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## The knowledge of mothers on prevention of diarrhea in infancy

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### Abstract

**Introduction.** The incidence of rotavirus diarrhea etiology is one of the most common causes of gastrointestinal diseases of children around the world. It is estimated that rotavirus infections each year (in the world) are the cause of 138 million episodes of diarrhea among children under five years of age. Rotavirus infections are still prominent and growing epidemiological problem in our country. Thus, the need for effective and multidimensional prevention is incredibly important.

**Aim.** Understanding the level of mothers' knowledge about the prevention of diarrhea among children during infancy.

**Material and methods.** In the study, there was used a method of diagnostic survey questionnaire copyright, composed of 31 closed questions. The research group was 116 mothers of children under 2 years staying in USzD due to the illness of their child.

**Results.** 93.10% of the surveyed recognized that the lack of environmental cleanness, and the lack of hygiene during preparation and serving of meals are the direct cause of the formation of diarrhea and know that the infant is most susceptible to diarrhea (62.93%). mother aged between 25-30 years have significantly higher level of knowledge about the probiotics

(80.56%) than polled aged 25 years (47.83%) and more than 30 years (71.93%) ( $p = 0, 04$ ). The respondents with higher education more often have a higher level of knowledge of probiotics (78.12%), compared to the respondents with high school diploma only (69.45%) or primary and professional education (37.50%) ( $p = 0.01$ ). Statistical analysis showed that affluent respondents more commonly have a high level knowledge of the vaccination against rotavirus infections (50.00%) ( $p = 0.0008$ ).

**Conclusions.** Mothers' knowledge of prevention of diarrhea children in infancy is insufficient, moreover, most mothers are not aware of significant impact on the prevention of diarrhea proper compliance with the rules of personal hygiene to their children. The vast majority of mothers have a high level of knowledge of the impact of administration of probiotics in the diet of infants on prevention of diarrhea, however, almost 50.0% of the mothers have a low level of knowledge about the vaccination against rotavirus.

**Key words:** prevention, diarrhea, infants, Rotari.

## **Introduction**

The incidence of diarrhea in Poland is one of the most serious diseases among children and adolescents. For many years, diarrhea in infancy pose a serious problem which is epidemiological and clinical, but also social. In the European Union the most common cause of acute diarrhea in children are rotaviruses (approx. 80% of cases), of which 5.2 / 1000 children under 2 years of age are hospitalized for this reason. According to the WHO, diarrhea is one of the top 10 causes of death in children under 4 years of age [1,2].

At risk are children who are born prematurely, but also children who are malnourished or fed artificially. It is important not only to administer adequate treatment of diarrhea but also to prevent getting sick. Therefore, prevention and measures taken to prevent infections are an integral part of nursing care. The nurse's role is reduced mainly to conduct education of young, inexperienced parents [2].

The difficulties in selecting a suitable method preventive diarrhea stem from the fact that infections are caused by bacteria, viruses, fungi and parasites. The most common cause of infectious diarrhea among children under four years old are rotaviruses. To the formation of diarrhea also contributes antibiotic therapy, allergic diseases and genetic diseases. Therefore, the prevention of diarrhea covers a very wide area which includes proper nutrition of an infant, the use of probiotics, personal hygiene, prevention in dealing with children sick with diarrhea and rotavirus vaccination. [2]

## **Material and methods**

Studies have been carried out in the University Children's Hospital in Lublin (USzD). The study has been included in a group of 116 mothers of children under 2 years staying in UsZD.

To implement the method a diagnostic survey using an original questionnaire consisting of 31 questions has been used. All questions are in the form of closed, multiple choice questions. The whole questionnaire is divided into two parts.

In the first part are 4 questions about the characteristics of the study group. Questions related to age, education, financial situation and place of residence of the surveyed mothers.

In the second part contains 27 questions about their knowledge about the prevention of diarrhea in children during infancy. The first two questions relate to general knowledge on the occurrence of diarrhea. Questions 3 to 5 and 15 relate to the principles of proper nutrition of children during infancy. The next four questions, i.e. from 6 to 9 inquire about the mothers' knowledge of the administration of probiotics. Questions 10 to 14 check respondents'

knowledge about the introduction of complementary foods into the diet of infants. The next question, i.e. From 16 to 18 relate to respondents' knowledge about vaccination against rotavirus. Last nine questions, i.e. From 19 to 27 relate to compliance with the rules of personal hygiene.

