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The prevalence of couple infertility in the United States from a male perspective: evidence from a nationally representative sample

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Abstract

Infertility is a couple based fecundity impairment, though population level research is largely based upon information reported by female partners. Of the few studies focusing on male partners, most focus on the utilization of infertility services rather than efforts to estimate the prevalence and determinants of infertility as reported by male partners. Data from a nationally-representative sample of men aged 15–44 years who participated in the 2002 National Survey of Family Growth (NSFG) were used to estimate the prevalence of infertility and determinants of longer time-to-pregnancy (TTP) using the novel current duration approach. Using backward recurrence time parametric survival methods, we estimated infertility prevalence (TTP > 12 months) and time ratios (TR) associated with TTP as derived from males' reported current duration of their pregnancy attempt. The estimated prevalence of infertility was 12.0% (95% CI: 7.0, 23.2). Longer TTP was associated with older male age (35–45 vs. 17–24 years) (TR: 2.49; 95% CI: 1.03, 6.03),

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JFL acquired and compiled the data; JFL, MET, DNS, ACM, NK analyzed the data; JFL, MET, DNS, ACM, RBK, RS, NK, GML wrote the paper. MET, RBK, and GML conceptualized the research question. All authors approved the final manuscript for publication.

SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Supplementary Methods

Figure S1. Frequency of reported current duration of pregnancy attempt

Figure S2. Estimation of the density of current duration of pregnancy attempt using grouped and reported data

Figure S3. Estimated survival curves for time-to-pregnancy using grouped and reported data

Table S1. Estimated infertility prevalence based on grouped and reported data

biological childlessness (TR: 1.53; 95% CI: 1.07, 2.19), and lack of health insurance (TR: 1.73; 95% CI: 1.02, 2.94) after controlling for the differences in couples' age and other socioeconomic factors. The prevalence of infertility based on male reporting is consistent with estimates of infertility in the United States found in prospective cohort studies and current duration studies based on female reporting. Our findings suggest that males can reliably inform about couple infertility. Interventions and services aimed at reducing couple infertility should include attention to male factors associated with longer TTP identified in this study.

INTRODUCTION

Infertility is defined as the inability of couples to conceive a clinical pregnancy after 12 months or more of unprotected intercourse (Practice Committee of the American Society for Reproductive Medicine, 2013). Beyond just pregnancy or its absence, infertility has significant public health consequences, including psychological distress (Bak *et al.*, 2012), social stigmatization (Slade *et al.*, 2007), economic constraints (Wu *et al.*, 2013), and later onset adult diseases in both men and women (Jensen *et al.*, 2009; Merritt *et al.*, 2013). Male factors are estimated to account for approximately 20% of couple infertility with another 30–40% presenting with reproductive abnormalities in both partners (Thonneau *et al.*, 1991; Anderson *et al.*, 2009). In particular, men with a history of infertility or poor semen quality are more likely to be at increased risk of testicular cancer (Baker *et al.*, 2005; Rives *et al.*, 2012; Jorgensen *et al.*, 2011) and a shorter life expectancy (Jensen *et al.*, 2009). In addition, generational effects are reported to be associated with poorer semen quality. For example, boys born with hypospadias were reported to have fathers with poorer semen quality relative to unaffected boys (Asklund *et al.*, 2007). Despite the contribution and consequences of infertility for men, our population-based understanding of infertility is often limited to a female perspective.

A more complete understanding of infertility in the population is achieved when information from both male and female partners is considered. Much of the available data on infertility in the United States is derived from the National Survey of Family Growth (NSFG), which was conducted periodically before implementing a continuous sampling design in 2006 (Groves *et al.*, 2009). Current estimates of infertility in the United States are not derived from direct querying of NSFG survey participants; rather, they rely upon a constructed measure derived from females' responses to a series of questions on sexual activity, contraceptive use, and pregnancy status in the past 12 months (Chandra *et al.*, 2005). Recently, Thoma and colleagues applied the current duration approach (Keiding *et al.*, 2002; Slama *et al.*, 2012; Slama *et al.*, 2006; Keiding *et al.*, 2012) to derive a time-to-pregnancy (TTP) distribution for estimating the prevalence of infertility in a nationally-representative cross-sectional sample of females in the U.S. (Thoma *et al.*, 2013). Using this approach, the prevalence of infertility was found to be considerably higher than that derived from the constructed approach (16% and 7%, respectively), but consistent with other U.S. prospective cohort studies with preconception enrollment (range: 12–27%) considered the gold standard for measuring TTP (Buck Louis *et al.*, 2009; Buck Louis *et al.*, 2011; Tietze, 1968; Zinaman *et al.*, 1996).

