

Outcome of Functional Constipation in Children Age 1 to 12 Year in Tertiary Care Hospital

MUHAMMAD ABBAS¹, MUJTABA GUL², TAHIRA NARGIS³, KASHIF ALI KHAN⁴, FURQAN AHMED⁵

¹Assistant Professor of Paediatrics, Jinnah Teaching Hospital Peshawar

²District Children Specialist

³FCPS Peads

⁴Children Specialist Charsada

⁵Senior Registrar North West General Hospital Peshawar

Correspondence to Dr. Mujtaba Gul, Email: drmuftabagul@gmail.com, Cell: 03369914103

ABSTRACT

Background: Both parents and children are bothered by constipation. Even then, it continues to go untreated, delaying medical intervention. It causes both physical and psychological morbidity. It has an impact on children's quality of life. The issue is exacerbated by delayed medical care. The young person could become less confident. Children may experience impaction of the faeces in 1%–3% of cases, which can result in faecal matter soiling.

Aim: To investigate the outcomes of functional constipation in children between the ages of 1 and 12 in tertiary care facilities.

Methodology: After receiving ethical approval from the committee, this cross-sectional study was conducted at Lady Reading Hospital in Peshawar from June 2021 to May 2022. The study included a total of 381 children's. After obtaining parental assent, the ROME IV criteria was applied to the children who had functional constipation, and the children were treated according to the recommended recommendations and protocols.

Result: 381 kids were enrolled in a study using the Rome IV criteria for constipation manifestation. The ratio was highest when passing 188 hard stools (49.34%) and lowest when passing 13 unpleasant stools (22.30%). Similar high ratio was observed in type-1 129(33.83%) of Bristol stool type. The ratio of males to females in the age range 3-6 year group was highest in the age group 6-12 year group, with 166 males and 63 females. The majority of restrooms (65.09%) were located outside door 248. Constipation-causing factors were shown to be highest in avoiding school lavatory use 181(47.50%) and lowest in opposing behavior 73(19.16%). History of food intake revealed a high ratio of 211(55.38%) from stores and a low ratio of 13(3.41%) from home-cooked meals. The hygienic care ratio was 178(46.71%) for not using water and soap and 19(4.98%) for using soap after using the loo. By exposing the concerns and their solutions for the health of their children, this will raise mothers' knowledge and be beneficial to society as a whole.

Conclusion: All children need hygienic care and adequate education as a foundation. Dietary nutrition is crucial for growth. Children who are taken to the hospital may develop phobias and parents may experience problems. Children who are not properly treated for constipation are more likely to have serious psychological harm and bowel dysfunction.

Keywords: Children, constipation, phobia, temper, education, food

INTRODUCTION

Contrary to popular opinion, constipation affects toddlers just as frequently as it does adults or the elderly. Nearly 10% of all pediatric hospital visits can be attributable to constipation. No of one's level of socioeconomic development, constipation can occur. Parents as well as the youngster are bothered by it. Even then, it is still disregarded, delaying medical care. It causes morbidity on both a physical and psychological level. Children's quality of life is impacted. Lack of prompt medical attention makes the issue worse. The kid can become less confident. If the issue is not effectively addressed, impaction of the faeces can affect 1%–3% of youngsters and result in faecal matter soiling. Therefore, it is essential that the constipation issue be identified and treated effectively as soon as possible. Constipation can also cause a number of gastrointestinal issues, including as abdominal pain, rectus hemorrhage, nausea, anorexia, etc. According to some reports, functional, not biological, factors account for more than 90% of cases of constipation. Children who visit a pediatric gastroenterologist are reported to have functional constipation in about 30% of cases (Yachha SK.2018)¹.

It is customary to rule out organic reasons of constipation before making a judgment about FC's final cause. We only classify constipation as FC if no organic reason can be discovered. There isn't enough information in the literature about FC in kids. There are various elements that are frequently linked to FC risk in young people. Stress, parental upbringing, low-fiber diets, junk food, decreased movement, obesity, etc. are some of the crucial ones (Rajindrajith S.2016)². "A delay or difficulty in defecation sufficient to cause the patient to experience significant distress" is the

definition of constipation. The average length of "acute constipation" complaints is 4 weeks, whereas "chronic constipation" issues last longer. The Rome IV criteria offer a symptom-based diagnosis method for children and adolescents with functional gastrointestinal disorders³⁻⁴. According to a recently released systematic review by the Cochrane Collaboration, there is still insufficient data to draw any firm conclusions about the effectiveness of probiotics in enhancing defecation parameters, such as frequency and consistency of stools, or in achieving overall treatment success⁵. In a recent pilot randomized controlled study⁵, the effects of four weeks of once-daily B. clausii administration as a single treatment in children (1–5 years of age) with FC according to the Rome IV criteria were assessed⁵. The primary outcome was the successful completion of the prescribed course of treatment, which was defined as "at least three defecations per week and a consistency of at least three on the Bristol stool chart." There was no difference in the groups' treatment outcomes, frequency of bowel movements, consistency of their stools, or other defecation-related characteristics after two and four weeks. They found that the probiotic strain B. clausii was no more effective than a placebo in the treatment of childhood FC, which was different from our age group and presentation, after two and four weeks of treatment⁶.

