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**Desire for Children and Unmet Need for Contraception  
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**Abstract**

In Lesotho, where the HIV prevalence rate for women is 26.4%, there is high risk for mother-to-child transmission (MTCT) of HIV. Efforts to prevent MTCT can focus on reducing the fertility level of HIV-positive women. This paper examines the desire for children and unmet need for contraception to limit or space births among HIV-positive women age 15-49 years, using data from the 2004 Lesotho Demographic and Health Survey. Multivariate analysis of HIV-positive women, 83% of whom have never learned their HIV status, shows that the desire for children in the future does not differ by socioeconomic status. Unmet need for contraception is highest among women in the poorest households. Although these women have lower HIV prevalence, they have higher potential for MTCT. The multivariate results are similar for both HIV-positive and HIV-negative women because of low self-awareness of HIV status. Efforts to reduce the level of MTCT require improved access to family planning services for all women, especially the poorest, and an increase in HIV testing and counseling.

## **Background**

The southern African country of Lesotho has one of the highest national HIV prevalence rates in the world. According to the 2004 Lesotho Demographic and Health Survey (LDHS), 26.4% of women age 15-49 years are HIV positive (MOHSW et al., 2005). A Total Fertility Rate (TFR) of 3.5 births per woman in Lesotho has caused mother-to-child transmission (MTCT) of HIV to be of major concern (MOHSW et al., 2005). It is estimated that the current under-five mortality rate in Lesotho of 123 deaths per 1,000 births would be 71 if there was no AIDS (Population Reference Bureau, 2006). HIV testing of pregnant women and the distribution of antiretroviral drugs during delivery and following birth are two primary approaches currently used to prevent MTCT (PMTCT). Efforts to decrease the level of MTCT can also focus on reducing fertility among HIV-positive women. Two causes of the level of fertility are the desire for children and unmet need for contraception to limit or space births. Therefore, this paper utilizes the 2004 LDHS to analyze the factors associated with these two causes among HIV-positive women, to help identify strategies to reduce their fertility levels and the extent of MTCT in Lesotho.

Worldwide, 1,800 children under the age of 15 become infected with HIV each day, the vast majority of whom are in Africa (UNAIDS, 2006). The risk of mother-to-child transmission occurs during pregnancy, delivery, and breastfeeding. During pregnancy and labor the risk of transmission is 15% to 30%. Breastfeeding through 18 to 24 months increases the overall risk to 30% to 45% (De Cock et al., 2000). There are a number of PMTCT services. HIV testing of pregnant women can identify women who require antiretroviral therapy and counseling.<sup>1</sup> Antiretroviral therapy for the mother and child consists of one dose of the drug nevirapine to the mother at delivery and one dose to the child soon after birth. Counseling on risk reduction of transmission through breastfeeding may also reduce the risk of mother-to-child transmission<sup>2</sup>; if there are no appropriate substitute feeds, however, this method may not be feasible. Despite the risk of MTCT in

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<sup>1</sup> Promoting voluntary HIV testing and counseling of women that are not pregnant can contribute to preventing HIV-positive women from becoming pregnant.

<sup>2</sup> A report on a study in Malawi indicates that the reduction of mortality among children of HIV-positive women due to breastfeeding more than offsets the risks of mother-to-child transmission (Taha et al., 2006).

Lesotho, only 14% of pregnant women in the region were offered PMTCT services in 2005 (USAID et al., 2004).

The reduction of unintended pregnancies is a particularly important method of PMTCT, especially in high-prevalence countries like Lesotho. A study found that moderate falls in unintended pregnancies, ranging from 5.6% to 34.8% by country, can result in the same number of prevented HIV infections as current use of nevirapine (Sweat et al., 2001). Furthermore, other analysis found that HIV-positive births can be reduced more by an increase in contraceptive use at the same level of expenditure as provision of nevirapine (Reynolds et al., 2005). Contraceptive use can also help HIV-positive women space births, which can help their health as well as lower the need for PMTCT services (Rutenberg et al., 2003). Increases in contraceptive use by HIV-positive women can occur through integration of family planning and HIV services; however, at the time of the 2004 LDHS, Lesotho's national HIV policy did not make any mention of family planning (Strachan et al., 2004). Throughout sub-Saharan Africa, the prevention of unintended pregnancies has been described as “an undervalued and little-used strategy” for PMTCT (Reynolds and Wilcher, 2006: 8).

