

## Research and Theory

# Integrative treatment approaches: family satisfaction with a multidisciplinary paediatric Abdominal Pain Clinic

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## Abstract

**Objectives:** To assess patient and family satisfaction with evaluation received through a multidisciplinary paediatric Abdominal Pain Clinic (APC) staffed by a paediatric gastroenterologist and a paediatric psychologist as compared to a traditional gastroenterology clinic (GI) staffed by a paediatric gastroenterologist only.

**Methods:** Two hundred and ninety-eight families (145 APC, 153 GI) with a child or adolescent aged 8–17 years seen for initial evaluation of a chronic abdominal pain completed an anonymous survey to assess understanding of the treatment recommendations made, intent to follow through with various treatment recommendations, and the overall level of satisfaction with the evaluation service provided. Family perceptions of strengths and challenges of the APC evaluation process also were explored.

**Results:** APC families reported being prescribed adjunctive mental health and other therapies at significantly higher rates than GI families, while the rates of medication were comparable. APC families also reported significantly greater receptivity to beginning the treatments prescribed and higher levels of overall satisfaction with the evaluation process. The contribution of integrated medical and psychological perspectives frequently was identified as a strength of the APC evaluation process. Challenges identified for the APC evaluation were few and focused on issues related to paperwork and scheduling issues.

**Conclusions:** Integrative care approaches to the evaluation of paediatric abdominal pain appear well accepted by families, yielding high levels of satisfaction, and enhance receptivity to treatment recommendations. Integrative care starting at the time of first evaluation may be particularly well-tailored to enhance outcomes, reduce health care utilization, and yield financial savings within this population.

## Keywords

functional gastrointestinal disorders, abdominal pain, paediatrics, practice, parents

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## Introduction

The traditional approach to chronic abdominal pain in children has involved empiric therapy or the performance of medical tests followed by directed therapy

if a diagnosis is established. However, this approach has not been wholly satisfactory. In a recent survey, approximately 60% of paediatric gastroenterologists report a successful outcome in less than half of their patients [1]. One difficulty with the traditional medical

approach to chronic abdominal pain is that an ‘organic’ disease is unlikely to be identified. Instead, a significant proportion of children will have a functional gastrointestinal disorder (FGID) which, by definition, requires that no anatomic or metabolic aetiology for the pain be found [2–4].

Within the traditional approach, referral for mental health therapies has generally occurred when the medical treatment has been unsuccessful. When surveyed, approximately 65% of paediatric gastroenterologists reported routinely referring to a mental health practitioner when no ‘organic’ cause of abdominal pain is identified [1]. However, studies indicate that only 40–60% of paediatric patients referred for mental health services by a physician follow through with this referral [5, 6]. Many barriers may account for these less than ideal rates of follow through on mental health referral, including local availability of appropriate providers, scheduling conflicts, and long wait times. However, for FGIDs in particular, referring for mental health services only after exhausting traditional medical approaches also may give families the message that the pain is all psychologically-generated and, thus, create considerable resistance to this treatment.

An alternate approach to treating paediatric FGIDs is an integrative care model in which medical and behavioural health providers work collaboratively. Participation by both clinical medicine and behavioural health providers may enhance the credibility and acceptability of mental health recommendations as part of a comprehensive treatment package, particularly if this integration is present from the first contact. Integrative care allows the behavioural health provider to begin developing rapport within a setting less threatening and more convenient to the family, to provide specialized insight into the psychosocial factors that may be contributing to the child’s symptoms as part of a larger conceptual framework, and to intervene in a brief, targeted, and timely fashion. Recent studies of integrative care approaches across a wide variety of health conditions (e.g. arthritis, headaches, fatigue) in adults have documented improvements in self-reported health outcome, including greater self-efficacy and reduction in pain, as well as reduced health care utilization and financial savings associated with these models in comparison to traditional medical approaches [7, 8]. It is likely that these benefits hold true for paediatric populations, such as paediatric FGIDs, although this remains to be tested.

Paediatric FGIDs appear an ideal target for integrative care approaches. They are a frequent complaint in

both the primary care and specialty gastroenterology practice, are associated with high levels of health care utilization and financial cost across the lifespan, and lack any current clinical practice guidelines [9]. Most importantly, this collection of disorders is probably best understood through a biopsychosocial model. This model asserts that pain results from a combination of biologic (e.g. inflammation, dysmotility, visceral hyperalgesia), psychologic (e.g. anxiety, depression), and social (e.g. interactions with peers, teachers, parents) factors which interact with one another. Thus, integrative care approaches may be particularly well-tailored to enhance outcomes and yield savings within this population.

