

Parent-Child Communication-centered Rehabilitative Approach for Pediatric Functional Somatic Symptoms

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ABSTRACT

Background: Functional somatic symptoms (FSS) are a type of somatization phenomenon. Integrative rehabilitation approaches are the preferred treatment for pediatric FSS. Parental roles in the treatment process have not been established.

Study aims: to present 1) a parent-focused treatment (PFT) for pediatric FSS and 2) the approach's preliminary results.

Methods: The sample included 50 children with physical disabilities due to FSS. All children received PFT including physical and psychological therapy. A detailed description of the program's course and guiding principles is provided. Outcome measures: FSS extinction and age-appropriate functioning.

Results: Post-program, 84% of participants did not exhibit FSS and 94% returned to age-appropriate functioning. At one-year follow-up, only 5% of participants experienced symptom recurrence. No associations were found between pre-admission symptoms and intervention duration.

Conclusion: PFT is beneficial in treating pediatric FSS. Therefore, intensive parental involvement in rehabilitation may be cardinal.

Conflict of interest:

None of the authors has any financial/personal interest or belief that could affect his/her objectivity or inappropriately influence his/her actions.

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INTRODUCTION

Medically unexplained symptoms (MUS) or functional somatic symptoms (FSS) (1) are broad umbrella terms widely used to describe various somatization phenomena (e.g., chronic fatigue, pseudo-seizures, and chronic pain). Throughout history, individuals suffering from FSS have preoccupied and placed heavy burdens and challenges on existing care delivery systems (e.g., utilization of high cost medical examinations), on their families, and on socioeconomic systems (2, 3). In terms of International Classification of Functioning, Disability and Health (ICF) terminology, FSS includes activity limitations (e.g., gait disorder) and participation restrictions with no clear impairment (e.g., brain lesion) (4). In the literature, as in this paper, FSS and somatization are used interchangeably to describe the above phenomena. The term FSS was chosen as individuals may not meet the full criteria for the aforementioned disorders and yet present with symptoms that may cause individual and familial suffering (5).

In the pediatric population, differential diagnosis for FSS is still very challenging. Among other reasons, this is likely due to the fact that the Diagnostic and Statistical Manual of Mental Disorders-IV (DSM-IV-TR) (6) criteria for somatoform disorders referred mainly to adults and might have been inadequate for children (7). Due to the nosological difficulties, reports of the prevalence of FSS show wide variability (7%-64%) (8). To date, there is no clear prevalence rate, as published in a recent review on the subject (9).

There are several approaches to FSS etiology. The psychological approach views FSS as a defense mechanism against unspeakable intra-psychic conflict or pain

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(10), and a kind of “body language” conveying distress (3). The neurobiological approach, which is currently gaining more evidence, has cited findings regarding pain “mapping” in children’s brains. For example, children suffering from chronic pain have shown lower sensitivity thresholds and higher reactivity to pain (11). The social approach is mainly represented by structural family interaction theories. Thus, Minuchin and his colleagues (12) emphasize characteristics of the “psychosomatic family” (overprotection, enmeshment, rigidity, and lack of conflict resolution), in addition to the child’s physical vulnerability. Logan and Scharff (13) also support the salience of family enmeshment and conflict management patterns as contributing factors among children with chronic pain. In other words: “A lack of communication within the family may lead to poorer pain management for the child” (9). Recent research has revealed that parental distress and reactions to their child’s pain influence the development of pain management in children (14). More specifically, research focused on parental characteristics and somatoform behavior in children has shown associations between parental illness-reinforcing behavior and poorer child functioning (15, 16).

In accordance with the aforementioned approaches, several current treatment directions exist (17). Over the last decade, the preferred psychological treatment has been cognitive-behavioral therapy (CBT) (18). Other treatments include bio-feedback or pain management (19), pharmacological treatment (20), and the integrative rehabilitation approach (5, 21). The latter is gaining traction as a preferred multimodal treatment for FSS (22), as it encourages the patient’s rapid return to daily activities and participation, discourages illness-related behaviors, and reframes the problem such that the goal becomes finding a coping strategy rather than a “cure” (23).

