

# NUTRITIONAL MANAGEMENT IN CHILD DIARRHEA: AN EVALUATION OF AWARENESS IN GENERAL POPULATION FROM DOBROGEA REGION

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## ABSTRACT

*Diet has a major role in the treatment of acute diarrhea in children, along with a minimal drug therapy, but not necessarily using antimicrobials. Children can successfully pass a diarrheal episode with diet and symptomatic treatment.*

*It is important to know how to properly choose foods to introduce in ill children diet. There is a lack of statistical data in our region regarding dietary treatment in child diarrhea. This study was realized by completing a questionnaire regarding nutritional management in children with diarrhea. 110 persons from Dobrogea region completed this questionnaire. We analyze demographic and clinical issues, people preferences in choosing different foods appropriate to this pathology and minimal knowledge about medication.*

*Our results evidenced that general population knowledges regarding nutritional management of acute diarrheal disease in children and infants are appreciable. Foods like rice, toast, applesauce/baked apple, mint/figs/bilberry leaves teas, vegetables soup, bananas were found among people preferences, proving appropriate information. Antimicrobial drugs misuse is not reported, 83 out of 110 people avoiding them.*

*Keywords: nutritional management; diarrhea, infants, children*

## INTRODUCTION

Globally, acute diarrheal disease is an important cause of malnutrition, morbidity and mortality among infants and children. In developing countries, children suffer episodes of acute diarrhea in 35 to 70 days/year (1). Besides dehydration and electrolyte imbalance, acute diarrhea has repercussions on nutritional status of the children.

In developed countries, children's nutritional background is sufficient to help override a diarrheal episode; the more good quality foods with high nutritional index are available, the less malnutrition and other

consequences are expected to appear. On the other hand, in developing countries, more than 30% of children can become malnourished. In this situation, even a mild diarrheal episode can disturb their nutritional balance requiring prompt intervention to prevent its consequences (2).

## DIETARY IN CHILD WITH DIARRHEA

In the past, acute diarrheal diseases rivaled with respiratory illnesses for the first place in child mortality among children aged 0-1 year (3). Due to the continuous improvement of living conditions and the advancement in medical research such as understanding of etiopathogenetic mechanisms,

the establishment of adequate treatment plans, medical education of general population, acute diarrheal diseases now occupy fourth place as cause of child mortality in different places of the world (4).

Therapeutic guidelines recommend maintaining a relatively normal feeding throughout the recovery of a diarrheal episode. Expected benefits may vary depending on nutritional values of the foods given to children, which can be enhanced with various supplements for a quicker recovery. An ideal diet should be able to provide the nourishment needed for passing a diarrheal episode, thus supplementing basic requirements for normal child growth and development (5). Choosing proper foods, proper way of cooking and right frequency of feedings depends on the child age, his eating habits and state of health. Special attention must be paid on the foods used: the quantity and quality of their nutrients, the quality of the carbohydrates and fats, biological values of the proteins and, if possible, their osmolarity. The need of specific foods must be considered as well (6, 7).

As for breastfed infants, their feeding should be continued during recovery from a diarrheal episode. Eutrophic infants, aged under 6 months, can rely on a breast milk only diet since it is suitable for them and can correct by itself all nutritional deficiencies that appear in diarrhea. Certain additions to this diet are recommended for infants aged over 6 months, using foods that are well tolerated by them (8, 9).

A study performed by Hoque and Binder, regarding the importance of Zinc in children's diet, revealed that this vital mineral helped in the treatment of acute diarrhea in children younger than 5 years (10).

Oral rehydration and prompt refeeding are important in treating an acute diarrheal episode (11,12). B.R.A.T. diet is often prescribed and is composed of following foods: Bananas, Rice, Applesauce, Toast and Tea.

This diet imply the combination of certain foods containing dietary fibers with low nutritional status; however, these foods are supposed to be well tolerated by children's gastro-intestinal tract, during diarrheal episodes. BRAT diet is frequently used as a short-term solution for a good nutritional management (13).

## **MATERIAL AND METHOD**

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The study was based on the elaboration of a questionnaire shared to 110 people, located in Dobrogea region (Constanta and Tulcea counties), Romania, between July 2018 - April 2019. Google Forms platform was used to collect and analyze the results.

## **RESULTS AND DISCUSSION**

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Demographic data revealed that women represents the majority of the interviewees, 93 out of 110 (84.5%), 87 out of 110 (79.1%) are caucasians and the predominant group age, of 25-30 years, contains 41 people (37.3%). Regarding level of education, 54 out of 110 people (49.1%) went to high school or graduated high-school.

