

Young Adult Pregnancy and Pregnancy Outcomes in Southern Malawi

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Abstract

Despite the considerable attention demographers give to sexual behavior and fertility, pregnancy itself is an often-overlooked demographic state. Nonetheless, pregnancy experiences, particularly in sub-Saharan Africa, are important for understanding a variety of health outcomes, including: maternal mortality, unsafe abortion, fertility timing, and susceptibility to HIV infection. In the current study, we focus on the prevalence and predictors of pregnancy, miscarriage and abortion among young Malawian women. Our data come from Tsogolo la Thanzi, a new longitudinal study of reproduction in a peri-urban community of southern Malawi. We use two waves of survey data from 1500 young women aged 15-24 that include two direct measures of pregnancy (a detailed pregnancy history and a biomarker for current pregnancy) and one indirect measure (a report of best friends' pregnancy or abortion). We examine the context and predictors of pregnancy, miscarriage and abortion, including fertility desires and partnership characteristics at the previous wave.

Introduction

Pregnancy marks the threshold between sexual behavior (its precursor) and fertility (its product). Relatively little attention, however, has been devoted to examining pregnancy as its own phenomenon - something apart from sexual behavior and fertility. Because of the AIDS epidemic, researchers working in sub-Saharan Africa (SSA) focus their attention on the disease-related consequences of sexual behavior. In SSA, a region with distinctly high fertility, live births are of particular interest to demographers and sociologists; they mark the important transition to parenthood and are often classified as wanted, unwanted or mistimed. We are hardly the first in demography to consider reproductive outcomes other than live births in examining fertility and health. Yet in the ten years since Bledsoe and colleagues (1998) challenged demography's focus on live births as the only "reproductive currency," few have answered the call¹ (1998: 33). In this paper, we hope to draw attention back to the importance of other reproductive outcomes, such as miscarriage, abortion and pregnancy itself, by presenting the findings of a large, ongoing study that seeks to measure them. Specifically, we estimate the incidence of young adult pregnancy, pregnancy outcomes, with an emphasis on their predictors, and the context within which they occur in a community in southern Malawi.

Focusing on young adult pregnancy as its own outcome is important for developing a better understanding of a variety of demographic and health outcomes in SSA. In recent years, improvements in maternal mortality have stagnated in many African countries and even reversed in a few (AbouZhar and Wardlaw 2001). Pregnancy is a necessary risk factor for maternal mortality, yet without a thorough understanding of the determinants of pregnancy (as opposed to live births) or the frequency of various pregnancy outcomes, it is impossible to fully understand this worrying trend.

¹ Concluded on the basis of a key word search of two leading demography journals, *Demography* and *Population and Development Review*.

Unsafe abortion, for example, is thought to be the cause of 1 in 7 maternal deaths in the region, yet little is known about its predictors or the context within which it occurs (WHO 2007). Sixty percent of unsafe abortions in Africa are thought to be among women under the age of 25 (WHO 2007)—making this age group a particularly important focal point. Illegal or highly restricted throughout the vast majority of SSA, abortions are usually unsafe and high risk, as evidenced by the large numbers of women seeking post-abortion care for severe complications and the high levels of abortion-related maternal mortality in the region (Ronsmans and Graham 2006; Ahman and Shah 2006; Singh et al. 2009). The countries of Eastern Africa are considered to have among the highest rates of unsafe abortion in the world because of strict restrictions on legal abortion and low rates of contraceptive use (WHO 2007). Using indirect estimation techniques (Singh and Wulf 1994), the WHO estimates the incidence of unsafe abortion in the region to be 39 per 1000 women 15 - 44 each year. It further estimates that 20 unsafe abortions occur for every 100 live births in the region (WHO 2007).

Miscarriages are also a common but understudied reproductive outcome in SSA. In cultural contexts that highly value fertility, miscarriages—especially repeated miscarriages—may prompt concerns about fertility, and infertility or perceived infertility often leads to marital instability or divorce (Holloos and Larsen 2008; Hollos et al. 2009; Tilson and Larsen 2000). Miscarriages can also cause severe physiological and psychological consequences that influence future fertility and other important outcomes (Bledsoe et al. 1998; Bledsoe 2002). Yet, these are rarely examined.