The results were statistically analyzed. The values of the measurable parameters analyzed are shown using the average value, median and standard deviation for an unmeasurable using frequencies and percentage. For qualitative characteristics unrelated to detect the existence of differences between groups compared, a homogeneity test Ch2 was used. The level of significance of  $p < 0.05$  indicating the existence of a significant difference. Database and statistical surveys have been carried out on the basis of 10.0 STATISTICA software (StatSoft, Poland).

## **Results**

### **Characteristics of the research group**

The study included 116 mothers of infant children. Among the respondents 49.14% ( $n = 57$ ) were over 30 years; 31.03% ( $n = 36$ ) patients were 25-30 years; 16.38% ( $n = 19$ ) 20-25 years old and 3.45% ( $n = 4$ ) surveyed mothers were less than 20 years old. The respondents had mostly higher education (55.17%) and 31.03% of the respondents had a high school education, training and 12.07% 1.73% basic. The majority of respondents were affluent (64.66%) and 10.34% of the respondents had a very good financial situation, the average 22.41% and 2.59% poor. Half of the respondents lived in rural areas (50.00%), while 13.79% of respondents lived in a small town less of than 40 thousand residents, while 12.07% of respondents lived in the city for an average of 100 thousand. residents and 24.14% in the large city of over 100 thousand residents.

Research shows that 34.48% of respondents nourished her baby naturally, while 33.62% artificially. The majority of the surveyed breast-fed her child from birth to 4 months of age (37.07%), while 24.14% of the respondents admitted that they nursed a child up to 6 months, and 24.14% for the 11 month and 14.66% of the respondents admitted that not breast-fed child.

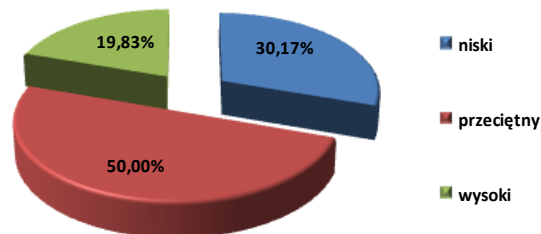
Research shows that most respondents know that the infant is most susceptible to diarrhea (62.93%). According to 72.41% of the respondents the most frequent cause of diarrhea in infants are infections, while 25.0% of respondents mistakenly thought that the cause are diet mistakes, and 2.59% perceived mistakes in care and nurturing as the cause Mothers aged 25 years are slightly more likely to know that infants are most vulnerable to diarrhea (65.22%) than other respondents. Statistical analysis showed that respondents with a very good financial situation and living in a big city are slightly more likely to know that infants are most vulnerable to diarrhea (78.33% and 67.86%). The observed differences were not statistically significant ( $p = 0.94$ ).

### **Assessment of the level of knowledge of mothers about the principles of infant**

The surveyed for the most know that the antibody (IgA, macrophages, lysozyme, Laktobacillus bifidus, T and B lymphocytes, lactoferrin, kobaltofilina) to protect the child from diarrhea (75.86%). Respondents (88.79%) knew that complementary foods in the diet of infants should be introduced one by one, individually and in small quantities, always observing the reaction of the child and that the new foods to your baby's diet should be introduced at the end of 4 months of age (92.24%).

To assess the level of knowledge about the principles of nutrition the survey included questions 5 and 10-15. Each correct response was followed by the addition by 1 point. At the end, the total points have been subsumed. The maximum score was 12 points. Analysis

showed that the average assessment of the level of knowledge was  $9.25 \pm 1.65$  (Me = 9 pts.), representing 77% of the maximum ratings. Taking into account the results obtained (mean  $\pm$  1 SD) there is the indication that that 30.17% of the respondents had a low level of knowledge (and 8 pts.), And 50.00% of mothers had an average level of knowledge (9-10 pts.) And 19.83% high (11-12 pts.) (Fig. 1).