Pediatric FSS treatment is a unique domain of interest due to the crucial role that parents play in each child’s development (24). Therefore, integration between the rehabilitation setting and the family system is becoming an accepted modality for treatment of FSS in youths (25). However, there is still little knowledge regarding the role of family role in the treatment of children with FSS. As such, the aim of the current study was to: 1) present a unique parent-child communication-centered rehabilitative approach for children with FSS, including provision of information regarding treatment course and principal guidelines; and 2) present the immediate and long-term (one-year follow-up) outcomes of the approach.

METHODS

This study is a retrospective open label intervention involving qualitative evaluation of improvement in children with FSS. The research protocol was approved by the Ethics Committee of the Sheba Medical Center, where the work was undertaken, and it conforms to the provisions of the Declaration of Helsinki.

SUBJECTS

Inclusion criteria: Between the years 2005 and 2012, children from across the country were referred by their primary/secondary care physicians after undergoing comprehensive medical tests with no clear findings of any physical, neurological or orthopedic impairment. Prior to arrival, the children received a range of diagnoses, including CRPS, conversion disorder, and fibromyalgia, among others. The study’s inclusion criteria included: 1) children aged 6 to 18 years; 2) FSS with pseudo-neurological presentation based on DSM-IV-TR criteria (i.e., conversion disorder – 300.11, somatoform disorder – 300.81, and pain disorder – 307.80); 3) exhibition of functional disability (e.g., gait disorders and limb pain/weakness) due to the FSS and; 4) parental consent to actively participate in the program.

Exclusion criteria: 1) pain symptoms with no motor/sensory involvement (e.g., abdominal pain) and 2) other etiologies, such as organic physical and/or psychiatric diseases. The existence of other psychiatric disorders was established by a certified psychiatrist.

THE REHABILITATION PROGRAM

The program’s goals are: 1) FSS extinction, 2) return to full participation in age appropriate activities, and 3) reduction of symptom recurrence. The program’s setting is either outpatient (1-3 times/week treatment clusters) or inpatient (6 times/week treatment clusters). The outpatient setting is preferred, as it provides the necessary time for the intra-family communication enhancement process. Thus, in the current study, only participants who resided far from the rehabilitation center were admitted on an inpatient basis ($n = 3$). The rehabilitation team consists of: a physician, physical and occupational therapists, psychologists and social workers, teachers, and nurses. Psychiatric consultation is provided and medications prescribed when required.

The guiding principles of the rehabilitation program, presented below, were derived from the literature and from the clinical experience of the collaborators.

1. *Trust*: Children with FSS are frequently accused of exaggerating or pretending to have their symptoms. Families often enter treatment carrying disappointment, anger, or despair following their previous experiences with the medical system. Therefore, they are often suspicious towards rehabilitation team members (mainly the psychologists) and the treatment program itself (25). Therefore, one of the most important principles of the current program was continuous expression of trust regarding the child's complaints, by all team members (3, 17).
2. *Acknowledgment of ambivalence*: Children and parents are often unconsciously ambivalent towards the process of recovery, due to the complexity of the problem (on one hand the natural wish for recovery, and on the other hand the need to "maintain" symptoms) (12, 15). Therefore, family compliance with treatment might be conflictual and prone to relapses in symptom presentation. In the current program, ambivalence was addressed via: 1) strict coordination among team members (e.g., commitment of the entire team to follow each instruction given by one of the team members); and 2) restructuring team expectations and/or demands (e.g., changing interim targets).
3. *Parent-child communication*: The purpose of treatment is to decipher the hidden message delivered by the bodily symptoms of the child (5), thereby minimizing the need to use the body as a means of communication (e.g., through pain and dysfunction) with the parents. Accordingly, parental presence was vital at least once a week (in weekly meetings and individual sessions). Parent-child communication was assessed via observation of the parent-child interaction during the psychological sessions and weekly meetings. For instance, parents might give "practical" parental suggestions for relieving the child's pain, rather than asking and helping the child to independently identify what "works best" in relieving pain. This principle is elaborated below.
4. *Child's sense of mastery*: Children with FSS are frequently spoken for by their parents and have a reduced sense of control over their lives. Consequently, they were made full members in the program (e.g., without the child's consent, the program was not initiated) and the rate of progression was coordinated with them.

