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Consistency of reporting of fertility intention in India: A Prospective and Retrospective Approach

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Introduction

The concept of unintended pregnancy has been essential to demographers in seeking to understand fertility, to public health practitioners in preventing unwanted childbearing and to both group in promoting a women's ability to determine whether and when to have children. Pregnancy is one of the most profound psychological events in a human life. People says that a woman is complete after she is a mother, but at the same time those women who are facing unwanted pregnancy, it is like a curs to them and they have two choices either they abort there pregnancy or give birth. Demography incidence of unintended pregnancy has long been used as a primary indicator of the state of reproductive health. [1] The socio-economic development and family planning programme efforts are expected to contribute to fertility decline. However, most of the Indian women are forced to give unwanted birth; consequently unwanted fertility rate is very high in India. There is also a need to focus on the unwanted births because the level of unwanted births are stagnant over the period of time, as National Family Health Survey (NFHS) data reports that around one fourth births are unwanted in all three round of survey. [2-4]

The reliability of women's responses on such sensitive topics has important methodological, practical and substantive implications. However, it is usually difficult to study unwanted fertility, because of the variety of factors that can be confuse measurement of this variable. An earlier article has described some of these problems, as well as the techniques used to calculate measures of unwanted fertility. Westoff, [5] uses two measures, synthetic cumulative probability of having an unwanted birth and the synthetic cumulative unwanted fertility rate to classifying births as wanted or unwanted. Studies of wanted fertility have used measures based on generally three types of information commonly available in fertility surveys, including the World Fertility Survey (WFS) and the Demography Health Survey (DHS) series: ideal family size, wanted status of recent births, and desire for more children. The first and simplest measure of wanted fertility is based on responses to a question on ideal family size; [6-7] the second and most frequently measure of wanted fertility is obtained by excluding unwanted births from usual calculation of the total fertility rate .[5, 9] Births that occur after a woman has achieved her ideal family size, or births that she reports as

unwanted at the time of conception, are excluded. The third commonly used measure is based on a direct question to married women about children born to them during a recent reference period.[10]

In his review of methods of estimating wanted fertility, Bongaarts, [11] argues that these measures likely to be biased on account of many factors. The measures of wanted births proposed by Bongaarts, [11] uses information on respondents' desire for more children. Kulkarni and Choe, [12] also propose a measure of wanted and unwanted fertility based on actual and wanted parity progression ratios.

Levels and trends in unwanted fertility are important input to the formulation of population policy and the evaluation of family planning programs. Although population specialists have successfully devised procedures for estimating standard demographic indicators (e.g. level of fertility and mortality). They have been notable unsuccessful in reaching agreement on the most appropriate way to measure unwanted fertility. So, the estimation of accurate unwanted fertility is a major objective of demographic surveys. The reliability of women's response in providing accurate answers on such sensitive topics has important methodological, practical and substantive implications.

To check the consistency in the reporting of status of last birth in cross sectional data is very difficult, as compare to longitudinal data because in cross sectional data the question has been asked to mother is that think back to their feelings at the time of conception or to report on their feeling regarding their most recent life birth. Retrospective reports are problematic, however because women may rationalize an unwanted pregnancy as a wanted birth .[6] The estimates of true levels of unwanted childbearing using retrospective assessments from cross-sectional data remain uncertain and potentially significantly underestimated. With this objective in mind, the main focus of the present analysis is to check the consistency and accuracy of unwanted births in cross sectional data. The consistency has been checked between women's responses on the two indicators and also assessed the agreement between two responses by selected background characteristics.

METHODOLOGY

The Nationwide data from India's latest National Family Health Survey-3, [4] conducted by International Institute for Population Sciences, Mumbai and ORC Macro has been used in this

study. This survey covered a representative sample of 1, 24,385 women in the age group of 15-49 years. NFHS -3 collected information of status of last birth which occurred in five year preceding the survey, and also they collected information about the status of current pregnancy. Among 124385, only 36832 are experienced birth in previous five year. The wanted, mistimed and unwanted pregnancies were reported by 78.9 percent, 10.5 percent and 11.4 percent of women respectively.

