



## KNOWLEDGE, ATTITUDES, AND PRACTICES OF PARENTS REGARDING FOOD DIVERSIFICATION FOR CHILDREN UNDER 3 YEARS OLD

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**Keywords:** children under 3 years old, parents, nutrition, attitude, diversification, nutritional knowledge, habits, eating habits, recommended foods.

**Introduction.** Children suffer the consequences of poor nutrition and improper eating practices for the rest of their lives. Every year, more than 3.4 million children under the age of 5 die due to inadequate feeding practices. Optimal nutrition decreases morbidity and mortality, reduces the risk of chronic diseases and promotes better development.

**Material and methods.** A mixed study was conducted. Quantitative study: the survey was carried out, based on a sample of 423 adults from the Republic of Moldova, who have at least one child aged 3 years. The qualitative study involved 4 focus group meetings with different categories of participants (family doctors, paediatricians, parents) and an in-depth interview – with a representative of the Ministry of Health.

**Results.** Aspects regarding the identification of barriers and opportunities for the development of parents' skills in the process of diversifying the nutrition of children up to 3 years of age and the evaluation of parental knowledge, attitudes and practices were reflected.

**Conclusions.** Although the proper nutrition for children aged 0-3 is currently being studied and argued, there are difficulties in the practical application of the diversification process, conditioned by: inadequate information of parents, lack of reliable evidence-based information sources, and the precarious socio-economic state currently existing in the country.

**Cuvinte cheie:** copii până la 3 ani, părinți, alimentație, atitudine, diversificare, cunoștințe nutriționale, obiceiuri alimentare, alimente recomandate.

**CUNOȘTINȚE, ATITUDINI ȘI PRACTICI ALE PĂRINȚILOR PRIVIND DIVERSIFICAREA ALIMENTAȚIEI COPIILOR PÂNĂ LA VÂRSTA DE 3 ANI**

**Introducere.** Copiii suportă tot restul vieții consecințele unei alimentații proaste și a unor practici alimentare necorespunzătoare. În fiecare an, din cauza practicilor de alimentație neadecvate, mor peste 3,4 milioane de copii cu vârsta sub 5 ani. O alimentație optimă scade procentul morbidității și al mortalității, reduce riscul de boli cornice și favorizează o dezvoltare mai bună a copiilor.

**Material și metode.** S-a efectuat un studiu mixt. În cadrul studiului cantitativ a fost realizată chestionarea pe un eșantion de 423 de persoane adulte din Republica Moldova, care au cel puțin un copil cu vârsta de 3 ani. Studiul calitativ a presupus 4 ședințe de focus-grup, cu diferite categorii de participanți (medici de familie, pediatri, părinți) și un interviu în profunzime – cu un reprezentant al Ministerului Sănătății.

**Rezultate.** Au fost reflectate aspecte privind identificarea barierelor și a oportunităților de dezvoltare a competențelor părinților, în procesul de diversificare a alimentației copiilor până la 3 ani și evaluarea cunoștințelor, atitudinilor și practicilor acestora.

**Concluzii.** Deși la etapa actuală este studiată și argumentată corectitudinea alimentației copilului de la 0 la 3 ani, există dificultăți de aplicare practică a procesului de diversificare, condiționat de: informarea defectuoasă a părinților, lipsa surselor de informare veridice bazate pe dovezi și de starea socio-economică precară existentă la momentul actual în țară.

## INTRODUCTION

Globally, in 2020 an estimated 149 million children under 5 were stunted (too short for age), 45 million were underweight (low weight for height) and 38.9 million were overweight or obese (1). Every year, 2.7 million child deaths are associated with malnutrition and about 45% of all deaths involve children (2). More than 3.4 million children under the age of 5 die each year due to inadequate feeding practices. Two-thirds of these deaths are associated with inadequate feeding practices in the first 2 years of life (3). These 24 months of a child's life are particularly important because optimal nutrition during this period decreases morbidity and mortality, reduces the risk of chronic diseases and promotes better development (1). Around 6 months of age, the infant's energy and nutrient needs begin to exceed what is provided by breast milk, and complementary feeding becomes necessary to meet the energy and nutrient needs (4). If complementary foods are not introduced at this age or if they are not administered properly, there are disturbances in the growth of the infant (5). Children from poor families are four times more likely to be stunted growing up due to chronic insufficiency of basic nutrients. Children from wealthy families are twice as likely to be overweight (6). It should be emphasized that children bear the consequences of poor nutrition and improper eating practices for the rest of their lives (6). The biggest temptations of early childhood, with the initiation of the process of food diversification in children, are sweets. It is important to select healthy sweets, prepared at home such as: rice with milk, fruit compotes. According to recommendations provided by the American Heart Association (AHA), children should not be given sweets for the first 3 years of life (7).

