

Estimating Annual Unmet Need in India Using Intention to Use Contraception from NFHS 4

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Context

The concept of an unmet need appeared early 1960s with KAP-GAP surveys that there are larger number of women who do not want child but they are not using any contraception. However, the concept and measurement were standardized with the onset of Demographic Health Surveys (DHS) in early 1980s (Westoff, 2012). In DHS a set of questions are asked to fecund and sexually active women about their recent pregnancy (last birth and current pregnancy) and future fertility preferences. Depending on the response to fertility preference women are classified as having unmet need which is further sub divided as need for spacing child and need for limiting child. This provides total number of women/couples who need services for contraception in future and helps in planning and monitoring the program.

The present construct of unmet need beside other limitations (Yinger 1998, Dixon-Muller and Germain 1992) assumes that all those women who report that they do not want any child (not in next two years or never in future) must use a modern method of contraception. It is quite possible that considerable number of women reporting on their intention for having or not having a child as noted in the survey may not necessarily need contraception at the time of survey or little ahead of survey for various reasons.

Most of the longitudinal study indicated dynamic nature of the planning status based on intention to have children in future (Casterline, El-Zanaty and El-Zeini, 2003, Westoff and Bankole 1998, Jain 1999). In fact, some studies indicate higher unintended pregnancy among those in unmet need than those who were not in unmet need (Rebecca and Becker, 2004). Another dynamic of the individual behaviour noticed with DHS data is that those who were in unmet need (using contraception) contributes significantly to unintended pregnancy due to discontinuation and failure (both method and switching) (Sarah, Bradley, Trevor Croft and Rutstein, 2011, Jain and Winfrey, 2017). Yet another study (Speizer and Becker, 2006) demonstrated weak utility of unmet need provided it is padded up with individual intensity/motivation of their reported need. It was demonstrated that those who are highly motivated (meaning it will be disastrous if they get pregnant now) are more likely to use contraception.

There is another question and probably never used in our knowledge canvassed in DHS. All non-users wanting no child soon are asked about their intention to use contraception in future sub-divided in to two categories as “within next 12 months” and “later”. Some survey had also enquired about specific method they would like to use in future. This may be categorized as self-defined need of women for contraception (Bongaarts and Bruce 1995, Dixon-Muller and Germain 1992, Yinger 1998). Intention to use by those not in unmet need should also be part of the program (Ross and Heaton 1997). In fact, it is obvious that these two information “intentions” and “method choice” could provide useful tools for program. It may also be expected that women expressing need for contraception might have done so taking all her contextual condition.

There is of course no study in our knowledge evaluating the intensity of link of intention to use with actual use like many longitudinal surveys that indicated the link between unmet need and actual subsequent behaviour. To test the utility, a study in India (follow up of NFHS 1, 1992-93 respondent in Madhya Pradesh after 6 years in 1999) demonstrated that women with intention to use has higher chance of converting themselves user (more likely to use) than those who have unmet need (Roy et.al. 2003). This study probably only one in India indicates:

1. Depending either on unmet need or intention to use would not help program though NFHS respondents who were in common pool i.e. had unmet need and also had intention to use were more likely than others to have used a method by 1999 (63% vs. 41-25%).
2. Method mix planning based on reported unmet need for spacing or limiting may not be dependable as those stated to use spacing in 1992-99, 48% directly underwent sterilization
3. Large number of women who were not in unmet need in fact used the method indicating like many other studies the dynamic nature of the concept where people keep changing their choices-today they are in unmet need tomorrow they may not be.

In view of the above background, the overall objective is to demonstrate the use of two information one on unmet and another one on intention and estimate those who need services on annual basis and are most likely to convert themselves into users in India and its bigger states. The specific objectives are:

1. to examines the changes in and implications of three components of unmet need
2. to examine commonality between unmet need and intention to use
3. to provide annual pool of women/men who need services and are most likely to use contraception

Data and Time Period

For the first objective all rounds of National Family Health Survey, 1992-2016 will be used for India analysis but for the state analysis will be done only for last two time period 2005-06 and 2015-16. The NFHS 4 will be used for second and third objectives. The all India sample size in each NFHS is given below and for details on sample size and design one can see respective report of the survey as stated in last column of the Table 1.