In NFHS-3, to know the pregnancy intention, question was asked: At the time you became pregnant did you want to become pregnant then, did you want to wait until later, or did you not want to have any (more) children at all? This question directly classifies the status (wanted/mistimed/unwanted) of last birth, and we can also classify indirectly the status of birth by using the concept of ideal number of children.

To know the ideal number of children, in NFHS-3 the question has been asked**:** if could go back to the time you did not have any children and could choose exactly the number of children to have in your life, how many would that be?

If she already has living children, then the question has been asked her to imagine the time when you had no children and could choose exactly how many to have. Here it is not a matter of concern that how many she would like to have by her current age, but rather, how many she would like over her entire life. If she tells a number, record it and if she gives an answer that was not number, for example, "it's up to God," probe for the numeric response. In NFHS-3, 737 women gave a non numeric response for ideal number of children. These women were excluded from the analysis. So finally the analysis is based on, 36085 women. After classifying indirectly the status of birth, Kappa index has been applied. The kappa statistic was a widely used measure for quantifying agreement between two methods of classification into nominal categories. A value of 1 indicates perfect agreement. A value of 0 indicates that agreement was no better than chance. Kappa is available only for tables in which both variables use the same category values and both variables have the same number of categories. The consistency between women's responses on the two indicators of unwanted birth was assessed with the help of Kappa index.

Agreements between two responses (direct and indirect methods) were also assessed by selected background characteristics. For this purpose, our outcome variable of interest was agreement on

two responses of two way question on same topic (status of last child) obtained independently from women. Answers for each outcome of interest was coded agreement on wanted birth and unwanted birth (= 1) and no agreement (= 0). Agreement was defined as reporting of birth by both the method wanted – wanted and unwanted- unwanted, while disagreement consisted of wanted-unwanted and unwanted-wanted. The unadjusted effects of each predictor variable are calculated with the help of separate regressions based on only one predictor variable. The adjusted percentages, by contrast, are predicted from a single binary logistic regression that includes all predictor variables. To make the results more accessible for understanding purposes, the odd ratio of adjusted logistic regression has been, transformed in to multiple classification analysis (MCA) generalizes format. To our knowledge, this is the first attempt to assess the consistency of reporting of birth as unwanted in cross sectional data.

Results

Table 1 shows the percent distribution of ever married women in the age group 15 -49 who have given at least one birth in preceding the five year from the date of survey in NFHS -3 during 2005-06.

More than one fourth women were residing in central and eastern regions. In north, west and southern regions, population was more than 12 percent. Only four percent women were interviewed in the northeastern region who has given at least one birth in five years proceeding from the date of survey. Women from rural areas (73 percent) and those belonging to Hindu religion (79 percent) have been covered in the survey. It may be noted that 71 percent women belong to other caste, and approximately half of the women belong to 25 -34 years age group. As compared to their partner (29 percent), women (48 percent) were relatively more illiterate. Forty six percent women belong to poorest or poorer category, and rest of the women come from middle and above than middle category. Both infant and child mortality had been declining steadily result shows that only 21 percent women had experienced child loss. 39 percent women have sons greater than daughters while same proportion of women have sons less than daughters and only 21 percent women have equal number of sons and daughters. In NFHS-3, a question has been asked to the women about ideal number of boy and ideal number of girls. 70 percent women reported that they want equal number of sons and daughters, 28 percent women mentioned that they want more son than daughter, and only 2 percent women wanted more girls than boys. For fifty four percent women last child was son.

Table 1: Distribution of ever married women having at least one child in five years prior to the survey by selected background characteristics, National Family Health Survey, India, 2005-06

Background Characteristic	Percentage	Sample size
Region		
North	12.06	5559
Central	28.76	8627
East	25.33	5771
Northeast	4.06	6680
West	12.90	4088
South	16.89	5360
Place of Residence		
Rural	73.22	21735
Urban	26.78	14350
Religion		
Hindu	79.35	25504
Muslim	15.94	5618
Others	4.72	4963
Caste		
Others	70.53	24364
Scheduled Castes	20.03	6246
Scheduled Tribes	9.44	5475
Age of the respondent		
less than 25	41.01	13232
25-34	49.46	19046
35 and above	9.53	3807
Women's Education		
Illiterate	47.51	13664
Literate but below Primary	7.11	2677
Primary but below Middle	14.73	5466
Middle but below High School	12.33	5315
High School and above	18.32	8963
Partner education		
Illiterate	28.81	8015
Literate but below Primary	7.42	2634
Primary but below Middle	15.20	5398
Middle but below High School	16.70	6508
High School and above	31.87	13211

