

## STUDY ON PREVALENCE OF FUNCTIONAL GASTROINTESTINAL DISEASES AMONG SCHOOL CHILDREN IN TRIVANDRUM

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### ABSTRACT

**Background:** FGIDs lower the quality of life of children when compared with children having organic diseases such as inflammatory bowel disease. Although a smaller number of studies have been conducted on impact of FGID in school children in Thiruvananthapuram, South Kerala, it is likely to be considerable.

**Methodology:** A cross-sectional study was carried out among 220 subjects in different schools in Thiruvananthapuram. Subjects were provided with Questionnaire on Paediatric Gastrointestinal Symptoms-Rome III version (QPGS-RIII), which involved various symptoms experienced by children, its duration, bowel habit, school absenteeism related to illness. **Result:** Out of 220 subjects 181 subjects were

reported to have GI illness, 82%, which shows a high prevalence rate of FGID among school children. The most common FGID was abdominal pain, followed by functional vomiting, functional dyspepsia and defaecation disorders. As per studies more than half of the subjects never missed school due to illness and this conclude that FGIDs produce less adverse effect on quality of life of children. **Conclusion:** In conclusion, a high prevalence of FGIDs was found in school children of age group 6-13 years in Thiruvananthapuram, South Kerala with a low rate of physician consultation.

**KEYWORDS:** Constipation, FGID, School children, QPGS-RIII, quality of life.

## BACKGROUND

Functional gastrointestinal disorders (FGID) are functional disorders of GIT and not structural or biochemical abnormalities. These are heterogenous group of disorders that affects gut-brain interaction. FGID can affect any part of GIT including esophagus, stomach and intestine. More than 20 FGIDs are identified which include irritable bowel syndrome, functional dyspepsia, functional vomiting, functional abdominal pain, functional constipation or diarrhea. As these cannot be identified using x-rays, CT scans, blood tests, endoscopic test etc., only symptomatic analysis is possible. FGIDs are analyzed using widely accepted 'Rome Diagnostic Criteria'.<sup>[1]</sup> Although these are not psychiatric disorder, stress and psychological factors can make it worse.

The pathophysiology of FGID include three primary features –(a) motility i.e., muscular activity in GIT. Abnormal muscular movements in FGID leads to constipation or diarrhea, (b) sensation, increased nerve sensitivity in GIT during FGID causes pain, (c) gut-brain interaction, which is impaired in FGID.

50-80% of persons with a functional GI disorder merely have less knowledge about it and do not consult physician, rather they take OTC medication and found to report higher rate of school absenteeism and disability. This study included children of age group between 6-13 years. School absenteeism and disorder can adversely affect the mental development and physical status.<sup>[2,3]</sup> IBS has been reported as the second leading cause for absenteeism after common cold.<sup>[4]</sup> Studies in US children have shown that about 38% of children report abdominal pain each week, only a few i.e., 2%-3% of school children seek medical attention.<sup>[5]</sup>

Low consultation ratios regarding FGIDs are found, thus more prevalent information helps in increasing the knowledge regarding FGID and improve guidance for proper management. This study focuses on improving the knowledge and analyzing information in various symptoms experienced by children through Questionnaire on Paediatric Gastrointestinal Symptoms – Rome III version (QPGS-RIII).

## MATERIALS AND METHODS

The study was carries out among 220 children in different schools in Thiruvananthapuram. It included both public and private school children of age group between 6-13 years of age. Subjects were provided with questionnaire, QPGS-RIII, parents or children were asked to fill

the questionnaire (1,6). Use of Rome III version improves diagnosis outcomes rather than Rome II (7). Parents were involved as children of certain age group was not able to answer all the underlying questions. Questionnaire involved demographic details, various symptoms experienced by the children, its duration, bowel habit of the children, onset of pain and its duration, consultation with physician, school absenteeism related to illness. The family history was taken into concern in-order to relate illness with genetic predisposition. Food allergy of children was also taken into account as it can also cause symptoms such as abdominal pain, vomiting, diarrhoea etc. We also analysed which type of treatment do they prefer the most in case of such illness. As there are smaller number of studies are carried out regarding FGIDs among school children in Kerala, this study is useful to conclude the most affected Functional GI Disease in children and its prevalence.

