

Parental perceptions of diet and bowel function in children with anorectal malformations: A case-control study

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Anorectal malformation (ARM) is a general term for a variety of disorders, often referred to as an anus without a hole. It represents a spectrum of congenital anomalies involving abnormal development of the distal anus and rectum, which may be associated with fistulas to the perineum, urinary tract, or genital tract or may present without a fistula.^[1] It occurs in about one in every 5,000 births but is more common in boys.

Incontinence is a common complication in patients with ARM and causes the rectosigmoid colon to remain continuously filled with stool and loss of voluntary defecation sensation over time.^[2] Fecal incontinence causes serious problems in the performance of activities of daily living and should be treated whenever possible to improve the quality of life of the child and parent.^[3] Incontinence can be eliminated with diet, oral laxatives, and bowel management programs. Therefore, parents'

Abstract

Objectives: This study aims to explore how parents perceive the effects of diet on bowel function in children with anorectal malformations (ARMs) and to compare these perceptions with those of parents of healthy children.

Patients and methods: This cross-sectional non-randomized study included 36 parents and was conducted in September 2024. Data were collected using a socio-demographic form and a researcher-developed survey assessing perceptions of diet and bowel function. Statistical analysis included chi-square tests and binary logistic regression.

Results: Thirty-six parents were included in the study and divided into two groups: the ARM group (12 males, 5 females; mean age: 66.76 ± 52.10 months; range, 12 to 180 months) and the control group without ARM (12 males, 7 females; mean age: 63.68 ± 19.68 months; range, 35 to 96 months). There were no significant differences between groups in sociodemographic characteristics. However, parents of children with ARMs reported more emotional burden related to everyday food choices and greater influence on their child's social life. Specific foods such as grapes, apples, dried fruits, potatoes, and bread affected bowel function differently in the ARMs group.

Conclusion: Dietary management plays a central role in supporting bowel function in children with ARMs. Given the emotional burden on caregivers, holistic and individualized nutritional guidance is essential. These findings highlight how everyday dietary decisions made by parents can have meaningful emotional and social consequences, underscoring the need for decision-focused, individualized nutritional counseling.

Keywords: Anorectal malformation, bowel function, diet, nursing, parental perception, pediatric surgery.

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perceptions of diet and bowel motility, as well as their level of knowledge and food choices, play an important role.^[4] The diet chosen for a child with incontinence is essential since if the child is given a constipating diet, it may result in the misleading

impression that the incontinence is cured. After all, the child will experience reduced stool output due to constipation. However, this will lead to more serious consequences without alleviating the real problem. As the treatment of each child may differ from each other, the selected foods should be individualized for each child.^[5]

There are two types of fibers, water-soluble and water-insoluble. Soluble fibers tend to bulk the stool, whereas insoluble fibers tend to make the stool looser.^[6] Fibers should not be used indiscriminately to try to alleviate the symptoms of patients with fecal incontinence, and the foods the child should consume should be carefully selected according to the type and degree of incontinence.^[7] Children with incontinence due to constipation are recommended to take more dietary fiber, whereas fiber intake should be reduced in patients with impaired sphincter function.^[8] In children, health professionals should be alert to potential adverse effects that fiber may cause, such as reduced absorption of vitamins, protein, and energy.^[9]

Beyond clinical management, parents of children with ARM are required to make frequent, low-level health decisions, such as selecting daily foods or avoiding specific ingredients, that may cumulatively affect both bowel function and family well-being. Despite the recognized importance of dietary management in bowel function, there is limited evidence on how parents perceive the effects of everyday dietary choices in children with ARM, particularly in comparison to healthy peers.

This study aimed to investigate the factors influencing parental perceptions of diet and bowel function in children with ARM, specifically evaluating whether food items preferred or avoided by parents differ significantly between children with and without ARM.