Table 1: Time, Sample Size and Respondent in each round of the NFHS, 1992-16

| Survey Name | Year conducted | Sample Size | Respondent | Reference to report for details |
|-------------|----------------|-------------|------------------------------|--|
| NFHS 1 | 1991-92 | 90000 | Ever married women age 15-49 | International Institute for Population Sciences (IIPS) 1995, National Family Health Survey (MCH &FP), 1992–93: Bombay: IIPS |
| NFHS 2 | 1998-99 | 89199 | Ever married women age 15-49 | International Institute for Population Sciences (IIPS) and ORC Macro. 2000. National Family Health Survey (NFHS-2), 1998–99: India, Mumbai: IIPS |
| NFHS 3 | 2005-06 | 124385 | Women age 15-49 | International Institute for Population Sciences (IIPS) and ORC Macro. 2007. National Family Health Survey (NFHS-3), 2005-06: India, Mumbai: IIPS |
| NFHS 4 | 2015-16 | 699686 | Women age 15-49 | International Institute for Population Sciences (IIPS) and ICF. (2017). National Family Health Survey (NFHS-4), 2015-16: India. Mumbai: IIPS |

For all purposes eligible women/ currently married women are the same that has been used by Track20 and for convenient it is in Table A of Appendix

Results

The present definition of unmet need for family planning considers three components:

1. **Last Birth:** Planning status of the last child born in the two years preceding the survey - mistimed (reported as wanted later) or never wanted
2. **Current Pregnancy:** Planning status of the current pregnancy - mistimed (reported as wanted later) or never wanted

3. **Non-Users:** Planning status of the next child among currently married women who are fecund and not currently using any contraception - want child after two years (spacing needs) or want no more child (Limiting needs)

For matter of convenience, first two components-generally having small share in total-are clubbed under “Unintended Pregnancy” but subdivided into mistimed/spacing needs and wanted no more/limiting needs. Table 2 below provides details about number used in further analysis.

Table 2: Number of cases in each NFHS for analysis, India

| Denominator/Numerator | 2015-16 | 2005-06 | 1998-99 | 1992-93 |
|---|---------|---------|---------|---------|
| All currently married woman | 511377 | 93089 | 84862 | 84678 |
| Last live birth (LB) and current pregnancy (CP) | 49537 | 9592 | 10768 | 16154 |
| Non-users* | 149088 | 29745 | 32586 | 37721 |
| Women in unmet need | 65731 | 12950 | 13632 | 17259 |
| Unintended LB/CP | 6003 | 2930 | 3304 | 4006 |
| Wanted no more | 2697 | 1395 | 1386 | 1417 |
| Mistimed | 3306 | 1535 | 1918 | 2589 |
| Non-users | 59729 | 10019 | 10328 | 13254 |
| Want no more | 34158 | 5886 | 5237 | 5425 |
| Want later (=>2 yrs.) | 25571 | 4133 | 5091 | 7829 |

*currently married/ in union fecund women. Some number may not add up due to rounding

Table 3 provides unmet need under unintended pregnancy and non-users birth planning over all four NFHS for India. It may be observed that unmet need from unintended pregnancy is very low compared to the unmet need from non-users.

Table 3. Unmet need for family planning and its components, India, 1992-2016

| Survey Year | Unintended Pregnancy* | | Non-Users Birth Planning** | | Unmet Need | | Total | % share of Unintended Pregnancy in total unmet need |
|---|-----------------------|----------------|-----------------------------|--------------|-------------|-------------|-------|---|
| | Misstimed | Wanted No More | Want after 2 years or later | Want No More | Space Child | Limit Child | | |
| 1992-93 | 3.1 | 1.7 | 9.3 | 6.4 | 12.3 | 8.1 | 20.4 | 23.2 |
| 1998-99 | 2.3 | 1.6 | 6.0 | 6.2 | 8.3 | 7.8 | 16.1 | 24.2 |
| 2005-06 | 1.7 | 1.5 | 4.4 | 6.3 | 6.1 | 7.8 | 13.9 | 22.6 |
| 2015-16 | 0.7 | 0.5 | 5.0 | 6.7 | 5.7 | 7.2 | 12.9 | 9.2 |
| Currently married women <30 years | | | | | | | | |
| 2005-06 | 1.9 | 3.4 | 5.8 | 9.1 | 7.7 | 12.5 | 20.2 | 26.2 |
| 2015-16 | 0.8 | 0.6 | 7.3 | 10.9 | 8.1 | 11.5 | 19.6 | 7.1 |
| *: Based on planning status of last live births and current pregnancy | | | | | | | | |
| **: Child planning status of all those non-users who are fecund | | | | | | | | |

Unintended mistimed pregnancy has declined from 3.1 % in 1992/3 to 0.7% in 2015/6 whereas unintended wanted no more declined from 1.7% to 0.5% during same period. During 2005/16 decline has been more than 50% in both mistimed and wanted no more unintended pregnancy. It may be noted from last column that share of unintended pregnancy in total unmet need declined from above 23% in earlier three NFHS to just 9% in 2015/6. In absolute term it amounts to decline in unintended pregnancy from around 7 million in 2005/6 to 3 million in 2015/6. It is not known whether this is due better planning of pregnancy (probably not as use has declined and unmet need remained almost the same) or due to increase in abortion of unintended pregnancy which is not captured fully in large sample survey.

There is decline in unmet need among non-users for spacing children; a decline from 9.2% in 1992/3 to 4.4% in 2005/6 then increased to 5% in 2015/6 whereas unmet need for limiting has remained almost the same, 6.4% in 1992/3 and 6.3% in 2005/6 with marginal increase in unmet need to 6.7% in 2015/6.

