Submitted on: 06/17/2025
Approved on: 09/25/2025

ORIGINAL ARTICLE

# Functional Constipation in Children: The Relationship Between Treatment Adherence, Parental Beliefs, and Nutritional Education

Daniele Raguza[1], Laura Boldrini Niero[1], José Eduardo Gomes Bueno de Miranda[1], Cristina Leite de Moraes Andrade[1]

**Keywords:**
Constipation.
Pediatrics.
Parent-Child Relations.
Chronic Disease

## Abstract

Introduction: Functional Constipation (FC) is one of the most prevalent chronic disorders among children, with a major impact on the quality of life of children and families, causing concern, social isolation and economic burden. The limited knowledge about the factors associated with adherence in children with FC highlights the need for further research to develop effective treatment and support strategies. Objectives: To assess adherence to treatment in children with functional constipation and evaluate the association with parental beliefs about medication, perceptions of the disease, satisfaction with treatment and satisfaction with information about medication. Methods: A questionnaire on sociodemographic and clinical data was administered to the guardians of children with chronic functional constipation at the Pediatric Gastroenterology Clinic of the Conjunto Hospitalar de Sorocaba (CHS). Results: A total of 85 responses were collected, 87% of which were from mothers. Most of the guardians (34%) had completed secondary school; 29% of the children interviewed were the couples first child and 80% of the children had been constipated for 3 years, 38% had bowel movements once a day and 32% had type 2 stools on the Bristol Scale. Only 34% of those interviewed received psychological support to talk about their constipation. Regarding eating habits, 67% believed that a proper diet plays a fundamental role in intestinal regularity, and 65% intended to make these changes. Conclusions: Educating parents about healthy eating should be the primary tool in preventing constipation, to ensure a balanced and safe treatment, promoting their childrens well-being and digestive health.

[1] Pontifícia Universidade Católica, Pediatria - Sorocaba – São Paulo - Brazil.

**Correspondence to:**
Laura Boldrini Niero
Pontifícia Universidade Católica, Sorocaba, SP, Brazil. E-mail: laura.niero@hotmail.com.

Resid Pediatr. 2026;16(3):e1503
DOI: https://doi.org/10.25060/residpediatr-2026-1503

Creative Commons. Attribution-NonCommercial-ShareAlike 4.0 International.

## INTRODUCTION

The American Academy of Pediatrics (AAP) defines functional constipation in children as the presence of two or more of the following symptoms for at least one week: bowel movements less than three times a week, hard or large stools, painful bowel movements, presence of impacted or large stools in the rectal ampulla and a history of fecal incontinence. Functional constipation is one of the most common chronic disorders in children worldwide, representing a frequent reason for health consultations and increased healthcare costs[1,2,3,4]. It is recognized that incidence and prevalence vary substantially from one region to another. Geographical differences related to genetic, socioeconomic, cultural, climatic and dietary factors may partially explain these differences. In a systematic review and meta-analysis on the epidemiology of functional defecation disorders in children according to the Rome III and Rome IV pediatric criteria[5] the prevalence of FC varied widely from 0.5% to 32.2%. However, the combined prevalence of FC was 9.5% (95% CI 7.5-12.1).

Functional constipation has a significant effect on families in terms of worry, social isolation, economic restriction and burden on health systems[2,6,7]. Thus, the identification of personality patterns, levels of psychological distress, parental health problems, child-rearing practices, can lead to an adaptation of treatment strategies for children with functional constipation. In fact, behavioral problems in children with constipation not only affect the child's health-related quality of life[8] but can also lead to problems in the child's interaction with parents. Children often lack motivation to take their medication and are resistant to toilet training, resulting in increased conflict[9].

The treatment of functional constipation consists of a combination of non-pharmacological and pharmacological interventions[5,10]. Non-pharmacological interventions involve dietary changes, such as increasing fiber and fluid intake, education and demystification, establishing a regular routine of going to the bathroom and encouraging the response to the urge to evacuate, installing a reward system and keeping a defecation diary, and psychological interventions may be necessary if emotional or behavioral factors are involved. Pharmacological treatment consists mainly of laxative medications, especially polyethylene glycol, and comprises 3 stages: disimpaction, maintenance treatment and weaning[11]. After 6-12 months of treatment, approximately 50% of patients are off laxatives and have recovered, but 40% of patients remain symptomatic despite intensive pharmacological treatment[11,12].

Although the prognostic factors for treatment failure in children with functional constipation have been little studied, adherence to treatment is considered one of the most important factors[13]. Adherence is defined as "the extent to which a person's behavior in terms of taking medications, following diets or making lifestyle changes coincides with medical or health advice."[12]. Non-adherence to pharmacological maintenance treatment is common in children with chronic diseases and is considered a strong predictor of poor outcomes[14]. Non-adherence can be intentional (i.e. based on an active decision to change the dose or not take the medication) or unintentional (e.g. forgetfulness, carelessness or as a consequence of a lack of capacity or resources)[15].