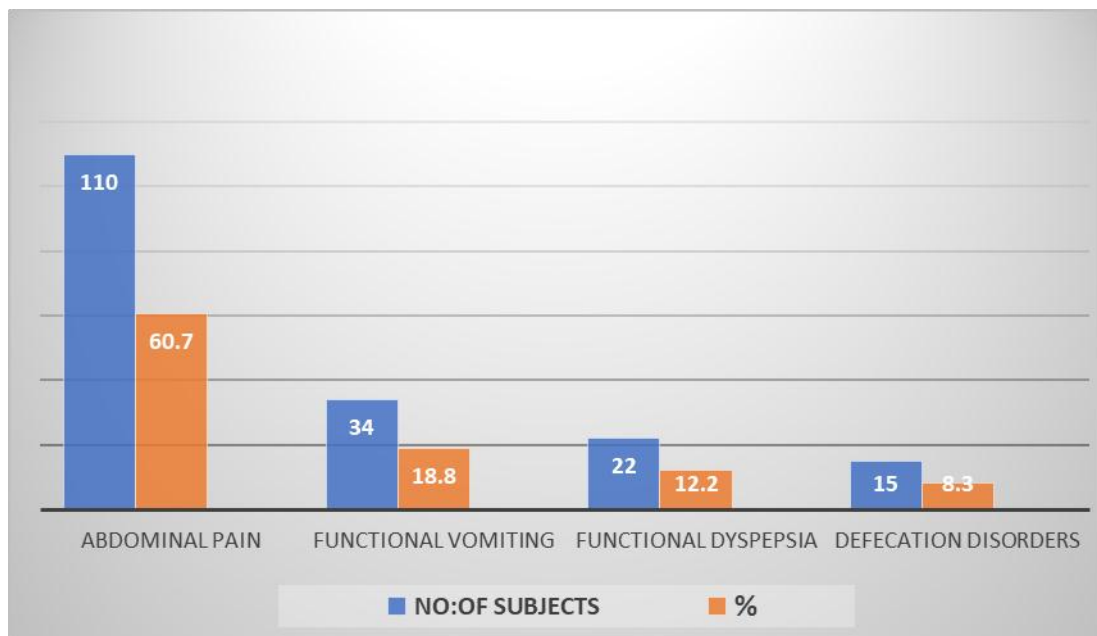
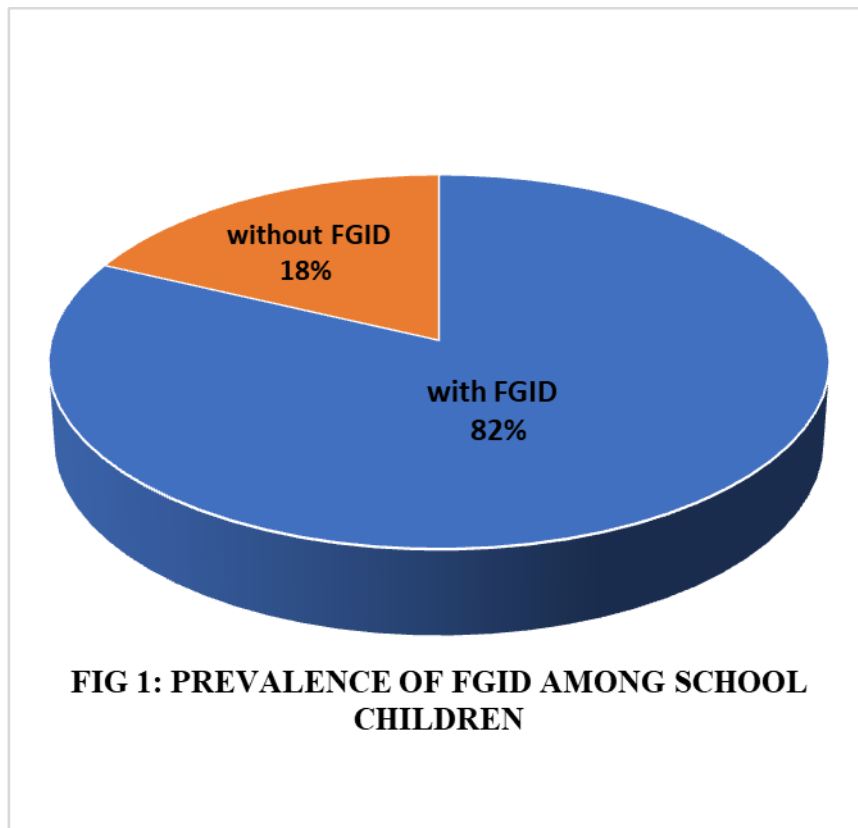
### **Data Analysis and Evaluation**

