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The relationship between pain-expressing metaphors and graded exposure treatment in children with chronic pain

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THE RELATIONSHIP BETWEEN PAIN-EXPRESSING METAPHORS AND GRADED EXPOSURE TREATMENT IN CHILDREN WITH CHRONIC PAIN

by

JOHN CARLO PASCO

B.A., Stanford University, 2013

M.S., Columbia University, 2015

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Approved by

First Reader

M. Isabel Dominguez, Ph.D.
Assistant Professor of Medicine, Hematology-Oncology Section

Second Reader

Christine B. Sieberg, Ph.D., Ed.M., M.A.
Attending Psychologist,
Department of Anesthesia, Boston Children's Hospital
Assistant Professor
Department of Psychiatry, Harvard Medical School
Director
Biobehavioral Pediatric Pain Lab, Boston Children’s Hospital

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ABSTRACT

Background: The biopsychosocial model of pain suggests that one's perception of pain is affected by one's beliefs about pain (Moseley & Butler, 2015). Metaphors have been shown to be effective in educating the patient about pain, which in turn reduces it (Gallagher et al., 2013). How might metaphors be used by the patient to express their pain, and what do these metaphors have in common? This qualitative study will examine the pain-expressing metaphors (PEMs) used by the pediatric chronic pain patients in a graded exposure treatment.

Methods: 36 patients recruited from Pain Treatment Service at Boston Children's Hospital and the Pediatric Headache Program were enrolled GET Living, a pediatric chronic pain intervention composed of a series of individualized graded exposure sessions. Of these 36 patients, video recordings for GET Living sessions were available for 19. Of these 19 patients, video recordings of at least 5 sessions were available for 11 patients. Each video-recorded session for these 11 patients was viewed, reviewed, and coded for the use of PEM by the patient.

Results: Each of the PEMs patients used in this study could be organized into one of 6 categories: Sharp, Burning, Throbbing, Spectrum, Physical Qualities, and Other

Sensation. “Other Sensation” was the category into which the most individual PEMs fell, but the category that had PEMs used by the most number of patients was “Sharp.”

Conclusion: This study added to existing literature regarding categories of pain metaphors, supporting groupings such as sharp, throbbing, and burning. This study furthermore described groupings such as characterizing pain as a spectrum and characterizing pain as something with physical qualities. Future studies with more robust data sets could code PEMs in the same way and then conduct a quantitative analysis of metaphor use by patients enrolled in GET Living, correlating metaphor use with measures such as fear of pain and functional disability as recorded in the GET Living Child Assessment.

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LIST OF ABBREVIATIONS

BCH ..... Boston Children's Hospital

CBT ..... Cognitive behavioral therapy/therapist

CDI ..... Children's Depression Inventory

CPAQ ..... Chronic Pain Acceptance Questionnaire

CRPS ..... Complex Regional Pain Syndrome

FDI ..... Functional Disability Index

FOPQ ..... Fear of Pain Questionnaire

GET ..... Graded Exposure Treatment

MASC ..... Multidimensional Anxiety Scale for Children

PCS ..... Pain Catastrophizing Scale

PEM ..... Pain-expressing metaphor

PHODA ..... Photographs of Daily Activities

PT ..... Physical therapy/therapist

PPRC ..... Pediatric Pain Rehabilitation Center

PPRS ..... Participant Pain Reporting Scale

PSOCQ ..... Pain Stages of Change Questionnaire

PTS ..... Pain Treatment Service

INTRODUCTION

Pain has an element of blank; / It cannot recollect / When it began, or if there were / A day when it was not. –Emily Dickinson (Dickinson, 1979)

Background and Significance: The American poet Robert Frost posited that the job of poetry was "to give people the thing that will make them say 'Oh yes I know what you mean'. . . It must be something they recognize" (Frost, 2014). This idea is particularly salient in attempting to convey one's experience of pain.

The experience of pain involves biological factors such as sex (Vigil & Coulombe, 2011) and genetics (Linnstaedt et al., 2016), as well as psychosocial determinants such as anxiety (Castillo et al., 2013), stress (Vachon-Presseau et al., 2013), and socioeconomic status (Fitzcharles, Rampakakis, Ste-Marie, Sampalis, & Shir, 2014). Pain can be characterized into acute and chronic pain. Acute pain often occurs with a particular disease or injury and usually dissipates once the disease or injury has been addressed by the body's immune system (Grichnik & Ferrante, 1991). Chronic pain is more enduring, lasting long after the body has healed, if it was even associated with a disease or injury in the first place, and often has no defined end point (Grichnik & Ferrante, 1991). It is perhaps this nebulous infinity that makes Dickinson wonder if the pain was not always present, "if there were / a day when it was not."

Chronic pain is a significant public health problem, affecting approximately 100 million adults in the United States and costing the United States over $19 billion annually in pain-related disability (Gaskin & Richard, 2012). Chronic pain also impacts children:

It is estimated that 1.7 million children in the United States alone suffer from moderate to severe persistent pain (Groenewald, Essner, Wright, Fesinmeyer, & Palermo, 2014).

The most common forms of pediatric chronic pain include headaches, abdominal pain, and musculoskeletal pain (Perquin et al., 2000). Besides having to suffer from the pain itself, chronic pain in children has significant downstream effects. Chronic pain affects a child's ability to attend school regularly, which can cause a decline in grades (Logan, Simons, Stein, & Chastain, 2008).

Pediatric chronic pain can be modulated by factors such as fear of pain and functional disability. The Fear-Avoidance Model of Pain posits that a pain experience can lead to a fear of pain (Crombez, Eccleston, Van Damme, Vlaeyen, & Karoly, 2012). The Fear-Avoidance Model of Pain suggests that a patient's response to this fear is crucial: Confronting this fear, even at the risk of enduring more pain, leads to recovery from the pain. Avoiding the activity for fear of pain, though momentarily delaying the pain, can lead to anxiety and disability due to disuse, which can lead to the persistence of pain, which initiates a positive feedback loop (Vlaeyen & Linton, 2000). In chronic pain patients, especially those whose initial injuries have healed, this cycle of fear avoidance can be debilitating, discouraging patients from using or exercising the injured body part when strengthening of the body would in fact be beneficial (Crombez et al., 2012). The Fear-Avoidance Model of chronic pain has been shown to be applicable in pediatric chronic pain patients as well, noting especially that the model, when tested in a sample of 151 pediatric chronic pain patients, predicted functional disability very well (Simons & Kaczynski, 2012). Functional disability has been associated with pediatric chronic pain

(Wojtowicz & Banez, 2015). It has also been shown that pain-related fear may mediate the relationship between pain intensity and disability in work or occupational settings (Gheldof et al., 2006).

Parents also feel the effects of their children's chronic pain through anxiety and stress that arise from worrying about the health of their children (Sieberg, Williams, & Simons, 2011) as well as losing wages due to having to take care of their children (Sleed, Eccleston, Beecham, Knapp, & Jordan, 2005). Furthermore, chronic pain can affect children's futures, with evidence suggesting that chronic pain experienced as children increases the risk of suffering from chronic pain as adults (Walker, Dengler-Crish, Rippel, & Bruehl, 2010). Clearly, it is of utmost importance that the chronic pain of pediatric patients is treated effectively.