There is huge decline in unintended pregnancy (first two components of the unmet need) but there is an increase in unmet need among non-users from 10.7 (4.4+6.3) in 2005/6 to 11.7% (5.0+6.7) in 2015/6. In the context of decline in mCPR a decline in unmet during 2005/6 to 2015/6 (from 13.9 to 12.9) is only due to decline in unintended pregnancy component of unmet need. The pattern of change in two components of unmet need is relatively more among women below age 30. It is observed that there is significant increase in unmet need for both limiting as well as spacing among non-users below age 30 (from 9.1 to 10.9% for limiting and 5.8 to 7.3% for spacing). Among young couple decline in unintended pregnancy is from 1.9 to 0.8 for mistimed from 3.3 to 0.6 in wanted no more from 2005/6 to 2015/16.

Geographic Differential

Table 4 provides the unmet need and its component by states. It may be noted that in all the states selected for present analysis unintended component of the unmet has declined and is very low in 2015/6. It is relatively higher in high fertility states such as Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh. On the other hand, non-user component of the unmet need has remained very high and has increased in many states. Here mentioned may be made of Gujarat, Himanchal Pradesh, Karnataka and Kerala. In Gujarat unmet need among non-users was only 5.9% (2.3 limiting+3.6 spacing) in 2005/6 and it increased to 16.6 (6.5 limiting+10.1 spacing)- an increase more than two times-and therefore over all unmet need increase from 8.3% to 17.1% in 10 years. Similar change is

found in Himanchal Pradesh where increase in unmet need among non-users increased from 6.5 to 14.4%. Other two states Karnataka (7.6 to 9.8%) and Kerala (8.5 to 13.1%) also experienced such change.

Table 4: Component of unmet need over time by States, 2005-2016

| State | Unintended Pregnancy | | | | Non-Users Birth Planning | | | |
|-------------------|----------------------|--------------|----------------|--------------|--------------------------|-------------------------------|--------------|-------------------------------|
| | 2005-06 | | 2015-16 | | 2005-06 | | 2015-16 | |
| | Wanted no more | Wanted later | Wanted no more | Wanted later | Want no more | Want after two years or later | Want no more | Want after two years or later |
| India | 1.7 | 1.5 | 0.5 | 0.6 | 4.4 | 6.3 | 6.7 | 5.0 |
| Andhra Pradesh | 0.5 | 0.5 | 0.1 | 0.1 | 2.3 | 1.5 | 3.1 | 1.5 |
| Assam | 1.5 | 1.7 | 0.5 | 0.6 | 2.1 | 6.9 | 5.3 | 7.8 |
| Bihar | 1.8 | 3.6 | 1.3 | 1.3 | 8.6 | 9.9 | 8.2 | 10.4 |
| Gujarat | 1.3 | 1.1 | 0.2 | 0.3 | 2.6 | 3.3 | 6.5 | 10.1 |
| Haryana | 0.6 | 0.5 | 0.6 | 0.4 | 2.5 | 5.9 | 3.2 | 5.1 |
| Himachal Pradesh | 0.8 | 0.5 | 0.8 | 0.5 | 1.5 | 5.0 | 4.0 | 10.4 |
| Jammu And Kashmir | 2.0 | 1.5 | 0.8 | 0.5 | 3.7 | 8.6 | 5.0 | 6.1 |
| Jharkhand | 3.3 | 2.6 | 0.9 | 0.6 | 7.9 | 10.7 | 8.1 | 8.8 |
| Karnataka | 1.6 | 0.9 | 0.2 | 0.4 | 4.0 | 3.6 | 5.8 | 4.0 |
| Kerala | 1.3 | 0.0 | 0.4 | 0.2 | 4.7 | 3.7 | 7.9 | 5.1 |
| Madhya Pradesh | 1.6 | 1.3 | 0.7 | 0.5 | 3.7 | 5.5 | 5.0 | 6.0 |
| Maharashtra | 0.9 | 0.3 | 0.3 | 0.4 | 4.4 | 4.5 | 4.0 | 5.0 |
| Odisha | 1.3 | 0.9 | 0.5 | 0.3 | 5.2 | 8.7 | 4.2 | 8.6 |
| Punjab | 0.9 | 0.6 | 0.4 | 0.2 | 1.8 | 5.7 | 2.0 | 3.7 |
| Rajasthan | 1.7 | 1.2 | 0.6 | 0.4 | 5.6 | 7.2 | 5.1 | 6.3 |
| Tamil Nadu | 0.5 | 0.2 | 0.1 | 0.1 | 3.6 | 6.0 | 4.7 | 5.3 |
| Uttar Pradesh | 2.8 | 3.5 | 1.4 | 1.2 | 6.2 | 10.6 | 5.4 | 10.1 |
| Uttarakhand | 1.6 | 1.5 | 0.9 | 0.6 | 2.8 | 6.7 | 4.4 | 9.7 |
| West Bengal | 2.4 | 1.0 | 0.8 | 0.4 | 1.9 | 4.2 | 2.3 | 4.1 |

Unmet need and Intention to use

Intention to use question is asked to all non-users who do not want to have child soon. Out of total non-users 149088 in 2015-16 we cross tab all those who have unmet need (65731) with their intention to use. The intention of those non-users who are not classified as having unmet need (83357) are not part of the analysis in this paper. Table 5 provides the cross tab of unmet need with intention to use. Mention may be made that denominator remain the total married women (511377).