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Background Characteristic	Percentage	Sample size
Experience of Child Loss		
None	78.62	29634
At least one	21.38	6451
Wealth index		
Poorest	24.13	5936
Poorer	21.68	6274
Middle	19.59	7256
Richer	18.29	8019
Richest	16.3	8600
No. of Living Sons & Daughters		
No Living Child	1.32	400
Son Greater than Daughter	39.01	13966
Son Less than Daughter	38.66	14087
Son Equal to Daughter	21.02	7632
Sex Composition of Ideal Children		
No Sons and No Daughters	0.04	18
Equal Sons And Daughters	70.02	26163
Son less than Daughter	2.35	1234
Son Greater than Daughter	27.59	8670
Sex of last child		
Male	53.86	19349
Female	46.14	16736
Total	**100**	**36085**

Table 2 shows that unwanted birth by direct, indirect and both methods with the help of selected background characteristic. Table 3 depicts the percent agreement along with Kappa coefficient value at five percent level of significance. Finding of this analysis shows that there was a difference in the reporting of unwanted birth by two methods.

Table clearly indicates that reporting of unwanted birth was low by direct method in comparison to indirect method. It can be noted from table that in central and eastern regions, the reporting of unwanted birth was very high by both methods. The difference between reporting of unwanted birth by direct and indirect method was very less in southern region but this percentage was high in north and eastern regions. Direct method didn't show any significant variation by place of

Table 2: Distribution of ever married women having at least one unwanted child in five years prior to the survey by direct, indirect and by both method in selective background characteristic National Family Health Survey, India, 2005-06

Background Characteristics	Unwanted by Direct method	Unwanted by Indirect method	Unwanted by both method
Regions			
North	16.58	28.29	9.38
Central	29.31	35.57	18.47
East	23.84	31.31	13.01
Northeast	20.04	23.73	8.31
West	14.36	25.05	5.98
South	17.25	21.02	5.78
Place of residence			
Rural	22.61	18.28	12.56
Urban	20.57	25.24	9.87
Religion			
Hindu	21.15	28.76	11.07
Muslim	27.66	33.73	16.71
Others	18.50	24.05	8.22
Caste			
Others	22.18	28.37	11.69
Scheduled Caste	23.24	32.59	13.43
Scheduled Tribe	18.58	29.51	9.47
Age of the Respondent			
less than 25	16.96	9.16	3.58
25-34	23.35	38.46	14.54
35 and above	37.70	69.92	33.90
Respondent Education			
Illiterate	23.69	39.15	15.91
Literate but below Primary	23.07	29.67	12.73
Primary but below Middle	21.08	23.72	9.02
Middle but below high School	22.79	19.80	8.87
High School and above	17.84	15.19	5.39
Partner Education			
Illiterate	24.59	38.26	15.99
Literate but below Primary	22.48	32.24	13.10
Primary but below Middle	21.73	30.49	11.87
Middle but below high School	21.35	27.01	10.82
High School and above	20.26	21.46	8.40

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Background Characteristics	Unwanted by Direct Method	Unwanted by Indirect Method	Unwanted by both Method
Poorest	23.64	36.76	15.05
Poorer	24.11	33.65	14.17
Middle	23.56	29.60	12.64
Richer	20.80	25.30	9.83
Richest	16.68	17.05	5.37
Experience of Child Loss			
None	20.54	25.70	9.88
At least one	27.69	42.81	19.10
Sex Composition of living Children			
Sons and no daughters	6.03	-	-
Son greater than daughter	22.54	27.73	12.45
Son less than daughter	21.98	36.43	13.18
Equal sons and daughters	22.29	21.06	8.96
Sex composition of Ideal Children			
Sons and no daughters	18.75	25.00	18.75
Equal sons and daughters	21.59	28.44	10.97
Son less than daughter	23.14	19.65	7.75
Son greater than daughter	23.15	32.40	14.36
Sex of last Child			
Male	20.81	29.81	11.07
Female	23.52	28.76	12.73

residence. It is also found that agreement by both methods was high in urban areas. It was also observed that Muslim women reported high unwanted birth by both method (28 and 34 by direct and indirect methods respectively). However 17 percent women were common who had stated their last child was unwanted by both methods.