PROGRAM COURSE

Upon admission to the program, each family underwent an evaluation battery consisting of: (a) comprehensive review of child's medical records by a physician, (b) physical examination, and (c) psychological intake interview for parents and child. The intake is a semi-structured interview

not based on a specific diagnostic tool, including questions pertaining to: developmental and present level of functioning (educational, social and emotional), parental and familial information (e.g., ethnicity and level of education), and child strengths and difficulties (e.g., "Can you describe any meaningful events in your family life?") In addition, at the program's start, families learned about the treatment contract (e.g., parental commitment and expected course of progress), which was updated periodically in accordance with the child's progress. The program had two distinct phases: multidisciplinary and psychological. The latter was not mandatory.

Multidisciplinary phase: This phase includes establishment of final goals, weekly meetings, psychological and physical therapy sessions, and academic support.

- Final treatment goals: Established by and meaningful to the child (e.g., going to the mall).
- Weekly meetings: 15- to 20-minute meetings at which parents, child, and all related team members are present. Aims include: 1) reviewing the previous week's achievements; 2) agreeing on the following week's interim-goals; 3) reducing parents' distress by encouraging them to share their doubts and thoughts concerning the treatment process; and 4) accepting the child's evaluation of his/her present abilities and praising him/her for the effort made, rather than for the achievements, during the previous week. An important facet of these meetings is the team's modeling of communication for the family (e.g., mediating between the child's true desires and parental expectations). The psychologist's role in these meetings is to enhance modeling by encouraging the team members and the child to communicate directly while sharing with parents.
- Psychological therapy: As mentioned above, individual sessions with parents and children are based on both clinical experience and on accumulating evidence regarding parental roles in child pain management (26), as children learn (implicitly) to utilize pain signals as a means of distress-communication (27). Therefore, the sessions mainly aim to facilitate three patterns of communication: 1) child's self "intra-communication between body and mind" - a process of integration between the fragmented physical pain and the unspoken or unconscious conflict (e.g., separation-individuation, fear of the gap between academic or athletic achievements and abilities). This integration is achieved by modeling the use of "emotional language" by the psychologist (words describing a range of feelings), and slowly and respectfully encouraging the child to connect emotions to bodily sensations;

- 2) verbal emotional interaction between parents and child – sessions with parents are aimed at creating new communication patterns with the child (e.g., facilitating conflict acknowledgment and resolution, asking the child about his/her request or thought instead of instructing him/her) and minimizing “illness-behavior” reinforcement by the parent (usually the mother); and 3) communication between the family and the exo- and macrosystem (e.g., national system, local system and social environment). This communication change addresses the relationships of the family with other social systems (e.g., amount of social conversations about the symptoms, responsibility for “negotiation” with the school team (relevant for adolescents), and parental roles in this area).
- Physical and occupational therapy: Children with FSS are hyper-sensitive to pain. Neuroimaging studies report associations between supplementary motor areas and the amygdala (28), and physical activity may stimulate neuroplasticity (e.g., cortical reorganization) (29), which affects pain sensitivity level. Therefore, physical therapy is an integral part of the rehabilitation process. Following an assessment process, the therapist and child decide jointly on functional goals and training parameters. Treatment includes gradual use of the involved limb while conducting activities of daily living.
 - Academic support: The educational program is conducted through individual meetings and is constantly coordinated with the child’s school teachers. Individual meetings enable the teacher to identify, together with the child, his/her academic strengths and weaknesses. This facilitates children’s return to school and enhances their self-confidence with respect to academic performance.
 - Psychological phase: Some children achieve symptom extinction within three to four weeks, while the somatoform component of the diagnosis is not yet fully accepted by parents or the change in family communication patterns is still immature. In such cases, we progressed to the second phase, which includes child and parent psychological sessions alone. This phase enables children to unfold the “mind-body unity” at their own pace. It also enables the family to continue working on verbal communication instead of body-based communication.

The endpoint of multidisciplinary treatment is determined by symptom extinction and by an observed change in parent-child communication. Children referred to the psychological phase exhibit symptom extinction before stabilization of parent-child communication. The need for different

intervention types (multidisciplinary versus psychological) and durations is based on the heterogeneity of participants in terms of psychological characteristics of children and parents as well as the severity of children’s symptoms.

It should be noted that in the Sheba Medical Center Pediatric Rehabilitation Department children are treated as a result of various etiologies (e.g., traumatic brain injury, cerebral palsy, encephalitis, burns). These children routinely undergo thorough formal physical assessments (impairment and activity level), which are used in building individualized rehabilitation programs. As needed, children receive psychological therapy and family meetings. In contrast, children who partake in the FSS program undergo only an informal assessment of their functional difficulties (activity level). All children with FSS receive psychological therapy focused specifically on dealing with pain and functional difficulties. Moreover, all children with FSS receive weekly family meetings.

