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Feeding neophobia and current feeding problems – a cross-sectional study among Polish children aged 2–7 years

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ABSTRACT

Introduction: The main aim of the study was to identify the prevalence of food neophobia using the standardised food neophobia of children scale (FNSC) questionnaire in a group of Polish children attending nurseries and kindergartens.

Material and methods: The study was carried out using a survey method. The questionnaire was distributed to randomly selected nurseries and kindergartens. The period in which we conducted the above survey was January – March 2023. A total of 585 pairs of mothers and their children participated in the survey. A standardised questionnaire assessing food neophobia among children was used to assess food neophobia FNSC. A score below 27 indicated a low risk of neophobia, 28–40 an intermediate risk, and a score above 41 was a high risk. **Results:** In the study group, 171 children (29.23%) had a low risk of food neophobia, 182 children (31.11%) had a medium risk, and 232 children (39.66%) had a high risk. There were no differences in the risk of food neophobia between girls and boys (p = 0.907), between children's weight (p = 0.776), or between place of residence (p = 0.095). There was a statistically significant difference between age and in the risk of food neophobia (p = 0.0002).

Conclusions: In the study group, 40% of the children had a high risk of food neophobia. Food neophobia was highest among 4-year-olds and 5-year-olds. There were no differences between girls and boys and the prevalence of food neophobia. Among children with a higher risk of food neophobia, feeding problems such as playing while eating meals, fussing at meals, and picky eating were more common.

KEY WORDS:

children, diet, feeding difficulties, neophobia, picky eating.

INTRODUCTION

Food neophobia is a standard behaviour in child development. It is a complex process and occurs to varying degrees. The symptoms of neophobia can be variable depending on the individual [1]. Food neophobia is a fear of new foods, and hence difficulties in eating and trying unfamiliar foods follow [2, 3]. It is one of the more vital determinants of the number of meals consumed at a young age. Such a process is not a disorder but can lead to it. The highest severity of neophobia occurs between the ages of 2 and 6, but in some children it lasts longer [4, 5].

One theory on the aetiology of food neophobia is that it is a natural human trait that protects against unfamiliar, potentially poisonous or toxic foods; in other words, it is an evolutionary defence mechanism [6]. Humans, being omnivorous mammals by nature, can sample a myriad of foods, but they cannot always recognise whether an unknown ingredient is toxic to them.

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The person's fear of damaging their health is equalled by the curiosity about what it tastes like. Such a condition is called the "omnivore's dilemma" – to consume a product and take a risk or to limit oneself to a small group of dishes one is already familiar with. In evolution, food neophobia among humans has allowed many individuals who lived as hunter-gatherers in prehistory to survive. Such a reaction to food has survived, but nowadays it is not as great an advantage as it once was; in fact, it is a disadvantage that limits the variety and quality of children's diets [5, 7].

Neophobia may be associated with various factors, such as personality traits, age, sex, or family socioeconomic status, and its severity may have a genetic basis [8]. With the development of neophobia, there is reduced dietary diversity and a decrease in acceptable foods. Young children often define food through visual perception. If it is served to them in a different form than that which they are already familiar, it is often rejected, just like new, unfamiliar foods. The same reluctance can occur when served in a different colour, shape, or form than the child expects, when an ingredient touches others on the plate, or when it is in a different package [1, 9]. When a dish contains seeds, or unwanted pieces or lumps, for the child, this is a contamination that needs to be removed before it can be eaten. In addition, children are more likely to choose sweet flavours and reject sour or bitter ones, which is also adaptive, as, in their eyes, sweetness may indicate the presence of sugars and valuable calories, and sourness or bitterness may be evidence of toxicity or spoilage of the product [10-13].

It has been observed that neophobic children are more likely to reject products that are generally considered healthy, including vegetables, fruit, salads of various kinds, fish, or even poultry. Consequently, their diet may be low in protein, magnesium, and monounsaturated fatty acids and overly rich in monounsaturated, unobtrusive, and seemingly safe carbohydrates [14].

