DHS Survey Design: Modules

To expand the scope of a survey, topic-specific questionnaire modules can be added to the DHS standard questionnaires. Some modules consist of a brief set of standardized questions and are straightforward to implement. Other modules are much more complex, requiring substantial training, adjustments to samples and fieldwork, and more advanced data processing. This document summarizes the benefits and limitations of the standard DHS questionnaire modules.

Accident/Injury

Population: All household members

Placement: Household Questionnaire

Strengths: Collects data on persons injured or killed in the 12 months prior to the survey; Identifies road traffic injuries and deaths to measure SDG 3.6.1. Death Rate due to Road Traffic Injuries.

Validity: Subject to recall and the reference time period

Effect on sample size: None

Impact on cost: Limited, but increases training, data processing time, and report-writing time and effort

Impact on quality: Very limited; 2 questions are asked about all household members; additional questions are only asked in households in which at least one person recently experienced an accident or injury.

Other considerations: It is possible to only include the road traffic injury/death portion of the module

Adult and Maternal Mortality

Population: Population age 15-49

Placement: Woman's Questionnaire

Strengths: Provides data on respondents' sibling survivorship to calculate adult and maternal mortality rates, and pregnancy-related mortality ratio (PRMR) and maternal mortality ratio (MMR). The data is used to report on SDG 3.1: Reduce the global maternal mortality ratio to less than 70 maternal deaths per 100,000 live births. Also provides data on adult mortality by sex and age for life table estimates.

Validity: Siblings' knowledge and recall can lead to under-estimates; MMR and PRMR will have large confidence intervals; subnational estimates are not usually possible due to small sample sizes.

Effect on sample size: Estimating MMR at the national level requires a sample size of at least 10,000 households in high fertility countries, and an even larger sample size in low fertility countries.

Impact on cost: Because of the large sample size required and the additional time needed for training, fieldwork, data processing, and data dissemination, adding the Adult and Maternal Mortality Module to a DHS has significant cost implications.

Impact on quality: Addition of the Adult and Maternal Mortality Module greatly increases the interviewer's workload, which can have a negative impact on the quality of the interviewer's work and ultimately the quality of data collected.

Other considerations: See DHS survey design FAQs on maternal mortality

Child Well-being and Household Composition

Population: Children age 0-17

Placement: Household Questionnaire

Strengths: Provides data on relationship of primary caregiver for children age 0-17 who do not live with a biological parent. For children age 0-17 with at least one biological parent who lives elsewhere them, provides data on interactions between these children and their biological parents, and on transfer of money and/or goods between the biological parent and the household where the child lives. This information is important for understanding the well-being of children who do not live with their parents.

Validity: Validity is subject to the knowledge and recall of the respondent for the household questionnaire.

Effect on sample size: None

Impact on cost: Increase in interviewer training time, longer household interviews and fieldwork duration, and additional time for data analysis and report writing.

The Cumulative Effect of Adding Modules

Even short modules add to the length, cost, and complexity of the survey. These impacts are seen not only during data collection but during training and data processing. It is not often feasible to add numerous modules and still maintain data quality throughout the

Impact on quality: Includes 5 questions added to the household roster, 8 questions on biological mothers who live elsewhere, and 8 questions on biological fathers who live elsewhere. Not every question is relevant for every child in the household; however, the percentage of children under age 17 who live apart from their biological parents can be quite high in some countries. This can be a sensitive topic in some households.

Other considerations: This module does not capture children who do not live in households, such as homeless children or those who live in institutional settings.

Chronic disease

Population: Women age 15-49 and men age 15-49/54/59

Placement: Woman's Questionnaire and Man's Questionnaire

Strengths: Identifies respondents currently diagnosed with a non-communicable disease (NCD) and their access to diagnosis and treatment. Adding screening for specific biomarkers such as glucose and HbA1c (for diabetes), and blood pressure measurements (for cardiometabolic disorders) provides data related to the prevalence of these NCDs. Additional questions provide data on lung disease, cervical and other cancers, depression, and arthritis and other chronic diseases.