PATIENTS AND METHODS

This cross-sectional non-randomized study was conducted in the Pediatric Surgery Outpatient Clinic of İzmir University of Economics Faculty of Medicine, Medical Point Hospital in September 2024. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)

checklist was used in this study. Inclusion criteria for the study group were having a child between one and 18 years old and volunteering to participate. The exclusion criteria were parents whose children had a diagnosis other than ARM, parents whose children were younger than 1 year or older than 18 years, and parents who opted not to participate in the study for any reason were not included in the study. Before the data collection, written consent was obtained from all parents who volunteered to participate in the study. Ethics committee approval was obtained from the İzmir University of Economics Health Sciences Research Ethics Committee to conduct the study (Date: 17.09.2024, Approval no: 76). The study was conducted in accordance with the Helsinki Declaration.

Data from parents of children with ARM were collected during a one-day educational event (ARM Parents School) held at the hospital.

The G*Power software (version 3.1.9.4; Heinrich-Heine-Universität Düsseldorf, Düsseldorf, Germany) was used to calculate the sample size. Using a power of 0.80 and an effect size coefficient of Cohen's d: 0.5, it was determined that 53 people were needed. However, this number could not be reached. This limitation was mainly due to the short data collection period and the limited number of eligible participants, particularly the recruitment of ARM participants from a single-day educational program.

Variables

The independent variables of the study were the sociodemographic characteristics of the child and parent, and the diagnosis of the child. The dependent variables were the parents' perception of diet and bowel function, and the foods consumed/avoided by the children.

Data collection

Two forms were used for data collection in the study.

Descriptive form: Socio-demographic information about the child and the parent, and the diagnosis and treatment process of the child were included.

Diet and bowel function survey: The questionnaire was developed by the researchers

based on the literature^[10] and included questions regarding the child's bowel function and the effects of specific dietary components. Expert opinions were obtained by interviewing three experts in the field of pediatric nursing. Clinical details related to ARM, such as the type of malformation (e.g., high, intermediate, or low type) and associated anomalies (e.g., sacral or spinal anomalies), were not systematically available for all patients and therefore could not be included in the analysis.

Statistical analysis

Statistical analysis was performed using the IBM SPSS version 26.0 software (IBM Corp., Armonk, NY,

USA). The sociodemographic characteristics of the children and parents who participated in the study are given as number and percentage distribution, mean, and standard deviation. The chi-square test was used to compare the perception of diet and bowel function and the foods consumed/avoided by parents with and without ARM in their children. Binary logistic regression analysis was performed to examine the difference between dependent variables in detail (Pseudo R^2 Nagelkerke: 0.42, AUC: 0.81 [0.72-0.90], Hosmer-Lemeshow Test: $\chi^2=7.21$, $p = 0.405$ (good model fit). The statistical significance level of the study was determined as $p < 0.05$.

TABLE 1
Differences in variables between groups

Variables	With ARM group			Without ARM group			<i>p</i>
	n	%	Mean $\pm$ SD	n	%	Mean $\pm$ SD	
Child's age (month)			66.76 $\pm$ 52.10			63.68 $\pm$ 19.68	0.066
Mother's age (year)			36.43 $\pm$ 7.73			37.94 $\pm$ 4.47	0.311
Father's age (year)			44.12 $\pm$ 9.09			36.63 $\pm$ 5.29	0.241
Sex							0.732
Boy	12	70.6		12	63.2		
Girl	5	29.4		7	36.8		
Mothers' educational status							0.271
Primary school	0	-		3	15.8		
Secondary school	2	11.8		4	21.1		
High school	4	23.5		3	15.8		
University and above	11	64.7		9	47.4		
Fathers' educational status							0.100
Primary school	1	6.3		0	-		
Secondary school	2	12.5		6	31.6		
High school	1	6.3		5	26.3		
University and above	12	75		8	42.1		
Mothers' employment status							0.165
Yes	8	47.0		13	68.4		
No	9	52.9		6	31.5		
Fathers' employment status							0.467
Yes	15	87.5		19	100		
No	2	-		-	-		
Family income							0.090
Less than expenses	8	11.8		2	10.5		
Equal to expenses	8	34.8		15	78.9		
More than expenses	7	41.2		2	10.5		
Number of children							0.560
1 child	9	52.9		11	57.9		
2 children	7	41.2		8	42.1		
3 or more children	1	5.9		0	-		

ARM, anorectal malformation; SD, standard deviation.