Adherence is considered to be influenced by several determinants. Previous studies in children with chronic conditions have shown that adherence is associated with parental beliefs about medication, perceptions about the disease, satisfaction with treatment and satisfaction with information about medication[16]. Studies on adherence to treatment in children with functional constipation are scarce and the factors associated with adherence to treatment in children with functional constipation remain poorly understood. The objective of the study is to assess adherence to treatment in children with functional constipation and evaluate the association with parental beliefs about medication, perceptions of the disease, satisfaction with treatment and satisfaction with information about medication.

## METHODOLOGY

This cross-sectional observational study was carried out on children with functional constipation who were waiting at a specialized paediatric gastroenterology public clinic in Sorocaba. A member of the research team contacted parents/caregivers, explaining the aim of the study and applying a questionary about the sociodemographic and clinical data of the parents/caregivers and the children, the child's history of constipation, the frequency of bowel movements, associated symptoms, and finally, the adherence and beliefs of those responsible about the medication and treatment of the disease. The method used was Business Intelligence (BI), which applies analytical models that allow comparisons between different sets of information, facilitating the identification of insights relevant to the research. The data was projected onto the platform to create graphs, facilitating the visualization and interpretation of the information. The article was submitted to the Ethics Committee and approved.

## RESULTS

A total of 85 responses were collected, 87% of which were from mothers. Most of the guardians (34%) had completed secondary school; 29% of the children interviewed were the couple's first child and 33% their second child; 80% of the interviewees had been constipated for 3 years. Most of the children, 38%, had bowel movements once a day, with 11% having type 1 on the Bristol Stool Scale, 32% type 2, 28% type 3 and 16% type 4. Only 34% of those interviewed received psychological support to talk about their constipation.

In relation to the questions for guardians, 68% had never forgotten to give their child the medication, 89%

had never changed the dose and 64% had never stopped treatment. Only 42 participants were following the treatment correctly, without changing the dose, forgetting, or stopping the medications. Among them, 52% were equally divided between Bristol stool types 2 and 3, 43% were undergoing psychological counseling, and 41% had a bowel movement once a day.

Among the guardians, 68% believed that their children would be worse off without the medication. At this point in the treatment, 53% believed that their children depended on it, but only 24% thought that they would depend on the medication in the future. 43.5% of guardians believed that treatment would be impossible without the medication. 81% of the mothers had no doubts about the medication. Of this group, 36% were treating the couple's second child, 41% had a daily bowel movement, and 91% did not believe in the possibility of unpleasant side effects.

Regarding eating habits, 67% believed that an adequate diet plays a fundamental role in intestinal regularity, and 65% intended to make these changes: 81% by increasing water intake and 68% by increasing fiber intake. Of the 57 respondents who viewed dietary changes as a viable treatment, 10 found the medication difficult to administer; however, 35 believed their children's condition would be worse without it.

## DISCUSSION

This study highlights the complex interplay between parental beliefs, treatment adherence, and dietary practices in the management of functional constipation in children. The prevalence of the children interviewed was the first child in the family, which reflects the challenges and difficulties of having the first child. Those responsible, if not well oriented, can make mistakes in feeding, offering little fiber and water, or training sphincter control early, causing fear and trauma.

An analysis of the 42 treatment-adherent participants reveals a compelling profile where medication compliance is strongly linked to both gastrointestinal stability and mental health support. While a significant portion of this group exhibits normal bowel function (52% with Bristol types 2-3 and 41% with daily movements), a great part was also undergoing psychological counseling. Despite the importance of psychological support for children with constipation, among all interviewees, only a few accessed this type of care. A child psychologist can help children identify and understand the feelings associated with emotional constipation, helping them to develop emotional and regulatory skills. Most caregivers demonstrated high adherence to pharmacological treatment, with a significant portion acknowledging the perceived necessity and current dependence on medication. However, fewer expressed concern about long-term dependence, suggesting a belief in the temporary nature of the treatment. A large majority of the mothers didn't believe in the risk of unpleasant side effects. Those mothers were treating their second child and reported daily bowel movement. Taken together, these characteristics suggest that the most self-assured caregivers are those who are unconcerned about side effects, often have previous parenting experience, and may also maintain stable personal health routines.

Within a group of caregivers who view dietary changes as a viable treatment, a clear majority believe medication is essential while a minority finds it difficult to administer, highlighting a compelling tension. This reveals a powerful pragmatism, suggesting that the perceived effectiveness of a conventional treatment is strong enough to overcome both a preference for non-pharmacological interventions and significant practical hurdles. Simplifying the medication's administration could significantly ease the burden on this committed group.

Educating parents about healthy eating should be the primary tool in preventing constipation. By providing information on the importance of fiber, hydration, eating routines and physical activity, we can help families implement practices that benefit their children's health and promote a more comfortable and healthy life. In addition, if medication is needed, parents should be advised about dosages, side effects and the appropriate duration of treatment. In this way, parents can ensure that the treatment of constipation is conducted in a balanced and safe manner, promoting their children's well-being and digestive health.