Neophobia is a natural reaction among people, but it often disappears over time. However, its severity can be influenced by various factors that exacerbate or reduce the condition. These include genetic, biological, and environmental factors or pre-existing conditions such as autism, Down's syndrome, or food allergies [10]. Food acceptance can be genetically inherited through individual sensitivity to a particular taste. Inherited variation in taste perception can influence differences in food choices and preferences. Some vegetables, especially green vegetables, contain compounds such as thiourea, which makes them taste bitter. This substance has been shown to have a genetic basis in altering sensitivity to its taste, which is why some people find products that contain it very bitter. In contrast, others find it practically imperceptible [10, 15]. Neophobia may also be related to innate personality traits such as anxiety, fear, or emotionality, which are strongly genetically inherited [10].

The environment in which a child grows up significantly impacts the formation of children's potential food neophobia. People in the immediate environment, such as parents and siblings, greatly influence the development of eating behaviours and habits. By imitating the parent, the child learns them and unconsciously instils various tendencies that can lead to neophobia [9]. Caregivers are the primary providers of food in the home. The child eats what is provided, so the parent needs to know about healthy, varied eating [11].

We can divide the environmental factors that may influence the occurrence of neophobia into food preferences, feeding method, infant's complementary feeding method, parent-child interactions during feeding, and the child's personality [11].

Eating attitudes are strongly influenced by familiarity with the food product and the food. In addition, it is easier for a child to accept a new taste when it does not arouse fear by serving a food he or she is already familiar with. A parent's reaction, which can also lead to nutritional problems in the child, is to restrict particular products that the parent does not like. It would be better, if on their own, the child were to explore the taste rather than be restricted. Another factor influencing neophobia is the behaviour and relationship between child and parent. The atmosphere during mealtimes is essential in building the child's relationship with food. For example, they will more easily consume a new product when they see that one of their parents is also eating it [16–19].

Sometimes, despite the parents' numerous attempts at feeding, the child may reject food, not try it, and be afraid of eating. Food selectivity and problems during feeding occur. Children begin to show selective or picky eating behaviour, which is not uncommon – feeding problems in children are reported by approximately 25–40% of parents [20, 21]. Pressure to force the child to eat is associated with the development of neophobia in this group. In contrast, allowing the child to decide, supporting them, and gently and patiently offering new foods prevents the occurrence and worsening of feeding neophobia [22].

The main aim of the study was to identify the prevalence of food neophobia using the standardised food neophobia of children scale (FNSC) questionnaire [2, 23] in a group of Polish children attending nurseries and kindergartens.

MATERIAL AND METHODS

COURSE OF THE STUDY

The study was conducted by questionnaire method, using an indirect survey technique – a web-based form (CAWI). The questionnaire was disseminated to nurseries and kindergartens, which were randomly selected. The survey used closed groups of children and parents in nurseries and pre-schools/kindergarten. The survey

was distributed through an instant messaging service for parents/carers to communicate with educational establishments. Parents affiliated with associations of parents of children aged 2-7 years in different cities and provinces in Poland were also invited to participate in the survey. Three kindergartens were drawn from each voivodeship and invited to participate in the study; the database of kindergartens https://przedszkola.edubaza.pl/ was used. The selection of nurseries, in turn, was based on a random selection of 2 nurseries from each of the voivodeships in Poland from the list of nursery school registers of the Ministry of Family and Social Policy. In these kindergartens and nurseries, groups of kindergartens/nurseries were drawn, to which survey questionnaires were sent out using the CAWI method; in nurseries, only groups of children over 2 years old were selected. All study participants were informed of the purpose of the study. The surveyed parents were informed of the voluntary nature of their participation in the study, the rules for sharing data, and that anonymity would be maintained. The parents/guardians of the children who accepted the above rules for participation in the study were invited to participate in the further part of the study. The period in which we conducted the above study was January - March 2023.

SELECTION OF THE STUDY GROUP

During the data analysis, we identified and verified the study group of parents. We observed that most participants in our study were mothers – only one father participated. Our research shows that mothers are the ones who most frequently contact the educational institution (nursery, kindergarten) through closed groups on instant messaging. Therefore, only mothers were enrolled in the study on the prevalence of feeding difficulties, including feeding neophobia at the age of 2–7 years, feeding during infancy, and feeding during complementary feeding.

The study was conducted by the ethical requirements for this type of research, considering the Declaration of Helsinki and Polish law, i.e. the Act on the Profession of Physician and Dentist. In addition, an opinion was obtained from the Bioethics Committee of the Silesian Medical University in Katowice on conducting research in the Human Nutrition Department entitled Nutritional neophobia among infants and children. The opinion on the research above was positive (BNW/NWN/0052/ KB/34/23).

