



## How many people will an intervention reach?

### A how-to guide for indirectly estimating the number of pregnant women in a subpopulation

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[How many pregnant farmers could a nutrition-sensitive agricultural intervention reach?](#) We used data from the 2014 Bangladesh Demographic and Health Survey and 2015-16 Bangladesh Quarterly Labour Force Survey to indirectly estimate this number.

#### Estimation method:

- Using data on age-specific fertility rates ([ASFR](#)) for rural Bangladesh, we calculated the average proportion of the year that a woman spends pregnant for each age group.

$$\text{Average proportion of year pregnant per woman (by age group)} = \frac{\text{ASFR}}{1000} \times 0.75$$

- Then, using the population size and the average proportion of the year pregnant per woman for each age group, we calculated the average proportion of the year pregnant per woman across all age groups.

$$\begin{aligned} & \text{Average proportion of year pregnant per woman (all age groups)} \\ &= \frac{\sum^{\text{age group}} (\text{female population}) \times (\text{average proportion of the year pregnant per woman})}{(\text{total female population})} \end{aligned}$$

- Next, we multiply the average proportion of the year pregnant per woman by the total number of female farmers to calculate the total number of pregnant farmers.

$$\begin{aligned} & \text{Total number of pregnant farmers} \\ &= (\text{average proportion of the year pregnant per woman}) \\ & \times (\text{total \# of female farmers}) \end{aligned}$$

- Finally, we calculated the proportion of female farmers aged 15-49 who are pregnant in rural Bangladesh.

$$\begin{aligned} & \text{Proportion of female farmers who are pregnant} \\ &= (\text{total \# of pregnant farmers}) \div (\text{total \# of female farmers}) \end{aligned}$$



The 2015-16 Bangladesh Quarterly Labour Force Survey did not include age-disaggregated data on the number or proportion of women working in agriculture. If these data were available, we could calculate a more precise estimate of the number of pregnant farmers in Bangladesh.

**Alternative estimation method (using age-disaggregated occupational data):**

- Using data on age-specific fertility rates ([ASFR](#)) for rural Bangladesh, calculate the average proportion of the year that a woman spends pregnant for each age group.

$$\text{Average proportion of year pregnant per woman (by age group)} = \frac{ASFR}{1000} \times 0.75$$

- Then, using the population size for each age group and the proportion of women working in agriculture, calculate the number of women farmers in each age group.

$$\begin{aligned} \text{Number of women farmers (by age group)} \\ = \text{population size} \times \text{proportion of women working in agriculture} \end{aligned}$$

- Next, apply the age-specific average proportion of the year spent pregnant to the number of women farmers in each age group and sum the number of pregnant farmers in each age group.

$$\begin{aligned} \text{Total number of pregnant farmers} \\ \text{age group} \\ = \sum (\text{average proportion of the year pregnant per woman}) \\ \times (\# \text{ of women farmers per age group}) \end{aligned}$$

- Finally, calculate the proportion of female farmers aged 15-49 who are pregnant in rural Bangladesh.

$$\begin{aligned} \text{Proportion of female farmers who are pregnant} \\ = (\text{total \# of pregnant farmers}) \div (\text{total \# of female farmers}) \end{aligned}$$

For more details, [read our blog on A4NH's Gender-Nutrition Idea Exchange](#).