When Helping Hurts: Miscarried Helping in Families of Youth With Chronic Pain

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Received August 26, 2013; revisions received December 4, 2013; accepted January 8, 2014

Objective To examine “miscarried helping” as a maladaptive dyadic process in families of youth with chronic pain using the Actor–Partner Interdependence Model. Methods 210 adolescents with chronic pain (mean = 14.23 years; 73.9% female) and their parents participating in a multicenter study completed measures assessing pain characteristics, miscarried helping, family functioning, parental protectiveness, and child depressive symptoms. Results Multilevel modeling revealed significant actor effects of miscarried helping on family functioning for both parents and teens, but not partner effects. Individual-level factors, including child pain characteristics, depressive symptoms, and parental protectiveness, uniquely contributed to miscarried helping. Conclusions Higher perceptions of miscarried helping contribute to worse family functioning and may be a useful target for psychological intervention in parents of children with chronic pain. Parents who exhibit more protective responses to pain and youth with more depressive symptoms may be at increased risk for a miscarried helping process to develop.

Key words adolescents; chronic and recurrent pain; family functioning; parent–adolescent communication; social support.

Introduction

Chronic pain is a major public health concern, affecting an estimated 11–38% of youth and their families (Hunfeld et al., 2001; King et al., 2011; Perquin et al., 2000). A smaller, but significant, proportion of youth (5–15%) experience pain that it is persistent, intense, and debilitating (Huguet & Miró, 2008; von Baeyer, 2011). Persistent and debilitating pain has been linked to a host of negative sequelae, including difficulties with emotion regulation (Eccleston, Crombez, Scowfard, Clinch, & Connell, 2004), depression (Kashikar-Zuck, Goldschneider, Powers, Vaught, & Hershey, 2001), poorer academic achievement (Logan, Simons, Stein, & Chastain, 2008), and significant disruptions in social functioning (Forgeron et al., 2010; Jastrowski Mano, Khan, Ladwig, & Weisman, 2011). Although much is known regarding the impact of chronic pain on child functioning, its impact on parents and the broader family system is an area that has only recently begun to receive systematic research attention (Palermo & Chambers, 2005; Palermo & Eccleston, 2009).

Nearly a decade ago, Palermo and Chambers (2005) proposed an integrative contextual framework highlighting the role of individual, dyadic, and family-level factors in pediatric pain and associated disability. From within this framework, individual factors (e.g., beliefs about pain, pain coping behaviors) are embedded within a broader context of dyadic interactions (e.g., parent–child, mother–father, husband–wife), which in turn are embedded within the broader family context (e.g., family cohesiveness, conflict, functioning). These intrapersonal, interpersonal, and environmental factors reciprocally influence each other; further, child pain and disability both influence, and are influenced by these core parent- and family-based experiences.
At present, the vast majority of research examining parental and family factors in pediatric chronic pain has focused on individual-level and family-level factors. With regard to individual-level parent factors, parental pain catastrophizing (Caes, Vervoort, Eccleston, Vandenbende, & Goubert, 2011), protective responding to pain (Wilson, Lewandowski, & Palermo, 2011), and pain coping behaviors (Lynch-Jordan, Kashikar-Zuck, Szabova, & Goldschneider, 2013; Reid, Gilbert, & McGrath, 1998) have been linked to child pain and disability. Likewise, intrapersonal child factors, such as depressive symptoms, pain catastrophizing, and pain coping directly contribute to children’s pain experiences (Guite, McCue, Sherker, Sherry, & Rose, 2011; Kashikar-Zuck et al., 2001; Lynch-Jorden et al., 2013; Simons & Kaczynski, 2012). With respect to family-level factors, a growing body of research has revealed that having a child with chronic pain is associated with poorer family functioning (Lewandowski, Palermo, Stinson, Handley, & Chambers, 2010), conflict and family enmeshment (Logan & Scharff, 2005), and considerable investment of family resources (Hunfeld et al., 2001; Jordan, Eccleston & Osborn, 2007) compared with families of otherwise healthy youth. Thus, both individual-level parent and child factors, and family-level factors, have established links to child pain and disability.