Efforts to reduce MTCT are hampered by the fact that only a small proportion of HIV-positive women know they are infected. Data from the 2004 LDHS in Table 1 show that over four-fifths of HIV-positive women had not had prior testing for HIV and learned their status.<sup>3</sup> Given that the data do not indicate whether the woman was infected at the time of the test—there is no accurate measure for this in the LDHS—those women who were tested and learned their status in the past 12 months are more likely to have been HIV positive at the time of the test than those tested prior to the past 12 months. The former group comprises only 8.7% of HIV-positive women in Lesotho.

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<sup>3</sup> Prior HIV test excludes the test conducted as part of the 2004 LDHS. Respondents did not find out the result of their HIV test in the 2004 LDHS.

**Table 1 Percent distribution of HIV-positive women age 15-49 by HIV testing status, when tested, and whether they learned the results of the test, Lesotho 2004**

Prior testing status/when tested/whether learned results	%	N
Tested in past 12 months and learned status	8.7	64
Tested prior to past 12 months and learned status	8.6	63
Never tested, or tested but did not learn status	82.7	606
Total	100.0	733

Note : Weighted cases. Only women who declared their fertility intentions are included (i.e., does not include sterilized or infecund women).

For women who know they are HIV positive, the literature suggests various scenarios regarding their fertility intentions. Some studies have found that even if an HIV-positive woman is told of her status and is counseled on the risks of MTCT, pregnancy levels remain high (Heyward et al., 1993; Nebie et al., 2001; Temmerman et al., 1990). Qualitative research in Côte d'Ivoire shows a strong desire for future childbearing among women who know they are HIV-positive (Aka-Dago-Akribi et al., 1999). In high-fertility societies, some women may wish to have a child to conceal their HIV status and avert suspicion that they are infected. Having children may also provide a sense of normalcy to family life and an affirmation of health (Rutenberg et al., 2000). In contrast, research in Kenya shows that HIV-positive women aware of their status are less likely to want to have a child in the future than HIV-negative women (Reynolds and Wilcher, 2006). Furthermore, in Uganda a study found that only 7% of HIV-positive women who know their status want to have a child (Nakayiwa et al., 2006). Overall, the fertility level of HIV-positive women is generally lower than that of HIV-negative women because they are more likely to be widowed, divorced, or co-infected with a sexually transmitted infection (Lewis et al., 2004; Terceira et al., 2003).

If an HIV-positive woman does not want to have a child in the future or if she wants to space her births, unmet need for contraception may still put her at risk of pregnancy. While in some studies knowledge of HIV status among infected women resulted in an increase in contraceptive use, other studies found a lack of persistent use of contraception beyond one year or no significant difference compared with HIV-negative women (Allen et al., 1992; Allen et al., 1993; Kamenga et al., 1991; Nebie et al., 2001; Rutenberg and Baek, 2005). In Uganda, a study found that 73% of women exhibiting behavior that put

them at risk of pregnancy did not want any more children (Nakayiwa et al., 2006). In Lesotho, only 35% of currently married women use a modern contraceptive method, despite increases in contraceptive use in the late 1990s (MOHSW et al., 2005; Tuoane et al., 2004).

In sub-Saharan Africa, contraceptive prevalence is more than five times higher among women in the highest wealth quintile compared with those in the lowest wealth quintile, a far larger differential than in any other region of the world (UNFPA, 2002). Cost and accessibility have been identified as barriers to use of family planning services for poor, rural women (Tuoane et al., 2004). Although the level of HIV prevalence is lower among women in the poorest wealth quintile (19.6%) than those in the other quintiles, the risk of MTCT among poor women is of concern because they have a higher level of unmet need for contraception (MOHSW et al., 2005). Other research in sub-Saharan Africa has found that use of contraception increases if a woman has previously discussed contraception, been exposed to mass media about family planning, or approves of family planning (Gupta et al., 2003; Kayembe et al., 2006; Tawiah, 1997).

