Contraceptive Use Among Hispanics on the U.S.-Mexico Border and Hispanics Throughout the United States

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ABSTRACT
This study compared samples drawn from a postpartum survey of Hispanic women at Thomason Hospital in El Paso, Texas and a comparable subsample of the 1995 National Survey of Family Growth. Contraceptive users in the El Paso sample relied primarily on hormonal methods (the pill and injectables) and women in the NSFG sample relied predominantly on condoms and, to a lesser degree, the pill. The proportion of women who used contraception before having their first child in the Thomason sample was less than half the proportion of contraceptive users in the NSFG sample (32% vs. 69%), a difference that persisted after controlling for censoring and numerous covariates. However, among higher parity mothers use of hormonal contraceptives was greater in the El Paso sample. Since a high proportion of women in the Thomason sample procured their hormonal methods over-the-counter from pharmacies in Mexico, we speculate that this easy method of procuring contraceptives without any medical requirements may have been responsible this reversal.

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Introduction

A recent study (Potter, Moore and Byrd 2003) found that 52% of contraceptive users interviewed postpartum at Thomason Hospital in El Paso, Texas had used the pill and 26% had used the injectable. Moreover, 42% of pill users and 54% of injectable users had procured their contraceptives in Mexican pharmacies. For users of the pill and injectables, they found that the propensity to procure their method in Mexico was greatest among women who had been both born and educated in Mexico, and greater among women who had been born in Mexico and finished their education in the U.S. than it was among women who were born and educated in the U.S. Other factors such as age, parity and years of education were only weakly associated with the propensity for cross-border procurement. Potter and colleagues also found that the effectiveness of use, as measured by reported reasons for method discontinuation, appeared to be as good for hormonal contraceptives obtained in Mexico as it was for those obtained in the U.S. As for contraceptive satisfaction, also measured by the reasons for discontinuation, women who procured contraceptives in Mexico had as favorable an experience as women who obtained supplies in the U.S.

Findings from the National Survey of Family Growth (NSFG) show that Hispanic contraceptive use rose from 51% in 1982 to 59% in 1995 (Piccinino and Mosher 1998). Meanwhile, pill use among Hispanics dropped during this period from 30% to 23%. At the same time, female sterilization gained in popularity, with the largest percentage point jump found among Hispanic women. To our knowledge, no study has explored why the pill lost its place as the number one method for Hispanics during this period.

In this paper, we compare two samples of Hispanic women – one, derived from the Thomason Hospital study and one derived from the NSFG – to explore similarities and

differences in contraceptive use among those who live along the U.S.-Mexico border and those in the general Hispanic population. In comparing these two samples, we find notable differences in the use of hormonal contraceptives, and we speculate that the higher use among U.S. residents who live along the border with Mexico is due to their easier access to hormonal contraceptives.

Hispanic Fertility and Contraceptive Use

Hispanics make up 12.5% of the U.S. population and 25% to 42% of the populations of Arizona, California, New Mexico and Texas (Guzmán 2001), the majority of whom are of Mexican origin. Since Hispanics tend have a younger age structure and have higher total fertility rates (TFR) compared to Non-Hispanic Whites (3.1 for Hispanics; 2.1 for Whites), we can expect the proportion to grow larger relative to other race/ethic groups. Mexican-American women, in particular, have the highest TFR (3.3) of all Hispanic subpopulations (MacDorman et al 2002). Given these differentials and the growing importance of Hispanics in U.S. society, the existing literature on Hispanic fertility and contraceptive practice is surprisingly thin.

Where the literature on Hispanic fertility and contraceptive practices is weak, the literature on Mexican immigrant and Mexican-American women is even sparser, with a few important exceptions. Bean, Swicegood and Berg (2000), in a nuanced study of fertility and nativity, found that third-generation Mexican-American women not only had higher fertility levels than White women, they were also higher than that of second-generation Mexican-Americans. This finding was recently confirmed in Frank and Heuveline (2005). Aneshensel et al. (1990), using data collected 1984-1985, found that, compared to non-Hispanic Whites and U.S.-born Mexican-Americans, Mexico-born adolescents tended to start sexual intercourse later, but were more likely to become pregnant if sexually active and more likely to give birth if

pregnant. Non-Hispanic Whites, with the highest level of sexual activity, were nonetheless least likely to get pregnant and if pregnant, least likely to give birth. Mexican-Americans fell between the two nativity groups on these measures. Moreover, while Mexican-Americans contracept at lower levels than do Whites, these associations are almost entirely explained by the groups' characteristics as they relate to sexual intercourse, rather than true differences in contraceptive practices among the sexually active (Aneshensel, Fielder and Becerra 1989).

Acculturation—the concept that more exposure to U.S. culture decreases traditional Hispanic values such as familism, machismo, fatalism, and folk beliefs (Cuellar, Arnold, and Gonzalez 1995)—is often employed to explain differences in behavior between Mexican immigrants and Mexican-Americans. Acculturation has been shown to be positively associated with male condom use (Ford and Norris 1993; Sabogal et al. 1995) and acculturated women have been shown to navigate the health-care system more efficiently (Castro, Furth and Karlow, 1984).

But a myopic focus on acculturation has several problems. For one, it is not clear anymore that Mexican immigrants necessarily come from a fertility regime that differs so radically from the one found in their destination. The total fertility rate in Mexico in 2001 was 2.34 while the TFRs in four of the traditional sending states to the El Paso-Ciudad Juárez region (Chihuahua, Durango, Coahuila and Zacatecas) ranged between 2.31 and 2.46 (CONAPO 2003). The 2001 TFR for Texas, by comparison, was 2.33 (Texas Department of Health 2003), while for Hispanics it was 2.96. Moreover, Frank and Heuveline (2005) show a crossover in fertility rates between Mexicans in Mexico and the Mexican-origin population in the U.S.: since the mid-1990s, total fertility rates have been higher for U.S. Mexican-origin women than for Mexicans.

An example of a study which places an inordinate emphasis on acculturation is Unger and Molina (2000). The authors list several possible explanations for differences in

contraceptive use among Mexican-Americans—among them, machismo, religious reasons, son preference, and lack of adequate access to contraceptives—but focus their analysis entirely on the acculturation aspects of the question, while ignoring the structural access question. And, contrary to their hypothesis, Unger and Molina found that moderately acculturated women had lower intention to use contraception compared to the unacculturated. The findings of Bean *et al.*'s (2000) and Frank and Heuveline (2005) mentioned above, that third-generation Mexican-Americans have higher fertility than those in the second generation, also illustrates the limitations of what the authors call an assimilation or cultural adaptation perspective.

An equally plausible hypothesis is that Mexican immigrants and Mexican-Americans have more limited access to contraceptive services compared to Whites. Structural barriers to care for these groups may include cost, language differences, and, for undocumented immigrants, fear of being turned over to immigration authorities. Vega and Amaro (1994) report that in the absence of financial barriers, such as for those who use Medicaid, health services use rates among Hispanics were higher than for other race-ethnic groups. On the other hand, provider characteristics still may limit health services access for Hispanics, even in the absence of financial barriers (Ginzberg 1991).