In 2002, the NSFG began interviewing men in recognition of the need to obtain reliable data from males on fertility, fatherhood and childrearing, and sexual behaviors (Martinez *et al.*, 2006). To date, much of the infertility research utilizing the data on males has focused on medical care seeking behaviors for infertility services. For example, Anderson and colleagues (Anderson *et al.*, 2009) estimated that approximately 7.5% of sexually active men aged 15–44 years have ever sought medical care (with their partner) for help in becoming pregnant, of which 2.2% reported seeking care in the past year. Use of infertility services as

reported by men was higher among college-educated, older, and married men than referent groups (Anderson *et al.*, 2009; Hotaling *et al.*, 2012). However, these findings characterize the experiences of men who have access to or seek infertility services and, thereby, characterize only a subsample of infertile men in the United States.

Evidence suggests that males may more accurately report their characteristics, attitudes, and behaviors than female proxies (Martinez *et al.*, 2006). The secular pattern of an increasing percentage of births fathered by cohabitating males (i.e., 18.2% in 2002 to 25.4% in 2006–2010) further underscores the need for estimating infertility inclusive of the male partner (Martinez *et al.*, 2012). Moreover, the reliability of TTP as reported by male in comparison to female partners is reported to have moderate ($r = 0.62$) to high ($r = 0.84$) reliability (Nguyen & Baird, 2005; Coughlin *et al.*, 1998). In response to these data gaps and in keeping with the couple dependent nature of human reproduction, the objectives of this study were to estimate the prevalence of infertility and determinants of longer TTP using the current duration approach in a nationally representative sample of males aged 15–44 years from the 2002 NSFG.

MATERIALS AND METHODS

Design and study population

The study population comprised 4,928 male respondents aged 15–44 years who participated in the 2002 cycle of the National Survey of Family Growth (NSFG) (www.cdc.gov/nchs/nsfg.htm). The NSFG sample is derived from a stratified multi-stage area probability sampling of 121 geographic areas in the United States to ensure national representativeness of males with oversampling on teenagers (ages 15–19 years), and black and Hispanic men (Groves *et al.*, 2005). The response rate for males in the NSFG was 78%. Research Ethics Review Boards at the Centers for Disease Control and Prevention, National Centers for Health Statistics, and the University of Michigan reviewed and approved the NSFG.

Data collection and operational definitions

Trained interviewers conducted in-person interviews in participants' households using Computer-Assisted Interviewing (CAI) techniques. Information was collected on sociodemographic characteristics, health history, sexual behaviors and attitudes, fatherhood, birth expectations, and characteristics of current and former wives or cohabiting partners. Potentially sensitive information (e.g., income, sexually transmitted infections) was obtained through Audio Computer Assisted Self-Interviewing (ACASI) techniques. Interviews for males averaged 60 minutes in length with approximately 20 minutes for the ACASI portion.

For study purposes, we defined infertility as requiring greater than 12 months for pregnancy as estimated from a current duration approach (Slama *et al.*, 2012). Specifically, this approach required use of two survey questions that were asked separately for male respondents who were married or cohabiting (n_1), or who were in a current sexually active relationship with at least one partner in the past year (n_2) ($n = n_1 + n_2 = 2,840$; 57.6%) as illustrated in Figure 1. Respondents who were sexually active in the past 12 months with a female partner who was not known to be physically unable to have a child ($n = 2,315$; 47.0%) were asked about their partner's current pregnancy status. Men were considered to be in a relationship that was "at risk of pregnancy" if they were sexually active in the past year, reported that their partner was physically able to have a child (to their knowledge) but not currently pregnant ($n = 2,179$; 44.2%). Men who were considered to be in a relationship "at risk of pregnancy" were then asked "Are you and your (wife/partner) currently trying to get pregnant?" of which 157 (3.2%) men responded "Yes" and, thereby, were eligible for the current duration analysis. Eligible men were then asked, "How long have you and she been

trying to get pregnant (in months)?” Responses to these questions were used to determine their duration of current pregnancy attempt. All men who reported they were currently trying for pregnancy provided information on their current duration of attempt (i.e., no missing responses among eligible respondents).

