nut-7.2. When Using Dietary Patterns or Indices, Describe the Methods to Obtain Them and Their Nutritional Properties

Example 1. “We performed exploratory factor analysis to extract patterns that we then confirmed by using confirmatory factor analysis. To avert subjective influences in food grouping, we included all individual food items in the exploratory factor analysis. We considered eigenvalues >1.0, interpretability of factors, and number of items and their frequency to decide how many factors to extract from the data and confirm. We included items with factor loadings of $0.20 from exploratory analysis to test specific factor structures by using confirmatory factor analysis; the goodness-of-fit index was high (0.93 for the model including all patterns). Factor scores were calculated for each individual for each pattern by weighting the standardized intakes of the food items by their factor loadings and summing for all items. The scores of each dietary pattern were categorized into quintiles. We derived 4 major dietary patterns: “healthy” (vegetables, fruit, and legumes), “Western/Swedish” (red meat, processed meat, poultry, rice, pasta, eggs, fried potatoes, and fish), “alcohol” (wine, liquor, beer, and some snacks), and “sweets” (sweet baked goods, candy, chocolate, jam, and ice cream)”.

Explanation.

Dietary pattern analysis allows researchers to examine total diet, or combinations of many food components, rather than single nutrients or foods. Dietary patterns can be estimated by statistical data-driven techniques (a posteriori) or by dietary indexes or scores that are hypothesis based (a priori). Data handling and analysis involve many steps that need to be described clearly in order for others to fully understand the procedure and to interpret findings (see also Nut-12.1).

The dietary patterns identified from the data-driven techniques are meant to reflect the dietary habits in the population independent of any previous knowledge about dietary influences on health. The most widely used data-driven approaches are cluster, principal components, and factor analysis. Reduced rank regression is another approach that uses both dietary data and a set of response variables (e.g., plasma concentrations of disease markers) to identify patterns . Each of these methods has its specific procedures, and researchers are required to make several informed decisions during data handling and analysis. In order for other researchers to fully understand the procedure and to interpret findings, the report should include information on the following: 1) the selection and aggregation of dietary variables,2) any standardization used, and 3) any approach of energyadjustment (see Text Box 4). The basis to determine the number of patterns (e.g., correlation or covariance matrices and factor loadings) and the selection criteria should also be presented. A description of the rationale for labeling the dietary pattern, as well as the nutritional properties of the emerging patterns, adds clarity (see also Nut-12.1). Dietary indexes or scores are constructed on the basis of a priori hypothesis. Scores are assigned to individuals depending on their adherence to predefined intake amounts, or the population median. The development of the dietary index or score should be described, and whether the aim was to reflect adherence to nutrition recommendations, dietary guidelines, or a certain diet or to predict disease risk. The choice of each index component should be justified, including the cutoff values, because both food and nutrient components could partly reflect similar aspects of the diet, and thus may be highly correlated. Also describe whether there was any weighting of included components and whether variables were energy-adjusted.