

Evaluation Of Recurrent Abdominal Pain In Children Attending Outpatient Clinics In Erbil

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Abstract

Background: Recurrent abdominal pain (RAP) is a common yet frustrating issue for children, often resulting in numerous doctor visits. The key to successful treatment lies in accurately distinguishing between physical (organic) and non-physical (functional) triggers. This study was designed to explore the various causes of RAP, evaluate its clinical symptoms, and understand how it affects the mental and social well-being of both the children and their families. **Patients and methods:** We conducted a case series study involving 100 children (ages 3-15) who sought help for RAP at outpatient clinics in Erbil between August 2024 and August 2025. To better understand the nature of their pain, we analyzed their clinical symptoms, psychological stressors, and diagnostic test results. **Results:** The majority of the participants were boys (62%) and fell within the 6-11 age range (64%). Pain was typically felt around the belly button (40%) or spread throughout the abdomen (39%), with 68% of children experiencing these episodes daily or several times a week. Stress and anxiety were major triggers. While organic causes-such as H. pylori, urinary tract infections, and giardiasis-were found in 32% of cases, functional issues were much more prevalent. Interestingly, frequent pain was strongly linked to lower weight, shorter stature, and lower socioeconomic status. While medication was the most frequent treatment, it was usually part of a broader management plan. Ultimately, the study confirmed that RAP significantly disrupts family life and that functional causes are the leading driver of child abdominal pain in Erbil. **Conclusion:** Managing RAP requires a "big picture" approach that looks beyond just physical symptoms to include diet, lifestyle, and mental health. By identifying these issues early and using a team-based medical approach, we can better protect a child's long-term health and development.

Keywords: Recurrent abdominal pain, children, Erbil, functional pain, organic causes.

1. Introduction

Recurrent abdominal pain (RAP) is a widespread issue for children, often causing significant stress for both the kids and their families. It is generally defined as repeated stomach pain severe enough to interfere with a child's daily routine. Globally, about 10-20% of school-aged children deal with RAP making it one of the top reasons parents seek help from pediatricians. [1, 2]

This pain can come from physical health issues (organic causes) or functional issues, like digestive or psychological factors. It is vital to find the root cause early, as ignoring RAP can lead to long-term struggles with chronic pain, mental health challenges, or trouble keeping up at school. [3, 4] While many cases are not dangerous, they can still lead to lasting pain syndromes if not handled correctly.

This impacts more than just a child's physical health; it affects their mood and family life too. [5, 6] While Organic factors represent the underlying cause in approximately 5-10% of pediatric cases involving recurrent abdominal pain (RAP).[7] These instances are typically linked to gastrointestinal conditions, specifically inflammatory bowel disease, lactose intolerance, and various infections. [8] Recent diagnostic approaches for RAP emphasize a holistic evaluation, combining clinical assessments with psychosocial, dietary, and lifestyle analysis. Standardized questionnaires help identify pain characteristics and contributing psychosocial factors, while tests like bloodwork urine and stool analysis reserved for cases suggesting organic causes, as extensive testing can raise patient anxiety and costs without enhancing outcomes.[9]

The aim of the study is to identify the causes of recurrent abdominal pain (RAP) in children, evaluate its clinical characteristics, analyse diagnostic markers, and assess its impact on the psychosocial aspects of the affected

children and their families.

2. Patients and Methods

2.1 Study design and setting

Recurrent abdominal pain (RAP) is a common complaint among children and a frequent reason for outpatient visits. Understanding its epidemiology, clinical features, associated factors, and outcomes is essential for improving management. The study conducted at outpatient clinics of Kurdistan and Shady Family Health Centre and Rapareen teaching hospital in Erbil-Kurdistan region of Iraq and carried out from the beginning of August 2024 till the end of August 2025, The researchers identified the aetiologies and investigated the possible organic and functional causes of Recurrent Abdominal Pain and analyzed the impact of RAP on the psychosocial aspect of the children and their families.

2.2 Method and data collection

The study conducted with enrolling a convenience sample size of 100 children aged between (3-15) years who diagnosed with RAP. The process of data collection was done via using structured questionnaire (which is designed by the researcher and the supervisor) the explicit English questionnaire comprised sections on demographic data and pain characteristics including frequency, location and intensity also dietary habits, family history and associated symptoms such as vomiting and diarrhea in addition to psychosocial factors comprising stress and anxiety following by the impact on school attendance and quality of life among children. Data were collected using a convenience sampling technique to collect information on target population in an approachable manner.