The primary goal was to investigate the outcomes of functional constipation in children between the ages of 1 and 12 in tertiary care facilities.

METHODOLOGY

After receiving ethical approval from the committee, this cross-sectional study was conducted at Lady Reading Hospital in Peshawar from June 2021 to May 2022.

Received on 17-12-2022

Accepted on 24-05-2023

Sample size & technique: The study included a total of 381 children's out of which males were 273 & females 108. Fisher exact test was run for statistic p value. Mean and standard deviation was noted. After obtaining parental assent, the ROME IV criteria was applied to the children who had functional constipation, and the children were treated according to the recommended recommendations and protocols.

Inclusive criteria: Children who met the inclusive criterion of providing consent and fully fulfilling the ROME IV criteria were included in the trial.

Exclusive criteria: whereas those who met the exclusive criteria of using medication for constipation or ibs-constipation or who refused to participate in the study were excluded.

Data were gathered using a pre-designed proforma, which also included the Rome criterion IV and the Bristol stool type. The Rome criteria, Bristol stool type, sanitary care, kind of food consumed, and type of toilet facility at home served as the sole foundation for this data. All of the children's complaints, presentations, contributing factors, and information about the lavatory facilities were noted. SPSS-24 was used to analyze all of the data that was gathered.

RESULTS

Total 381 patients were enrolled in study. Following detail results were obtained with fisher exact test for age and gender

Table 1: Age and gender distribution

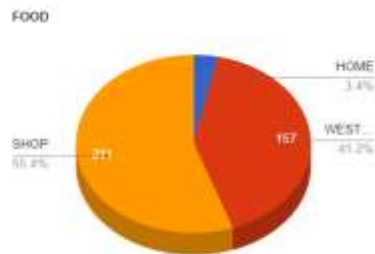
Age	Male	Female	Total	Marginal row
1-3 year	34	13	12.33%	47
3-6 year	58	63	31.75%	121
6-12 year	166	47	55.90%	213

Fisher Exact Test was 0.0001, p<0.5, mean & st.dev age for male was 86(57.410) & for female was 41 (20.848)

Table 2: Factors with constipation with mean 95.25 & st.dev 53.592

Factors	n	%age
Avoid school toilet use	181	47.50%
Temper tantrum	35	9.18%
Opposing behavior	73	19.16%
phobia	92	24.14%

Graph 1: Types of food intake with mean 127 & st.dev 83.570



Graph 2: Toilet availability with mean 190.5 & st.dev 57.5

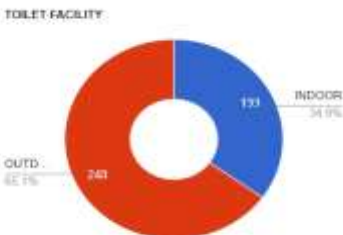


Table 3: Hygienic care mean 95.25 & st.dev 61.22

Hygienic care	n	%age
Soap use with water	19	4.98%
Water use only	178	46.71%
No soap & water	126	33.07%
Parents help at wash room	58	15.22%

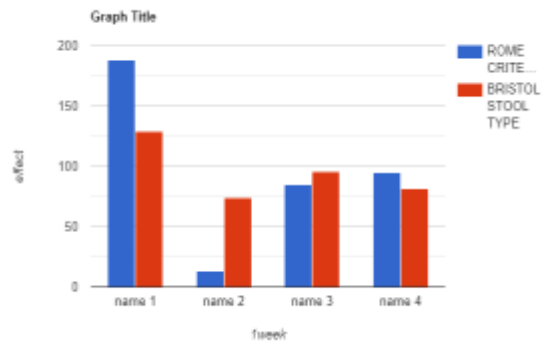
Table 4: Stool type mean 95.25 & st.dev 21.016

Bristol stool types	n	%age
Type 1	129	33.83%
Type 2	74	19.42%
Type 3	96	25.19%
Type 4	82	21.52%

Table 5: Presentation of constipation under Rome criteria IV means 95.25 & st.dev 62.194

