ISSN: 2457-0400

Impact Factor: 7.675

WORLD JOURNAL OF ADVANCE HEALTHCARE RESEARCH

www.wjahr.com

Volume: 10, Issue: 6

Page N. 61-65

Year: 2026

Original Article

Coden USA: WJAMA3

PREVALENCE OF FUNCTIONAL CONSTIPATION AMONG CHILDREN AND ASSOCIATED DIETARY HABITS

[*1]Dr. Mohammad Hilal Al-Badrany, [2]Dr. Lara Samuel Oshana

[1]M.B.Ch.B/ F.I.C.H.S (Pediatrics).
[2]M.B.Ch.B/ F.I.C.H.S (Family Medicine).

Article Received: 28 April 2026 **Article Revised:** 18 May 2026 **Article Published:** 01 June 2026

***Corresponding Author: Dr. Mohammad Hilal Al-Badrany**

M.B.Ch.B/ F.I.C.H.S (Pediatrics).

DOI: https://doi.org/10.5281/zenodo.20443419

How to cite this Article: [*1]Dr. Mohammad Hilal Al-Badrany, [2]Dr. Lara Samuel Oshana (2026). Prevalence Of Functional Constipation Among Children And Associated Dietary Habits. World Journal of Advance Healthcare Research, 10(6), 61–65.

ABSTRACT

Background: Functional constipation is one of the most common gastrointestinal disorders among children and is associated with significant physical, psychological, and social consequences. Dietary habits and lifestyle factors play important roles in the development and progression of constipation among pediatric populations. **Objectives:** To assess the prevalence of functional constipation among children and evaluate its association with dietary habits and lifestyle factors among children attending primary health care centers and hospitals in Mosul city. **Methods:** A cross-sectional study was conducted among 150 children aged 2–14 years attending Baghdada Primary Health Care Centers and Pediatric Counseling Clinic in Mosul General Hospitals, Nineveh Governorate, Iraq, during the period from March 2025 to February 2026. Functional constipation was diagnosed according to the Rome IV criteria. Data regarding demographic characteristics, dietary habits, physical activity, screen time, and toileting behaviors were collected through direct interviews with parents or caregivers using a structured questionnaire. Statistical analysis was performed using SPSS version 31, and associations were analyzed using the Chi-square test with a significance level of $p < 0.05$. **Results:** The prevalence of functional constipation among the studied children was 30.7%. The highest prevalence was observed among children aged 2–5 years, with a statistically significant association between age and constipation ($p = 0.041$). Low intake of fruits and vegetables, inadequate water consumption, frequent fast-food intake, and low dietary fiber intake were significantly associated with functional constipation ($p < 0.05$). Lifestyle factors including prolonged screen time, low physical activity, and irregular toileting habits also showed significant associations with constipation. **Conclusions:** Functional constipation is a common pediatric health problem among children in Mosul and is significantly associated with unhealthy dietary habits and sedentary lifestyle factors. Early identification of modifiable risk factors and implementation of health education programs regarding healthy nutrition, adequate hydration, regular physical activity, and proper toileting habits are strongly recommended to reduce the burden of constipation among children.

KEYWORDS: Children; Functional constipation; Dietary habits; Rome IV criteria.

1-INTRODUCTION

Functional constipation is one of the most frequent gastrointestinal problems in childhood and a serious health concern for children globally. It significantly increases pediatric outpatient visits and referrals to pediatric gastrointestinal clinics. The majority of instances are functional in nature, with just a tiny minority caused by underlying organic diseases. Functional constipation has a significant impact on the physical, psychological, and social well-being of affected children, potentially impairing their quality of life and academic achievement.[1-2]

Functional constipation in children is diagnosed using Rome IV criteria based on specific clinical symptoms such as infrequent defecation, painful or hard bowel movements, stool withholding behavior, fecal incontinence, and passage of large-diameter stools that last at least one month. Rome IV criteria are still accepted standard for diagnosis in both clinical practice

and academic settings.[2-4]