In this study, in order to investigate whether access may be factor in contraceptive use, we compare the contraceptive use and contraceptive mix of a sample of Hispanic women on the U.S.-Mexico border with Hispanics who live throughout the U.S.

Methods

Background

Data for this study come from two sources—the 1995 NSFG, a nationally representative sample of women between the ages of 15 and 44, and a postpartum survey conducted among

women who had just completed a pregnancy at Thomason Hospital in El Paso, Texas (the same source as the Potter *et al.* 2003 article mentioned above). Thomason hospital is home to one-third of all El Paso County births and primarily serves a low-income population. Administered in 1996 and 1997, women were interviewed in the postpartum recovery of Thomason's maternity ward on a host of background, contraceptive and health questions.

El Paso is an ideal site to study contraceptive access issues because, unlike most other U.S.-Mexico border city pairs, both El Paso and Ciudad Juarez are large cities, with a combined 2000 population of 1.75 million living on both sides of a relatively fluid border. These cities also have one of the largest concentrations of people on the United States-Mexico border (U.S. Census Bureau 2000; Timmons 1990) and are highly integrated, with extensive trade moving in both directions. Price differences between the two cities in oral contraceptives are wide: in Ciudad Juarez, most pill packs sell for between $3 and $5 dollars while the same or comparable pill packs in El Paso sell for ten times that ($32 to $49).

Generating Comparable Samples

The main problems we confront in attempting to compare the results of the Thomason postpartum survey and NSFG are that the interviews for these two surveys were conducted at different points in a respondent's reproductive life span, and that each survey contains only a limited retrospective window in which contraceptive use was recorded. NSFG is based on a representative sample of women of reproductive age, irrespective of their reproductive status. At interview, women provided a complete history of their pregnancies, including outcomes and dates pregnancies were completed. Women were also asked to provide a monthly accounting of their contraceptive method use beginning January 1991 and ending with the month of the interview, which occurred some time between January 1995 and October 1995. In the Thomason survey, on the other hand, women were interviewed about one day following the

delivery of a live born child, and were asked to provide a history of their use of contraception in the preceding birth interval or, if primiparas, in the two years preceding their pregnancy. To take a sub-sample of NSFG that mimicked the Thomason design, in the case of primiparas, one could select women who were pregnant at interview, or who had had a first child some time between the date of interview and January 1993, or two years after the start of the contraceptive method calendar. Replicating the design for multiparas would be more difficult (indeed, impossible) since there would be some women whose previous pregnancy ended before the start of the contraceptive calendar.

In addition to the difficulty in generating comparable samples of birth intervals from the two surveys, there is the additional problem of the limited number of Hispanics included in NSFG (1,553). Any procedure that involved greatly restricting the sample for matching purposes would yield a very small sample of respondents. For example, our first attempt to produce comparable samples involved excluding any Hispanic NSFG respondents who were childless (344), any with just one live birth whose delivery took place before the start of the method calendar (145), as well as any multiparas whose last pregnancy interval began before this date (706), leaving only 357 respondents.

Faced with this dilemma, we took another look at our options and explored ways that we might be able to compare experience in partial as well as complete birth intervals. We reasoned that both NSFG and Thomason contained a good sample of births. In NSFG, these were recorded at any point during the method calendar, while Thomason contained a systematic sample of the births taking place at that hospital between May 1996 and April 1997. That being the case, we felt that our best approach would be to look at experience preceding the conception of the index births, and use life table methods that would take account of the censoring that would occur as one went back in time due either to the start of the method

calendar or the birth of an earlier child. This would involve estimating a hazards model, but one one which ran in reverse, that is to say backwards in time. With these safeguards, we could use all Hispanic NSFG respondents who became pregnant or had a delivery during the 1991-1995 period except those for whom the date of conception of that delivery preceded the start of the calendar.

Proceeding in this manner, we obtained two samples of contraceptive use in the last closed interval. In the case of Thomason, due to the survey having been administered postpartum, this is all we have. In NSFG, this procedure involved eliminating all use recorded in the calendar for months following the end of the last pregnancy. Such samples are, of course, not representative of all contraceptive use in the respective populations, and clearly leave out the bulk of the large amount of limiting contraception, especially that accomplished with female sterilization. However, these samples should provide a reasonable assessment of contraception practiced for the purpose of spacing births.

There are, however, several important differences between the two sub-samples. The first is that since the Thomason survey was done postpartum, all last intervals by definition ended in birth, whereas in NSFG, 521 cases, 399 (76.6%) ended in live birth, 10.2% ended in induced abortion and 8.8% ended in miscarriage. 14% of the sample (87 cases) were currently pregnant, so we do not know the pregnancy outcome. The remaining five cases were either stillbirths or an ectopic pregnancy. The second difference has to do with the censoring, proceeding backwards in time, implied by either by the start of the calendar in January 1991 in NSFG, or by the start of the calendar two years before delivery for the primiparas in Thomason. The two samples might end up being quite similar with respect to average amount of time in which contraception was recorded for primiparas, but they would be quite different for multiparas.

To cope with the censoring resulting both from the start of the calendar and the end of the previous pregnancy, we used the life table and hazard model procedures available in STATA to process the pooled samples. First, we estimated cumulative "failure" rates by both survey (NSFG vs. Thomason) and whether the respondent had a prior pregnancy (we refer to this difference loosely as primiparas versus multiparas). Second, to assess statistical significance, and also to asses how a number of the available covariates might account for the differences between the samples, we estimated hazard models of time to "failure". Note that the event in question here is contraceptive use, and that since we are proceeding backwards in time, "failure" is triggered by finding the end of the last segment of contraceptive use in the closed interval.

In our preliminary examination of contraceptive use in the interval preceding the conception of the last pregnancy, we consider use of all temporary methods, distinguishing between pills, injectables, Norplant, condoms, and IUDs, grouping all other methods as "other". In the life tables and hazard models, we consider only oral contraceptive use, and hormonal contraceptive use (use of either OCs or injectables).

Finally, to shed additional light on one of our findings—a marked difference between NSFG and Thomason with respect to the relative levels of contraceptive use between primiparas and multiparas, we prepared an additional tabulation showing this relationship for a large, nationally representative sample of women in Mexico.

Results

Constructing Comparable Samples

Figure 1 shows the systematic reduction of both samples to obtain comparable samples for analysis. The Thomason data began with 3,134 women interviewed postpartum. We

excluded from the sample women who identified themselves as non-Hispanic (109), those who resided in Mexico (158), and those with incomplete or inconsistent information on their contraceptive use (8). This left us with a final Thomason postpartum sub-sample size of 2,859. For the NSFG sub-sample, we excluded non-Hispanics (9,294 cases), those who had no pregnancies (345), and those whose pregnancy ended fewer than ten months before the start of the method calendar (600). This resulted in a final NSFG sub-sample size of 608 cases.