Pediatric Chronic Pain Treatment: Because chronic pain is a complex condition that may have a variety of different etiologies manifesting itself in a variety of different places in the body, it is perhaps not surprising that there are a variety of different methods of treating chronic pain in pediatric patients. Some treatments focus on addressing pain pharmacologically through drugs such as opioids (Chang et al., 2016). Nonpharmacological treatments, such as yoga (McNamara et al., 2016) and acupuncture (Juel et al., 2017), have shown to be effective in the treatment of chronic pain caused by conditions such as pancreatitis and cystic fibrosis.

Two types of therapy that are efficacious for the treatment of chronic pain and are a focus of this thesis are Cognitive Behavioral Therapy (CBT) and Physical Therapy

(PT). CBT is an evidence-based intervention that is sometimes used to treat chronic pain (Ehde, Dillworth, & Turner, 2014), among other disorders (McKay et al., 2015). It focuses primarily on developing coping strategies and reframing mental actions. It has been extensively studied and supported by research on interventions that focus on treating chronic pain. CBT has shown to be effective in treating chronic pain in children and adolescents (Eccleston et al., 2014), as well as pediatric depression (Hazell, 2011), anxiety (James, James, Cowdrey, Soler, & Choke, 2013), and post-traumatic stress disorder (Kowalik, Weller, Venter, & Drachman, 2011).

PT is a form of rehabilitation therapy that emphasizes mobility and function of body parts in order to strengthen areas of the body weakened by injury or disease. PT has shown to be effective in treating chronic conditions such as childhood Complex Regional Pain Syndrome (CRPS) (Sherry, Wallace, Kelley, Kidder, & Sapp, 1999). One randomized control trial looking at the effect of physical therapy on CRPS showed reduced pain and improved function after PT (Lee et al., 2002). PT has also been used in conjunction with other strategies such as analgesics and psychological therapy (Ayling Campos, Amaria, Campbell, & McGrath, 2011).

Used together, such as in the GET Living program which this thesis will later analyze, CBT and PT have shown to be an effective therapeutic strategy in some chronic pain patients (Archer et al., 2016). CBT and PT together, among other integrative treatments, have been used effectively at the Mayo Family Pediatric Pain Rehabilitation Center (PPRC) at Boston Children's Hospital in Waltham, MA (Logan, Carpino, et al., 2012; Logan, Conroy, Sieberg, & Simons, 2012). Integrative treatments have been used

at the PPRC to study, for example, changes in pain-related attitudes of parents (Sieberg et al., 2017) or changes in sleep habits in adolescents (Logan et al., 2015).

The biopsychosocial model of chronic pain takes into consideration these many etiologies, accounting for intricate interactions between biological, psychological, and social factors that together form a person's experience of pain (Gatchel, Peng, Peters, Fuchs, & Turk, 2007). It allows for the explanation of pain based upon a person's unique subjective experience.

The subjectivity of a patient's experience of pain presents several unique problems when it comes to treating and managing one's pain. John D. Loeser's onion model of pain suggests that pain has four layers (Loeser, 2006). The patient privately experiences the inner three layers of the onion: nociception, pain, and suffering. The external layer of the onion is pain behavior, or the expression of one's inner pain to others. This model suggests that treating only the external layer of pain is not sufficient; rather, one must also address the underlying hidden layers that constitute a patient's pain.

This thesis will explore two particular ways in which these hidden layers are addressed: pain education through metaphors and graded exposure treatment, a behavior therapy used to help overcome fears and anxieties through desensitization (Mowrer, 1939).

Pain Education through Metaphors

The biopsychosocial model of pain furthermore suggests that one's perception of pain is affected by one's beliefs (Moseley & Butler, 2015). Interventions such as pain

neuroscience education use this as a model: Learning about one's pain can modulate the pain itself (Robins, Perron, Heathcote, & Simons, 2016). Though this implies that the transfer of information from the pain educator to the patient is an important factor in the mitigation of chronic pain, studies show that that is not always the case. One study suggested that physicians and chronic pain patients often do not have the same set of expectations during pain clinic visits (Calpin, Imran, & Harmon, 2016). Another study showed that physicians sometimes underestimate their patients' pain and overestimate their patients' understanding of their diagnoses (Coran, Koropeckyj-Cox, & Arnold, 2013). It can be inferred that there is a disparity between what patients know and what physicians think patients know when it comes to their understanding of their pain.

The use of metaphors to educate patients may already be an effective, if not widely utilized, strategy for bridging this gap. In general, a metaphor is a figure of speech in which a word or phrase used to describe something literally is applied to something unrelated in order to connect the two ideas (Lakoff & Johnson, 2003). Dickinson's poem in the introduction of this thesis utilizes personification, a type of metaphor, to describe pain: "[Pain] cannot recollect / When it began, or if there were / A day when it was not." (Dickinson, 1979). Here, pain is not literally doing the recollecting; instead, Dickinson ascribes human qualities to this abstract, yet universal phenomenon in order to highlight the unrelenting ubiquity of chronic pain. Dickinson's use of metaphor here connects the idea of the implacable presence of pain with the image of a human pondering her own existence, in an attempt to, as Frost put it, "make them say 'Oh yes I know what you mean'" (Frost, 2014).

Metaphors help make the abstract more concrete by using common ideas to illustrate more complex or conceptual ones. They can be used to express feelings and ideas that would not otherwise be able to be expressed. Because of this, metaphors could play an important role in pain education, especially in pediatric populations. Metaphors may already be useful in explaining to children such topics as the difference between acute and chronic pain, pain transmission, factors that affect the experience of pain, and pain rehabilitation ("Pediatric Pain Letter - v15n1_coakley.pdf," n.d.). In one randomized-controlled study, 79 people between ages 18 and 75 were split into two groups. One group received a booklet of metaphors and stories that illustrated biological concepts of pain, while the other group received a booklet of strategies on managing chronic pain. The group that received the metaphors booklet had larger chances in knowledge of pain biology and a reduction in pain catastrophizing (Gallagher, McAuley, & Moseley, 2013). Metaphors have also been used to teach pediatric patients about chronic pain related to rheumatic diseases (Rapoff & Lindsley, 2000).

These studies have focused exclusively on the use of metaphor to educate the patient. However, can pain-expressing metaphors (PEMs) be used to educate the health professional about the patient's inner pain? Metaphors have already been discussed as "the only option available" to communicate pain (Schott, 2004). If metaphors are a way to bridge the gap of understanding between physician and patient, can the bridge be built from both sides? One qualitative study looking at neuropathic pain in spinal cord injury patients suggested that the patients' uses of metaphors to describe chronic pain showed that they were attempting to process their pain (Hearn, Finlay, & Fine, 2016). How might

patients use metaphors to express pain, and could this have an effect on their experiences of pain? Another study organized metaphors used to describe pain into groups that reflected the statements "Pain is a sharp object," "Pain is a tormenting animal," and "Pain is fire" (Kövecses, 2008). Might being understood through metaphors perhaps have a similar benefit to the patient as being educated about pain does? With these questions in mind, this thesis will attempt to qualitatively examine PEMs used by pediatric chronic pain patients during the course of the GET Living intervention.