All other covariates were defined based upon the survey questions (www.cdc.gov/nchs/nsfg/nsfg_cycle6.htm). Sociodemographic characteristics included categorical terms for male age, relationship status, self-identified race and ethnicity, years of education completed, household family income, and health insurance coverage. Family income was computed relative to the 2001 poverty levels and then categorized into percent of poverty level. Health insurance was categorized as none or any (public or private) based on any mention of private insurance or Medicaid, public, government, state, or military health care. The partner’s age was obtained by direct report or by subtracting the date of interview from the partner’s birthdate. Respondents who reported they or their partners were currently receiving “medical help to become pregnant” or who had a recent medical visit within the reported duration of current pregnancy attempt, and reported ever using infertility treatment (i.e., not advice or testing) were regarded as current users of infertility treatment. Ever having fathered a biological child (yes/no) was determined from the number of biological children computed across responses for all current and past relationships.

Statistical analyses

Descriptive characteristics for the three groups of men as defined by their eligibility for inclusion in the current duration sample were assessed using a design-based F-test to account for the survey design (Table 1). Specifically, the groups were: Group 1) men in a relationship that is at risk of pregnancy and who were trying to become pregnant (i.e., eligible for the current duration analysis) (n = 157); Group 2) men in a relationship that is at risk of pregnancy but who were not trying to become pregnant (n = 2,022); and Group 3) men not in a relationship or who were in a relationship that was not at risk of pregnancy (n = 2,749).

The current duration approach was used to estimate the prevalence of infertility (TTP > 12 months) and median TTP for all eligible men (n = 157). Briefly, this approach yields an estimate of the total duration of pregnancy attempt (i.e., estimated TTP), which is unobserved but estimated from the observed current duration of pregnancy attempt at the time of interview using parametric survival methods (Keiding *et al.*, 2002; Keiding *et al.*, 2012). Under this framework, men with longer durations of pregnancy attempt are more likely to be over-represented in the sample (i.e., length-biased sample). However, this sampling bias is accounted for in the current duration methods to provide unbiased results under the assumptions of stationarity (i.e., the start of pregnancy attempts are uniform over time) and independence of observations. To estimate a TTP distribution, we assumed a generalized gamma distribution, which is well-suited to distributions with a long right tail (e.g., income or TTP). In fitting the model, we censored observations at 30 months and interpreted observations representing less than 1 month of trying as 0.25. Ninety-five percent confidence intervals were calculated from bootstrapped samples with 1000 iterations (Efron & Tibshirani, 1993). A weighted maximum likelihood analysis was conducted to account for the oversampling of teenagers and black/Hispanic men in the survey to ensure generalizability of our results to the U.S. population. Analyses to estimate TTP distributions and infertility prevalence were implemented in R (R Development Core Team, 2012).

Unadjusted and adjusted associations between sociodemographic characteristics and the total (unobserved) duration of pregnancy attempt were estimated using backward recurrence time survival methods (Yamaguchi, 2003). Specifically, we used weighted accelerated-failure-time (AFT) regression models censored at a TTP of 30 months and accounted for

potential clustering due to the sample design (Keiding *et al.*, 2011). These methods allow for the estimation of time ratio (TR) associations between sociodemographic characteristics and the (unobserved) TTP. TRs can be interpreted as the ratio of median values of the total duration of pregnancy attempt across characteristics, such that a ratio greater than 1 indicates a longer median TTP while a TR less than 1 denotes a shorter median TTP. AFT models were adjusted for age (categorical), difference between partners' ages (years, continuous) given the correlation between couples' ages ($r=0.64$), relationship status (categorical), racial and ethnic self-identification (categorical), education (categorical), poverty level (categorical), health insurance (any versus none), and history of having fathered a biological child (yes versus no). Prior to running AFT models, eight missing observations for partner age only were imputed using multiple imputation techniques (Schafer, 1999). All regression analyses accounted for the survey weights and were performed using Stata, version 11 (StataCorp, College Station, TX).

The robustness of these estimates was assessed in sensitivity analyses. We varied inclusion criteria in restricted analyses to assess men who had not initiated infertility treatment during the current duration attempt, in recognition that treatment may modify the probability of pregnancy (Keiding *et al.*, 2012), and men who had not fathered a biological child, which may modify the persistency of trying for pregnancy (Basso *et al.*, 2000). Finally, we assessed the combined effects of partners' ages (≥ 35 years versus < 35 years) on TTP, given evidence that both may exert an effect on the probability of pregnancy during the fertile window and TTP (Dunson *et al.*, 2002; Dunson *et al.*, 2004). Additional parametric assumptions were employed to assess the performance of our methods for estimating TTP using a Pareto distribution in place of a generalized gamma and using data grouped across suitable intervals (see Supplementary Information) to account for the common issue of digit preference observed in this study and other retrospective TTP data (Joffe *et al.*, 1993).