Descriptive Results

Table 1 compares the descriptive statistics for the Thomason and NSFG samples. Compared to Hispanic women in the NSFG sample, Hispanic women in the Thomason Hospital sample are slightly younger, have slightly higher mean live births, have lower levels of schooling, which, on average, was less than a high school education for both samples. The samples differ dramatically on their national origin and language of preference. Whereas over two-thirds (72%) of the NSFG sample finished their last year of schooling in the United States, only a third of women in the Thomason sample did so. Similarly, only half the women in the NSFG sample are foreign born (51%), compared to 78% of those in recruited from Thomason. And while only a quarter of the NSFG women were interviewed in Spanish, over nine out of ten of women in Thomason (92%) chose a Spanish language interview.

The samples are similar in terms of marital status and socioeconomic conditions, as measured by receipt of government assistance. About two-thirds of both samples were married or cohabiting at the time of the survey, with a slightly higher proportion in the NSFG sample. Compared to the NSFG sample, a smaller proportion of the Thomason sample received AFDC, but the NSFG question also included "other public assistance," so the proportions are not strictly comparable. A considerable proportion of both samples received food stamps and Medicaid and

the figures are very similar in the two samples, though a bit higher on both counts for the Thomason sample.

While the samples are similar in many of their sociodemographic characteristics, their contraceptive use profiles differ considerably. Table 2 shows the comparison between the contraceptive use preceding the last pregnancy for the Thomason and NSFG samples *without taking censoring into account*. In this preliminary tabulation, a somewhat smaller proportion of the Thomason sample used contraception during the pregnancy interval compared to the NSFG sample (64% vs. 71%). Among those who used contraception, the differences in contraceptive method mix are striking. Nearly two-thirds of the Thomason sample contraceptive users (65%) used hormonal methods (the pill, injectables, or Norplant) as their first or second method during the interval, compared to only half the women in the NSFG sample. The difference is made up almost entirely with injectables; one in five women in the Thomason sample used an injectable during the pregnancy interval whereas no women in the NSFG did so. And while less than a fifth (19%) of the Thomason sample reported using the condom, nearly half (49%) of the NSFG sample used condoms. The IUD use was recorded for over one out of ten women (12%) in Thomason but virtually none of the women in the NSFG sample (2%). Similar (and small) proportions of women in both samples use the rhythm method. Other methods, many of which are available over the counter (such as foams, sponges, and suppositories) or withdrawal, round out the list, with a higher proportion of those users in the NSFG sample. Use of two methods during the interval was recorded for about 17% of the Thomason sample and 23% of the NSFG.

When we compare contraceptive use by parity in these samples (Table 3), we continue to see striking differences. Whereas only 32% of women in the Thomason sample used contraception in the interval before their first pregnancy, 69% of women in the NSFG

subsample did so. But after the first pregnancy, the proportion of women in the Thomason sample who used contraception went way up while it went down for women in the NSFG sample at the same parity: 80% in Thomason vs. 71% in NSFG at parity one. Following that trend, women at the highest parity had even higher contraceptive use in Thomason (85%) while it stayed about the same in NSFG (72%).

Upon noticing this large differential in the role of parity between the two surveys, we wanted to find out if the low use of contraception before delivery observed in the Thomason survey resembled that which might be found in the interior of Mexico. In a separate analysis using the 1997 National Survey of Mexican Demographic Dynamics (ENADID), we found that only 36% of Mexican women used contraception before the first birth compared to 37% of women in the Thomason sub-sample. In contrast, 89% of Mexican women used a method after the completion of her first pregnancy, compared to 87% of married women in the Thomason sub-sample. In this comparison, we restricted the calculations to women who were either married or cohabiting at the time of the survey because the ENADID did not have a filter for whether a woman had ever had sex.

Among those who used contraception, hormonal methods continued to be a large proportion of the mix of the first or second method used for women in the Thomason sample, with 54% using them for the intervals before the first birth, compared to 66% of Thomason users at parity one to 69% of those at the highest parities. In comparison, the proportion of NSFG users who used hormonal methods as their first or second method in the interval was 45% at the lowest parity, peaked at 55% in the interval before the second birth and dipped to 49% at the highest parities. Again, the difference is made up also entirely by the use of injectables in the Thomason sample. The condom, on the other hand, continued to have high use rates for NSFG users, particularly for those in the lower parities. For Thomason users,

condoms were used by a third of women at the lowest parity but then that proportion dropped dramatically at higher parities.

Comparisons of contraceptive use (first or second method) by age show that in the Thomason sample, women under 25 had the smallest proportion of users (52%) whereas women ages 25-34 had the highest proportion (79%) and that use dropped slightly, to 75%, for the oldest women. In the NSFG sample, two-thirds of the youngest people used contraception during the pregnancy interval and the proportion rose to 75% for women in the middle age category and back down to two-thirds of the women in the oldest age group. Hormonal methods were used by about 62% or more of the contraceptive users across all the age groups in the Thomason sample, while in the NSFG sample use ranged from nearly one-third of the oldest women to over half of the women in the middle age group. The condom played a significant role in the contraceptive use for all ages of women in the NSFG sample, while it was used by a considerably smaller proportion of women in the Thomason sample.

Life Table and Survival Analysis

Tables 2 and 3, while informative, do not take into account the differential censoring that exists between the two surveys, especially for multiparous women. Figures 2 and 3 present the graphical results of the life table analysis (abridged life tables included in Appendix) for 90-day intervals during the two years prior to the conception. We plot the "failure" event, which is the stopping of pill or hormonal use. Because failure demonstrates use at the time of stopping, the graphs follow a logical direction – higher use as time from conception date increases. In Figure 2, we can see large differences by parity in the proportions using the pill in the Thomason sample. While the use rate is very low in the interval preceding a first pregnancy, higher parity women have double or more the proportions using at all durations. Parity differences are not as strong in the NSFG sample, though higher parity women tend to

have slightly higher proportions using the pill. Differences in hormonal contraceptive use, which combines use of pills and injectables, are even more striking between parity levels for the Thomason sample (Figure 3). Parity differences in the NSFG sample are similar for hormonal use as compared to pill use.

When comparing pill use in the open interval between the two surveys, we see much lower proportions ever using in the interval in the Thomason survey at parity one, but quite similar proportions between Thomason and NSFG at higher parities. For pills and injectables combined, in Thomason there is still lower use at parity one, but noticeably higher use at parities above one in comparison with NSFG.

We tested the magnitude and the significance of these effects with a "reverse" hazards analysis for pill use and hormonal use. Regression results are presented in Table 4 and graphically in Figure 4 (pill use) and Table 5 and Figure 5 (hormonal use—use of either pills or injectables). Table 6 presents the comparisons of the ratios of the log-odds for different comparisons, calculated from the hazard coefficients presented in Tables 4 and 5. Unlike the cumulative proportions presented above, the hazard models are presented graphically with survival curves. Since these are survival analyses going backwards, we also need to reverse our expectations of what the graphs show. The curves represent the proportions of women who are using the pill, but to get the correct number, we must subtract the proportion from one. For instance, if the pill curve crosses the 0.75 line at 150 days, that means that (1-0.75) or 25% of women are using the pill in that group at 150 days before the conception of their most recent pregnancy. Curves that have steeper negative slopes in fact show greater proportions of women who use the method in question.