Graded Exposure Treatment: the GET Living study

"GET Living: Graded Exposure Treatment for children and adolescents with chronic pain" ("GET Living") is an ongoing study conducted by the Biobehavioral Pediatric Pain laboratory at Boston Children's Hospital and funded by Deborah Munroe Noonan Memorial Research Fund/The Medical Foundation that aims to reduce elevated pain-related fear in children with chronic pain. The GET Living treatment is a structured and individually tailored program that consists of graded in-vivo exposures for the patient and a parent component to enhance skill acquisition and generalization. Generally, the goal of the GET Living treatment is to return its participants to valued activities of daily life and to restore daily functioning. In addition to looking at metaphors used to express pain, this thesis intends to qualitatively evaluate the effectiveness of individualized GET Living interventions for children with high pain-related fear and functional disability.

The researchers conducting the GET Living study hypothesize that children who undergo the GET Living intervention will have significantly lower pain-related fear and

disability post-treatment, compared to the patients' own baselines taken before treatment begins.

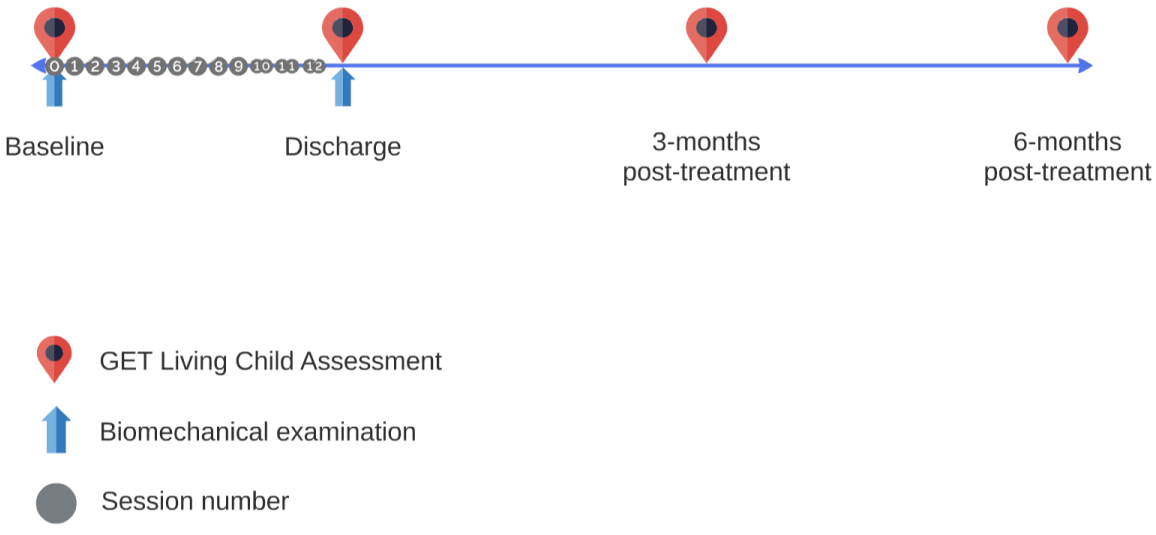
To begin participation in the GET Living study, the patient first completes the GET Living Child Assessment as well as a biomechanical examination. During this examination, the patient's movements are captured by sensors placed on their body and then mapped onto a 3D computer model. This model is used to analyze information about strength, range of motion, gait, and reach. After a baseline imaging and assessment, the treatment itself begins. The GET Living treatment consists of six to fifteen 50-minute sessions, which take place twice per week, though the treatment may end early if it is determined that the primary treatment goals of the patient have been achieved. Each day, both the patients and parents complete a "daily diary," which contains self-reported information about pain-related fear, pain catastrophizing, and current pain. Sessions 1-5, which aim to educate the patient and parent about the fear-avoidance model of pain and set goals for treatment, are attended by the cognitive-behavioral therapist, physical therapist, child, and parent (See Appendix A). Graded exposure—during which some sessions are co-led by the cognitive-behavioral therapist and physical therapist, and others are individual meetings between the cognitive-behavioral therapist and the parent—begins in Session 6 and continues through the penultimate session.

Graded exposure therapy is a form of behavior therapy in which worries and anxieties are ranked and then overcome step by step (Hofmann, 2008; McDonnell-Boudra, Martin, & Hussein, 2014). During the graded exposure phase, patients engage with activities they perceive to be harmful. Through habituation, the anxiety and fear

response is eventually reduced (Mowrer, 1939). Before the graded exposures begin, the patient creates an "Activity Ladder," ranking activities from least worrisome to most worrisome. Once the fear response is effectively reduced for a less worrisome activity, the patient is exposed to the next more worrisome activity, and the process repeats.

During the last session, the cognitive-behavioral therapist, physical therapist, child, and parent meet once more to reflect on the patient's progress and long-term goals, discuss ways to prevent relapse, and celebrate the successful completion of the program. Patients then complete the same baseline assessment at discharge, 3-months post-treatment, and 6-months post-treatment. The biomechanical examination is completed again at discharge only, in order to compare measures of strength, range of motion, gait, and reach to the baseline measurements.

Figure 1: Timeline of GET Living assessments for a given patient



This thesis will focus particularly on the patients' expressions of pain through metaphors during GET Living sessions, organizing them into categories and then comparing these categories to those already offered in the literature.

Specific Aims: Though the use of metaphor has been explored in the context of explaining pain, there has been little research done in connecting the actual use of metaphor with the experience of pain in pediatric chronic pain patients. This thesis will

- Utilize a qualitative approach to identify and provide a theoretical framework for explaining the use of pain-expressing metaphors by pediatric chronic pain patients in a graded exposure treatment intervention
- Reflect on other ways in which the study of metaphor and pain expression can be explored in future pain research.

METHODS

Recruitment: Patients were recruited from Pain Treatment Service (PTS) at Boston Children's Hospital (BCH) and the Pediatric Headache Program at BCH in Waltham, MA. Patients were recruited if they a) were between the ages of 8 and 17 years old, b) had pain-related fear, as indicated by a score greater than 40 on the Fear of Pain Questionnaire (FOPQ), c) had headaches or musculoskeletal neuropathic limb or back pain, and d) had functional limitations, as indicated by a score greater than 12 on the Functional Disability Inventory (FDI). Exclusion criteria included significant cognitive impairment, serious psychopathology, acute trauma, systemic disease in an active inflammatory state, biomechanical deficit that would limit one's ability to engage in exposure activities, or making gains in current physical therapy.

Study Design: At the time of this writing, 36 children with musculoskeletal, neuropathic, or headache pain were recruited to participate in the GET Living study, which is ongoing. Of these, 7 dropped out of the program during treatment, 3 never began treatment, and 2 have yet to complete the program. The 24 patients who have completed the GET Living program were predominately female (83.3%) and Caucasian (87.5%) and ranged in age from 8 to 17 (Mean=13.76 years old; SD=2.95). Once consent was obtained, participants conducted a baseline test, which included the completion of the GET Living Child Assessment as well as a series of biomechanical imaging tests designed to measure strength, range of motion, gait, and reach. After the baseline assessment was completed, each patient participated in 6-15 sessions of GET Living, with each session lasting about

50 minutes. Participants and their parents also completed separate daily diaries, which asked them about their pain and anxiety levels for that day. The GET Living sessions were facilitated by a cognitive-behavioral pain psychologist and physical therapist. Upon completion of the GET Living program, patients completed a discharge (with biomechanical exam), a 3-month post-treatment, and 6-month post-treatment follow up evaluation, which included completion of daily diaries for the seven days preceding each follow-up time point.