All data collected were analysed using both descriptive and inferential statistics. Percentages were used to summarize all the responses generated from the survey.

### **RESULTS**

The study included a total of 220 subjects out of which 181 subjects were reported to have GI illness, 82%, which shows a high prevalence rate of FGID among school children, as shown in figure 1. There were 101 male children and 119 female children and there was no significant difference in FGIDs with between sex. By assessing the family history of children having FGIDs, 15 subjects nearly 8% shown genetic predisposition with higher rate of GI illness among mothers (40%).

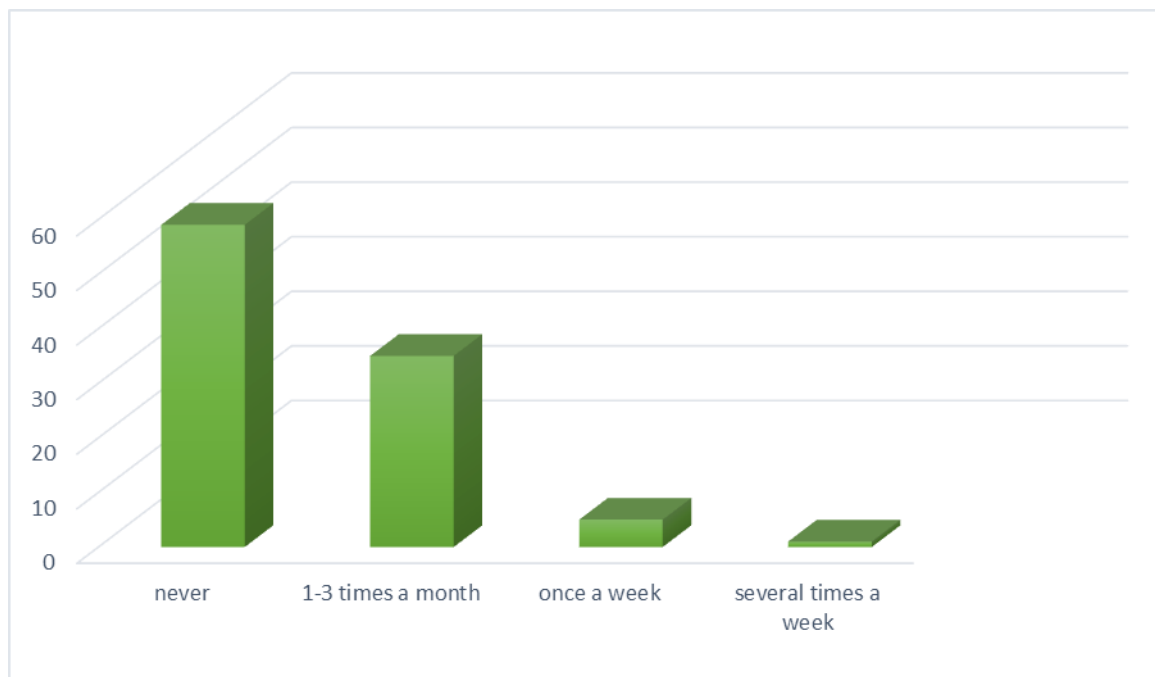
The most common FGID was abdominal pain, experienced by 110 subjects (60.7%). Majority (70 subjects i.e., 63%) experience pain after food and 40 subjects (37%) experience it before food. 64% experience a moderate pain for less than 1 hour. Assessing the site of pain, we found that major site of pain was below the the navel. Vomiting was present along with pain for 20% of subjects.