ELIGIBILITY CRITERIA

The study established inclusion and exclusion criteria. One of the primary inclusion criteria was that mothers gave informed consent to participate in the study. Once such consent was obtained, a questionnaire was made available to the mothers. Selection criteria for the group included the following characteristics of the mothers: being of full age, having at least one child aged 2–7 years, having no formal knowledge of proper child nutrition, and behavioural determinants of nutrition (education or profession related to the nutrition, treatment, and education of children and adolescents).

Criteria for exclusion from the study were as follows: lack of mother's consent to participate in the study, incorrectly completed and incomplete questionnaire, child's age below 2 years or above 7 years, as well as an existing disease in the child that determines a specific way of feeding, e.g. diabetes mellitus, metabolic diseases – phenylketonuria, coeliac disease, food allergies and intolerances, autism spectrum disorders, recent surgery in the child's gastrointestinal tract, and feeding with a gastrointestinal/ intestinal tube. This criterion was verified by assessing the response to "Does the child have any medical conditions, including chronic diseases?". After considering all inclusion and exclusion criteria, 585 pairs of mothers and their children were included in the final analysis.

RESEARCH TOOL

The study used an anonymous survey questionnaire. The first part of the research tool was about the metric data of the mothers and fathers/carers and their child. These data included information such as the child's age and sex, birth (natural delivery, caesarean section), and current weight and height. Past medical history, including chronic diseases, feeding through a tube or fistula, or diseases determining a specific diet, food allergies, and intolerances were also considered. In the metric part, data were obtained from the parents/legal guardians of the child: gender, age of the examined parent/ legal guardian, socioeconomic data, place of residence, and mother's or father's or legal guardian's education.

Some of the information used in the study was obtained from the Child Health Booklet (Polish *Książeczka Zdrowia Dziecka* – KŻ), which, according to the law in force in Poland, contains medical information concerning the child – the child's prenatal period, type of birth (natural delivery/caesarean section), and health status at birth. All entries in KŻ are made by qualified medical staff, including a doctor, midwife, or nurse. The information is entered into KŻ after the health service has been provided and, where this is not possible, is completed at the next visit based on individual internal records [24].

Based on the child's age, weight, and length/height obtained from KŻ, average body weight was determined. Centile grids and 3 SD body mass index for girls and boys aged 0–3 years of the World Health Organisation standard were used to assess the body weight of children up to 3 years of age. Children's body weight was assessed regarding underweight, normal weight, overweight, and obesity. On the other hand, for children aged 3–7 years, develop-

Parameters	1 – low neophobiaą		2 – medium neophobia		3 — high neophobia		Total		<i>p</i> -value
	n	%	n	%	n	%	n	%	
Total	171	29.23	182	31.11	232	39.66	585	100.00	
Boys	87	29.10	91	30.43	121	40.47	299	51.11	0.907
Girls	84	29.37	91	31.82	111	38.81	286	48.89	
Children's age (years)									
2	56	43.08	34	26.15	40	30.77	130	22.22	0.0002**
3	46	34.33	45	33.58	43	32.09	134	22.91	
4	14	15.38	33	36.26	44	48.35	91	15.56	
5	17	21.25	26	32.50	37	46.25	80	13.68	
6	18	21.95	31	37.80	33	40.24	82	14.02	
7	20	29.41	13	19.12	35	51.47	68	11.62	
Children's weight									
Underweight	58	41.73	37	26.62	44	31.65	139	23.76	0.776
Normal weight	155	38.37	120	29.70	129	31.93	404	69.06	1
Overweight	14	45.16	12	38.71	5	16.13	31	5.30]
Obesity	5	45.45	2	18.18	4	36.36	11	1.88	1

TABLE 1. Characteristics of the study group of children taking into account the risk of food neophobia

** Differences between 2-year-olds and 4-year-olds (p = 0.003), 2-year-olds and 5-year-olds (p = 0.049)

mental norms for girls/boys aged 3–18 years, according to the OLAF and OLA studies, were used [25, 26].