On a pragmatic level, fully incorporating the biopsychosocial model into integrative clinical care for paediatric FGIDs would involve a clinical evaluation which attempts to identify the relevant biological, psychological and social factors contributing to the generation or perpetuation of pain, as well as initiating interventions relevant to these factors on the first patient visit. As compared to the traditional approach, an integrative care approach to paediatric abdominal pain would make behavioural health services more available and convenient to families, as they are already coming in for medical evaluation of the child’s abdominal pain. Integrative care also has the potential to increase the acceptability of behavioural health recommendations by placing all treatment components—biological, psychological and social—into a single comprehensive framework in which the interplay of relevant factors is made clear. As such, integrative care approaches would have the potential for increasing patient satisfaction, as well as improving clinical outcomes.

The Abdominal Pain Program (APP) at Children’s Mercy Hospital was developed within this integrative care framework. The APP is a multidisciplinary clinical, research, and teaching programme co-directed by a paediatric gastroenterologist (CF) and a licensed psychologist (JS) that began operation in 2002 and has continued to develop since that time. The clinical arm of the programme, the Abdominal Pain Clinic (APC), is staffed by medical, psychology, and affiliated health-care professionals with dedicated nursing support. The current clinical staff includes one gastroenterologist, two psychologists, two BCIA certified biofeedback clinicians, two advanced practice nurses, one clinic coordinator, and three registered nurses. Additional staff is dedicated to the research and educational arms of the larger programme. A flow diagram outlining the clinical process from initial evaluation through the maintenance phase of treatment is provided in [Figure 1](#).

The cornerstone of the clinical programme is the initial evaluation, at which time the biopsychosocial model is first presented and the integrative care process is initiated. As indicated in the flow diagram, paediatric patients and their caregiver(s) complete several standardized questionnaires designed to assess psychological and social factors that may be important in the onset and/or maintenance of a child’s abdominal pain as part of the initial APC evaluation visit. This is done in addition to the traditional medical history and physical examination of the child. Following this data collection process, the physician, the psychologist, and the nurse

assigned to work with that family meet together for a brief team conference to review all of the information gathered, determine a diagnosis, and discuss treatment recommendations. Immediately after the team conference, the diagnosis and treatment recommendations are presented to the family jointly by the gastroenterologist and psychologist. This joint meeting, which typically lasts 20–30 minutes, communicates the relative equality of biological and psychosocial factors in the generation and maintenance of chronic abdominal pain, as well as allowing seamless integration of these components during discussion with the