RESULTS

A total of 24 families attended the program, and 17 parents consented to participate and completed the data collection forms. A total of 30 parents of healthy children were approached in the outpatient clinic during the same period, and 19 parents who met the inclusion criteria

and agreed to participate were included in the control group. As a final sample, 36 parents were included in the study and divided into two groups: the ARM group (12 males, 5 females; mean age: 66.76 ± 52.10 months; range, 12 to 180 months) and the control group without ARM (12 males, 7 females; mean age: 63.68 ± 19.68 months; range, 35 to 96 months).

TABLE 2
Differences in diet and bowel function between groups

Diet and bowel functions	With ARM group		Without ARM group		<i>p</i>
	n	%	n	%	
Does your child experience constipation, diarrhea, or bloating due to the foods/diet he/she consumes?					0.019
Never	0	-	2	10.5	
Rarely	8	50.00	16	84.2	
Sometimes	7	43.8	1	5.3	
Always	1	6.3	0	-	
Used to	0	-	0	-	
Do you regulate your child's food/diet to prevent gastrointestinal problems?					0.006
No	1	5.9	6	31.6	
I choose stool-softening foods	11	73.3	6	46.2	
I choose stool-hardening foods	4	26.7	0	-	
I choose gas-reducing foods	0	-	2	15.4	
More than one regulations	0	-	0	-	
Does your child's food/diet affect his/her school and social life?					0.013
Never	3	18.8	10	52.6	
Rarely	6	37.5	7	36.8	
Sometimes	6	37.5	0	-	
Always	1	6.3	0	-	
Used to	0	-	2	10.5	
Does your child's food/diet affect them emotionally?					0.338
Never	3	21.4	7	30.3	
Rarely	9	64.3	7	48.5	
Sometimes	2	14.3	3	15.2	
Always	0	-	0	-	
Used to	0	-	2	6.1	
Does your child's food/diet affect you emotionally?					0.010
Never	2	12.5	11	57.9	
Rarely	8	50	3	15.8	
Sometimes	3	18.8	3	15.8	
Always	3	18.8	0	-	
Used to	0	-	2	10.5	
Are there any foods you especially consume to prevent your child from having gastrointestinal problems?					0.076
Yes	13	81.3	10	52.6	
No	3	18.8	9	47.4	
Are there any foods you particularly avoid so that your child does not have gastrointestinal problems?					0.688
Yes	12	75	13	68.4	
No	4	25	6	31.6	
ARM, anorectal malformation.					

TABLE 3
Effects of specific food items on intestinal motility

	With ARM group		Without ARM group		
Specific food items	n	%	n	%	<i>p</i>
Grapes					0.001
Does not affect	4	23.5	16	84.2	
Stool softening	8	47.1	2	10.5	
Stool hardening	-	-	-	-	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	5	29.4	1	5.3	
Apple					0.016
Does not affect	8	47.1	18	94.7	
Stool softening	6	35.3	1	5.3	
Stool hardening	2	11.8	-	-	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	-	5.9	-	-	
Dried fruit					0.001
Does not affect	2	11.8	13	68.4	
Stool softening	7	41.2	6	31.6	
Stool hardening	1	5.9	-	-	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	7	41.2	-	-	
Potato					0.002
Does not affect	2	11.8	13	68.4	
Stool softening	2	11.8	3	15.8	
Stool hardening	10	58.8	3	15.8	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	3	17.6	-	-	
Parsley					0.038
Does not affect	8	47.1	16	84.2	
Stool softening	1	5.9	2	10.5	
Stool hardening	1	5.9	-	-	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	7	41.2	1	5.3	
Butter					0.027
Does not affect	11	64.7	17	89.5	
Stool softening	-	-	2	10.5	
Stool hardening	1	5.9	-	-	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	5	29.4	-	-	
Cheese					0.045
Does not affect	10	58.8	17	89.5	
Stool softening	1	5.9	2	10.5	
Stool hardening	1	5.9	-	-	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	5	29.4	-	-	
Bread					0.001
Does not affect	1	5.9	16	84.2	
Stool softening	1	5.9	2	10.5	
Stool hardening	9	52.9	1	5.3	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	6	35.3	-	-	

