MARITAL DISHARMONY AND SIBLING RIVALRY AS ONE OF THE CAUSE OF CONSTIPATION IN CHILDREN? A CROSS-SECTIONAL OBSERVATIONAL STUDY

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Abstract

Background: The present study was conducted to study the co-relation of constipation in urban school going children with respect to psychosocial aspects.
Methods: The study was done in Public Schools in Jaipur with students in age group of 5-15yr of either sex. Children who fulfilled the ROME IV criteria for constipation were analysed for psychosocial aspects. Data was collected and recorded from the parents in pre-fixed proforma. Stool frequency and types of stools passed were recorded for a week, with Bristol stool chart. Children in the study group without constipation were analyzed in similar pattern.
Results: A total of 2725 students were analysed, out of which 545 children fulfilled the ROME IV criteria for functional constipation. The prevalence of functional constipation was found to be 20% with female preponderance. Out of these 545 students, Marital disharmony was found to be in 106 which is 19.45% & sibling rivalry was found to be in 123 which is 22.57% as the contributing factors to constipation.
Conclusions: Functional constipation continues to be a global problem in all Paediatric age groups, psychosocial factors had a significant effect on functional constipation.

Keywords: Bowel pattern, Diet pattern, Habit constipation, psychosocial factors.

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1. INTRODUCTION

Constipation is defined as the difficulty of transit in the intestinal passage without any physiological anomaly, described by the World Gastroenterology Association. It is one of the most common health problems in children. Variation in the normal bowel habit and symptoms recognized as constipation has made it difficult to accurately diagnose the condition in Paediatric population. In addition to it, overflow incontinence and encopresis, both being symptoms of functional constipation (FC), are often considered problematic bowel habits and not symptoms of FC. [1]

In some patient's constipation is perceived as straining (around 52%), while for the others, it means hard, pellet-like stools (approximately 44%) or an inability to defecate when desired (approx. 34%), or infrequent defecation (about 33%).[2]

In routine Paediatric OPD, about 10% of patients present with constipation; and 10% to 25% of referrals to pediatric gastroenterologists are for constipation.[3]

Although often regarded as a not so significant problem by many physicians, chronic constipation is of great importance to the child and his family. Delay in management only exacerbates the problem and perpetuates the child's lack of self-esteem. [4, 5]

It is a problem causing deteriorating health-related quality of life, and increasing school absenteeism. The prevalence among children has been reported from 0.7% to 29.6% (mean 5.14; median 5.12). [6-8]

Although clinical profile of children with constipation is well documented in the west, the same has not been described in the developing world countries. [9]

As there are no published data on childhood constipation and psychosocial aspects from India. Hence the present study is conducted to know the relationship between functional constipation and psychosocial aspects of urban school going children in Jaipur, Rajasthan.

2. MATERIALS & METHODS

Study Design: It was a cross-sectional, observational study.

Settings: Public Schools in Jaipur, Rajasthan

Subjects: The subjects with age group of 05 years to 15 years of either sex, studying in an Urban Public School (Standard I to Standard X) in Jaipur, Rajasthan.

Inclusion Criteria:

- Children from age group of 5 years to 15 years of either sex attending school.
- Children not having any organic disease.
- Children not having any chronic GIT disease.
- Children not on medications.
- Children who fulfills ROME IV criteria.

ROME IV CRITERIA FOR FUNCTIONAL CONSTIPATION	
Infants and toddlers up to 4 years of age	**Children and adolescents (Developmental age > 4 years)**
At least 2 of the following presents for at least 1 month: • 2 or fewer defecations per week • History of excessive stool retention • History of painful or hard bowel movements • History of large diameter stools	At least 2 of the following present at least once per week for at least 1 month*: • 2 or fewer defecations in the toilet per week • At least 1 episode of faecal incontinence per week • History of retentive posturing or excessive volitional stool retention

• Presence of large faecal mass in the rectum In toilet-trained children, the following criteria may be used: • At least 1 episode/week of incontinence after acquisition of toileting skills. • History of large diameter stools that may obstruct the toilet.	• History of painful or hard bowel movements • Presence of a large faecal mass in the rectum • History of large diameter stools that may obstruct the toilet The symptoms cannot be fully explained by another medical condition

Exclusion Criteria:

● Children below 5 years and above 15 years.
● Children with constipation who do not fulfill the ROME IV criteria.
● Children having any chronic disease.
● Children having any organic disease.
● Children already on treatment of constipation or on any other medications.