The study of pregnancy as its own phenomenon must be couched in an understanding of other socio-cultural changes taking place. While studies of fertility emphasize the persistence of high fertility preferences across the region in spite of these changes, researchers have also documented a major shift in the timing of marriage in much of SSA. In most countries in the region, the age of first marriage for women has increased (Mensch et al. 2005), leading to a longer period of time for young women to be

exposed to the risk of premarital sexual activity (Blum 2007). While not all countries with delayed marriage have seen an increase in the *rate* of premarital sexual activity, many, including Malawi, have seen increases in both the prevalence and the rate of young people engaging in premarital sex (Mensch, Grant and Blanc 2006). Evidence suggests that the transition to marriage may be a particularly risky time for women as sexual frequency increases and condom use declines (Clark, Poulin, Kohler 2009). Bongaarts (2007) associates the lengthening period between first sex and first marriage as an important correlate of rising HIV prevalence at the aggregate (i.e., national) level. A rise in premarital sexual activity in a context of low contraceptive use carries the additional risk of unintended and possibly unwanted pregnancies, which in turn increases the likelihood of young women seeking unsafe abortions.

The period of time a woman spends pregnant is important independent of the outcome of the pregnancy. Pregnancies are inherently taxing on a woman's body (Bledsoe 2002), and repeated pregnancies -- even in the absence of a live birth -- drain a woman physically and increase her risk of maternal mortality (Loudon 1991; Mbizvo et al. 1993). Additionally, emerging evidence from Uganda and South Africa suggests that pregnancy itself may be a risk factor for HIV acquisition (Gray et al. 2005; Moodley et al. 2009). If evidence from these prospective studies is replicated elsewhere, measuring the incidence and duration of pregnancies will become increasingly critical for identifying periods of heightened risk exposure for women of reproductive age.

A significant barrier to research on alternative reproductive outcomes is the challenge of measuring the timing of pregnancy and pregnancy outcomes, especially miscarriage and abortion. Most data on fertility behavior in sub-Saharan Africa come from the Demographic and Health Surveys (DHS). The DHS is innovative in using a calendar to capture births, periods of contraceptive use, and terminations over the five-year period prior to the survey. While an invaluable source of demographic data, the DHS, which is household-based and cross-sectional, is not necessarily well designed for

disclosure of sensitive information. Retrospective reports over a long period of time are known to be problematic (Beckett et al. 2001), and the DHS data do not allow analysts to distinguish between miscarriages, abortions, and stillbirths.

In this paper, we use unique new data to examine the timing, outcome and context of young adult pregnancy and pregnancy outcomes in a peri-urban community in southern Malawi. The data include a detailed pregnancy history that contains direct questions about pregnancies and pregnancy outcomes, indirect questions on best friends' pregnancy and abortion history, and a biomarker for current pregnancy status, measured twice over a four-month interval.

The Malawian Context

Malawi is a country marked by high rates of pregnancy, childbirth, and maternal death. The total fertility rate is 6.0 children per woman and the maternal mortality ratio exceeds 950 deaths per 100,000 births (NSO and ORC Macro 2005). The median female age at first sexual intercourse is 17.3, the median age of marriage is 18.0, and the median age at first birth is 19.0 (NSO and ORC Macro 2005).

Under the Malawi penal code, abortion is illegal under all conditions except to save the life of the pregnant woman. Both the abortion practitioner and a woman who seeks an illegal abortion can be punished with imprisonment (United Nations 2007; Government of Malawi 2007). Nonetheless, clandestine abortion—largely unsafe—is common throughout the country in response to unwanted or mistimed pregnancies. There are no nationwide estimates of abortion in Malawi, but data from major hospitals suggest that abortion complications are the most common reason for hospital admission to the gynecological ward (Munthali et al 2004; Mtimavyale et al. 1997).

Data and Methods

Tsogolo la Thanzi (TLT)² is an ongoing longitudinal study in Balaka, Malawi designed to examine how young people navigate reproduction in an AIDS epidemic. The first wave of data collection took place between May and August 2009, and the second wave took place four months later between October and December 2009.

TLT used simple random sampling to draw a representative population from the villages around Balaka. First, a complete household listing was conducted of every household within a 7-km radius of the center of town. The catchment area includes a mix of rural and peri-urban communities around Balaka, a growing town 90 minutes outside the southern city of Blantyre. The household listing provided a sampling frame of all 15-24 year olds within the catchment area. From this list, a random sample of 1500 women and 600 men were recruited to participate in the study. Using respondent-driven sampling, female respondents were asked to recruit their sexual and romantic partners to participate in the study; 444 such partners were recruited during the June-August 2009 baseline survey. Data for the female sample are used for the present study.

