



# Impact of functional constipation on psychosocial functioning and quality of life of children: A cross sectional study

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## KEYWORDS

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**Abstract** *Aim:* Functional constipation (FC) is one of the common diseases among children. Many problems are common in children with FC. The aim of this study was to detect whether FC has a negative impact on the behavioral and emotional aspects, quality of life and intelligence of children.

*Methods:* In this cross-sectional, case-control study, one hundred children participated; 50 children (mean age,  $7.52 \pm 2.74$  years, range 4–12 years) with FC and 50 healthy children (mean age,  $7.00 \pm 1.52$ , range 4–12 years) recruited from the cases' sibs with age and sex matching to them. Behavior and emotional problems were assessed using the Arabic translation of the Child Behavior Checklist (CBCL) scores. In addition, the Arabic version of the Pediatric Quality of Life Inventory 4.0 (PedsQL™ 4.0) was used to evaluate the children's and parents' quality of life. Lastly, Stanford Binet Intelligence Scale was carried out.

*Results:* Although, healthy control children were recruited from the patients' sibs, patients had higher CBCL scores than control children in all items except for the attention and the aggressive items. Also, total PedsQL™ 4.0 scores were lower in children with FC and their parents ( $p < 0.001$ ). Furthermore, All participating children had between average and above average Stanford Binet Intelligence Scale scores and there was no score difference between patients and control ( $p = 0.26$ ).

*Conclusion:* Emotional and behavioral problems are common in children with FC so as quality of life which is compromised in those children and their parents suggesting incorporation of behavioral and quality of life screening into their diagnostic workup.

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## Introduction

Functional constipation in childhood is a common defecation disorder with 0.7–29.6% prevalence in the general population.<sup>1</sup>

In a general pediatric practice, ~3% of the patients are referred for symptoms of constipation,<sup>2</sup> whereas in specific pediatric gastroenterology clinics, 25–45%<sup>3,4</sup> of patients are referred for evaluation and treatment of functional constipation disorders.<sup>3</sup>

To date, it is unknown, whether behavior problems are the cause or consequences of constipation. Early literature suggested that fecal incontinence is a mental disorder that requires psychiatric treatment.<sup>5,6</sup> In contrast, pediatricians emphasized the physiologic nature of childhood constipation with fecal incontinence as a result of severe fecal impaction. Several intervention studies showed an association between successful treatment and the reduction of behavior problems<sup>7–10</sup> suggesting that behavior problems are secondary to the clinical symptoms of constipation, yet in a recent intervention study; the authors<sup>11</sup> concluded that regardless of treatment success, behavioral therapy relieves children with constipation from coexistent behavior problems.

In spite of the fact that constipation rarely causes life threatening complications, nevertheless it can cause emotional and physical distress and concern for children and their families, ultimately impairing health related quality of life (HRQoL).<sup>12,13</sup>

Functional constipation, being a chronic problem with profound impact on the psychological and behavioral aspects of children might have an effect on the cognitive and school performance of children.

#### **Aim of the study**

Question the effect of FC on behavioral and emotional aspects, HRQoL and IQ of constipated children by comparing them to normal children recruited from the patients' siblings.

#### **Patients and methods**

Our cross sectional case control study was conducted in the period from June 2014 till January 2015. Children aged from 4 to 12 years seen in the Gastroenterology Clinic, Children's Hospital, Faculty of Medicine, Ain Shams University with FC according to ROME III criteria<sup>14,15</sup> were eligible to participate in our study. In order to diagnose FC in a child who is at least 4 years old, two or more of the following criteria should be present for at least 2 months prior to diagnosis with insufficient criteria to diagnose irritable bowel syndrome: (1) two or fewer defecations in the toilet per week; (2) at least one episode of fecal incontinence per week; (3) history of retentive posturing or excessive volitional stool retention; (4) history of painful or hard bowel movements; (5) presence of a large fecal mass in the rectum; and (6) history of large diameter stools which may obstruct the toilet.

Children were excluded from the study when they had received a comprehensive behavioral treatment conducted by a psychologist or psychiatrist in the previous 12 months. In addition, children with organic causes for defecation disorders, such as Hirschsprung disease, spina bifida occulta, hypothyroidism, or other metabolic or renal abnormalities, were excluded. When the child was found to be eligible to participate, baseline data were obtained. For all participants, informed written consent was given by the parents or parents and children when applicable.

#### *Sample size calculation*

The power calculation was conducted based on a previous study showing that children with FC had lower HRQoL than healthy children without FC.<sup>16</sup> To detect a difference between the children with FC and the healthy children with 95% power and with a significance level of  $p < 0.001$ , approximately 90 participants were needed based on Atman.<sup>17</sup> Thus the current study included 100 participants. Fifty with functional constipation and age and sex matched 50 healthy controls. In order to keep the sociodemographic differences aside, the healthy controls were recruited from the patients' sibs.

#### *Ethical considerations*

The research protocol was approved by the medical ethics committee of Faculty of Medicine, Ain Shams University. The study was explained to the parents and children, an informed written consent was obtained from the parents and a written assent from children when applicable and results were expressed orally to them at the end of study.

#### *Measures: all the participants were subjected to the following*

The Child Behavior Checklist for 4–18 years old (CBCL/4-18)<sup>18</sup> Arabic form<sup>19</sup>

The CBCL/4-18 parents' form was designed to measure competencies and problems in children aged 4–18 years as reported by parents. Achenback included these 2 components (competencies and problems) to assess both strengths and problem behaviors as a way to better understand a particular child's mental health status. Both sections have been developed as distinct standalone instruments. Although both sections seem complementary yet, users usually select only the behavior problems section because of its acknowledged psychometric strengths.<sup>20</sup> In our work, we included only the behavior problems section. It contains 118 specific problem behavior items and two items that allow parents to write in other problems. Scores of items were as follows, on the basis of the preceding 6 months: 0 = not true; 1 = somewhat or sometimes true, and 2 = very true or often true. The profile displays the child's standing on syndromes of problems. Each syndrome consists of problems that were found to occur concomitantly. Syndromes of the CBCL/4-18 are withdrawn, somatic complaints, anxious/depressed, social problems, thought problems, attention problems, delinquent behavior and aggressive behavior. The attention problems syndrome includes many of the types of problems that are ascribed to ADHD. The delinquent behavior syndrome comprises unaggressive conduct problems, such as lying, stealing, truancy and substance abuse. The profile provides scores for total problems, internalizing, externalizing and 8 syndrome scales (withdrawn, somatic complaints, anxious/depressed, social problems, thought problems, attention problems, delinquent behavior and aggressive behavior). The CBCL/4-18 was normed on a US nationally representative sample of 2368 children aged 4–18 years.<sup>21</sup> In our work we were concerned with each syndrome score separately, and calculated the raw scores of each problem separately and compared it with the control children's raw scores.

The researcher used to sit close to the parent filling the questionnaire to clarify any question the parent might have

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