Methodology:

● The record of demographical profile, socio economic status, complaints, psychosocial aspects, bowel pattern, diet chart and school records were made using predesigned proforma after obtaining written informed consent.
● Stool frequency and type of stool passed were recorded for a week, using BRISTOL'S STOOL CHART.
● The current study is a school based Cross-sectional, Observational study that was conducted in randomly selected Public Schools in Jaipur, Rajasthan.
● Predesigned Questionnaires were distributed in schools and students were asked to complete them at home.

The statistical investigation was carried out using the Statistical Package for Social Science (SPSS Version 20; Chicago Inc., USA)". The statistical significance of the comparisons was established by running the data through a series of statistical tests. To compare quantitative variables, mean values were utilized, while proportions were used to compare qualitative factors. The level of significance was set at p less than 0.05.

3. RESULTS

The present observational cross-sectional study was conducted among the subjects with age group of 05 years to 15 years of either sex, studying in Urban Public School (Standard I to Standard X) in Jaipur, Rajasthan to know the relationship between functional constipation and psychosocial aspects in urban school going children in Jaipur, Rajasthan.

283 (62.6%) children belonged to nuclear family. 157 (34.73%) belonged to joint family and 12 (2.6%) were from separated family. Marital disharmony, sibling rivalry and tantrum were present in 49 (10.8%), 55 (12.1%), 140 (30.9%) of children respectively. School phobia and unwillingness to use school toilet were found in 29 (6.4%), and 108 (23.8%) of children respectively.

Table 1: Precipitating factors

Factors	**N**	**%**
Marital disharmony	106	19.45
Sibling rivalry	123	22.57
Temper tantrum	258	47.34
School phobia	47	8.62

Aversion to use school toilet	195	35.78
Breakfast skipped	73	13.39

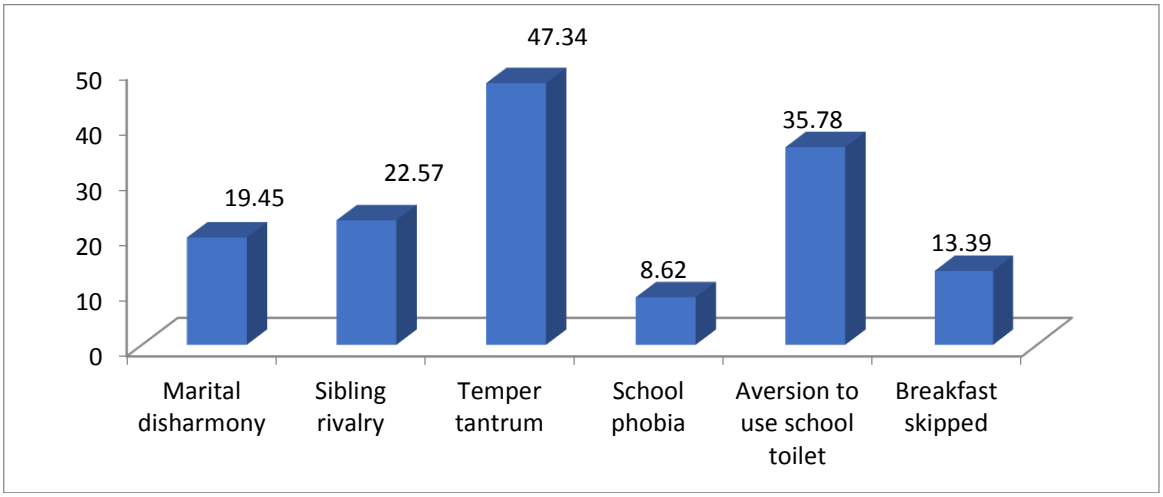

Table 1, Graph 1 show precipitating factors among the study subjects. Maximum (47.34%) of subjects had temper tantrum and least (8.62%) had school phobia. 19.45% had marital disharmony, 22.57% had sibling rivalry, 35.78% had aversion to use toilet and 13.39% had breakfast skipped.