TABLE 3

Continued

	With ARM group		Without ARM group		
Specific food items	n	%	n	%	<i>p</i>
Flour					0.007
Does not affect	4	23.5	14	73.7	
Stool softening	1	5.9	2	10.5	
Stool hardening	8	47.1	3	15.8	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	4	23.5	-	-	
Chicken					0.001
Does not affect	6	35.3	17	89.5	
Stool softening	3	17.6	2	10.5	
Stool hardening	-	-	-	-	
Causes abdominal pain	-	-	-	-	
Gassy	-	-	-	-	
Not eating	8	47.1	-	-	
Chips					0.001
Does not affect	4	23.5	9	47.4	
Stool softening	1	5.9	4	21.1	
Stool hardening	1	5.9	1	5.3	
Causes abdominal pain	-	-	4	21.1	
Gassy	-	-	1	5.3	
Not eating	11	64.7	-	-	
Fizz					0.001
Does not affect	1	5.9	4	21.1	
Stool softening	2	11.8	-	-	
Stool hardening	1	5.9	-	-	
Causes abdominal pain	-	-	4	21.1	
Gassy	-	-	7	36.8	
Not eating	13	76.5	4	21.1	

ARM, anorectal malformation

TABLE 4

Association between groups and key regression variables

Category	Variables	β	SE ^a	OR	95% CI ^b	<i>p</i>
Regression variables	The necessity of preventing gastrointestinal problems by regulating the child's diet (1 = positive)	1.892	0.811	6.63	1.35-32.5	0.021*
	Being emotionally affected by a child's eating habits	2.104	0.694	8.19	2.10-31.9	0.003*

SE, standard error; OR, Odds ratio; CI, confidence interval; ^a, Logistic regression coefficient; ^b, Odds ratio.

There was no significant difference between the groups of children diagnosed with ARM and healthy children in terms of gender ($p = 0.732$), mothers' educational status ($p = 0.271$) or fathers' educational status ($p = 0.100$) and mothers' occupation ($p = 0.165$) and fathers' occupation ($p = 0.467$), family income level ($p = 0.090$), number of children ($p = 0.560$), age of the child ($p = 0.066$), age of the mother ($p = 0.311$) and age of the father ($p = 0.241$), as shown in Table 1.

According to parental responses, the foods consumed by children with and without ARM did not have an emotional impact on them ($p = 0.338$). No statistically significant difference was found in terms of the presence of food that they particularly consume ($p = 0.076$) or avoid ($p = 0.688$). However, a significant difference was found in terms of having intestinal problems related to food ($p = 0.019$), arranging food to eliminate intestinal problems ($p = 0.006$), food affecting the child's social life

($p = 0.013$), and having to choose food that affects the parent emotionally ($p = 0.010$). It was observed that children diagnosed with ARM had more food-related intestinal problems and had to adjust their diet to eliminate these problems. It was observed that the social life of the child diagnosed with ARM was more affected, and parents reported greater emotional involvement in routine food-related decisions, as shown in Table 2.