Results of this model show that, controlling for type of sample, parity, and an interaction term for sample and parity, women in the NSFG sample are more likely to have used the pill in

the closed interval than women in the Thomason sample – nearly three times more likely at parity one but only 10% more likely at the higher parities. For hormonal use, the hazards are still much greater at Parity 1 in NSFG, but at higher parities it is 23% lower in the NSFG sample as compared to the Thomason sample.

Comparing within the samples, the NSFG sample shows slightly higher hazards (18%) of using the pill in the closed interval at higher parities as compared to parity one, and a somewhat greater differential by parity (35%) with respect to the hazard of using either pills or injectables. Within the Thomason sample, the differentials by parity are far more pronounced. Higher parity women in the Thomason sample are nearly three times more likely to have used the pill in the closed interval than those who just had a first birth. An even greater differential exists for use of hormonals.

We extended these regression models to include most of the covariates available in both surveys to determine whether these differentials in contraceptive use could be attributed to differences in the characteristics of the women in the two samples. The "full" models shown in Tables 4 and 5 include age, education, where education was completed, foreign birth, the language of the interview, marital status, and Medicaid status as predictors in addition to sample and parity. As may be seen in the tables, the estimated coefficients of sample and parity in the full models are remarkably similar to those found in the basic models, and only age>=35 is a significant predictor in both models. That is to say, the differentials found in the basic model are extremely robust relative to the inclusion of additional predictors.

Discussion

There are two main findings that result from this comparison of contraceptive practice in a sample of Hispanic women living on the U.S.-Mexico border and with that of a sample of

Hispanic women throughout the country. The first is the low likelihood that young women in the border sample collected at Thomason hospital would have used hormonal contraception in the interval prior to the birth of their first child. Their use of pills or hormonal contraception in general is much lower than that of mothers of higher parity children in the same sample, as well as of women ending their first pregnancy in the national sample of Hispanics. This low use of hormonal contraception was not offset, but rather exacerbated even lower use of condoms in the closed interval. This finding seems to result from the maintenance of patterns found in the interior of Mexico, and can be replicated with a national sample for a large survey conducted in Mexico in 1997.

The second main finding is that among women with more than one pregnancy, use of hormonal contraception is considerably higher in the border sample than it is among the Hispanic women found in the NSFG. While the use OCs was slightly lower in the border sample, use of either pills or injectables was 23% greater in the Thomason sample as compared to NSFG. We took safeguards to ensure that neither of these findings could be attributed to the major differences between the questionnaires used in the respective surveys, or to differences between the sample in likely covariates such as age, education, foreign birth, or welfare status.

The first finding points to the need on the border to develop more effective ways to reach and to empower young women who are exposed to the risk of pregnancy, but who have not yet entered into the health system by way of a first pregnancy, and seems to indicate that this would involve taking steps that have not yet been taken in Mexico. On the other hand, the second finding—greater use of hormonal contraception of hormonal contraception among higher parity mothers in the border sample—would seem to derive from the greater availability of hormonal methods for Hispanic women residing in El Paso as compared to elsewhere in the US. The fact that a large proportion of hormonal users in El Paso acquire their method OTC at

pharmacies in Ciudad Juarez (Potter, Moore, and Byrd 2003) may indicate that such unrestricted and impersonal access leads to use above that which would obtain if these methods were only available from family planning clinics or at much higher prices in pharmacies in the US.

Interestingly, increased access to a variety of ways of obtaining contraceptives does not seem to positively impact contraceptive use before the birth of the first child. The proportion of women who used contraception before having their first child in the Thomason sample was less than half the proportion of contraceptive users in the NSFG sample (32% vs. 69%), a difference that persisited after controlling for censoring and other covariates. Clearly, other barriers prevented women from using contraception before the birth of their first child in this sample. After the birth of the first child, however, contraceptive use in the El Paso sample was higher than for women in the national sample. Something occurred after the first pregnancy that reduced the barriers for women in the Thomason sample. Gilliam et al. (2004) found that lack of information about contraceptives and taboos about sex before marriage compromised the ability of sexually active Hispanic women from using contraceptives before their first birth. After the birth of the first child, however, these women gained acces to information about contraceptives and barriers to access to care were reduced as pregnancy and childbirth had provided an entry into the medical system.

This research raises a number of questions that we are unable to answer with the available data. If the NSFG sample were much larger, we could have sought out differences in method mix among Hispanics in different regions of the US. Also, it would be interesting know something about the motivations that women in El Paso have for acquiring contraception in Ciudad Juarez, and to whether, and if so, how source of contraception affects the quality of

use. We look forward to being able to shed additional light on the second set of questions in the coming years.