### **Data and Methodology**

The desire for children and unmet need for contraception are examined using data from the 2004 LDHS, a nationally-representative survey with information on both HIV and family planning. A total of 8,592 households were surveyed, including 7,522 women age 15-49. The survey had a two-stage sample design with 405 clusters in the first stage and systematic selection of households in the second stage. All women who stayed in the household the night before the survey were eligible to be interviewed, and HIV testing was undertaken for all eligible women in every second household in the original sample. Respondents voluntarily provided blood samples for HIV testing after being informed about the procedures, confidentiality, and the availability of voluntary counseling and testing (VCT) services. Three to five drops of blood were collected from a finger on a filter paper card; the filter paper was dried overnight and taken for laboratory testing.

Nineteen percent of the 3,758 eligible women were not tested<sup>4</sup> (12% of eligible women refused to be tested, 22% of those in urban areas and 8% of those in rural areas). The HIV data were anonymously linked to the sociodemographic data collected in other questionnaires, after information that could potentially identify an individual was destroyed.

Two outcome variables are used in this analysis: the desire for children and unmet need for contraception. The desire for children is measured by whether a woman would like to have a child in the future. Women that have not had sex are included in the construction of the variable; those that cannot get pregnant (i.e., sterilized or infecund) are not included; and those that are undecided are coded as not wanting a child. No variable in the LDHS measures the number of children desired in the future.<sup>5</sup> Unmet need for contraception comprises women who have an unmet need for limiting or spacing births. The unmet need variable is related to fertility preferences: broadly defined, unmet need for limiting births refers to women who do not want a child in future and are not using a method of family planning, and unmet need for spacing births refers to women who want a child in future but not within two years and are not using a method of family planning.<sup>6,7,8</sup> A more detailed definition can be found in MOHSW et al. (2005: 103).

There is no accurate measure in the LDHS of whether an HIV-positive woman is aware of her status. Instead, a proxy variable—whether a woman has ever been tested, when, and if she learned her status—is used (Table 1). Women who were last tested in the past 12 months and learned their status are assumed likely to be aware they are infected, although they may not be certain. This variable will be used in the analyses in the results section and may show if women who are most likely to be aware they are HIV positive

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<sup>4</sup> Analysis of nonresponse for the 2004 LDHS is in Mishra et al. (2007).

<sup>5</sup> There is a variable that measures ideal family size; in some cases this figure is less than the number of living children.

<sup>6</sup> Women desiring a birth within the next two years, not having sex, or never had sex are not included in the analysis.

<sup>7</sup> An attempt was made to create separate variables for unmet need to limit births and unmet need to space births. However, the number of cases for unmet need to space births for HIV-positive women is too small to allow a detailed analysis.

<sup>8</sup> There is a variable measuring whether a woman wanted her last birth.

have different fertility preferences and different levels of unmet need for contraception from other women. Although this variable has limitations, and any conclusions will be limited, it is the best available from the DHS data to measure self-awareness of HIV-positive status.

The results section initially presents tables on the desire for children and unmet need for contraception among HIV-positive women based on their knowledge of their status, as well as among HIV-negative women. The multivariate analyses of desire for children and unmet need for contraception are conducted on HIV-positive women and, for comparison, HIV-negative women, to determine if there are any differences in behavior by infection status. Given the low level of testing among HIV-positive women, even if awareness of being infected influences a woman's behavior, the results are expected to be similar.

The explanatory variables for both multivariate analyses include the socioeconomic and demographic measures of residence, marital status, household wealth quintile, education, age, and religion. Another variable measures the woman's knowledge that MTCT can occur during pregnancy, delivery, and breastfeeding.<sup>9</sup> For analysis of desire for children, a variable measuring the number of children still living is also included. The unmet need models include a variable measuring whether the respondent accessed family planning messages in at least one type of media in the past month (i.e., newspaper, radio, and television). Included in these models is a variable measuring whether the respondent approves of contraception and another variable indicating whether the respondent spoke to family planning staff in the past 12 months.<sup>10</sup> The multivariate analyses are conducted using logistic regression in Stata 8.1 (StataCorp, 2003). HIV weights are applied in the regression and the standard errors are adjusted for the cluster design of the sample. The odds ratio, which is the exponential of the coefficient in the model, is also presented.