ROME criteria	n	%age
Passing hard	188	49.34%
Painful stool	13	3.41%
Fecal incontinence	85	22.30%
With holding behavior	95	24.93%

Graph 3: Rome criteria vs. Bristol stool



DISCUSSION

According to the findings of the current study, the age groups with the fewest female children (13 children) and the most male children (166 children) were those between the ages of three and twelve. Similar studies for the same age range had previously been conducted⁷⁻⁸. In our study, the male to female ratio was 1:1.5, and these studies also noted that the male constipation ratio was higher in the age period of 1-3 years⁹⁻¹². Toilet facilities are essential for providing hygienic treatment for all age groups; in indoor facilities, the number of patients experiencing constipation was 133(34.90%) lower than in outside facilities. 248(65.09) had a higher ratio of constipation, and investigations with a comparable finding were made of students¹³⁻¹⁶. There were 13(3.41%) fewer cases of uncomfortable stools with ROME criterion IV presentations than in studies¹⁷⁻¹⁸. Children not using the school lavatory accounted for 181(47.5%) of the factors linked with constipation, while oppositional behavior 73(19.16%) and temper tantrums 35(9.18%) were less common. Similar findings from studies 19–20 were also reported. Fear was observed in 92 people (24.14%), which was fewer than in study⁷. students The Bristol stool type's type I 129(33.8%) had the greatest ratio.

The same outcome was shown in studies²¹⁻²²⁻²¹, where type III 96(25.19%) and type IV 82(21.52%) were found to be higher than type II 74(19.42%). Homemade diets are more nutrient-dense and rich in vital vitamins than fast meals. The ratio of home-cooked meals was seen to be lower 13(3.41%) than that of western restaurants 157(41.20%) and grocery stores 211(55.38%), as reported by research¹⁴⁻¹⁵⁻²². According to Study¹⁴, the majority of children from single parent households have constipation and an immature brain-gut axis as well as feelings of insecurity and attachment to their homes. Being Muslim, everyone is aware of the need of practicing good hygiene. Teaching about these practices

begins at home with instructions on regular hand washing and other crucial character-building practices. The highest percentage of parents washing their children's hands was 58(15.22%), followed by 178(46.71%) who only used water, 19(4.98%) who used soap and 126(33.07%) who did not wash their hands after using the lavatory. All people need to receive appropriate nutrition instruction as well as community-based health education. Recent studies have prompted questions about the safety of probiotics. A 17-month-old immunocompetent kid with protracted *B. clausii* bacteremia was reported by Khatri, et al²³ without a clear site of infection or predisposing risk factors. In a different instance²⁴, a 5-month-old infant with a history of malnutrition, surgically repaired congenital heart disease, and recurrent *B. clausii* bacteremia died from multidrug-resistant *Klebsiella pneumoniae* sepsis with multiorgan failure. Our study limitation is different from the above studies

CONCLUSION

All children need hygienic care and adequate education as a foundation. Dietary nutrition is crucial for growth. Children who are taken to the hospital may develop phobias and parents may experience problems. Children who are not properly treated for constipation are more likely to have serious psychological harm and bowel dysfunction.

Limitation: One of the conditions for which people put off getting medical help is constipation. Instead of using ongoing medication to regulate bowel motions, the majority of parents prefer to use natural therapies or disimpaction techniques. The two key strengths of the current study are its use of current Rome IV criteria and information collection under the guidance of a single investigator. However, the study's limitations include its single-center design and parental recall bias. Additional, larger studies comparing children's from different communities could result in standardized recommendations for doctors on how to deal with the problem through medication, diagnostic level and behavioral therapy.