Although research investigating links between individual- and family-level factors and child health outcomes has revealed important findings, a critical component of these family relationships—the parent–child relationship—has been relatively ignored. Even when researchers have obtained information from both parent and child, research questions and data analytic strategies have often failed to consider how this shared relational experience may influence outcomes (cf. Lynch-Jordan et al., 2013). Consequently, there is a gap in our understanding of specific dyadic processes in families of children with chronic pain, both in terms of how they relate to pain and disability and to other features of the family system.

One dyadic process that may be particularly useful for understanding maladaptive dynamics that may arise in families of youth with chronic pain is miscarried helping (Anderson & Coyne, 1991; Coyne, Wortman, & Lehman, 1988). Briefly, miscarried helping refers to a transactional process whereby a caregiver’s desire to be helpful inadvertently contributes to negative parent–child interactions regarding health behaviors, ultimately resulting in poorer health and adjustment over time. In a reframing of the theory of miscarried helping, Anderson and Coyne (1991) presented a phase-based model to describe how the helping process may unfold in families of children with chronic health conditions, beginning with the feelings of responsibility and guilt that parents might feel when their child is first diagnosed with a chronic condition. As symptoms persist over time, challenges associated with managing the child’s condition begin to exert their effects, and consequently parents make increasing requests that children share the burden of their condition by performing desired behaviors—on the parents’ terms. The specific demands may vary as a function of the condition and parental beliefs about what is helpful (e.g., taking prescribed medications, adhering to special diets, increasing or decreasing physical activity). As parental demands increase, children begin to respond with resistance as a means to regain control and assert autonomy over their health and behavior. This cycle may continue until a pattern of negative interaction becomes established, ultimately rendering parental attempts to help as completely ineffectual. It is at this stage that helping has become “miscarried.”

Although Anderson and Coyne first described this process >20 years ago, the construct has only recently been operationally defined and applied within the pediatric psychology literature (Harris et al., 2008). In the initial validation of a measure of miscarried helping, the Helping for Health Inventory (HHI), Harris and colleagues found promising evidence that this dyadic process occurs in families of adolescents with poorly controlled diabetes. In their sample, miscarried helping was associated with greater family conflict, poorer illness adjustment, and lower treatment adherence, thus underscoring how parental attempts to help can broadly impact illness management in maladaptive ways. Although Harris et al.’s (2008) study provides empirical support for the theory of miscarried helping, it remains to be seen whether this dyadic process operates similarly in other chronic illness populations, including in youth with chronic pain.

By its very definition, miscarried helping occurs within the context of a specific relationship, and presumes that relationship members interact in such a way as to influence each others thoughts, feelings, and behaviors. Thus, miscarried helping is best understood as a relational process, rather than an individual one. As such, it is important to evaluate parent and child report of miscarried helping when evaluating its impact on family functioning. The Actor–Partner Interdependence Model (APIM; Kenny, Kashy, & Cook, 2006) has been recommended for such a use (Kenny, 2011; Rayens & Svavardottir, 2003). In this model, the effect of a care-providers’ report of miscarried helping on her report of family functioning is referred to as an actor effect, and the effect of her report of miscarried helping on her child’s report of family functioning is called a partner effect (and vice versa; Figure 1). By intentionally including partner effects in our modeling of the
relationship between miscarried helping and family functioning, it is possible to truly evaluate miscarried helping as a relational phenomena (Kenny et al., 2006).

