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2013 Working Paper Series

REVISITING RETROSPECTIVE REPORTING OF FIRST-BIRTH INTENDEDNESS

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ACKNOWLEDGEMENTS

An earlier version of this paper was presented at the 2013 annual meeting of the Population Association of America, New Orleans, LA. This research was supported in part by the Center for Family and Demographic Research, Bowling Green State University, which has core funding from the Eunice Kennedy Shriver National Institute of Child Health and Human Development (R24HD050959-09)

This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (http://www.cpc.unc.edu/addhealth). No direct support was received from grant P01-HD31921 for this analysis.

Revisiting Retrospective Reporting of First-Birth Intendedness

Abstract

Objectives: Because birth intendedness is typically measured retrospectively, researchers have raised concerns about the accuracy of reporting. Our objective was to assess the stability of intendedness reports for women asked about the same birth at different times.
Methods: We used data from Wave III (2001-02; ages 18-24) and Wave IV (2007-08; ages 25-32) of the National Longitudinal Study of Adolescent Health, a nationally representative school-based sample first surveyed in 1995. For the 1,463 women who reported a first birth by Wave III that could be matched with the same birth reported at Wave IV, we examined whether intendedness was characterized consistently at both waves. We constructed descriptive measures of consistency in reporting and estimated logistic regression models predicting changes in reports.
Results: Nearly four-fifths of young mothers did not change their reports across waves, with about 60% reporting their first birth as unintended. However, 22% of women changed the intendedness categorization of their first birth between surveys. Women who initially reported the birth as intended were more likely to recategorize the birth as unintended than vice versa. With the exception of race and employment, most socioeconomic and demographic characteristics were unrelated to the likelihood of recategorizing first birth intendedness in multivariate models.
Conclusions: Most reports of birth intentions are stable, but there is a nontrivial degree of inconsistency. Cross-sectional reports may either under- or overestimate the prevalence of unintended fertility. It remains to be seen whether, and how, consistency of reports is linked to maternal and child health and well-being.

Keywords: unintended fertility; measurement; retrospective reporting

Article word count (excl. abstract, references, and tables): 3,233
Article word count (excl. abstract and references): 3,798
Abstract word count: 250
Reference word count: 474
Number of references: 19

Unintended births are associated with negative health outcomes for women, children, and families.[1,2,3] As a result, the reduction of unintended fertility has been one of the objectives of the Healthy People national initiatives since 1980.[4] Yet levels of unintended fertility have declined only slightly since the 1980s, despite continued sweeping changes in childbearing in the U.S., and over one-third of recent births were reported as unintended.[5]

As part of the large body of research documenting and explaining unintended fertility, questions have arisen about survey measures of birth intendedness and the degree to which reported trends or levels are distorted by inappropriate measures, social desirability bias, or retrospective recall issues.[6,7,8] As a general rule, outcomes that are socially salient or highly institutionalized tend to be the most accurately and consistently reported by survey respondents.[9] The birth of a child, for example, marks the entrance into an important social role, and birth dates are both socially celebrated occasions and the source of important administrative data. Attitudes or behaviors that are open to interpretation and subjective categorization, or those that are the subject of social norms and judgment, are more likely to be misreported, whether deliberately or because of subconscious processes of recall or reassessment.[10,11] Birth intendedness falls into the latter category, as it is a subjective, internally-defined evaluation that is prone to social judgment and stigma and is thus is a prime candidate for instability and inaccuracy in reporting.

Because of concerns about accurate reporting, most surveys do not ask directly whether a pregnancy was intended.[12] Instead, intendedness is generally derived from a retrospective series of indirect questions about feelings and behavior at the time of conception, where women are asked for each birth they have had whether they wanted to get pregnant at that time. Although this measure of intendedness has been critiqued on methodological grounds, it remains a widely used measure, in part because it seems statistically valid, having been linked to numerous

negative maternal and child well-being outcomes.[2,7] However, for a measure to be useful, it also has to be *reliable* – that is, if the same question is asked more than once, the answer needs to be consistent at each measurement. This requirement may be particularly problematic for birth intendedness. Since the earliest applications of the standard measure, researchers have worried that women might be unwilling to report an existing child as unintended, exhibiting *ex post* rationalization.[13] More broadly, as children grow older, there may be a general trend toward recharacterizing births as intended if positive feelings grow as the mother-child relationship progresses. It is also possible that people have a natural tendency to remember past events more positively over time, a variation of the so-called "positivity effect" seen in older adults.[14]