In the Republic of Moldova, which is a developing country, nutritional practices remain unsatisfactory. According to the Multiple Indicator Cluster Surveys (MICS) only 27% of children eat meat or fish daily and less than 2/3 consume milk daily, 6% are stunted or too short for their age, 2% are underweight (low weight for height), 2% have a low weight for age and 5% of children are overweight (high weight for height) (8).

Adequate dietary behavior during childhood prevents or delays the onset of certain diseases in adulthood, such as coronary heart disease, hyper-

tension, type 2 diabetes, some forms of cancer, etc. Also, a healthy diet contributes to preventing the occurrence and development of nutritional disorders such as iron deficiency and anemia, vitamin D deficiency and rickets, intestinal motility disorders, malnutrition, dental caries (9). The knowledge, attitudes and practices of parents regarding the process of diversifying the child's diet in early childhood play an important role in the adoption of healthy habits, which will be practiced throughout life favoring the maintenance of good health.

*Aim of study:* assessment of parent's knowledge, attitudes and practices regarding food diversification for children under 3 years old, in order to develop recommendations that would contribute to improving the child's nutrition.

## MATERIAL AND METHODS

*Type of study:* mixed. The quantitative part – descriptive, selective study with the application of a questionnaire developed in the interests of the study. Study sample: 423 adults from the Republic of Moldova, in the reproductive period (18-50 years), who have at least one child under 3 years of age. The qualitative part involved conducting a descriptive study, based on a focus group and an in-depth interview. Four focus group sessions were organized with different categories of participants (family doctors, pediatricians, parents). The in-depth interview – a representative of the Ministry of Health. The data was collected between January and April 2022.

*Research methods:* historical, statistical, comparative, analytical, graphical.

## RESULTS

In the knowledge assessment section, 46% of parents confirmed that they do not know the definition of diversification, the recommended age for the initiation of diversification and the frequency of introducing new foods per week. In compromise with the fact that the majority of respondents know about the risks that can occur in case of incorrect diversification in children, 56% know about obesity, 45% about malnutrition, but 3% state that there are no risks in case of incorrect diversification, and 16% in general do not know what they are. Regarding the respondents' attitude towards exclusive breastfeeding in the first

6 months of life, 99% answered affirmatively, but the research shows that in practice 8% of those questioned introduce foods before 6 months (fig. 1).

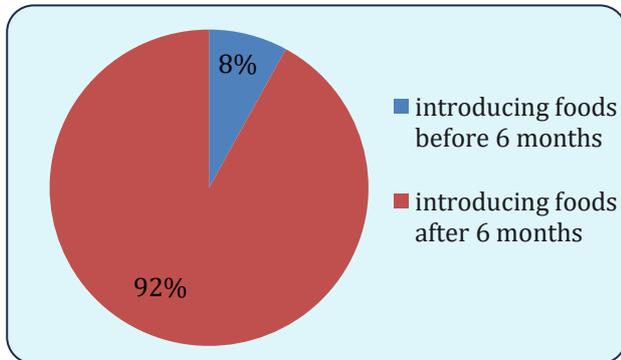


Figure 1. Correlation in respondents' feeding practices before and after 6 months.

According to the research results, 94% know that candies are unhealthy products, but the practice of the respondents shows that 58% of them introduce sweets up to the age of 3, and the frequency of administering sweets is 2-3 times a week in

16% of cases and once a week in 26% of cases.

With reference to the actors involved in diversification, the survey showed that only 26% of respondents stated that the other parent participates in this process. With a much smaller percentage (12%) the family doctor is involved, followed by the district nurse (5%), which indicates a minor consultative involvement of competent staff in the field of diversification.