The present study represents the initial application of the HHI (Harris et al., 2008) in a sample of youth with chronic pain and their caregivers. The major aim was to examine miscarried helping as a dyadic process within the family system, specifically examining how parent and teen report of miscarried helping are related to parent and teen report of family functioning (i.e., conflict and cohesion). First, we hypothesized that parents and teens would demonstrate low to moderate agreement in their reports of miscarried helping, consistent with the commonly observed discordance between parent- and child-report of behavior (Maurizi, Gershoff, & Aber, 2012; Tein, Roosa, & Michaels, 1994). Second, we hypothesized that miscarried helping would be related to poorer family functioning, as evidenced by significant actor and partner effects in our proposed APIM (Figure 1). Namely, self-report of miscarried helping would be associated with poorer family functioning, and partner-report of miscarried helping would also be associated with poorer family functioning. Finally, we were particularly interested in evaluating conceptually relevant individual-level factors, including parental protective responses to pain (e.g., limiting activities, relieving the child of responsibilities, granting special privileges; Van Slyke & Walker, 2006), child depressive symptoms and child pain characteristics (intensity, activity limitations), and whether they uniquely contribute to miscarried helping. We specifically hypothesized that parental protection would be associated with greater miscarried helping, as parents who remove responsibility from their children likely take on more responsibilities for themselves; this increased burden sets the stage for a miscarried helping process to develop. We also expected that child depressive symptoms and pain-related disability would be associated with greater miscarried helping, as youth with such features may actually need and receive more help from their parents, yet may be more annoyed by and resistant to the support that is offered. Finally, we expected that miscarried helping might be higher when youth report lower pain intensity. Anderson and Coyne (1991) suggested that the risk for miscarried helping may be greater when symptoms are difficult to externally validate, as is the case with chronic pain conditions. If parents perceive their child’s pain as less severe, they may increase their demands for task performance and these increased expectations may be resisted by adolescents, setting the context for miscarried helping to unfold. Due to potential sex and developmental differences in engagement in the miscarried helping process (e.g., Anderson & Coyne, 1991), sex and age differences were included as covariates in these models.

Method
Participants and Procedure

Participants were 210 youth with chronic pain and their parents recruited from pediatric pain and specialty clinics throughout the United States and Canada. Each site’s institutional review board approved the study. Data for the present study were collected as part of a larger randomized controlled trial evaluating the efficacy of web-based cognitive-behavioral intervention for youth with chronic pain and their caregivers. Youth were eligible for participation if they (1) were between the ages of 10 and 17 years at the time of enrollment, (2) had pain of at least 3 months duration, and (3) they and their parents could speak and read English. Youth were excluded from participation if they had a major comorbid medical illness (e.g., diabetes, cancer), had recently and regularly been under the care of a psychologist for pain management, and/or if they or their parents did not have access to a computer or the Internet.

After providing informed consent or assent and before randomization to treatment, adolescents and their parents independently completed a set of online questionnaires assessing the child’s pain characteristics, psychosocial functioning, parental responses to pain, and miscarried helping. The current study is an analysis of baseline data only, and is the first and only from this data set to focus on pretreatment parent–child dyadic processes and family functioning.

Participants ranged in age from 10 to 17 years (mean = 14.23, standard deviation = 1.59). Adolescents were predominantly girls (73.9%) and Caucasian (84.1%). The vast majority of the sample reported daily pain in multiple locations, with 80.7% endorsing...
musculoskeletal pain, 32.5% endorsing abdominal pain, and 23.9% reporting head pain at least once during the baseline monitoring period. Participating caregivers primarily identified as mothers (90%), were married and reported annual family incomes of $\geq 50,000. See Table I for additional descriptive information about the sample.

**Measures**

**Demographics**

Parents provided demographic information about their children and family, including age, sex, race/ethnicity, marital status, and household income.

