Subject: Questions about calculating general fertility - Nigeria 2018 DHS
Posted by berhardt93 on Mon, 07 Aug 2023 16:55:31 GMT

Hi,

I'm working on calculating GFR for the Nigeria 2018 DHS using R programming and am confused on a few points.

For one, on StatCompiler, the GFR for the 3-years preceding is listed as 182. However in Table C.11 in the DHS report (and I do understand that this is for the seven years prior since it was used to calculate MMR), the general fertility rate is listed as 0.179. I am confused about why these values are vastly different.

Secondly, I'm a bit confused about how to calculate the GFR, given that the numerator is births for women 15-44 years and the denominator is for women-years of exposure for women 15-49 years. But, the GFR is age-adjusted. I am confused about how to include the denominator for 45-49 year olds when there is no numerator calculated.

Thanks,

Blake

Subject: Re: Questions about calculating general fertility - Nigeria 2018 DHS
Posted by Janet-DHS on Tue, 15 Aug 2023 15:54:41 GMT

Following is a response from DHS staff member, Tom Pullum:

DHS defines the GFR to be the number of births in an interval of time (in the fertility chapter, this is the past 3 years), regardless of the age of the mother, divided by the woman-years of exposure to age 15-44 (in that interval of time), multiplied by 1000. The GFR in the fertility chapter is NOT standardized.

There are alternative definitions of the GFR. In the chapter on adult and maternal mortality, the GFR is calculated for the same 7-year reference period as the mortality rates, is reduced to births in the age range 15-49 (births before 15 are omitted) and the denominator is expanded to 15-49, the same age range as the mortality rates. The GFR for that chapter is standardized on the age distribution of the women in the IR file at the time of the survey. The steps are to calculate the 7 age-specific rates for age 15-19, ..., 45-49, and then calculate the GFR as a weighted mean of those 7 rates, where the weights are the proportions of women age 15-49 who are 15-19,..., 45-49.

The numbers in Appendix C omit arbitrary factors such as 1000. That's why the GFR in Appendix C is .179 rather than 179. Let us know if you have other questions.

Subject: Re: Questions about calculating general fertility - Nigeria 2018 DHS
Posted by berhardt93 on Sun, 20 Aug 2023 23:50:42 GMT

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Hi Tom,

This is super helpful and now I have the denominator. A quick question about the numerator (MMRate) if you don't mind. I'm curious if you have the values at each step of the calculation because I'm getting 478 deaths instead of 451 and can't seem to figure out where I'm going wrong. Here's what I have:

106,590 female siblings (mm2)
12,514 ever deceased female siblings (mm8)
3,679 deceased female siblings at ages 15-49 years (mm7)
1,152 siblings died during pregnancy or within 42 days (mm9)
1,152 siblings died within 42 days of delivery (mm12)
1,109 siblings did not die due to accidents or violence (mm16)
478 siblings that died within the 84 months preceding the survey (mm8, v008)

Thanks,

Blake

Subject: Re: Questions about calculating general fertility - Nigeria 2018 DHS
Posted by Janet-DHS on Tue, 29 Aug 2023 20:27:42 GMT

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Following is a response from DHS staff member, Tom Pullum:

This is a question about maternal mortality and your subject line is about fertility. I'll respond anyway. I have done some checking and I don't match your 478 maternal deaths OR the 451 maternal deaths in the report and on STATcompiler. I get 439 maternal deaths (that's weighted; my unweighted number is 463). This is puzzling because I am using a Stata program (which I wrote) that matches other surveys (see the text file "adult_mm_rates_do_24Aug2023.txt").

I'm curious about this but don't have time to explore the reason for these discrepancies. Note that the maternal deaths require a rather complex recode of mm9 and mm16: "(mm9==3 | (mm9==2 & mm16==0) | (mm9==5 & mm16==0))". It's complex because accidents and violence may happen during pregnancy or postpartum but they are assumed not to happen at delivery.

File Attachments
1) adult_mm_rates_do_24Aug2023.txt, downloaded 248 times

Subject: Re: Questions about calculating general fertility - Nigeria 2018 DHS
Posted by berhardt93 on Thu, 31 Aug 2023 18:19:06 GMT

Hi Tom,

I'm now getting the same numbers as you for Nigeria. I ran the code again to compare with the Burundi 2016-2017 and Cameroon 2018 DHS and the numbers your code generates are not the same as those in the report either, at least when I am running it.

Cameroon: 130 deaths
Burundi: 110 deaths

Can you confirm if when you run the STATA code you are generating the right numbers for these countries?

Thanks,

Blake

Subject: Re: Questions about calculating general fertility - Nigeria 2018 DHS
Posted by Janet-DHS on Thu, 07 Sep 2023 21:15:30 GMT

Following is a response from DHS staff member, Tom Pullum:

I think you reversed the numbers, but I do match the reports. For Cameroon, the report gives 110 weighted maternal deaths and my program gives 109.57. For Burundi, the report gives 130 weighted maternal deaths and my program gives 129.51. The weighted frequencies in the reports are always rounded to the nearest integer.

Subject: Re: Questions about calculating general fertility - Nigeria 2018 DHS
Posted by berhardt93 on Fri, 08 Sep 2023 18:02:54 GMT

Thanks, Tom. I think this is my last question and it relates to weighting.

I weighed the calculation twice:
- After calculating maternal deaths and dividing them by exposure for each age group
- After calculating age specific fertility rates

Is that incorrect? From the code, it's unclear to me when the different parts should be weighted/not weighted.

Thanks,

Blake

Subject: Re: Questions about calculating general fertility - Nigeria 2018 DHS
Posted by Janet-DHS on Mon, 11 Sep 2023 14:47:14 GMT
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Following is a response from DHS staff member, Tom Pullum:

You need to use weights in the calculation of the numerators and denominators of the rates. For some commands such as collapse you use [iweight=v005/1000000]. The program I provided includes weights where needed.

There is a so-called "re-weighting" step in the adult and maternal mortality procedure that has nothing to do with the sample weights. It is described in the Guide to DHS Statistics. To calculate the mortality rate for age 15-49, the age-specific mortality rates for 15-19, ..., 45-49 are weighted by the proportions of women or men in the survey who are in those age groups. Similarly for the GFR or General Fertility Rate, using the age-specific fertility rates and the proportions of women in the seven age groups. The re-weighting is equivalent to direct standardization. The program shows how this is done.