take a contraceptive method before leaving the facility. He also had well-written family planning brochures and posters to aid clients in decision-making. Given these nearly ideal circumstances, we could test the relative influence of the supply-side factors on contraceptive uptake among women of different age groups, all of whom had clearly been motivated to avoid a birth.

One of the major findings of this study was that contraceptive uptake post-abortion differed dramatically by age group. After the abortion and private family planning counseling, only about 6 percent of adolescent clients left the facility with a method, as compared to 95 percent of clients aged 27 to 46. These results suggest that addressing key supply-side factors, such as availability, affordability and youth-friendliness of services were not sufficient to overcome the barriers that adolescents faced. Only the few adolescents who already had a child were likely to leave the facility with a contraceptive method, presumably because they already were marginalized in society. It is possible that the experience of having a relatively inexpensive, rapid and safe abortion may have emboldened girls to eschew future contraception (Otoide et al. 2007), but this seems unlikely in a country where safe abortion services are legally restricted and access is unreliable. Moreover, having already had at least one termination was a highly significant predictor of contraceptive uptake post-abortion.

In contrast with adolescents, demand-side barriers seemed to be negligible for women older than 26. Their contraceptive use became nearly universal when supply-side barriers were removed. These abortion clients' use of contraception increased dramatically from 60 percent to 96 percent. All but three women in this cohort who had used a method previously chose to use a method subsequently. Remarkably, more than one-quarter of women over 26 chose to be sterilized, which attests to the skill of the physician in presenting effectively the array of contraceptive options. These findings suggest that high quality post-abortion counseling and services on site can largely eliminate unmet need for this age group, at least in the immediate post-abortion period. Two studies from hospital-based interventions in Zimbabwe and Kenya had similar

results (Johnson et al. 2002; Solo et al. 1999). Johnson et al. (2002) found that offering family planning counseling and providing free contraceptive methods to post-abortion clients led to significantly increased rates of contraceptive use among adult women, three-fourths of whom were married and about 39 percent had used contraception in the past. In their sample, the average age was 28 years and average number of previous pregnancies was 3.7. Among the 1,355 women who received the intervention, 97 percent left the hospital with a contraceptive method, compared to only 5 percent at the control site, which did not receive family planning counseling following their treatment. Likewise, Solo et al. (1999) found that 70 percent of hospital-based post-abortion clients who received family planning counseling left with a method, as compared to only three percent of those who did not receive the intervention.

While access to high quality family planning services did seem to diminish the likelihood that older abortion clients will again have an unwanted pregnancy, this study's findings call into question whether youth-friendly services alone could effect a major reduction in the unmet need of sexually-active non-urban African adolescents, even among those girls who just experienced the scare of an undesired pregnancy. To date, various reviewers have found little evidence of the ability of youth-friendly services to directly impact adolescent sexual behavior in Africa (Paine 2000; RamRao & Mohanam 2003; Speizer et al. 2003; Ross et al. 2007; Plummer et al. 2007). This study's findings underscore the need to shift our focus to other factors which may override clinical or service-related issues in adolescents' use of family planning. Results from two recent studies have similarly suggested that social and community-level factors may be more

influential than clinic factors in determining adolescent family planning service use in non-urban Africa (Mmari & Magnani 2003; Tylee et al. 2007).

During our interviews with the physician, he provided insights into why so many adolescents were reluctant to accept a contraceptive method. He identified three major psycho-social factors, based on his numerous discussions with young women. He believed that the principal reason for adolescents' reluctance to use contraceptive methods was their often-expressed opinion, clearly derived from their society's norms, that girls who "planned for" sexual activity by using contraception were promiscuous, unvirtuous or morally reprehensible. Their own self-concept would suffer if they chose to use a contraceptive method, unless they were already in a stigmatized minority by having a child. Many girls told him that they now intended to be abstinent until marriage, which he believed was unlikely. In some cases, girls' pregnancies had arisen from rape or incest, so they would not be considered "sexually active" and in need of contraception in the near term. However, the physician considered these situations to be quite rare (1 to 3 percent).

