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## Estimating the distribution of usual intake of nutrients via asymmetric models

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One of the main interests of researchers in the field of nutrition is to check the inadequacy of food intake (according to an existing standard reference) from a group population. In the literature, models with measurement errors are proposed to overcome this variability and estimate usual dietary intake of foods and nutrients of a group population. The basic assumption of these models is that the response variable follows a normal distribution. When this assumption failure, an appropriate transformation of the data for this assumption is done (usually Box-Cox-type), but in practice, it is noted that for datasets in which the distributions are highly asymmetric, it is not always possible to normalize them. Thus, the present study aims, through Generalized Additive Models for Location, Scale and Shape (GAMLSS), propose a new approach to obtain the distribution of nutrient intake data from a population with high asymmetry, trying to incorporate a factor in the model that considers within-person variance. These models were applied to a consumption data obtained from three 24-hour recalls of 351 older people of Botucatu city, São Paulo, Brazil. Nutrient intakes were obtained using the NDSR (Nutrition Data System for Research) software. The intake of some nutrients that showed very asymmetric distributions were adjusted and, using the Akaikecriteria, the GAMLSS approach presented lower values than the ones in classical models with measurement errors. It was concluded that the GAMLSS can be a useful approach to estimate the distribution of consumption in a more adequately way to data with highly asymmetry.

### Biography

Jose Eduardo Corrente has undergraduate degree in mathematics and took his MSc and PhD in biostatistics. He is Associate Professor at Biostatistics Department - University of Sao Paulo State - UNESP, and his field of research is epidemiology of third age. Main projects are in quality of life, lifestyle and nutritional aspects for older people with respect to eating patterns and adequate intake as well as publications in reputed journals. Giovana Fumes is a PhD Student at University of São Paulo developing alternative statistical methods to estimate the distribution of usual intake. He is dietitian and is a PhD in Public Health. His thesis is related a functional capacity, nutritional status and adequacy intake for older people.

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