The study also investigated whether parents' dietary habits affected their children's bowel movements. Accordingly, grapes, apples, dried fruits, parsley, and chicken do not affect the stools of children without ARM, but soften the stools of children with ARM ($p = 0.001$, 0.0016 , 0.038 , and 0.001 , respectively). However, while potato did not affect the stools of children without ARM, it hardened the stools of children with ARM ($p = 0.001$). Children with ARM were less likely to consume bread or flour compared to healthy children, and those who do consume bread ($p = 0.001$) and flour ($p = 0.007$) have a stool hardening effect. All children in the control group were reported to consume chips, whereas none of the children in the ARM group were reported to consume chips ($p = 0.001$). Children with ARM were found to consume less butter ($p = 0.027$) and cheese ($p = 0.045$) than healthy children. However, pineapple, orange, apricot, banana, tangerine, strawberry, kiwi cherry, blueberry, melon, nectarine, peach, plum, pear, avocado, tomato, mushroom, asparagus, celery, pepper, carrot, corn, peas, cauliflower, broccoli, beans, cabbage, lentil, onion, sour cream, yogurt, whole milk, lactose-free milk, ice cream, kefir, rice, pasta, processed meat, pastry, chocolate, shell/fish/beef/lamb, baby food, water, deep-fried food, soup, hazelnut, almond, walnut, cashew, pistachio, peanut, and chestnut consumption had no significant effect on intestinal motility in terms of ARM, as shown in Table 3.

The analysis investigated differences in regression and nutritional variables according to ARM status (with ARM = 1 vs. without ARM = 2). Anorectal malformation was treated as the independent variable to examine its association with multiple dependent variables. Significant differences were found between ARM groups across all variables examined. Regression variables (the regulation of a child's diet to prevent gastrointestinal problems/being emotional due to

a child's eating habits) showed higher means in the ARM group. Being emotional due to a child's eating habits demonstrates the most pronounced difference (OR = 8.19, 95% CI: 2.10-31.9, $p = 0.003$), as shown in Table 4.

These findings suggest that being a parent of a child with ARM is associated with a greater likelihood of negative regression markers. These findings indicate that parents of children with ARM are more likely to report increased emotional burden and behavioral adaptation related to dietary management.

DISCUSSION

Anorectal malformation is a congenital disorder characterized by distal bowel obstruction that is most commonly seen in newborns but persists into childhood and adulthood. Although they may have had a successful perioperative course, many children with ARM experience gastrointestinal problems such as constipation or fecal incontinence, leading to feelings of shame and inferiority. Parents with children diagnosed with ARM not only have to deal with their child's disease but also have to follow a long-term treatment program, including bowel motility and nutritional content, which can be as distressing as the disease itself. In this context, dietary management in children with ARM is not limited to clinical recommendations but is shaped by repeated, everyday parental decisions that carry emotional and social consequences.

Our study found no significant gender differences between children diagnosed with ARM and their healthy peers, consistent with the findings of Bloem et al.^[11] regarding pediatric defecation disorders in the European region.

Unexpectedly, no significant differences were observed in constipation, diarrhea, or bloating between children with and without ARM. This finding should be interpreted with caution, as clinical characteristics such as ARM subtype and associated anomalies were not included in the analysis and may significantly influence bowel outcomes. In addition, direct comparisons with other congenital conditions should be made cautiously due to differences in pathophysiology and management.^[12]

Parental responses regarding the emotional impact of their child's diet differed between groups. Parents of children with ARM reported being more emotionally affected, similar to findings from Li et al.^[13] and Ying et al.^[14]