Data Collection: The data for this paper came primarily from the audio and video recordings of each available GET Living patient session. The measures from the GET Living Child Assessment are provided below to contextualize the measures which the GET Living treatment sessions are attempting to impact.

GET Living Child Assessment

The GET Living Child Assessment was completed by each patient at baseline, discharge, 3-months post-treatment, and 6-months post-treatment. As detailed below, the entire assessment was composed of questions from the Photographs of Daily Activities-Youth English (Simons et al., 2017); Fear of Pain Questionnaire, child report (Simons, Sieberg, Carpino, Logan, & Berde, 2011); Functional Disability Index (Claar & Walker, 2006); Pain Catastrophizing Scale, child survey (Parkerson et al., 2013); a version of the Chronic Pain Acceptance Questionnaire adapted for children disability (McCracken, Gauntlett-Gilbert, & Eccleston, 2010); Pain Stages of Change Questionnaire-Child

survey (Carr, Moffett, Sharp, & Haines, 2006; Guite, Logan, Simons, Blood, & Kerns, 2011); Children's Depression Inventory (Kovacs, 1985); the Multidimensional Anxiety Scale for Children (March, Parker, Sullivan, Stallings, & Conners, 1997); and the Participant Pain Reporting Scale (Krebs, Carey, & Weinberger, 2007).

The Photographs of Daily Activities- Youth English (PHODA), used to help tailor individual treatment to pediatric chronic pain patients, is an assessment in which patients rate their expectations of pain for a variety of daily activities. The PHODA demonstrated strong internal consistency and validity, with PHODA scores strongly associated with fear, avoidance, and functional disability (Simons et al., 2017).

The Fear of Pain Questionnaire, child report (FOPQ-C) is used to assess fear of pain and pain avoidance in pediatric chronic pain patients. To demonstrate its reliability and validity, it was given to 299 pediatric patients with chronic pain at a pain treatment evaluation. It showed strong internal consistency and correlates with generalized anxiety, pain catastrophizing, and somatization (Simons, Sieberg, Carpino, Logan, & Berde, 2011).

The Functional Disability Index (FDI) is frequently used as a measure of physical functioning and disability in pediatric chronic pain patients. This assessment showed high and moderate test-retest reliability at 2 weeks and 3 months, respectively, and demonstrated an excellent internal reliability (Claar & Walker, 2006). The assessment also showed significant correlations between child-reported PDI scores and school-related disability, pain, and somatic symptoms, which supports its validity (Claar & Walker, 2006).

Pain catastrophizing is the phenomenon of describing one's pain in more exaggerated terms on average, which can have an effect on the person's experience (Gracely et al., 2004) and even memories of pain (Noel, Rabbitts, Tai, & Palermo, 2015). The Pain Catastrophizing Scale, child survey (PCS-C) measures pain catastrophizing in children and demonstrated factorial validity in a sample of 1,006 English-speaking children (Parkerson et al., 2013). It also showed worth in the clinic and in research (Pielech et al., 2014).

The Chronic Pain Acceptance Questionnaire adapted for children (CPAQ-C) is a measure of pain acceptance, which is a term that describes the characteristic of experiencing pain without trying to control and persisting in spite of it (McCracken, Vowles, & Eccleston, 2004). It has been demonstrated that there is a strong relationship between acceptance, depression, pain catastrophizing, and functional disability (Weiss et al., 2013). This CPAQ was administered to 122 adolescents with chronic pain and significant disability who attended a specialty service. These results reinforced the CPAQ as a reliable and valid questionnaire, showing that higher levels of acceptance were correlated with lower levels of distress and disability (McCracken et al., 2010).

The Pain Stages of Change Questionnaire-child survey (PSOCQ) assesses how ready a patient is to begin self-managing their chronic pain. Though earlier studies have cited the need for further research into the utility of the PSOCQ as a clinical and research tool (Strong, Westbury, Smith, McKenzie, & Ryan, 2002), later studies have shown that the PSOCQ-A, the version of the PSOCQ adapted for adolescents, demonstrates adequate internal consistency and validity (Carr et al., 2006; Guite et al., 2011).

The Children's Depression Inventory (CDI) measures the severity of child depressive symptoms. It has shown high internal consistency and validity (Helsel & Matson, 1984) and has shown to be able to discriminate between depression and anxiety (Timbremont, Braet, & Dreessen, 2004).

The Multidimensional Anxiety Scale for Children (MASC) assesses anxiety in children and adolescents. It was shown to be consistent regardless of gender or age and demonstrated exceptional internal reliability and adequate validity. (March et al., 1997).

The Participant Pain Reporting Scale (PPRS) is a simple numerical pain rating scale that has shown to be moderately effective in clinical settings (Krebs et al., 2007).

Audio/Video Recordings

Of the 36 patients recruited to participate in GET Living, 7 dropped out of the program during treatment, 3 never began treatment, and 2 have not yet completed the program. Of the remaining 24 patients, video recordings for GET Living sessions were available for 19. Of these 19 patients, video recordings of at least 5 sessions were available for 11 patients. The threshold of 5 sessions was chosen because of the structure of GET Living: Sessions 1-5 were scheduled to be the sessions in which there is the most dialogue between the pain treatment team and the patient (Goals of the first five sessions include building rapport, educating the patient about pain, and setting treatment goals). These patients (n=11) were predominantly female (90.9%) and Caucasian (90.9%), aged 10 to 17 years old (Mean=13.49 years old, SD=2.34).

Among these 11 patients, there were 114 GET Living treatment sessions recorded

via audio/videotape (Mean=10.36 sessions per patient, SD=2.11). For these 11 patients, various combinations from 3 different CBTs and 2 different PTs led the GET Living sessions, though the same CBT and PT for the most part conducted the sessions for a given patient.

These 114 treatment sessions were recorded across 271 separate videos. These videos were stored on a password-protected server that was accessed either in the office or remotely via a secure Virtual Private Network (VPN). Each interview for which there was an audio/video recording was watched, reviewed, and coded for the use of pain-expressing metaphors (PEMs) by the patient. A pain-expressing metaphor was defined as any word or phrase spoken by the patient that characterized pain in a non-literal way (e.g., "it feels like pins and needles," "my pain flares up"), rather than merely describing pain (e.g., "it hurts a lot," "it aches"). Each instance of PEM was recorded verbatim and sorted by patient identification number, session number, video name, and time at which the PEM was used (See Appendix B).

Data Analysis:

The metaphor frequency data (Table 1) were compiled in a Microsoft Excel spreadsheet. For a given patient, after the number of metaphors used per session was recorded, the total number of metaphors used was determined. Each metaphor used was then separated into one of 6 groups of PEM: burning, throbbing, physical qualities, sharp, spectrum, and other sensations (Table 2).

RESULTS

Metaphor Data from Video/Audio recordings: The number of PEMs used by each patient per video recorded session is summarized in Table 1 below. Each PEM is recorded in Appendix B.

