Methods

The data sets currently included in the GDQS data visualizations were each collected using a quantitative 24-hour open recall methodology. These 23 data sets are all currently in the public domain and available for public use. We wish to acknowledge all owners of the data sets that have been included in the GDQS visualizations and express our gratitude for allowing the data to be shared for public use[1]. We also gratefully acknowledge FAO for their work to facilitate the public accessibility on the FAO/WHO GIFT website of many of the data sets that we analysed for inclusion in the GDQS data visualizations.

For the analyses included on the GDQS data visualization webpage, we tabulated the GDQS metrics using the first day of dietary recall data and limited the analyses to dietary data collected from respondents 15 years and older. Sampling weights were available in four of the country data sets analysed (Brazil, France, Mexico, and UK). For these four data sets, we applied sampling weights to all analyses carried out. For all other data sets, sampling weights were not applied as they were not available in the publicly available version of the data set.

Tabulation of the GDQS metrics (i.e., the GDQS Positive, the GDQS Negative, and the Total GDQS metric) using secondary quantitative 24-hour dietary recall data can result in less than perfect standardization of GDQS results across data sets. This is particularly the case when the same level of detail is not provided about the food and beverages consumed; or when mixed dishes consumed are disaggregated to the ingredient level to varying degrees across data sets[2].

For the analyses of the secondary data sets carried out here, we found significant variation across data sets with respect to the extent to which mixed dishes were disaggregated to the ingredient level and in the level of detail provided about the foods and beverages consumed. When the necessary detail about a mixed dish or food or beverage consumed was lacking, we developed and applied a set of rules; and in some cases, we also applied subjective judgement to classify the food and beverages reported as consumed into a GDQS food group.

Examples of mixed dishes, foods, and beverages that appeared frequently across data sets and did not always have sufficient detail reported to make a definitive GDQS food group classification included: soups, stews, coffee, and tea. In most cases, we classified these foods and beverages as "not classified" for the purpose of the GDQS data visualizations. We generally assumed a high liquid content of the soups and stews and did not account for the other ingredients in those soups and stews (because often only a primary ingredient was reported). We also generally assumed that milk and sweeteners were not used in the coffee and tea reported as consumed.

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[1] Please refer to the end of the document for the citations for the data sets used.
[2] Tabulating the GDQS metrics with the GDQS app is straightforward and allows for standardized results across data sets because the GDQS app is designed to collect the level of detail needed about the foods and beverages consumed to allow for correct and automated classification of that food or beverage into the corresponding food group. The GDQS app also provides automated tabulation of the GDQS metrics.

A second aspect of data coding that required the use of subjective judgment was the classification of foods into the GDQS food group, "Purchased Deep Fried Foods". None of the secondary data sets we analysed included data on whether the food was purchased or prepared at home. Therefore, in all data sets, it was necessary to apply subjective judgment to decide which deep fried foods reported as consumed were purchased as opposed to prepared at home[3]. Prospectively, quantitative 24-hour dietary recall instruments could easily integrate this question into the data collection methods to allow for more straightforward and clean classification of the data collected into GDQS food groups.

Throughout our analyses, we did our best to apply the same set of rules across all data sets. Therefore, although the above assumptions we made to tabulate the GDQS metrics from the secondary data available are unlikely to be correct in all cases, we do not expect that the results are unduly biased in relative terms for the purpose of making comparisons across data sets.

It is worth underscoring that the purpose of the analyses included in the GDQS visualizations is not to inform policy or program decision making but rather to highlight the types of program and policy-related questions that GDQS data can answer. Therefore, any variability across data sets with respect to methods used for collection of the dietary data; the level of detail collected about the mixed dishes, foods, and beverages consumed; and the resulting quality of the dietary data is of less concern for the purpose for which we are analysing the data than it would be if we were using the data to inform policy and program decision making.

We hope to be able to expand the range of country data sets reflected in the GDQS data visualizations included on the *Intake* website. We are especially interested in filling gaps for countries that do not yet have any GDQS data reported; and adding country data sets that have been collected in more recent years than those currently included in the visualizations. We are also particularly interested in including GDQS data that has been collected using the GDQS app.

If you are interested in having your GDQS data included on our GDQS data visualization webpage or have any questions about sharing your data for inclusion in the GDQS data visualizations, please write to us at GDQS@FHISolutions.org. Your microdata will not be used for any purpose but to help populate the GDQS data visualizations on the *Intake* webpage.

We gratefully acknowledge the owners of all data sets who have already generously made their dietary data available, either directly to us, or through other public data sharing platforms, for use in the GDQS data visualizations included on the *Intake* website. The citation for each of these data sets is provided below.