Validity: Self-reported diagnosis questions may overestimate the percentage of people with NCDs.

Effect on sample size: Depends on expansion of eligible ages. The prevalence of NCDs is increasingly common globally. Questions about and screening for NCDs are most relevant for an older adult population, which goes beyond the standard eligible age range of DHS surveys. Countries can choose to apply the NCDs module to the entire sample or to a sub-sample, particularly if they are applying this module to adults over the age of 49.

Impact on cost: The NCDs module includes 22 questions for men and 29 questions for women, which adds to the workload of the interviewers and increases fieldwork. Inclusion of relevant biomarkers requires hiring technicians, and providing training and equipment, which will add significantly to the budget.

Impact on quality: Addition of the NCD Module and associated biomarker measurement increases the workload of both interviewers and biomarker technicians, which ultimately can impact data quality.

Other considerations: When measuring glucose and blood pressure, the interviewer and biomarker technician might encounter cases where medical referral could be necessary. Interviewers and biomarker technicians must be trained to provide referral forms to the respondents whose test results are outside the normal range.

Disability

Population: Household members and visitors age 5 and over

Placement: Household Questionnaire

Strengths: Provides data on functional limitations in 6 domains (seeing, hearing, communicating, remembering/concentrating, walking or climbing steps, and washing/dressing) for all household members and visitors age 5 and older; valuable as background characteristics for other indicators (for example, place of delivery) and for disaggregation of SDGs by disability status. The module is based on the Short Set of questions on functioning developed, tested, and adopted by the Washington Group on Disability Statistics, a project of the United Nations Statistical Commission.

Validity: Disability is stigmatized and respondents may be reluctant to admit difficulties. The household questionnaire respondent cannot always answer these questions for all household members and visitors, especially if the household respondent is not involved in caretaking. Respondents may only report on household members' disabilities when they are not able to function at all in a given domain.

Effect on sample size: None

Impact on cost: Increase in interviewer training time, longer household interviews and fieldwork duration.

Impact on quality: Increases duration of the household interview (2 screening questions and 6 long questions per household member and visitors age 5 and older), and questions are considered tedious by both interviewers and respondents. This module greatly increases the interviewer's workload, which can have a negative impact on the quality of the interviewer's work and ultimately the quality of data collected.

Other considerations: Cultural and gender issues may need to be considered since the household respondent must report on all household members and visitors. The full module is greatly preferred over a single screening question (for example, 'Does anyone in this household have a disability?'). The module should never be applied to children under 5. Given the burden of this module on the survey, it may be worthwhile to add it in only a subsample of households.

Domestic Violence

Population: Women age 15-49

Placement: Woman's Questionnaire

Strengths: Provides nationally representative data on the experiences of marital control, physical, sexual, and emotional violence. Responds to SDG 5.2: Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation; specifically indicators 5.2.1 and 5.2.2.

Validity: Internationally validated measures; measures are based on self-reports and hence are subject to women's willingness to disclose the violence; measures on sexual violence in particular, may be underreported.

Effect on sample size: Only one woman per selected household is eligible for interview with the module and many indicators pertain only to ever-married or partnered women. As an added measure to protect respondents, the Domestic Violence (DV) Module is frequently administered in a sub-sample of households NOT selected for the Man's questionnaire.

Impact on cost: Additional funds/time needed for training, fieldwork, programming, report writing and dissemination

Impact on quality: Addition of the DV Module increases the interviewer's workload which can have a negative impact on the quality of the interviewer's work and ultimately the quality of data collected.

Other considerations: Additional efforts are taken to protect the privacy of respondents to this module. This requires additional training and interview time. Also, if the DV Module is administered in a sub-sample of households, stakeholders should think carefully about which other modules are administered in the DV Module sub-sample and in the non-DV Module sub-sample. For example, if the DV Module is administered in one sub-sample, and the FGC or the fistula module is administered in another, the prevalence of the two outcomes can be assessed but the relationship (if any) between the two outcomes cannot be assessed.