RESULTS

Descriptive characteristics of men by the three groups (Group 1- at risk of and trying for pregnancy, Group 2 - at risk of and not trying for pregnancy, and Group 3 - not at risk of pregnancy) revealed important differences. Overall, statistically significant differences were found across groups for all sociodemographic characteristics with the exception of health insurance status. The current duration group (Group 1) had a higher percentage of men who were between the ages of 25 to 34 years (55.0%), married (83.3%), Hispanic ethnicity (24.0%), educational attainments ≥ 16 years (32.6%), had not previously fathered a biological child (42.2%), and had ever used fertility treatment (25.9%) compared to either Group 2 or Group 3.

Figure 2 shows the estimated survival function of the total duration of sexually active couples not yet pregnant by their months of trying, as determined from male respondents. Among all men in the current duration sample, the prevalence of infertility was 12.0% (95% CI: 7.0, 23.2) and the median estimated TTP was 4.3 months (95% CI: 2.3, 8.2). The estimated probability of pregnancy at 3, 6, 12, and 24 months is 0.65, 0.33, 0.12, 0.04, respectively.

In subgroup analyses, the prevalence of infertility increased to 14.0% (95% CI: 6.0, 25.6) with a median estimated TTP of 5.6 months (95% CI: 3.0, 8.4) for male participants who had not fathered a biological child. Among men reporting not having sought infertility treatment, infertility prevalence was 9.4% (95% CI: 5.2, 17.2) with a median TTP of 4.1 months (95% CI: 2.3, 7.9). Minimal change was seen when using a Pareto distribution, in place of the generalized gamma distribution, with a prevalence of 10.6% (95% CI: 3.9, 22.6)

or when performing grouped analyses to account for digit preference (see Supporting Information).

A statistically significant longer estimated TTP was found for older age groups (TR_{25–34}: 1.52; 95% CI: 1.00, 2.32; TR_{35–45}: 2.49; 95% CI: 1.03, 6.03) compared to age group 17–24 years, not having a form of health insurance (TR: 1.73; 95% CI: 1.02, 2.94) compared to any insurance, and not having fathered a biological child (TR: 1.53; 95% CI: 1.07, 2.19) compared to having fathered a biological child. When looking at the combined ages of males and female partners, significant associations were only found for the group of males 35+ years and females < 35 years (TR: 2.78; 95% CI: 1.52, 5.09; n = 13), but not for males < 35 years and females 35+ years (TR: 0.85; 95% CI: 0.44, 1.65; n = 10) or males and females both aged 35+ years (TR: 1.43; 95% CI: 0.54, 3.81; n = 30) when compared to the reference group of males and females < 35 years of age (n_{ref} = 96; 64% of current duration sample).

DISCUSSION

In this nationally representative cross-sectional sample of men aged 15–44 years, the prevalence of current infertility based on a current duration approach was approximately 12% (95% CI: 7, 23); however, prevalence estimates ranged from 9 to 14% based on sensitivity analyses of inclusion criteria and modeling assumptions. Our infertility prevalence estimates based upon male report are consistent with other U.S. estimates based on female reporting applying a current duration approach (15.5%; 95% CI: 8.6, 27.5%) (Thoma *et al.*, 2013), and the range reported from prospective cohort studies with preconception enrollment of couples observed over 12 months of trying (range: 12–27%) (Buck Louis *et al.*, 2009; Buck Louis *et al.*, 2011; Tietze, 1968; Zinaman *et al.*, 1996). Older age and biological childlessness were associated with longer TTP in this study of male determinants as well as in previous studies of female determinants (Thoma *et al.*, 2013). These findings underscore reliable reporting by male respondents and the importance of assessing partner characteristics when assessing couple fecundity.

Our infertility prevalence estimate is notably higher than the reported 2.2% of men who sought medical help to become pregnant with their partner in the past year from the 2002 NSFG (Anderson *et al.*, 2009). The latter figure may reflect a more selective population due to care-seeking behaviors and access to care for infertility services, whereas our infertility prevalence estimate suggests the potential demand for medical services for infertility may be considerably higher. Prior studies on men reporting care seeking (with their partners) for help to become pregnant were more likely to be older, married, and have a college degree or higher than their corresponding reference groups (Anderson *et al.*, 2009; Hotaling *et al.*, 2012). Unlike age, which was a risk factor for both outcomes (infertility or infertility service use), we found no association between education and marital status with longer TTP in our study. Such discrepancies suggest that these factors may have more to do with care seeking behaviors rather than infertility, *per se*. The literature also reflects contrasting sociodemographic patterns for females in relation to infertility and use of medical services for infertility. For example, family income, health insurance status, and having a college or higher degree were associated with infertility service use in females (Chandra & Stephen, 2010); however, they were not associated with a longer estimated TTP (Thoma *et al.*, 2013). These socioeconomic discrepancies in infertility service utilization are also observed in France (Moreau *et al.*, 2010), where national access to infertility coverage is provided, and among states in the U.S. providing infertility insurance mandates (Bitler & Schmidt, 2006).