The frequency of pediatric functional constipation varies greatly across countries and communities due to differences in diagnostic criteria, dietary habits, lifestyle, and sociocultural variables. Recent studies utilizing Rome IV criteria found worldwide prevalence of functional constipation, estimates ranging from 8% to 14%, with greater percentages seen in Asian countries.[5] Moreover, functional constipation accounts for almost 3% of all pediatric visits and 25-30% of referrals to pediatric gastroenterologists.[6]

Dietary habits significantly influence the development of constipation in children. Low dietary fiber intake, insufficient fluid consumption, a high intake of fast meals, and a lack of fruits and vegetables have all been recognized as significant contributing factors. Furthermore, sedentary lifestyles, excessive screen time, and poor toileting habits may exacerbate symptoms and raise the risk of chronic constipation. Recent studies suggests that early detection of modifiable dietary and behavioral variables might enhance disease prevention and treatment outcomes.[7-9]

Despite the high burden of functional constipation, many parents underestimate the condition and delay seeking medical advice. Furthermore, local data regarding the prevalence of functional constipation and its association with dietary habits among Iraqi children remain limited. Therefore, this study aims to assess the prevalence of functional constipation among children and evaluate its association with dietary habits among children attending primary health care centers and hospitals.

2-PATIENTS AND METHODS

An official agreement was obtained from the directorate of Health in Mosul before conduction of the present study. A verbal consent was taken from the patients who included in the study. This cross-sectional study was conducted among children attending Baghdada Primary Health Care Centers and Pediatric Counseling Clinic in Mosul General Hospitals in Nineveh governorate, Iraq, during the period from March 2025 to February 2026. The study aimed to assess the prevalence of functional constipation among children and evaluate its association with dietary habits and selected demographic factors.

The study population included 150 children aged 2–14 years who attended the selected health facilities during the study period. Children diagnosed with organic causes of constipation such as Hirschsprung disease, neurological disorders, congenital gastrointestinal anomalies, metabolic diseases, hypothyroidism, or those receiving medications known to affect bowel habits were excluded from the study.

A convenient sampling technique was used to recruit eligible participants after obtaining verbal consent from parents or caregivers. Data were collected through direct interviews with parents or caregivers using a structured questionnaire prepared according to the study objectives and relevant literature. The questionnaire included demographic characteristics such as age, gender, residence, parental education, and socioeconomic status, in addition to questions regarding bowel habits and dietary patterns.

Functional constipation was diagnosed according to the Rome IV diagnostic criteria for pediatric functional constipation. Children were considered to have functional constipation if they fulfilled the required diagnostic criteria appropriate for their age group.

Dietary habits assessed in the study included the frequency of fruit and vegetable consumption, daily water intake, consumption of fast food, intake of fiber-rich foods, milk consumption, and physical activity level. Information regarding screen time and toileting habits was also collected.

Body weight and height were measured using standard procedures, and body mass index was calculated when applicable. Data were coded and entered into the Statistical Package for Social Sciences (SPSS) version 31 for statistical analysis. Descriptive statistics were presented as frequencies, percentages, means, and standard deviations. Associations between functional constipation and selected variables were analyzed using the Chi-square test. A p-value of less than 0.05 was considered statistically significant.

3-RESULTS

Table 1 shows the demographic characteristics of the study population. The age group 6–10 years represented the highest proportion of participants (40.7%), followed by children aged 2–5 years (38.7%), while children aged 11–14 years constituted 20.6% of the study sample. Males were slightly more predominant than females, accounting for 54.7% and 45.3% of participants, respectively, with a male-to-female ratio of 1.2:1. Most children were from urban areas (64.0%).

Table 1: Demographic Characteristics of the Study Population (n = 150).