BASELINE AND OUTCOME MEASURES

The following outcome measures were used: 1) Treatment success - evaluated immediately after program termination by examining symptom extinction in children (e.g., gait disorder, weakness, pain) and return to age-appropriate participation (e.g., full school attendance, independence in activities of daily living). Symptom extinction was determined according to parent, child, and physical therapist reports. Age-appropriate participation was established via parent, child, and school staff reports; 2) Symptom and intervention characteristics - prevalence of preexisting events (e.g., traumatic events such as falls, sprained joints), previous somatoform symptoms, functional impairment distribution (i.e., one or more than one limb), gait impairment (e.g., abnormal gait pattern), pre-admission symptom duration upon arrival to the clinic, and intervention duration; 3) Pharmacological treatment - use of pharmacological treatment, including selective serotonin re-uptake inhibitors (SSRIs), simple analgesics, and gabapentin and pregabalin was recorded; and 4) Parental engagement - defined as arriving and participating regularly in the program. In addition, parents with positive engagement accepted the psychological component of the symptoms throughout the program.

DATA ANALYSIS

The percentage of participants who experienced FSS extinction and return to age-appropriate functioning post-intervention and at one-year follow-up was determined.

Relationship between intervention and pre-admission symptom duration with child's parental and familial characteristics was established. Finally, differences in FSS and treatment duration (multidisciplinary and psychological) between participants who differed from one another in terms of pharmacological therapy (received versus did not receive pharmacological therapy) and school attendance (individuals who did and did not attend school regularly) were examined via independent t-tests. Level of significance was set at 0.05. However, since three comparisons were made (FSS duration, multidisciplinary phase duration, and psychological phase duration) with respect to each variable of interest (i.e., pharmacological therapy and school attendance), the level of significance was adjusted to 0.016 ($0.05 / 3 = 0.016$), using the Bonferroni procedure.

Statistical analyses were conducted using IBM SPSS 15 software (IBM Corporation, N.Y., U.S.A.).

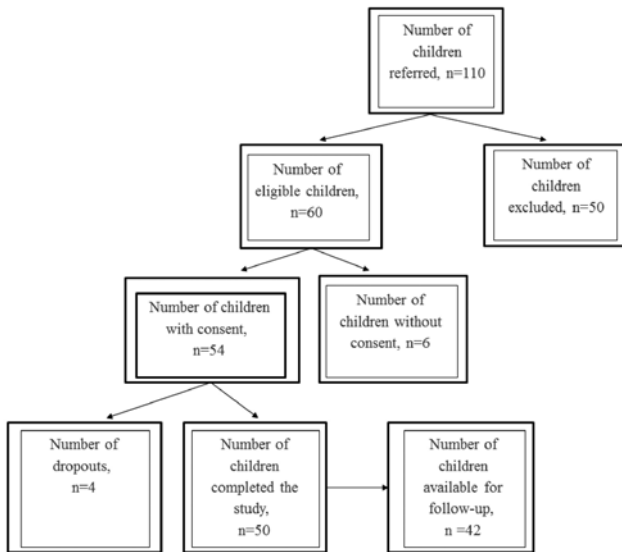
RESULTS

Child, parental and familial characteristics: Between 2005 and 2012, 110 children were referred to the program. However, 50 children were excluded mainly due to the existence of other etiologies, such as organic, physical and/or psychiatric diseases, which might partially account for their pain and functional difficulties. In addition, six children did not give their consent to partake in the study

and four children started the study but did not complete it. Therefore, 50 children and youths participated in the program (mean age = 12.47 + 2.39 years; 35 girls) (see Figure 1). Of the 50 children, 21 continued to the “psychological phase.” Thirty-nine came from traditional families (married parents), whereas 11 children had divorced parents. No significant differences were observed between the two family status groups in terms of child characteristics (e.g., age), FSS symptom duration, and familial and parental characteristics (e.g., number of children in the family and years of education) ($p > 0.05$). There was a higher prevalence of children who received high grades at school (GPA > 79) than children with lower grades (66% and 34%, respectively). In addition, the prevalence of children receiving SSRIs/gabapentin/pregabalin was lower than that of children not receiving these medications (33% and 67%, respectively). In contrast, the prevalence of children receiving simple analgesics was higher than that of children not receiving simple analgesics (82% and 18%, respectively). Mean years of education in mothers and fathers was 14.52 + 2.45 and 13.84 + 2.19, respectively. Sixty percent of the parents were married, 35% were divorced, and 5% were widowed.