Conflict of interest: Nil

REFERENCES

1. Yachha SK, Srivastava A, Mohan N, Bharadia L, Sarma MS, Indian Society of Pediatric Gastroenterology, Hepatology and Nutrition Committee on Childhood Functional Constipation, and Pediatric Gastroenterology Subspecialty Chapter of Indian Academy of Pediatrics, et al. Management of childhood functional constipation: Consensus practice guidelines of Indian society of pediatric gastroenterology, hepatology and nutrition and pediatric gastroenterology chapter of Indian academy of pediatrics. *Indian Pediatr* 2018;55:885-92
2. Rajindrajith S, Devanarayana NM, CrispusPerera BJ, Benninga MA. Childhood constipation as an emerging public health problem. *World J Gastroenterol* 2016;22:6864-75
3. Benninga MA, Faure C, Hyman PE, St James Roberts I, Schechter NL, Nurko S. Childhood functional gastrointestinal disorders: Neonate/toddler. *Gastroenterology* 2016;150:1443-55.e2
4. Hyman PE, Milla PJ, Benninga MA, Davidson GP, Fleisher DF, Taminiou J. Childhood functional gastrointestinal disorders: Neonate/toddler. *Gastroenterology* 2006;130:1519-26
5. Wallace C, Sinopoulou V, Gordon M, et al. Probiotics for treatment of chronic constipation in children. *Cochrane Database Syst Rev*. 2022;3:CD014257
6. Lojanatorn P, Phrommas J, Tanpowpong P, Getsuwan S, Lertudomphonwanit C, Treepongkaruna S. Efficacy of *Bacillus clausii* in pediatric functional constipation: a pilot of a randomized, double-blind, placebo-controlled trial. *Indian Pediatr*. 2023 Feb 9:S097475591600492. Epub ahead of print
7. Makhwana VA, Acharyya K, Acharyya S. Profile of functional constipation in children at a referral hospital. *Indian Pediatr* 2022;59:287-9
8. Kondapalli CS, Gullapalli S. Constipation in children: Incidence, causes in relation to diet pattern and psychosocial aspects. *Int J ContempPediatr* 2018;5:6-13
9. Chu H, Zhong L, Li H, Zhang X, Zhang J, Hou X. Epidemiology characteristics of constipation for general population, pediatric population, and elderly population in China. *Gastroenterol Res Pract* 2014;2014:532734
10. Olaru C, Diaconescu S, Trandafir L, Gimiga N, Stefanescu G, Ciubotariu G, et al. Some risk factors of chronic functional constipation identified in a pediatric population sample from Romania. *Gastroenterol Res Pract* 2016;2016:3989721
11. Rezaianzadeh A, Tabatabaei HR, Amiri Z, Sharafi M. Factors related to the duration of chronic functional constipation in children referring to a pediatric gastrointestinal clinic of Shiraz in 2014 – 2016. *Shiraz E-Med J* 2018;19:e68445
12. Bansal R, Agarwal AK, Chaudhary SR, Sharma M. Clinical manifestations and etiology of pediatric constipation in North India. *Int J Sci Stud* 2016;4:185-90
13. Peppas G, Alexiou VG, Mourtzoukou E, Falagas ME. Epidemiology of constipation in Europe and Oceania: A systematic review. *BMC Gastroenterol* 2008;8:5
14. Walter AW, Hovenkamp A, Devanarayana NM, Solanga R, Rajindrajith S, Benninga MA. Functional constipation in infancy and early childhood: Epidemiology, risk factors, and healthcare consultation. *BMC Pediatr* 2019;19:285
15. Mazumder MW, Hasan S, Fathema K, Rukunuzzaman M, Karim AB. Functional constipation in children: Demography and risk factors analysis from a tertiary care hospital of Bangladesh. *Bangladesh J Child Health* 2020;44:148-52
16. Vishal, Prasad M, Rana RK. Epidemiology, demographic profile and clinical variability of functional constipation: A retrospective Study in North Bihar. *Int J Contemp Med Res* 2018;5:J7-10
17. Khanna V, Poddar U, Yachha SK. Etiology and clinical spectrum of constipation in Indian children. *Indian Pediatr* 2010;47:1025-30
18. Aydođdu S, Cakir M, Yükksekaya HA, Arikani C, Tümgör G, Baran M, et al. Chronic constipation in Turkish children: Clinical findings and applicability of classification criteria. *Turk J Pediatr* 2009;51:146-53
19. Kondapalli CS, Gullapalli S. Constipation in children: Incidence, causes in relation to diet pattern and psychosocial aspects. *Int J ContempPediatr* 2018;5:6-13
20. Makhwana VA, Acharyya K, Acharyya S. Profile of functional constipation in children at a referral hospital. *Indian Pediatr* 2022;59:287-9
21. Oswari H, Alatas FS, Hegar B, Cheng W, Pramadyani A, Benninga MA, et al. Epidemiology of paediatric constipation in Indonesia and its association with exposure to stressful life events. *BMC Gastroenterol* 2018;18:146
22. Chang SH, Park KY, Kang SK, Kang KS, Na SY, Yang HR, et al. Prevalence, clinical characteristics, and management of functional constipation at pediatric gastroenterology clinics. *J Korean Med Sci* 2013;28:1356-61
23. Khatri AM, Rai S, Shank C, et al. A tale of caution: Prolonged *Bacillus clausii* bacteraemia after probiotic use in an immunocompetent child. *Access Microbiol*. 2021;3: 000205
24. Joshi S, Udani S, Sen S, et al. *Bacillus clausii* septicemia in a pediatric patient after treatment with probiotics. *Pediatr Infect Dis J*. 2019;38:e228-e30.