The final part of the questionnaire focused on the prevalence of food neophobia. A standardised questionnaire assessing food neophobia among children was used to assess food neophobia: FNSC [2, 23]. We used the 10 items of the original FNS developed by Pliner and Hobden [2], back translated. As the FNSC referred to children, the questions were worded by adding the prefix "my child" - adapted by Wardle, Carnell, and Cooke [27, 28]. We used the following statements: My child tries new and different foods all the time; My child does not trust new foods; If my child does not know what is in a particular food, he or she will not try it; My child likes foods from different countries; My child finds regional foods too strange to eat; My child tries new foods; My child is afraid to eat things that he or she has never eaten before; My child is very picky about the food we eat; My child will eat almost anything; My child would like to eat foods from other regions of Poland or other countries. In the FNSC, each item was rated on a 7-point agreement scale, from 1 = strongly disagree to 7 = strongly agree. All food neophilia statements were reversed so that the scores indicated food neophobia. The total FNSC score was used to assess a person's risk of food neophobia level and propensity to try unfamiliar foods [2, 23, 27, 28, 29]. The interpretation of the results was based on the study Food neophobia in childhood affects dietary variety [23]; thus, a score below 27 indicated a low risk of neophobia, 28-40 an intermediate risk of neophobia, while a score above 41 was a high risk. The study group of children was divided into 3 groups: a group with a low risk of food neophobia (referred to hereafter as 1 - low neophobia), a group with a medium risk of food neophobia (2 - medium neophobia), and a group with a high risk of food neophobia (3 - high neophobia).

STATISTICAL ANALYSIS

We used the following programmes to analyse the collected data: Microsoft Office Word and Microsoft Office Excel. To characterise the data, we used the arithmetic mean and standard deviation (X ±SD) and the range of minimum and maximum values (min–max) in the study group. For statistical analysis we used statistical tests, which were performed in Statistica v. 13.3. (StatSoft Inc., Tulsa, OK, USA). For non-parametric characteristics and bivariate tables, Pearson's χ^2 test was used to compare the group of children in the 3 groups: 1 – low neophobia, 2 – medium, and 3 – high neophobia; Pearson's χ^2 test was used. The level of statistical significance adopted in the study was set at $p \leq 0.05$. The Kruskal-Wallis test with a *post hoc* test was used to compare multiple independent groups.

RESULTS

Table 1 shows the results regarding the characteristics of the study group of children with the presence of the risk of food neophobia. In the study group, 171 children (29.23%) had a low risk of food neophobia, 182 children (31.11%) had a medium risk, and 232 children (39.66%) had a high risk. There were no differences between

Statement in FNSC	X ±SD	Median
My child tries new and different foods all the time*	3.17 ± 2.08	2
My child does not trust new foods**	4.41 ±2.12	5
If my child does not know what is in a particular food, he or she will not try it**	3.69 ±2.18	4
My child likes foods from different countries*	3.62 ±2.04	4
My child finds regional foods too strange to eat**	3.41 ±1.90	4
My child tries new foods*	3.04 ±2.02	2
My child is afraid to eat things; that he or she has never eaten before**	3.09 ±2.22	4
My child is very picky about the food we eat**	3.92 ±2.30	4
My child will eat almost anything*	3.66 ±2.26	3
My child would like to eat foods from other regions of Poland or other countries*	3.82 ±1.92	4

TABLE 2. Analysis of individual food	l neophobia of child	ren auestions in the entire st	(N = 585)

FNSC – food neophobia of children scale

* Correct score 1 = strongly disagree to 7 = strongly agree

** Reverse scoring 1 = strongly agree to 7 = strongly disagree

girls and boys (p = 0.907), between children's weight (p = 0.776), or between place of residence (p = 0.095).

Table 2 analyses all statements used in the FNSC for the whole sample of children. Each statement was scored with the mean along with the standard deviation obtained for each question and the median. The higher the mean and median in questions marked "**", the more frequent the neophobic behaviour. In questions marked with "*", the more frequent the behaviour, the lower the value. The most frequent behaviour in the study group was "My child does not trust new foods" (4.41 ± 2.12) and "My child is very picky when it comes to the food we eat" (3.92 ± 2.30) . In contrast, there was a difference between ages (p = 0.0002) – differences were between 2-year-olds and 4-year-olds (p = 0.003), and 2-year-olds and 5-year-olds (p = 0.049). The mean FNSC in the study was calculated at 37.29 ±12.20 (median 35.00, min–max 18–79). Among girls, the mean FNSC was 37.21 ±12.27, and among boys, 37.38 ±12.15. The mean FNSC among 2-year-olds was 35.69 ±9.87, 3-year-olds 37.41 ±12.46, 4-year-olds 38.30 ±12.66, 5-year-olds 38.46 ±12.51, 6-year-olds 37.95 ±12.69, and 7-year-olds 36.6 ±14.10. Mean FNSC values differed between age groups (p = 0.0003), differences occurring between 2–4-year-olds (p = 0.008) and between 2–5-year-olds (p = 0.007) and between 2–6-year-olds (0.041). There is a correlation between age and FNSC test value (p < 0.05, r = –0.117 – Spearman's rank).