The second major barrier the physician identified was the girls' fears that contraceptive use would impair their future fertility. Fears that early contraceptive use could lead to infertility have been widely noted in the literature from various African countries (Paine 2000; Otoide et al. 2007; Singh et al. 2010; Bell, 2012). It is noteworthy that the physician was unable to overcome these fears through dialogue with the adolescents, which shows how deeply-rooted they are.

Lastly, the physician told us that adolescents' concern of being discovered with contraception, which would indicate their sexual activity, was another major factor in

many girls' decision not to take pills or condoms from the clinic. Being found with contraception could lead to school expulsion or severe parental discipline in this area of Kenya. According to the physician, adolescents who came to the clinic with their mother or sister (which he estimated occurred about 15 percent of the time), rarely left with a method, possibly due to familial disapproval.

Although unmarried adolescent girls in Kenyan townships who are sexually-active, but not contracepting, risk unwanted pregnancies with their attendant serious social consequences, this study suggests that using contraception would require surmounting psycho-social hurdles that could be equally deleterious in their communities—and also self-stigmatizing. Prevalent sexual norms in sub-Saharan Africa, which are influenced by strong religious beliefs and cultural values, prohibit premarital sex, especially among girls (Marston & King 2006; Warenius et al. 2006; Bearinger et al. 2007; Adaji et al. 2010; Bankole & Malarcher 2010; Mkhwanazi, 2010). Because of these social strictures against youth sexuality, adolescents need to be secretive in their premarital sexual activity, which in turn poses a critical barrier to their use of contraceptives (Marston and King 2006, Bearinger et al. 2007; Bankole & Malarcher 2010; Adaji et al. 2010; Singh et al. 2010; Izugbara et al., 2011). The value of this study was that it showed just how daunting these psycho-social barriers could be, even when services were extremely youth-friendly and the girls already had a pregnancy scare.

For those adolescents who do overcome the hurdles to contraceptive use, research suggests that psycho-social barriers may contribute to lower efficacy. Worldwide, studies have shown that, compared with adult contraceptive use, adolescent contraceptive use is characterized by shorter periods of consistent use, higher levels of discontinuation and

more contraceptive failure. In developing countries, not only do young people face ongoing stigma and discrimination from providers in clinics which could curtail access, but their own shame and embarrassment may impede them from getting the information they need to use methods effectively. Young women's constant worry about how sexual activity may negatively affect their reputation, and their own desires to be considered morally upright, could make sexual activity more unpredictable and contraceptive use more erratic.

Lastly, this study has provided insights into abortion clients in African townships. Very little literature exists about girls and women who obtain *safe* abortion services in sub-Saharan Africa, outside of South Africa. Because abortion is legally-restricted on most of the continent, almost all studies of African abortion clients and contraceptive uptake post-abortion have been conducted among women with abortion-related complications who are being treated in a hospital setting (e.g. Johnson et al. 2002). It is possible that those with complications differ in some ways from those who do not, or that they are more likely to use contraception afterwards because they suffered a life-threatening condition. In this study, we found that those seeking safe abortions are likely to be unmarried, nulliparous women with an average age of 23. For abortion clients over the age of 26, or for those over 21 who already had a child, their contraceptive uptake was extremely high if they were given high quality services.

LIMITATIONS

This study had several limitations. First, the data were drawn from records taken from one provider working in a clinic in rural Kenya during a six-month period.