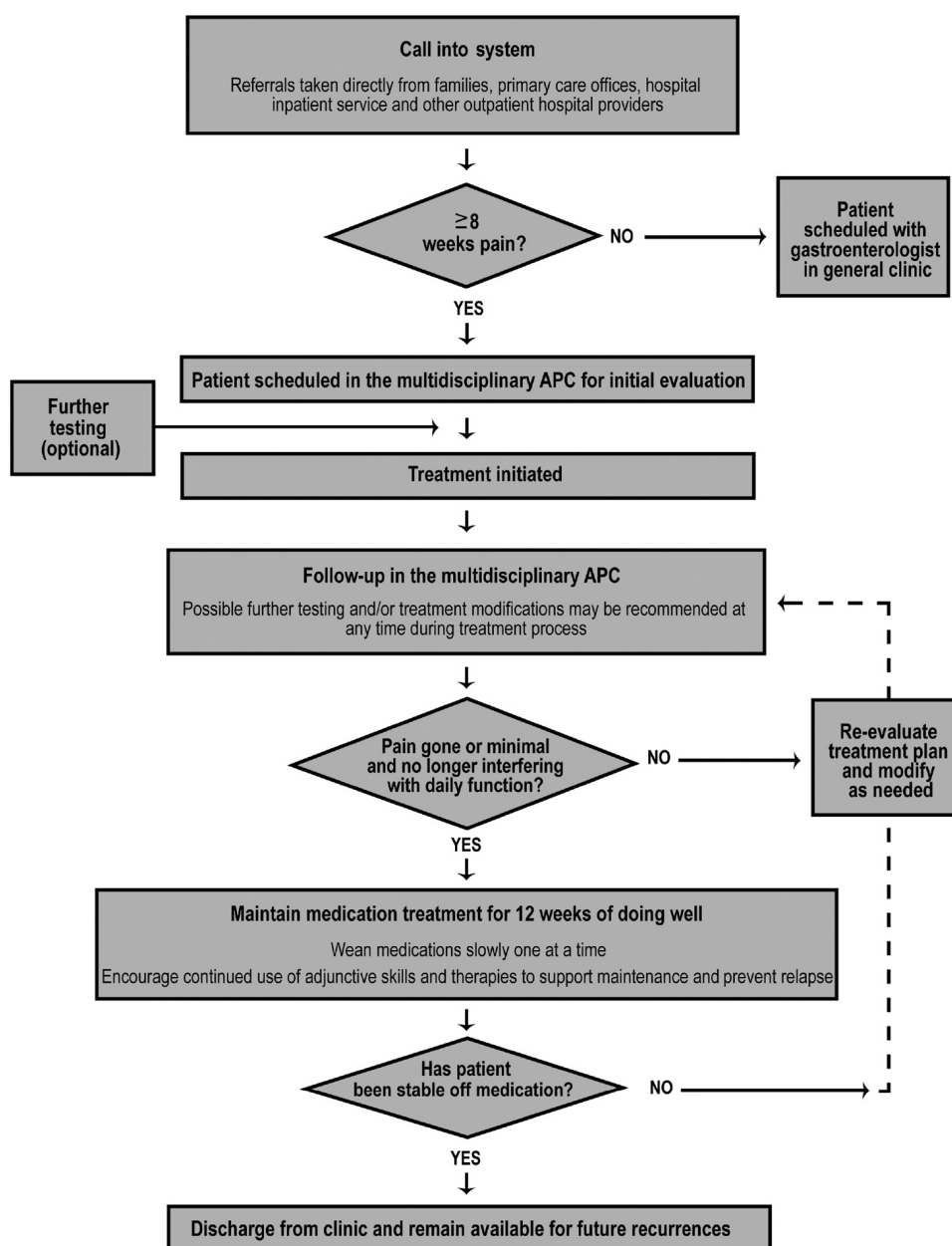


Figure 1. Patient flow through the multidisciplinary Abdominal Pain Clinic.

family. Also consistent with a biopsychosocial model, recommendations arising from this evaluation visit often include prescription medication and formal mental health treatments (e.g. biofeedback-assisted relaxation training, individual therapy) that are offered within the programme, as well as brief and targeted guidance regarding school issues, pain coping strategies, parental response to pain complaints, and sleep hygiene, among other issues. Other formal treatments not offered directly within the programme (e.g. acupuncture, massage, physical therapy, family therapy, sleep evaluation) are recommended less often as part of the initial visit, but are folded into the plan as needed over the course of treatment.

After the initial evaluation is complete, patients are scheduled to be seen jointly by an advanced practice nurse and psychologist in our programme for a follow-up visit, typically in 4–8 weeks. At that time, initial treatment recommendations and progress on them are reviewed and any barriers to treatment are problem-solved with the family. New concerns also are addressed and treatment modifications are discussed as needed. The frequency of future follow-up visits is based on the patient's response to therapies and need for further evaluation and/or intervention, with psychology follow-up remaining an integrated component throughout treatment. Between visits, patient families have access to clinic nurses within the programme by phone, as needed, with follow-up encouraged at biweekly intervals at a minimum. All team members meet on a biweekly basis to discuss specific patient/family concerns, progress, and barriers to ensure a coordinated approach that continues to integrate perspectives from all involved disciplines. These biweekly team meetings support nursing staff in addressing patient and family issues by phone, as well as staff seeing patients and families more regularly for therapies between follow-up visits. In addition, all professional notes are housed in a computerized medical record accessible to all team members. Family conferences with relevant individuals, both within and outside of the programme (e.g. healthcare providers, school personnel), are arranged on a case-by-case basis, as determined by patient progress and perceived need. Written documentation and phone contact to coordinate care with other relevant individuals outside of the programme also is done as needed to support integrated care.