Table 1. Number of Pain-Expressing Metaphors (PEMs)

Patient ID	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	Total PEMs per patient
T18**																
T19	2	6	0	0	1	2	0	-	0	1	0	0	0	0	0	12
T20	0	3	0	0	0	0	0	0	0							3
T21	0	3	0	0	0	0	0	0	2							5
T22	0	3	0	0	0	0	0	0	0							3
T23	2	5	0	1	1	0	0	0	0	0	0					9
T24	0	1	0	-	0	0	0	0	0	0	0	0				1
T25	0	-	0	0	0	1	2	0	0	0	0	0				3
T26*																
T27	0	3	0	0	0	0	0	0	0	0	0	0				3
T28*																
T29	1	0	0	0	0	0	-	-	-	-	-	-				1
T30	0	0	0	0	0	0	0	0	0	0	0	0				0
T31	0	0	0	0	0	0	0	0	0	0	-	-	-			0
T32**																
T33*																
Total PEMs per session	5	24	0	1	2	3	2	0	2	1	0	0	0	0	0	**40**

* Dropped out of the study

** Not enough sessions recorded to be eligible

\- Video not available

Considering all 11 patients for which audio/video recordings are available, each patient used an average of 3.63 PEMs (SD=3.60) throughout their GET Living treatment. Of the 9 patients who used PEMs, each patient averaged 4.44 PEMs (SD=3.50). Generally, Session 2 was the most common session in which PEMs were recorded (24 total). 52.5% of the total metaphors used to express or describe pain came in direct response to the question "How would you describe your pain?" Overall, 80% of PEMs occurred in the first 5 sessions, the goals of which include rapport building and goal setting.

Each PEM used in the GET Living treatment sessions fell into one of 6 categories, as summarized in Table 2 below in order of fewest individual PEMs used to most individual PEMs used.

Table 2. Metaphors grouped by category

	Patient	Session	Time	Metaphor
Burning (6)	T19	1	23:15	"the pain flares up and I can't do anything that day"
	T21	2	17:14	"sometimes it's kind of like a burning sensation"
	T22	2	3:26	"My hands burn"
	T23	1	17:08	"My foot sort of felt like it was on fire"
	T23	2	17:29	"Burning was the first thing that I felt"
	T23	4	10:36	"That's when my foot felt [like] it was on fire"
Throbbing (6)	T19	2	16:28	"sometimes [the pain] could be like, throbbing"
	T19	6	10:46	"When I hang [my arm] like this…I get this weird pulsing"
	T20	2	3:00	"throbbing"
	T20	2	4:37	"…like a beating, kind of. It felt really…"
	T24	2	7:10	"It's throbbed before"
	T27	2	7:34	"I guess, throbbing"
Physical qualities	T19	2	20:10	"[the pain] feels like it got more stiff"
	T19	6	8:00	"There's kind of like a really tight pain"

(6)	T21	9	39:23	"Now I know that it's okay to push through pain"
	T21	9	49:38	"[I learned] how to push through [the pain] without pushing too far"
	T23	2	18:24	"yeah, stiff"
	T29	1	10:25	"I'm trying to push through [the pain]"
Sharp (7)	T19	2	16:30	"sometimes [the pain is] cutting,"
	T19	2	16:33	"…or [the pain] is like carving, almost"
	T21	2	16:09	"It's like usually pretty sharp"
	T22	2	1:34	"sharp"
	T25	6	10:56	"Like If I'm having like, extreme stabbing pain"
	T27	2	7:58	"It's sharp sometimes"
	T27	2	10:15	"I guess both [sharp and dull]"
Spectrum (7)	T19	1	24:40	"[the goal was] to try to decrease the pain"
	T19	2	25:50	"Walking makes the pain rise and rise"
	T19	5	7:33	"When I have pain…It's hard to get [pain] away"
	T20	2	4:27	"When I was running, the heel part of my foot hurt, and it was off and on"
	T22	2	2:26	"Sometimes it feels like, on and off"
	T25	7	2:09	"I was feeling okay and then all of a sudden the pain started really escalating"
	T25	7	2:25	"it's gone down a little bit"
Other sensations (8)	T19	2	17:15	"[the pain] feels shooting… and [my arm] feels like it pulls apart"
	T19	10	10:40	"I kind of feel a nervy kind of pain"
	T21	2	16:39	"sometimes it's tingly"
	T23	1	13:57	"Vibrations…really hurt… at first I thought it was my watch shocking me"
	T23	2	17:03	"It feels like my foot's asleep sometimes"
	T23	2	18:11	"It feels like you're sleeping and you slept wrong, sort of"
	T23	2	20:00	"Sometimes, I feel like… you know when you hit into the corner of the table, like your hip or your… well, it feels like I did that on my foot"
	T23	5	3:18	"It's tingly"

Of the 9 patients who used PEMs during GET Living sessions, 5 of them used metaphors that characterized pain as sharp; 4 patients used metaphors that visualized pain as a

spectrum; 4 patients used metaphors that characterized pain as a fire; 4 patients used metaphors that characterized pain as a something that throbs or pulses; 4 patients used metaphors that visualized pain as something with physical qualities; and 3 patients used metaphors that characterized pain in terms of other sensations not listed above.

Session 2 was the session in which a plurality of metaphors were expressed for the categories of “sharp” (6/7), “throbbing” (5/6), “other sensations” (5/8), and “spectrum” (3/7). Furthermore, Session 2 was the session in which 50% of the metaphors in the category of burning and 33% of the metaphors in the category of physical qualities were expressed.

DISCUSSION

Linguist Elena Semino, in her paper exploring metaphors, pain expression, and embodiment, suggests that expressing pain metaphorically could help the one listening to these expressions understand pain by facilitating an embodied response in the listener: an empathic response which could help the one expressing pain (Semino, 2010). This thesis, in hopes of beginning to flesh out Semino's assertion, set out to qualitatively explore the PEMs used by pediatric chronic pain patients in graded exposure treatment sessions.

Defining "metaphors": The data presented above hinges on a crucial question: What counts as a metaphor? As stated, this study counted one pain-expressing metaphor as any word or phrase spoken by the patient that characterizes pain in a non-literal way. This included phrases such as "the pain flares up" because the patient's body was not literally on fire, and "I'm trying to push through [the pain]" because pain was conceptualized as something through which one must push. Some also conceptualized pain as a spectrum on a scale of no pain to more pain (e.g., "decrease the pain," or "Walking makes the pain rise"). Arguably, these phrases could be considered common expressions or idioms used to describe pain. It could also be that the patients were merely describing pain in ways that they have been asked about pain before (e.g., "Do you feel a burning?" or "Please rate your pain on a scale of 1 to 10."). However, many of the metaphors used during GET Living sessions (e.g., burning, stabbing) were also consistent with types of metaphors used in another analyses of metaphors (Hearn et al., 2016; Kövecses, 2008). Therefore, for the purposes of this project, these metaphors were deemed admissible; if the

biopsychosocial model suggests that learning about pain can modulate one's pain experience, this project sought to look at the effect of teaching about one's pain, conveying these teachings through these metaphors. Future studies, however, might consider defining "metaphor" more strictly.