Compared to traditional population-based methods estimating infertility (yes/no), the current duration method provides a more sensitive indicator of fecundity and its risk factors by assessing the total TTP distribution. This study supports an association between older male

age and a longer TTP, which may be due to age related hormonal changes in semen quality that may arise either directly or indirectly via changes in general health status (Stewart & Kim, 2011; Sartorius et al., 2012). Of note is the equivocal literature regarding the relation between advanced paternal age and fecundity, with some studies showing an association with reductions in fecundity (Ford *et al.*, 2000; Dunson *et al.*, 2004; Dunson *et al.*, 2002) while others do not (Mutsaerts *et al.*, 2012; Olsen, 1990; Jensen *et al.*, 2000). A further advantage of the current duration approach over pregnancy-based retrospective TTP studies (Ford *et al.*, 2000; Olsen, 1990) is our ability to assess childless men and women, which we found to be associated with longer TTP. Notably, in comparison to men with health insurance, those without it had a longer TTP, which may be attributable to delays in access to care for conditions affecting fecundity. This finding may mark an unmet need for reproductive and preconception health services for uninsured men. However, other studies are needed to corroborate these trends.

Our estimated infertility prevalence in males (12%) may be underestimated in relation to the estimated 16% for female reporting in the 2002 NSFG, a study that also utilized the current duration approach (Thoma *et al.*, 2013). However, our finding is consistent with an earlier study that reported shorter TTPs for male than female partners (Nguyen & Baird, 2005; Coughlin *et al.*, 1998). Our prevalence estimate is not biased by the exclusion of males whose partners are already pregnant, given that by design the current duration approach relies only upon recurrence times for individuals currently trying to become pregnant. This is a unique feature of the method, and one that makes it well suited for cross-sectional survey research such as the NSFG. Additional potential limitations inherent in our study are the temporality of characteristics associated with infertility, the retrospective reporting of time at risk for pregnancy and our inability to better characterize men by infertility treatment-seeking behavior. This latter limitation reflects the cross-sectional nature of the NSFG survey rather than longitudinal follow up over 12 months.

Conclusion

In sum, we found that approximately 9% to 14% of reproductive-aged U.S. men may be experiencing couple infertility based on a current duration approach. The consistency of these estimates with those reported by women applying this approach or with the gold standard of prospective cohorts suggests that males are able to provide reliable information on couple infertility. In light of the forthcoming U.S. National Public Health Action Plan for Detection, Prevention, and Management of Infertility (www.cdc.gov/reproductivehealth/Infertility/PublicHealth.htm), our findings underscore the importance of including men in research focusing on infertility in keeping with the couple dependent nature of human reproduction.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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- CDC's Division of HIV/AIDS Prevention (CDC/DHAP)
- CDC's Division of Sexually Transmitted Disease Prevention (CDC/DSTDP)
- CDC's Division of Reproductive Health (CDC/DRH)
- Office of the Assistant Secretary for Planning and Evaluation (OASPE)
- Children's Bureau of the Administration for Children and Families.