One unique feature of TLT is the use of a centrally located research center for conducting interviews. Respondents were first contacted in their homes and asked to schedule a time for an interview. On their assigned day (or, more accurately, close to it), respondents came to the research center and were interviewed in a private room where their responses could not be overheard. The survey took approximately one and a half hours to complete, after which all women were offered pregnancy testing. The privacy offered by the TLT research center functions to increase the disclosure of sensitive information, such as non-marital pregnancies and abortions, which respondents may be

² This research uses data from Tsogolo la Thanzi (PI, Trinitapoli), a research project designed by Jenny Trinitapoli and Sara Yeatman, and funded by grant (R01-HD058366) from the National Institute of Child Health and Human Development. Persons interested in obtaining TLT data files should contact Tsogolo la Thanzi, Population Research Institute, Penn State University, 200 Oswald Tower, University Park, PA 16803.

more reluctant to disclose when conducting an interview in (or outside of) their own home, with friends, family members, and neighbors within earshot. Active refusals at the time of recruitment and passive refusals (i.e., not showing up at the research center) were relatively rare (96% of eligible recruited respondents were interviewed at baseline).

The second wave of interviews also included pregnancy testing and took place on average 4 months after the initial interview. 95% of respondents were reinterviewed at Wave 2 using an instrument that was designed to capture changes in the respondent's life since the previous interview.

TLT measures pregnancy, miscarriage, abortion and fertility preferences through a combination of direct and indirect methods.

Pregnancy history: At baseline, TLT collected a full pregnancy history from each female respondent. TLT adapted the DHS birth history to ask about each pregnancy and its outcome, rather than each birth (see appendix for instrument). Compared with studies that include all women of reproductive age (15-49), the age range of the TLT respondents (15-24) minimizes problems with recall bias, which could be considerable in a high fertility context where pregnancies are common. A similar approach has been used before in the U.S. National Longitudinal Study of Adolescent Health (Harris and Udry, 1994-2002).

Best friend report: Due to the sensitive nature of questions about youth pregnancy and abortion experiences, TLT complemented this direct approach with indirect questions about the respondent's best friend's pregnancy status and abortion history.

Pregnancy testing: After the completion of the survey interview, TLT interviewers asked all women (even visibly pregnant women and self-reported virgins) to take a rapid pregnancy test. Testing was done using the Acon one-step pregnancy test strip (Acon Laboratories, San Diego, CA). Respondents who consented to the test filled a cup with urine and watched the interviewer perform the test and explain the results.

Respondents could opt to take the pregnancy test and decline to receive their results, although this never happened.

Fertility preferences: Short-term fertility preferences were measured using two questions. The first question, asked of all women who did not report that they were currently pregnant, was a measure of fertility desires: “If you found out you were pregnant next month, would that news be...” Response categories included very bad, fairly bad, neither good nor bad, fairly good, and very good. The second question sought to measure fertility intentions using an interactive probabilistic measure of expectations (Delavande and Kohler 2009). Respondents were asked to indicate with ten beans the likelihood that they would be pregnant (again) within the year (0 and 10 beans indicating confidence the event would not occur and occur, respectively). Eliciting probabilistic expectations using beans has been shown to be a meaningful and appropriate data collection tool in rural Malawi (Delavande and Kohler 2009).

Wave2

Pregnancy outcome: All respondents who tested pregnant at Wave 1 were asked a series of questions about the status or outcome of that pregnancy at Wave 2.

Pregnancy testing: All respondents were offered pregnancy testing again at the end of their interview.

Between wave changes: The Wave 2 survey began with a series of questions about events that may have occurred and life conditions that may have changed between waves. Included in this line of questioning were questions about whether or not the respondent had a miscarriage or abortion between waves. These questions enable us to identify reproductive outcomes for pregnancies that were not identified at Wave 1 (either because the respondent refused to be tested or because the pregnancy occurred between waves).

