

EVALUATION OF PSYCHOLOGICAL ASPECTS OF MOTHERS OF CHILDREN HAVING CHRONIC FUNCTIONAL CONSTIPATION

AZAM Z*, ZARQOON N, AHMAD W, AWAIS CM, RASOOL L, HUSSAIN B, GONDAL MF

Department of Pediatric Surgery, Holy Family Hospital, Rawalpindi Medical University, Rawalpindi, Pakistan

*Corresponding author email address: hidayat_yousafzai@yahoo.com

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ABSTRACT

Background: Chronic functional constipation (CFC) is a prevalent gastrointestinal disorder in children, defined by the ROME IV criteria, and is associated with infrequent, painful, or difficult bowel movements in the absence of an organic cause. Beyond its physical burden, CFC negatively influences the psychological wellbeing, school performance, and social functioning of affected children. Importantly, the psychological health of mothers of children with CFC, which may impact disease management, remains underexplored. **Objective:** To evaluate the psychological health of mothers of children with chronic functional constipation and compare it with that of mothers of healthy controls. **Study Design:** Quasi-experimental study. **Setting:** Department of Pediatrics, Rawalpindi Medical University. **Duration of Study:** September 2024 to March 2025. **Methods:** A total of 60 mothers were recruited through non-random convenience sampling and divided equally into two groups: mothers of children with CFC (Group A, n = 30) and mothers of healthy children (Group B, n = 30). Diagnosis of CFC in children was established using the ROME IV criteria. Maternal psychological health was assessed using the Urdu-translated version of the WHOQOL-BREF questionnaire. Mean psychological quality of life (QOL) scores were compared between the groups using an independent t-test, with a significance threshold of $p < 0.05$. **Results:** The mean age of children was 7.83 ± 2.13 years, with 32 (53.3%) males and 28 (46.7%) females. The mean psychological QOL score of mothers in Group A was significantly lower (8.04 ± 2.40) compared to Group B (10.44 ± 2.50) ($p < 0.01$). **Conclusion:** Mothers of children with chronic functional constipation exhibited significantly poorer psychological health compared to mothers of healthy controls. This negative psychological impact may influence the management and outcomes of CFC in children, highlighting the need for holistic care approaches incorporating parental psychological support.

Keywords: Functional Constipation, Psychological Health, Psychological QOL

INTRODUCTION

Chronic functional constipation (CFC) in children is a common gastrointestinal disorder characterized by infrequent, painful, or difficult bowel movements in the absence of a diagnosed organic condition (1). Symptoms include fewer than three bowel movements per week, large or hard stools, straining, stool withholding, and faecal incontinence. The condition is often precipitated by episodes of painful defecation, which lead to a cycle of avoidance and stool retention (2). As retained stool accumulates in the rectum, it becomes larger and harder, which in turn causes further discomfort. This reinforces the child's fear of defecation, leading to chronic functional constipation (3).

Functional constipation is a fairly common condition affecting up to 30% of children worldwide, with wide variation in reported data (4, 5). It has been estimated that up to 25% of the visits to paediatric gastroenterologists are due to chronic functional constipation. There is a wide variation in the reported prevalence of functional constipation across the globe.⁴ There are multiple reasons for the disparity in the reported frequency of children affected by CFC. Reasons include a lack of reported data in certain countries, such as Pakistan, and the use of different diagnostic criteria for the Diagnosis of chronic constipation. The global prevalence using ROME III criteria has been reported at 9.7% whereas it is 14% using ROME IV criteria (4). The prevalence of chronic functional constipation among children in Pakistan remains largely unknown.

As mentioned above, various diagnostic criteria are used for diagnosing chronic functional constipation, including the Rome criteria, which provide standardized diagnostic guidelines for functional gastrointestinal disorders (6). Rome III criteria require at least two symptoms (e.g., ≤ 2 defecations/week, painful stools, faecal

incontinence) for at least two months. Rome IV reduced the required symptom duration to one month in infants and two months in older children.⁶ Rome IV is a widely used criterion for clinical Diagnosis of chronic functional constipation among children (6). The current treatment strategy of chronic functional constipation in children involves a combination of medical, dietary, and behavioural techniques. Initial management focuses on the use of oral laxatives aimed at disimpaction (7). Maintenance therapy includes daily stool softeners, a high-fibre diet, adequate fluid intake, and regular toilet routines. Behavioural interventions and positive reinforcement reduce anxiety around defecation. Regular follow-up ensures treatment adherence and improves the quality of life (7).