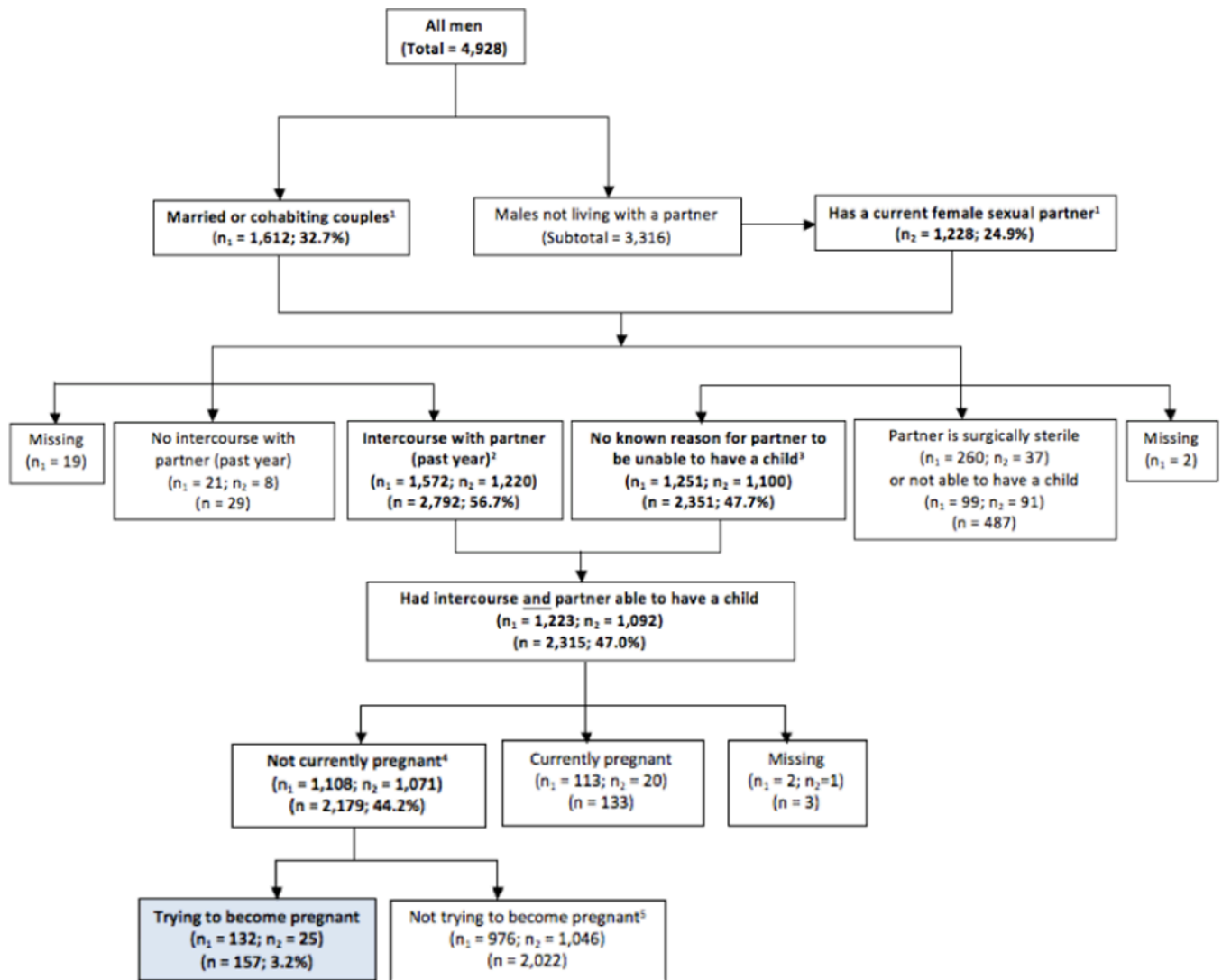
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**FIGURE 1.**

Flow chart of men surveyed in the National Survey of Family Growth based on their eligibility for the current duration analysis.

Footnotes

¹ n_1 pertains to men who reported they were married or living with a partner of the opposite sex; n_2 pertains to men with a recent (past 12 months) sexual partner who were not married or cohabiting, or who's last partner was not the respondents wife who had died; n pertains to the total number of men with a current partner from each respective category ($n = n_1 + n_2$).

² Includes $n_1 = 13$ and $n_2 = 2$ responding "Don't Know" to the respective category.

³ Includes $n_2 = 18$ responding "Don't Know" to the respective category; $n_2 = 3$ men reporting vasectomy as method of contraception at last sex.

⁴ Includes $n_1 = 8$ and $n_2 = 3$ responding "Don't Know" or "Refuse" to the respective category.

⁵ Includes $n_1 = 3$ and $n_2 = 1$ responding "Don't Know" or "Refuse" to the respective category.