Female Genital Cutting

Population: Women age 15-49 and their daughters age 0-14; men included in the survey

Placement: Woman's Questionnaire and Man's Questionnaire

Strengths: Provides nationally representative data on FGC knowledge, attitudes, and prevalence

Validity: Subject to self-report and underreporting particularly in countries that have laws limiting the practice and due to social desirability bias.

Effect on sample size: None

Impact on cost: Limited: increase in interviewer training time; in countries where FGC is common, modest increase in interview duration for women, particularly those with many living daughters age 0-14. Also increases time needed for data processing and report writing.

Impact on quality: Sensitivity of topic and overall length of interview should be taken into consideration.

Other considerations: In countries where FGC is concentrated in particular regions and/or ethnic groups, a national estimate may not be meaningful or programmatically useful. The module can be shortened if only some questions are of interest to a country.

Fistula

Population: Women age 15-49

Placement: Woman's Questionnaire

Strengths: Provides national and subnational data on fistula symptoms and morbidity; self-report of cause and treatment sought for the condition.

Validity: Subject to limitations of self-reporting of a medical condition. The questions on the experience of fistula symptoms have high sensitivity, meaning they can accurately identify women interviewed with actual fistula. However, this question has low positive predictive value, meaning that some women reporting fistula symptoms do not actually have fistula. Therefore, survey prevalence may be an overestimate of the true prevalence in a population.

Effect on sample size: Fistula is a rare condition. If the sample of women reporting fistula is small (fewer than 25 cases), the DHS may be unable to tabulate some responses to module questions.

Impact on cost: Minimal; module includes only 11 questions but additional training needed.

Impact on quality: Minimal, and because fistula is rare, few women are asked all questions in the module.

Other considerations: There are indications that women with fistula in some settings may be ostracized from the home and therefore many not be captured by household surveys.

Food Insecurity Experience Scale (FIES, developed by FAO)

Population: Household members

Placement: Household Questionnaire

Strengths: Provides national and subnational data on the prevalence of household food insecurity and is the Sustainable Development Goal (SDG) Indicator 2.1.2 "Prevalence of moderate or severe food insecurity in the population based on the Food Insecurity Experience Scale (FIES)". The scale describes the level of food insecurity in households and the results can be disaggregated by background characteristics such as residence and wealth quintile. The identification of populations vulnerable to food insecurity can be used to guide policy and interventions. In addition, DHS surveys are also a good source for the determinants and consequences of food insecurity because of the diverse types of data collected.

Food Insecurity Experience Scale (FIES, developed by FAO), continued

Validity: Internationally validated measure that draws on more than two decades of work in food security measurement. It has been widely applied in over 140 countries. The measure is based on self-reported experiences with food insecurity.

Effect on sample size: None

Impact on cost: Limited. This module includes 8 questions. Additional funds/time needed for training, data processing, and tabulation.

Impact on quality: Limited. Sensitivity of topic should be taken into consideration.

Other considerations: There are two optional questions that can be added to the module in specific contexts where food insecurity is expected to be severe.

Human Papilloma Virus (HPV) Vaccination

Population: Women age 15-17

Placement: Woman's Questionnaire

Strengths: Provides a population-based estimate of coverage for programs for immunization against Human Papilloma Virus (HPV).

Validity: Subject to limitations of self-reporting of vaccination status.

Effect on sample size: None

Impact on cost: Limited. Additional time needed for training, data processing and report writing.

Impact on quality: Increased time needed for training. Slightly longer interview times for female respondents who are age 15-17 to complete this 4-question module.

Other considerations: Possession of vaccination cards for HPV campaigns is usually low. Data quality may be limited by the accuracy of self-reporting. The recommended age for HPV vaccination is 9-14 years. Reporting by women who are currently age 15-17 reflects the situation several years prior to the survey, not what is happening currently with the country's HPV vaccination program.

