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Comparison of individual food item intakes of a true longitude group of South African children at five interceptions between 1995 and 2003; The Birth-to-Twenty (BT-20) Study

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ABSTRACT

Eating patterns change over time. Studies have been conducted in industrialized countries stating that it is important to study the longitudinal development of dietary intake itself and to determine the stability of this intake, but monitoring longitudinal dietary habits of the same children over a period of time, in particular with regard to individual food items, is severely limited in developing countries such as South Africa.

South Africa, a country with diverse cultures, is undergoing massive socio-economic and political changes, and an increasing social integration following the abolishment of the previous apartheid legislation. Obviously diet too must have been affected. The country is in a state of nutritional transition, and if the nutritional status of South African children is to improve in the 21^{st} century, basic knowledge is required of the actual food items the children have been and are consuming, and the change in consumption of these individual food items during this transition.

The Birth-to-Twenty (Bt-20) study is the continuation of Birth-to-Ten (BTT) study, which started in 1990 and plans to continue to 2010. It is the largest running cohort study on children's development in Africa and also the first and only longitudinal study on the nutrient and individual food item intake of South African children, living in the Johannesburg/Soweto area of the Gauteng Province.

This research will thus provide valuable, unique information on the individual food items consumed and change in consumption of these foods by South African children from the Bt20 study over an eight-year period (1995–2003).

The overall objective of this study was to determine the variety and change in consumption of individual food items consumed by a true longitudinal group of urban black South African children from the Bt20 study in 1995; '97, '99, 2000 and 2003 when they were 5, 7, 9, 10 and 13 years of age, respectively.

with the following sub-objectives:

- To determine the number of times each food item was recorded by the longitudinal group of children.
- To determine the percentage of children consuming the individual food items.
- To determine the mean weekly frequency of consumption of the individual food items for all the children, as well as for only those children consuming the items.

The study sample size comprised a true longitudinal group of urban black South African children (n = 143), from the Bt20 study that had nutrition information at all 5 interceptions (1995, 1997, 1999, 2000 and 2003).

Data were collected at each interception using the same semi-quantitative food frequency questionnaire. Parents/guardians or the children themselves were asked by trained multi-lingual interviewers to indicate how frequently the listed food items were consumed.

The food items were coded onto computer coding sheets using the South African Med-

ical Research Council's Food Composition Tables and Codes. Recorded or standard portions sizes were used based on the use of the National Research Institute for Nutritional Diseases(NRIND) Food Quantities Manual. The coded data were put on disk by a data capturing company and SAS was used for statistical analysis. Specific computer programmes were written to systematically re-arrange and merge the data by subject ID number. The final longitudinal sample with nutrition information at 5 interceptions was extracted by ID number as each child kept the same ID number for all interceptions.

Frequencies were calculated for:

1. The number of times each food item was recorded per week, firstly for all five interceptions combined and secondly for each interception separately. The total number times each food item was recorded for all five interceptions combined was divided by the total number of times all food items at all five interceptions combined (23840) were recorded and expressed as a percentage.

   The total number of times each food item was recorded at each interception separately was divided by the total number of children in the group [n=143] and expressed as a percentage.

2. The total weekly frequency of consumption for each food item. The mean weekly frequency of consumption for each food item was calculated for all the children in the group [n=143] for each interception separately (total weekly frequency of consumption of each food item/total number of children [n=143] and then only for those in the group consuming the food items (total weekly frequency of consumption of each food item/number of times each food item was recorded for

each interception.

The food items were ranked in descending order according to:

- their percentage contribution of the total number of times all food items at all five interceptions combined were recorded
- the average number of times recorded for all five interceptions combined
- the mean weekly frequency of consumption for all five interceptions combined.

The ranked food items were then arranged within the 8 food groups listed in the questionnaire (chapters 3, 4, 5).

Forty-one food items made up 1% or more of the total number of times all food items were recorded for all five interceptions combined. This was used as a cut-off point as all the other food items were recorded too infrequently to include. For this reason only these forty-one items will be discussed in chapter 3, 4 and 5 of this thesis.

A total of 546 different food items were recorded 23840 times between 1995-2003. The highest number of food items recorded was in 1999 (124) and 2003 (123) both almost 23% of the total number of food items recorded when the children were nine and thirteen years old, respectively. Of this, 41 items contributed 1% or more of the total number of recordings.

There was a decrease in the number of recordings from the grain and cereal group, fruits and vegetables and milk and milk products. However, among the meat and meat substitutes, the number of recordings for chicken and cheese increased over this time as did the number of recordings for margarine and ice-cream among the fats and oils. Among the miscellaneous group sugar, sweets, tea and carbonated beverages remained

fairly stable over the 5 interceptions, but there was an increase in the number of recordings for crisps and chocolates from 2000 to 2003.

Ninety percent or more of the children consumed rice, stiff maize-meal porridge, chicken, sugar, sweets and tea over the five interceptions.

Fourteen food items were consumed by 75% or more of the children and 33% of these 41 items were consumed by 50% or more. All the top 41 food items were consumed by more than 33% of the children.

Among grain/cereal group/breakfast cereal/porridges and other starches, the most frequently consumed food items were brown bread, stiff and soft maize-meal porridge, all being consumed between 4-6x/week for all the children as well as for only those consuming these items.

Peanut butter, eggs and chicken were the most frequently consumed items among the meat and meat substitutes, 3-5x/week for all the children and for only children consuming these items.

In the group of fruits and vegetables, fruit juice and mashed potato were consumed most frequently, but not everyday of the week either for all the children or for those consuming these items.

Within fats and oils food group, cooking oil and butter were consumed most frequently (3-4x/week) for all the children and 5x/week for only those children who consumed these items.

Full cream milk was the most frequently consumed food item (5-6x/week) among the group of milk and milk products for all the children as well as for only those consuming this item.

Among the miscellaneous food items sugar (5-6x/week), sweets and tea (4-5x/week) were the most frequently consumed for all the children and between 5-7x/week for only those consuming these items.

The dietary patterns of this longitudinal group of urban black South African children was far from the recommended South African Food-Based Dietary Guidelines (FBDGs), which was developed with the aim of making evidence-based nutrition and lifestyle messages to the public accessible, understandable, generalizable, acceptable in a cross-cultural context and feasible. Thus, this study has provided useful insights to guide the governmental parastatals, nutrition scientists and other interested cooperate bodies in promoting successful nutrition intervention strategies that will lead to healthy dietary habits among children and adolescents.