ORIGINAL ARTICLE ÖZGÜN ARAŞTIRMA

The Influence of Family Attitudes on the Development of Functional Constipation in Children

Aile Tutumlarının Çocuklarda Fonksiyonel Kabızlığın Gelişimi Üzerindeki Etkisi

*Nilüfer Ülkü Şahin (0000-0002-7600-6770), **Merve Çolpan (0000-0002-9281-5201)

*Bursa Şehir Hastanesi, Çocuk Gastroenteroloji Kliniği, Bursa, Türkiye
**Bursa Şehir Hastanesi, Çocuk Psikiyatri Kliniği, Bursa, Türkiye

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Abstract

Introduction: Functional constipation (FC) is a significant health issue among children and majority of treatment strategies are not evidence-based. In addition to medical treatments for FC, the psychological dimension that is believed to play a significant role.

Materials and Methods: This cross-sectional study was conducted on patients under 18 years of age who were diagnosed with chronic FC. The Parental Attitude Research Instrument (PARI) developed by Schaefer and Bell was applied to the parents of the patients.

Results: A total of 142 patients, 82 with FC and 60 control patients, were included. All three PARI sub-dimensions were significantly higher in the constipation group ($p<0.0001$). While overcontrol and strict discipline scores were also higher in the constipation group (<0.0001), they were not shown to be predictive factors. There was no correlation between the duration of constipation and PARI sub-dimension scores in the constipation group ($p>0.05$). When comparing PARI sub-dimensions according to fecal retention habit, encopresis, and eating disorder in patients with constipation, overcontrol sub-dimension score was found to be low in those with a fecal retention habit ($p=0.002$). In the multivariate regression analysis, only the democratic attitude and equality providing sub-dimension were found to be an independent risk factor.

Conclusion: This study suggests that improving parental attitudes may help prevent the development of FC habit in children. It is essential to address family attitudes in detail, particularly for children who do not respond well to medical treatment, and to conduct comprehensive studies on behavioral treatment and family therapy.

Keywords
Children, family attitudes, functional constipation, parental attitude research instrument

Anahtar kelimeler
Çocuklar, aile tutumları, fonksiyonel kabızlık, ebeveyn tutum araştırma aracı.

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Address for Correspondence/Yazışma Adresi: Nilüfer Ülkü Şahin, Bursa Şehir Hastanesi, Çocuk Gastroenteroloji Kliniği, Bursa, Türkiye Bursa, Türkiye
E-mail: drulkuulker@gmail.com

Öz

Giriş: Fonksiyonel kabızlık (FK), çocuklarda önemli bir sağlık sorunudur ve tedavi stratejilerinin çoğu kanıta dayalı değildir. Tıbbi tedavilere ek olarak, FK'da psikolojik boyutun önemli rol oynadığına inanılır.

Gereç ve Yöntem: Bu kesitsel çalışma, kronik FK tanısı almış 18 yaş altı hastalar üzerinde yürütülmüştür. Schaefer ve Bell tarafından geliştirilen Ebeveyn Tutum Araştırma Aracı (PARI) hastaların ebeveynlerine uygulanmıştır.

Bulgular: 82'si FK'li ve 60'ı kontrol hastası olmak üzere toplam 142 hasta çalışmaya dahil edilmiştir. Üç PARI alt boyutu da kabızlık grubunda önemli ölçüde daha yüksekti ($p<0,0001$). Aşırı kontrol ve katı disiplin puanları da kabızlık grubunda daha yüksek olsa da (<0,0001), bunların prediktif faktörler olduğu gösterilememiştir. Kabızlık grubunda kabızlık süresi ile PARI alt boyut puanları arasında korelasyon

yoktur (p>0,05). Kabızlık olan hastalarda dışkı tutma alışkanlığı, dışkı kaçırma ve yeme bozukluğuna göre PARI alt boyutları karşılaştırıldığında dışkı tutma alışkanlığı olanlarda aşırı kontrol alt boyut puanı düşük bulundu (p=0,002). Çok değişkenli regresyon analizinde yalnızca demokratik tutum ve eşitlik sağlama alt boyutunun bağımsız risk faktörü olduğu bulundu.
Sonuç: Bu çalışma, ebeveyn tutumlarının iyileştirilmesinin çocuklarda FK alışkanlığının gelişmesini önlemeye yardımcı olabileceğini düşündürmektedir. Özellikle tıbbi tedaviye iyi yanıt vermeyen çocuklar için aile tutumlarının ayrıntılı olarak ele alınması ve davranışsal tedavi ve aile terapisi konusunda kapsamlı çalışmalar yapılması önemlidir.