Table 5: Unmet need and Intention to Use Contraception, India, 2015/6

| | Unmet need Category (1) | Intention to use or not | | | | Total Unmet need (4)+(5) (6) |
|--|------------------------------|--------------------------|--------------|----------------------|---------------------|---------------------------------|
| | | In next 12 months (2) | Later (3) | Total (2)+(3) (4) | No intention (5) | |
| Total (unintended pregnancy and non-users) | Total Unmet Need | 5.31 | 1.87 | 7.18 | 5.67 | 12.85 |
| | Spacing | 3.04 | 1.35 | 4.39 | 2.86 | 7.25 |
| | Limiting | 2.27 | 0.52 | 2.79 | 2.81 | 5.60 |
| Non-users | Spacing (wants 2 yrs. later) | 2.62 | 1.26 | 3.88 | 2.72 | 6.60 |
| | Limiting (want no more) | 1.96 | 0.47 | 2.43 | 2.64 | 5.07 |

It was expected that those who are in unmet need may also have higher intention to use contraception in near future or any time later but it is not so. Table 5 shows that overall 44% of women in unmet need do not intend to use any method in future. This is in fact higher compared to those women who are not in unmet need and do not intend to use (40%) any contraception (Basant et.al. 2018). It may be observed from the above table that out of total 12.9% unmet need 7.2% are in common pool i.e. they have unmet need and also intend to use contraception in future. It may also be noted that of 7.2%, 5.3% (74%) intend to use in next 12 months which in fact may be converted into annual unmet.

We believe that information in shaded part of the table is most valuable and couples in this group would be more likely to use contraception especially those who wants to do so in next 12 months. Those who are categorised under unmet need for limiting most of them intend to use in next 12 months (2.27of 2.79, >80%). On the other hand, those who are in unmet need for spacing larger % intend to use and want to do so in next 12 months (3.04 of 4.39, nearly 69%).

Keeping all India discussion in mind, we provide in Table 6 the distribution of unmet need by intention to use that would indicate common pool of unmet and intention to use and also % share of intention to use in next 12 months in total common pool as annual most likely demand for contraception by states.

Table 6: Percent Distribution of unmet by intention (total, spacing and limiting) and Percent share of next 12 months for annual demand by states, 2015/6

