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Discussion Paper BRIEFS

Food Consumption and Nutrition Division of the International Food Policy Research Institute

Discussion Paper 140

Is Dietary Diversity an Indicator of Food Security or Dietary Quality? A Review of Measurement Issues and Research Needs

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Although dietary diversity is universally recognized as a key component of healthy diets, there is a lack of consensus on how to measure and operationalize it. This literature review focuses on issues of dietary diversity in developing countries, but it also draws upon experience from developed countries. The study considers the following questions:

1) How is dietary diversity conceptualized, operationalized, and measured, and how does it relate operationally to dietary quality?
2) Is there an association between dietary diversity and nutrient adequacy in developing countries? Between dietary diversity and child growth?
3) What is the relationship between household-level dietary diversity and socioeconomic factors and food security?
4) What key measurement issues need to be addressed to better operationalize and understand dietary diversity?

How Is Dietary Diversity Conceptualized, Operationalized, and Measured?

Dietary diversity is usually measured using a simple count of foods or food groups over a given reference period. Our overview, however, revealed that studies in developed and developing countries have used a variety of food and food group classification systems, different numbers of foods and food groups, and varying reference period lengths (ranging from 1 to 15 days). Research should be conducted to validate and compare indicators based on different methodological approaches. It would also be useful to continue to explore whether indicators based on food groups (a simpler approach) perform as well as those based on single foods in predicting outcomes of interest.

Dietary diversity is clearly a promising measurement tool, but additional research is needed to validate and test alternative indicators for different purposes.

Is Dietary Diversity Related to Nutrient Adequacy and Child Growth?

Our review of developing country studies confirms the positive associations found in developed countries between dietary diversity and nutrient adequacy (i.e., diets that meet requirements of energy and all essential nutrients). Additional validation studies with existing data sets should be carried out to confirm these findings in a variety of contexts and population groups, and to compare diversity indicators constructed using different approaches.

Dietary diversity has also been consistently associated with better child growth in a number of studies in developing countries. The magnitude of association is large, including in the few studies that have controlled for socioeconomic (SES) factors. More rigorous control of SES factors will be necessary in future research, however, to disentangle the mechanisms that underlie these associations. More specifically, research should apply suitable analytical methods that will allow determining whether the association between dietary diversity and child growth is independent from socioeconomic factors.

Is There a Relationship Between Household-Level Dietary Diversity and Socioeconomic Factors and Food Security?

Recent evidence from a 10-country analysis shows a strong association between household-level dietary diversity and per capita consumption and energy availability. This suggests that dietary diversity could be a useful indicator of food security (defined as energy availability). The study has important programmatic implications, because diversity is much easier and cheaper to use than traditional food security measures, which usually in-

volve collecting complex quantitative information. Future research should test the association between household dietary diversity and food security defined in terms of dietary quality—i.e., using adequacy of multiple nutrients as opposed to energy only, as in traditional food security measures.

What Measurement Issues Need To Be Addressed?

A number of measurement issues still need to be addressed to better understand dietary diversity. These include the selection of foods and food groupings, the consideration of portion size and frequency of intake, and the selection of scoring systems, cutoff points, and reference periods that will ensure the validity and reliability of the diversity indicators for the specific purposes for which they are used.

Conclusion and Discussion

Dietary diversity is clearly a promising measurement tool, but additional research is needed to validate and test alternative indicators for different purposes. First, research is needed to continue to develop valid and reliable indicators of dietary diversity that accurately predict *individual* nutrient adequacy in a variety of population groups and settings. Second, the potential of *household-level* dietary diversity indicators to accurately reflect household food security and overall socioeconomic status needs to be confirmed. Specific indicators will need to be developed for each of these purposes, but in both cases it will be necessary to address the various measurement issues identified in this review. Finally, rigorous analytical approaches should be employed to disentangle the complex relationships between dietary diversity, household socioeconomic factors, and child growth. It is particularly important for future programming efforts to understand whether dietary diversity has an effect on child growth, independent of socioeconomic factors. This will help program managers and policymakers understand what levels of reductions in childhood malnutrition they can achieve from poverty alleviation and dietary diversification interventions, and whether they can expect a synergistic effect if they combine the two approaches.

Keywords: child growth, dietary diversity, dietary quality, child nutritional status, food security, nutrient adequacy, validation studies

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***Dietary diversity is clearly a promising measurement tool, but considerable research is needed to continue to explore how to operationalize it and determine the purposes for which it can be most useful.*-DP140**