From a business perspective, building a sustainable multidisciplinary programme requires a solid foundation of institutional support, which is achieved through unified vision, institutional championing, and demonstrated value [10]. Demonstrating value, in turn, requires (at least) three more components, including financial viability, patient satisfaction, and excellent

clinical outcomes. In the APP development process, unified vision was an easy first step. The frequency of paediatric chronic abdominal pain complaints, the lack of current clinical practice guidelines, and the high level of reported community frustration (at the family, school, and physician levels) regarding this condition together pointed to a clear area of need that was consistent with the culture and priorities of the institution. Institutional championing was secured following group (including clinicians, administrators, finance staff, and individuals representing a variety of other specialties) analysis of the strengths, weaknesses, opportunities, and threats (SWOT) to the success of the proposed APP. Finally, to meet the first requirement of demonstrated value, i.e. financial viability, the APP was developed as a separate product line. A product line is a horizontal organizational structure that focuses on a specific patient population [11]. The APP product line developed a separate budget with tracking of expenses and down-stream revenues, such as those generated by medical tests. Financial viability was demonstrated through both direct and non-direct revenue, which also supported the continuation of non-clinical activities such as teaching and research that, in turn, furthered the clinical mission.

The purpose of the current study was to assess the second requirement of demonstrated value, i.e. patient satisfaction. As a starting point, we targeted the initial multidisciplinary evaluation process, as this component of the programme requires the greatest commitment of time and resources relative to traditional medical approaches. We expected that families seen within the APC would be prescribed adjunctive mental health and other therapies at higher rates than those families seen within a traditional gastroenterology clinic model, would report being more receptive to the treatment plan (i.e. report greater willingness to start treatments), and would endorse higher levels of overall satisfaction with the evaluation process. We also explored family perceptions of strengths and challenges of the multidisciplinary clinic evaluation process in an effort toward continuous quality improvement.

## **Materials and methods**

### **Participants**

Participants in this study were 298 families with a child or adolescent seen for initial evaluation of chronic abdominal pain in one of two clinic types: 1) a traditional gastroenterology (GI) clinic staffed by a paediatric gastroenterologist; or, 2) a multidisciplinary Abdominal Pain Clinic (APC) staffed by a paediatric gastroenterologist and a paediatric psychologist.



## Measures

The family satisfaction survey was developed specifically by the authors for this study. This survey included multiple-choice questions designed to assess family understanding of the treatment recommendations made, family intent to follow through with various treatment recommendations, and the overall level of family satisfaction with the evaluation service provided. Descriptive information about length of time since onset of pain, number of school days missed, and previous evaluation by other professionals was also collected to examine sample characteristics and equivalence between clinic types. For families evaluated in the APC only, additional open-ended questions were included to examine perceptions regarding the most helpful and/or challenging aspects of the multidisciplinary evaluation process.

## Procedure

Data from both clinic types were collected at a single tertiary care centre over approximately one calendar year (August 2005–October 2006). During that time, all families with a child or adolescent between the ages of 8 and 17 years who was seen for initial evaluation of a primary complaint of chronic abdominal pain were provided with a survey to complete at the conclusion of their clinic visit. Families were directed to place all forms, completed or not, in a locked box hanging by the clinic exit to ensure confidentiality of responding. Surveys were collected and entered in batches every 1–2 weeks by a research assistant not directly involved in patient care. Surveys were colour coded to allow for differentiation between clinic types. Approximately 60% of families completed and returned a survey, yielding a sample of 145 surveys from the multidisciplinary APC population and 153 surveys from the GI clinic. All study procedures were approved by the Institutional Review Board (IRB) of the participating institution.

## Statistical analysis

Descriptive statistics were calculated for multiple choice items to examine general patterns in treatment recommendations, intention to begin treatments, and overall family satisfaction, as well as for descriptive information related to time since onset of pain, number of school days missed, and previous evaluation by other professionals. Statistical comparisons were made between the GI clinic and the APC using Pearson  $\chi^2$ -tests, or Fisher's exact tests when appropriate, with significance accepted at  $p < 0.05$ . Responses to open-ended questions regarding the most helpful

and challenging parts of the evaluation were qualitatively examined and collapsed by content into discrete groups for ease of interpretation.

## Results

### Descriptive information and equality of groups

No significant difference emerged between clinics on number of school days missed [range=0–40 days;  $\chi^2$  (23,  $n=254$ )=20.51,  $p=0.611$ ] with approximately 75% of families reporting three or fewer school days missed. A trend for children seen in the APC to have had pain for a longer duration than children seen in the GI clinic was noted [ $\chi^2$  (4,  $n=282$ )=9.37,  $p=0.052$ ; see Figure 2]. In addition, a significantly higher proportion of children seen in the APC had been evaluated previously by a paediatric gastroenterologist compared to children seen in the GI clinic (11% vs. 4%;  $p < 0.05$ , FET). No differences emerged for previous evaluation by a paediatrician (84% APC vs. 76% GI clinic;  $p=0.11$ , FET), an adult gastroenterologist (4% APC vs. 3% GI clinic;  $p=0.53$ , FET), or another type of professional (14% APC vs. 8% GI clinic;  $p=0.13$ , FET).