| Country/State | Distribution of unmet by intention | | | % share of next 12 months Intention to | Distribution of spacing unmet by intention | | | % share of next 12 months Intention to | Distribution of limiting unmet by intention | | | % share of next 12 months Intention |
|------------------|------------------------------------|-------|--------------|--|--|-------|--------------|--|---|-------|--------------|-------------------------------------|
| | In next 12 months | Later | No intention | | In next 12 months | Later | No intention | | In next 12 months | Later | No intention | |
| Andhra Pradesh | 26.4 | 24.2 | 49.4 | 52.2 | 21.8 | 33.6 | 44.6 | 39.4 | 35.2 | 4.9 | 59.9 | 87.7 |
| Assam | 31.6 | 7.3 | 61.1 | 81.1 | 40.3 | 14.0 | 45.7 | 74.3 | 21.8 | 3.6 | 74.6 | 85.9 |
| Bihar | 38.2 | 13.7 | 48.1 | 73.5 | 34.5 | 20.3 | 45.2 | 63.0 | 38.6 | 9.0 | 52.4 | 81.0 |
| Chhattisgarh | 58.5 | 19.6 | 21.9 | 74.9 | 59.2 | 28.0 | 12.8 | 67.9 | 51.6 | 14.7 | 33.7 | 77.8 |
| Gujarat | 35.3 | 16.6 | 48.1 | 68.0 | 35.1 | 24.3 | 40.5 | 59.1 | 35.0 | 11.7 | 53.3 | 74.9 |
| Haryana | 52.7 | 8.5 | 38.8 | 86.2 | 56.1 | 10.1 | 33.8 | 84.7 | 49.4 | 6.7 | 43.9 | 88.0 |
| Himachal Pradesh | 40.5 | 9.8 | 49.7 | 80.5 | 56.3 | 20.4 | 23.3 | 73.4 | 31.4 | 5.4 | 63.2 | 85.3 |
| Jammu & Kashmir | 50.5 | 10.8 | 38.6 | 82.3 | 52.5 | 13.8 | 33.7 | 79.1 | 45.6 | 8.9 | 45.6 | 83.7 |
| Jharkhand | 47.8 | 20.0 | 32.2 | 70.5 | 48.9 | 27.2 | 23.9 | 64.3 | 44.2 | 13.8 | 42.0 | 76.3 |
| Karnataka | 20.8 | 3.3 | 75.9 | 86.3 | 20.0 | 9.0 | 71.0 | 68.9 | 19.3 | 4.8 | 75.9 | 80.0 |
| Kerala | 11.3 | 13.8 | 75.0 | 45.0 | 8.5 | 14.4 | 77.2 | 37.1 | 13.6 | 11.1 | 75.4 | 55.0 |
| Madhya Pradesh | 43.6 | 12.5 | 43.9 | 77.7 | 46.6 | 18.1 | 35.3 | 72.0 | 38.4 | 8.5 | 53.2 | 82.0 |
| Maharashtra | 73.8 | 22.8 | 3.4 | 76.4 | 45.8 | 17.7 | 36.5 | 72.1 | 40.5 | 10.1 | 49.4 | 80.1 |
| Odisha | 33.8 | 8.8 | 57.3 | 79.3 | 41.5 | 14.0 | 44.5 | 74.8 | 28.7 | 5.7 | 65.6 | 83.3 |
| Punjab | 64.3 | 6.4 | 29.3 | 91.0 | 75.4 | 9.6 | 15.0 | 88.7 | 56.3 | 4.8 | 38.9 | 92.2 |
| Rajasthan | 57.0 | 18.1 | 25.0 | 75.9 | 54.8 | 25.7 | 19.5 | 68.1 | 56.5 | 12.1 | 31.4 | 82.3 |
| Tamil Nadu | 21.9 | 15.0 | 63.0 | 59.4 | 23.2 | 22.1 | 54.7 | 51.2 | 20.5 | 8.9 | 70.6 | 69.8 |
| Uttar Pradesh | 52.3 | 13.7 | 34.0 | 79.2 | 49.9 | 19.3 | 30.8 | 72.1 | 48.4 | 10.8 | 40.8 | 81.7 |
| Uttarakhand | 54.9 | 10.8 | 34.3 | 83.6 | 57.9 | 16.3 | 25.8 | 78.0 | 50.6 | 8.6 | 40.8 | 85.4 |
| West Bengal | 53.3 | 5.0 | 41.7 | 91.4 | 64.4 | 6.0 | 29.6 | 91.4 | 40.5 | 4.1 | 55.5 | 90.9 |
| Telangana | 20.7 | 14.1 | 65.2 | 59.5 | 16.1 | 23.1 | 60.8 | 41.2 | 25.7 | 5.2 | 69.1 | 83.0 |

Note: Share is out of common pool meaning those who have unmet need and also have intention to use

The important points emerging from the state level table are:

1. Those who are categorized in need of spacing of childbearing more than 65% intend to use preferably in next 12 months
2. Those who are categorised as unmet need for limiting childbearing only half of them intend to use but most within next 12 months
3. Across states there are large % of women categorised as having unmet need have no intention to use; more so in southern states of Karnataka, Kerala, Tamil Nadu and Telangana
4. Of common pool of unmet need and intention to use, more than 80% intend to use contraception in next 12 months with few states as an exception.

Based on this analysis we provide in Table 7 unmet need having both unmet and intention to use for the states in India. Our analysis has indicated large % of those in unmet need have no intention to use contraception. It may be mean that large number of couples are motivated enough to use contraception though they are categorized as having unmet need. In this context we assume that those who are in unmet need and also express their intention to use in next 12 months or later will be relatively more likely to use in near future. Based on this conviction, we provide (Table 7) new unmet need (% of all currently married women) having expressed childbearing intentions (delay or never) as well as contraceptive use intentions.

Table 7: Total Unmet Need (%) Common of unmet and intention to use, India and states, 2015/6

| Country/State | Unmet Need with overlapping unmet and intentions to use | | | Unmet need (original) |
|------------------|---|-------|-------|-----------------------|
| | In next 12 months | Later | Total | |
| India | 5.3 | 1.9 | 7.2 | 12.9 |
| Andhra Pradesh | 1.2 | 1.1 | 2.3 | 4.6 |
| Assam | 3.6 | 0.8 | 4.5 | 14.1 |
| Bihar | 7.7 | 2.8 | 10.5 | 21.1 |
| Chhattisgarh | 6.3 | 2.1 | 8.4 | 11.1 |
| Gujarat | 5.6 | 2.6 | 8.2 | 17.0 |
| Haryana | 4.4 | 0.7 | 5.1 | 9.3 |
| Himachal Pradesh | 5.7 | 1.4 | 7.1 | 15.7 |
| Jammu & Kashmir | 5.7 | 1.2 | 6.9 | 12.3 |
| Jharkhand | 8.0 | 3.4 | 11.4 | 18.4 |
| Karnataka | 2.0 | 0.7 | 2.7 | 10.4 |
| Kerala | 1.4 | 1.8 | 3.2 | 13.7 |
| Madhya Pradesh | 5.0 | 1.4 | 6.4 | 12.1 |
| Maharashtra | 4.1 | 1.3 | 5.4 | 9.7 |
| Odisha | 4.5 | 1.2 | 5.6 | 13.6 |
| Punjab | 3.8 | 0.4 | 4.2 | 6.2 |
| Rajasthan | 6.5 | 2.1 | 8.6 | 12.3 |
| Tamil Nadu | 2.1 | 1.5 | 3.6 | 10.1 |
| Uttar Pradesh | 9.1 | 2.4 | 11.4 | 18.0 |
| Uttarakhand | 7.7 | 1.5 | 9.3 | 15.5 |
| West Bengal | 3.8 | 0.4 | 4.2 | 7.5 |
| Telangana | 1.5 | 1.0 | 2.5 | 7.4 |