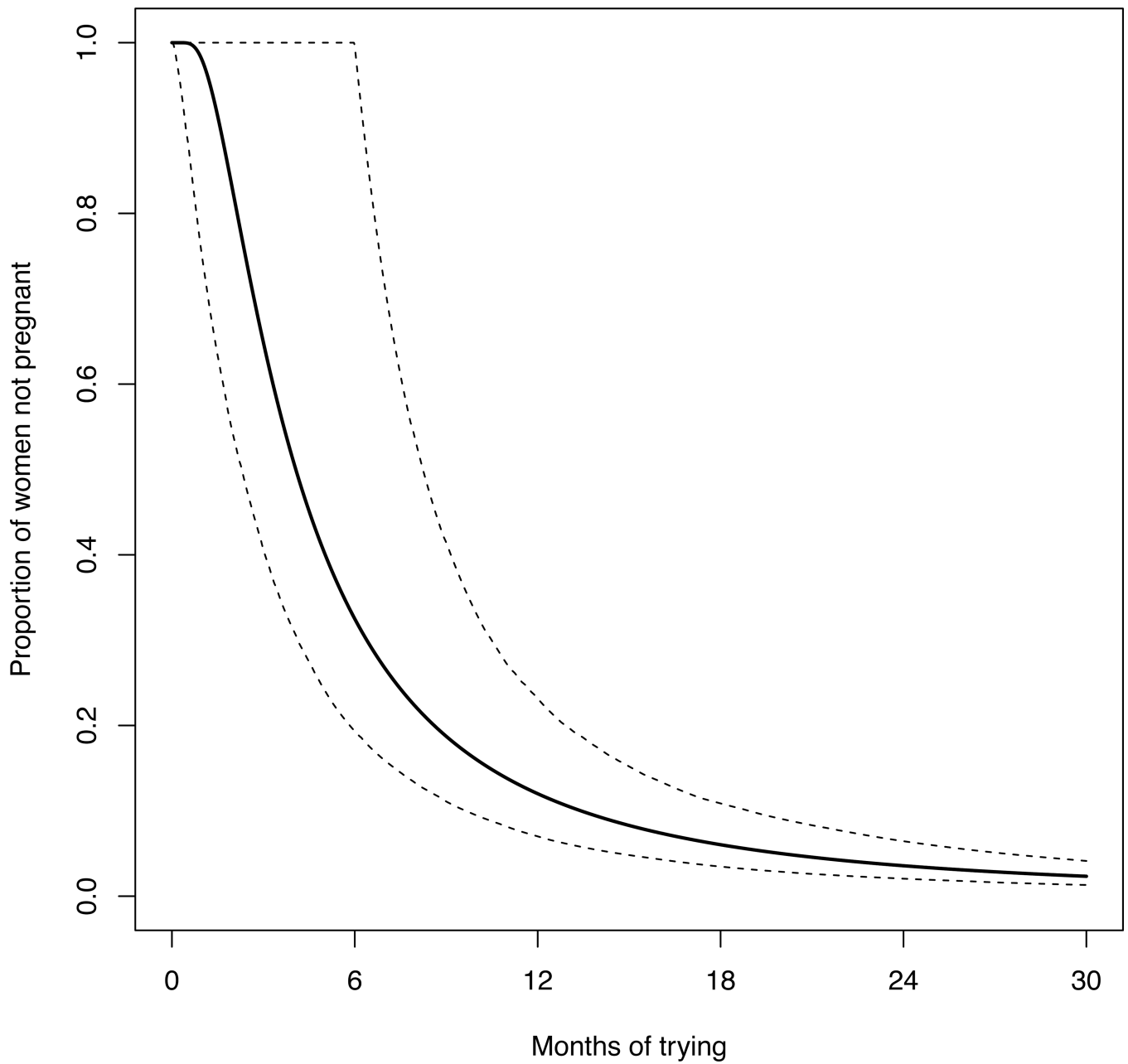


FIGURE 2.

Estimation of the proportion of couples not yet pregnant as a function of the number of months trying for pregnancy as reported by males ($n = 157$) in the National Survey of Family Growth. The solid curve is the weighted survival function censored at 30 months for the time until pregnancy or end of attempt and the dashed curves indicate 95% confidence intervals (CI).

Table 1

Descriptive characteristics of males by inclusion in the current duration sample

Characteristics	Current duration eligibility						p-value
	Yes (group 1) ^a		No (group 2) ^b		No (group 3) ^c		
	n	Weighted %	n	Weighted %	n	Weighted %	
Total^d	157	4.26	2,022	45.8	2,749	49.94	-
Sociodemographic							
Age at interview							
15–24 years	25	11.6	727	26.8	1,307	40.2	<0.001
25–34	85	55.0	717	38.0	630	23.9	
35–45	47	33.4	578	35.2	812	35.9	
Relationship status							
Married	110	83.3	723	54.5	401	27.4	<0.001
Cohabiting	22	9.1	253	13.6	103	5.3	
Not cohabiting	25	7.6	1,046	31.9	2,245	67.3	
Race and Hispanic origin							
Non-Hispanic white	63	56.0	1,024	67.1	1,514	64.6	<0.004
Non-Hispanic black	37	13.3	400	11.0	493	12.6	
Non-Hispanic other	7	6.7	97	4.2	170	7.7	
Hispanic	50	24.0	501	17.7	572	15.1	
Education							
0–11 years completed	43	18.3	494	19.8	1,044	35.9	<0.001
12	30	19.0	549	26.7	714	27.6	
13–15	47	30.1	555	27.5	580	21.3	
16+	37	32.6	424	26.1	411	15.2	
Family income ^e							
300% poverty level	78	53.9	1,020	52.4	1,211	43.9	<0.001
150–299%	46	30.5	565	27.9	791	29.7	
< 150%	33	15.6	437	19.7	747	26.4	
Health insurance							