Distribution of PEM use throughout the GET Living sessions: Understandably, 80% of the PEMs used occurred in the first 5 sessions. It is during these 5 sessions that the pain educators got to know the patient, educated the patient about pain, and began to formulate an individualized plan to help the patient. These five sessions depend on active dialogue from the patient and the patient's parent(s) and so it is not surprising that a majority of PEMs occurred in these sessions. Session 2 was by far the most likely session in which PEMs occurred, in part because this session included the question "How would you describe your pain?" as part of the Pain-Worry Cycle Worksheet. It makes sense that there are more PEMs used in the first five sessions compared to the later sessions because of the fact that there are simply not as many opportunities to express pain during the graded exposure sessions. During these sessions, the PT guided the patients through a potentially worrying activity, giving the patient coping strategies for doing the activity. Ideally, the patients would have no need to verbally express pain because they were in a controlled environment with a trained pain professional (though it did happen). In addition, most conversation during the exposure sessions functioned as further rapport building or as dialogue between the PT and patient about the patient's level of confidence in completing the activity and future goals.

Qualitative analysis of PEM categories: The 6 categories into which this study sorted pain metaphors (sharp, burning, throbbing, spectrum, physical qualities, and other sensations) add to the literature of attempting to describe pain through metaphor. One study looked at how people make sense of their everyday pain, sorting their sense making of normal pain into categories such as pain as a signal of malfunction, pain as self growth, pain as spiritual growth, pain as alien invasion, pain as coping an control, pain as abuse, pain as homeostatic mechanism, and pain and power (Aldrich & Eccleston, 2000). Another study examining fourteen women with fibromyalgia grouped their pain experiences into categories that characterized pain as a physical deformation and as a torture-like experience (Söderberg & Norberg, 1995). Elena Semino asserted that pain resulting from tissue damage was often described metaphorically in terms something that can cause physical damage, including categories such as physical damage via insertion of pointed objects, physical damage via the application of sharp objects, physical damage via pulling/tearing, and physical damage via the application of pressure/weight (Semino, 2010).

This study in part supported many of these organizations, with many PEMs expressed in this study falling under aforementioned categories, namely the categories of sharp, burning, and throbbing. “Sharp” was the category into which PEMs were used by the most patients (5). In this study, the number of patients using PEMs in a given category was focused on more than the category with the most individual PEMs used in the event of, for example, one patient using PEMs that fell into only one category and

perhaps skewing the data. “Throbbing” and “burning” each housed PEMs from 4 different patients. These results are consistent with the established categories named above. The category that held contributions of PEMs from the fewest patients was “other sensations,” which were contributed by 3 different patients. This is understandable, given the fact that PEMs in this study that fell under the category of “other sensations” (e.g., “[the pain] feels shooting”) could also have been organized under a number of other established categories as given above.

This study, however, provided additional categories with which to organize pain metaphors. This thesis noted that the pediatric chronic pain patients who participated in GET Living further conceptualized pain as a spectrum ranging from no pain to more pain (e.g., “Sometimes it feels like, on and off”). Though this metaphor may simply be an extension of a common way that people report pain (e.g., the PPRS), thinking of pain as something that might rise or fall, depending on the situation, could potentially modulate a patient’s perception of their pain, which could help with their ability to cope or perhaps, according to the biopsychosocial model of pain, modulate the pain itself (Moseley & Butler, 2015). The patients in this study also conceptualized pain as something with physical qualities. Similarly, characterizing pain as something external and physical—something to “push through”—could be a method, similar to strategies evoked in CBT, by which patients could reframe their views on pain and visualize it as something that can be physically manipulated, perhaps as a form of cognitive restructuring (Kerns, Sellinger, & Goodin, 2011).

Because of the small sample size, this thesis does not assert any conclusions generalizable to pediatric chronic pain patients undergoing graded exposure treatment. However, compared to the studies above, which utilized formal interview techniques to determine categories of pain metaphors, this study retroactively examined metaphors expressed as part of a treatment program. Though many metaphors occurred in response to the question "How would you describe your pain," this study supports the utility of analyzing pain metaphors outside of qualitative research interviews.

Qualitative summary of GET Living: The FOPQ might quantify the fear of pain one has, but the numbers cannot describe the tears that well in a patient's eyes at the prospect of doing a scary activity because she thinks her shoulder is going to fall out of its socket. Quantitatively, increased fear acceptance and decreased avoidance may tell researchers that a patient is improving, but these numbers could not begin to paint the picture of the look of triumph on the face of a patient as they accomplish a goal that weeks ago seemed impossible.

Qualitatively, there is a noticeable change in each of the patients from the beginning to the end of treatment. One parent, in their last GET Living session, noted about their daughter "That joy is coming back." The progress made by patients during the short span of time in which GET Living takes place is laudable.

Limitations and Future Directions: One limitation of this study was its small sample size. Though the GET Living program has enrolled 36 participants to date, only 11 of

these participants had more than the first five sessions audio/video recorded. Part of the reason for this was that the researchers did not begin to audio/videotape the sessions until patient T18. Additionally, the videos of the sessions for some patients (e.g., T29, T31) had not been uploaded to the server by the time of data collection. These factors limited the opportunities to code for PEM use, which could have helped make the data set more robust.

There were also limitations due to the study design. First, though the GET Living study was manualized, there was no way to account for the differences in discussion styles of the various CBTs and PTs who co-led the treatments. For the 11 patients, various combinations of 3 different CBTs and 2 different PTs oversaw the GET Living treatment sessions (though one CBT and one PT led all the sessions for a given patient, for the most part). Future studies should consider using only one combination of one CBT and one PT for the sake of consistency in leading the discussions in these sessions.

Another limitation was the subjectivity of what constitutes a metaphor. Though each video was watched and coded with as much consistency as possible, the fact remains that what one person considers a metaphor might differ from what another person considers a metaphor. To mitigate this, the data collection and coding of metaphors were done by one person who watched every available GET Living session in order to maintain continuity and consistency in coding and, at times, also made decisions on what the patient was attempting to convey in the context of the situation. As previously stated, future studies might consider devising a more concrete rubric for what is considered a pain-expressing metaphor.

Subjectivity notwithstanding, the main limitations of this thesis revolve around the availability and quality of the audio/video recordings. For example, there were some instances, namely from Session 6 onward, in which the parent and patient would start out in the same room, but then would separate; the patient and PT would leave to do an exposure session while the camera would stay with the parent and CBT. Though the patient was, on average, not as likely to use PEMs during the graded exposure sessions (Session 6 onward, see Table 1), it is possible that some PEMs were not captured and, thus, not reported. Though two cameras began to be used to mitigate this in later patients, future iterations of this study would benefit from capturing each moment from every patient on film.

The quality of the available audio/video recordings also served as a limitation to this study. At times, it was difficult to hear the words the patient was saying because of audio interference: Some sessions involved exposures dealing with loud noises (e.g., eating in a noisy lunchroom, waiting for public transportation at a busy stop) or loud coping strategies (e.g., playing pop music over the speakers) and others simply had too many overlapping voices or other sounds in the room (e.g., running on the treadmill, dancing to *Just Dance* on the Xbox Kinect). Other factors that likely diminished the accuracy of coding included the range of the camera/microphone (e.g., the patient would sometimes take movement breaks and walk out of range) and the unpredictability of human conversation (e.g., the patient would sometimes begin a word or phrase that might have been a PEM, but their thought was completed by someone else). Future studies

focusing on the words that patients use should perhaps consider a portable clip-on microphone to record patient speech.