### Treatment recommendations

No significant difference emerged between clinics in the rate of having medication prescribed as part of the initial treatment plan, with approximately half of families reporting having received a medication prescription at the conclusion of the evaluation visit. A

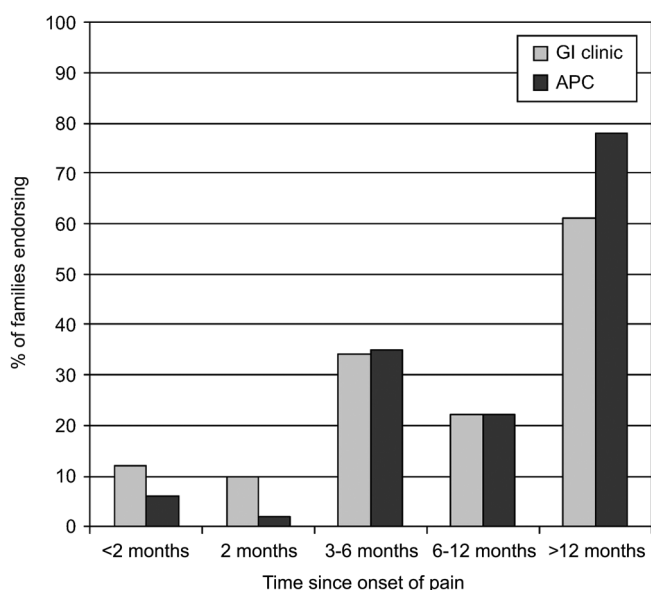


Figure 2. Time since onset of pain by clinic type.

significant difference between clinics was noted, however, in the rate of having a non-medication approach recommended as part of the initial treatment plan [ $\chi^2$  (1, n=274)=41.33,  $p<0.001$ ]. Specifically, non-medication approaches were discussed with 64% of families evaluated in the GI clinic and with 95% of families evaluated in the APC. A significant difference between clinics also emerged in the percent of families intending to begin recommended treatments [ $\chi^2$  (2, n=265)=9.21,  $p=0.01$ ]. A higher percentage of families evaluated in the APC reported intending to begin all recommended treatments and a lower percentage of families reported planning to begin none of the recommended treatments, as compared to families seen in the GI clinic (Figure 3).

### Overall satisfaction with service

A significant difference emerged between clinics in overall family-reported satisfaction with the initial evaluation [ $\chi^2$  (3, n=256)=19.67,  $p<0.001$ ]. Specifically, more families evaluated in the APC endorsed the highest levels of overall satisfaction in comparison to families evaluated in the GI clinic (Figure 4).

### Perceptions regarding the multidisciplinary clinic evaluation process

When families evaluated within the APC were asked specifically to identify the most helpful part of the evaluation process, approximately 75% of families provided a response. Roughly half of these responses clearly highlighted the multidisciplinary nature of the

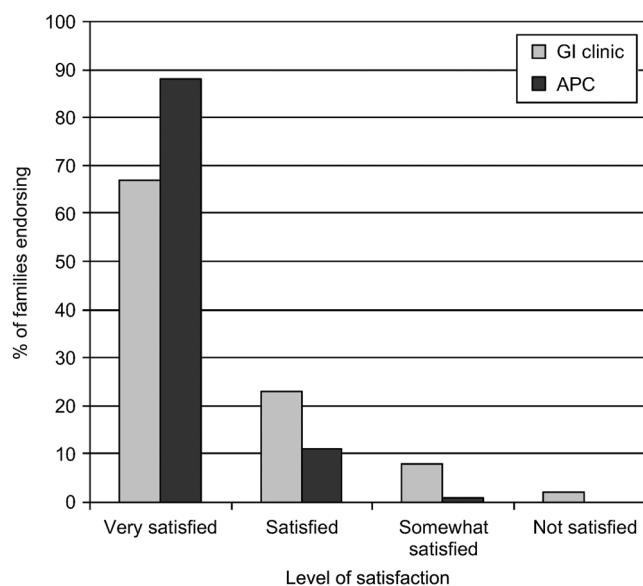


Figure 4. Family overall satisfaction with initial evaluation for pediatric abdominal pain by clinic type.