Variable	Category	Number	Percentage
Age group (years)	2–5	58	38.7%
	6–10	61	40.7%
	11–14	31	20.6%
Gender	Male	82	54.7%
	Female	68	45.3%
Residence	Urban	96	64.0
	Rural	54	36.0

Table 2 demonstrates the prevalence of functional constipation according to age group and gender. Functional constipation was identified in 46 (30.7%) children. The highest prevalence was observed among children aged 2–5 years (45.7%), with a statistically significant association between age group and

constipation (p = 0.041). Functional constipation was slightly more common among males than females; however, the association with gender was not statistically significant (p = 0.671).

Table 2: Prevalence of Functional Constipation According to Age Group and Gender (n = 150).

Variable	Functional Constipation n (%)	No constipation n (%)	Total	P value
Age Group (years)				
2–5 years	21 (45.7%)	37 (35.6%)	58	**0.041**
6–10 years	17 (37.0%)	44 (42.3%)	61	
11–14 years	8 (17.3%)	23 (22.1%)	31	
Gender				
Male	24 (52.2)	58 (55.8)	82	0.671
Female	22 (47.8)	46 (44.2)	68	

Table 3 illustrates the association between dietary habits and functional constipation among the studied children. Low fruit and vegetable intake, inadequate water consumption, frequent fast-food intake, and low dietary fiber intake were significantly associated with functional constipation (p < 0.05).

Table 3: Association Between Dietary Habits and Functional Constipation (n = 150).

Dietary Habit	Functional Constipation n (%)	No Constipation n (%)	P-value
Low Fruit and Vegetable Intake	33 (71.7%)	42 (40.4%)	**0.001**
Inadequate Water Intake	31 (67.4%)	36 (34.6%)	**0.002**
Frequent Fast-Food Consumption	28 (60.9%)	39 (37.5%)	**0.009**
Low Fiber Intake	30 (65.2%)	41 (39.4%)	**0.004**

Table 4 presents the association between lifestyle factors and functional constipation. Screen time exceeding two hours daily, low physical activity, and irregular toileting habits were significantly associated with functional constipation among the studied children (p < 0.05).

Table (4) Association Between Lifestyle Factors and Functional Constipation (n = 150)

Lifestyle Factor	Functional Constipation n (%)	No Constipation n (%)	P-value
Screen Time >2 hours/day	29 (63.0%)	40 (38.5%)	**0.006**
Low Physical Activity	26 (56.5%)	35 (33.7%)	**0.011**
Irregular Toileting Habits	32 (69.6%)	38 (36.5%)	**0.001**

4- DISCUSSION

Functional constipation is considered one of the most common functional gastrointestinal disorders among children and represents a major cause of pediatric outpatient visits. In the present study, the prevalence of functional constipation among children aged 2–14 years was 30.7%, indicating that constipation remains a considerable pediatric health problem among children attending primary health care centers and pediatric counseling clinics in Mosul. This prevalence was relatively higher than that reported in several international and regional studies, where prevalence rates ranged between 9% and 18% depending on the diagnostic criteria and study population. These differences may be related to variations in dietary habits, socioeconomic status, healthcare accessibility, and lifestyle patterns among different communities.[10-13]

The present study demonstrated that the highest prevalence of constipation was observed among children aged 2–5 years, with a statistically significant association between age and constipation. Similar findings were reported in previous studies showing that constipation is more common during early childhood because of stool withholding behavior, painful defecation, toilet training difficulties, and psychological stressors associated with environmental changes and school attendance.[11-16] Younger children may intentionally avoid defecation after painful bowel movements, resulting in progressive fecal retention and worsening constipation.

Regarding gender distribution, males were slightly more affected than females in the current study, although the association was not statistically significant. This finding is consistent with several recent studies that reported no significant gender predominance in pediatric functional constipation.[10-18] However, some studies reported slightly higher prevalence among females because of behavioral and hormonal influences, while others documented higher prevalence among males.