Table 2: Age distribution among the study subjects

Age Group (in years)	**N**	**%**
5-8	193	35.41
9-12	182	33.39
>12	170	31.19
Total	545	100

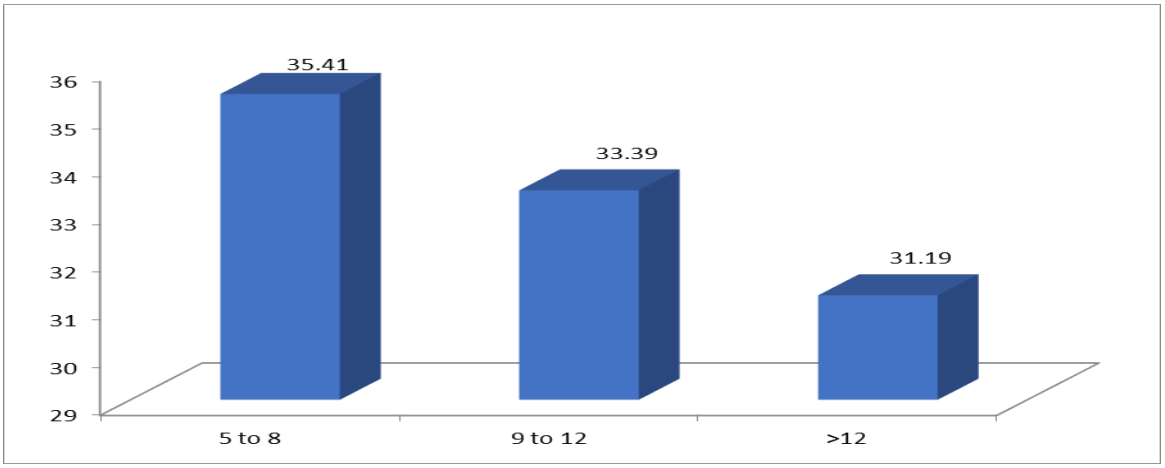

Table 2, graph 2 shows age distribution among the study subjects. 35.41 % of subjects had age between 5-8 years, 33.39% of subjects had age 9-12 years and 31.19% were of age greater than 12 years.

Table 3: Sex-wise distribution among the study subjects

Sex	**N**	**%**

Male	262	48.07
Female	283	51.93
Total	545	100

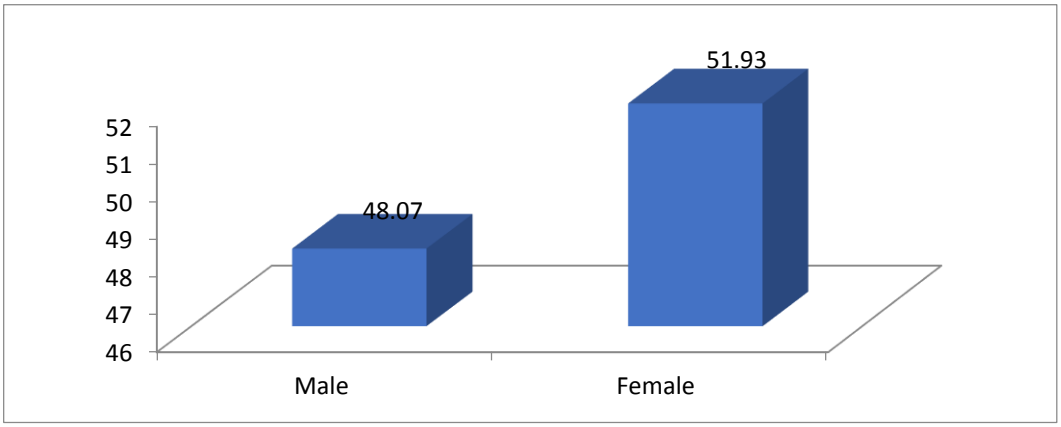

Table 3, Graph3 shows sex-wise distribution among the study subjects. 51.93% of subjects were female and 48.07% of subjects were male.

Table 4: Clinical presentations among the study subjects

Clinical Presentations	**N**	**%**
Painful Defecation	539	98.90
Recurrent Abdominal Pain	124	22.75
Blood-Streaked Stools	46	8.44
Abnormal Posture	238	43.67
Faecal Soiling	157	28.81
GERD	4	0.73