Key emerging points from this proposed component of unmet need is:

1. More than 50% of the couple in unmet need constitute common pool of unmet and intention to use in all states except Assam, Karnataka, Kerala, Tamil Nadu and Telangana
2. In most cases except Kerala, Tamil Nadu and Telangana large % of couple expressed intention to use in next 12 months
3. Correlation between proposed measure and original unmet need is high (0.8 and 0.85) indicating no aberration when subset of highly motivated couple is taken out to measure demand and to estimate annual demand
4. The proposed measure has relatively better predictability of TFR than the unmet need [$R^2= 60\%$ and 74% when outlier is removed (see Figure 4 and 4a)]

Discussion

As mentioned above the proposed subset of unmet need taken to indicate demand and to estimate annual demand is highly correlated with the total unmet need and it also has relatively better predictability of the TFR than the original unmet need. Further to demonstrate its utility we estimate annual demand and compare the same with annual performance taken for 2014-15 service statistics published by MOHFW, government of India (MOHFW 2015)

Using Table 7 and eligible women for 2015 we estimate annual demand for contraception which is given in Table 8. Last but one column in Table provides performance in terms of equivalent sterilization by combining Sterilization, IUD, OP and Condom use. We believe that this measure may be closer to users at any point of time reported in survey. The last column gives us performance as percent of annual unmet need.

At national level, the total demand from proposed measure is 18 million, of which 13.3 million is annual demand as they intended to use in next 12 months. HMIS indicates for 2014-15 there were 7.2 million equivalent sterilization/acceptors which is just little above half the annual demand. This also indicate annual acceptance rate (equivalent sterilization divided by eligible women) of 2.9% has to increase to 5.3%.

There is surprise for all southern states having only sterilization. In these states (Andhra Pradesh including Telangana, Karnataka, Kerala and Tamil Nadu) performance is higher than annual unmet need. Probable reason could be of spacing and proper limiting methods as program always push sterilization for limiting children. It is never conveyed that it can also be achieved through modern spacing method. It may also be a reason that regret is higher in state like Andhra Pradesh- sterilization driven program (Abhishek et. Al. 2012). It may be observed that states like Chhattisgarh, Jharkhand, Uttar Pradesh and Uttarakhand are nowhere near 50% of annual demand. Uttar Pradesh having 26% share in total annual demand is performing just 18% of its annual demand. It may be noted that about 6.6 million women who have unmet need and intend to use in next 12 months would come from Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh, predominantly from Bihar and Uttar Pradesh (5 million).

Table 8: Estimated total and annual demand for contraception and Share of states vis-à-vis performance, 2015-16

| Country/State | Common of CP and SEN | | % Share of states in | | Total Ach. 2014-15 (Equivalent Sterilization*) | % of annual demand (Equivalent Str.) |
|-------------------|----------------------|------------|----------------------|-------|---|---|
| | In next 12 months | Total need | Next 12 Months | Total | | |
| India | 13252078 | 17919006 | 100 | 100 | 7161547 | 54.0 |
| Andhra Pradesh | 227357 | 437225 | 1.72 | 2.44 | 428916 | 188.7 |
| Assam | 231047 | 284809 | 1.74 | 1.59 | 94354 | 40.8 |
| Bihar | 1470426 | 1998027 | 11.10 | 11.15 | 652193 | 44.4 |
| Chhattisgarh | 323716 | 432990 | 2.44 | 2.42 | 89094 | 27.5 |
| Gujarat | 704286 | 1036830 | 5.31 | 5.79 | 556544 | 79.0 |
| Haryana | 233795 | 271266 | 1.76 | 1.51 | 181175 | 77.5 |
| Himachal Pradesh | 80984 | 100591 | 0.61 | 0.56 | 33174 | 41.0 |
| Jammu And Kashmir | 113119 | 137344 | 0.85 | 0.77 | 23528 | 20.8 |
| Jharkhand | 509160 | 721839 | 3.84 | 4.03 | 153304 | 30.1 |
| Karnataka | 267886 | 365178 | 2.02 | 2.04 | 407337 | 152.1 |
| Kerala | 108744 | 242583 | 0.82 | 1.35 | 113698 | 104.6 |
| Madhya Pradesh | 746583 | 962462 | 5.63 | 5.37 | 550229 | 73.7 |
| Maharashtra | 997971 | 1307098 | 7.53 | 7.29 | 637497 | 63.9 |
| Odisha | 373442 | 469950 | 2.82 | 2.62 | 185061 | 49.6 |
| Punjab | 210982 | 232466 | 1.59 | 1.30 | 161257 | 76.4 |
| Rajasthan | 931815 | 1225244 | 7.03 | 6.84 | 519064 | 55.7 |
| Tamil Nadu | 325809 | 547605 | 2.46 | 3.06 | 449538 | 138.0 |
| Uttar Pradesh | 3418190 | 4313340 | 25.79 | 24.07 | 629599 | 18.4 |
| Uttarakhand | 153500 | 183446 | 1.16 | 1.02 | 56721 | 37.0 |
| West Bengal | 783533 | 856989 | 5.91 | 4.78 | 335159 | 42.8 |