Therefore, the findings may not be generalized to other settings or to a larger population. However, our intention in this study was test how much influence supply-side factors had on contraceptive uptake of abortion clients by choosing a clinic that was a very friendly, competent facility with comprehensive, full-stocked methods in a non-urban area. We also wanted to help fill gaps in the literature by examining contraceptive uptake at an abortion facility rather than among African women who presented at a hospital with complications. Another limitation was the use of secondary data for our analysis. It was not possible to collect data directly from the clients to help clarify the barriers to contraceptive use. However, we were able to triangulate the secondary data through two in-depth interviews with the physician, who provided insights into why adolescents' contraceptive uptake remained low after the abortion and counseling. Finally, conducting a retrospective review of the physician's records meant that we had no way to verify their accuracy. While we could not cross-check his data, the meticulous nature of his registers, his pride in his record-keeping, and the fact that we had been directed to this physician by an NGO who could vouch for him, gave us confidence that his records were complete and trustworthy.

CONCLUSION

The failure to meet the sexual and reproductive health needs of women in sub-Saharan Africa has resulted in a high level of unintended pregnancies, many of which result in unsafe abortions that threaten the health and survival of women in this region. This study emphasized that the problem of unmet need for family planning among adolescents should be viewed within the broader socio-cultural environment. In sub-

Saharan Africa, adolescents seem to be particularly vulnerable to the numerous cultural and social barriers to contraceptive use (Marston & King 2006; Jewkes et al., 2009; Renju et al. 2010). Even if high-quality access to family planning is readily available to adolescents, the demand for services may be primarily influenced by other barriers, such as stigma of being sexually active, fear of side effects and community norms around adolescent sexuality. Until national and community-level activities are undertaken to address psycho-social norms directly, it is unlikely that adolescents in many African townships will be able enjoy reproductive health and effectively avoid unwanted pregnancies.

REFERENCES

Adaji, S.E., and L.U. Warenius, A.A. Ong'any, and E.A. Faxelid. 2010. The attitudes of Kenyan in-school adolescents toward sexual autonomy. *African Journal of Reproductive Health* 14(1): 33-41.

Bankole, A. and S. Malarcher. 2010. Removing barriers to adolescents' access to contraceptive information and services. *Studies in Family Planning* 41(2): 117-124.

Bearinger, L.H., R.E. Sieving, J. Ferguson, and V. Sharma. 2007. Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential. *Lancet* 369: 1220-1231.

Bell, S.A. 2012. Young people and sexual agency in rural Uganda. *Culture, Health and Sexuality* 14(3): 283-296.

Blanc, A.K., A.O. Tsui, T.N. Croft, and J.L. Trevitt. 2009. Patterns and trends in adolescents' contraceptive use and discontinuation in developing countries and comparisons with adult women. *International Sexual and Reproductive Health* 35(2): 63-71.

Boonstra, H.D. 2007. Learning from Adolescents to Prevent HIV and Unintended Pregnancy. Alan Guttmacher Institute.
http://www.guttmacher.org/pubs/2007/09/19/IB_PNG2007.pdf

Boyd, A. 2000. The World's Youth 2000. Population Reference Bureau, Washington D.C. http://www.prb.org/Reports/2000/WorldsYouth2000.aspx

Caldwell, J.C. and P. Caldwell. 2002. Africa: the new family planning frontier. *Studies in Family Planning*, 33(1): 76-86.

Campbell, M., N.N. Sahin-Hodoglugil, and M. Potts. 2006. Barriers to fertility regulation: a review of the literature. *Studies in Family Planning* 37(2): 87-98.

Cleland, J.G., R.P. Ndugwa, and E.M. Zulu, E.M. 2011. Family planning in sub-Saharan Africa: progress or stagnation? *Bulletin of World Health Organization* 89(2):137-43.

Dahlback, E., Maimbolwa, M., Kasonka, L., Bergström, S. and Ransjö-Arvidson, A.B. 2007. "Unsafe induced abortions among adolescent girls in Lusaka." *Health Care for Women International* 28(7): 654-76.

Guttmacher Institute. 2010. Sub-Saharan Africa-Facts on Investing in Family Planning and Maternal and Newborn Health In Brief. Alan Guttmacher Institute, New York. http://www.guttmacher.org/pubs/FB-AIU-Africa.pdf

Hainsworth, G. and I. Zilhao. 2009. From inception to large scale: the Geracao Biz Programme in Mozambique. Pathfinder International/World Health Organization. http://whqlibdoc.who.int/publications/2009/9789241598347_eng.pdf

Hindin, M. and A.O. Fatusi, A.O. 2009. Adolescent sexual and reproductive health in developing countries: an overview of trends and interventions. *International Perspectives on Sexual and Reproductive Health* 35(2): 58-62.