CFC significantly impacts the physical health, psychological wellbeing, and school performance of children and can lead to social withdrawal (8). Persistent symptoms like painful defecation, faecal incontinence, and abdominal discomfort often lead to embarrassment and low self-esteem. Affected children can experience depression and behavioural issues, particularly when symptoms interfere with school life. The stress of managing chronic symptoms can strain family dynamics, affecting the emotional wellbeing of parents (8).

The impact of chronic functional constipation among children on the psychological health of parents, chiefly mothers, has been reported; however, it is not quantified in measurable terms. Yeliz Çağan Appak et al. compared the psychological health of children's parents with chronic constipation and normal controls quantitatively. The Strengths and Difficulties Questionnaire score for the study was found to be 4.4 ± 2.52 , compared to 1.74 ± 2.06 in the control group, indicating a significant difference between the two groups (9). This study suggests a possible deteriorating impact of chronic functional constipation among children on the psychological health of their parents. El-Sonbaty et al. conducted a study to compare the behavioural problems in children with chronic functional

constipation, emphasizing parental psychological health, but no quantification was done (10). Farrell et al. state that parents expressed frustration at the lack of progress and significant worries about the future wellbeing of the child. The enduring nature of the child's problems had a wider impact, affecting other family members and aspects of family life (11). Such studies are scarcely available.

In Pakistan, the near-accurate prevalence of chronic functional constipation remains unknown, and the psychological impact of this disease on affected children's parents has not been reported. Certain surveys conducted at the local level state that the frequency of children presenting with chronic functional constipation in outpatient clinics across Pakistan is almost similar to internationally reported data (12). This study was, therefore, done to determine the impact of chronic functional constipation among affected children on their mothers' psychological health.

METHODOLOGY

This was a prospective quasi-experimental study. This study was conducted after taking approval from the Ethical Review Board (ERB) of the Rawalpindi Medical University. The study was conducted at the Department of Paediatric Surgery, Rawalpindi Medical University, from September 2024 to March 2025. A total of 60 patients were included in this study through non-random convenience sampling. The study population included mothers of children aged between 5 and 18 years who were presenting in the outpatient department of the Holy Family Hospital. Patients with organic-induced constipation, neurological problems, and those not meeting the diagnostic criteria were excluded. Prior informed consent was taken from all the participants of the study. The study population was divided into two groups, i.e., Group A and Group B, with 30 participants in each group. Group A was the study group and included parents of children diagnosed with chronic functional constipation. Group B was the control group and included healthy controls. The Diagnosis of chronic functional constipation was made by using the ROME IV criteria for CFC in children. Presence of any two or more than two of the symptoms (including straining, lumpy hard stools, sensation of incomplete evacuation, sensation of anorectal obstruction, manual manoeuvres, and less than three spontaneous bowel movements per week) as per the ROME IV criteria for 1 month in infants and two or more than 2 months in older children was considered positive for functional constipation. The Urdu translated version of the WHO BREF Quality of Life questionnaire was utilized, and psychological parameters mentioned in the psychological domain of WHOQOL BREF were used to assess the psychological aspect of QOL of patients' parents. Six questions from the WHOQOL BREF in the psychological domain were used, and a Likert scale was employed for response. The psychological health in terms of psychological QOL was determined. The psychological QOL was determined using the provided syntax, where the mean score of 6 questions was multiplied by 4 to achieve a score comparable to the WHO QOL 100. Data collected included age, gender, educational status of mothers, family income, and psychological QOL score. Means with standard deviation were used to represent quantitative variables such as age, family income, and psychological QOL score. In contrast, frequencies with percentages were used to describe qualitative variables such as the gender and educational status of mothers. Both groups were compared for the mean psychological QOL score utilizing a t-test. Data was stratified for effective modifiers like gender and age using an independent sample t-test. P-value <0.05 was considered statistically significant.

RESULTS

Thirty-two patients were males, representing 53.3% of the study population, while 28 were females, making up 46.7%. The mean age of the study population was found to be 7.83+/-2.13 years. Considering the educational status of the mothers, 23.3% were educated up to primary level, 38% up to secondary level, 18% up to higher secondary level, and 20% of the study population, i.e., mothers, were educated up to higher education. Nearly half of the study population, i.e., 46.7%, had family income less than 50,000 PKR. Less than one quarter, i.e., 23% of the population, had a family income of more than 100,000 PKR. The demographic profile of the study population is shown in Table 1.