Members of scheduled tribe women had large difference in stating the unwanted births by both methods. Unwanted births seem to be affected by age of the women; as age increases, reporting

Table 3: Distribution of ever married women according to their agreement on wanted or unwanted birth and kappa coefficient, by selected background characteristic, National Family Health Survey, India, 2005-06

Background Characteristics	% of Agreement	Kappa Coefficient
Regions		
North	73.89	0.26
Central	72.06	0.37
East	70.87	0.28
Northeast	72.84	0.21
West	72.55	0.15
South	73.30	0.14
Place of residence		
Rural	71.67	0.28
Urban	73.94	0.26
Religion		
Hindu	72.24	0.26
Muslim	72.03	0.35
Others	73.88	0.22
Caste		
Others	72.82	0.28
Scheduled Caste	71.03	0.29
Scheduled Tribe	70.85	0.21
Age of the Respondent		
less than 25	81.03	0.18
25-34	67.27	0.25
35 and above	60.18	0.27
Respondent Education		
Illiterate	68.98	0.30
Literate but below Primary	72.72	0.30
Primary but below Middle	73.25	0.23
Middle but below High School	75.15	0.26
High School and above	77.75	0.19
Partner Education		
Illiterate	69.13	0.30
Literate but below Primary	71.47	0.29
Primary but below Middle	71.52	0.27
Middle but below High School	73.28	0.27
High School and above	75.08	0.25

Contd …

Background Characteristics	% of Agreement	Kappa Coefficient
Wealth index		
Poorest	69.71	0.30
Poorer	70.58	0.29
Middle	72.11	0.29
Richer	73.55	0.26
Richest	77.02	0.18
Experience of Child Loss		
None	73.51	0.26
At least one	67.71	0.31
Sex Composition of living Children		
Sons and no daughters	93.97	-
Son greater than daughter	74.62	0.33
Son less than daughter	67.94	0.24
Equal sons and daughters	74.58	0.25
Sex Composition of Ideal Children		
Sons and no daughters	93.75	0.82
Equal sons and daughters	71.90	0.26
Son less than daughter	72.71	0.19
Son greater than daughter	73.17	0.34
Sex of last child		
Male	71.51	0.25
Female	73.18	0.31

of unwanted births also increases. The reporting of unwanted births was highest in the higher age group (35 and above). Approximately 23 percent illiterate reported that they experienced unwanted birth by direct method. This percentage was almost same with respect to other categories of education except those women who were educated high school and above (17.8 percent).

In illiterate category gap between two responses was 16 percent but as education increases, gap decreases (in higher education, the difference was only 2 percent). It clearly shows that higher educated women accurately reported unwanted birth as opposed to illiterate women. The finding of this analysis clearly shows that as wealth index increases, difference between reporting of unwanted birth by both methods decreases. The richest women in the sample were experiencing less unwanted birth. Experience of child loss has a positive impact on unwanted birth and the

difference in stating the unwanted births by two different methods high in case of those who have had child loss.

If women think that ideally it is better to have equal sons and daughters or more sons than daughter, then reporting of unwanted birth was low in the direct method than indirect method but the situation was reverse when women would like to have more daughters.

