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The Role of Parent Psychological Flexibility in Relation to Adolescent Chronic Pain: Further Instrument Development

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Abstract: **Parental responses to their child's pain are associated with the young person's functioning. Psychological flexibility—defined as the capacity to persist with or change behavior, depending on one's values and the current situation, while recognizing cognitive and noncognitive influences on behavior—may provide a basis for further investigating the role of these responses. The Parent Psychological Flexibility Questionnaire (PPFQ) is a promising but preliminary measure of this construct. Parents of 332 young people with pain (301 mothers, 99 fathers, 68 dyads) completed the PPFQ during appointments in a pediatric pain clinic. Initial item screening eliminated 6 of the 31 items. Mothers' and fathers' data were then subjected to separate principal components analyses with oblique rotation, resulting in a 4-factor solution including 17 items, with subscales suggesting Values-Based Action, Pain Acceptance, Emotional Acceptance, and Pain Willingness. The PPFQ correlated significantly with adolescent-rated pain acceptance, functional disability, and depression. Differences were observed between mothers' and fathers' PPFQ scores, in particular, those related to school absence and fears of physical injury. The 17-item PPFQ appears reasonable for research and clinical use and may potentially identify areas for intervention with parents of young people with chronic pain.**

Perspective: ***Parent psychological flexibility, as measured by the PPFQ, appears relevant to functioning, depression, and pain acceptance in adolescents with chronic pain. This model may help tie parental responses to adolescent distress and disability and may help clarify the development and maintenance of disability within the context of chronic pain.***

Key words: *Adolescent, parent, chronic pain, acceptance, functioning.*

The parental role in relation to a young person with chronic pain can be significant, particularly regarding the young person's daily functioning.[4,16,21,22,36,40] Studies of parent functioning and influences on pain have examined a range of variables, including pain beliefs, worry, catastrophizing, illness behavior encouragement, and parental protective, minimizing, encouraging, or monitoring responses.[20] It would be helpful to integrate these variables around a smaller number of core dimensions and to base further investigation within a theoretical model.[26,29,30]

Although other models have been offered and investigated (eg, operant conditioning, social modeling),[29] psychological flexibility, the model underlying acceptance and commitment therapy (ACT),[18] provides a potentially novel framework for the study of parents and young people with chronic pain.[26] Psychological flexibility is defined as the capacity to persist with or change behavior, in line with one's values, depending on what a situation affords and in a context of interacting cognitive and noncognitive influences on behavior. Psychological flexibility has been described including from 2 to 6 subprocesses and may be summarized as the ability to be open, aware, and active.[19] Studies related to adolescent psychological flexibility have shown that a young person's acceptance (a subprocess of psychological flexibility) of pain positively correlates with his or her emotional, physical, and social functioning,[25,43] and parent beliefs about adolescent acceptance negatively correlate with a range of unhelpful parent responses.[37] In 2 separate pediatric pain rehabilitation programs,

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changes in acceptance were found to predict improvements in physical and emotional functioning.[14,44] Further, in a randomized controlled trial of young people with long-standing pain,[45] an ACT intervention was superior to standard multidisciplinary treatment plus amitriptyline even though the ACT condition included less treatment contact. Importantly, changes in adolescent psychological flexibility mediated changes in functioning for those individuals receiving ACT.[46]

In parents of adolescents with chronic pain, "parent psychological flexibility" can be defined as the capacity to accept distress and discomfort, including when one's child has pain, to remain present focused, to avoid being stuck in one's own thoughts, and to persist or change behavior based on goals, values, and the situation at hand. Through the construct of parent psychological flexibility, other established constructs could be better understood such as parent catastrophizing and catastrophizing by their children, adolescent physical functioning and emotional distress, modeling of acceptance and values-based action and teens' adoption of these patterns, parent solicitous and protective responses to their child's pain, parent and adolescent engagement in treatments that may be uncomfortable in the short term, and others. Ultimately, better understanding of the relationships between these constructs may inform both ACT-based and traditional cognitive-behavioral therapy–based interventions.

There has been little investigation directly related to this construct. One study found that parent psychological flexibility provided significant unique information about adolescent functioning, beyond that which was explained by parental protective, minimizing, encouraging, or monitoring responses to their child's pain.[24] That study included development of the Parent Psychological Flexibility Questionnaire (PPFQ) by generating an item pool designed to "reflect aspects of psychological flexibility, including acceptance, cognitive defusion, committed and values-based action, and mindfulness,"[24(p.728)] of which 24 items were retained for analysis. Results supported internal reliability for the preliminary instrument and suggested validity through associations with child functioning and parent responses to child pain. A separate study found that an ACT intervention with 11 parents of children diagnosed with cancer or severe cardiac issues improved parents' psychological flexibility as well as parents' distress and posttraumatic stress related to their child's illness. However, this study used an as yet unpublished measure of parent psychological flexibility.[2]

Before the relationship between parent psychological flexibility and various parent contributions to adolescent functioning can be evaluated, further instrument development is required. Thus, the present study sought further investigation of the PPFQ in an independent sample in a different country, with primary goals to further examine reliability and validity, refine the item set through factor analysis, compare factor structure across mothers and fathers, and investigate the relationship between mothers' and fathers' psychological flexibility and adolescent functioning.

Hypotheses

It was predicted that an internally consistent measure would emerge, with evidence for validity through weak or nonsignificant correlations with demographic and pain-related variables, and moderate to strong correlations with measures of adolescent physical functioning and emotional distress. We specifically expected that greater parent flexibility would be associated with less adolescent emotional distress (depression and anxiety), greater adolescent acceptance, less school absence, and less impairment in adolescent physical functioning. Finally, we anticipated the PPFQ would have a clear factor structure reflecting 2 to 4 interpretable aspects of psychological flexibility, and that this factor structure would be similar for mothers and fathers. Two to 4 factors were expected, given that prior factor analyses with measures of pain acceptance have often resulted in 2 factors, one highlighting values-based action, and another more related to willingness or acceptance. Attention was given in the current measure to broaden and target more aspects of psychological flexibility such as defusion and mindfulness. However, given expected correlation between aspects of psychological flexibility, it was unknown how many unique factors would emerge from the analysis.

Methods

Procedure

Patients were seen in a pediatric chronic pain clinic at a large medical center in the United States. During their pain clinic appointment, patients completed a set of questionnaires and were seen by a pediatric anesthesiologist, physiatrist, and psychologist. Research activities for this retrospective study were approved by the institutional review board. Per institutional protocol, families were given the option to allow or decline the use of their medical information for research purposes, and only patients who allowed this use were included in the present analyses. Analyses were conducted with SPSS (version 20; IBM Corp, Armonk, NY) and R (version 2.14.1; http://www.r-project.org/).

Participants

All patients seen for initial evaluation in a pediatric pain clinic between March 2009 and February 2011 aged 10 to 19 years and who allowed the use of their medical information for research purposes were included (36 declined inclusion in research during this period). Although participants include preadolescents, adolescents, and some young adults (age 18 and 19), the term *adolescent* is used throughout this paper for simplicity. Of the initial sample of 390 adolescents, 58 were excluded because of missing parent data on the PPFQ (missing more than 6 of the 31 items). This was typically due to time limitations related to the patient's other appointments, failure to return the forms, or unavailability of forms. Approximately 28% of the initial sample had