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<sup>9</sup> An attempt was made to incorporate MTCT knowledge into the ever learned HIV status variable; however, the category sizes were too small to allow adequate analysis.

<sup>10</sup> The variable of whether the respondent spoke to family planning staff comprises women who were either visited by a family planning officer or visited a health facility and spoke to about family planning.

## Results

HIV-positive women in Lesotho who have learned their HIV status have a slightly lower desire for children than those who have not learned their status. Table 2 shows that the desire for children among HIV-positive women age 15-49 is 37.8% for those last tested in the past 12 months and learned their status, 32.5% for those last tested prior to the past 12 months and learned their status, and 39.4% for those who have never learned their status. However, these differences are not significant. There is no clear evidence of an association between knowledge of a woman's HIV status and desire for children. Furthermore, a sizable proportion of infected women (38.7%) intend to have a child, thus there is considerable potential for mother-to-child transmission in Lesotho. The proportion of HIV-negative women who want to have a child is higher (44.4%).

**Table 2 Percentage of women age 15-49 who want a child in the future, by HIV status, when tested, and whether they learned the results, Lesotho 2004**

HIV status/when tested/whether learned results	Wants child in the future	N
Positive, last tested in past 12 months and learned status	37.8	64
Positive, last tested prior to the past 12 months and learned status	32.5	63
Positive and never learned status	39.4	606
All positive women	38.7	733
All negative women	44.4	2,093
Total	42.7	2,826

Note: Weighted cases. A chi-square test was undertaken of desire for a child for all HIV-positive women versus HIV-negative women and is significant ( $p < 0.05$ ). A chi-square test was also undertaken of desire for a child by testing status of HIV-positive women but is not significant ( $p < 0.05$ ).

Source: MOHSW et al., 2005

Table 3 shows that unmet need for contraception is lower among HIV-positive women who were last tested in the past 12 months and learned their status (21.6%) than among those who were last tested prior to the past 12 months and learned their status (29.2%) and those who have never learned their status (32.5%). However, this difference is not significant. HIV-negative women have significantly higher unmet need for

**Table 3 Percentage of women age 15-49 with an unmet need for contraception to limit or space births, by HIV status, when tested, and whether they learned the results, Lesotho 2004**

HIV status/when tested/whether learned results	Unmet Need (%)	N
Positive, last tested in past 12 months and learned status	21.6	31
Positive, last tested prior to past 12 months and learned status	29.2	43
Positive and never learned status	32.5	331
All positive women	31.3	405
All negative women	44.3	1,042
Total	40.6	1,447

Note: Weighted cases. A chi-square test was undertaken of unmet need for contraception for all HIV-positive women versus HIV-negative women and is significant ( $p < 0.01$ ). A chi-square test was also undertaken of unmet need for contraception by testing status of HIV-positive women but is not significant ( $p < 0.05$ ).

Source: MOHSW et al. (2005)

contraception (44.3%). Table 4 shows that among both HIV-positive and HIV-negative women, injection and the pill are the most popular contraceptive methods. Only 6.3% of HIV-positive women age 15-49 in Lesotho use a condom, thus contraceptive use is contributing little to the prevention of transmission of the virus to a serodiscordant partner.

**Table 4 Percent distribution of women who are HIV positive and women who are HIV negative by use of specific contraceptive methods, Lesotho 2004**

Current contraceptive method	HIV-positive women		HIV-negative women	
	%	N	%	N
Not using	64.0	510	73.9	1,641
Pill	10.9	87	5.8	130
IUD	0.8	6	1.3	29
Injections	14.3	114	9.5	212
Condom	6.2	49	5.6	123
Female sterilization	2.2	17	2.3	51
Other	1.7	13	1.5	34
Total	100.0	798	100.0	2,221

Note: Weighted cases.

Source: MOHSW et al. (2005)

Table 5 shows the univariate statistics for the variables included in the multivariate analyses.