Table 4 displays the unadjusted odds ratio of agreement (means concordance between two responses of the same women) by selected background characteristic along with 95% C.I. As compare to central region unadjusted agreement was high in western and southern region. Also those women who were residing in urban areas agreement were high among them as compared to rural areas. Among Schedule castes and Schedule tribe's, agreement was less likely as compare to others caste. If other factors simultaneously not controlled then agreement was less likely in above than 25 years aged women, as compared to less than 25 years women. Table reveals that as education increases agreement also increases, in case of both women and partner education. Wealth index has also positive impact on agreement on reporting of status of the child. If any women had experienced child loss, agreement between two way responses was less likely (association was statistically significant). As compared to women with no living sons and no daughters, in all other non reference categories agreement was less likely. Surprisingly, sex composition of ideal children and sex of last child was not a significant predictor of agreement. The results reported in this study suggest that without controlling the other variables, almost all variable (except sex composition of ideal children and sex of the last child) was significant predictor of agreement.

Table 4: Unadjusted odds ratio and 95% C.I. estimate for ever married women having at least one child in five years prior to the survey according to their agreement of intension of last birth, National Family Health Survey, India, 2005-06

Explanatory Variable	Exp(B)	95.0% C.I. for EXP(B)	
Regions		**Lower**	**Upper**
Central ®			
North	1.39	1.29	1.49
East	1.12	1.05	1.20
Northeast	1.23	1.15	1.31
West	1.76	1.63	1.90
South	1.58	1.48	1.70
Place of residence			
Rural®			
Urban	1.22	1.17	1.28
Religion			
Hindu®			
Muslim	0.73	0.69	0.78
Others	0.91	0.86	0.97
Caste			
Others®			
Scheduled Caste	0.84	0.79	0.89
Scheduled Tribe	0.85	0.80	0.90
Age of the Respondent			
less than 25®			
25-34	0.40	0.38	0.42
35 and above	0.16	0.15	0.18
Respondent Education			
Illiterate®			
Literate but below Primary	1.18	1.09	1.29
Primary but below Middle	1.41	1.32	1.50
Middle but below High School	1.73	1.62	1.85
High School and above	2.35	2.22	2.49
Partner Education			
Illiterate®			
Literate but below Primary	1.13	1.03	1.23
Primary but below Middle	1.24	1.15	1.33
Middle but below High School	1.50	1.40	1.60
High School and above	1.94	1.83	2.05

Contd …

Explanatory Variable	Exp (B)	95.0% C.I. for Exp (B)	
Wealth index		**Lower**	**Upper**
Poorest®			
Poorer	1.09	1.01	1.17
Middle	1.17	1.09	1.25
Richer	1.41	1.32	1.51
Richest	2.08	1.94	2.23
Experience of Child Loss			
None®			
At Least One	0.58	0.55	0.61
Sex Composition of living Children			
No Sons and no daughters®			
Son greater than daughter	0.13	0.09	0.19
Son less than daughter	0.09	0.06	0.14
Equal sons and daughters	0.15	0.10	0.22
Sex Composition of Ideal Children			
Sons and no daughters®			
Equal sons and daughters	1.06	0.41	2.75
Son less than daughter	1.06	0.41	2.75
Son greater than daughter	0.96	0.37	2.47
Sex of last Child			
Male®			
Female	1.00	0.96	1.05

Note: ® shows reference category.

Table 5 Illustrates the net effect of each explanatory variable on the agreement of stating the last birth as unwanted by two different methods after controlling the effects of all the other factors, by setting them at their mean values.

The agreement was around 30 percent in all the regions of India except eastern and central regions where the agreement was highest and lowest (70 and 24 percent respectively). In urban and rural both place agreement was almost equal (27 percent), but urban residence was not significantly associated with agreement when other factors were controlled. The percentage agreement was almost same in Hindus and other than Muslims religion. However, low level of agreement

Table 5: Adjusted percentage agreement among women who reported their intension of last birth by selected individual characteristic, National Family Health Survey, India, 2005-06

Explanatory Variable	Percent Agreement
Regions	
Central	23.90
North	29.12
East	70.18
Northeast	30.60
West	32.45
South	29.56
Place of residence	
Rural	27.50
Urban	26.57*
Religion	
Hindu	28.19
Muslim	23.15
Others	26.23
Caste of women	
Others	27.77
Scheduled Caste	25.34
Scheduled Tribe	27.55*
Age of the Respondent	
less than 25	15.84
25-34	34.69
35 and above	54.16
Respondent Education	
Illiterate	24.87
Literate but below Primary	24.86*
Primary but below Middle	25.41*
Middle but below High School	28.57
High School and above	35.85
Partner Education	
Illiterate	26.20
Literate but below Primary	26.22*
Primary but below Middle	25.98*
Middle but below High School	27.85
High School and above	28.78

Contd…..