## CONCLUSION

These findings underscore the need for integrated care strategies that address not only medical management but also caregiver education to improve outcomes in pediatric functional constipation. Additionally, it is important to provide psychological support and lifestyle modification for those who need it.

## ADDITIONAL INFORMATION

Funding: The work received financial support from Programa Institucional de Bolsas de Iniciação Científica (CEPE)

Conflict of interest: The authors declare no conflicts of interest.

CAAE approval number from the Research Ethics Committee: 68806323.4.0000.5373

## REFERENCES

1. Miele E, Simeone D, Marino A, et al. Functional gastrointestinal disorders in children: an Italian prospective survey. Pediatrics. 2004; 114(1):73-78. https://doi.org/10.1542/peds.114.1.73
2. Choung RS, Shah ND, Chitkara D, et al. Direct medical costs of constipation from childhood to early adulthood: a population-based birth cohort study. J Pediatr Gastroenterol Nutr. 2011;52(1):47-54. https://doi.org/10.1097/MPG.0b013e3181e67058

3. Rouster AS, Karpinski AC, Silver D, Monagas J, Hyman PE. Functional gastrointestinal disorders dominate pediatric gastroenterology outpatient practice. J Pediatr Gastroenterol Nutr. 2016; 62(6):847-851 https://doi.org/10.1097/MPG.0000000000001023

4. Liem O, Harman J, Benninga M, Kelleher K, Mousa H, Di Lorenzo C. Health Utilization and Cost Impact of Childhood Constipation in the United States. J Pediatr. 2009; 154(2):258-262. https://doi.org/10.1016/j.jpeds.2008.07.060

5. Koppen IJN, Vriesman MH, Saps M, Rajindrajith S, Shi X, van Etten-Jamaludin FS, Di Lorenzo C, Benninga MA, Tabbers MM. Prevalence of Functional Defecation Disorders in Children: A Systematic Review and Meta-Analysis. J Pediatr. 2018a; 198:121-130.e6. https://doi.org/10.1016/j.jpeds.2018.02.029

6. Kaugars AS, Silverman A, Kinservik M, et al. Families' Perspectives on the Effect of Constipation and Fecal Incontinence on Quality of Life. J Pediatr Gastroenterol Nutr. 2010; 51(6):747-752. https://doi.org/10.1097/MPG.0b013e3181de0651

7. Silverman AH, Berlin KS, Di Lorenzo C, et al. Measuring Health-Related Quality of Life With the Parental Opinions of Pediatric Constipation Questionnaire. J Pediatr Psychol. 2015; 40(8):814-824. https://doi.org/10.1093/jpepsy/jsv028

8. Vriesman MH, Rajindrajith S, Koppen IJN, van Etten-Jamaludin FS, van Dijk M, Devanarayana NM, et al. Quality of Life in Children with Functional Constipation: A Systematic Review and Meta-Analysis. J Pediatr. 2019; 214:141-150. https://doi.org/10.1016/j.jpeds.2019.06.059

9. Koppen IJN, Lammers LA, Benninga MA, Tabbers MM. Management of functional constipation in children: therapy in practice. Paediatr Drugs 2015;17:349-60. https://doi.org/10.1007/s40272-015-0142-4

10. Tabbers MM, DiLorenzo C, Berger MY, Faure C, Langendam MW, Nurko S, et al. Evaluation and treatment of functional constipation in infants and children: evidence-based recommendations from ESPGHAN and NASPGHAN. J Pediatr Gastroenterol Nutr 2014;58:258-74. https://doi.org/10.1097/MPG.0000000000000266

11. Wald A, Sigurdsson L. Quality of life in children and adults with constipation. Best Pract Res Clin Gastroenterol 2011;25:19-27. https://doi.org/10.1016/j.bpg.2010.12.004

12. Taddeo D, Egedy M, Frappier J-Y. Adherence to treatment in adolescents. Paediatr Child Health 2008;13:19-24. https://doi.org/10.1093/pch/13.1.19

13. van Dijk M, Benninga MA, Grootenhuis MA, Last BF. Prevalence and associated clinical characteristics of behavior problems in constipated children. Pediatrics. 2010 Feb;125(2):e309-17. doi: 10.1542/peds.2008-3055. Epub 2010 Jan 18. PMID: 20083527. https://doi.org/10.1542/peds.2008-3055

14. Di Matteo MR, Giordani PJ, Lepper HS, Croghan TW. Patient adherence and medical treatment outcomes: a meta-analysis. Med Care 2002;40:794-811. https://doi.org/10.1097/00005650-200209000-00009

15. Emilsson M, Gustafsson PA, Öhnström G, Marteinsdottir I. Beliefs regarding medication and side effects influence treatment adherence in adolescents with attention deficit hyperactivity disorder. Eur Child Adolesc Psychiatry 2017;26(5):559-71.

16. Klok T, Kaptein AA, Duiverman EJ, Brand PL. Long-term adherence to inhaled corticosteroids in children with asthma: observational study. Respir Med 2015;109:1114-9. https://doi.org/10.1016/j.rmed.2015.07.016