Izugbara, C.O, Ochako, R. and Izugbara, C. 2011. Gender scripts and unwanted pregnancy among urban Kenyan women. *Culture, Health and Sexuality,* 13:9, 1031-1045.

Ipas. 2004. Africa Alliance for Women's Reproductive Health and Rights. Ensuring women's access to safe abortion care in sub-Saharan Africa. Chapel Hill, NC.

Jewkes, R., Morrell, R. and Christofides, N. 2009.Empowering teenagers to prevent pregnancy: lessons from South Africa. *Culture, Health and Sexuality* 11(7): 675-688.

Johnson, B.R., S. Ndhlovu, S.L Farr, and T. Chipato. 2002. Reducing unplanned pregnancy and abortion in Zimbabwe through post-abortion contraception. *Studies in Family Planning* 33(2): 195-202.

Kipp, W., S. Chacko, L. Laing, and G. Kabagambe. 2007. Adolescent reproductive health in Uganda: Issues related to access and quality of care. *International Journal of Adolescent Medicine and Health* 19(4): 383-393.

Laughaug, L.F., F.M. Cowan, T. Nyamurera, and R. Power. 2003. Improving young people's access to reproductive health care in rural Zimbabwe. *AIDS Care* 15(2): 147-157.

Marston, C. and E. King. 2006. Factors that shape young people's sexual behaviour: a systematic review. *Lancet* 368: 1581-86.

Mkhwanazi, N. 2010. Understanding teenage pregnancy in a post-apartheid South African township. *Culture, Health and Sexuality* 12(4): 347-358.

Mmari, K.N. and R.J. Magnani. 2003. Does making clinic-based reproductive health services more youth-friendly increase service use by adolescents? Evidence from Lusaka, Zambia. *Journal of Adolescent Health* 33: 259-270.

Otoide, V.O., F. Oronsaye, and F.E. Okonofua. 2007. Why Nigerian adolescents seek abortion rather than contraception: Evidence from focus-group discussions. *International Family Planning Perspectives* 27(2): 77-81.

Paine, K., M. Thorogood, and K. Wellings. 2000. The impact of the quality of FP services on safe and effective contraceptive use: a systematic literature review. *Human Fertility* 3(3): 186-193.

Plummer, M.L., D. Wight, A.I.N. Obasi, J. Wamoyi, G. Mshana, J. Todd, B.C. Mazige, M. Makokha, R.J. Hayes, and D.A. Ross. 2007. A process evaluation of a school-based adolescent sexual health intervention in rural Tanzania: the MEMA kwa Vijana programme. *Health Education Research* 22(4): 500-512.

Population Reference Bureau. 2008. Family Planning Data Sheet. http://www.prb.org/pdf08/fpds08.pdf

RamaRao, S. and R. Mohanam. 2003. The quality of family planning programs: concepts, measurements, intervention and effects. *Studies in Family Planning* 34(4): 227-248.

Renju, J., B. Andrew, K. Nyalali, C. Kishamawe, C. Kato, J. Changalucha, and A. Obasi. 2010. A process evaluation of a scale-up of a youth-friendly health services initiative in northern Tanzania. *Journal of the International AIDS Society* 13(32): 1-12.

Ringheim, K. and J. Gribble. 2010. Improving the Reproductive Health of sub-Saharan Africa's Youth. Population Reference Bureau, Washington, D.C. Accessed on June 20, 2011 at: http://www.prb.org/Reports/2010/youthchartbook.aspx

Ross, D.A., J. Changalucha, A.I. Obasi, J. Todd, M.L. Plummer, B. Cleophas-Mazige, A. Anemona, D. Everett, H.A. Weiss, D.C. Mabey, H. Grosskurth, R.J. Hayes, R.J. 2007. Biological and behavioural impact of an adolescent sexual health intervention in Tanzania. *AIDS* 21: 1943-1955.