Treatment results: Compliance rate was 95%. Immediately following the program, 84% ($n = 42$) of the children did not exhibit any somatoform symptoms and 94% ($n = 47$) had returned to full participation. A one-year follow-up was conducted on 42 children. Ninety-five percent of them ($n = 40$) showed no reoccurrence of symptoms and continued to exhibit full participation (see Figure 2). Children who did not show improvement in terms of return to age-equivalent participation and/or symptom extinction ($n=2$) differed from the “successful” children in terms of parental engagement in the program.

Figure 1. Participants' Recruitment Flow Diagram



One hundred and ten children with functional somatic symptoms were referred to the Rehabilitation Department from throughout the country. However, a total of 50 children participated in the study.

Figure 2. Program's Results

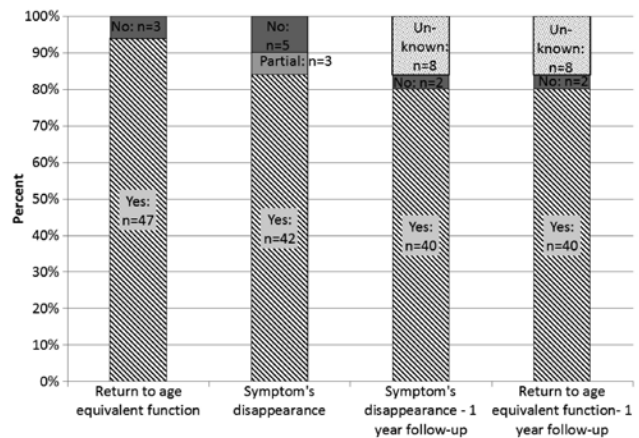


Table 1. Symptoms and Intervention Characteristics

		n (%)
Pre-existing event (medical and/or life events)	No	12 (24.00)
	Yes	38 (76.00)
Previous functional somatic symptoms	No	26 (52.00)
	Yes	24 (48.00)
Limb distribution	One limb	30 (60.00)
	> one limb	20 (40.00)
Gait impairment	No	16 (32.00)
	Yes	34 (68.00)
Pain medications resistance	No	8 (19.50)
	Yes	33 (80.50)
		Mean (range)
Pre-admission symptom's duration (months)	2.40 (<1-8)	
Multidisciplinary phase duration (months)	3.19 (<1-6)	
Psychological phase duration (n=21) (months)	1.19 (<1-12)	

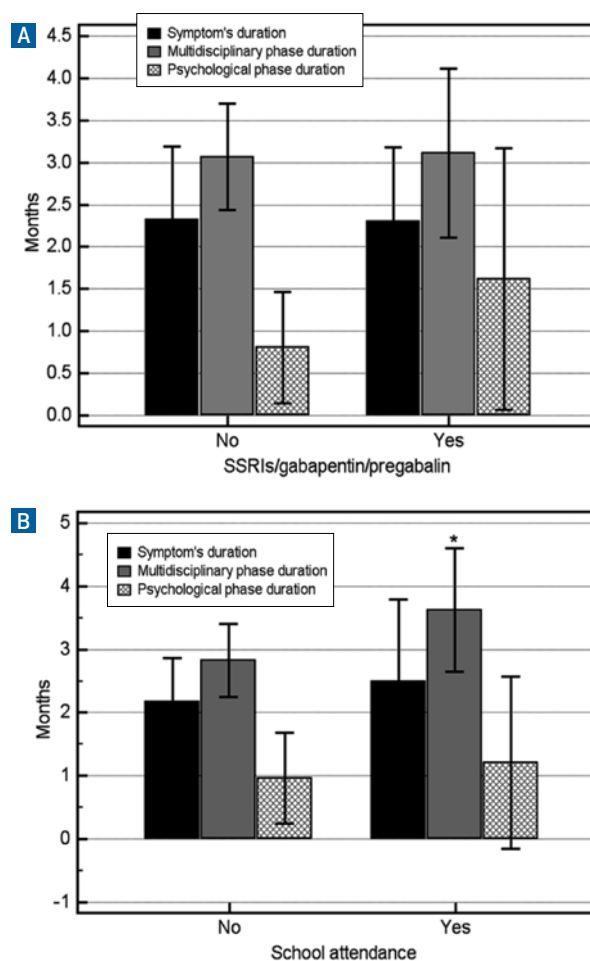
Pre-existing events consist of medical (e.g., high fever, fracture) and/or life events (death in the family, divorce) which occurred adjacent to the functional somatic symptoms appearance.