Dietary habits showed a strong association with functional constipation in the current study. Low intake of fruits, vegetables, and dietary fiber was significantly associated with constipation. Dietary fiber plays an essential role in increasing stool bulk, promoting intestinal motility, and facilitating bowel evacuation. Children consuming low-fiber diets are more likely to develop hard stools and infrequent bowel movements. Similar findings were reported in recent pediatric studies

emphasizing that unhealthy dietary habits represent important modifiable risk factors for constipation among children.[10, 13, 20]

Inadequate water intake was another important factor significantly associated with functional constipation in the present study. Insufficient fluid intake may increase water absorption from the colon, leading to hard stool consistency and painful defecation. Adequate hydration is essential for maintaining normal bowel function and stool softness. Several studies similarly reported that low fluid intake is frequently observed among constipated children and contributes to worsening gastrointestinal symptoms.[13, 15]

Frequent fast-food consumption was significantly associated with constipation among the studied children. Fast foods are usually rich in fats and processed carbohydrates and poor in dietary fiber, which negatively affects bowel motility and gastrointestinal health. The increasing dependence on westernized dietary patterns among children and adolescents has contributed to rising prevalence of gastrointestinal disorders, including constipation and obesity. Similar associations between fast-food intake and constipation were documented in recent pediatric studies.[13, 17]

Lifestyle factors also showed significant associations with functional constipation in the current study. Children with prolonged screen time exceeding two hours daily and those with low physical activity levels had significantly higher prevalence of constipation. edentary behavior reduces gastrointestinal motility and delays colonic transit time, thereby increasing the risk of constipation. Increased use of electronic devices among children has contributed to reduced outdoor activities and physical exercise. Similar findings were reported in previous studies that identified sedentary lifestyle and excessive screen exposure as important risk factors for pediatric constipation.[15, 17]

Irregular toileting habits demonstrated a strong association with functional constipation among the studied children. Stool withholding behavior commonly develops after painful bowel evacuation and may eventually result in chronic fecal retention and rectal dilatation. Behavioral and psychological factors therefore represent important components in the pathophysiology of pediatric functional constipation. Recent studies emphasized the importance of behavioral modification and parental education in preventing chronic constipation and its complications.[11, 16, 20]

The present study had several limitations. The relatively small sample size and the use of a convenient sampling technique may limit the generalizability of the findings to the wider pediatric population. In addition, dietary habits and lifestyle factors were assessed based on parental reporting, which may be subject to recall bias. The cross-sectional design of the study also limits the ability to establish a causal relationship between functional constipation and associated risk factors.

5- CONCLUSION AND RECOMMENDATION

Functional constipation is a common pediatric health problem among children attending primary health care centers and pediatric counseling clinics in Mosul, with significant associations with unhealthy dietary habits and sedentary lifestyle factors. Low intake of fruits, vegetables, dietary fiber, inadequate water consumption, frequent fast-food intake, prolonged screen time, low physical activity, and irregular toileting habits were identified as important contributing factors. Early recognition and appropriate management of these modifiable risk factors are essential to reduce the burden of constipation and improve children's quality of life. Health education programs directed toward parents and caregivers regarding healthy nutrition, adequate hydration, regular physical activity, and proper toileting practices are strongly recommended. Further large-scale multicenter studies are also recommended to better evaluate the epidemiology and risk factors of pediatric functional constipation in Iraq.

