The acceptability and intake of lipid-based pastes as a food supplement in a South African context

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Abstract

This descriptive study included 103 children aged 12-60 months, 39 older children and 291 adults, and was performed to assess the sensory acceptability of a lipid-based food supplement. Lipid-based pastes were found to be highly acceptable, although concern exists regarding the recommended portion sizes, especially for young children with poor appetite.

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Introduction

Malnutrition is a major problem in low-income countries and accounts for 2.2-million deaths in children who are younger than five years of age.[1] Lipid-based, ready-to-use therapeutic foods (RUTFs) or ready-to-use supplementary foods (RUSFs) are recommended by the United Nations Children's Fund and the World Health Organization as an energy-dense nutritional supplement. RUSFs are relatively unfamiliar in South Africa. Only a few dietitians use them, despite their accessibility and high quality of evidence for use.[2]

Method

A cross-sectional descriptive study on a convenience sample of 103 children between 12 and 60 months of age, 39 older children and 291 adults, was conducted between June and December 2012 in five hospitals and five clinics in the Cacadu and the Nelson Mandela Bay health districts in the Eastern Cape province. Patients with a known allergy for peanuts, severe acute malnutrition or adults with a body mass index (BMI) > 22 kg/m^2, unless presenting with > 5% involuntary weight loss, were excluded. Demographic information, sensory acceptability, intake, nutritional side-effects and attitude towards future intake of RUSFs were collected using a structured questionnaire. The study was approved by the Research Ethics Committee (Human) of the Nelson Mandela Metropolitan University (H12-RTI-HIV-002) and consent or assent obtained. A five-point hedonic scale was used to determine acceptability.

Data were analysed with SPSS® software version 21 and descriptive statistics used to evaluate acceptance of the supplement.

Results

Of the 103 children (mean age 32 months, 48% female), 18% were human immunodeficiency virus (HIV)-infected and 39% presented with moderate acute malnutrition. Of the 330 older children and adults (56% female), 37% were HIV-infected and 30% were on tuberculosis treatment. The supplement was highly acceptable to 84% (n = 86) of the children and 87% (n = 228) of the older children and adults. The older group had a mean of 4.31 for visual acceptability, 4.32 for olfactory acceptability and 4.39 for taste, all reflecting a very positive perception. Only 5% of the children did not like the product. Seventeen participants in the older group (5.1%) disliked the product very much. A similar number struggled to swallow it (n = 16), or found it to be too sticky (n = 18). Only 3.6% (n = 12) indicated that they felt nauseous after consuming it.

The mean age of the children who found the supplement to be too sticky (20.8 months) did not differ significantly (p=value 0.07) from the mean age of the rest of the children (32.9 months).

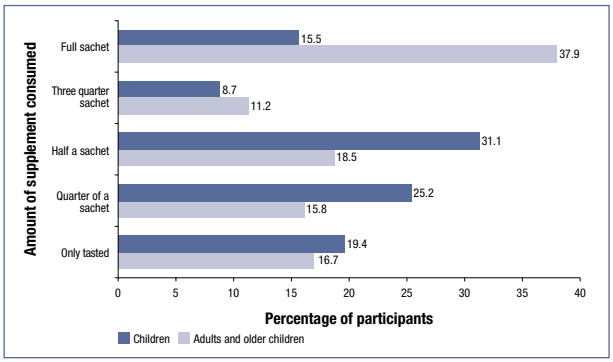

Figure 1: Amount of supplement consumed by children and adults in a 30-minute period

The majority of the children (55%, n = 57) and 67.6% (n = 223) of adults consumed half a sachet or more within 30 minutes (Figure 1). However, only 15.5% (n = 16) of the children and 38% (n = 125) of the older group were able to consume the full 92 g sachet. Seventy per cent (n = 230) of the older group indicated that they would have a second portion the same day, while 85% (n = 280) reported that they would take the supplement on a daily basis by choice.

Discussion

According to Dibari,[3] at least 75% of the population should consume 75% of the RUTF within one hour of receiving it, with less than 10% ill effects leading to withdrawal. In this study, the product was accepted by more than 80% of the adults and younger children. However, only 68% of the adults and older children, and 55% of the younger children, managed to eat half a sachet or more in the allotted 30 minutes, implying that 32% of adults and 45% of children did not pass the appetite test, which questions adequate intake at home.

Limitations

In terms of the limitations of the study, the small number of older children included in the study should be borne in mind because the study was conducted during the school term. Time constraints did not allow for more than 30 minutes in which the supplement could be consumed. Participants were not actively motivated to eat the full portion, and meals or snacks that could have been consumed before the supplement was offered could have influenced intake. The fact that the product is highly acceptable may contribute to supplement leakage or sharing and this should be kept in mind.

In summary, lipid-based pastes were found to be highly acceptable, although concern exists about the recommended portion sizes, especially for young children with poor appetites. Further research should determine whether or not young children with compromised appetite, as in the case of children with severe acute malnutrition, would be able to consume the amounts prescribed in the guidelines to treat severe acute malnutrition.

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Conflict of interest

Both authors perform contract work for the company that manufactures the lipid-based supplement.

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