This study utilized the Urdu translated version of the WHO BREF questionnaire. The psychological domain was assessed using six questions already mentioned in the tool: questions 5, 6, 7, 11, 19, and 26. The mean score for each of these parameters was determined and compared between the study groups. There was a significantly greater score in each of the domains in the control group when compared with the study group. (Table no.2) Question 5 and 6 assessed the positive feelings; the score for positive feelings was significantly lower in the study group than the control group, with p-value =0.001. Thinking, memory, and concentration scores from question 7 were significantly lower in the study group compared to the control group, with a p-value of 0.03. Self-esteem and body appearance were assessed by questions 11 and 19 of the questionnaire. The study group showed significantly lower scores, i.e., 2.13±0.57 and 2±0.74, compared to 2.61±0.62 and 2.53±0.57 in the control group. The assessment of negative feelings conducted by question 26 showed a much higher score in the study group compared to the control group. (Table no.2)

The outcome variable, i.e., the transformed psychological QOL score, was found to be 8.04+/-2.40 for group A, whereas it was 10.44+/-2.50 for group B. There was a significant difference between the two groups when compared for psychological QOL score, with a p-value of <0.01. (Table no.3) The data were stratified for effect modifiers, including age and gender. (Table no. 4,5) There was no significant effect of age and gender on the outcome variable.

Table 1: Comparison of demographic variables between study groups

Study variable	Mean/ Frequency (n=60)		p-value
	Group A	Group B	
Age (years)	7.80+/-2.35	7.86+/-1.92	0.90
Gender			
Male	17 (56.6%)	15(50%)	0. .90
Female	13 (43.3%)	15(50%)	
Family income			
<50,000	14(46.7%)	14(46.7%)	0.75
50,000-100,000	10 (30%)	8(26.6%)	
>100,000	6 (20%)	8(26.6%)	
Educational status			
Primary	7 (23.3%)	7(23.3%)	0.077
Secondary	11 (36.6%)	12(40%)	
Higher secondary	7 (23.3%)	4(13.3%)	
Higher education	5(16.6%)	7(23.3%)	

Table 2: Comparison of individual psychological parameters as per WHO BREF between the study group and the control group

Psychological QOL parameter (WHO BREF)	Mean Score		P-value
	Group A	Group B	
Q5. How much do you enjoy life?	2+/-0.74	2.56+/-0.56	0.001

Q6. To what extent do you feel your life is meaningful?	1.93+/-0.69	2.83+/-0.59	<0.001
Q7. How well are you able to concentrate?	2+/-0.74	2.56+/-0.56	0.003
Q11. Are you able to accept your body? Appearance?	2.13+/-0.57	2.61+/-0.62	0.002
Q19. How satisfied are you with yourself?	2+/-0.74	2.53+/-0.57	0.001
Q26. How often do you have negative feelings such as a blue mood, despair, anxiety, or depression?	2.54+/-0.55	2.1+/-0.73	0.001

Table 3: Comparison of outcome variable among the study groups

Study Group	Psychological QOL score (Mean +/- SD)	P-value
Group A	8.04+/-2.40	<0.01
Group B	10.44+/-2.05	

Table 4: Stratification analysis of the outcome variable between the study groups when compared for age

Study Group	Age	Psychological QOL Score (Mean)	P-value
Group A (n=30)	<6 years (n=20)	7.70+/-2.22	0.27
	≥6 years (n=10)	8.73+/-2.72	
Group B (n=30)	<6 years (n=19)	10.56+/-2.21	0.68
	≥6 years (n=11)	10.24+/-1.82	

Table 5: Stratification analysis of the outcome variable between the study groups when compared for gender

Study Group	Gender	Psychological QOL Score (Mean)	P-value
Group A (n=30)	Male (n=17)	8.11+/-2.39	0.85
	Female (n=13)	7.94+/-2.51	
Group B (n=30)	Male (n=15)	10.66+/-1.69	0.56
	Female (n=15)	10.22+/-2.39	