Symptom and intervention characteristics: Eighty-one percent of the children exhibited resistance to simple analgesics (medications did not alleviate pain). All children exhibited dysfunction in at least one limb (60% in one limb and 40% in more than one limb) and 68% had gait difficulties. Mean pre-admission symptom duration and duration of the multidisciplinary phase were 2.40 + 1.91 and 3.19 + 1.49 months, respectively (see Table 1).

Associations of intervention and pre-admission symptom duration with child, parental and familial characteristics: Pre-admission symptom duration and intervention duration were not significantly associated with: child characteristics (i.e., age, class, birth order), familial characteristics (i.e., number of children in the family), and parental characteristics (i.e., maternal and paternal education level). Similarly, no significant associations were observed between treatment duration (multidisciplinary or psychological) and pre-admission symptom duration.

Differences in pre-admission symptom duration and intervention duration based on pharmacological therapy (SSRIs/gabapentin/pregabalin) and school attendance status: No significant differences were observed between children who received or did not receive pharmacological therapy (SSRIs/gabapentin/pregabalin) in both symptom and intervention duration (see Figure 3a). Interestingly, the intervention duration of children who attended school regularly was longer than those who did not attend school

Figure 3. The association of pharmacological therapy (Figure 3a) and school attendance (Figure 3b) with pre-admission symptom's duration and intervention duration



Note: *Significant difference in between the "no" and "yes" groups. The level of significance was obtained after Bonferroni adjustment (0.05/3=0.016); SD=standard deviation; SSRIs= selective serotonin re-uptake inhibition.

regularly (3.84 + 1.42 and 2.91 + 1.42 months, respectively) (see Figure 3b).

DISCUSSION

Though there is a growing body of literature concerning pediatric and adolescent FSS phenomena, age-specific treatments have only become available in the last decade (1). Previous studies commonly employed a variety of treatments, such as CBT, physical therapy, and/or pharmacological treatment. Literature about the role of family in youth somatization phenomena is still accumulating, but family therapy is already a preferred and effective treatment for other adolescent disorders with physical presentations,

such as eating disorders (30). Etiologies of somatizing and anorectic youth share many common characteristics (e.g., using the body unconsciously as means of communicating stress). However, unlike the readily observable psychological component that tends to be present in eating disorders, the complaints of youths referred to our program focused on motor dysfunction, leading to the need for a rehabilitative approach incorporating parent-child communication.

The main purpose of this study was to present a family-centered (parent-focused) rehabilitation approach to FSS. Compliance rate in the study was relatively high, which may be due to the prior unsuccessful treatment experiences of participating families in various modalities (e.g., physical therapy, hydrotherapy and psychotherapy) at other treatment facilities. In addition, the first assessment included familial psycho-education pertaining to FSS and to the program's course. This might have facilitated trust in both parents and children, while helping them to build realistic expectations.

Immediately following treatment, 84% of the children showed no FSS symptoms and 94% returned to age-appropriate participation. At the one-year follow-up, 95% of the children that completed the program and were available remained symptom-free and exhibited age-appropriate activity and participation. Lower success rates are generally reported in the literature, especially concerning functional recovery (31, 32). For instance, in Kroenke's review, only 50 to 57% of the somatoform disorder trials demonstrated positive results (18). In addition, most CBT research shows moderate improvement, especially post-treatment, in catastrophic thinking and mood, but a smaller effect on pain and disability (33). However, there is no empirical common ground for comparing our results to those of the aforementioned studies as differences may be the result of: 1) Sample characteristics - Previous studies recruited children with different somatic symptoms (e.g., headaches, abdominal pain [34], or pseudo-seizures [22]), whereas our study included children with various motor disability complaints. Therefore, participants in the current study may differ in etiology; 2) Setting - Our treatment was conducted in a rehabilitative setting in a general children's hospital, which enabled collaboration between multidisciplinary professionals. Joint physical and psychological therapy, accompanied by academic support, is of crucial importance because both the physical disabilities and psychological concerns of the child are addressed and integrated. Previous studies commonly involved community-based treatment; and 3) Treatment approach - To date, to the best of our knowledge, the