**Table 5 Univariate statistics for variables included in multivariate analyses of HIV-positive women and HIV-negative women age 15-49, Lesotho 2004**

Variable	HIV-positive women		HIV-negative women	
	%	N	%	N
<b>Place of residence</b>				
Urban	30.3	232	22.0	461
Rural	69.7	533	78.0	1,633
<b>Marital status</b>				
Never married	17.6	135	37.0	775
Currently married	54.4	417	53.5	1,121
Formerly married	27.9	214	9.5	198
<b>Household wealth quintile</b>				
Lowest	10.9	84	16.1	336
Second	19.4	148	18.4	385
Middle	17.8	136	18.2	381
Fourth	22.0	168	20.9	439
Highest	29.9	229	26.4	553
<b>Highest education level</b>				
None/primary incomplete	33.0	252	34.9	730
Primary complete	27.3	209	26.6	557
Secondary incomplete+	39.7	304	38.5	807
<b>Age</b>				
15-19 years	6.8	52	29.9	626
20-24 years	19.0	146	21.5	449
25-34 years	41.5	318	23.1	484
35+ years	32.7	250	25.5	534
<b>Religion</b>				
Roman Catholic	42.4	323	45.0	940
Lesotho Evangelical	22.2	170	20.9	437
Other	35.4	270	34.1	713
<b>Knowledge of MTCT</b>				
No	29.0	213	31.0	602
Yes	71.0	521	69.0	1,340
<b>Ever learned HIV status</b>				
No	82.7	606		
Yes, before last 12 months	8.6	63		
Yes, within last 12 months	8.7	64		
<b>Children still living<sup>1</sup></b>				
0	16.4	126	34.6	725
1	27.0	207	20.0	419
2+	56.6	433	45.4	950
<b>Heard of FP in the media<sup>2</sup></b>				
No	61.7	259	64.7	674
Yes	38.3	160	35.3	368
<b>Spoke to FP staff<sup>2</sup></b>				
No	85.2	356	83.7	869
Yes	14.8	62	16.3	170
<b>Approve of contraception<sup>2</sup></b>				
No/don't know	10.1	42	15.3	159
Yes	89.9	377	84.7	883
Total	100.0	766	100.0	2,094

Note: Weighted cases. For HIV positives, there are 3 missing cases for religion, 32 missing cases for knowledge of MTCT and 33 missing cases for ever learned HIV status. For HIV negatives, there are 4 missing cases for religion, 150 missing cases for knowledge of MTCT, and 3 missing cases for visited by FP worker.

<sup>1</sup> Includes current pregnancy.

<sup>2</sup> Only used in analysis of unmet need, so only based on 419 cases for HIV positives and 1,042 cases for HIV negatives.

Source: MOHSW et al. (2005)

Table 6 presents the bivariate statistics for the two multivariate analyses undertaken. There is no major difference in the bivariate relationship for each outcome variable according to HIV status of the woman. A significantly higher proportion of both HIV-positive and HIV-negative women who are younger or have fewer living children want a child in future than other women. A higher proportion of married HIV-positive women want a child in future than women who are never married or formerly married, while for HIV-negative women those who are never married are most likely to want a child in the future. Other variables, including knowledge of MTCT, household wealth quintile, and education, have no significant bivariate relationship with the desire for children for HIV-positive women. Unmet need for contraception to limit or space births has a bivariate relationship with a number of variables. There is significantly greater unmet need among HIV-positive women who live in rural areas, are currently married, live in poorer households, have less education, are older, have heard of family planning in the media, and approve of contraception. HIV-positive women with knowledge of MTCT have higher unmet need, the opposite of the finding for HIV-negative women. Unmet need is lower among women who have spoken to family planning staff, irrespective of HIV status.

**Table 6 Bivariate statistics for variables included in multivariate analyses of HIV-positive women and HIV-negative women age 15-49, Lesotho 2004**