Note: * Calculated from MOHFW, 2015, Health and Family Welfare Statistics in India 2015, Nirman Bhavan, New Delhi, India

Conclusion

The analysis of last two round of NFHS conducted in 2005-06 and 2015-16 provides interesting issues as far as family planning program is concerned in India. Unmet need with few exceptions has declined marginally in all the states but decline seems to be only due to significant decline in the first two component of the unmet need-last live births and current pregnancy. It may mean better planning of pregnancy but it is not so due to decline in use of contraception and increase in unmet need among non-users. Present paper proposed to classify unmet need by intention to use with hypothesis that those in unmet are more likely to intend to use contraception in future. But it seems untrue as large proportion (44%) of those in unmet need do not intend to use at national. There is significant variation across the states, highest being so in southern states with almost only sterilization and fertility much below replacement.

The unmet need based on common pool of “unmet need” and “intention to use” has been calculated and it has been demonstrated that it may be useful for program planning and monitoring as intention has been expressed by women keeping their contextual factors and therefore they are

more likely use contraception in future. Further this has helped us to estimate annual demand of unmet which when compared with annual performance based on service statistics indicates the need of doubling of acceptance rate at national level. In the state like Bihar, Chhattisgarh, Jharkhand and Uttar Pradesh more and more efforts are required to meet the annual demand of unmet need. It is indicated that strategies for appropriate method-mix may be the only solution to meet the annual demand of unmet need.

Limitation

The present paper excludes all those women who are non-user and not in unmet need due to focus of the paper to find out common pool of women who have unmet need and intend to use contraception. It will be probably equally important from program prospective to examine non-user not in unmet need but intend to use especially in next 12 months