The difficulties identified in diversification were conditioned in 42% of cases by the attitude of the child who refuses the proposed foods, 20% cited the lack of information sources, and in 21% of cases by the poor financial situation of the interviewed subjects who considered the diversification process to be costly (fig. 2).

There are reservations regarding the information sources: social media and the internet are at the top of the information sources list, preferred by 55% of parents, while only 33% seek advice from medical staff, from whom they could receive more accurate information (fig. 3).

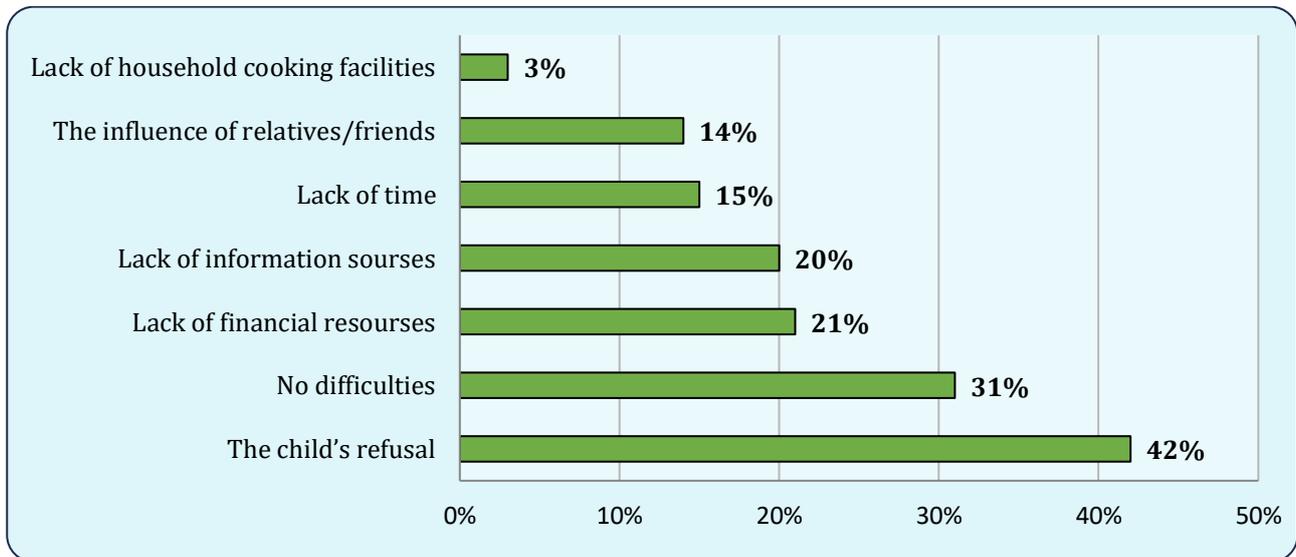


Figure 2. Difficulties/challenges in diversification.

Analyzing the results obtained from conducting focus groups among both doctors and parents, several aspects that make diversification difficult have been identified, namely:

1. The precarious socio-economic situation, which directly affects the quality of the diversification process.
2. Insufficient involvement of medical staff. Doctors have mentioned that parents do not seek

their advice, while on the other hand, parents state that medical staff do not have enough time during the consultation to provide quality information about diversification.

3. Differences in diversification based on urban/rural living conditions. Thus, people living in rural areas have greater access to fruits vegetables, organic products, while those in urban areas typically purchase the ingredients

for preparing the necessary foods in the diversification process or administer food from jars intended for children.

4. Information related to diversification is uncer-

tain and is based on subjective sources of information from neighbors, relatives, grandparents, or from social media/internet. And information from official, reliable sources is considered a major gap.