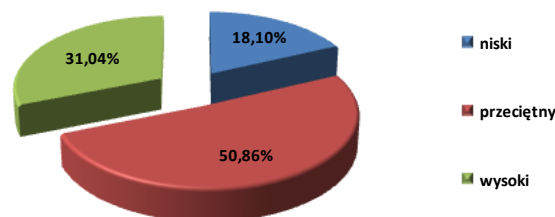


### Assessment of knowledge surveyed mothers about the rules of personal hygiene to their children

93.10% of the surveyed recognized that the lack of environmental cleanness, and the preparation and serving of meals greatly influence the formation of diarrhea. The study shows that the respondents in the age to 25 years, with secondary education, and with a very good financial situation are slightly more likely to know that the lack of hygiene and environment preparation and serving of food has an impact on the formation of diarrhea.

90.52% of respondents admitted that before preparing a meal for a child one always needs to wash their hands, while 9.48% of the respondents admitted that they rarely do so. The majority of the respondents admitted that they always remember about hygiene before breast-feeding (79.31%), while 18.10% of the respondents admitted that they seldom do, and 2.59% of the respondents answered that they never remember about it.

To assess compliance with the rules of hygiene the survey included questions 20-27 from the survey. The results obtained in the individual questions rated on a scale of 1 to 4 (highest rating of 4, 3, sufficient 1-lack of hygiene). Then, the points have been subsumed. The maximum score was 32 points. The average score was  $30.07 \pm 2.44$  points. (Me = 31.00 pts.). This indicates that the results are high. Based on the results, it was found that 18.10% of the respondents had a low level of compliance with hygiene standards (28 pts.), And 50.86% of respondents average (29-32 pts.), And 31.04% high (32 pts.) (Fig. 2).



Statistical analysis showed that the respondents with a very good material situation have a high level of compliance with hygiene standards significantly more often, (50.00%) compared with the test mothers with good situation (34.67%) and the average or bad, (13, 79%). The observed differences were statistically significant ( $p = 0.02$ ).

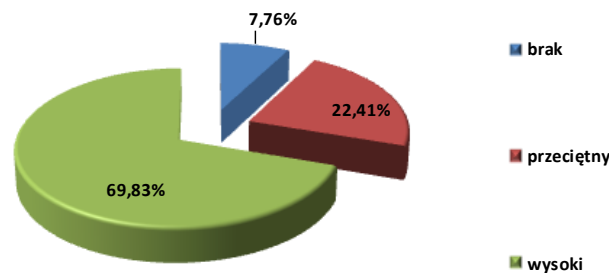
### Assessment of the level of knowledge on the effects of administration of probiotics in the diet of infants

Most polled know that probiotic substances are substances which provide adequate intestinal flora (84.48%). Most of the mothers surveyed knew that probiotic substances can be

found in dairy products (77,59%). 78.45% surveyed in a suit, always remember that the use of probiotics to protect the gastrointestinal tract, when the child is taking antibiotics.

Considering the question 6 and 7 of the survey (the sum of correct answers), it was found that 7.76% of the respondents had no knowledge of probiotics, while 22.41% of respondents had an average level of knowledge and 69.83% high.

The study shows that respondents aged between 25-30 years have significantly more frequent high level of knowledge about probiotics (80.56%) than respondents at the age of 25 years (47.83%) and over 30 (71.93% ). Differences were statistically significant ( $p = 0.04$ ). The results of the study found that respondents with higher education significantly more likely to have a high level on probiotics (78.12%) compared to the respondents with secondary education (69.45%) or primary and vocational (37.50%). The observed differences were statistically significant ( $p = 0.01$ ).



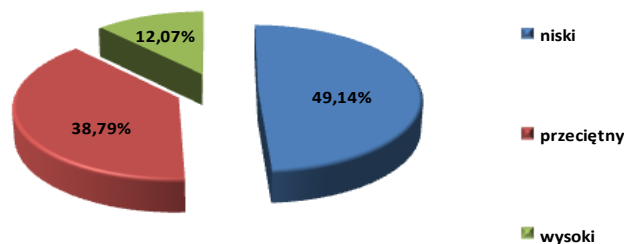
### Assessment of the level of knowledge about immunization against viral diarrhea

According to only the 31.04% of respondents the most important factor in the prevention of diarrhea associated with infection in infants Rota are vaccinations.