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Appendix

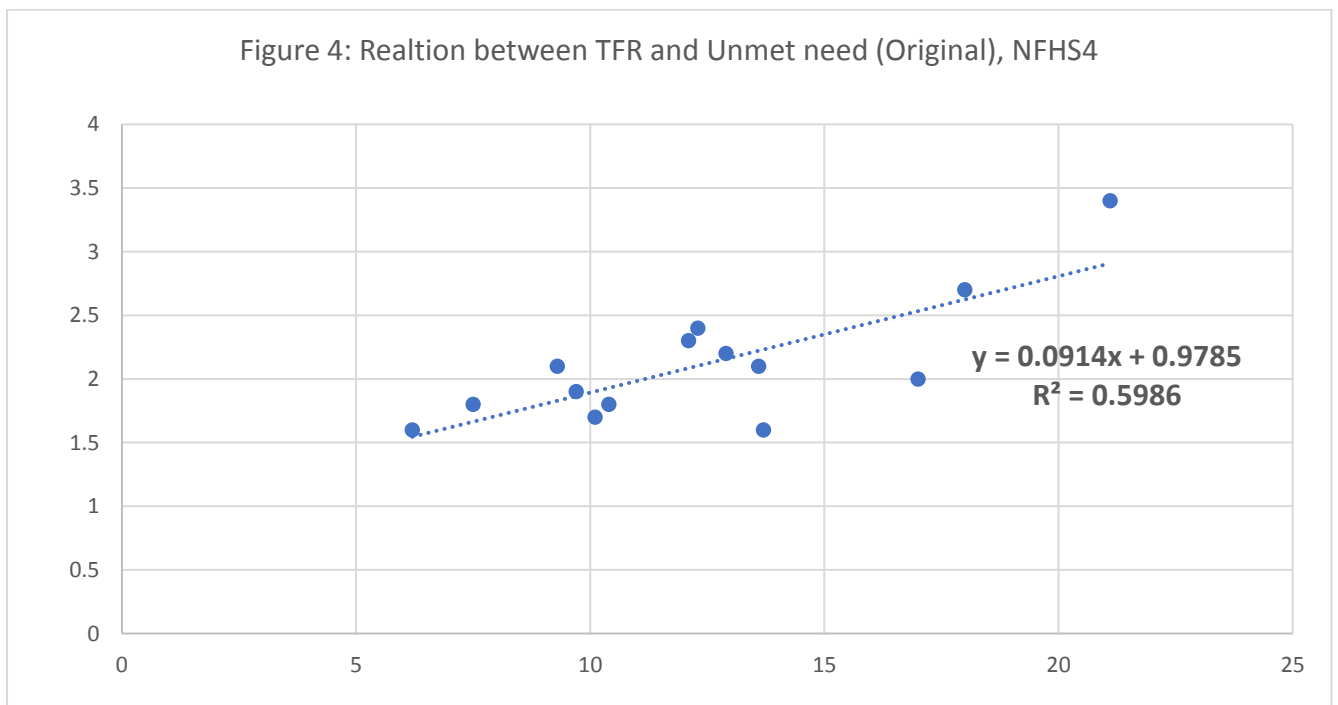


Figure 4a: Relation between TFR and Common pool of unmet and intention
NFHS4

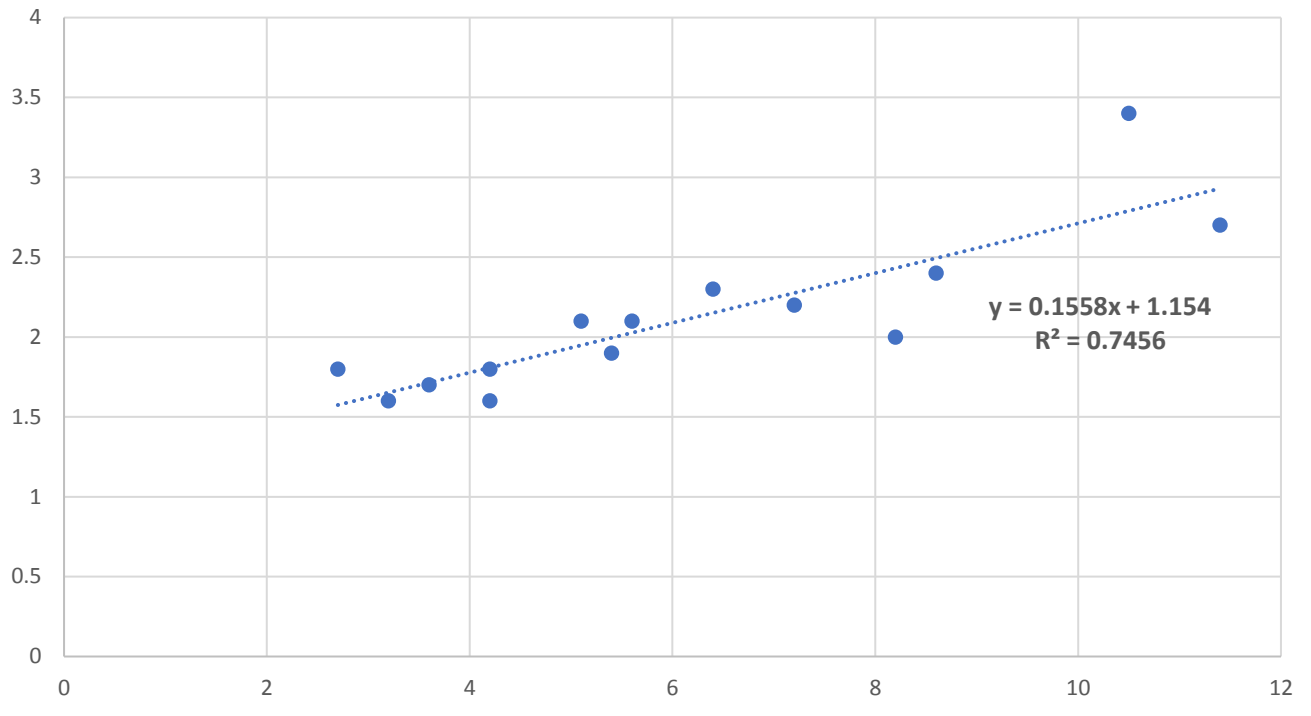


Table A: Eligible women (currently married women age 15-49)
in India and States, 2015

| Country/States | Eligible Women |
|-------------------|----------------|
| India | 249568325 |
| Andhra Pradesh* | 19432224 |
| Assam | 6400204 |
| Bihar | 19046966 |
| Chhattisgarh | 5130214 |
| Gujarat | 12644266 |
| Haryana | 5277548 |
| Himachal Pradesh | 1420779 |
| Jammu And Kashmir | 2002102 |
| Jharkhand | 6348630 |
| Karnataka | 13327674 |
| Kerala | 7604490 |
| Madhya Pradesh | 14991624 |
| Maharashtra | 24340746 |
| Odisha | 8391956 |
| Punjab | 5508672 |
| Rajasthan | 14313602 |
| Tamil Nadu | 15296219 |
| Uttar Pradesh | 37770050 |
| Uttarakhand | 1983204 |
| West Bengal | 20404494 |