**Pain Characteristics**

Youth completed a 7-day online pain diary developed for this study, which assessed daily pain presence, location, duration, intensity, distress, and activity limitations (Table I). Pain intensity was reported on an 11-point numerical rating scale (NRS; 0 = no pain, 10 = worst pain). The NRS has been recommended for such use and is well-validated in youth with chronic pain (von Baeyer, 2009). Pain-related impairment was assessed using the diary version of the Child Activity Limitations Interview (CALI; Palermo, Lewandowski, Long, & Burant, 2008; Palermo, Witherspoon, Valenzuela, & Drotar, 2004). During enrollment, participants prospectively identified eight important daily activities impacted by pain (e.g., “housework or chores” “hanging out with friends”); they subsequently provided daily diary ratings of the extent to which these activities were difficult for them due to pain (0 = not at all difficult, 4 = extremely difficult). This diary version of the CALI has demonstrated good reliability and validity in pediatric chronic pain samples (Palermo et al., 2004, 2009). Internal consistency in the present study was excellent (Cronbach’s $\alpha = .95$).

**Family Functioning**

Family functioning was assessed using adolescent and parent versions of the Bath Adolescent Pain Questionnaire (BAPQ and BAPQ-P; Eccleston et al., 2005; Eccleston, McCracken, Jordan, & Sleed, 2007). The BAPQ and BAPQ-P are 61-item multidimensional inventories assessing domains of functioning commonly affected by pain during adolescence (e.g., emotional functioning, physical functioning). The present study focuses on parent and teen responses to the family functioning items ($n = 12$; “I feel that family life is stressful,” “My child feels that family life is stressful”). Items are rated on a 5-point frequency scale (0 = never, 4 = always), with higher scores being indicative of greater impairment. Both versions of the questionnaire have demonstrated excellent psychometric properties in chronic pain samples (Eccleston et al., 2005; Eccleston et al., 2007). In the present study, internal consistency was good for both parents and teens (Cronbach’s $\alpha = .88$, and .89, respectively). The BAPQ and companion BAPQ-P are recommended for studies in which concordance between parent and teen perception of pain impact is of interest (Eccleston et al., 2007). Parents and teens have previously demonstrated moderate concordance on the family functioning subscale, which has been attributed, in part, to the shared disability reflected by the items within this domain (Cohen, Vowles, & Eccleston, 2010).

**Miscarried Helping**

Parents and teens completed adapted versions of the HHI (Harris et al., 2008), a 15-item questionnaire designed to assess miscarried helping in parent–child dyads. Items are rated on a 5-point frequency scale (1 = rarely, 5 = always) and are summed to create a total score, with higher scores...
being indicative of greater miscarried helping. The original version of the HHI was developed specifically to assess this relational process in youth with diabetes, and has demonstrated good reliability and validity in that population (Harris et al., 2008). For the present study, the HHI was modified to be specific to a pediatric pain population. For example, the original item “I find that the more I try to help my child with his/her chronic illness, the more he/she resists my involvement” was modified to “I find that the more I try to help my child with his/her pain, the more he/she resists my involvement.” In addition, a teen-report version of the HHI was created as a direct translation of the parent version, from the teen’s perspective (e.g., “The more my parents try to involve themselves in my pain, the more I resist their involvement”). Internal consistency in the present sample was good (Cronbach’s $\alpha = .83$ and .84 for parents and teens, respectively).

**Parental Protectiveness**

Parents and teens completed parallel versions of the Adult Responses to Child Symptoms (ARCS; Van Slyke & Walker, 2006) a 29-item questionnaire designed to assess caregivers’ responses to their child’s pain. The parent version contains the stem “When your child has pain, how often do you…” This stem was adapted to “When you have pain, how often do your parents…” for the teen version of the questionnaire, and subscale items were similarly adapted to be consistent with the wording of the stem as necessary. Items load onto three subscales: Protectiveness, Minimization of Pain, and Encouraging and Monitoring Responses. The present study focused on the Protectiveness subscale ($n = 15$ items), due to its conceptual relevance to the miscarried helping construct. Sample items on this subscale include “...bring (your child) special treats or little gifts” and “...tell others in the family not to bother (your child).” Items are rated on a 5-point scale ($0 = never$, $4 = always$), and mean ratings are calculated based on subscale item responses. Higher scores on the Protectiveness subscale indicate greater parental protectiveness. The ARCS was specifically developed for use in pediatric pain populations, and the Protectiveness subscale has demonstrated good reliability and validity in youth aged 8–18 years (Sieberg, Williams, & Simons, 2011; Van Slyke & Walker, 2006). In the present study, internal consistency ranged from good to excellent (Cronbach’s $\alpha = .86$ and .90 for parents and teens, respectively).

