

DEFECATION DISORDERS
IN CHILDREN
EPIDEMIOLOGY AND RISK FACTORS

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**Defecation Disorders in Children:
Epidemiology and Risk Factors**

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Defecation disorders in children: Epidemiology and risk factors

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Outline of the thesis

Healthy childhood is not the mere absence of disease but is a vibrant state of health, characterized by physical, mental and social wellbeing, which helps to achieve childhood growth, development and potential according to the genetic makeup and socio-cultural determinants (1). During the last few decades, child health has reached many important milestones including controlling of major communicable diseases through immunization, about 50% reduction in child and neonatal mortality and significant numbers of countries achieving the Millennium Development Goals (2,3). However, a new set of challenges are emerging. They mostly consist of diseases of multi-factorial etiologies such as bronchial asthma, obesity, substance abuse and functional gastrointestinal disorders (FGDs). The last is being thought to be related to the result of interactions of many bio-psycho-social factors.

Functional gastrointestinal disorders in children are a set of clinical entities characterized by, recurrent vomiting, chronic recurrent abdominal pain, abdominal bloating and distension, and, disturbed defecation without identifiable structural, anatomical or biochemical anomalies. Although there are several FGDs, functional constipation (FC) is the commonest and the most studied among them. FC has a high prevalence right across many parts of the world (4). It also weighs in as a significant healthcare burden, more than many other common childhood disease such as bronchial asthma (5). Faecal incontinence has also been reported as an emerging health problem in the world. Several researchers have shown the prevalence ranges from 1.4% to 7.8% (6-8). The precise mechanisms of functional defecation disorders are ill-understood and therapeutic options are limited. These factors indicate that defecation disorders are threatening to become a major public health problem across the world in the years to come, unless, the understanding of the disorders are broadened and attention is focused on them as significant emerging problems.

Despite these evident facts, the problem has received relatively poor attention from the health authorities as they are mostly concentrating on conditions which contribute to child mortality rather than morbidity and other important non-communicable disorders

such as malnutrition. In such a scenario, it is most likely that the public health impact of childhood defecation disorders is perhaps neglected.

In this thesis we tried to evaluate epidemiology, risk factors and impact of health related quality of life of children with defecation disorders in Sri Lanka.

Defecation disorders in childhood are poorly understood and not properly managed at the grass root level. This is at least partly due to poor knowledge of the clinicians in the primary healthcare services. Part one (**Chapter 1**) of the introduction provides current literature review of defecation disorders in pediatric practice.

Fecal incontinence is an enigmatic disease in children. Once the possible organic diseases are excluded, there remains a large number of children with functional fecal incontinence. Part 2 (**Chapter 2**) of the introduction of the thesis summarizes the current knowledge of functional fecal incontinence in children.

Constipation is thought to be a disease of the western world. However, in clinical practice in Sri Lankan hospitals we noted a significant proportion of children with gastroenterological problems have functional constipation. This prompts us to study the epidemiology of functional constipation in Sri Lankan children. **Chapter 3** of the thesis shows the results of the first epidemiological survey of constipation in Sri Lankan school children.

Psychological stress is a common problem in day to day life. It could be due to home related events or school related events in children. Stress is known to modulate the brain gut axis to alter the function of the intestine (9). It is possible psychological stress to play a crucial role in developing constipation in children. In **chapter 4** of the thesis we explored the possible relationship between psychological stress and constipation in children.

Civil unrest is a common problem across the world. It can range from destruction of properties in one country to full scale warfare in another. Internal displacement, hunger, poverty, lack of basic needs including toilet facilities are inevitable

consequences of a full scale civil war. Moreover, sometimes children are recruited as child soldiers. Loss of parents and siblings, seeing their homes blown to pieces and forcing them into refugee camps may generate substantial psychological stresses leading to brain gut dysfunction. Sri Lanka faced 3 decades of civil war which ended in 2009. In **chapter 5** we describe the effects of civil war on childhood constipation.

Constipation in other countries leads to high healthcare burden. In a birth cohort study on young children in the US, Chitkara et al. found that the incident medical visits for constipation were indeed the highest for all gastrointestinal diseases (10). Compared to other common diseases such as childhood asthma and migraine, children with constipation demand and need more medical attention even as much as 7 times higher than asthma and 3 times higher than migraine (5). Sri Lanka has a free medical support for every citizen in the country. In this context we studied the healthcare consultation in children with constipation in Sri Lanka (**Chapter 6**).

Health related quality of life (HRQoL) is an important concept that incorporates the patient perspectives of illness experience and functional status related to a medical condition. Assessment of HRQoL attempts to quantify multiple factors producing patient's perception of ill health. Several hospital based studies have noted children with functional constipation has poor HRQoL and sometimes it can be worse than children with organic diseases such as gastroesophageal reflux and inflammatory bowel diseases (11). In **chapter 7** we studied the effect of constipation on HRQoL in a community sample of children with constipation.

Child abuse is a major social welfare problem across the globe. Studies in adults have shown abuse as a child is a predisposing factor to develop functional gastrointestinal diseases such as irritable bowel syndrome and constipation later in life (12). In **chapter 8** we studied the effects of child maltreatment in developing constipation in children.

Fecal incontinence is a difficult clinical problem in paediatric practice. These children have a peculiar and distinctive fecal aroma around them which leads to rejection by both peers and teachers at school. This, in extreme cases, may directly or indirectly predispose to child maltreatment. At home parents and other family members believe that children may be soiling intentionally to upset others, to get attention or, because

they are stressed, have emotional problems or consumed wrong food and therefore responsible for their symptoms (13). Such thinking patterns ultimately could lead to family disharmony and chaos in the family structure. The aetiology for fecal incontinence in children without organic disorders are not entirely clear. In **chapter 9** we attempt to study the different aetiologies of functional fecal incontinence in children.