2.3 Data management and statistical analysis

The data recorded on a specially designed questionnaire, collected and entered in the computer via Microsoft Excel worksheet (Excel 2016) and then analyzed using appropriate data system which is called Statistical Package for Social Sciences (SPSS) version 28 and the results were compared between patients with different variables, with a statistical significance level of ≤ 0.05 . The results presented as rates, ratio, frequencies, percentages in tables and figures and analyzed using t-test, and Chi square tests.

Inclusion criteria: Children aged more than 3 years and less or equal to 15 years presented with RAP in the last 3 months regardless of their gender were enrolled. Cases with severe pain episode that interfered with daily activities for instance, school attendance and participating in playing or any disturbance in the family activity were included in the study.

Exclusion criteria: children below 3 years, cases with acute abdomen that required immediate medical or surgical intervention were excluded. Patients with chronic systemic disease like Diabetes Mellitus, Sickle cell disease, severe psychological or developmental disorder that was possible to impact the ability of the child to participate like attention deficit hyperactivity disorder, mental retardation furthermore, children who were on current use of certain medications that may change the course of any disease like steroid, opioid or anti-cholinergic were excluded in the study.

2.4 Ethical considerations

This study was submitted to the Ethics and Scientific committees of Family Medicine at College of Medicine in Hawler Medical University for scientific and ethical approval. This study was explained and a verbal consent was obtained from each child and their parents. Confidentiality and anonymity of data were ensured.

3. Results

We enrolled 100 participants in our study, Table 1 presents the demographic characteristics of a study population, the majority of the population (64%) fell within 6-11 year age range, followed by 3-5 years (25%), and 12-15 years (11%). The sample size consisted of more males (62%) than females (38%), the majority of the population belonged to the intermediate socio-economic class (66%), followed by low (26%), and high (8%).

Table 1: Background information on participants.

Variables	Categories	Frequency	Percent
Age	3-5 years	25	25
	6-11 years	64	64
	12-15 years	11	11
Gender	Female	38	38
	Male	62	62
Socio-economic class	Low	26	26
	Intermediate	66	66
	High	8	8
Total		100	100%

Table 2 show that 35% of respondents experienced pain several times a week or daily (33%), pain was most commonly reported around the navel (40%) or generalized (39%), many respondents experienced multiple symptoms (71%), with nausea (10%) and loss of appetite (10%) being common, aggravating factors affected participants as following stress/anxiety (24%), eating (22%), and physical activity (12%) were common triggers, medications were most common among relieving factors (42%) and having rest (7%) was reported.

Table 2: Pain associated symptoms, aggravating and relieving factor among patients.

Variables	Categories	Frequency	Percent
Frequency of pain episodes	Daily	33	33
	Several times a week	35	35
	Weekly	20	20
	Monthly	12	12
Location of pain	Upper Abdomen	8	8
	Lower Abdomen	13	13
	Around The Navel	40	40
	Generalized (All Over)	39	39
Associated symptoms	Nausea	10	10
	Vomiting	5	5
	Diarrhea	2	2
	Constipation	1	1
	Bloating	1	1
	Loss Of Appetite	10	10
	More Than One Symptom	71	71
Aggravating factors	Eating	22	22
	Physical Activity	12	12
	Stress/ Anxiety	24	24
	Certain Foods	2	2
	Other	16	16

	More Than One Option	24	24
Relieving factors	Rest	7	7
	Eating	1	1
	Defecation	4	4
	Medications	42	42
	More Than One Option	46	46
Total		100	100%

A small percentage of children had a family history of recurrent abdominal pain (10%), known gastrointestinal disorders 24% ran in their family, according to impact on daily activities: abdominal pain affected various aspects of daily life, including school attendance (15%), participation in sports (9%), and appetite (12%). More than half of the children (55%) experienced an impact on multiple aspects of daily life, most of children had normal weight (72%) and height (71%) z-scores however, some children faced growth abnormalities, with 23% were having a weight below -2 z-score and 24% of them were having a height below -2 z-score. (Table 3)

Table 3: Family history disorders and growth parameters in children.