**Child Depressive Symptoms**

The Depression subscales of the BAPQ and BAPQ-P (Eccleston et al., 2005; Eccleston et al. 2007) were used to assess child depressive symptoms. This scale is composed of six items (‘I feel sad,’ “My child feels sad’’) rated on a 5-point frequency scale ($0 = never$, $4 = always$), with higher scores being indicative of greater depressive symptoms. This subscale has demonstrated good reliability and evidence of convergent validity with established childhood depression measures (Eccleston et al., 2005). Internal consistency in the present sample was good (Cronbach’s $\alpha = .88$ and .84 for parents and teens, respectively).

### Data Analytic Plan

All analyses were conducted using IBM SPSS version 20.0 software. Three separate databases were created including one retaining “individual structure,” one using “dyadic” format following the steps outlined by Kenny et al. (2006), and the last using “pairwise” format. Pairwise format (also known as the double-entry method) is essentially a combination of the individual and dyadic formats. In pairwise format, there are two rows of data for each dyad (i.e., the first row has the teen’s data followed by his/her parent’s; the second row has the parent’s data followed by his/her teen’s). Data were transformed into pairwise format using a macro program developed by Kenny and colleagues (Popp, West, & Kenny, 2006). A separate macro was used to estimate the parameters of the APIM using multilevel modeling (Kenny, 2012). All data were screened for accuracy of input, missing data, normality, linearity, and univariate outliers before performing analyses.

The first set of analyses included descriptive statistics and psychometric properties of study measures of interest. Mean pain intensity and activity limitations scores were calculated for participants who had at least five diary entries during the diary period ($n = 209$ subjects). Next, Pearson product-moment correlations with dyad as the unit of analysis were used to evaluate nonindependence between parent and child on study variables of interest (Kenny et al., 2006; Table II). Associations between descriptive variables and primary predictor and outcome variables were also examined, before evaluating major study hypotheses.

To assess agreement between parent and child on miscarried helping, the intraclass correlation coefficient

### Table II. Intercorrelations Among Study Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Miscarried helping</td>
<td>.284**</td>
<td>.465**</td>
<td>.120</td>
<td>.420**</td>
</tr>
<tr>
<td>2. Family functioning</td>
<td>.390**</td>
<td>.546**</td>
<td>-.001</td>
<td>.571**</td>
</tr>
<tr>
<td>3. Protectiveness</td>
<td>.407**</td>
<td>.354**</td>
<td>.457**</td>
<td>.011</td>
</tr>
<tr>
<td>4. Child depression</td>
<td>.318**</td>
<td>.474**</td>
<td>.286**</td>
<td>.363**</td>
</tr>
</tbody>
</table>

Note. Parent correlations are below the diagonal; teen correlations are above; tests for nonindependence are bolded and underscored along the diagonal.

*p < .01; **p < .001.
(ICC) was calculated using the two-way random effects model with absolute agreement. We next used the APIM (Kashy & Kenny, 1999; Kenny, 1996; Kenny et al., 2006) to evaluate actor and partner effects for parental miscarried helping predicting poorer family functioning. There are several different statistical techniques that can be used to test the parameters of the APIM (e.g., pooled regression, multilevel modeling, structural equation modeling). The present study used a multilevel modeling approach, which does not assume homogeneity of variance in the family functioning scores for parents and teens, following the procedures outlined Kenny et al. (2006). Kenny (2012) has created an experimental data-to-text macro for SPSS to examine the APIM using multilevel modeling. This macro was used in the present study to aid with interpretation of results. It should be noted that the statistical results produced by the experimental macro were identical to results obtained by simply using SPSS syntax for the standard and two-intercept model, as outlined in Kenny et al. (2006), thus increasing confidence in the macro.