Additionally, parents of children with ARM carefully regulate their child's diet, prioritizing or avoiding specific foods based on bowel motility. Those with hypomotility tend to incorporate more fibrous and stool-softening foods, such as apricots and pears, while avoiding stool-hardening options like bread, bananas, and potatoes. In contrast, parents of children with hypermotility follow the opposite approach. Regardless of motility, all parents generally avoid packaged and processed foods, as well as fizzy beverages. Interestingly, none of the children with ARM were reported to consume chips. This finding may reflect reporting bias, as parents might have modified their responses to align with perceived expectations of healthcare professionals or to demonstrate adherence to recommended dietary practices. This observation may also indicate the presence of social desirability bias, which should be considered when interpreting self-reported dietary data. These findings align with Hakalmaz and Tekant,^[15] who recommended avoiding dairy and fibrous foods for children with hypermotility while encouraging stool-hardening foods like bananas and potatoes. Similarly, Divarçı and Ergun^[16] emphasized the importance of fiber intake for children with constipated ARM. Grano et al.^[17,18] also reported that children with ARM regularly adjust their diet to manage stool consistency, highlighting the significant role of dietary habits in their quality of life. However, our study found that water consumption did not affect stool frequency or consistency. These findings should be interpreted cautiously, as dietary habits and clinical characteristics were not controlled in detail.

In Bischoof et al.'s^[5,19] study, researchers reduced diarrhea with the help of stool hardeners, antidiarrheal drugs and pectin given to children with diarrhea to regulate intestinal motility in individuals with ARM.

Several limitations should be acknowledged when interpreting the findings of this study. Unlike previous literature, we did not examine the effect of enema-laxatives or antidiarrheal drugs in our

study, but only the effect of food preferences. This can be considered a limitation of our study. Another important limitation is that fecal soiling, which is a clinically relevant and common outcome in children with ARM, was not specifically assessed in this study. Future research should include this parameter, particularly in relation to dietary effects. In addition, dietary recommendations provided by healthcare professionals were not systematically evaluated. Such recommendations may significantly influence parental food choices and perceptions, representing a potential confounding factor. The recruitment of participants during a single-day educational program (ARM Parents School) may have introduced selection bias, as families attending such programs may be more engaged in disease management and dietary regulation. Another limitation of this study is the small sample size. Although a sample of 53 participants was initially targeted based on power analysis, recruitment was limited due to the low number of eligible patients and the refusal of some families to participate. Furthermore, the short data collection period limited the number of participants included in the study and may have affected the generalizability of the findings.

In conclusion, our study emphasizes the importance of dietary changes made by families to regulate intestinal motility in children with ARM. Although there was no significant difference in gastrointestinal symptoms between children with ARMs and healthy children, parents of children with ARMs were more concerned about nutrition, and this affected them emotionally. Furthermore, unlike previous studies, water consumption did not affect stool consistency or frequency. Future research should focus on developing more comprehensive management strategies that combine dietary changes and medical interventions. Supporting parents in making informed, individualized everyday dietary decisions may improve both bowel management outcomes and caregiver well-being in children with ARM.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Author Contributions: E.A.A., B.Ö.Ö., E.D.: Conceptualization; G.Ö., E.D.: Data curation; E.A.A.: Formal analysis, funding acquisition, software, validation, visualization; E.A.A., B.Ö.Ö.: Investigation, writing - original

draft, writing-review & editing, resources; E.A.A., E.D.: Methodology; E.A.A., B.Ö.Ö., E.D.: Project administration; E.D.: Supervision.