One potential challenge with TLT's study design is the possibility that women who tested pregnant at Wave 1 could deny having been pregnant at their Wave 2 interview 4 months later. We were aware of this potential challenge from the start and implemented a number of procedural policies to minimize its occurrence. First, wherever possible the original interviewer was assigned to reinterview the same respondent at the second wave. Respondents were expected to be more open with an interviewer they remembered from the previous wave – a person they know knew their pregnancy status. Second, the Wave 2 coversheets indicated whether or not the respondent had tested pregnant at the previous wave. Third, when a respondent did not acknowledge a reproductive outcome (still pregnant, miscarriage, abortion, live birth, or still birth), the interviewer would ask the data manager to confirm that our data, indeed, indicated that the respondent was pregnant at the time of their previous interview. Once confirmed, the interviewer would gently probe about the pregnancy taking great care not to pressure the respondent. In almost every case, using these methods, interviewers were able to elicit a response from the respondent. Most respondents in these circumstances did not use the word miscarriage or abortion but instead described “a heavy menstrual flow” marking the end of the pregnancy. Interviewers then sought to clarify whether or not the respondent was referring to a miscarriage (i.e., spontaneous) or an induced abortion (e.g., heavy flow after taking some herbs).

Results

Table 1 presents descriptive results and pregnancy-related variables for TLT female respondents at baseline and Wave 2. 1492 women were interviewed at baseline and 1412 of these same women were re-interviewed four months later. At baseline, the mean age of the sample was 19.5; 40.0% were currently enrolled in school and 50.4% had never been married. 71.5% of the sample reported having ever had sex and 61.5% reported having had sex in the past 12 months.

With the notable exception of abortion reports, reports on respondents' best friend closely mirrored the self-reported characteristics of the sample. 42.1% of the sample was currently married compared to 43.0% of their best friends. 9.7% of women reported that they were currently pregnant at baseline, which was the exact same percent that indicated their best friend was pregnant. When respondents were asked to recount past pregnancies and whether or not any had ended in miscarriage or abortion, however, a considerable discrepancy emerged between reports of own abortion and reports of best friend's abortion. While only 0.5% of respondents acknowledged that they had ever had an abortion, 8.0% were confident that their best friend had had an abortion. Only 3.9% of respondents acknowledged having had a miscarriage. Thus, even if all these respondents were reclassifying their induced abortions as miscarriages to be more socially acceptable, the estimates are still considerably lower than their reports of the abortion experience of their best friends.

When offered testing for pregnancy during the baseline, 94.0% of respondents agreed to be tested. Among those tested, 12.8% tested pregnant. The largest single reason given for refusing to be tested was current menses, which if accurate, would reduce the pregnancy prevalence to 12.6%. Table 2 compares the results of the pregnancy test to self-reported pregnancy status. Of respondents tested, 96.3% accurately reported their pregnancy status. 3.1% of women who reported not being pregnant were pregnant and 6.9% of women who reported being pregnant were not pregnant according to the pregnancy test. The prevalence of pregnancy was 3 percentage points higher when measured directly by pregnancy testing compared to self-reports of pregnancy. 35.0% of respondents who tested pregnant were pregnant for the first time and 40.6% were nulliparous.

One of the benefits of testing for pregnancy is the ability to verify self-reported sexual exposure with a biomarker. One respondent who reported never having had sex (age 16) and two respondents who reported no sexual activity in the past 12 months

(ages 17 and 19) tested pregnant. At Wave 2, six respondents who tested negative for pregnancy at Wave 1 and reported no sexual activity between waves, tested pregnant.

Of the 1412 women who were reinterviewed at Wave 2, 1180 were tested twice for pregnancy. The figure increases to 1238 if refusals for menses at either wave are treated as evidence of non-pregnancy. Table 3 presents the pregnancy outcomes of women who tested pregnant at baseline. Seven such women were not reinterviewed at Wave 2, due to migration (n=4), death (n=2) and loss to follow up (n=1). Of the women who were reinterviewed, 41.3% were still pregnant, 44.8% had a live birth between waves, 8.7% experienced a miscarriage, 1.7% had an abortion, 0.6% had a still birth, and 2.9% were unknown.

When asked about changes that occurred over the past 4 months, respondents reported an additional 5 miscarriages (1 following a live birth) and 13 abortions (1 following a live birth). These reproductive mishaps referred to pregnancies that were not measured at baseline and had ended before Wave 2. Women who had miscarriages between waves (n=20) were no different on key characteristics from women who were pregnant at either wave (Table 4). Women who had abortions (n=16), however, did differ from women with existing pregnancies in important ways. Women who had abortions were more likely to be in school, more likely to have never been married, and reported being less satisfied with life and in worse health prior to the abortion.