DISCUSSION

The impact of chronic functional constipation on the psychological health of children is well documented. Ivana R dos Santos et al. state that Children and adolescents with FC had more emotional and behavioural problems compared to non-constipated children (13). The frequency of children with psychological impact of chronic functional constipation is considerably high. Classen et al. state that 30-50% of children diagnosed with chronic functional constipation have impaired psychological health with various manifestations (14). This study focused on the psychological aspect of the quality of life of mothers of children having chronic functional constipation, as it is an easily quantifiable method. Parameters assessed included positive feelings, self-esteem, bodily appearance, concentration, and negative

emotions. The mean score for negative feelings was higher among mothers of children having CFC. A study conducted in the Netherlands assessed the psychological health and personality changes in parents of children with CFC. According to this study, mothers of affected children experience depression and anxiety more frequently than normal controls. This difference was found to be statistically significant (15). A systematic review conducted by Yvonne McCague et al. demonstrates the negative impact of chronic functional constipation among children on their parents' psychological health (16). The studies included within the review used various tools to determine the psychological health of parents, including HRQOL, Beck Anxiety Inventory, Beck Depression Inventory, Strengths and Difficulties Questionnaire (SDQ), and a few other such tools. Negative feelings of depression and anxiety were found more frequently in parents of affected children (16). Similarly, Cagan Appak et al. used the Strengths and Difficulties Questionnaire (SDQ). They concluded that mothers of children with FC had significantly higher levels of anxiety and depression compared to healthy controls (9). When compared with internationally published data, the findings of this study are consistent regarding negative feelings in mothers of affected children.

Thinking and concentration scores were found to be lower in the study group. According to a recently conducted research, feelings of loneliness and inability to concentrate were found to be significantly more common in parents of affected children (17). This study also shows the frequency of parents of affected children experiencing negative feelings. This is consistent with the results of our research. According to a study conducted in Sweden by Flanckegard et al., the parents of affected children reported changes in their ability to concentrate and lead professional lives effectively (18). Considering self-esteem and bodily appearance, the scores were better for mothers of non-affected children in our study. This finding is also consistent with Flanckegard et al., where parents of affected children reported a decline in self-esteem while caring for affected children (18). The impact on bodily appearance and acceptance is not well reported in the literature, and data on this psychological aspect are scarce. Our study quantitatively analyzed this parameter, revealing that the mothers of affected children had lower scores in acceptance of bodily appearance compared to the mothers of non-affected children.

According to the results of this study, the score in the "positive feelings" aspect of psychological health was found to be lower in the study group. Many studies published nationally and internationally identify and quantify negative feelings and anxiety among parents. This study effectively shows that the positive feelings score is also significantly low in mothers of affected children. A similar study was conducted in Turkiye, which primarily focused on the comparison of anxiety scores between mothers of children affected by constipation with normal controls. It also discusses a reduced positive feelings score among the parents of affected children, primarily mothers (19). According to our study, the overall psychological quality of life score, based on the various psychological parameters discussed above, was significantly lower in mothers of affected children. This finding is consistent with reported data where Yeliz Çağan Appak et al. compared the psychological health of children's parents with chronic constipation and normal controls quantitatively. The overall score was found to be 4.4±2.52, compared to 1.74±2.06 in the control group, indicating a significant difference between the two groups (9). The results of this study show a significantly better psychological quality of life score in the control group compared to the study group.

According to the results of this study, there was no significant association between family income, maternal educational status, the gender of children, and the psychological health of mothers. The published data state a possible association between psychological health, family income, and maternal education. Though not determined specifically for parents with children having chronic functional

constipation, the financial status of parents has been documented to influence the psychological wellbeing of parents (20). Further studies directed at determining the role of maternal education and family income on the psychological health of mothers with children having chronic functional constipation are warranted.

CONCLUSION

There is a significant psychological impact on the health of mothers with children who have chronic functional constipation. This can affect the treatment of chronic functional constipation in their children.

DECLARATIONS

Data Availability Statement

All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department Concerned. (IRBEC-??)

Consent for publication

Approved

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Not applicable

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTION

ZUNAIRA AZAM (POSTGRADUATE TRAINEE)

Conceived the study, collected data, performed analysis, and prepared the first draft of the manuscript

NIDA ZARQOON (POSTGRADUATE TRAINEE)

Assisted in data collection, literature review, and manuscript editing

WAQAS Ahmad (POSTGRADUATE TRAINEE)

Contributed to methodology design, statistical analysis, and interpretation of results

CHAUDHARY MUHAMMAD AWAIS (POSTGRADUATE TRAINEE)

Helped in patient recruitment, data entry, and organization of findings

LARAIB Rasool (POSTGRADUATE TRAINEE)

Contributed to literature search, referencing, and manuscript formatting

BASHARAT Hussain (POSTGRADUATE TRAINEE)

Assisted in proofreading, revisions, and final approval of the manuscript

MUDASSAR FIAZ GONDAL (ASSOCIATE PROFESSOR)

Supervised the study, provided expert guidance, critically reviewed the manuscript, and approved the final version

All authors read and approved the final version of the manuscript.

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