evaluation and the contribution of integrated medical and psychological perspectives. Specific comments included: “Knowing that they are looking at the whole picture, not just 1/4 of it”, “The mind-body connection—having both doctors meet with us together was very helpful” and “Explaining how its all going to come together to help our son.” An additional 10% of responses specifically highlighted the added value of psychology to the medical evaluation, with comments, such as: “To find out stress was a big part”, “How to cope with pain” and “Explanation of possible causes other than GI.” A further 15% of responses focused on the perception of feeling well cared for by team members, including such comments as: “The process and desire to understand to assist and educate”, “How well the staff worked to make me and my child comfortable and how to assist my child when he has pain” and “People dedicated to getting the problem resolved.” The remaining 15% of responses generally were split between comments highlighting relief at provision of a diagnosis, having a treatment plan to follow, feeling reassured that nothing medically dangerous was underlying the pain, and increased hope regarding symptom resolution.

When asked about the most challenging part of the evaluation process, less than half (~45%) of families evaluated in the APC identified a specific challenge associated with the evaluation. Of the families who did provide a response, the majority of identified challenges focused on logistical issues, including volume of paperwork (40%), time spent waiting prior to the team-family conference (15%), and overall length of the evaluation visit (15%), with additional challenges

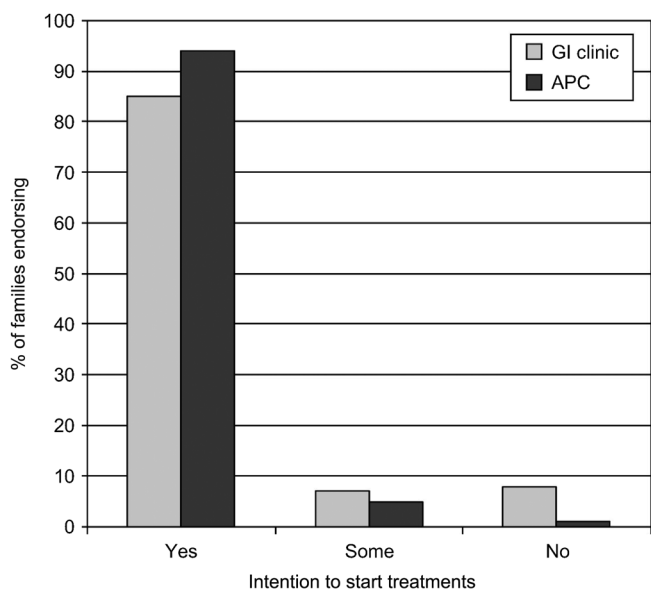


Figure 3. Family intention to begin recommended treatments by clinic type.

(e.g. scheduling difficulties, travel distance to clinic, child not wanting to participate) being reported by <5% of families.

## **Discussion**

The purpose of this study was to assess the second requirement of demonstrated value, i.e. patient satisfaction, as part of the ongoing development of a multidisciplinary Abdominal Pain Program. We targeted the initial multidisciplinary evaluation process, which requires the greatest commitment of time and resources relative to traditional medical approaches, as a first step in this assessment process. Consistent with expectations, families seen within the multidisciplinary APC reported being prescribed adjunctive mental health and other therapies at higher rates than those families seen within a traditional GI clinic model, while the rates of medication were comparable. Despite being prescribed a greater number and variety of treatments, families seen within the APC also reported greater receptivity to beginning the treatments prescribed. Finally, families seen within the APC endorsed higher levels of overall satisfaction with the evaluation process as compared to families seen within the traditional GI clinic model.

It seems likely that the relatively more comprehensive APC evaluation process, including integrated evaluation and discussion of biological, psychological, and social factors, inspires greater patient and family confidence that the child's abdominal pain is well understood and that nothing is being 'missed'. Indeed, several responses provided by families seen within the APC about the most 'helpful' part of the evaluation process reflect satisfaction with the perceived thoroughness of the evaluation process. Whether this perception is due to greater emphasis on providing a biopsychosocial context for the treatment recommendations provided within the APC, the joint presence of the paediatric gastroenterologist and psychologist team during the family conference, non-specific therapeutic factors associated with one or both providers, or some combination of elements remains unclear from our data. However, families seen within the APC clearly valued the integrative care approach.