Introduction

Functional constipation (FC) is a significant health issue among children that is widespread and has severe impacts on their lives and families. The prevalence rates of constipation in children vary based on geographical location, ranging from 1% to 30%, while fecal incontinence rates range from 1.6% to 4.4% (1). Bio-psychosocial risk factors such as psychological stress, poor dietary habits, obesity, and early caregiver changes are the most crucial predisposing factors for FC. While medications have proven useful in adults, the same cannot be said for children, and there is no consensus regarding their dosages and duration of use to relieve symptoms. Insufficient treatment can lead to FC persisting into adulthood (2,3).

Incontinence has a significant impact on quality of life and daily functionality, and it can be linked to behavioral issues in children. Treating underlying constipation and using a cognitive approach typically results in an improvement in incontinence (4). Majority of treatment strategies for childhood constipation are not evidence-based. Strategies such as eliminating stressor factors, toilet training, rational use of laxatives for defecation and maintenance, and regular follow-up are recommended (5). In addition to medical treatments for FC, the psychological dimension that is believed to play a significant role in constipation is often overlooked. Considering the possibility of constipation arising as a result of psychological anxiety, examining the temperament, attitudes, and psychological characteristics of the parents with whom the baby first establishes a relationship in the early stages can be guiding for treatment.

The aim of this study was to evaluate the effect of parental attitude and family structure on FC using the PARI scale in children who are resistant to medical treatment.

Materials and Methods

This cross-sectional study was conducted on patients under 18 years of age who were diagnosed with chronic functional constipation according to ROMA IV criteria and applied to the Pediatric Gastroenterology and Hepatology Clinic of Bursa City Hospital between February and August 2021. The presence of symptoms for at least one month and occurring at least once a week were accepted as criteria for chronic FC. The Parental Attitude Research Instrument (PARI) developed by Schaefer and Bell was applied to the parents of the patients (6). The PARI questionnaire was also administered to the parents of healthy children under 18 years old as a control group. Informed consent was obtained from the parents of all participants.

The Rome IV criteria were used to characterize constipation (7,8).

These are the criteria:

< 4 years old, with at least two of the following conditions met for at least one month:

- Less than two or two defecations per week
- History of excessive stool buildup
- Painful and hard defecations
- Large-diameter stools
- The presence of a large fecal mass in the rectum

>4 years old and after acquiring toilet skills, the following criteria can be used:

- History of fecal leakage at least once a week
- A history of large-scale defecation that may even block the toilet

Fecal incontinence, on the other hand, was defined as recurrent uncontrolled discharge of fecal material from the anus at least a few times a month for the last 3 months according to the ROMA IV criteria. We also asked patients about the presence of eating disorders and food intolerance to reflect secondary reflux caused by constipation and to determine other effects of parental attitude.

Assessment of Parental Attitude

The PARI scale is based on the principle that the child's personality development is directly influenced by the parents' child-rearing attitudes and family life. In this study, the shortened 60-clause form and three sub-dimensions (overcontrol, democratic attitude, recognition of equality, strict discipline) were used. The scale was applied to fathers as well, and only the factors of excessive protectiveness, democratic/equality, and strict discipline were used to identify attitudes. The dimensions of rejecting housekeeping

and marital conflict discrepancies were not included. The clauses in the scale dimensions are given mixed. The items do not have a question format and contain both positive and negative statements. It is a four-point Likert-type scale. One of the options "I find it very appropriate" 4 point, "I find it quite appropriate" 3 point, "I find it somewhat appropriate" 2 point, and "I do not find it appropriate at all" 1 point is marked for each expression. However, the answers given to clauses 29 and 44 are scored in reverse. "4" points are given for the "1" point answer, "3" points for the "2" point answer, "2" points for the "3" point answer, and "1" point for the "4" point answer. A separate score is obtained for each sub-test representing each dimension. The high total score for each sub-test indicates that the attitude reflected in that dimension is approved.

Overcontrol: Overcontrol, intrusiveness, asks the child to be dependent, active, and hardworking. It believes that the mother should be extremely self-sacrificing, and that the child should understand this. It measures the extent of the mother's forceful intervention in the child's life and the degree of the child's dependence on the parents. It explains 37% of the total variance. It contains 16 clauses. The lowest score is 16, the highest score is 64. High scores on this scale are considered negative.