In Table 3, we only included affirmative responses, i.e. "yes" to observed problems (difficulties during feeding, eating) related to children's current feeding; there-

Problems related to eating		1 – Iow neophobia (n = 171)		2 – medium neophobia (n = 182)		3 — high neophobia (n = 232)		Total (<i>N</i> = 585)		<i>p</i> -value
		п	%	n	%	n	%	Ν	%	
Vomiting reflex	Yes	0	0.00	4	2.20	18	7.76	22	3.76	0.0011 Vcr = 0.176
Spitting food out of mouth	Yes	7	4.09	19	10.44	44	18.97	70	11.97	0.0002 Vcr = 0.190
Playing with food	Yes	44	25.73		32.42	90	38.79	193	32.99	0.021 Vcr = 0.114
Fussing at meal	Yes	46	26.90	51	28.02	100	43.10	197	33.68	0.0004 Vcr = 0.16
Choking	Yes	2	1.17	1	0.55	2	0.86	5	0.85	0.818
Eating only certain flavours	Yes	0	0.00	5	2.75	23	9.91	28	4.78	0.0000
Fact of being a picky eating (mother's opinion)	Yes	3	1.75	25	13.74	103	44.40	131	22.39	0.0000 Vcr = 0.351
Using a teaspoon	Yes	168	98.25	181	99.45	229	98.71	578	98.80	0.543
Using a fork	Yes	167	97.66	182	100.00	225	96.98	574	98.12	0.0122 Vcr = 0.095
Using a knife and fork	Yes	72	42.11	76	41.76	93	40.09	241	41.20	0.904

TABLE 3. Current problems related to the child's eating patterns

Vcr – Cramér's V-facto, values between 0 and +1, the closer the score is to 0, the weaker the relationship between the studied characteristics, and the closer it is to 1, the stronger the relationship between the studied characteristics

fore, the sum of no responses is 585. We observed that the following feeding difficulties were significantly more frequent in children at high risk of food neophobia: vomiting (p = 0.0011), spitting food out of mouth (p = 0.0002), playing with food (p = 0.021), fussing at meal (p = 0.0004), eating only certain flavours (p = 0.0000), and the fact of being an picky eater (mother's opinion) (p = 0.0000). The occurrence of choking was independent of the risk of food neophobia (p = 0.818). We did not observe differences in the ability to use a spoon and a knife and fork during meals.

DISCUSSION

Food neophobia in children can be associated with food choosiness and reluctance to try unfamiliar foods and dishes, which can result in nutrient deficiencies in the child's diet [14]. Rejection of unfamiliar, novel foods reduces dietary diversity and makes balancing the child's daily diet challenging.

In a study by Kozioł-Kozakowska *et al.* conducted on a similar group of children aged 2–7 years in Poland, one in 10 children showed a high level of food neophobia (10.8%), a medium level of neophobia was found in 76.9% of children, and a low level of neophobia was found in 12.3. The distribution of food neophobia was similar among girls and boys [30]. In our own study, the number of children at high risk of developing food neophobia was significantly higher. This is also confirmed by other behaviours that parents may find unacceptable, e.g. playing with food, whining during meals, refusing to eat unfamiliar foods, *etc.*

Neophobic behaviour increases when the child becomes more independent, e.g. moving independently, wanting to do more activities independently, and peaks between 2 and 6 years of age [31, 32]. In the present study, the highest prevalence of neophobia was observed among children aged 4–5 years; a high prevalence of neophobia and food pickiness was previously reported among children aged 3–7 years in the study [33]. In a meta-analysis by Torres *et al.* [3], the prevalence of children's food neophobia was present in 10 analysed studies and ranged between 12.8 and 100%.

