

ANNEX B SAMPLING ERRORS

The estimates from a survey are affected by two types of error: (1) nonsampling errors and (2) sampling errors. Nonsampling errors are the result of mistakes made in implementing data collection and data processing, such as failure to locate and interview the correct households, misunderstanding of the questions on the part of the interviewer or the respondent, and data entry errors. Quality control measures during the implementation of the 2003 EIDHS were designed to minimize this type of error; however, nonsampling errors are impossible to avoid and the extent of the impact of this type of error on the survey results is difficult to evaluate statistically.

Unlike nonsampling error, sampling error can be evaluated statistically. The sample of respondents selected in the 2003 EIDHS is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of the samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

Sampling error is usually assessed in terms of the standard error for a particular statistic. The standard error is calculated by taking the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for a population can reasonably be assumed to lie. Typically, 95 percent confidence intervals will be calculated, i.e., the range within which there is 95 percent confidence that the true value of the statistic lies. This upper boundary of this interval is calculated by adding the standard error to the statistic and the lower boundary is calculated by subtracting the standard error from the statistic.

Sampling errors are presented in Table 1 for the key indicators from the 2003 EIDHS. For each indicator, Table 1 presents the value of the statistic (R), its standard error (SE), the number of unweighted (N) and weighted (WN) cases, the design effect (DEFT), the relative standard (SE/R), and the 95 percent confidence intervals ($R \pm 2SE$).

Table 1 Sampling errors for selected indicators, Menya Governorate, Egypt Interim Demographic and Health Survey 2003

Variables	Value (R)	Standard error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Un-weighted (N)	Weighted (WN)			R-2SE	R+2SE
No education	0.532	0.025	2053	2053	2.245	0.046	0.482	0.581
Ever used any contraceptive method	0.747	0.014	1874	1874	1.401	0.019	0.718	0.775
Currently using any contraceptive method	0.491	0.017	1874	1874	1.449	0.034	0.457	0.524
Currently using a modern method	0.449	0.017	1874	1874	1.464	0.037	0.415	0.482
Currently using pill	0.096	0.010	1874	1874	1.404	0.100	0.077	0.115
Currently using IUD	0.188	0.014	1874	1874	1.548	0.074	0.160	0.216
Currently using injection	0.137	0.010	1874	1874	1.235	0.072	0.117	0.156
Want no more children	0.588	0.013	1874	1874	1.105	0.021	0.562	0.613
Want to delay at least 2 years	0.197	0.011	1874	1874	1.211	0.057	0.175	0.219
Mothers received tetanus injection	0.757	0.013	1787	1787	1.080	0.017	0.730	0.783
Antenatal care	0.521	0.021	1787	1787	1.409	0.040	0.480	0.562
Regular antenatal care	0.361	0.021	1787	1787	1.563	0.059	0.319	0.404
Mothers received medical care at delivery	0.437	0.025	1787	1787	1.798	0.057	0.387	0.487
Had diarrhea in last 2 weeks	0.271	0.014	1667	1667	1.242	0.052	0.242	0.299
Treated with ORS packets	0.399	0.029	451	451	1.211	0.074	0.340	0.458
Consulted medical personal about diarrhea	0.512	0.029	451	451	1.121	0.056	0.455	0.569
Having immunization record	0.777	0.027	310	310	1.128	0.037	0.724	0.831
Received BCG vaccination	0.990	0.006	310	310	1.001	0.006	0.979	1.001
Received DPT vaccination (3 doses)	0.871	0.022	310	310	1.136	0.025	0.828	0.914
Received polio vaccination (3 doses)	0.894	0.018	310	310	1.045	0.021	0.857	0.930
Received measles vaccination	0.965	0.011	310	310	1.045	0.011	0.943	0.986
Received hepatitis vaccination (3 doses)	0.697	0.037	310	310	1.423	0.053	0.622	0.771
Fully immunized	0.832	0.026	310	310	1.237	0.032	0.780	0.885
Weight-for-height	0.027	0.004	1610	1610	0.982	0.154	0.018	0.035
Height-for-age	0.164	0.018	1610	1610	1.825	0.111	0.127	0.200
Weight-for-age	0.078	0.010	1610	1610	1.446	0.131	0.058	0.099
Total fertility rate (0-3 years)	4.062	0.152	56102	56102	1.174	0.038	3.757	4.367
Mortality rates (0-4 years)								
Neonatal	28.082	5.136	1788	1788	1.180	0.183	17.809	38.355
Postneonatal	35.295	4.306	1793	1793	0.968	0.122	26.683	43.907
Infant	63.377	6.331	1795	1795	1.064	0.100	50.716	76.038
Child	14.610	2.856	1795	1795	0.992	0.195	8.898	20.321
Under-five	77.061	6.455	1804	1804	1.013	0.084	64.152	89.970