On the basis of correct answers to questions 16-18 survey found that 10.34% of respondents did not give any correct answer, while 38.79% of respondents reported one correct answer and two 38.79% 12.07% ( $n = 14$ ) three. The average level of knowledge of the vaccination was  $1.53 \pm 0.84$  ( $Me = 2.00$ ). Considering the mean  $\pm 1$  DS. it was found that 49.14% of the respondents had a low level of knowledge, 38.79% and 12.07% average to high.

The study shows that respondents aged 25-30 years were significantly more frequent high level of knowledge about the vaccination against rotavirus infections (25.00%) than respondents at the age of 25 years (8.70%) and above 30 years ( 5.26%). Differences were statistically significant ( $p = 0.01$ ).

Statistical analysis showed that the respondents with a very good material situation significantly more often have a high level knowledge of the vaccination against rotavirus infections (50.00%) compared with the surveyed mothers who have good financial situation (8.00%) and the average or bad (6, 90%). Differences were statistically significant ( $p = 0.0008$ ).



## Discussion

Proper nutrition of children in infancy plays a key role in the development of children with regard physical, emotional and psychomotor capabilities. Breastfeeding is the best method for feeding infants during the first months of life but after six months of age breast milk does not fully cover the needs of the child in terms of energy and nutrients [3].

Observations on knowledge of proper nutrition findings in Funkowicz et al., According to which the state of knowledge of the parents on the Implementation of complementary foods is quite good. Slightly higher because "good" is the level of parental knowledge concerning aspects of breast-feeding infants [4].

Research conducted by Lukasik R. et al. Found that in the case of child nutrition in infancy parents mostly apply to the following standards: natural feeding, which is most often completed no earlier than the end of the sixth month of life and the introduction of complementary food no earlier than before the end of the fifth month of life. Over 80% of respondents (83.7%) reported that their child in the first year of life were breastfed (in 44.5% of children continued breastfeeding as recommended and it was completed between 4 and 6 months of age; meals complementary made in accordance with the intended use. [5].

The present studies show that more than half of the respondents most often have an average level of knowledge about the principles of nutrition of infants. What piques the attention is the fact that high percentage of mothers (30.17%), have low level of knowledge on proper nutrition -this indicates that the mother's knowledge is insufficient. The irregularities mainly concerned too early replacement of breastfeeding with artificial infant milk formula.

Research conducted by Ginter Korzeniowska-and-Czarniecka Skubinę showed quite positive results in terms of hygienic practices. However, according to the authors of these studies there still exists the need for education in order to correct errors and creating proper hygienic behavior. Respondents in the majority (87.7%) declared that they wash their hands before preparing meals. And as many as 12.3% of people admitted that they do not always wash their hands before preparing meals, considering them clean. The choice of answers to that question depended on the education of the respondents. Significantly more often ( $p = 0.00015$ ) educated people always before preparing food wash their hands. It is worth noting,

The results found that more than half of mothers have a low level of knowledge about the rules of hygiene. Only a little over 30% of mothers surveyed have a high level of knowledge of the rules. According to the survey just over half of the mothers bathe their children every day. Noteworthy is the high percentage (over 36%) of mothers who declare to rarely care about the hygiene of the environment your child. The level of knowledge of mothers surveyed in the above-mentioned topic does not depend significantly on age, education and place of residence while the important factors were the mothers' financial situation. Respondents with a very good financial situation significantly more likely to have a high knowledge of the principles of hygiene compared with the test of good mothers.

The paper of E. Kaminska shown effectiveness of probiotics in the treatment of acute infectious diarrhea of rotavirus etiology. It has been shown that some probiotic strains have a beneficial effect on the skin duration of diarrhea approx. 1 hour (the greatest effect - *Lactobacillus rhamnosus* GG (LGG), and *Saccharomyces boulardii*), provided that the administration of probiotics started at the initial stage of diarrhea, and in sufficiently high doses [7].

With our own research it shows that knowledge of the surveyed mothers about probiotics is sufficient. Almost 70% of the surveyed mothers have a high level of knowledge on the effects of probiotics and only a little more than 7% of the low level of knowledge. It draws attention to the high percentage of mothers who believed that probiotic substances in the diet of infants should be used only after consultation with your doctor. Only 24,14% of

respondents answered that probiotics can be used at least several times a week. The level of knowledge of mothers surveyed depend largely on the age and education of respondents. Mother over 25 years of age and with higher education often have a high level of knowledge on the above subject. The level of knowledge but does not depend on place of residence and financial situation.