This higher level of satisfaction with integrative care approaches is consistent with previous work examining the nature of explanations provided by physicians regarding somatic complaints without a clearly identified 'organic' origin, such as paediatric FGIDs. Specifically, Salmon and colleagues found that explanations perceived of by patients as both satisfying and 'empowering' were tangible, removed any sense of blame, and provided opportunities for self-management [12].

These authors speculated that 'making a link' between physical symptoms and emotional factors without the use of potentially stigmatizing labels was more consistent with the patients' physical experience and knowledge of the body, facilitated cognitive reattribution, increased feelings of control over changing the situation, and enhanced the therapeutic relationship between physician and patient. However, these authors stated that such explanations were reported as occurring rarely in the general practice sample studied.

Although beyond the scope of the current study, it would be interesting to know how well intention to follow the treatment plan at the conclusion of the evaluation process corresponds to later follow through on treatment recommendations and, ultimately, to clinical outcomes. However, family belief in the thoroughness of the evaluation process, as well as acceptance of the diagnosis and treatment plan, may be an important first step in breaking the cycle of medical test seeking and doctor shopping that can persist for some families of children with abdominal pain [13].

A few limitations of the current study are worth noting. First, families were not randomized to clinic type and, thus, those seen in the APC may be different in some way than those seen in the GI clinic. With that said, observed differences appeared relatively small based on demographic parameters assessed. In general, as compared to children evaluated within the traditional GI clinic model, a higher proportion of children evaluated within the multidisciplinary APC had experienced longer length of pain and been evaluated previously by a paediatric gastroenterologist. The groups were generally equivalent, however, on number of school days missed and rates of previous evaluation by other professionals, including paediatricians, adult gastroenterologists, and other professionals. Second, the amount of staff time spent with families in the APC was substantially higher than in the GI clinic. Without an attention-control group, we cannot say with certainty that group differences by clinic type are not, at least in part, attributable to attention factors (e.g. feeling that the child's pain is being taken seriously, feeling cared for) rather than the multidisciplinary nature of the clinic itself.

Results of this study provide initial documentation of patient and family satisfaction with the multidisciplinary Abdominal Pain Program, documenting increased rates of referral for mental health and adjunctive services, greater receptivity to recommended treatments, and higher overall satisfaction with the evaluation process as compared to a traditional medical model. So, where do we go from here? Families in the current study were able to identify a few discrete areas of the multidisciplinary APP evaluation process that

could be improved, generally related to streamlining paperwork and scheduling issues. Certainly, scheduling is an issue given the time-intensive nature of the multidisciplinary evaluation process. Efforts currently are underway to reduce the amount of time spent in clinic by shifting some data collection to the home environment prior to the visit, as well as to increase available evaluation slots to reduce wait time for an appointment. This approach has the potential to further enhance patient satisfaction, as it would reduce overall time spent in clinic for families, while retaining maximum time for joint discussion of diagnosis and treatment recommendations—a component which families clearly valued.

Finally, in terms of future directions, the third requirement of demonstrated value, i.e. excellent clinical outcomes, remains to be examined in future study. Preliminary indicators suggest that the multidisciplinary Abdominal Pain Programme also is meeting this requirement. Retrospective chart review of clinical outcomes over a 6-month period (overlapping with the time frame of the current study) suggests that approximately 80% of patients reported substantial improvements in pain and/or functional disability by 4–6 weeks post-evaluation using a 5-point global response assessment (GRA) previously validated as an endpoint for measuring improvement in functional bowel disease [14]. Further, 65% reported either complete resolution of pain or minimal pain with no interference in daily functioning. Similar rates of improvement were reported at three months and six months, indicating that improvements in pain and disability generally held over time. While

initial data appears promising, more definitive tracking of clinical outcomes for a chronic, and potentially relapsing, pain condition is complex. Issues related to the length of time necessary for prospective tracking (e.g. 6 months vs. 6 years) and breadth/depth of evaluation at each time point (e.g. brief phone assessment using GRA methodology vs. lengthy psychosocial and quality of life questionnaire batteries) need to be weighed against families' likely compliance with follow-up demands. Despite these challenges, careful examination of clinical outcomes is a necessary final step in the demonstration of value at the institutional level and beyond. In the end, if the APP improves health outcomes for children with FGIDs in a cost-effective manner, it will continue to be sustainable as a program and viable as a model for the development of other similar programmes across the country.

## Reviewers

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