Variable	Wants child in future		Has unmet need for contraception	
	HIV positive	HIV negative	HIV positive	HIV negative
<b>Place of residence</b>				
Urban	38.5	42.9	19.9	27.1
Rural	38.2	44.8 *	36.8 **	49.2 **
<b>Marital status</b>				
Never married	36.9	51.3	15.5	16.7
Currently married	47.1	45.0	38.7	50.3
Formerly married	21.8 **	13.9 **	17.5 **	23.9 **
<b>Household wealth quintile</b>				
Lowest	31.8	47.1	56.1	68.4
Second	38.6	40.2	32.3	60.8
Middle	34.2	47.2	38.2	42.7
Fourth	43.8	44.0	30.9	40.8
Highest	38.8	44.0	21.8 **	22.8 **
<b>Highest education level</b>				
None/primary incomplete	41.5	41.4	40.1	54.0
Primary complete	35.8	43.7	35.9	53.6
Secondary incomplete+	37.3	47.6	23.8 **	29.6 **
<b>Age</b>				
15-19 years	71.8	55.5	18.9	46.7
20-24 years	52.6	60.7	32.5	41.8
25-34 years	38.5	44.4	22.1	37.7
35+ years	22.7 **	17.7 **	45.2 **	51.9
<b>Religion</b>				
Roman Catholic	39.6	44.5	35.0	46.8
Lesotho Evangelical	32.8	42.1	22.5	41.0
Other	40.2	45.8	33.7	43.1
<b>Knowledge of MTCT</b>				
No	36.6	49.8	21.1	48.2
Yes	39.6	42.3 **	35.9 *	41.1 *
<b>Ever learned HIV status</b>				
No	39.4	-	32.5	-
Yes, before last 12 months	32.5		29.2	
Yes, within last 12 months	37.8		21.6	
<b>Children still living</b>				
0	76.8	63.4	-	-
1	52.4	52.9		
2+	20.4 **	26.2 **		
<b>Heard of FP in the media</b>				
No	-	-	33.9	49.2
Yes			27.5 *	35.5
<b>Spoke to FP staff</b>				
No	-	-	32.4	45.3
Yes			26.3	38.2
<b>Approve of contraception</b>				
No/don't know	-	-	70.5	72.0
Yes			29.2 **	39.4 **

Note: weighted cases.

\*p<0.05 \*\*p<0.01

Source: MOHSW et al. (2005)

The multivariate results in Table 7 show that factors associated with wanting to give birth in the future have a similar relationship for HIV-positive and HIV-negative women in Lesotho. Marital status and the number of children still living are the strongest determinants of whether a woman in wants to give birth in future. A currently married HIV-positive woman is almost 14 times more likely than a never-married woman to want to have a child, controlling for other factors. Both currently married (odds ratio=17.5) and formerly married (odds ratio=4.1) HIV-negative women are more likely to want a child than never-married women. There is a strong inverse relationship between future childbearing desires and the number of children still living for both HIV-positive and HIV-negative women. HIV-positive women age 35 and over are significantly less likely to want a child in future compared with those age 15-19. However, no relationship is found for any other age group. For HIV-negative women age 20-34 there is an increased desire for children compared with women in their teens.

**Table 7 Multivariate analysis of desire for children in the future, HIV-positive and HIV-negative women age 15-49, Lesotho 2004**

Variable	HIV-positive women		HIV-negative women	
	Odds ratio	Z	Odds ratio	Z
<b>Place of residence</b>				
Urban	Ref		Ref	
Rural	1.262	0.83	1.565	1.95
<b>Marital status</b>				
Never married	Ref		Ref	
Currently married	13.765 **	5.46	17.460 **	8.65
Formerly married	2.639	1.87	4.058 **	3.35
<b>Household wealth quintile</b>				
Lowest	Ref		Ref	
Second	1.076	0.18	0.843	-0.86
Middle	1.225	0.51	0.929	-0.32
Fourth	1.420	0.88	0.852	-0.72
Highest	1.521	1.09	0.889	-0.48
<b>Highest education level</b>				
None/primary incomplete	Ref		Ref	
Primary complete	0.603	-1.77	1.035	0.22
Secondary incomplete+	0.629	-1.82	1.032	0.18
<b>Age</b>				
15-19 years	Ref		Ref	
20-24 years	0.603	-0.99	1.918 **	3.35
25-34 years	0.478	-1.46	1.643 *	2.16
35+ years	0.292 *	-2.21	0.555 *	-2.25
<b>Religion</b>				
Roman Catholic	Ref		Ref	
Lesotho Evangelical	0.585	-1.86	0.731 *	-2.10
Other	0.930	-0.29	1.085	0.57
<b>Children still living</b>				
0	Ref		Ref	
1	0.136 **	-4.63	0.066 **	-8.69
2+	0.022 **	-7.38	0.016 **	-10.33
<b>Knowledge of MTCT</b>				
No	Ref		Ref	
Yes	1.865 *	2.39	0.951	-0.36
<b>Ever learned HIV status</b>				
No	Ref		-	
Yes, before last 12 months	1.067	0.17		
Yes, within last 12 months	1.215	0.46		
No. cases (unweighted)	715		1,924	