Figure 1. Sample Selection Criteria and Sample Sizes

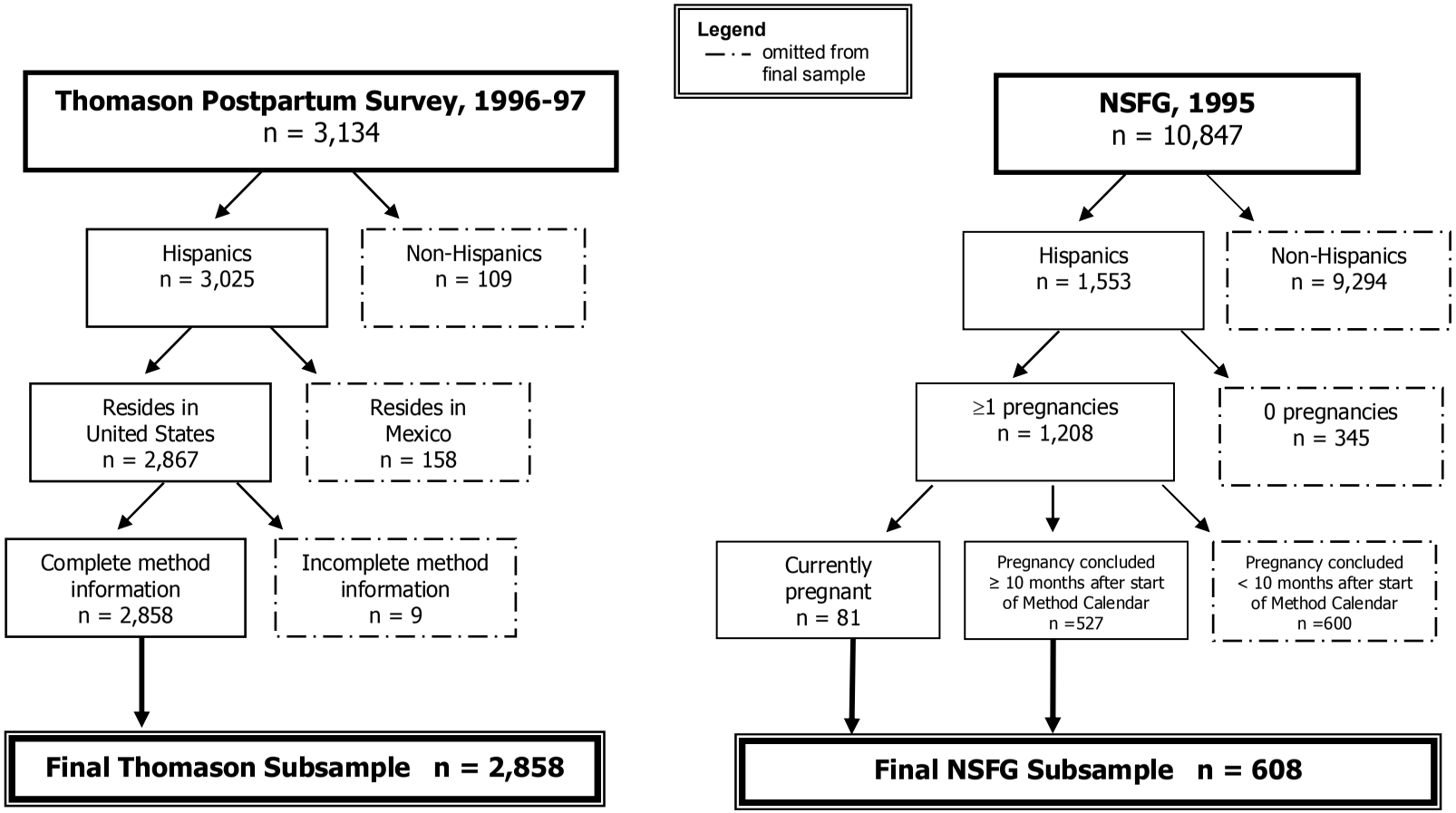


Table 1. Descriptive Statistics

	Thomason n = 2,859	NSFG n = 608
Mean age (SD)	25.0 (6.0)	27.3 (6.4)
Mean number of live births (SD)	2.18 (1.3)	1.94 (1.5)
Mean years of schooling (SD)	9.6 (2.9)	11.0 (3.4)
Finished last year of education in U.S. (%)	33.9	67.7
Foreign born (%)	78.2	51.2
Spanish interview (%)	91.7	26.8
Currently married or cohabiting (%)	67.3	72.1
Receive AFDC or other public assistance (%)	---	19.0
Receive AFDC	11.3	---
Receive Food stamps (%)	35.8	33.5
Receive Medicaid (%)	44.7	40.4

Table 2. Contraceptive Use Prior to Conception of Last Pregnancy

	Thomason	NSFG	χ^2 (p-value)
	%	%	
	(n = 2843)	(n = 608)	
Any Method Used in Interval	64.2	70.7	11.56(<0.001)
Among Users, First or Second Method Used in Interval:	(n = 1824)	(n = 430)	
Any Hormonal Method	64.8	49.4	26.99 (<0.001)
Pill	47.6	49.3	0.01(0.830)
Injectables	20.4	0.0	----
Norplant	1.2	1.8	1.31 (0.252)
Condom	19.3	49.3	127.97 (<0.001)
IUD	11.8	2.0	35.26 (<0.001)
Rhythm	6.8	5.6	0.0054 (0.941)
Other[+]	9.3	15.0	13.85 (<0.001)
(Used 2 or More Methods)	(16.8)	(20.3)	3.41 (0.065)

[+] NSFG Other: Morning-after pill, Diaphragm, Female condom/vaginal pouch, Foam, Jelly or cream, Cervical cap, Today(TM) sponge, Suppository or insert, Sterilization, Withdrawal, Other method
Thomason Other: withdrawal, diaphragm, vaginal methods, sterilization

Table 3. Contraceptive Use Prior to Conception of Last Pregnancy, by Parity and by Age at Interview

	Thomason			NSFG		
Parity at End of Pregnancy Interval	1 %	2 %	3+ %	1 %	2 %	3+ %
Any Method Used in Interval	(n = 1041) 31.6	(n = 859) 80.8	(n = 943) 84.9	(n = 205) 68.8	(n = 191) 71.3	(n = 212) 72.0
Among Users, Method Used in Interval:	(n = 329)	(n = 694)	(n = 801)	(n = 141)	(n = 136)	(n = 153)
Any Hormonal Method	53.7	65.8	68.5	44.8	54.9	48.7
Pill	44.5	51.2	45.7	44.3	50.4	44.8
Injectable	11.0	17.6	26.6	0.0	0.0	0.0
Norplant	0.3	0.9	1.8	0.0	3.6	1.7
Condom	33.7	17.0	15.5	62.4	49.5	37.0
IUD	2.2	17.3	11.0	0.0	1.7	4.2
Rhythm	12.6	5.8	5.4	4.0	5.2	7.3
Other[+]	8.9	8.7	12.6	13.9	13.2	21.8
(Used 2 or More Methods)	(12.9)	(17.9)	(17.4)	(23.6)	(19.8)	(17.7)
Current Age	15-24 %	25-34 %	35+ %	15-24 %	25-34 %	35+ %
Any Method Used in Interval	(n = 1496) 51.7	(n = 1129) 78.5	(n = 218) 75.2	(n = 227) 66.1	(n = 294) 75.3	(n = 87) 67.1
Among Users, Method Used in Interval:	(n = 774)	(n = 886)	(n = 164)	(n = 150)	(n = 222)	(n = 58)
Any Hormonal Method	63.0	67.1	61.6	44.6	56.8	33.5
Pill	43.0	52.6	42.1	41.4	53.7	31.6
Injectable	23.2	17.4	23.2	0.0	0.0	0.0
Norplant	0.9	1.4	1.2	2.8	1.5	0.0
Condom	25.1	14.7	17.1	66.0	43.0	30.2
IUD	9.1	14.0	12.8	1.4	1.6	5.5
Rhythm	5.1	7.9	9.2	1.0	5.6	16.9
Other[+]	9.6	10.2	15.9	12.9	16.4	26.2
(Used 2 or More Methods)	(15.3)	(17.4)	(20.1)	(21.1)	(20.4)	(17.9)

[+] NSFG Other: Morning-after pill, diaphragm, female condom/vaginal pouch, foam, jelly or cream, cervical cap, Today(TM) sponge, suppository or insert, sterilization, withdrawal, other method
Thomason Other: withdrawal, diaphragm, vaginal methods, sterilization