The role of parents in transmitting and shaping good eating habits is significant, as confirmed by the studies of Tan *et al.* [34], Russell *et al.* [35], Maratoes *et al.* [36], Lafraire *et al.* [37], and Cosmi *et al.* [38]. Children's eating is shaped by observation and imitation, especially of people with whom children are emotionally attached, including| their parents. A study by Harper and Sanders found that children were significantly more likely to try an unfamiliar food when, at the same time, their mothers also ate the product and reacted enthusiastically to it. This effect was more potent than when parents only verbally encouraged the child to try the food. Therefore, it is essential for parents to willingly incorporate such foods into their eating behaviour so that the child's interest is aroused [39]. Van der Horst showed that involving children in meal preparation can reduce eating problems such as neophobic, selective eating behaviour. This will result in children having a positive experience with food [40].

The atmosphere at mealtimes is also important; pressure from parents to make children eat foods they do not like causes even more resistance. Studies by Howard et al. [41], Kral et al. [42], and Mitchell et al. [43] confirmed that the more authoritative the parents are during mealtimes, the more often the child rejects the foods offered. Parents' authoritative practices at mealtimes, forcing children to eat foods they do not know and do not like, give children a negative association with family meals. For example, common parental feeding strategies, such as rewarding with food or pressure to eat, increase children's tendency towards food neophobia [44]. On the other hand, it is also not possible to give children only acceptable foods, because their aversion to new foods will only increase. It is therefore important for parents to expose children to new foods by, among other things, repeatedly offering new foods, allowing them to explore food not only through taste exposure but also through visual, olfactory, and tactile exposure.

This study also analysed the flavour groups that the children preferred. A small group of children ate only the flavour of their choice (4.78% of children). The others ate foods from different food groups. It is worth noting, however, that there is an innate tendency for sweet and salty tastes in children due to the taste of breast milk and milk formula, as well as an aversion to bitter and sour substances [3]. Children have a low level of acceptance of new foods with a bitter or sour taste, which can lead to and potentially contribute to the formation of neophobic behaviour towards certain foods, especially those with a markedly bitter taste [11, 45, 46].

Some studies indicate that it only takes 10–15 positive experiences with new food for it to be accepted [38, 47, 48]. It has also been shown that children are more willing to try a new food if they see an adult or peer eating it [32, 49]. Eating has a social dimension influenced by social and environmental factors that can lead to food neophobia. For example, parent/guardian characteristics significantly influence food neophobia in children. Food neophobia in children is positively correlated with parental food neophobia and negatively correlated with socioeconomic status and educational level [50].

Perry *et al.* point out that health professionals such as dieticians and paediatricians, among others, should play an important role in educating parents to understand neophobia as a normal developmental stage, but also to teach them how to manage this behaviour through repeated neutral exposure, whereby parents can encourage their child to try (and eventually accept) new foods. The earlier the nutritional intervention, the sooner correct eating habits can be established in the child, which will continue into adulthood [51].

CONCLUSION

In the study group, 40% of the children had a high risk of food neophobia. Food neophobia was highest among 4-year-olds and 5-year-olds.

There was no correlation between girls and boys, place of residence, body weight, and risk of food neophobia.

Among children with a higher risk of food neophobia, feeding problems such as playing while eating meals, fussing at meals, and picky eating were more common.

In order to understand food neophobia, it is important to know the factors so that parents and carers of children can understand the phenomenon and appropriately encourage children to try new foods and dishes, and so that children eat a varied and balanced diet rich in all the components necessary for proper growth and development.

It is, therefore, essential for a paediatrician and a dietician to provide nutritional education to parents of children aged 2–7 years on the natural phenomenon of food neophobia. Our research shows that neophobia decreases with age but that it is possible to reduce its symptoms by incorporating various measures.

Dealing with a child who is at high risk of developing food neophobia:

- create a positive atmosphere during mealtimes,
- do not force the child to eat the food,
- allow playing with food,
- familiarise the child with the new food by exploring the smell, texture, *etc.*,
- do not expect the child to eat a new, unfamiliar meal (only after 10–15 exposures to the food can the child break through and eat the food),
- allow contact with food not only in the eating situation
 shopping together or preparing a meal.

DISCLOSURE

The authors declare no conflict of interest.

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