Unfortunately, reliability tests of unintended fertility are rare, in part because data collection efforts seldom collect information about the same birth at multiple time points. Only one study has examined intentionality reports for the same birth measured more than once. In a large-scale, nationally representative longitudinal survey, Joyce, Kaestner, and Korenman identified 240 pregnant women who were asked their intentions during pregnancy in 1990 and again two years later; they found that reports were stable about 80% of the time, with stability linked to socioeconomic factors and, among those who changed reports, a trends towards recategorizing births from unintended to intended.[15] However, their sample was quite small, the recall period was fairly short, and there is evidence that women's feelings during pregnancy do not accurately reflect feelings either before becoming pregnant or after the child is born.[16] As such, the reliability of retrospective reports of birth intentions remains unclear. Still, both theoretical reasoning and past research suggests that the likelihood of reporting a birth as intended will increase over time; that is, the further the time elapsed between the birth and the data collection, the greater the chances of a birth being categorized as intended.

In addition to possible time effects, socioeconomic status and life stability overall likely influence the consistency of reports. For instance, those from more advantaged backgrounds may better understand question wording or have more defined notions of how childbearing fits into their lives. Life stability may also play a role; the late teens and early twenties are a time of great change as individuals tend to complete education, establish careers, and begin family formation, whereas those in their late twenties and older are more settled and established. It may be that those with generally unstable lives (changing jobs or getting more education, for instance, or having additional children) may be those most likely to retrospectively reassess their early fertility.

METHODS

We used data from the National Longitudinal Study of Adolescent Health (Add Health), a nationally representative school-based sample of adolescents surveyed in 1995 (Wave I; N=10,265 males and N=10,480 females), 1996 (Wave II; N=7,182 males and N=7,556 females), 2001-02 (Wave III; N=7,167 males and N=8,030 females), and 2007-08 (Wave IV; N=7,349 males and N=8,352 females), to assess the stability of intendedness reports for the same birth measured at different time points. Adolescents were in grades 7-12 (roughly ages 12-19) at Wave I, and by Wave IV, respondents were aged 25-32 years. We focus our analysis on women, as the quality of childbearing data reported by men in survey data is questionable.[17] Ideally, analysis would include all unintended pregnancies. However, abortion is frequently either not reported or misreported as miscarriage in U.S. survey data; as a result, it is difficult to accurately analyze pregnancies that did not end in a live birth.[18] We therefore limit our analyses to births. Information on birth intendedness was collected in Waves III and IV. Because our goal was to compare reports across the two waves, our sample consists of women who were interviewed at

both Wave III and Wave IV and reported at least one birth at both waves (n=1,840). Our analytic strategy required us to identify the same birth at both surveys, which can only be done by matching on dates of birth, a process complicated by the fact that Add Health collected birth histories nested within relationship histories, and there was some variation across waves in how relationship histories were collected. Thus, although there were 1,840 women who reported a birth at both Waves III and Waves IV, we were only able to match births for 1,650 first births across the two waves. Most of the excluded births were to women with discrepancies in the reported number or dates of births across survey waves or women with complex relationship histories. Our estimates of inconsistency in reporting of intendedness and other birth characteristics are thus likely to be lower bounds. We also excluded 100 cases that were missing sample weights, which are vital given the stratified cluster design of Add Health, producing a potential sample size of 1,550.

Pregnancy intendedness was measured with the questions "Please think back to the time just before you became pregnant. Did you want to have a child then?" (Wave III) and "Thinking back to the time just before this pregnancy with [partner], did you want to have a child then?" (Wave IV). Responses were categorized as no (unintended), yes (intended), or refused/don't know/missing. Follow-up questions regarding timing (having a child later) and wanting to have a child with that specific partner were asked at Wave III but not Wave IV, so we were unable to compare reports of timing or relationship-specific intendedness that are sometimes used in unintended fertility research.[19] A small number of cases had values of don't know/refused/ missing information for intendedness at one or both waves and were excluded from the analysis (n=87). Thus, the final sample size was 1,463 women.