importance of integral parental participation in children's rehabilitative programs has not been emphasized. More specifically, reported treatment modalities focus on the child (as the "client"), and the family is an active companion in the treatment (22). Our rehabilitative approach not only includes the parents in the treatment, but focuses on parent-child communication as a central treatment target. This approach is supported by Minuchin's (12) concept of the "psychosomatic family," that defines family communication as the target for change. Additional current concepts such as the "speechless mind" and "speaking body" (35) emphasize the need for children's distress to be addressed by parents, since the children lack the required verbal "translation" to communicate this distress. All the above are in accordance with the bidirectional (parent-child interaction) perspective on child development, in general, and on pediatric chronic pain in particular (9). Therefore, we assume that a treatment that actively involves parents, as employed in the current study, may enhance the probability of a child's recovery (36). It is important to emphasize that the children in our study who did not show improvement differed from the "successful" children in terms of their parents' engagement in the program.

Pharmacological intervention: In the current study, we did not use pain relief modalities (e.g., electrical stimulation and cryotherapy). However, SSRIs, simple analgesics, and gabapentin and pregabalin were recommended as needed. The aforementioned group of medications did not have an impact on treatment duration (see Figure 3a). Therefore, we hypothesize that pharmacological therapy is not necessarily a stand-alone beneficial treatment modality for youth, since it does not appear to treat the root causes of FSS.

Associations between intervention and pre-admission symptom duration with child, parental and familial characteristics: The participants in this study demonstrated a wide range of pre-admission symptom durations upon arrival to the clinic (from 1 week to 24 months). Interestingly, no association was found between pre-admission symptom duration and program duration. Accordingly, Logan and colleagues (37) reported that within a population of children with pediatric complex regional pain syndrome, pain duration was not associated with changes in functional status over time. Therefore, other factors might have influenced treatment duration. For instance, it is possible that improvements in children's emotional verbal expression along with an increase in parental acceptance of that expression might be related to intervention duration.

Child and contextual characteristics: Our data confirm previous findings on female predominance in FSS

prevalence (38). In addition, children who attended school regularly prior to the program's outset had longer treatment durations in comparison to those who did not attend school regularly. One possible explanation might be that when the FSS are more subtle in terms of daily life disturbance (i.e., the child attends school or meets friends regularly), the origin of the FSS is more occult and, consequently, achieving the final rehabilitation goals is more complex and takes longer.

An interesting familial characteristic was the high level of education of parents participating in this study (fathers and mothers: 13.8 and 14.5 years, respectively). Two possible explanations are suggested for this finding. First, educated parents may place higher expectations and demands on their children, thus causing them greater stress. In turn, the child might manifest somatic symptoms as an unconscious defense mechanism to overcome the unbearable stress (4). Second, parents usually approach our clinic voluntarily for treatment. It is possible that highly-educated parents are more willing to approach our treatment because they are more open to an integrative (psycho-physical) understanding of their child's problem.

Generalizability: Children in this program had heterogeneous physical pseudo-neurological FSS including motor impairments and functional limitations. Therefore, we believe that this study has high generalizability and that the family-centered program described might be effective in a wide spectrum of children with FSS. Still, the generalizability of our study may be limited by factors such as small sample size and lack of a control group. Moreover, parents actively looked for help and therefore may not accurately represent all families with FSS (34). Finally, to fully understand the factors that impact treatment duration, there is a need for quantitative tools to measure changes in specific parameters of parent-child communication.

CONCLUSION

The novel success of the presented program affirms the crucial role of parents in treating their children's FSS. Moreover, FSS management in children is multidimensional and best treated in a rehabilitative setting that provides both psychological and physical interventions. These emphases may account for the high recovery rates immediately following treatment and at follow-up. Future research should take into consideration specific parental psychological factors involved in parent-child communication. Additionally, in examining the unique characteristics of these children, their vulnerability should be investigated using more structured research tools.

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