We capture a total of 85 new and prevalent pregnancies at Wave 2. To understand the context of new pregnancies, baseline fertility preferences and relationship characteristics were used to predict pregnancy four months later (Table 5). Unsurprisingly, women in a sexual relationship were more likely to be pregnant at the next wave and women in such a relationship who were not using contraception were almost three times as likely to be pregnant.

In general, short-term fertility preferences are strong predictors of incident pregnancy. For example, 27.1% of respondents who indicated that it would be very good

if they were pregnant next month (fertility desire) were indeed pregnant at the next wave, compared to 5.2% who indicated that such a pregnancy would be very bad. Similarly, respondents' reported likelihood of pregnancy or birth within the next year (fertility intention) was strongly predictive of actual pregnancy four months later. When the sample is stratified by marital status, desired pregnancy timing is only a significant predictor of pregnancy for married women, although fertility intention remains significant for both married and unmarried women.

Other studies from across the region have reported that approximately 30% of pregnancies are unintended (Cleland et al. 2006; Hubacher et al. 2008). Using our sensitive measure of pregnancy and two prospective measures of fertility desires and intentions we find higher rates. 48.8% of women who became pregnant between waves, reported at baseline that a pregnancy next month would be very bad; an additional 9.5% reported that such a pregnancy would be bad. Using the measure of fertility intentions, 29.1% of respondents who said there was no chance they would be pregnant or have a birth within the year were pregnant 4 months later. On the other hand, the relationship between our probabilistic measure of fertility intention and actual pregnancy (Figure 1) reveals an exponential, rather than linear, relationship; which suggests that the relationship between intentions and pregnancy remains a particularly powerful (if imperfect) one.

Discussion

Our results highlight both the feasibility and the challenges inherent in measuring pregnancy as its own phenomenon. Having respondents report on the characteristics and behavior of their best friends, who are likely to be similar to them on key demographic traits, may be an effective and inexpensive way of collecting sensitive information on reproductive outcomes. Best friends' reports perfectly mirrored those of respondents on marriage and pregnancy—not particularly sensitive topics—and yet

were 16 times higher for abortion—a very sensitive topic. In aggregate, best friends are very similar to respondents and reports on them can provide meaningful data on the prevalence of certain behaviors; however, best friend reports are insufficient for examining individual predictors or consequences of behavior.

We further suggest that personalized interviewing techniques and concerted effort to establish rapport with respondents over time vastly improve self-reports of abortion. Our Wave 1 estimate of 0.5% of women ever having an abortion is utterly unbelievable – especially when contrasted with our respondents’ reports about their best friends. Incident abortion of 1.1% during a four-month interval, however, is twice as high as the ever-reports we documented in our first encounter with our respondents. This figure is more believable, more consistent with best friend reports, and suggests that even in the context of an institutionalized research project, sustained interaction between interviewer and respondent may produce better estimates of induced abortion and potentially other sensitive behaviors. Our estimate of approximately 34 abortions per 1000 women aged 15-24 per year is close to indirect estimates for the region (39 abortions per 1000 women aged 15-44 per year for Eastern Africa in 2003; Singh et al. 2009).

Pregnancy testing is a cheap and easily implemented tool that holds promise for a number of important lines of inquiry. Our study found that self-reported pregnancy underestimates the true prevalence by approximately 30%. Additionally, pregnancy testing can be used in studies of various designs to confirm notoriously unreliable reports of sexual behavior, particularly in low-contraceptive contexts where the prevalence of pregnancy is likely to be higher than or at least as high as some sexually transmitted infections – and easier to test for. Cross-sectional and demographic surveillance studies could use pregnancy testing to compare the prevalence of pregnancy with the prevalence of live births to estimate alternative reproductive outcomes. These analyses would have to consider possible seasonal variation in

pregnancy – especially in communities with seasonal migration or distinct famine seasons.

Longitudinal studies could incorporate pregnancy testing to achieve a number of important objectives. Studies designed to measure HIV incidence could use pregnancy testing to examine the evidence for increased HIV acquisition during pregnancy, estimates that would be inaccurate if they relied solely on self-reported data.