Democratic Attitude and Providing Equality: It covers the extent to which parents provide equal rights to their children, encourage them to express their ideas openly, and establish a friendly and sharing relationship with them. The scale measures the degree of parental encouragement and sharing and accounts for 10% of the total variance. It consists of 9 items, with the lowest score of 9 and the highest score of 36. High scores are considered positive.

Strict Discipline: This sub-dimension mostly reflects a negative child-rearing attitude and encompasses issues such as suppressing sexual behavior and aggression, believing in strict discipline and punishment, and expecting absolute dominance and obedience from the child. The strict discipline dimension was formed by combining subscales that showed significant correlations with the other four factors, creating a distinct pattern. It includes 16 items, with the lowest possible score of 16 and the highest possible score of 64. High scores on this dimension are considered to be indicative of negative parenting attitudes.

Statistical Analysis

Categorical variables were expressed as percentages and compared between the two groups using the Chi-square test. The Shapiro-Wilk test was used to evaluate normal distribution conformity for continuous variables. As age and PARI sub-dimension scores did not follow a normal distribution, they were reported as median (min-max) and compared using the Mann Whitney U test. Univariate and multivariate logistic regression analyses were performed to identify risk factors for constipation. Variables with a p-value <0.05 in the univariate analysis were included in the multivariate analysis. Odds ratios were calculated with 95% confidence intervals. The constipation group was coded as 1 and the control group was coded as 0.

Results

A total of 142 patients, 82 with FC and 60 control patients, were included in the study. The constipation group had a median age of 4.8 (min 1.6- max 17.6) years, while the control group had a median age of 5 (min 4- max 17.2) years. There was no significant difference in the mean age between the two groups. Both groups had a higher proportion of females, but there was no significant difference in gender distribution between the two groups (p>0.05). In the constipation group, 46 (56%) patients were female, 36 (43.9%) patients were male and in the control group: therewere 36 (60%) healthy females, 24 (40%) healthy males (p=0.97). The median duration of constipation in the patients was 3 (min:1 - max: 7) months. Among the constipation group, 28 patients (36.4%) had a defecation frequency of once a week, 47 patients (61%) had a frequency of twice a week, and 2 patients (2.6%) had a frequency of less than once a week. Detailed defecation and nutritional characteristics of the patients are presented in Table 1. When comparing the PARI sub-dimension scores between the constipation and control groups, all three sub-dimensions were significantly higher in the constipation group (p<0.0001). Only the high score in democratic attitude and providing equality sub-dimension was identified as a positive predictor factor for constipation. While overcontrol and strict discipline scores were also higher in the constipation group compared to the control group (p<0.0001), they were not shown to be predictive factors for constipation (Table 2). There was no correlation between the duration of constipation and PARI sub-dimension scores in the constipation group (p>0.05). When comparing PARI sub-dimensions according to fecal retention habit, encopresis, and eating disorder in patients with constipation, overcontrol sub-dimension score was found to be low in those with a fecal retention habit (p=0.002). Logistic regression analysis was used to identify risk factors for constipation. In the univariate regression analysis, overcontrol and strict discipline sub-

dimension scores were identified as risk factors. However, in the multivariate regression analysis, only the democratic attitude and equality providing sub-dimension was found to be an independent risk factor (Table 3 and Table 4).

Table 1. Defecation and nutritional characteristics of patients with constipation

Characteristics	n (%)
Defecation quality Thick caliber Goat dung Fine caliber	 51 (66.2) 23 (29.9) 3 (3.9)
Presence of fecal retention habit	63 (81.8)
Presence of food allergy Egg Milk Other	11 (14.3) 7 (9.1) 2 (2.6) 2 (2.6)
Presence of encopresis	17 (22.1)
Eating disorder None Selective. Few Nausea. Dyspepsia	 40 (51.9) 29 (37.7) 8 (10.4)