The second most common FGID after functional abdominal pain was functional vomiting which is experienced by 34 subjects (18.8%) followed by functional dyspepsia (22 subjects, 12.2%) and defaecation disorders (15 subjects, 8.3%), depicted in fig.2.

Assessing school absenteeism related to illness as it can adversely affect both physical and mental development of a child, this study shows that more than half of the children (106 subjects) i.e., 58% never missed school due to GI illness and 35% (63 subjects) marked absence in school 1-3 times a month, 5% missed school once a week and rest less than 2% missed school for more than one time a week, fig.3. Number of subjects who never missed school occupy the major proportion of sample size, thus implying less significant negative impact on quality of life of children.

Previous studies show that about 50-80% have less knowledge on FGID and do not consult physician. The results from this study also shows the same. Only 71 subjects (39%) get consulted with physician due to GI illness 1-3 times a month. Rest 60% i.e., major portion is still unaware about FGIDs. 141 subjects (78%) prefer allopathy, making it the most preferred type of treatment followed by home remedies (10%) which include use of OTC medications without physician consultation.



**Fig 3: School Absenteeism Related To Illness.**

## DISCUSSION

The prevalence of FGID among school children of age group 6-13 years was found to be high with 82% meeting Rome III criteria for FGID. The most common FGIDs were functional abdominal pain and functional vomiting.<sup>[8,9]</sup> As FGID is multifactorial, there is involvement of genetic, dietary, environmental, psychological factors.<sup>[8]</sup> No predominance of FGIDs with

sex difference. About 8% of subjects show genetic predisposition with high maternal predisposition rate.<sup>[10,11,12]</sup> Children with functional abdominal pain experience a moderate pain for less than an hour and 20% experience vomiting along with pain. Majority of children reported an increase in pain intensity after taking food. The major site for pain was found to be below the navel. Most parents were unaware of the bowel symptoms of their child particularly elder child's.<sup>[13]</sup>

Over half of the subjects never missed school due to GI illness and 35% showed school absenteeism 1-3 times a month. This shows that FGID does not majorly affected the quality of life of children. As per previous studies we also found out that about 60% were still unknown regarding FGIDs.<sup>[14,15,16]</sup> Less than half of the subjects consulted physician due to GI illness and the rest prefer home remedies or OTCs for the treatment of illness.

Thus, we can conclude that there is a high prevalence rate of FGIDs among school children in Thiruvananthapuram, South Kerala and merely a less population is aware and have knowledge of such GI Disorders. Proper diagnosis is a prerequisite for proper management which formerly needs consultation with physician. FGIDs can be treated through non-pharmacological methods like increasing the daily fibre intake which has a beneficial effect on GI motility and softens stool. As children are very fond of candies, soft drinks, sodas which has a high fructose content, this also increase the prevalence of FGIDs, so these should be cut down or avoided.

## CONCLUSION

This survey on prevalence of FGID among school children in South Kerala suggests that there is a high prevalence rate with less knowledge of FGIDs among parents and children. There are a few medical records available at doctor's desk illustrating the low rate of physician consultation. There is a need to provide knowledge regarding FGIDs among population and also to make them aware about the dietary measures so as to reduce its prevalence.

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