Lastly, a limitation that became clear only after the coding of the video/audio recordings was the fact that some pediatric patients, especially in a room of adults, simply are not as talkative as others. In fact, though it was not tracked quantitatively, anecdotally it seemed as if a majority of the words spoken in any given session were spoken by an adult, be it the parent(s), PT, or CBT. This is understandable given the goal of the first 5 sessions. However, even if a patient was more talkative, it did not necessarily mean they would use more metaphors in passing conversation. More than half of the total metaphors used to express pain (52.5%) were prompted by the specific question "How would you describe your pain?" in Session 2. Otherwise, the use of PEM depended on the patient. Factors such as gender, age, and maturity may all affect how comfortable one is in expressing ones pain to others (Bernardes, Keogh, & Lima, 2008) and chronological age may play a factor in typically developing children's comprehension and use of metaphor (Van Herwegen, Dimitriou, & Rundblad, 2013). Future studies with more robust data might take these into account, in addition to considering tracking the ratio of PEM to words spoken in a given session or perhaps the ratio of metaphorical to literal speech, in order to glean a better picture of the frequency of PEMs used by patients.

While this study focused on exploring the use of pain metaphors qualitatively, future studies might also perform a quantitative analysis of metaphor use by patients enrolled in GET Living. With sufficient data, future studies could determine the number of metaphors used by each patient and look for correlations between PEM use and

improvements, from baseline to 6-months post-treatment, in fear of pain and chronic pain acceptance, as recorded by the patient's responses to the GET Living Child Assessment. This study could then stratify patients into low-, moderate-, and high-PEM users and compare outcomes, also via the GET Living Child Assessment, among the three groups to determine if the use of metaphors to express pain was associated with significant differences in outcomes during the GET Living treatment.

Furthermore, future iterations of GET Living might consider incorporating PEM use into the program itself, perhaps through a writing or journaling exercise responding to the prompt "How would you describe your pain?" Content analysis of metaphor use during interviews with adult patients (aged 23 to 82) with neuropathic chronic pain after spinal cord injury has shown that questions asked in semi-structured interviews may lead to answers that improve understanding of the patient's pain and may also be reflective of catastrophic thinking (Hearn et al., 2016). If a journaling activity highlighting expressions of pain were to be manualized in the GET Living treatment, the patient's pain may similarly be better understood, though perhaps without reflecting pain catastrophizing (though future studies should study if this effect is true for pediatric populations as well).

Further areas of research might explore the use of metaphors by the parent (e.g., does a parent have a similar rate of PEM use as their child?), but could possibly find even more consistent results in looking at the use of metaphors by the pain educators. Given how much of the GET Living program is weighted toward the pain educator in the early pain education sessions, there are many opportunities to use metaphors to help educate patients as Gallagher et al. did with their book of metaphors. By using metaphors to

educate and to reframe one's beliefs about pain, pain educators adhering to the biopsychosocial model of pain might further refine an unconventional tool in service of reducing pain.

Conclusion: This paper summarized the types of pain-expressing metaphors used by pediatric chronic pain patients enrolled in a graded exposure treatment intervention. Ultimately, this project requires more data to better understand how pain metaphors are used in this patient population (e.g., if there is a relationship between PEMs and the measures obtained from the GET Living Child Assessments).

Pain is complex. It is both necessary to survive and a burden with which to live. It is both relatable in that everyone has experienced pain, yet unknowable in that everyone experiences pain differently. Chronic pain adds yet another wrinkle to treating pain; how can a healthcare provider approach a patient's experience of pain when the patient's body is otherwise healthy? Past a certain point, all one can do for someone in pain is to listen.

In some ways, metaphor is the perfect method to express and listen to pain; they are flexible, yet specific. If indeed the use of metaphor to convey one's inner pain has an effect on the experience of pain itself, then perhaps, through the power of metaphor to make the abstract concrete, we may be one step closer to filling Dickinson's "element of blank."

APPENDIX A: GET Living Sessions

The following illustrates a typical 12-session GET Living treatment for the patient. GET Living may end before or extend beyond the 12 sessions, as needed.

Session 1: Rapport Building, Education, and the Pain Dilemma

This session is attended by the child, parent, CBT, and PT, with the CBT and PT co-leading the discussion. The first part of the session involves building rapport with the patient and the patient's family. This includes gathering general information about the family, the interests of the patient, and the patient's social, developmental, and academic history. The session then transitions to why they have been referred to GET Living. The PT asks the patient and family what they know about GET Living and clears up any misconceptions about the treatment. They emphasize that participation in this treatment is safe for the patient. The PT then outlines the GET Living treatment and answers any questions.

The CBT and PT then co-lead a discussion about the pain dilemma. They ask about the major site of pain in the patient and have the patient list any and all methods of dealing with their pain (e.g., medication, PT, rest, hot/cold compresses, etc.). The CBT and PT then ask how each listed method of relief has helped in the short- and long-terms, making note of any pattern that emerges. After a discussion about what dealing with pain has cost the patient, the CBT explains how these costs due to pain may increase stress, which may ultimately lead to even more pain (the Cycle of Avoidance). The CBT then

explains graded exposure and how that can break the Cycle of Avoidance. The session ends with an acknowledgement that the treatment can seem daunting, but that the patient's confidence should increase with every accomplished goal. Homework is briefly discussed before the session adjourns.

Session 2: Pain-Worry Cycle and Individualized Formation

This session is attended by the child, parent, CBT, and PT, with the CBT and PT co-leading the discussion. The session begins with a review of the previous session and a check-in about the completion of the daily diaries. Next, the CBT reviews the Treatment Expectancy and Credibility Questionnaire, in which the patients rate their confidence in participating in GET Living and how important they view GET Living. The discussion then moves to the Pain-Worry Cycle Worksheet, in which the patient describes their pain, as well as their beliefs, feelings, and thoughts about pain. It is during this worksheet that the question "How would you describe your pain?" is asked. The CBT then talks about how GET Living could serve as a path out of the Pain-Worry Cycle. The session ends with a discussion about the homework for the next session.

Session 3: Setting Values-based Treatment Goals

This session is attended by the child, parent, CBT, and PT, with the CBT and PT co-leading the discussion. The session begins with a review of the previous session and a check-in about the completion of the daily diaries. The PT then leads a discussion about the difference between values and goals, namely that goals are attainable outcomes that

can be completed while values are a more permanent guiding principle in life. The patient and the patient's family then fill out the Values Assessment Worksheet before rating each value.

The CBT then leads the patient and the patient's family in filling out the Values-based Goals Worksheet, in which the patient fills out goals related to areas of life such as friends, school, health, and family. These goals should follow the SMART guidelines (Specific, Measurable, Achievable, Realistic, Timely). The session ends with a discussion about the homework for the next session.

Session 4: Establishing a Fear Hierarchy

This session is attended by the child, parent, CBT, and PT, with the CBT and PT co-leading the discussion. The session begins with a review of the previous session and a check-in about the completion of the daily diaries. The CBT then introduces the concept of exposures, explaining how breaking a goal down into smaller steps can help the patient achieve the goals set in Session 3. From here, the PT leads a review of the PHODA results, which the patient had done prior to the GET Living sessions.