Figure 2. Cumulative Proportion of Pill Use, by Sample and Parity

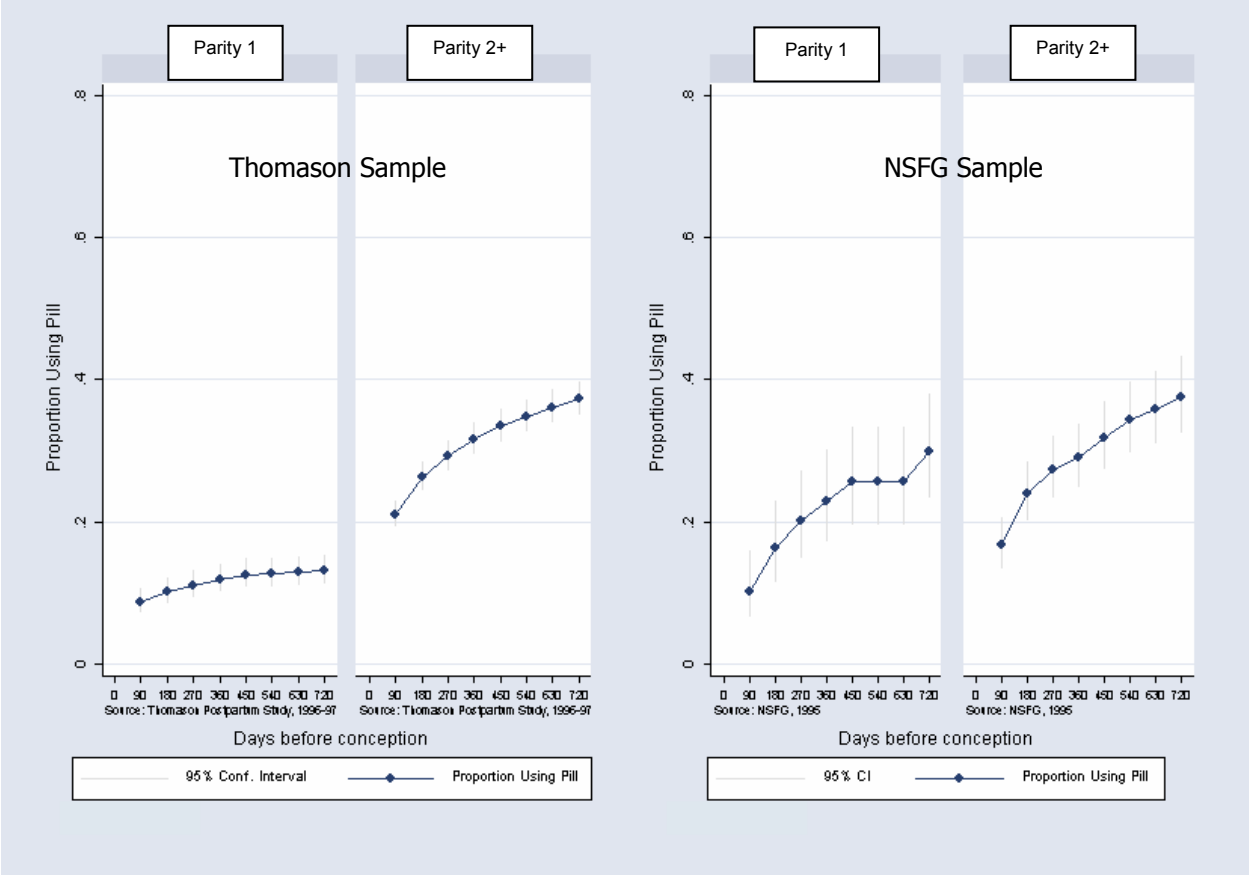


Figure 3. Cumulative Proportion of Hormonal Contraceptive Use, by Sample and Parity

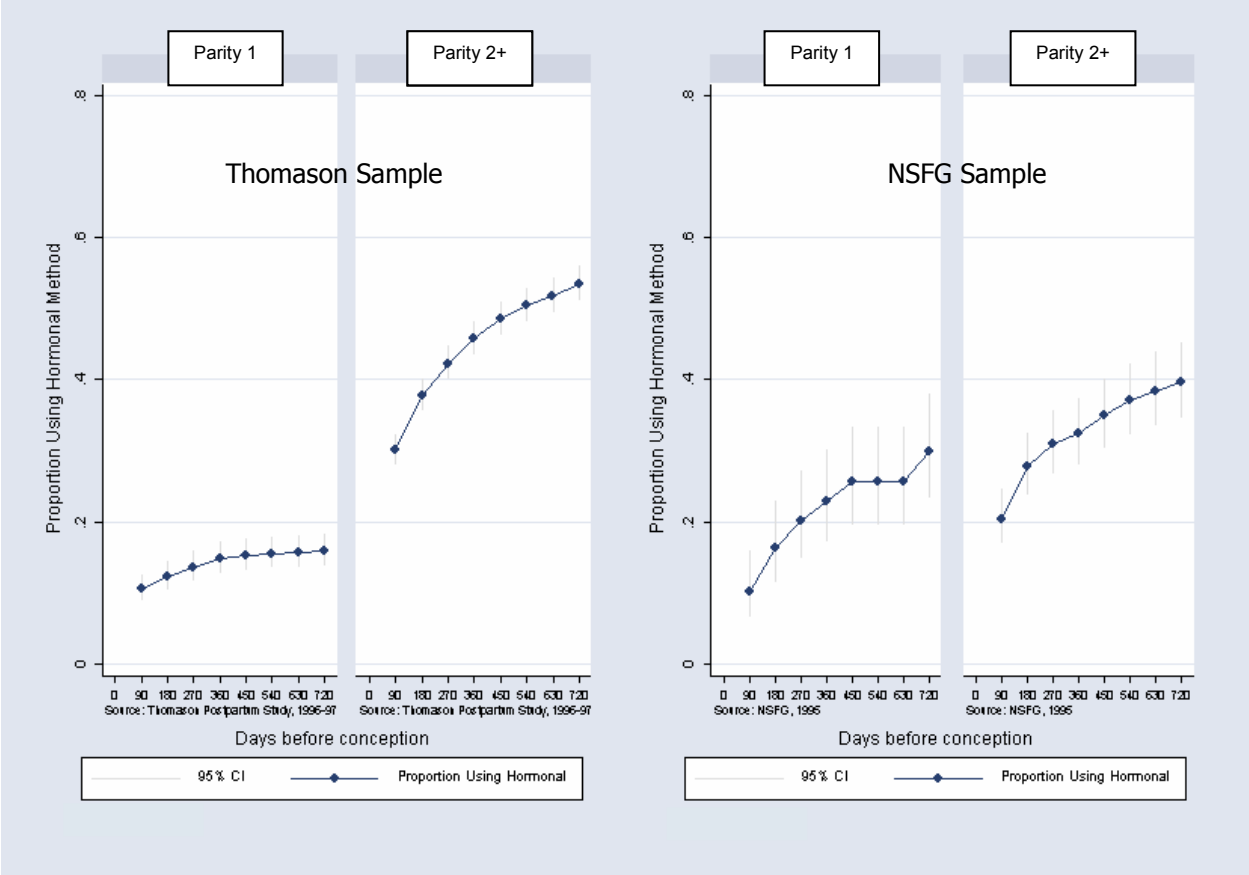


Table 4. Hazard Regressions* to Predict Pill Use, as measured at the number of days before conception that pill use was stopped

	Basic Model			Full Model		
Covariate (ref. cat.)	**Coeff.**	**Hazards Ratio** (if significant)	P>|z|	**Coeff.**	**Hazards Ratio** (if significant)	P>|z|
Sample (Thomason)	1.047	2.850	0.000	1.033	2.809	0.000
Parity (1)	1.155	3.147	0.000	1.146	3.146	0.000
Sample*Parity	-.962	.382	0.000	-.913	.401	0.000
Age: 24-35 (15-24)				.182	1.120	0.014
35+				-.613	.542	0.000
Education: 9-11 (<8)				-.091		0.261
12				.131		0.160
12+				.073		0.499
Educ. completed in US				.026		0.480
Foreign born				-.074		0.434
Spanish interview				.148		0.181
Married/Cohabiting				.095		0.194
Receive Medicaid				-.023		0.737
Constant	-4.515	--		-4.719	--	0.000
N (subjects)	3462			3380		
N (failures)	1052			1033		
Log Likelihood	-4114.42			-3993.13		