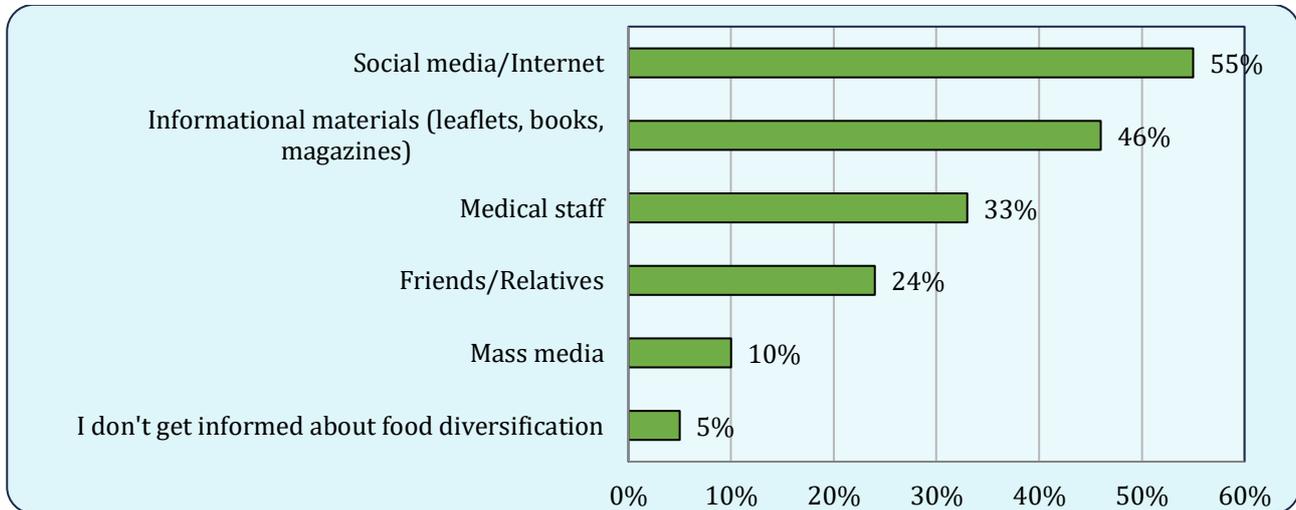


Figure 3. Sources of information in the food diversification process.

The in-depth interview was conducted by interviewing a civil servant from the Ministry of Health of the Republic of Moldova. Aspects related to practices in the field of food diversification for children up to 3 years of age were discussed. The interviewee spoke about the prospects for improving the situation in the field of food diversification for children up to 3 years old, noting that the given process depends on all the factors in society, starting with the family and continuing with healthcare workers, local public administration, social assistance, industrial producers, even agricultural producers – to have healthy food brought to children, both quantitatively and qualitatively. In this aspect, the importance at the national level of a correct approach to the diversification of children’s nutrition is emphasized, in order to contribute to the health literacy of the population.

**DISCUSSIONS**

Although the importance of proper nutrition for children aged 0-3 is studied and supported by evidence, there are difficulties in the practical application of the food diversification process, condi-

tioned by inadequate information provided to parents and the poor socio-economic conditions that currently exist in the country.

The study showed that half of the respondents make errors in the frequency of introducing new foods per week, even though they know the risks of improper diversification.

One of the causes that lead to health risks for children is the practices of parents in offering products that contain sugar and adding salt to foods prepared for children under 3 years old.

There is a need for more active involvement of medical staff in the process of diversifying the nutrition of children under 3 years old, as the study showed that only 12% of family doctors and 10% of paediatricians are involved in this process.

Recommendations of international health organizations regarding the proper implementation of food diversification for children under 3 years old are not being followed and applied in practice by parents, which hinders the prevention and treatment of malnutrition, psychosomatic and motor morbidity, and early childhood mortality.

**CONCLUSIONS**

1. The level of knowledge among parents regarding the food diversification process for children under 3 years old is low, with 46% of respondents not knowing the information about the recommended

age for breastfeeding, the recommended age for starting the diversification, and the frequency of introducing new foods per week.

2. The lack of financial resources and access to reliable evidence-based information have been identified as the biggest challenges in the weaning process. Social media are the main source of information for parents regarding food diversification process for children under 3 years old (55%), while only 33% receive information from medical professionals.
3. To improve the nutrition of children up to the age of 3, a set of measures is needed aimed at informing parents and offering support in adopting certain attitudes and practices, which would reduce the risks to the child's health and development. In developing and implementing these measures, a range of stakeholder needs to be involved: the Government of the Republic of Moldova, non-governmental organizations, the Ministry of Health, local public authorities, healthcare workers, and, last but not least, parents.

### CONFLICT OF INTEREST

There are no conflicts of interest.

### ETHICAL APPROVAL

The article does not have ethical approval.

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