All analyses were conducted in Stata 12.1 using the survey commands to account for the stratified and clustered survey design of Add Health. We first estimated descriptive statistics for key socioeconomic and demographic variables linked to unintended fertility in prior work. We then examined reports of intendedness at each wave and changes and stability across waves. Finally, we estimated multivariate logistic regression models predicting between-wave changes in reports as a function of Wave III report, fixed sociodemographic characteristics, and changes in socioeconomic and demographic characteristics across waves (changes in education and employment status as well as the birth of additional children). The dependent variable for these analyses was a dichotomous indicator of whether first birth intendedness was the same at both waves. In order to assess whether women are more likely to report births as intended as time passes and they experience *ex post* rationalization, we included a measure of the intendedness report at Wave III. If women recategorize unintended births as intended over time as expected, then intended births should be significantly less likely to change than unintended births. The multivariate model also included controls for the duration between first birth and the Wave III survey and the duration between surveys. Socioeconomic and demographic variables included age at first birth and race-ethnicity-nativity as well as two indicators of family background measured at Wave I, the respondent's own mother's education and the respondent's family structure during adolescence. We did not include women's own socioeconomic status measures (such as education or income) or her relationship status, as these are endogenous to fertility; that is, women with an early birth have lower levels of education and are less likely to be married, but it is unclear whether the early birth led to these characteristics or whether there are selection processes at play. However, we did include indicators of whether the woman experienced changes across waves in key characteristics. These included whether the respondent received

additional education between waves, her employment status at the time of survey for both waves (employed at both waves, not employed at both waves, employed at Wave III but not at Wave IV, and not employed at Wave III but employed at Wave IV), and whether the respondent had additional children between waves. These measures were included to examine whether respondents who experienced changes in their socioeconomic and demographic characteristics were more likely to change how they characterized their first birth intendedness.

RESULTS

The socioeconomic and demographic characteristics of the analytic sample are presented in Table 1. The average time between surveys was six years, six months, and the maximum observed span between surveys was seven years, seven months (not shown). The average first birth occurred about three years prior to Wave III and about nine and a half years prior to Wave IV, and these young mothers averaged just under age 20 at their first birth. Two-thirds of the analytic sample of young mothers were non-Hispanic white, 20% were non-Hispanic black, and 10% were native-born Hispanic, with the remainder foreign-born Hispanic or Asian or other race. Less than half lived with both biological parents in adolescence at the first wave of the survey, and about 30% reported a mother with at least some college education. In terms of changes between waves, about a fifth of the sample received additional education between waves, just under half were employed at the time of both surveys, and slightly less than two-thirds had an additional child.

– Table 1 here –

Table 2 displays key information on the distribution of intendedness at each wave and across waves. Looking first at the totals shown for cell percentages, we see that in Wave III, 41% of first births were categorized as intended, and 59% were categorized as unintended. The

overall total proportions at Wave IV – for the same (matched) first birth – were virtually identical, at 40% intended and 60% unintended. The McNemar test for paired proportions (chi-square = 0.19, $p>0.7$, not shown in the table) indicated that the proportions did not differ across waves. At the same time, however, more respondents reported consistent reports across waves if they initially reported their first birth as unintended, as seen in the row percentages. Although the majority of respondents maintained the same categorization at both waves, 83% of respondents who reported their birth was unintended at Wave III reported the same category at Wave IV whereas 71% of respondents who initially reported their birth as intended maintained the same categorization at the subsequent wave. Returning to the cell percentages within the first few rows, which look at overall categorization and stability in reports across waves, we see that 79% of women with a first birth by Wave III (when they were age 18-24) were consistent in their categorization of intendedness at both waves – 49% reported their first birth was unintended at both waves and 30% reported their first birth was intended at both waves. Just over one-fifth of the sample changed reports, and the proportion changing from intended to unintended and vice versa was fairly similar (12% and 10%, respectively).

- Table 2 here -

Finally, we present odds ratios from multivariate logistic regression to examine whether socioeconomic characteristics, life course changes, and the passage of time influenced the likelihood that young women changed their categorization of their first birth intendedness, shown in Table 3. The dependent variable here is a dichotomous measure indicating whether the intendedness report for the first birth was the same at both waves. The multivariate results are consistent with the descriptive and bivariate statistics. Young women who reported an intended first birth at Wave III were twice as likely to change their reports by Wave IV as women who

initially reported their first birth as unintended. The likelihood of changing reports was unrelated to the time since birth or the time elapsed between surveys. For the most part, neither the fixed sociodemographic measures nor the measures of changes in socioeconomic and fertility characteristics were significant, with two exceptions. Black women were 86% more likely to recategorize their first birth (primarily moving from unintended at Wave III to intended at Wave IV, not shown), as were women who were working at Wave III but were not working at Wave IV (primarily moving from intended at Wave III to unintended at Wave IV, not shown).