*Weibull Distribution

Table 5. Hazard Regressions* to Predict Hormonal Use, as measured at the number of days before conception that hormonal use was stopped

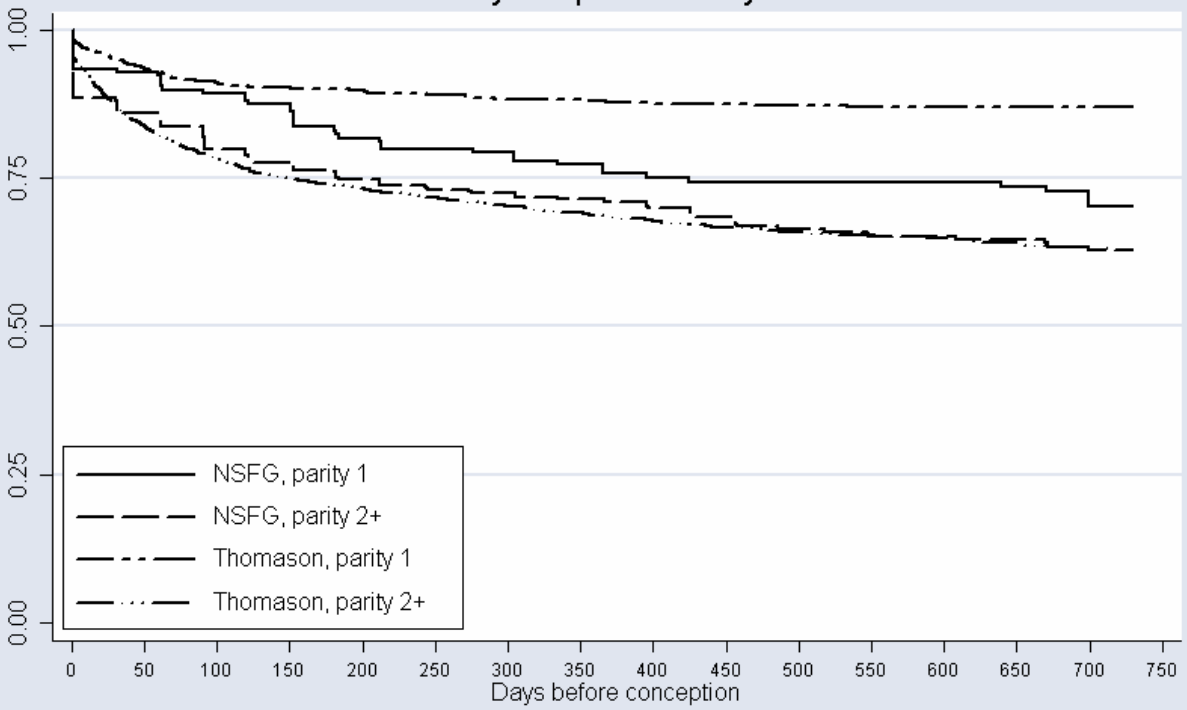
	Basic Model			Full Model		
Covariate (ref. cat.)	**Coeff.**	**Hazards Ratio** (if significant)	P>|z|	**Coeff.**	**Hazards Ratio** (if significant)	P>|z|
Sample (Thomason)	.838	2.313	0.000	.866	2.377	0.000
Parity (1)	1.397	4.044	0.000	1.422	4.145	0.000
Sample*Parity	-1.098	.333	0.000	-1.044	.352	0.000
Age: 24-35 (15-24)				.033		0.604
35+				-.652	.521	0.000
Education: 9-11 (<8)				-.072		0.299
12				-.063		0.448
12+				-.057		0.555
Educ. completed in US				.135		0.090
Foreign born				-.007		0.934
Spanish interview				.197		0.048
Married/Cohabiting				.078		0.217
Receive Medicaid				.099		0.090
Constant	-4.318	--		-4.617	--	0.000
N (subjects)	3462			3380		
N (failures)				1353		
Log Likelihood	-4915.02			-4782.62		

*Weibull Distribution

Table 6. Log-odds comparisons, by Sample and Parity

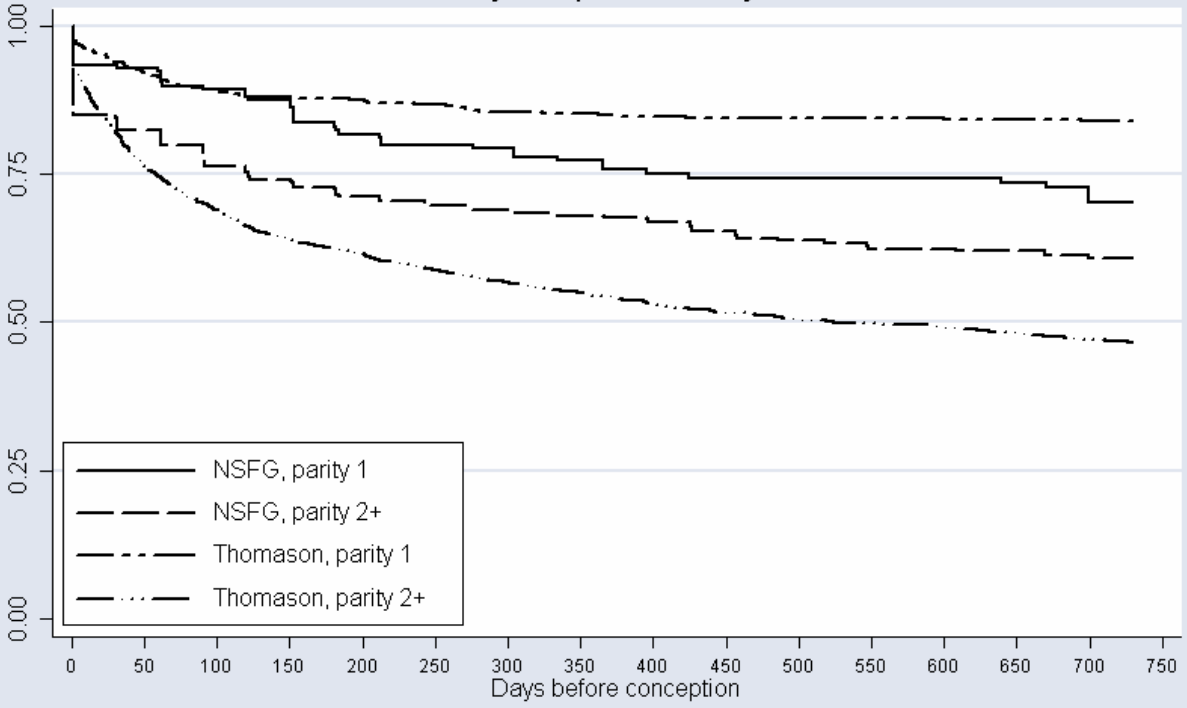
Comparison	Basic Model		Full Model	
	Pill Use (See Fig.4)	Hormonal Use (See Fig. 5)	Pill Use	Hormonal Use
Comparing Samples at Same Parity				
NSFG, Parity 1 vs. Thomason, Parity 1	2.850	2.312	2.809	2.377
NSFG, Parity 2+ vs. Thomason, Parity 2+	1.105	0.771	1.127	0.837
Comparing Parity within Samples				
NSFG, Parity 2+ vs. NSFG, Parity 1	1.183	1.349	1.262	1.459
Thomason, Parity 2+ vs. Thomason, Parity 1	3.050	4.043	3.146	4.145