Miscarriages and abortion are hard to measure; yet these are important (and statistically non-negligible) reproductive outcomes and worth the effort. Longitudinal studies could measure abortion and miscarriage over time and examine the individual-level predictors and consequences of these important reproductive outcomes. Through measuring pregnancy twice, at a short (4-month) interval, our measurement of abortion was significantly improved, though it is still likely that some women misreported abortions as less-stigmatized miscarriages.

Implementing pregnancy testing in the field also introduces some additional challenges for data collection. Pregnancy testing may provide respondents with new information that affects the timing of pregnancy outcomes. For longitudinal studies such as our own, where we seek to measure rather than influence outcomes, this is of particular concern. On the other hand, pregnancy tests can only detect pregnancies four weeks after the start of a woman's last period. For most Malawian women, the absence or delay of one's period is a marker of pregnancy. While less definite than a pregnancy test, we doubt the act of pregnancy testing itself—particularly, giving some women information about their pregnancy status earlier than they may have otherwise had it—will have a dramatic effect on pregnancy outcomes. It is also possible that because respondents anticipated being tested again for pregnancy, women who would have chosen to have an abortion, decided not to do so. However, we consider this possibility exceedingly unlikely because the extreme social and physical risks of an abortion in

Malawi far outweigh the relatively minor ones associated with disclosure during the study.

Overall, our results reveal that young women in Malawi have considerable control over their fertility. Their desires for pregnancy are among the strongest predictors of pregnancy³. Their efforts to prevent pregnancy (i.e., abstinence and contraception) and desires to delay childbearing are nearly equally strong in the opposite direction. Pregnancy is not something that happens to them (Watkins 1993) but for most is a conscious choice as they transition to adulthood and solidify their relationships.

It is important to note, however, that a sizable portion of pregnancies among young women in Malawi – indeed, nearly half – are unintended, undesired and mistimed. 49 percent of the newly pregnant women in our study had reported no desire, and 30% had reported no intention, to become pregnant in the near future when they were interviewed four months earlier. This rate of unintended pregnancy, while high, is similar to rates in the United States, and actually lower among women of comparable ages (Finer and Henshaw 2006). Some of these pregnancies will be terminated but most will be carried to term. It is unclear to us whether these pregnancies primarily represent contraceptive failure, a lack of information about or access to contraception - or some other process. For example, ambivalence about childbearing might be particularly high in a context like Malawi. Most women in our sample are experiencing acute economic hardship and may not feel “ready” to have a child (or at least report that they are not). At the same time they desire to become adults in the eyes of the friends and neighbors and to solidify their romantic relationships; this combination of desires and intentions may lead to a distinct form of decision making about sexual relationships and contraception that elevates the prevalence of pregnancies we classify as unintended.

³ Confirmed by multivariate analyses including all variables in Table 5, age and education (not shown).

This may be a particularly important area for future study as researchers continue to unpack the complexities that surround fertility patterns in this region.

Our findings echo those of other researchers about the decreasing relevance of marriage for pregnancy in SSA (e.g., Harwood-Lejeune 2001). The context for childbearing is changing in Malawi: our study found pregnancy rates to be similar for married women and never married women who are no longer enrolled in school. Rates of live birth are lowest, and abortion rates are highest, among women who are enrolled in school. The goals of advanced education and entry into motherhood—while both desirable—are seen as incompatible for most women in the region (Johnson-Hanks 2006). Pregnancy outside of marriage is increasingly common and serves as an important step along the “path” to marriage, which is not clearly institutionalized in this setting of rapidly changing economic realities and cultural transformation.

Measuring pregnancy and pregnancy outcomes in surveys is a challenging enterprise. Based on our experience in rural Malawi, however, we argue that it is indeed possible and worth the additional time and resources. Pregnancies are important events in a woman’s life whether or not they result in children (Bledsoe et al. 1998), and are worthy of additional research attention.

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Table 1. Descriptive Statistics, TLT Waves 1 and 2, 2009

