



October 2022

## Measuring contraceptive use in India: Implications of recent fieldwork design and implementation of the National Family Health Survey<sup>1</sup>

**BACKGROUND:** Although fertility declined in India, NFHS 2015-16 (NFHS-4) reported lower modern contraceptives use and female sterilization use compared to NFHS 2005-06 (NFHS-3). Lower contraceptive use is discordant with lower demand for fertility. While social, economic, and demographic forces play an important role in the explanation, our interest is in the influence of enacted changes in survey design factors between NFHS-3 and NFHS-4.

### HYPOTHESES:

1. Survey fieldwork design factors are independently associated with a woman's self report of contraceptive use;
2. Interviewer effects are greater in NFHS-4 than in NFHS-3; and
3. Multiple levels of the effects from state, cluster, and interviewer exist, and are greater in the later round.

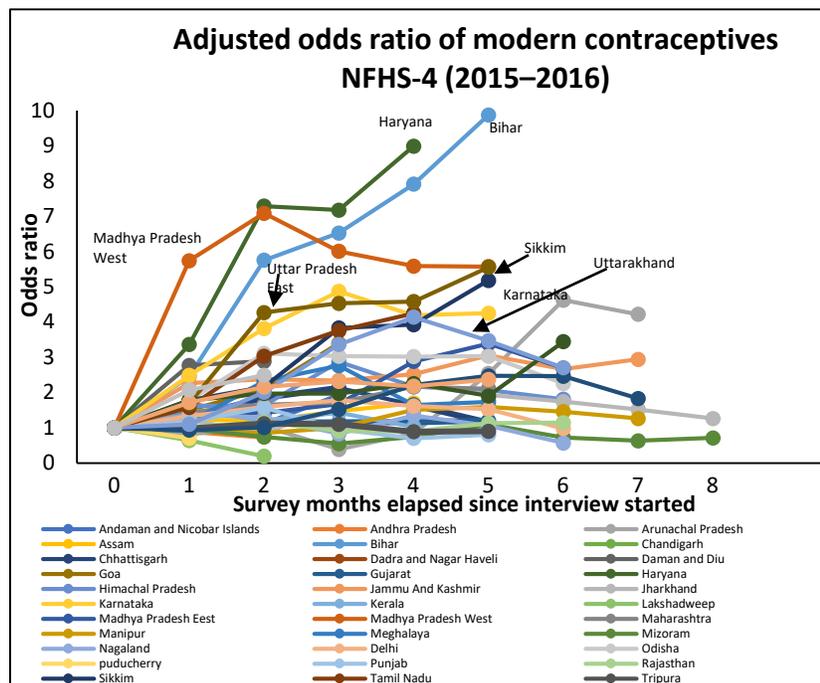
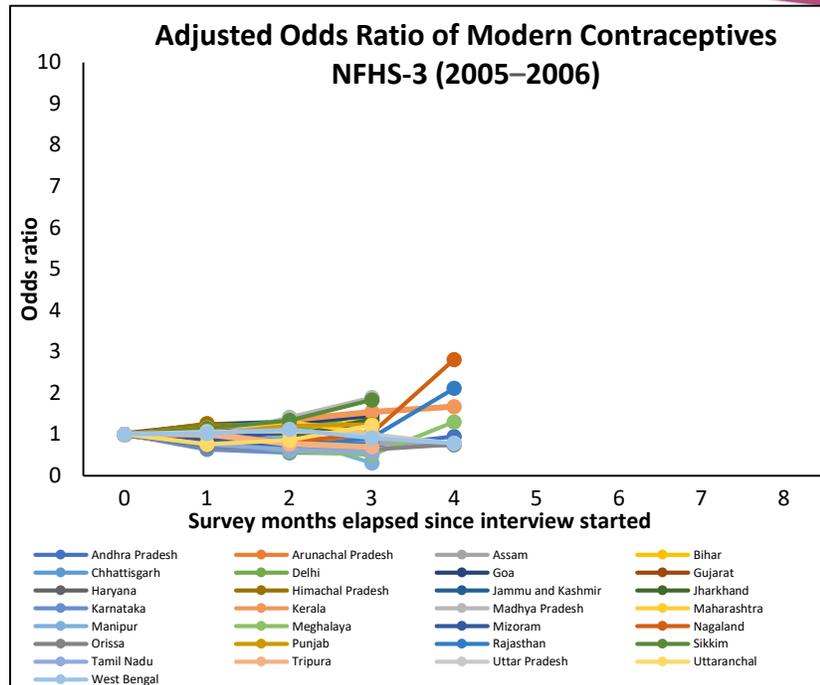
**METHODS:** Nationally-representative data is used from the National Family Health Survey (NFHS) conducted in India in 2005-06 and 2015-16 to test the hypotheses. Outcomes of interest are current use of modern contraceptives and female sterilization use.

Survey design factors in the analysis include NFHS round, survey months elapsed from interview start, and fieldwork phase (i.e. whether the survey in a state was conducted in Phase I or II).

Multivariable logistic regression, deviance residual analysis, and cross-classified random intercept logistic models were used to test the hypotheses.

### FINDINGS:

- Compared to women interviewed in NFHS-3, women interviewed in NFHS-4 had 1.21 (1.17-1.26) higher odds of reporting modern contraceptives use and a 1.66 (1.59-1.74) higher odds of reporting female sterilization.
- The adjusted odds ratio for each interview month after survey launch was 1.16 (1.15-1.17) for modern contraceptives use and 1.18 (1.16-1.19) for sterilization.