Sanogo, D., S. RamaRao, H. Jones, P. N'diaye, B. M'bow, C.B. Diop. 2003. Improving quality of care and use of contraceptives in Senegal. *African Journal of Reproductive Health* 7(2): 57-73.

Shah, I. and E. Åhman. 2004. Age patterns of unsafe abortion in developing country regions. *Reproductive Health Matters* 12(24): 9–17.

Shaw, D. 2009. Access to sexual and reproductive health for young people: bridging the disconnect between rights and reality. *International Journal of Obstetrics and Gynecology* 106: 132-136.

Singh, S., J.E. Darroch, L.S. Ashford, and M. Vlassoff. 2009. *Adding It Up: The Costs and Benefits of Investing in Family Planning and Maternal and Newborn Health.* New York: Guttmacher Institute and United Nations Population Fund. http://www.guttmacher.org/pubs/AddingItUp2009.pdf

Singh, S., G. Sedgh, and R. Hussain. 2010. Unintended pregnancy: worldwide levels, trends and outcomes. *Studies in Family Planning* 41(4): 241-250.

Solo, J., D.L. Billings, C. Aloo-Obunga, A. Ominde, and M. Makumi. 1999. Creating linkages between incomplete abortion treatment and family planning services in Kenya. *Studies in Family Planning* 30(1): 17-27.

Speizer, I.S., R.J. Magnani, and C.E. Colvin. 2003. The effectiveness of adolescent reproductive health interviews in developing countries: a review of the evidence. *Journal of Adolescent Health* 33: 324-348.

Tavrow, P. 2010. Promote or discourage: how providers can influence service use. In *Social Determinants of Sexual and Reproductive Health: Informing Future Research and Programme Implementation.* Ed. Shawn Malarcher. Geneva: World Health Organization, 5-36.

Tylee, A., D.M. Haller, T. Graham, R. Churchill, L.A. Sanci. 2007. Youth-friendly primary-care services: how are we doing and what more needs to be done? *Lancet* 369: 1565-73.

UNFPA. 2003. State of the World Population 2003: Gender Inequality and Reproductive Health. http://www.unfpa.org/swp/2003/english/ch2/page2.htm

UNICEF. 2008. State of the World's Children: Special Edition on Children's Rights. http://data.un.org/Data.aspx?d=SOWC&f=inID%3A34

Warenius, L.U., E.A. Faxelid, P.N. Chishimba, J.O. Musandu, A.A. Ong'any, and E.B. Nissen. 2006. Nurse-midwives attitudes towards adolescents' sexual and reproductive health needs in Kenya and Zambia. *Reproductive Health Matters* 14(27): 119-128.

Wood, K and R. Jewkes. 2006. Bold blockages and scolding nurses: barriers to adolescent contraceptive use in South Africa. *Reproductive Health Matters* 14(27): 109-118.

World Health Organization (WHO) 2007. Unsafe Abortion: Global and Regional Estimates of the Incidence of Unsafe Abortion and Associated Mortality in 2003, fifth edition.

TABLE 1: Characteristics of clients and services received, by age, Kenya, 2006 (%)