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[3] Collecting data with the GDQS app avoids this problem, as a question about whether deep fried foods reported as consumed were purchased or prepared at home is included in the data collection instrument.

- o **Argentina**: Primer estudio sobre el estado nutricional y los hábitos alimentarios de la población adulta de Rosario. Zapata ME - UCEL; 2012-2013.
- o **Bolivia**: Lazarte, CE. (2014). Nutritional Assessment in a Rural Area of Bolivia. A Study of Zinc and Iron Deficiencies and Bioavailability. Doctoral Dissertation. Department of Food Technology, Engineering and Nutrition, Lund University, Sweden.
- o **Brazil**: Pesquisa de Orçamentos Familiares 2008-2009 - Dados de Consumo Alimentar Pessoal no Brasil.
- o **Bulgaria**: National Survey of Food Intake and Nutritional Status (NSFIN), National Nutrition Monitoring in Bulgaria, 2004.
- o **DRC**: Sud-Ubangi, Democratic Republic of the Congo; 2014/2016; Women First Dietary Recall Data.
- o **Ethiopia**: Dietary Practices, Maternal Nutritional Status and Child Stunting: Comparative and Intervention Studies in Pulse and Non-pulse Growing Rural Communities in Ethiopia, 2013.
- o **France**: Etude individuelle nationale des consommations alimentaires 2 (INCA2) 2006-2007. ANSES.
- o **Guatemala**: Chimaltenango, Guatemala; 2014/2016; Women First Dietary Recall Data.
- o **India**: Diet and Nutritional Status of Rural Population, Prevalence of Hypertension and Diabetes among Adults, and Infant and Young child feeding practices, 2009-2012, Indian Council of Medical Research, National Institute of Nutrition, Hyderabad.
- o **Indonesia**: Indonesia, 2016, Developing Biomarkers of Exclusive Breastfeeding Practice – HBGD.
- o **Italy**: Italy INRAN SCAI 2005 2006 CREA Alimenti e Nutrizione.
- o **Kenya**: Kenya, Bioversity International, 2018. Improving access to and benefits from a wealth of diverse seeds to support on-farm biodiversity for healthy people in resilient landscapes: Baseline Survey
- o **Lao, PDR**: National Food Consumption Survey Lao PDR 2016-2017. Lao TPHI; 2016-2017.
- o **Mexico**: Mexican National Health and Nutrition Survey, 2012, National Institute of Public Health, Mexico. Harmonized for the Global Dietary Database.
- o **Mozambique**: Estudo do Estado Nutricional e da Dieta em Raparigas Adolescentes na Zambezia (ZANE): Mozambique, 2010; Department of Food and Nutrition, University of Helsinki, Finland. Harmonized for the Global Dietary Database.
- o **Nigeria**: International Institute of Tropical Agriculture (IITA); HarvestPlus, International Food Policy Research Institute (IFPRI). 2015. Dietary intakes, vitamin A, and iron status of women of childbearing age and children 6-59 months of age from Akwa Ibom state in Nigeria. Washington, DC: IFPRI [dataset]. https://doi.org/10.7910/DVN/29604. Harvard Dataverse. Version 1. This data was provided by the International Food Policy Research Institute (IFPRI). IFPRI bears no responsibility for the analyses or interpretations of the data presented here.
- o **Pakistan**: Thatta, Pakistan; 2014/2016; Women First Dietary Recall Data.
- o **Philippines**: 6th Philippines National Nutrition Survey (NNS) 2003 Dietary component (lactating women) DOST FNRI. The Philippines; FNRI; 2003.
- o **Romania**: DIETA-PILOT Survey, 2012, Dunarea de Jos University of Galaţi, Romania.

- **Tanzania**: Scale N Nutrition Survey 2016. University of Hohenheim, Germany; Sokoine University of Agriculture, Tanzania, and ZALF, Germany; Female dataset, 2016 (Stuetz et al.; Nutrients 2019 doi: 10.3390/nu11051025).
- **Uganda**: HarvestPlus, International Food Policy Research Institute (IFPRI); Academy for Educational Development (AED), 2017. The HarvestPlus REU/A2Z-AED 2007-2008 Uganda 24-Hour Recall Survey, doi:10.7910/DVN/FOYZBL.
- **UK**: UK National Diet and Nutrition Survey Years 9 to 11 (2016/2017-2018/2019). UK Food Standards Agency and Public Health England.
- **Zambia**: The 2009 food consumption and vitamin A status survey in Zambia. Zambia Tropical Diseases Research Centre, National Food and Nutrition Commission of Zambia, HarvestPlus-IFPRI; 2009.