Discussion

Chronic functional constipation is a significant health issue that results in abdominal pain, reflux, eating disorders, and encopresis. It leads to social isolation and anxiety disorder in children, thereby reducing their quality of life. Psychosocial effects also result in decreased school performance. Studies have reported that the quality of life of children with functional constipation and encopresis is worse than those with only functional constipation. Furthermore, older children with functional constipation have worse quality of life than younger age groups. Predisposing factors for childhood constipation include psychological stress related to home and school, siblings with health problems, parental separation, low sociocultural environment, poor childrearing style, low fiber diet, excessive consumption of junk food, food allergy, irregular eating habits with parents, obesity, physical or sexual-emotional abuse, and exposure to war (9,10). Stressors, including separation from a best friend, exam failure, severe illness of a family member, loss of parent's job, frequent punishment by parents, and living in a war-affected region, were identified in studies (11). Our

Table 2. Comparison of PARI sub-dimension scores according to the presence of constipation

PARI sub-dimensions	Those with constipation median (min, max)	Those with non-constipation median (min, max)	p
Overcontrol	45 (22-64)	36.5 (23-60)	<0.0001
Democratic Attitude and Providing Equality	30 (21-36)	27 (17-36)	<0.0001
Strict Discipline	37 (22-60)	32 (20-60)	0.002

Table 3. Comparison of PARI sub-dimensions according to fecal retention. encopresis and eating disorder

PARI sub-dimensions	Variables		p
	With fecal retention n:63 (%)	Without fecal retention n:14 (%)	
Overcontrol	41 (22-64)	53.5 (28-62)	0.03
Democratic attitude and Providing equality	30 (21-36)	30 (25-34)	0.87
Strict discipline	36 (22-60)	41.5 (29-57)	0.10
	With encopresis n=17 (%)	Those without encopresis n=60 (%)	
Overcontrol	43 (25-57)	46 (22-64)	0.26
Democratic attitude and Providing equality	30 (25-34)	30 (21-36)	0.70
Strict discipline	35 (28-49)	38 (22-60)	0.42
	Those with eating disorder n=37 (%)	Those without eating disorder n=40 (%)	
Overcontrol	46 (22-64)	44.5 (25-64)	0.86
Democratic attitude and Providing equality	30 (21-34)	30 (21-36)	0.34
Strict discipline	38 (22-60)	36.5 (22-58)	0.91

Table 4. Evaluation of risk factors for constipation with logistic regression analysis				
PARI sub-dimensions	Univariate logistic analysis		Multivariate logistic analysis	
	OR (%95 CI)	p	OR (%95 CI)	p
Age	0.942 (0.851-1.044)	0.25		
Female gender	0.989 (0.497-1.970)	0.97		
Overcontrol	1.063 (1.027-1.100)	<0.0001	1.024 (0.953-1.100)	0.51
Democratic attitude and providing equality	1.267 (1.136-1.413)	<0.0001	1.239 (1.104-1.390)	<0.0001
Strict discipline	1.070 (1.023-1.119)	0.003	1.032 (0.942-1.131)	0.49

study focused on investigating the effect of parents' attitudes towards events on their children's functional constipation, rather than the impact of individual stressor factors.

Every parent may display different attitudes towards their children, either knowingly or unknowingly. According to the literature, the mother's behavior and attitude directly influence the emotional state, temperament, and behavioral disorders of the child. Studies have shown that children whose parents are overprotective and preventive in the early years display negative emotions (12,13). In another study conducted with 101 children aged 2-6 years, it was seen that the rate of constipation was more common in children whose parent's attitude was more disciplined and stricter. In addition, FC is more common in children who are given toilet training rigidly or at an early age (14). In the study conducted by Akyıldız et al. with 47 children aged 2-13, it was found that 33% of the children were affected by maternal attitude (repressive toilet training, desire to give toilet training at an early age, broken family relationships) in constipation (15). Therefore, it is believed that the mother's attitude during the early period, when the body is used as a means of expression, may be related to the child's psychosomatic symptoms. In our study, we found that fecal retention behavior increased in children of over-controlled parents.

From a psychoanalytic perspective, fecal retention and encopresis in children are based on the inadequacy of the mother's inclusive functions in the early period and the child's intense fear of object loss. By controlling the muscles in the anus, the child creates a second skin for himself and holds the stool in. This is a defense mechanism against separation and loss fears, known as "holding the object in". Clinical studies emphasize the importance of archaic fears and early experiences in the development of intestinal distress. It is suggested that this situation is caused by the child's separation anxiety and the fear of not being able to exist in the early period. Each time the child has a bowel movement, it triggers these fears, and the fear of loss makes it difficult to separate from internal objects (such as feces) and to let go of the object. Therefore, it is stated that the child retains his stool when he thinks of the absence of his parents, and constipation appears as a symptom in order to avoid the anxiety of abandonment and loss (16). In our study, when we questioned the parents, we observed that constipation was triggered when the child started school and the mother started to work and changed caregivers.