	Wave 1 (%)	Wave 2 (%)
Age group		
15-19	50.7	50.6
20-24	49.3	49.4
Education		
Still in school	40.0	38.8
Completed high school	10.6	10.5
Completed primary school	42.9	42.7
Less than completed primary	46.5	44.8
Marital status		
Married	42.1	42.3
Divorced/separated/widowed	7.5	7.4
Never married	50.4	50.4
Sexual activity		
Ever	71.5	--
Last 12 months	61.5	--
Last 4 months	--	51.1
Self-reported pregnancy status		
Not pregnant	88.2	91.6
Pregnant	9.7	8.3
Don't know	2.1	0.1
Pregnancy test result		
Not pregnant	81.6	77.1
Pregnant	12.1	11.3
Indeterminant	0.3	0.0
Refused-menses	2.2	2.6
Refused-other	3.8	9.0
Self-reported alternative reproductive outcomes		
Miscarriage (ever)	3.9	--
last 4 months	--	1.4
Abortion (ever)	0.5	--
last 4 months	--	1.1
Stillbirth (ever)	1.5	--
last 4 months	--	0.6
Best friend report of marital status		
Currently married	43.0	--
Best friend report of pregnancy		
Currently pregnant	9.7	--
Best friend report of abortion		
Yes	8.0	--
Suspect	0.7	--
N	1492	1412

Table 2. Relationship between self-reported pregnancy status and biomarker status

Survey response	Pregnancy test result			
	Not pregnant	Pregnant	Refused-menses	Refused-other
Not pregnant	90.3	3.1	2.5	3.9
Pregnant	6.9	90.3	0	2.1
Don't know	28.1	62.5	0	9.4
Total	81.6	12.1	2.2	3.8
n	1218	180	33	57

*note: 4 interdeterminant test results were dropped

Table 3. Four-month reproductive outcomes for women who tested pregnant at Wave 1

	Percent (n)	# pregnant again
Still pregnant	41.3 (71)	n/a
Live birth	44.8 (77)	0
Miscarriage	8.7 (15)	1
Abortion	1.7 (3)	0
Still birth	0.6 (1)	0
Unknown	2.9 (5)	2
	n=172	

Table 4. Predictors of reproductive outcomes, TLT Wave 1 and 2

	Miscarriage	Abortion	Pregnant ¹
Age (mean)	21.4	19.6	20.5
Education (%)			
Still in school	5.0	37.5* ²	14.5
Completed high school	15.0	6.3	10.1
Completed primary school	20.0	50.0	36.3
Less than completed primary	65.0	43.8	53.6
Marital status (%)			
Married	80.0	43.8+	69.0
Divorced/separated/widowec	0.0	6.3+	5.7
Never married	20.0	50.0+	25.4
Satisfaction with life (%)			
Very satisfied	25.0	37.5+	29.0
Satisfied	50.0	31.3+	44.0
Somewhat satisfied	25.0	12.5+	22.6
Somewhat unsatisfied	0.0	18.8+	4.4
Self-rated health (%)			
Excellent/very good	60.0	62.5**	60.9
Good	35.0	18.8**	36.7
Fair/poor	5.0	18.8**	2.4
Abortion beliefs (%)			
Abortion is a sin and always wrong	94.7	87.5	94.4
A man who has sex with a woman who had abortion will die soon	100	100	93.1
N	20	16	248

¹All other women who tested pregnant at Wave 1 or Wave 2

²Significantly different from pregnant women at **p<0.01; *p<0.05; +p<0.10

Table 5. Predictors of pregnancy among non-pregnant women over a 4-month period, TLT Waves 1 and 2, 2009

	Pregnant	Not Pregnant	N ¹
Reaction to pregnancy next month			
Very bad	5.5	94.5	752 **
Fairly bad	5.6	94.4	143
Neither good nor bad	11.6	88.4	43
Fairly good	10.9	89.1	55
Very good	27.6	72.4	87
Likelihood of pregnant or birth in year			
0	5.0	95.1	505 **
1-4	6.7	93.3	389
5-8	13.1	86.9	153
9-10	33.3	66.7	42
Mean (and interquartile range)	3.64 (0, 7)	1.67 (0, 2)	
Ongoing sexual relationship			
No	3.9	96.1	513 **
Yes	11.3	88.7	577
Contracepting	4.9	95.1	244 **
Not contracepting	15.9	84.1	333
Consistent condom use	13.0	87.0	69
Not consistent condom use	11.0	89.0	508
Marital Status			
Married	10.9	89.1	412 **
Formerly married	8.5	91.5	596
Never married	5.5	94.5	82
& not enrolled in school	8.0	92.0	125
N			1090

¹Includes respondents with a negative pregnancy test or refusal for menses at Wave 1 and a valid pregnancy test or refusal for menses at Wave 2

**p<0.01; *p<0.05; +p<0.10

Figure 1. Pregnancy intention as a predictor of actual pregnancy over 4 months