Figure 4. Reverse Survival Analysis: Stopping Pill Use
by Sample and Parity



Sources: NSFG, 1995; Thomason Postpartum Study, 1996-97

Figure 5. Reverse Survival Analysis: Stopping Hormonal Use
by Sample and Parity



Sources: NSFG, 1995; Thomason Postpartum Study, 1996-97

APPENDIX – LIFE TABLE RESULTS

Thomason Sample - Pill Use

	Interval		Beg. Total	Stopped pill use	Lost	Cum. Failure	Standard Error	[95% Conf.	Interval]
Parity 1									
	0	90	1044	90	0	0.0862	0.0087	0.0707	0.1049
	90	180	954	15	0	0.1006	0.0093	0.0838	0.1205
	180	270	939	10	0	0.1102	0.0097	0.0926	0.1307
	270	360	929	9	0	0.1188	0.0100	0.1006	0.1400
	360	450	920	7	0	0.1255	0.0103	0.1068	0.1471
	450	540	913	2	0	0.1274	0.0103	0.1086	0.1492
	540	630	911	1	0	0.1284	0.0104	0.1095	0.1502
	630	720	910	2	0	0.1303	0.0104	0.1113	0.1522
	720	.	908	0	908	0.1303	0.0104	0.1113	0.1522
Parity 2+									
	0	90	1808	376	36	0.2101	0.0096	0.1919	0.2297
	90	180	1396	91	78	0.263	0.0105	0.2432	0.2842
	180	270	1227	47	58	0.2919	0.0109	0.2712	0.3139
	270	360	1122	37	74	0.3161	0.0112	0.2947	0.3386
	360	450	1011	26	65	0.3343	0.0115	0.3124	0.3573
	450	540	920	19	59	0.3485	0.0117	0.3261	0.3719
	540	630	842	16	55	0.3613	0.0119	0.3385	0.3850
	630	720	771	13	44	0.3723	0.0121	0.3492	0.3965
	720	.	714	85	629	0.5059	0.0160	0.4750	0.5376

Thomason Sample - Hormonal Use

	Interval		Beg. Total	Stopped hormonal use	Lost	Cum. Failure	Standard Error	[95% Conf.	Interval]
Parity 1									
	0	90	1044	110	0	0.1054	0.0095	0.0882	0.1256
	90	180	934	18	0	0.1226	0.0102	0.1041	0.1441
	180	270	916	14	0	0.136	0.0106	0.1166	0.1583
	270	360	902	12	0	0.1475	0.0110	0.1274	0.1705
	360	450	890	5	0	0.1523	0.0111	0.1319	0.1756
	450	540	885	3	0	0.1552	0.0112	0.1346	0.1786
	540	630	882	1	0	0.1561	0.0112	0.1355	0.1796
	630	720	881	2	0	0.158	0.0113	0.1373	0.1816
	720	.	879	0	879	0.158	0.0113	0.1373	0.1816
Parity 2+									
	0	90	1808	537	34	0.2998	0.0108	0.2792	0.3216
	90	180	1237	134	68	0.3778	0.0115	0.3557	0.4009
	180	270	1035	73	43	0.4226	0.0118	0.3998	0.4462
	270	360	919	55	54	0.4582	0.0120	0.4350	0.4821
	360	450	810	39	49	0.4851	0.0122	0.4615	0.5093
	450	540	722	26	43	0.5042	0.0123	0.4804	0.5286
	540	630	653	17	40	0.5176	0.0124	0.4935	0.5420
	630	720	596	20	34	0.5342	0.0125	0.5099	0.5589
	720	.	542	88	454	0.6643	0.0148	0.6352	0.6933

NSFG Sample - Pill Use

	Interval		Beg. Total	Stopped pill use	Lost	Cum. Failure	Standard Error	[95% Conf.	Interval]
Parity 1									
	0	90	170	17	5	0.1015	0.0233	0.0644	0.1582
	90	180	148	10	4	0.1630	0.0287	0.1148	0.2287
	180	270	134	6	3	0.2009	0.0313	0.1472	0.2709
	270	360	125	4	13	0.2279	0.0330	0.1706	0.3007
	360	450	108	4	3	0.2569	0.0348	0.1958	0.3328
	450	540	101	0	3	0.2569	0.0348	0.1958	0.3328
	540	630	98	0	4	0.2569	0.0348	0.1958	0.3328
	630	720	94	5	11	0.2989	0.0376	0.2321	0.3796
	720	.	78	14	64	0.5123	0.0543	0.4113	0.6220
Parity 2+									
	0	90	438	71	22	0.1663	0.0180	0.1342	0.2051
	90	180	345	29	34	0.2400	0.0210	0.2017	0.2841
	180	270	282	12	24	0.2738	0.0222	0.2330	0.3201
	270	360	246	5	34	0.2896	0.0228	0.2476	0.3371
	360	450	207	8	23	0.3187	0.0241	0.2741	0.3685
	450	540	176	6	24	0.3436	0.0253	0.2967	0.3957
	540	630	146	3	23	0.3583	0.0261	0.3097	0.4119
	630	720	120	3	19	0.3757	0.0272	0.3249	0.4316
	720	.	98	12	86	0.5119	0.0408	0.4350	0.5939

NSFG Sample - Hormonal Use

	Interval		Beg. Total	Stopped hormonal use	Lost	Cum. Failure	Standard Error	[95% Conf.	Interval]
Parity 1									
	0	90	170	17	5	0.1015	0.0233	0.0644	0.1582
	90	180	148	10	4	0.1630	0.0287	0.1148	0.2287
	180	270	134	6	3	0.2009	0.0313	0.1472	0.2709
	270	360	125	4	13	0.2279	0.0330	0.1706	0.3007
	360	450	108	4	3	0.2569	0.0348	0.1958	0.3328
	450	540	101	0	3	0.2569	0.0348	0.1958	0.3328
	540	630	98	0	4	0.2569	0.0348	0.1958	0.3328
	630	720	94	5	11	0.2989	0.0376	0.2321	0.3796
	720	.	78	15	63	0.5251	0.0544	0.4235	0.6345
Parity 2+									
	0	90	438	87	22	0.2037	0.0195	0.1685	0.2452
	90	180	329	29	32	0.2775	0.0220	0.2371	0.3233
	180	270	268	11	21	0.3084	0.0229	0.2659	0.3558
	270	360	236	5	33	0.3241	0.0235	0.2806	0.3725
	360	450	198	7	21	0.3494	0.0244	0.3038	0.3996
	450	540	170	5	24	0.3700	0.0253	0.3226	0.4219
	540	630	141	3	22	0.3845	0.0261	0.3356	0.4379
	630	720	116	2	19	0.3961	0.0269	0.3457	0.4509
	720	.	95	13	82	0.5415	0.0406	0.4642	0.6225

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