Children in infancy are a population that is particularly vulnerable to infectious diseases. By Gawlik et al., about 97.6% vaccinated their children in accordance with current calendar of vaccinations. 96% of parents had knowledge of the possibility of pay-per-vaccinated child vaccines. However, only 1.6% of respondents declared the intention of vaccinating their children using paid vaccinations against rotavirus, and only 3.3% of parents before your child receives this vaccine parents were afraid of vaccination and powikań-26% [8].

Based on the results, it was found that the level of knowledge about the vaccination against rotavirus is low. Only a little over 12% of respondents had a high level of knowledge about immunization. Only 31.04% of respondents believe that the most important factor in the prevention of diarrhea associated with Rota infection are vaccinations. Most of the mothers surveyed do not know since when they can apply for vaccination against rotavirus.

The level of knowledge of mothers surveyed were dependent on the age and education of respondents. A mother for 30 years and declaring a very good financial situation tend to have much high level of knowledge on the above subject. The level of knowledge does not depend on education and place of residence of the respondents.

In modern times, diarrhea prevention plays an important role especially among infants most at risk of gastro-intestinal disorders. Properly applied, prevention does not only prevent illness such as diarrhea, but also, if you happen to have an infection, reduces the severity of the disease and significantly reduces the risk of life-threatening complications. For prevention to be effective it is necessary to properly educate parents, mothers in particular, who spend all their time on child care. Properly chosen and prepared education can have significant impact on increasing the level of knowledge to the test on the mothers.

## **Conclusions**

After the tests put forward the following proposals:

- 1) The knowledge of mothers on prevention of diarrhea children in infancy is insufficient, because the mothers have an average level of knowledge about the principles of nutrition of infants.
- 2) Most mothers are not aware of significant impact of proper compliance with the rules of personal hygiene on the prevention of diarrhea.
- 3) The vast majority of mothers have a high level of knowledge of the impact of administration of probiotics in the diet of infants for prevention of diarrhea, however, almost 50.0% of the mothers have a low level of knowledge about the vaccination against rotavirus.
- 4) After statistical analysis of results, there is no significant relationship between the level of knowledge of mothers on prevention of diarrhea and sociodemographic factors analyzed in the work.
- 5) There is a need for action by the medical staff education on the principles of prevention of diarrhea in children during infancy.

## References:

1. Sawiec P.: Postępowanie w ostrej biegunce u dzieci Aktualne wytyczne European Society for Paediatric, 2014.
2. Stadnicka S., Brodowicz-Król M., Trojanowska A., Zarzycka D. Analiza przyczyn biegunki ostrej u niemowląt jako wyznacznik profilaktyki pierwotnej i wtórnej. *Journal of Education, Health and Sport* 2016;6(7), ss.91-102.
3. Weker H., Barańska M.: Żywnienie niemowląt i małych dzieci. Instytut Matki i dziecka, Warszawa 2014.
4. Funkowicz M., Gawlik H., Jędrzejczyk M. i wsp.: Wiedza rodziców niemowląt na temat aktualnych zaleceń dotyczących żywienia. *Pediatrics Współczesna Gastroenterologia, Hepatologia i Żywnienie Dziecka* 2012;14 (3), ss. 122-126.
5. Łukasik R., i wsp. Stan wiedzy rodziców na temat żywienia dzieci od urodzenia do 3 lat. *Nowa Pediatrya* 2014;2, ss. 56-62.
6. Korzeniowska – Gitner R., Czarniecka – Skubina E.: Przestrzeganie zasad higieny podczas przygotowywania posiłków w warunkach domowych. *Problemy Higieny i Epidemiologii* 2011: 92 (4), ss. 792-796.
7. Kamińska E. Skuteczność i bezpieczeństwo stosowania probiotyków na podstawie badań klinicznych przeprowadzonych u dzieci. *Medycyna wieku rozwojowego*, 2012,XVI,3.
8. Gawlik K. i wsp. Opinie rodziców na temat szczepień ochronnych u dzieci. *Medycyna Ogólna i Nauki o Zdrowiu*, 2014, 20(4), ss.360–364