Characteristics	Current duration eligibility						p-value
	Yes (group 1) ^a		No (group 2) ^b		No (group 3) ^c		
	n	Weighted %	n	Weighted %	n	Weighted %	
Any	120	84.5	1,576	80.2	2,151	79.5	<0.48
None	37	15.5	446	19.8	598	20.5	
Reproductive History							
Fathered biological child							
Yes	81	57.8	960	74.6	690	32.6	<0.001
No	76	42.2	1,062	25.4	2,059	67.4	
Medical treatment for pregnancy (at interview) ^f							
Never	126	74.1	1,984	97.1	2,705	97.4	<0.001
Current treatment	11	9.6	0	0	2	0.2	
Past treatment	20	16.3	38	2.9	42	2.4	

Note: All percentages and p-value estimates account for survey design.

^aGroup 1: Men who were eligible for the current duration analysis, given they were at risk of pregnancy (i.e. sexually active with a partner in the past year who was not sterile and not pregnant) and reported they and their partner were attempting pregnancy at the time of interview.

^bGroup 2: Men who were at risk of pregnancy, but who reported they were not attempting pregnancy at the time of interview.

^cGroup 3: Men who were either not in a relationship or in a relationship not at risk of pregnancy.

^dWeighted row percentages; all other values are column percentages.

^eFamily income relative to the 2001 poverty levels defined by the U.S. Census Bureau.

^fBased on self-reported current or ever use of medical help for pregnancy and type of services sought.

Table 2

Time ratios (TR) and 95% confidence intervals (CI) for the association between descriptive characteristics of male partners and total duration of pregnancy attempt

Characteristics	Weighted Mean CD ^a	Unadjusted TR (95% CI)	Adjusted ^b TR (95% CI)
Total	12.5	-	-
Age at interview			
17–24 years	5.3	1.00	1.00
25–34	9.2	1.42 (1.04, 1.94)	1.52 (1.00, 2.32)
35–45	20.3	2.03 (0.94, 4.39)	2.49 (1.03, 6.03)
Relationship status			
Married	12.7	1.00	1.00
Cohabiting	14.6	0.98 (0.53, 1.79)	1.30 (0.78, 2.17)
Not cohabiting	7.6	0.92 (0.64, 1.33)	1.15 (0.68, 1.94)
Race and Hispanic origin			
Non-Hispanic white	11.4	1.00	1.00
Non-Hispanic black	8.7	0.99 (0.53, 1.79)	1.02 (0.62, 1.68)
Non-Hispanic other	18.8	1.49 (0.83, 2.68)	1.28 (0.56, 2.96)
Hispanic	15.2	0.80 (0.52, 1.23)	0.88 (0.55, 1.40)
Education			
0–11 years completed	11.5	1.00	1.00
12	10.0	0.94 (0.62, 1.43)	0.77 (0.47, 1.26)
13–15	14.3	1.26 (0.86, 1.85)	1.08 (0.66, 1.75)
16+	12.8	1.47 (0.90, 2.40)	1.24 (0.68, 2.27)
Family income ^c			
300% poverty level	12.3	1.00	1.00
150 – 299%	13.7	1.04 (0.69, 1.57)	1.40 (0.91, 2.13)
< 150%	10.5	0.75 (0.50, 1.13)	0.81 (0.49, 1.35)
Health insurance			
Any	10.5	1.00	1.00
None	23.1	1.11 (0.67, 1.83)	1.73 (1.02, 2.94)
Fathered a biological child			
Yes	10.0	1.00	1.00
No	15.7	1.22 (0.89, 1.69)	1.53 (1.07, 2.19)

^aValues are weighted means of reported current duration (CD) of pregnancy attempt in months used to estimate total duration of pregnancy attempt (time-to-pregnancy, TTP).

^bAdjusted for all male characteristics in the table and age difference between female partner and male respondent age (TR: 0.98; 95% CI: 0.95, 1.00; p-value = 0.08).

^cFamily income relative to the 2001 poverty levels defined by the U.S. Census Bureau.