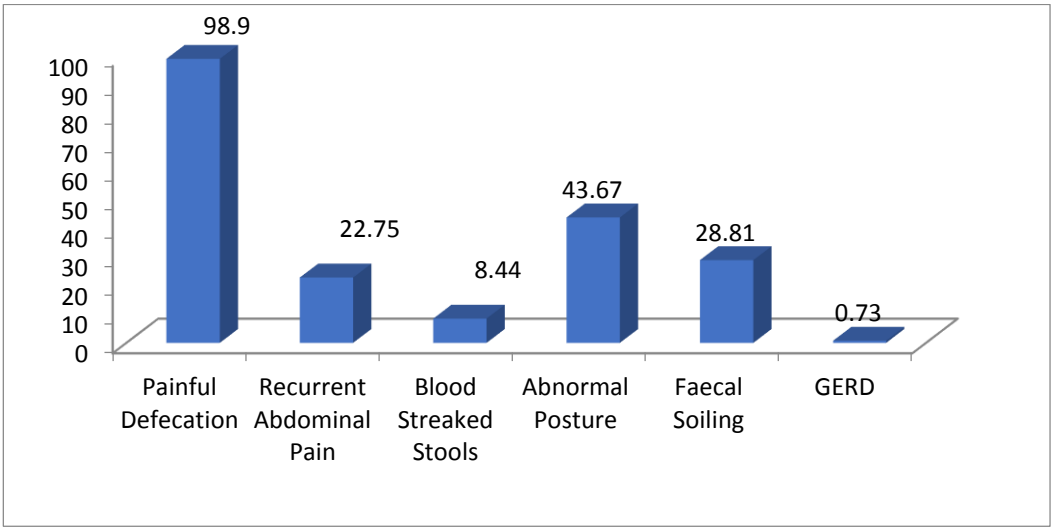

Table 4, Graph 4 shows clinical presentations among the study subjects. Most common was painful defecation (98.90%) followed by abnormal posture (43.67%), faecal soiling (28.81%), recurrent abdominal pain (22.75%), blood-streaked stools (8.44%) and GERD (0.73%).

Table 5: Type of stool passed by the children as per Bristol stool chart

Type of Stool	**N**	**%**
Type I	42	7.71
Type II	211	38.72
Type III	254	46.61
Type IV	29	5.32
Type V	7	1.28
Type VI	2	0.37
Type VII	0	0.00

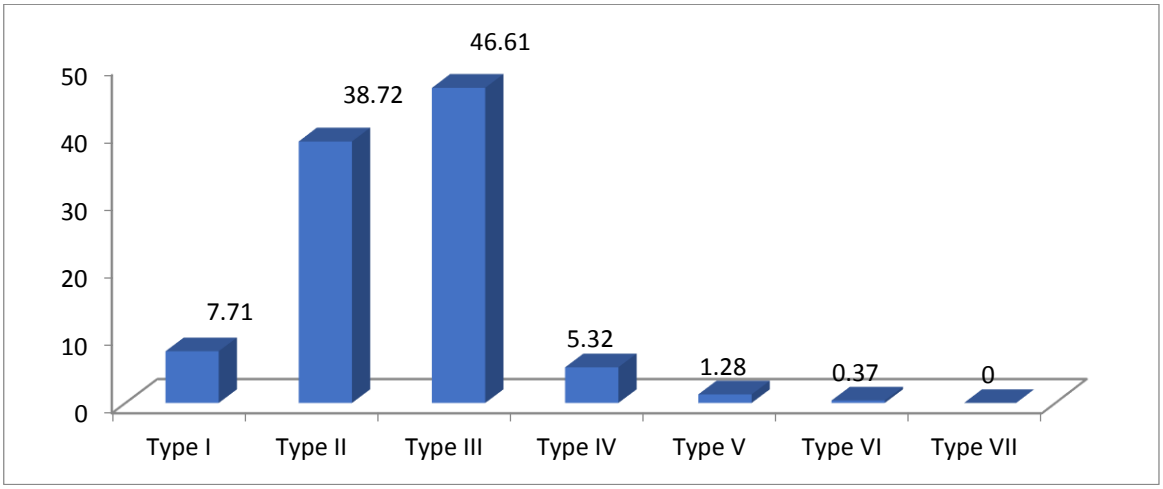

Table 5, Graph 5 shows type of stool passed by the children as per Bristol stool chart. 7.71% of children had type I stool, 38.72% had Type II, 46.61% had Type III, 5.32% had Type IV, 1.28% had Type V and 0.37% had Type VI.

4. DISCUSSION

For constipation, different people have different perceptions of symptoms, some regard constipation as straining at stools, while for others it means hard pellet-like stools or inability to defecate when desired or infrequent defecation. The prevalence of childhood constipation in general population ranges from 0.7% to 29.6% [10]. Even though there is ample of data on constipation, there is very few data available in India on relationship between psychosocial aspects and functional constipation. Hence, the present observational cross-sectional study was

conducted among the subjects with age group of 05 years to 15 years of either sex, studying in an Urban Public School (Standard I to Standard X) in Jaipur, Rajasthan to know the relationship between functional constipation and psychosocial aspects in urban school going children in Jaipur, Rajasthan.