In our study, we aimed to investigate the impact of parental attitudes on children with functional constipation who have been suffering for at least a month, encopresis and with or without fecal retention behavior. Our findings revealed that some children with constipation had over-controlled parents while others had parents who provided unlimited equal rights and allowed them to expand their boundaries. Although the tightly controlled and extreme discipline score was higher in those with constipation, no independent risk factors were found for constipation. Only democratic attitude and equal rights score were found to be high as independent risk factors for constipation. It was interpreted that children with strict control attitudes of parents in the constipation group tended to be more introverted and passive, while children with parents who had democratic attitudes and equal rights tended to direct their parents according to their wishes, had intense tantrums, difficulty complying with instructions, and were anxious. Similar to our study, Nishadi Ranasinghe et al found in the literature that these children exhibited some abnormal personality features and were more prone to anxiety problems (17). Therefore, we interpreted the behavior patterns of constipated children in this way, but we acknowledge that our study had limitations. Firstly, this is a single-center study, and there is a need for a multicenter study to validate similar findings across all constipated children. In that we did not evaluate these children with any specific scale in this respect. We believed that it is possible that these children developed voluntary sphincter control in order to manage their parents, react against strict discipline, or seek attention from their parents,

which may be a contributing factor in the development of chronic constipation.

It has been shown that older children with constipation exhibit more intense mood disorders such as hostility, aggression, negative self-efficacy, emotional unresponsiveness, and emotional instability (18,19). Our study emphasizes that mood disorders resulting from parental attitudes, rather than dietary factors, contribute to the persistence of functional constipation by facilitating reactive sphincter control and fecal retention behavior, leading to pelvic floor dyssynergia. Additionally, it has been found that health-related quality of life (HRQoL) is lower in children with mood disorders compared to controls (70.6 vs. 79.0, $p<0.05$).

Studies have shown that the competitive lifestyle of today's society leads parents to leave their children for long hours with grandparents, domestic servants, or in day care centers. The uncontrolled application of a democratic and equalitarian attitude results from a decreasing amount of time parents spend with children, the parents' sense of inadequacy and guilt, and the expansion of the children's restrictions (20). In our study, it was shown that the parents of children with fecal retention habits had a high excessive control attitude score ($p=0.03$). Although the strict discipline score was found to be significantly higher in patients without fecal retention habits, it may not be correct to interpret it in this direction due to the low number of patients in this group. In contrast to our study, in the study by Marieke et al., children of parents with high overprotection and self-pity attitudes were associated with increased fecal incontinence (20). We believe that this difference originates from social differences in child raising and individualization. In more patriarchal societies like ours, we attribute it to the delay in the child's identity development and individuation.

Study Limitations

One limitation of our study is that we did not apply a behavioral scale to the children and did not include all sub-dimensions of the PARI scale. However, studies that included certain sub-dimensions of the scale have been conducted (21). This is a single-center study, and we emphasize the need for a multicenter study to validate similar findings across all constipated children.

Functional constipation is a significant health concern in childhood, and the psychosocial influence of children is affected by the parents' approach, particularly the family's attitudes towards nutrition disorders. This study suggests that improving parental attitudes may help prevent the development of fecal retention habit in children. We found that an excess of democratic attitude increases the risk of chronic constipation in children. Furthermore, we observed that medical treatment alone is inadequate for children who continue their fecal retention habit and may lead to conflicts with the family. Therefore, it is essential to address family attitudes in detail, particularly for children who do not respond well to medical treatment, and to conduct comprehensive studies on behavioral treatment and family therapy.

Conclusion

Chronical functional constipation is an important problem that shopes and individual's family relation shapes and social life. The main components of treatment, cognitive therapy and family counseling. Family Dynamics and parent attitudes is raising children must be observed, examined and menaged. İn difficult and chronic cases, child psychiatry help should be sought.

Ethics

Ethical Approval: This study was performed in line with the principles of the Declaration of Helsinki. This study protocol was approved by the Bursa Institutional Ethics Committee with the decision number of 2021-3/9, date: 17.02.2021. An informed consent form was obtained from the participants before initiating the study.

Footnotes

Conflict of Interest: No conflict of interest was declared by the authors.

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