- Table 3 here -

DISCUSSION

Overall, in the roughly six and a half years between surveys, about one in five women with a birth in their teens and early twenties recategorized their first birth intendedness. Thus, reliability is fairly high but not perfect. The level of consistency does not seem to be unique to our data, as our estimate of stable reports in Add Health is consistent with the findings of Joyce, Kaestner, and Korenman, who found in an analysis of birth intentions measured during pregnancy and then again retrospectively two years later that about 80% of birth intentionality reports were stably categorized.[12] Their results showed that women were more likely to switch from unintended to intended. However, we found the opposite to be the case. Women were *less* likely to report a birth as intended over time and were more likely to change their reports from intended to unintended. Further, we found little evidence that changes in key life characteristics or socioeconomic and demographic factors substantially increased the odds of changing how birth intentionality was classified, contrary to the work by Joyce et al. Their sample, however, was quite different than ours – it was not limited to first births (nor did their analyses control for parity), and the women were aged 25-33 when assessed during pregnancy.

Limitations

It is worth noting that Add Health is not designed as a fertility survey. The approach to measuring fertility differs from standard measures which usually collect retrospective, temporally-ordered fertility histories; Add Health's fertility histories, which nest births within relationships, creates challenges in matching reports across waves. We excluded births that could not be matched from our analysis; if these births disproportionately took place in unstable relationships or to women with unstable life experiences, our results may underestimate changes in reporting of birth intention status. In addition, the wording for the question on birth intentions differs slightly from the National Survey of Family Growth, the standard data source for public health and policy analyses of unintended fertility. Further, it is not possible to identify "true" levels of birth intendedness using these data; our analysis concentrated on assessing the internal consistency of measures of birth characteristics rather than external validity, and we did not attempt to conclude which single report is most accurate. Instead, we attempted to identify the extent to which intentionality is stably reported and which individual factors shape reporting (and changing reports) of unintended childbearing. Finally, because the births in our analysis were predominantly to women in their teens and early twenties, the mothers we analyzed are less educated and have a lower income than a cross-sectional sample of births to women of all ages would be. As such, results may not be generalizable to other age groups or more advantaged women.

Conclusions

In sum, for this sample of first births reported by women age 18-24, we found that the overall proportion of births at the aggregate level reported as unintended was relatively stable across repeated measurement, but there was a small minority with inconsistent reports. There

was little evidence supporting the hypothesis that women become more attached to their child over time and thus become reluctant to label a child as unintended.[8] Furthermore, few individual characteristics were significantly associated with changes in reports, suggesting that reporting errors may be randomly distributed rather than systematic. Thus, the research community can feel fairly confident in cross-sectional population-level estimates of unintended fertility, as supported by the McNemar test findings that the overall proportions across the waves do not differ significantly.

At the individual level, however, our results suggest a fair degree of fluidity in reports of intendedness. At both Wave III and Wave IV, about 60% of mothers characterized their first birth as unintended, but 70% of mothers reported that their birth was unintended at least once over the two interviews. Similarly, in the cross-sectional estimates, about 40% of mothers in each wave reported their first birth as intended, while 50% of mothers reported a birth as intended at least once. Thus, the "true" estimate of the proportion of births that are unintended may range between 50% and 70%.

Misreporting of retrospective attitudes towards having children is of particular concern for identifying the causes and consequences of unintended birth if women's feelings – and reports – change in *response* to childbearing and childrearing experiences. For example, a woman reporting on birth intendedness several years after the birth may feel more positively about a birth that was followed by a healthy child and a stable relationship and less positively if the circumstances surrounding childrearing are difficult. For instance, young mothers who were initially employed but are no longer working may have left the labor force over difficulties in meeting their childrearing responsibilities, or their later lack of employment may heighten financial insecurities. These feelings may influence, either consciously or unconsciously, a

young mother's report of whether she intended to get pregnant at the time of conception. This analysis did not directly analyze the association between birth outcomes and changes in reports, though there is limited evidence that reporting a birth as unintended even once (but especially at multiple time points) is linked to negative maternal behaviors.[12] More generally, researchers need to keep in mind that how, and when, we measure theoretically important fertility characteristics may influence our findings. Further, it is quite likely that characteristics of childbearing are not the only retrospectively measured behaviors and statuses that may be inconsistently reported.