Variables	Categories	Frequency	Percent
Family history for recurrent abdominal pain	yes	10	10
	no	90	90
Family history of known gastro- intestinal disorders	yes	24	24
	no	76	76
Impact on child in daily activities	school attendance	15	15
	participation in sports	9	9
	social interactions	3	3
	sleep	6	6
	appetite	12	12
	more than one option	55	55
Weight	normal (-2--- 2 z score)	72	72
	below -2 z score	23	23
	above 2 z score	5	5
Height	normal (-2--- 2 z score)	71	71
	below -2 z score	24	24
	above 2 z score	5	5
Total		100	100%

The majority of children (82%) had a normal general examination, some presented with pallor (14%), tenderness (23%), or other signs, abdominal tenderness was the most common finding (23%), while 75% of children had a normal abdominal examination, some children had abnormal test results, including positive H. pylori stool tests (6%), urinary tract infections (5%), and giardiasis (1%), medication (53%) was the most common treatment approach, followed by dietary changes (3%), and complementary therapies (2%). Many children received multiple treatments (41%), parents were primarily concerned about their child's pain and discomfort (14%), psychological impact (10%), and management/follow-up (4%). Most parents (69%) had multiple concerns, most (68%) of them were normal and finally 32% of test result turned to be abnormal. (Table 4)

Table 4: Clinical examination and diagnostic findings in children.

Variables	Categories	Frequency	Percent
General examination	Normal	82	82
	Pallor	14	14
	Edema	1	1
	Lap	2	2
	Others	1	1
Abdominal examination	Normal	75	75
	Distention	2	2
	Tenderness	23	23
previous test of child	No Previous Test	28	28
	Normal	58	58
	Stool: Weak And Positive H. Pylori	6	6
	GUE: UTI	5	5
	G.S.E: G. lamblia	1	1
	CBC: Hb 11.5 g/dl + stool: positive H.pylori	1	1
	CBC: 11.5gdl	1	1
tried treatment	Dietary Change (E.G, Gluten-Free, Lactose- Free)	3	3
	Medication (E.G, Antacids, Pain Relievers)	53	53
	Psychological Interventions	1	1
	Complementary therapies (e.g, probiotics, herbal remedies)	2	2
	More than one option	41	41
	Child's pain and discomfort	14	14
parental concern	Long TERM OUTCOMES	1	1
	Investigation Costs	2	2
	Management and follow up	4	4
	Psychological impact on child and family	10	10
	More than one option	69	69
	Normal	68	68
results of diagnostic test	Abnormal	32	32
Total		100	100%

Table 5 reveals that there was no statistically significance association between frequency of pain episodes and age and gender in addition p-value was > 0.05. There was statistically significance association between frequency of pain episodes and socio-economic class, most (62.5%) of children from high socio-economic class tend to experience more frequent pain episodes while only 38.5% of low economic class had pain episodes daily. Chi square test was done and p-value was 0.049.

Table 5: Association between frequency of pain episodes in children, categorized by age, gender, and socio-economic class.

Variable	Categories	Frequency of pain episodes				p-value
		Daily	Several times a week	Weekly	Monthly	
Age	3-5 years	9 (36%)	13 (52%)	2 (8%)	1 (4%)	0.114
	6-11 years	20 (31.3%)	19 (29.7%)	17 (26.6%)	8 (12.5%)	
	12-15 years	4 (36.4%)	3 (27.3%)	1 (9.1%)	3 (27.3%)	
Gender	Female	13 (34.2%)	13 (34.2%)	6 (15.8%)	6 (15.8%)	0.726
	Male	20 (32.3%)	22 (35.5%)	14 (22.6%)	6 (9.7%)	
Socio-economic class	Low	10 (38.5%)	13 (50%)	2 (7.7%)	1 (3.8%)	0.049
	Intermediate	18 (27.3%)	20 (30.3%)	18 (27.3%)	10 (15.2%)	
	High	5 (62.5%)	2 (25%)	0 (0%)	1 (12.5%)	
Total		33 (33%)	35 (35%)	20 (20%)	12 (12%)	

Table 5 determines that there was no significant statistical association between frequency of pain episodes and nature of pain and family history for recurrent abdominal pain and p-value was > 0.05 . There was a statistically significant association between frequency of pain episodes and location of pain, weight, height, abdominal examination and results of diagnostic test. Chi square test was done and p-value was < 0.05 . Children with abnormal tests had more frequent abdominal pain than those children who had normal diagnostic test results.

Table 5: Association between frequency of pain episodes and location with nature of pain and growth parameters.