Mental Health

Population: Women age 15-49 and men age 15-49/54/59

Placement: Woman's Questionnaire and Man's Questionnaire

Strengths: Collects data using established psychometric scales on symptoms of anxiety and depression.

Validity: The scales used in this module, the GAD-7 for anxiety and the PHQ-9 for depression, have been used widely as clinical screening tools, and have been validated against clinical diagnosis in many settings. However, these results do not represent clinical diagnoses, and do not measure the prevalence of generalized anxiety disorder or depression in a population.

Effect on sample size: None

Impact on cost: Additional time and effort needed for questionnaire adaptation and translation, development of a referral system, training, data processing, and report writing.

Impact on quality: The Mental Health Module includes roughly 20 questions and the possible need for providing a referral. The module moderately increases interviewers' workload, which can negatively impact overall quality.

Mental Health, continued

Other considerations: (This module cannot be used "off the shelf" as many other optional DHS modules can be. A careful adaptation and translation process must be undertaken in consultation with local mental health experts. Local mental health experts should also assist in training of interviewers, and a referral system must be developed to services where respondents may seek care or assistance if needed.

Newborn Care

Population: All births in the past 3 years to women age 15-49

Placement: Woman's Questionnaire

Strengths: Assesses low cost, evidenced-based newborn care practices that can be applied in both home and health facility settings including thermal care (immediate drying, delayed bathing) and hygienic cord care.

Validity: Varies by question type, wording, place of delivery, and type of delivery (vaginal or cesarean section).

Effect on sample size: None

Impact on cost: This module includes 8 questions on thermal care and cord care, with an additional 5 questions on application of chlorhexidine. Additional funds/time needed for training and tabulation.

Impact on quality: Limited

Other considerations: (1) Questions on cord cutting are only asked of home births. (2) The optional questions on chlorhexidine should be asked only in countries with a national chlorhexidine policy. (3) Questions on newborn care practices may be sensitive for mothers whose children died immediately after delivery or in the newborn period. Research shows implications of validity concerns of responses among bereaved mothers.
See https://dhsprogram.com/pubs/pdf/AS68/AS68.pdf for more information on these indicators.

Out-of-pocket Health Expenditures

Population: Household members

Placement: Household Questionnaire

Strengths: Collects data on inpatient and outpatient health expenditures

Validity: Subject to recall of expenditures over a 6 month period (outpatient) and a 4 week period (inpatient)

Effect on sample size: None

Impact on cost: Increased cost to accommodate additional training, fieldwork, data processing, report-writing, and dissemination

Impact on quality: Lengthy module to train and implement, repetition of questions can be tedious, which can negatively impact overall data quality.

Other considerations: The DHS does not collect household income data, so it is not possible to calculate what percentage of a household's income is spent on health expenses.

Supplemental Module on Maternal Health Care

Population: Women age 15-49 with a birth in the past 3 years

Placement: Woman's Questionnaire

Supplemental Module on Maternal Health Care, continued

Strengths: Provides detailed data on maternal care during intrapartum period including expanded content of antenatal care, counseling on danger signs during pregnancy, detailed delivery plan, respectful maternity care, confidentiality and privacy, neglect, denial of services, exposure to verbal and physical harm and mistreatment, choice of companionship and continuous support during labor and childbirth, and expanded content of postnatal care in the first 2 days after the most recent delivery. Responds to the WHO recommendations on intrapartum care for a positive childbirth experience and indirectly to SDG 3.1 and 3.2.

Validity: Subject to limitations of self-reporting

Effect on sample size: None

Impact on cost: Will require more time for reconfiguration of the Pregnancy and Postnatal Care Section (Section 4) of the DHS Model Woman's Questionnaire to avoid duplication, more time for training and data collection, data processing, analysis and dissemination.

Impact on quality: The Supplemental Maternal Health Care Module adds 42 questions, substantially increasing the interviewer's workload, which can have a negative impact on the quality of the interviewer's work and ultimately the quality of data collected.

Other considerations: Many questions apply only to facility births, so countries with higher rates of facility births and advanced health systems will benefit most from this module.

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