SEX-WISE

In current study 51.93% of subjects were female and 48.07% of subjects were male. In the group of children with constipation, 53.1% were female and 46.9% were male in a study done by **Andreoli CS et al** [11] (2019).

Out of 202 children with functional constipation, 110 were girls and boys were 92. There is an increased incidence of constipation of female children comprising 54.4% against the incidence in males being 45.6% The female to male ratio was 1.1:1. The standard deviation was 3.085 in a study reported by **Kondapalli CS et al** (2018) [12] and results were approximately similar to our study.

The prevalence of constipation in school age children from USA was found to be 18% by **Lorenzo et al, Loening-Baucke V et al** found that the prevalence of constipation was equal in both boys and girls and it was 0.3% to 8% in pediatric population.[13,14] Similarly, **Iacono et al and Ciampo D et al** found the prevalence of constipation to be equal between girls and boys.[15, 16] **Ip et al and Kajiwara et al** found an increased prevalence in girls 32% and 24.2% as compared to boys 21% and 13.2% respectively, similar to present study.[17,18] **Kokkonen et al** too showed more prevalence of constipation in girls.[19] **Gannikou R et al** found a slight male preponderance of constipation with 6.4% of boys being constipated as against 5.7% in girls.[20]

AGE-WISE

35.41 % of subjects had age between 5-8 years, 33.39% of subjects had age 9-12 years and 31.19% were of age greater than 12 years in current study. 25.4% of the population of children aged 3 to 8 years in the survey area in a study done by **Fujitani A et al (2018)** [21]. The highest number of children presenting was in the age group of 2-4 years. The least number of children were from 10-12 years as reported by **Kondapalli CS et al** (2018) [12].

The study was comparable to the one conducted by **Kokkonen et al** where the mean age was 5.5 years. **Lorenzo et al** study found that peak incidence of constipation occurs at the time of toilet training between 2- 4 years of age. [19,13]

CLINICAL PRESENTATION

Most common clinical presentation in our study was painful defecation (98.90%) followed by abnormal posture (43.67%), faecal soiling (28.81%), recurrent abdominal pain (22.75%), blood-streaked stools (8.44%) and GERD (0.73%).

As for the constipation symptoms, according to the Roma IV criteria, the research revealed that 79.6% of the children with constipation had difficulty to evacuate, 57.1% had pain and their stools were of great diameter with retention traits in a study done by **Andreoli CS et al** (2019) and the results are similar to our study.[11] Fecal soiling was 30.8%, 18.8% of children had abdominal pain in the study conducted by **Khanna et al** [10]. In the study by **Weaver et al** 9% of children had blood-streaked stools.[22]

TYPE OF STOOL

7.71% of children had type I stool, 38.72% had Type II, 46.61% had Type III, 5.32% had Type IV, 1.28% had Type V and 0.37% had Type VI in our study.

The predominant stool type passed was type IV n=225 (49.7%). Type I stool was not seen in any of the children, type II stool was passed by 38 (8.4%), type III stool was passed by 153 (33.8%), type V stool by 28 (6.1%) number of children. Type VI

3(0.6%) and type VII 5 (1.1%) in research done by **Kondapalli CS et al (2018)** [12].
Moreover, the use of Bristol stool chart helped in correctly identifying stool consistency and correlate symptoms of functional constipation better. Retentive behaviour was more common in boys (56.6%) which are similar to study by **Wald et al**. [23].
The analysis of the stools according to the Bristol scale showed that, among the children with constipation, 40.8% presented stools of types 1 and 2, 51% presented type 3 and 8.2% presented type 4 in a study done by **Andreoli CS et al (2019)** [11].

PRECIPITATING FACTOR

Maximum (47.34%) of subjects had precipitating factor as temper tantrum and least (8.62%) had school phobia. 19.45% had marital disharmony, 22.57% had sibling rivalry, 35.78% had aversion to use toilet and 13.39% had breakfast skipped in our study.
Marital disharmony (23.2%), sibling rivalry (24.3%), and school phobia (10.8%) are present in constipated children in the study done by **Kondapalli CS et al** (2018) [12].
Andreoli CS et al (2019) reported here was no association between maternal constipation, evacuation frequency and constipation in the child. [11]

5. CONCLUSION

This study has identified significant association between family related factors and functional constipation in school children, which provide implications for healthcare professionals to deal with functional constipation.
There are very few studies available which have worked on parental marital disharmony as one of the significant causes of functional constipation, especially in developing countries.
Ours is the first study in northern India highlighting this cause. To establish this, further large studies and then met analysis are required.

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