	10-18 yrs (N=290)	19-21 yrs (N=251)	22-26 yrs (N=294)	27-46 yrs (N=245)	Total (N=1080)
Variable					
Age in years (mean)	16.9	19.9	23.7	32.4	23.0
Marital status* **					
Single	99.3	94.8	74.8	18.0	73.1
Married	0.7	4.4	20.1	57.6	19.7
Separated/Divorced	0.0	0.8	2.7	13.9	4.1
Widowed	0.0	0.0	2.4	10.6	3.1
Parity* **					
None	97.6	89.2	50.3	3.3	61.4
1	1.7	7.2	32.0	11.8	13.5
2-3	0.3	1.6	14.6	33.5	12.0
4 or more	0.3	2.0	3.1	51.4	13.1
Prior terminations* **					
None	99.0	94.8	88.8	85.3	92.1
1-4	1.0	5.2	11.2	14.7	7.9
Gestation (in weeks)* **					
3-9 (mean: 6.7)	37.6	53.2	57.5	57.8	51.2
10-12 (mean: 10.9)	17.9	18.8	19.4	21.3	19.3
13-17 (mean: 14.9)	20.7	15.2	16.0	9.4	15.6
18-30 (mean: 20.8)	23.8	12.8	7.1	11.5	13.9
Procedure* **					
Manual vacuum aspiration	55.9	74.5	81.0	84.5	73.5
Misoprostol (Cytotec)	44.1	25.5	19.0	15.5	26.5
Fee charged (in Ksh)					
0-500	16.9	24.7	22.1	23.3	21.6
501-1000	35.9	35.1	34.0	37.6	35.6
1001-1500	18.6	15.5	19.4	18.0	18.0
1501-2000	14.8	11.2	12.2	13.1	12.9
2001-5000	13.8	13.5	12.2	8.2	12.0

Notes: ***p<.001. Note: $1US = 73 Ksh. in 2006. Overall mean gestation was 10.7 weeks.

TABLE 2: Contraceptive use before and after abortion, by age, Kenya, 2006 (%)

	10-18 yrs (N=290)	19-21 yrs (N=251)	22-26 yrs (N=294)	27-46 yrs (N=245)	Total (N=1080)
Variable					
Previous contraceptive method used* **					
None	100.0	96.4	77.9	40.2	79.6
Depo Provera injections	0.0	1.2	11.6	36.1	11.6
Pills	0.0	0.8	8.2	19.3	6.8
Condoms	0.0	1.6	1.0	1.2	0.9
Implant	0.0	0.0	0.7	2.0	0.6
IUCD	0.0	0.0	0.0	0.8	0.2
Emergency pills	0.0	0.0	0.7	0.4	0.3
Tubal ligation	0.0	0.0	0.0	0.0	0.0
Contraceptive method taken* **					
None	93.8	78.9	36.4	4.5	54.4
Depo Provera injections	1.7	9.6	33.7	39.2	20.7
Pills	3.4	9.2	23.5	15.5	13.0
Condoms	0.3	1.2	1.7	1.2	1.1
Implant	0.3	1.2	3.4	7.3	3.0
IUCD	0.3	0.0	0.3	6.5	1.7
Emergency pills	0.0	0.0	1.0	0.0	0.3
Tubal ligation	0.0	0.0	0.0	25.7	5.8

***p<.001.

TABLE 3: Odds ratios and adjusted odds ratios of predictors of contraceptive uptake post-abortion from logistic regression, Kenya, 2006 (N=1076)

	OR	(95% CI)	AOR	(95% CI)
Variable				
Had at least one child	59.80**	(39.65 – 90.19)	18.62**	(10.81 - 32.07)
Had at least one previous termination	8.36**	(4.48 – 15.60)	11.33**	(5.17 - 24.87)
Used contraception before	55.00**	(26.76 – 113.01)	10.26**	(4.11 – 25.62)
Older than 21 years	23.62**	(17.11 – 32.60)	4.19**	(2.73 – 6.41)
MVA procedure (not Cytotec)	2.19**	(1.64 – 2.91)	1.72	(0.79 – 3.74)
Higher gestation (>15 weeks)	0.57**	(0.42 – 0.78)	1.66	(0.74 – 3.77)
Married	27.84**	(15.91 – 48.75)	1.45	(0.68 – 3.13)
Paid higher fee (>1000 Ksh)	0.87	(0.69 – 1.11)	1.19	(0.78 – 1.79)

Notes: Four cases were removed for lack of data on all variables. The AOR was adjusted by all variables on table. **p<.01.