Variable	Categories	Frequency of pain episodes				p-value
		Daily	Several times a week	Weekly	Monthly	
Location of pain	Upper abdomen	7 (87.5%)	1 (12.5%)	0 (0%)	0 (0%)	0.007
	Lower abdomen	3 (23.1%)	4 (30.8%)	1 (7.7%)	5 (38.5%)	
	Around the navel	10 (25%)	15 (37.5%)	11 (27.5%)	4 (10%)	
	Generalized (all over)	13 (33.3%)	15 (38.5%)	8 (20.5%)	3 (7.7%)	
Nature of pain	Sharp/stabbing	9 (64.3%)	3 (21.4%)	1 (7.1%)	1 (7.1%)	0.175
	Dull / achy	16 (25.8%)	25 (40.3%)	15 (24.2%)	6 (9.7%)	
	Cramping	6 (33.3%)	5 (27.8%)	4 (22.2%)	3 (16.7%)	
	Burning	2 (33.3%)	2 (33.3%)	0 (0%)	2 (33.3%)	

family history for recurrent abdominal pain	Yes	2 (20%)	5 (50%)	2 (20%)	1 (10%)	0.724
	No	31 (34.4%)	30 (33.3%)	18 (20%)	11 (12.2%)	
		34.4%	33.3%	20.0%	12.2%	
Weight	Normal (-2- 2 z score)	21 (29.2%)	25 (34.7%)	15 (20.8%)	11 (15.3%)	0.005
	Below -2 z score	11 (47.8%)	10 (43.5%)	1 (4.3%)	1 (4.3%)	
	Above 2 z score	1 (20%)	0 (0%)	4 (80%)	0 (0%)	
Height	Normal (-2--- 2 z score)	21 (29.6%)	24 (33.8%)	15 (21.1%)	11 (15.5%)	0.040
	Below -2 z score	11 (45.8%)	11 (45.8%)	1 (4.2%)	1 (4.2%)	
	Above 2 z score	1 (20%)	0 (0%)	4 (80%)	0 (0%)	
Abdominal examination	Normal	20 (26.7%)	25 (33.3%)	19 (25.3%)	11 (14.7%)	
	Distention	1 (50%)	0 (0%)	1 (50%)	0 (0%)	
	Tenderness	12 (52.2%)	10 (43.5%)	0 (0%)	1 (4.3%)	
Results of diagnostic test	Normal	16 (23.5)	24 (35.3%)	18 (26.5%)	10 (14.7%)	0.009
	Abnormal	17 (53.1%)	11 (34.4%)	2 (6.3%)	2 (6.3%)	
Total		33 (33%)	35 (35%)	20 (20%)	12 (12%)	

Table 6 shows that there was no significant statistical association between location of pain and previous test of child, treatment, stress contribute to child and parental concern and p-value was > 0.05. There was a statistically significant association between location of pain and results of diagnostic test, the majority of normal test results (44.1% and 45.6%) corresponded to pain around the navel and generalized pain, respectively while abnormal test results were more common for pain in the upper abdomen (18.8%) and lower abdomen (25%). Chi square test was done and p-value was 0.002.

Table 6: Association between location of pain and treatments, parental concern and results of diagnostic test.

Variable	Categories	Location of pain				p-value
		upper abdomen	lower abdomen	around the navel	generalized (all over)	
previous test of child	No previous test	2 (7.1%)	3 (10.7%)	12 (42.9%)	11 (39.3%)	0.869
	Normal	4 (6.9%)	7 (12.1%)	25 (43.1%)	22 (37.9%)	
	Stool: weak and positive H. pylori	1 (16.7%)	1 (16.7%)	2 (33.3%)	2 (33.3%)	
	GUE: UTI	1 (20%)	2 (40%)	0 (0%)	2 (40%)	
	G.S.E: G. lamblia	0 (0%)	0 (0%)	0 (0%)	1 (100%)	
	CBC: Hb 11.5 g/dl + stool: positive H. pylori	0 (0%)	0 (0%)	1 (100%)	0 (0%)	
	CBC: 11.5gdl	0 (0%)	0 (0%)	0 (0%)	1 (100%)	