Table 1. Descriptive characteristics for women reporting a birth at both Wave III and IV of Add Health

Age at 1st birth	19.8 yrs
	(.12)
Duration between 1st birth and time of WIII survey	2.9 years
	(0.08)
Duration between waves (months)	6.5 years
	(0.02)
Fixed sociodemographic characteristics	
Race-ethnicity-nativity	
Non-Hispanic white	64%
Non-Hispanic black	20%
Foreign-born Hispanic	3%
Native-born Hispanic	10%
Asian & other	4%
Family structure at WI	
Both biological parents	42%
Stepfamily	18%
Single-parent family	30%
Other family type	10%
Respondent's mother's education at WI	
Less than HS or didn't know	28%
HS or GED	42%
Some college or vocational training	18%
College or more	13%
Socioeconomic and fertility characteristics across waves	
Education at time of survey	
Same level of education at both waves	78%
Increased education level by WIV	22%
Employment at time of survey	
Not working at either wave	18%
Not working at WIII, working at WIV	24%
Working at WIII, not working at WIV	12%
Working at both waves	46%
Had additional children after WIII	63%
N	1,463

Table 2. First Birth Intendedness Percentages at Wave III, Wave IV, and across Waves among Women with a First Birth by Wave III (Ages 18-24) (Weighted Percentages, Unweighted Sample Size)

Cell percentages

		Wave IV		
		Intended	Unintended	Total
Wave III	Intended	30%	12%	41%
	Unintended	10%	49%	59%
	Total	40%	60%	100%

Row percentages

		Wave IV		
		Intended	Unintended	Total
Wave III	Intended	71%	29%	100%
	Unintended	17%	83%	100%
	Total	40%	60%	100%

N	1,463

Due to rounding, percentages may not add to 100%

Table 3. Odds Ratios from Logistic Regression for Changing Intendedness Categorization of the Same First Birth across Waves III and IV of Add Health

	Crude Odds Ratios (OR)			Adjusted Odds Ratios (OR)		
	OR		95% CI	OR		95% CI
WIII report						
Unintended	--			--		
Intended	1.9	***	(1.3, 2.8)	2.1	***	(1.4, 3.0)
Age at 1st birth	1.0		(0.9, 1.1)	1.0		(0.9, 1.1)
Months elapsed since date of 1st birth & WIII survey	1.0		(0.9, 1.0)	1.0		(1.0, 1.0)
Months between WIII and WIV	1.0		(0.9, 1.1)	1.0		(1.0, 1.1)
Fixed sociodemographic characteristics						
Race-ethnicity-nativity						
Non-Hispanic white	--			--		
Non-Hispanic black	1.8	**	(1.2, 2.6)	1.9	**	(1.2, 2.8)
Foreign-born Hispanic	1.1		(0.4, 2.8)	0.9		(0.3, 2.3)
Native-born Hispanic	1.1		(0.6, 2.2)	1.1		(0.5, 2.1)
Asian & other	1.4		(0.8, 2.5)	1.5		(0.8, 2.8)
Family structure at WI						
Both biological parents	--			--		
Stepfamily	0.9		(0.6, 1.4)	1.0		(0.6, 1.5)
Single-parent family	1.3		(0.8, 2.0)	1.3		(0.8, 2.0)
Other family type	1.3		(0.8, 2.0)	1.3		(0.8, 2.3)
Respondent's mother's education at WI						
Less than HS or didn't know	1.2		(0.8, 1.8)	1.1		(0.8, 1.7)
HS or GED	--			--		
Some college or vocational training	0.9		(0.5, 1.5)	0.9		(0.5, 1.5)
College or more	0.9		(0.6, 1.6)	0.9		(0.5, 1.5)
Socioeconomic and fertility characteristics across waves						
Education at time of survey						
No change in level of education at both waves	--			--		
Increased education level by WIV	1.1		(0.8, 1.6)	1.0		(0.7, 1.5)
Employment at time of survey						
Not working at either wave	0.7		(0.5, 1.8)	0.6		(0.4, 1.0)
Not working at WIII, working at WIV	0.8		(0.5. 1.1)	0.7		(0.5, 1.0)
Working at WIII, not working at WIV	0.5	**	(0.3, 0.8)	0.5	*	(0.3, 0.9)
Working at both waves	--			--		
Had additional children between waves	1.0		(0.7, 1.5)	0.9		(0.6, 1.3)
Constant				0.0		(0.0, 1.6)
N			1,463			

* p≤.05 **p≤.01 ***p≤.001.