The PHODA is an assessment taken on the computer that allows the patient to rate the worry they would expect to feel during the activity depicted onscreen. Using the patient's results, the PT, the patient, and the patient's family highlight 3-4 activities from each major category that the patient feels is important to them in their life. After these activities are selected, they are ranked from least worrisome to most worrisome on the activity ladder. The patient is free to also rank activities that did not appear on the

PHODA, but are still important to the patient. This activity ladder will become the basis of the graded exposures from Session 6 onward. The session ends with a discussion about the homework for the next session, with an emphasis on thinking about any other activities that may not have been put on the ladder during the session.

Session 5: Introduction of the WILD Scale and Exposure Action Plan

This session is attended by the child, parent, CBT, and PT, with the CBT and PT co-leading the discussion. The session begins with a review of the previous session and a check-in about the completion of the daily diaries. After the activity ladder that was completed in Session 4 is finalized, the WILD scale is introduced. The WILD scale is a scale from 1 to 10 used to assess an activity before it is attempted and after it has been completed. For a given activity, the patient is asked to rate their Willingness (how willing the patient is to do the activity), Importance (how important the activity is in the patient's life), Likelihood of success (how likely the patient is to succeed at the activity), and Difficulty (how difficult the task will be).

After the WILD scale is discussed, the PT leads the creation of the Exposure Action Plan, a plan that is meant to give the patient strategies for coping with the difficulties of completing an activity. Some strategies include breathing, stretching, and helpful thoughts. With this plan in place, the patient does the lowest ranked (least worrisome) activity, assesses the activity with the WILD scale, and then completes the activity. The WILD scale is again completed after the activity, and any changes in ratings are discussed. The session ends with a discussion about selecting the next session's

exposures and any homework for the next session.

Session 6-11: Graded Exposure with Behavioral Experiments

These sessions are initially attended by the child, parent, CBT, and PT for quick check-ins and updates since the previous session. During Sessions 6-11, the PT and patient do exposure sessions, while the CBT and patient's family discuss strategies for supporting the patient.

The PT and patient select the next item on the activity ladder and attempt to simulate it in the PT room. Before each activity starts, the PT asks the patient to rate the activity using the WILD scale. The patient then completes the activity, with the PT guiding and strategizing with the patient about ways through the activity. After completion of the activity, the patient rates their confidence in their ability to complete the activity again. The exposure is repeated as many times as possible within the patient's comfort levels. The PT and patient then reflect on the experience. If there is time, the PT and patient choose to do the next lowest item on the activity ladder. At the end of the session, the PT asks the patient how many times they can reasonably practice the exposure at home before the next session. These Home-Based Exposures can also be used to address activities that cannot be done in the PT room (e.g., swimming, riding the bus, etc.). The session ends with a discussion about selecting the next session's exposures and any homework for the next session.

Session 12: Relapse Prevention and Termination

This session is attended by the child, parent, CBT, and PT, with the CBT and PT co-leading the discussion. The session begins with a review of the previous session and a check-in about the completion of the daily diaries and any Home-Based Exposures. After reviewing the progress the patient has made on their activity ladder, the CBT and PT review the patient's long-term goals. After the goals have been reviewed and discussed, everyone moves on to the Hot Seat Activity.

The Hot Seat activity is an activity in which someone in the room presents a potential obstacle that the patient may encounter in the time after GET Living. The person in the Hot Seat responds with strategies and helpful thoughts for overcoming these obstacles. After each person has taken a turn in the Hot Seat, the activity ends.

Next, the CBT and PT work with the patient and the patient's parents to create a list of the top 10 lessons learned in GET Living. This list is printed and photocopied for the patient to take home. After this activity, there is a short graduation ceremony in which the CBT and PT present the patient with a certificate of completion as well as a parting gift.

APPENDIX B: Metaphor Log

T19 (12 metaphors)

Session 1

- MVI_0100 (23:15)*: "[the pain] feels like it got more stiff"
- MVI_0010 (24:40): "[the goal was] to try to decrease the pain"

Session 2

- M2U06392 (16:28): "sometimes [the pain] could be like, throbbing"
- M2U06392 (16:30): "sometimes [the pain is] cutting,"
- M2U06392 (16:33): "…or [the pain] is like carving, almost"
- M2U06392 (17:15): "[the pain] feels shooting… and [my arm] feels like it pulls apart"
- M2U06392 (20:10): "the pain flares up and I can't do anything that day"
- M2U06392 (25:50): "Walking makes the pain rise and rise"

Session 5

- MVI_0022 (7:33): "When I have pain…It's hard to get [pain] away"

Session 6

- MVI_0025 (8:00): "There's kind of like a really tight pain"
- MVI_0025 (10:46): "When I hang [my arm] like this…I get this weird pulsing"

Session 10

- MVI_0041 (10:40): "I kind of feel a nervy kind of pain"

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* Video title (time): "quote"

T20 (3 metaphors)

Session 2

- Session2_part2 (3:00): “throbbing”
- Session2_part2 (4:27): “When I was running, the heel part of my foot hurt, and it was off and on”
- Session2_part2 (4:37): “…like a beating, kind of. It felt really…”

T21 (5 metaphors)

Session 2

- MVI_0059 (16:09): “It’s like usually pretty sharp”
- MVI_0059 (16:39): “sometimes it’s tingly”
- MVI_0059 (17:14): “sometimes it’s kind of like a burning sensation”

Session 9

- M2U06396 (39:23): “Now I know that it’s okay to push through pain”
- M2U06396 (49:38): “[I learned] how to push through [the pain] without pushing too far”

T22 (3 Metaphors)

Session 2

- MVI_00085 (1:34): “sharp”
- MVI_00085 (2:26): “Sometimes it feels like, on and off”

- MVI_00085 (3:26): “My hands burn”

T23 (9 metaphors)

Session 1

- MVI_0094 (17:08): “My foot sort of felt like it was on fire”
- MVI_0095 (13:57): “Vibrations…really hurt… at first I thought it was my watch shocking me”

Session 2

- MVI_0099 (17:03): “It feels like my foot’s asleep sometimes”
- MVI_0099 (17:29): “Burning was the first thing that I felt”
- MVI_0099 (18:11): “It feels like you’re sleeping and you slept wrong, sort of”
- MVI_0099 (18:24): “yeah, stiff”
- MVI_0099 (20:00): “Sometimes, I feel like… you know when you hit into the corner of the table, like your hip or your… well, it feels like I did that on my foot”

Session 4

- MVI_0111 (10:36): “That’s when my foot felt [like] it was on fire”

Session 5

- MVI_0117 (3:18): “It’s tingly”

T24 (1 metaphor)

Session 2

- MVI_0127 (7:10): “It’s throbbed before”

T25 (3 metaphors)

Session 6

- MVI_0167 (10:56): “Like If I’m having like, extreme stabbing pain”

Session 7

- MVI_0171 (2:09): “I was feeling okay and then all of a sudden the pain started really escalating”
- MVI_0171 (2:25): “it’s gone down a little bit”

T27 (3 metaphors)

Session 2

- MVI_0001 (7:34): “I guess, throbbing”
- MVI_0001 (7:58): “It’s sharp sometimes”
- MVI_0001 (10:15): “I guess both [sharp and dull]”

T29 (1 metaphor)

Session 1

- MVI_0007 (10:25): “I’m trying to push through [the pain]”

T30 (0 metaphors)

- N/A

T31 (0 metaphors)

- N/A

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