\*p<0.05 \*\*p<0.01

Source: MOHSW et al. (2005)

For HIV-positive women, there is no relationship between the desire for children and if and when they have learned their HIV status. Knowledge of MTCT is significantly associated with increased likelihood of wanting to give birth in the future for HIV-positive women, but there is no association for HIV-negative women. The desire for

children is not related to household wealth or education, irrespective of HIV status, nor is it related to religion for HIV-positive women.

Table 8 presents the multivariate results for unmet need for contraception, which again show little difference between HIV-positive and HIV-negative women. There is a strong relationship between wealth quintile and unmet need among both HIV-positive and HIV-negative women. A woman whose household is in the fourth quintile (HIV positive odds ratio=0.30, HIV negative odds ratio=0.40) or in the highest quintile (HIV positive odds ratio=0.22, HIV negative odds ratio=0.19) is much less likely to have an unmet need for contraception compared with those in the lowest quintile. HIV-positive women in the second quintile and HIV-negative women in the middle quintile are also significantly less likely to have unmet need for contraception. Such a disadvantage for the poorest women has been seen elsewhere (UNFPA, 2002). Currently married women have greater unmet need for contraception (HIV positive odds ratio=3.28, HIV negative odds ratio=6.00) than never-married women. HIV-positive women age 35 and above are far more likely to have unmet need for contraception compared with teenage women, while HIV-negative women age 20-34 have less unmet need.

**Table 8 Multivariate analysis of unmet need for contraception to limit or space births, HIV-positive and HIV-negative women age 15-49, Lesotho 2004**

Variable	HIV-positive women		HIV-negative women	
	Odds ratio	Z	Odds ratio	Z
<b>Place of residence</b>				
Urban	Ref		Ref	
Rural	1.405	0.90	0.929	-0.27
<b>Marital status</b>				
Never married	Ref		Ref	
Currently married	3.281 *	2.31	5.996 **	4.85
Formerly married	0.812	-0.31	1.742	1.05
<b>Household wealth quintile</b>				
Lowest	Ref		Ref	
Second	0.155 **	-3.17	0.813	-0.83
Middle	0.439	-1.42	0.339 **	-3.89
Fourth	0.296 *	-2.09	0.396 **	-3.06
Highest	0.215 *	-2.44	0.189 **	-4.81
<b>Highest education level</b>				
None/primary incomplete	Ref		Ref	
Primary complete	1.124	0.30	1.336	1.42
Secondary incomplete+	0.726	-0.86	0.681	-1.80
<b>Age</b>				
15-19 years	Ref		Ref	
20-24 years	2.671	1.35	0.432 **	-2.65
25-34 years	1.730	0.74	0.418 **	-2.61
35+ years	5.585 *	2.38	0.919	-0.25
<b>Religion</b>				
Roman Catholic	Ref		Ref	
Lesotho Evangelical	0.679	-0.98	1.019	0.07
Other	0.918	-0.26	0.859	-0.76
<b>Knowledge of MTCT</b>				
No	Ref		Ref	
Yes	1.696	1.56	0.663 *	-2.18
<b>Ever learned HIV status</b>				
No	Ref		-	
Yes, before last 12 months	1.446	0.73		
Yes, within last 12 months	1.650	-0.76		
<b>Heard of FP in the media</b>				
No	Ref		Ref	
Yes	1.162	0.45	0.997	-0.02
<b>Spoke to FP staff</b>				
No	Ref		Ref	
Yes	0.662	-0.95	0.691	-1.60
<b>Approve of contraception</b>				
No/don't know	Ref		Ref	
Yes	0.277 **	-2.82	0.302 **	-4.05
No. cases (unweighted)	394		975	

\*p<0.05 \*\*p<0.01

Source: MOHSW et al. (2005)

Having ever learned HIV status and, if so, when, has no relationship with the desire for children among HIV-positive women. Knowledge of MTCT is not significant for HIV-

positive women, but it decreases the likelihood of unmet need for HIV-negative women. Unmet need has no association with having heard of family planning in the media or having spoken to family planning staff; however, unmet need is lower if an HIV-positive woman approves of contraception.