REFERENCES

[1] Barber JS, East PL. Children's experiences after the unintended birth of a sibling. *Demography* 2011; 48: 101-125.

[2] Logan CE, Holcomb E, Manlove J, Ryan S. The consequences of unintended childbearing: A white paper prepared by Child Trends for the National Campaign to Prevent Teen and Unplanned Pregnancy. Washington, D.C.: Child Trends. 2007.

[3] Hellerstadt WL, Pirie PL, Lando HA, et al. Differences in preconceptional and prenatal behaviors in women with intended and unintended pregnancies. *Am J Public Health* 1998; 88: 663-666

[4] U.S. Department of Health and Human Services. Proposed Healthy People 2020 objectives, Family Planning. http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=13 Last updated April 24, 2013. Accessed June 4, 2013.

[5] Mosher WD, Jones J, Abma JC. Intended and unintended births in the United States: 1982-2010. *National Health Statistics Reports.* 2012; No. 55. Washington, DC: National Center for Health Statistics.

[6] Sable MR. Forum: Pregnancy intentions may not be a useful measure or research on maternal and child health outcomes. *Fam Plann Perspect* 1999; 31: 249-250.

[7] Santelli JS, Rochat R, Hatfield-Timajchy K, et al. The measurement and meaning of unintended pregnancy. *Perspectives Sex Repro H* 2003; 35: 94-101.

[8] Trussell J, Vaughan B, Stanford J. Are all contraceptive failures unintended pregnancies? Evidence from the 1995 National Survey of Family Growth. *Fam Plann Perspect* 1999; 31: 246-247, 260.

[9] Greenhoot AF. Retrospective methods in developmental science. In Laursen B, Little TD, Card NA, eds. *Handbook of Developmental Research Methods* New York, NY: The Guilford Press; 2011; 196-210.

[10] Goldberg SK, Haydon AA, Herring AH, Halpbern CT. Longitudinal consistency in self-reported age of first vaginal intercourse among young adults. *J Sex Res* Forthcoming.

[11] Schroder KEE, Carey MP, Vanable PA. Methodological challenges in research on sexual risk behavior: II. Accuracy of self-reports. *Ann Behav Med* 2003; 26: 104-123.

[12] Klerman LK. The intendedness of pregnancy: A concept in transition. *Matern Child Health J* 2000; 4: 155-162.

[13] Westoff C, Ryder NB. 1977. *The Contraceptive Revolution*. Princeton, NJ: Princeton University Press; 1977.

[14] Murphy NA, Isaacowitz DM. Preferences for emotional information in older and younger adults: A meta-analysis of memory and attention tasks. *Psychol Aging* 2008; 23: 263-286.

[15] Joyce TJ, Kaestner R, Korenman S. The stability of pregnancy intentions and pregnancy-related behavior. *Matern Child Health J* 2000; 4: 171-179.

[16]Kendall, C, Afable-Munsuz A, Speizer I, et al. Understanding pregnancy in a population of inner-city women in New Orleans – Results of qualitative research. *Soc Sci Med* 2005; 60: 297-311.

[17] Joyner K, Peters HE, Hynes K, Sikora A, Rubenstein J, Rendall MS. The quality of male fertility fata in major U.S. surveys." *Demography* 2012; 49: 101-124.

[18] Jones RK, Kost K. Underreporting of induced and spontaneous abortion in the United States: An analysis of the 2002 National Survey of Family Growth. *Stud Family Plann* 2007; 38: 187-197.

[19] Santelli JS, Lindberg LD, Orr MG, Finer LB, Speizer I. Toward a multidimensional measure of pregnancy intentions: Evidence from the United States. *Stud Fam Plann* 2009; 40: 87-100.