REFERENCES

1. Isa HM, Alkharsi FA, Salman FA, Ali MS, Abdulnabibi ZK, Mohamed AM. Assessing indicators and clinical differences between functional and organic childhood constipation: a retrospective study in pediatric gastroenterology clinics. Clin Exp Pediatr, 2023 Jul; 66(7): 296-306.
2. 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 pediatrics, 2019 Aug 15; 19(1): 285.
3. Tran DL, Sintusek P. Functional constipation in children: What physicians should know. World J Gastroenterol, 2023 Feb 28; 29(8): 1261-1288.
4. Allen P, Setya A, Lawrence VN. Pediatric Functional Constipation. [Updated 2024 Jan 11]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan-.
5. Barberio B, Judge C, Savarino EV, Ford AC. Global prevalence of functional constipation according to the Rome criteria: a systematic review and meta-analysis. The Lancet Gastroenterology & Hepatology, 2021 Aug 1; 6(8): 638-48.
6. Sood M, Lichtlen P, Perez MC. Unmet needs in pediatric functional constipation. Clinical pediatrics, 2018 Nov; 57(13): 1489-95.
7. Rajindrajith S, Devanarayana NM, Benninga MA. Childhood constipation: Current status, challenges, and future perspectives. World J Clin Pediatr, 2022 Sep 9; 11(5): 385-404.
8. Chowdhury K, Sinha S, Kumar S, Haque M, Ahmad R. Constipation: A Pristine Universal Pediatric Health Delinquent. Cureus, 2024 Jan 19; 16(1): e52551.

9. Diaz S, Bittar K, Hashmi MF, et al. Constipation. [Updated 2023 Nov 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2026 Jan-.
10. Djurijanto F, Lin SH, Vo NP, Le NQ, Nguyen-Hoang A, Shen SC, Wu CH, Chen JY, Nguyen NT. Prevalence and determinants of constipation in children in Asia: a systematic review and meta-analysis. EClinicalMedicine, 2024 May 1; 71.
11. Jonker CA, van Os TM, Gorter RR, Levitt MA, Benninga MA. Current Treatment Options for Children with Functional Constipation—What Is in the Pipeline?. Children, 2025 Jun 28; 12(7): 857.
12. Gordon M, de Geus A, Banasiuk M, Benninga MA, Borrelli O, Boruta M, Darbari A, Dore-Stites D, Gould M, Hawa J, Jones KB. ESPGHAN and NASPGHAN 2024 protocol for paediatric functional constipation treatment guidelines (standard operating procedure). BMJ Paediatrics Open, 2025 Feb 4; 9(1): e003161.
13. Bashir SK, Khan MB. Pediatric functional constipation: A new challenge. Advanced Gut & Microbiome Research, 2024; 2024(1): 5569563.
14. Rajindrajith S, Devanarayana NM, Benninga MA. Childhood constipation: Current status, challenges, and future perspectives. World journal of clinical pediatrics, 2022 Sep 9; 11(5): 385.
15. Liu Q, Dai YE, Zhou Z, Wang S, Wang Q, Gu X, Luo X. Prevalence and influencing factors of functional constipation in Chinese children and adolescents: a systematic review and meta-analysis. Frontiers in Public Health, 2026 Mar 12; 14: 1776863.
16. Darma A, Sumitro KR, Muhardi L, Vandenplas Y, Hegar B. Rome IV clinical criteria and management of functional constipation: Indonesian health care professionals' perspective. Pediatric gastroenterology, hepatology & nutrition, 2024 Mar 4; 27(2): 125.
17. Zhou Y, Tao E. The role of intestinal gases in pediatric functional constipation: a narrative review of pathophysiology and emerging therapeutics. Frontiers in Nutrition, 2026 Jan 2; 12: 1694831.
18. Koppen IJ, 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. The Journal of pediatrics, 2018 Jul 1; 198: 121-30.
19. Talaat El-Deeb M, Awad YM, El-Ghafar MA. Diagnostic Outcome of Rome IV Criteria in Diagnosis of Functional Constipation among Infants and Children. QJM: An International Journal of Medicine, 2024 Oct; 117(Supplement_2): hcae175-808.
20. Tabbers MM, DiLorenzo C, Berger MY, Faure C, Langendam MW, Nurko S, Staiano A, Vandenplas Y, Benninga MA. Evaluation and treatment of functional constipation in infants and children: evidence-based recommendations from ESPGHAN and NASPGHAN. Journal of pediatric gastroenterology and nutrition, 2014 Feb; 58(2): 258-74.