Treatment	Dietary change (e.g., gluten-free, lactose-free)	0 (0%)	0 (0%)	1 (33.3%)	2 (66.7%)	0.685
	Medication (e.g., antacids, pain relievers)	6 (11.3%)	8 (15.1%)	23 (43.4%)	16 (30.2%)	
	Psychological interventions	0 (0%)	0 (0%)	1 (100%)	0 (0%)	
		0.0%	0.0%	100.0%	0.0%	
	Complementary therapies (e.g., probiotics, herbal remedies)	0 (0%)	0 (0%)	0 (0%)	2 (100%)	
	Combined therapy	2 (4.9%)	5 (12.2%)	15 (36.6%)	19 (46.3%)	
stress contribute to child	Yes	2 (6.3%)	3 (9.4%)	13 (40.6%)	14 (43.8%)	0.620
	No	4 (8.5%)	8 (17%)	21 (44.7%)	14 (29.8%)	
	Unsure	2 (9.5%)	2 (9.5%)	6 (28.6%)	11 (52.4%)	
parental concern	Child's pain and discomfort	1 (7.1%)	2 (14.3%)	6 (42.9%)	5 (35.7%)	0.987
	Long term outcomes	0 (0%)	0 (0%)	0 (0%)	1 (100%)	
	Investigation costs	0 (0%)	0 (0%)	1 (50%)	1 (50%)	
	Management and follow up	0 (0%)	0 (0%)	2 (50%)	2 (50%)	
	Psychological impact on child and family	0 (0%)	2 (20%)	3 (30%)	5 (50%)	
	More than one option	7 (10.1%)	9 (13%)	28 (40.6%)	25 (36.2%)	
results of diagnostic test	Normal	2 (2.9%)	5 (7.4%)	30 (44.1%)	31 (45.6%)	0.002
	Abnormal	6 (18.8%)	8 (25%)	10 (31.3%)	8 (25%)	
Total		8 (8%)	13 (13%)	40 (40%)	39 (39%)	

4. Discussion

Recurrent abdominal pain (RAP) is a significant clinical problem among school-aged children, accounting for a considerable proportion of pediatric outpatient visits. In our research conducted in Erbil, we found that the majority of children affected were between 6 and 11 years old. This age range matches global trends, where peak RAP prevalence is often tied to the increased burden of psychosocial and school-related stressors.[10] Interestingly, our study showed a higher percentage of males at 62%, which is a departure from other reports that typically see higher rates in females, especially during their teenage years.[1] This variation might simply be a reflection of local parental reporting habits or specific health-seeking behaviors in the region.

The frequency of pain was quite high, with 68% of the children experiencing symptoms on a daily basis or multiple times a week. The most common sites for the pain were the periumbilical area (40%) and generalized abdominal pain (39%). These locations are classic indicators of functional gastrointestinal disorders (FGIDs),

such as irritable bowel syndrome or functional abdominal pain.[11] These results are consistent with the Rome criteria, which prioritize the specific characteristics of the pain over diagnostic testing for functional issues.[12, 13]

We also noted that psychosocial stressors were common triggers, affecting 24% of the participants and showing a strong link to pain episodes. This supports the biopsychosocial model, which looks at pediatric RAP through both physiological and psychological lenses.[14] Finally, the pain had a clear impact on daily life, as 55% of the children reported impairments in their appetite, physical activity, and school attendance. These findings align with previous research linking RAP to frequent school absenteeism and a generally lower quality of life.[15, 16]

Nutritional status is concerning, with 23% of children having weight-for-age z-scores below -2 and 24% having height-for-age below -2, suggesting that RAP may negatively impact growth due to chronic symptoms or feeding issues. Similar growth delays have been noted in previous cohorts of RAP patients.[7] Several studies indicate a higher prevalence of overweight and obesity among paediatric patients with functional gastrointestinal disorders, suggesting that excess body weight may contribute to abdominal pain. This could be linked to dietary patterns, inflammation, or altered gut-brain signaling.[17, 18]

Organic causes were identified in 32% of cases through diagnostic testing. Positive findings included *Helicobacter pylori* infection, urinary tract infections, and giardiasis, which although not common, necessitate appropriate investigation when clinical suspicion exists. These findings are in line with global estimates that 5–10% of RAP cases in children are due to organic pathology.[19] The remaining majority of patients had normal clinical and laboratory findings, underscoring the importance of clinical judgment to avoid unnecessary testing, which may increase anxiety and healthcare costs without improving outcomes.[20]

Most treatments were either strictly medical (53%) or used a mix of methods (41%), but it's notable how little attention was given to diet and mental health. Even though these areas are proven to help with FGIDs,[21, 22] they were rarely utilized, pointing to a real need for better teamwork between doctors, dietitians, and therapists. Our findings showed that how often a child feels pain is tied closely to their family's background, where the pain is located, and their growth. For example, kids from wealthier families reported pain more often—likely due to higher stress or just being more aware of their symptoms—which actually contradicts some other studies.[23] We also noticed that children with pain in their upper or lower abdomen were more likely to have abnormal test results, which really drives home why we need a personalized approach for every patient.

5. Conclusion

This study shows that RAP in Erbil is mostly functional, and it really takes a toll on kids' daily lives. Even though a few cases have physical causes, the biggest struggle for most is actually related to mental and well-being. Because of this, it makes sense to use a more well-rounded approach to care that looks at the whole picture. Moving forward, we need more research with more participants and better tools to help classify and manage these cases even more effectively.

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