Explanatory Variable	Percent Agreement
Wealth index	
Poorest	26.48
Poorer	25.64*
Middle	25.09*
Richer	27.13*
Richest	33.77
Experience of Child Loss	
None	27.78
At least one	25.35
Sex Composition of Living Children	
Sons and no daughters	73.85
Son greater than daughter	30.11
Son less than daughter	20.93
Equal sons and daughters	32.52
Sex Composition of Ideal Children	
Sons and no daughters	31.72
Equal sons and daughters	26.18*
Son less than daughter	29.77*
Son greater than daughter	29.84*
Sex of Last Child	
Male	24.65
Female	30.49

Note: * shows not significant at 95% confidence interval.

appeared in case of Muslims, when the effect of other factor was controlled. Findings indicate that more Muslims women provided inconsistent response while reporting the status of last birth. Findings of this study show that caste did not make any difference in reporting of agreement. Agreement was only two percent high in others than scheduled caste/ tribe.

In younger cohort (less then 25) agreement was very less (only 15 percent) but in older cohort the agreement was significantly high. The relationship between education of women and agreement was positive. As education increases, adjusted percent of agreement also increases but it was found significant only for those women who were educated middle school and above. Adjusting for other variables did diminish the significance of some initial category of education. If women

were highly educated then adjusted percent agreement was 36 percent. It can be said that effect of education was positive in consistent reporting of status of last birth. In case of partner's education variation was very less.

If women experienced child loss then agreement was less. Wealth index also play a positive role in consistent reporting of status of the last birth. As wealth index increases consistency of reporting also increases, although poorer, middle and richer categories dose not play a significant role. If women had fewer sons than daughters, then adjusted agreement was very low, and in case of sons greater than daughters and equal sons and daughters categories, agreement was more or less same (30 percent and 32 percent respectively). If the last child was female then agreement was high as compared to male child.

DISCUSSION AND CONCLUSIONS

Findings of this study make a perfect platform for drawing the conclusion that estimates of unwanted childbearing obtained from retrospective assessments are likely to be underestimating significantly than actual levels of unwanted childbearing. This may be reason for mismatch between two types of measurement of status of the last child. The deference between two responses shows that women may rationalize reporting of status of the birth by direct method. Therefore, direct method may underestimate the level of unwanted births as compare to indirect method. In some literature also it has been argued that retrospective assessments of unwanted pregnancy may substantially underestimate true levels of unintended pregnancy, due to factors such as rationalization of responses (the tendency for women to revise their original preferences to report births which were unwanted as wanted).[13] Some explanatory factor like religion, caste, education attainment and experience of child loss etc also play a role while reporting unwanted birth. According to Munsuz and Braveman, [14] also women's interpretations of questions about pregnancy intention and their social experiences regarding pregnancy intention may vary by race or ethnicity.

At the same time, it is very clear from the results that rationalization is much more likely to occur among older, illiterate and having elementary education (both respondent and partner covariates), and women belonging to poorest category.

Finding of this study shows that approximately one fifth women were educated high school and above and as education increases agreement between two responses also increases. If women's last child was female then agreement was high as compare to male child. The reason may be if the

last child was female then directly women may not hesitate to report, it as an unwanted, but at the same time it may not be true in case of male child .

Analysis also shows that urban living , highly educated women and if ideally women think that it is better to have fewer sons as compare to daughters (although the cases are very less) , the direct measure shows high level of unwanted births, as compare to indirect measures. The possible explanation of this finding is that, although these women ideally wants fewer number of children and adopt 'small family norm' but have very specific preferences for the gender of that birth (gender-specific preferences).

Although couples wanted ideally small family size but in the absence of the low child mortality, people in India reluctant to minimize their family size hence average family size is leading to large unwanted births. Therefore, if women experienced child loss then agreement was less.

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