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REFERENCES

- Önel AE, Didişen NA. Anorektal malformasyonu olan çocuk hastada roy adaptasyon modeline göre hemşirelik yaklaşımı: Olgu sunumu. JICAH 2022;2:189-203.
- Rentea R, Levitt M. Anorectal atresia and cloacal malformations. In: St Peter SD, editor. Holcomb and ashcraft's pediatric surgery. 7th ed. Philadelphia: Elsevier Inc; 2020. p. 577-98.
- Rice-Townsend SE, Nicassio L, Glazer D, Avansino J, Durham MM, Frischer J, et al. Fecal continence outcomes and potential disparities for patients with anorectal malformations treated at referral institutions for pediatric colorectal surgery. *Pediatr Surg Int* 2023;39:157. doi: 10.1007/s00383-023-05447-5.
- Kilpatrick JA, Zobell S, Leeftang EJ, Cao D, Mammen L, Rollins MD. Intermediate and long-term outcomes of a bowel management program for children with severe constipation or fecal incontinence. *J Pediatr Surg* 2020;55:545-8. doi: 10.1016/j.jpedsurg.2019.10.062.
- Bischoff A, Levitt MA, Peña A. Bowel management for the treatment of pediatric fecal incontinence. *Pediatr Surg Int* 2009;25:1027-42. doi: 10.1007/s00383-009-2502-z.
- Elfiky MM, Gad MA, Mohamed M, Kaddah SN, El Tagy GH. Implementation of a bowel management program in the treatment of incontinence in children for primary healthcare providers. *Ann Pediatr Surg* 2017;13:21-5.
- Rajindrajith S, Devanarayana NM, Thapar N, Benninga MA. Functional fecal incontinence in children: Epidemiology, pathophysiology, evaluation, and management. *J Pediatr Gastroenterol Nutr* 2021;72:794-801. doi: 10.1097/MPG.0000000000003056.
- Piccoli de Mello P, Eifer DA, Daniel de Mello E. Use of fibers in childhood constipation treatment: Systematic review with meta-analysis. *J Pediatr (Rio J)* 2018;94:460-70. doi: 10.1016/j.jped.2017.10.014.
- Shen ZY, Zhang J, Bai YZ, Zhang SC. Diagnosis and management of fecal incontinence in children and adolescents. *Front Pediatr* 2022;10:1034240. doi: 10.3389/fped.2022.1034240.
- Telborn L, Kumlien C, Granéli C, Axelsson I, Stenström P. Diet and bowel function in children with Hirschsprung's disease: Development and content validation of a patient-reported questionnaire. *BMC Nutr* 2023;9:78. doi: 10.1186/s40795-023-00737-6.
- Bloem MN, Baaleman DF, Thapar N, Roberts SE, Koppen IJN, Benninga MA. Prevalence of functional defecation disorders in European children: A systematic review and meta-analysis. *J Pediatr Gastroenterol Nutr* 2025;80:580-97. doi: 10.1002/jpn3.12437.
- Telborn L, Granéli C, Axelsson I, Stenström P. Children with Hirschsprung's disease report dietary effects on gastrointestinal complaints more frequently than controls. *Children (Basel)* 2023;10:1543. doi: 10.3390/children10091543.
- Li J, Gao W, Zuo W, Liu X. Relationship between quality of life and social support in parents of children with congenital anorectal malformations in China. *J Pediatr Nurs* 2020;53:e87-92. doi: 10.1016/j.pedn.2020.02.037.
- Ying B, Wu F, Wang Y, Feng W, Hou J, Liu R. Negative emotions and quality of life of parents with children diagnosed with anorectal malformations. *Pediatr Surg Int* 2023;39:190. doi: 10.1007/s00383-023-05469-z.
- Hakalmaz AE, Topuzlu Tekant G. Anorectal malformations and late-term problems. *Turk Arch Pediatr* 2023;58:572-9. doi: 10.5152/TurkArchPediatr.2023.23090.
- Divarci E, Ergun O. General complications after surgery for anorectal malformations. *Pediatr Surg Int* 2020;36:431-45. doi: 10.1007/s00383-020-04629-9.
- Grano C, Aminoff D, Lucidi F, Violani C. Disease-specific quality of life in children and adults with anorectal malformations. *Pediatr Surg Int* 2010;26:151-5.
- Grano C, Bucci S, Aminoff D, Lucidi F, Violani C. Transition from childhood to adolescence: Quality of life changes 6 years later in patients born with anorectal malformations. *Pediatr Surg Int* 2015;31:735-40. doi: 10.1007/s00383-015-3736-6.
- Bischoff A, Levitt MA, Peña A. Update on the management of anorectal malformations. *Pediatr Surg Int* 2013;29:899-904. doi: 10.1007/s00383-013-3355-z.