Given that diarrheal diseases have high frequency among children and infants, people were asked about their child medical history. 107 out of 110 (97.3%) of them confirmed at least one diarrheal episode. The addressability to the general practitioner may be improved, 72 out of 110 went to the doctor as first symptoms appeared on their child. From those who refused a medical examination, 52.6% (20 people out of 38) did not considered it necessary in their child case. When asked about the importance of dietary in the treatment of child diarrhea, 78 out of 110 (70.90%) find it important for a proper treatment of the disease and only 3 persons (2.72%) claimed it is not.

**A. Foods.** Proper nutritional management of diarrheal disease imply good knowledges about foods and their nutritional content. This study reveals that people know what foods to choose for feeding their ill infant/child. Foods like rice (chosen by 70%), toast (67.27%), applesauce/baked apple (50.90%), mint/figs/bilberry leaves teas (43.63%), vegetables soup (43.63%), and bananas (40.90%), grilled/boiled meat like chicken breast or beef (40.90%), boiled carrots (40%) were in top of preferences of people. All these represents proper choices (7, 14, 15).

Figure 1 shows foods in the order of people preferences for adding them in children's diet.

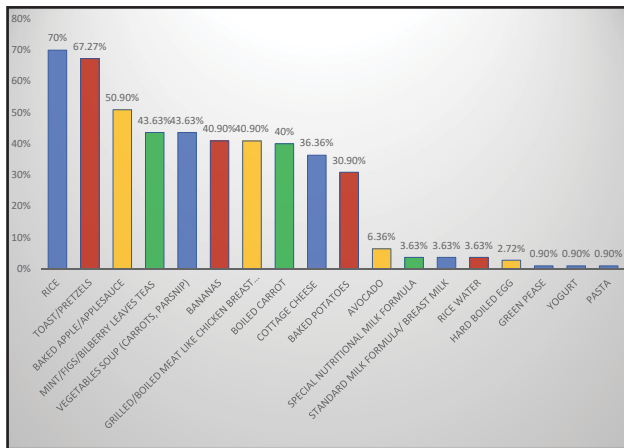


Figure 1 – people's food selections for their children diet

Bananas and rice are known for their role in the improvement of health status of children with diarrhea. Bananas contain amylase resistant starch, which is capable of generating short-chain fatty acids in the colon. This generation improves absorption of water and electrolytes from the content of bowels, thus reducing the volume of stool and increasing its consistency (15). Rice may contain substances that can induce anti-secretory effects in the intestinal mucosa (16).

There is a study (17) performed by Rabbani et al in 2001, in Bangladesh, on 62 boys aged 5 months to 1 year old, comparing recovery outcomes of children fed with rice only diet and those fed with rice mixed with cooked green bananas or pectin. They noticed that children fed with mixture of rice and bananas/pectin had better improvements of their recovery from diarrhea than those receiving rice only diet. On the third day of the observation, 55%-59% of those fed with rice and bananas/pectin mixture did not have diarrhea anymore, comparing to 15% fed with rice only.

Sixty-seven out of one hundred ten respondents (60.90%) claimed diet had an important role in the improvement of their child symptoms; 21 people (19.09%) reported a complete recovery from diarrhea, while ten out of one hundred ten claimed it did not help at all.

**B. Drug therapy.** The survey contains a section regarding minimal knowledge about drugs used in treatment of child diarrhea. In order to prevent confusions about therapeutic classes or active ingredients of drugs among people, their brand/commercial names were used

to identify them.

Anti-diarrheal medication, such as Racecadrotilum (36.36%) or Diosmectitis (29.29%) are preferred; 24 out of 110 (21.81%) choose not to use any anti-diarrheal medication whatsoever.

Probiotic therapy, based on *Lactobacillus casei* (20%), or *Lactobacillus acidophilus* (16.36%) and others (32.74%) were administered, while 34 out of 110 respondents (30.90%) choose not to use them. A meta-analysis revealed that *Lactobacillus* spp. can be beneficial in the treatment of acute infectious diarrhea (18), shortening the disease time. Furthermore, *Lactobacillus* spp. brought clinical improvements in cases of antibiotic-associated diarrhea (19, 20).

Symptomatic relief drugs are useful in preventing any further complications. Oral rehydration salts were used by 54 out of 110 (49.09%), Metoclopramide, by 10 and Motilium, by 9 people. However, 40 out of 110 (36.36%) decide not to administer them.

Antimicrobial therapy was avoided by 83 out of 110 (75.46%); a good result considering that only 10% to 20% of cases of child diarrhea are caused by bacteria.

## CONCLUSIONS

General population knowledge regarding nutritional management of acute diarrheal disease in children and infants are appreciable. Foods like rice, toast, applesauce/baked apple, mint/figs/bilberry leaves teas, vegetables soup, bananas were found among people preferences, proving appropriate information.

Between interviewees, just 14.15% do not know or do not find important nutritional management in treatment of diarrheal episodes; in their case, some information were given as a cultivation.

Antimicrobial drugs misuse is not reported, 75.45% people from our study avoiding them.

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