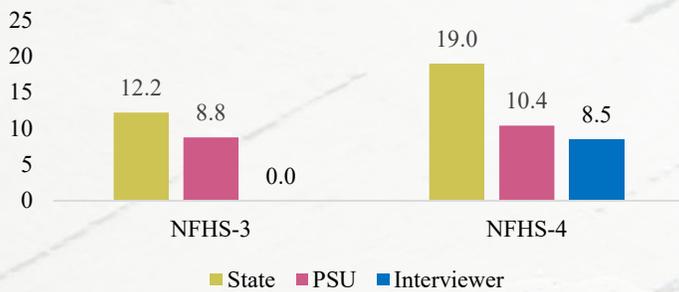
<sup>1</sup>This brief summarizes findings from the following research paper: Kumar, K., Singh, A., Tsui, A., (2022). Measuring contraceptive use in India: implications of recent fieldwork design and implementation of the National Family Health Survey. Demographic Research 47(4): 73-110.

## FINDINGS, CONTINUED:

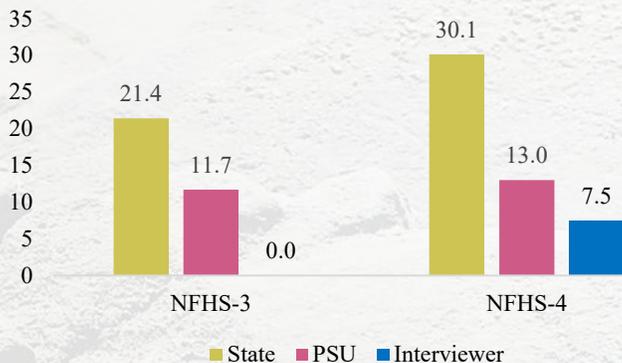
- Women interviewed in the second, as compared to the first, phase had 1.35 (1.30-1.40) higher odds of reporting modern contraceptive use and 1.12 (1.07-1.17) higher odds of reporting female sterilization.
- Interviewer deviance residuals for both contraceptive use outcomes were larger in NFHS-4 than NFHS-3.
- Eliminating problematic interviewers raised modern contraceptive use by 2.0% points and sterilization use by 1.3% points.
- We found larger variations at the interviewer, state, and PSU levels in NFHS-4 than NFHS-3.

## Intraclass correlation coefficient (ICC) values from cross-classified random intercept logistic models

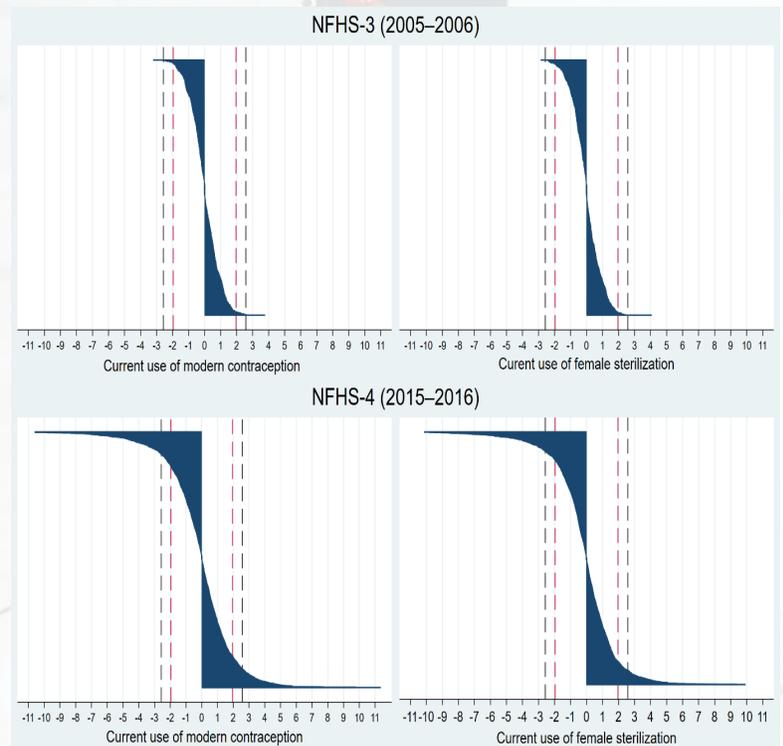
### Current use of modern contraceptives



### Current use of female sterilization



## Deviance residuals from overall mean across interviewers for modern contraceptive use and sterilization use outcomes



**Note:** Deviance residuals are significant at  $p \leq 0.05$  outside the red dashed lines and  $p \leq 0.01$  the black dashed lines

## CONCLUSIONS:

- The five-fold increase in NFHS-4's sample likely impacted the measured use of modern contraceptives and female sterilization.
- Such a dramatic increase in NFHS-4's sample size may have lowered the reported use of modern contraceptive methods by up to 6% points and female sterilization by 2% points.
- It is essential that surveys accurately measure contraceptive behaviours so that any observed significant changes are not the result of field implementation or measurement error.

**Suggested Citation:** Kumar, K, Singh, A., Tsui, A. (2022). Measuring contraceptive use in India: implications of recent fieldwork design and implementation of the National Family Health Survey. Research Brief No.10. Mumbai & San Diego: GENDER Project, International Institute for Population Sciences and Center for Gender Equity and Health University of California.



The Gender (Gender Equity and Demographic Research) Project is a collaboration of the University of California San Diego's Center on Gender Equity and Health and India's International Institute on Population Sciences

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