## **Discussion**

In Lesotho, which has one of the highest HIV prevalence rates in the world and a total fertility rate (TFR) of 3.5 births per woman, reducing the level of mother-to-child transmission of HIV is of critical importance. Knowledge of the factors associated with the desire for children and unmet need for contraception among HIV-positive women can help identify strategies to reduce fertility levels and, hence, mother-to-child transmission. The desire for children among HIV-positive women is highest among those who are currently married, older women, and those who do not have any children. These factors are likely to be associated with fertility preferences in most contexts. However, the desire for children does not differ by socioeconomic status, except for religion, perhaps because the variable does not measure how many children a woman wants. Those with knowledge of mother-to-child transmission are more likely to want children in future, but it is difficult to interpret this finding because most of these woman are not aware they are HIV positive.

The variable that measures whether HIV-positive women are aware of their status has no bivariate or multivariate relationship with desire for children. There is, therefore, no conclusive evidence that HIV-positive women are changing their fertility desires based on knowing their HIV status. However, interpretation of this finding needs to take into consideration the limitations of this variable. The factors associated with the desire for children differ only slightly between HIV-positive and HIV-negative women. This result is not surprising because even if there is clear evidence that women who know they are infected with HIV limit future births, they are too small a proportion of the population of HIV-positive women to have an overall impact.

An important finding is that HIV-positive women in the lowest wealth quintile are most

likely to have an unmet need for contraception to limit or space births. Although the poorest women in Lesotho are the least likely to be HIV positive, their low level of contraceptive use (56.1% have an unmet need) and the importance of contraceptive use for prevention of mother-to-child transmission means their children are at greater risk of becoming infected. It is essential that access to family planning services is increased, to enable all HIV-positive women to “make informed reproductive choices” (Reynolds and Wilcher, 2006:8). Such improvements can occur through integration of family planning and HIV services. This will enable women who test positive for HIV and want to limit or space their births to have better access to contraception, and to reduce the level of mother-to-child transmission. Integration of HIV services, including voluntary counseling and testing, into family planning services will increase the proportion of HIV-positive women who are aware of their status and will educate them about the benefits of contraceptive use as a means of preventing mother-to-child transmission.

Other findings from the analysis of unmet need for contraception show that HIV-positive women have less unmet need for contraception (to limit or space births) compared with HIV-negative women, but they are less likely to have learned their HIV status than HIV-negative women. In the multivariate analysis, “ever learning HIV status” is not related to unmet need among HIV-positive women. Again, data limitations prevent major conclusions based on this variable. The lower level of unmet need among HIV-positive women compared with HIV-negative women may be explained by their higher wealth status. Of the other factors, the strongest relationship for HIV-positive women is for married status; currently married women are at greater risk of unmet need for contraception than never-married women. This result suggests that never-married women and their partners are more likely to use contraception because they are not in a formal union and want to guard against pregnancy.

An HIV-positive woman’s approval of contraception is found to decrease her unmet need; this suggests efforts to promote the understanding of the benefits of contraception will help women who wish to limit or space births. However, learning of family planning in the media or speaking to family planning staff in the past 12 months is not related to

unmet need. This finding indicates that messages describing the benefits of family planning need to be understood by the intended recipients.

In general, the predictive power of the factors associated with unmet need for contraception is similar for HIV-positive and HIV-negative women, as in the case of desire for children. Even if awareness of being infected did alter women's behavior, these women comprise too small a proportion of the population of HIV-positive women to substantially affect the overall results of those infected. An increased level of testing, with a focus on counseling on mother-to-child transmission, is needed to increase the proportion of HIV-positive women who are aware of their status.

With more than one-quarter of women age 15-49 in Lesotho HIV positive and a substantial number of excess deaths among children under five resulting from AIDS, it is crucial that the level of mother-to-child transmission is reduced. In addition to increasing HIV testing and counseling, strengthening family planning services for HIV-positive women is needed to reduce the level of unmet need for contraception and the level of unwanted fertility among these women.

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