Finally, two separate multiple regression analyses (one for child report and the other for parent) were performed to evaluate the contribution of individual-level factors to miscarried helping. Models were run separately due to evidence of consequential nonindependence between parent and child reports on the ARCS protectiveness subscale. In both models, miscarried helping was entered as the outcome variable, with child age and sex, child pain characteristics (intensity, activity limitations) and depressive symptoms, and parental protectiveness all entered simultaneously. This method was chosen as we made no theoretical assumptions regarding the relative influence of the predictor variables.

Results

Psychometric properties (e.g., means, standard deviations) and preliminary correlations were calculated for all primary measures (see Tables II and III). In the present study, parent and child reports of their family functioning were moderately correlated ($r = .55, p < .01$), whereas parental and child report of miscarried helping was only modestly correlated ($r = .28, p < .01$). Because we were interested in the level of discordance between parent and child ratings of miscarried helping, the intraclass correlation coefficient [ICC2 (A, 1)] was selected as a within-dyad indicator of agreement (two-way random effects model with absolute agreement). The ICC showed a low level of agreement between parent and child (ICC = .28, 95% confidence interval = .16-.40, $p < .001$).

### Table III. Means, Standard Deviations, and Ranges for Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>M (SD)</th>
<th>Possible range</th>
<th>Observed range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescent report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscarried helping</td>
<td>33.49 (9.50)</td>
<td>15–75</td>
<td>18–59</td>
</tr>
<tr>
<td>Family functioning</td>
<td>16.9 (8.08)</td>
<td>0–48</td>
<td>0–39</td>
</tr>
<tr>
<td>Protectiveness</td>
<td>1.42 (.71)</td>
<td>0–4</td>
<td>0.07–3.47</td>
</tr>
<tr>
<td>Child depression</td>
<td>10.54 (4.97)</td>
<td>0–24</td>
<td>0–24</td>
</tr>
<tr>
<td>Parent report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscarried helping</td>
<td>32.91 (8.72)</td>
<td>15–75</td>
<td>13–63</td>
</tr>
<tr>
<td>Family functioning</td>
<td>17.52 (6.91)</td>
<td>0–48</td>
<td>0–37</td>
</tr>
<tr>
<td>Protectiveness</td>
<td>1.43 (.59)</td>
<td>0–4</td>
<td>0.13–3.20</td>
</tr>
<tr>
<td>Child depression</td>
<td>11.13 (4.69)</td>
<td>0–24</td>
<td>0–20</td>
</tr>
</tbody>
</table>

Note: $M =$ mean; $SD =$ standard deviation.

Miscarried Helping Predicting Family Functioning

First, the association between an individual’s report of miscarried helping and his/her perception of family functioning was estimated (see solid partner effect lines in Figure 2). As hypothesized, results were suggestive of significant actor effects of miscarried helping on family functioning for parents ($b = .28, p < .001$) and teens ($b = .37, p < .001$), with medium effect sizes ($\beta = .34$ and $\beta = .45$, respectively). The difference between the two actor effects was not statistically significant ($p > .05$). This suggests that parents’ self-reported tendencies to engage in miscarried helping are associated with their perception of family functioning. Likewise, youth who report more miscarried helping behaviors also report poorer family functioning. Next, the association between parental miscarried helping and partner’s perception of negative interactions was estimated (see dashed partner effect lines in Figure 2). Contrary to hypotheses, results were not supportive of partner effects (see Figure 2 for the partner effect estimates; all $ps > .05$). Thus, children of parents who endorsed more miscarried helping did not share their parents’ perspective of poorer family functioning, nor did the parents of youth who perceived more parental miscarried helping share their child’s perception of more negative interactions within the family.

Individual-Level Factors as Predictors of Miscarried Helping

To test the hypothesis that individual-level parent and child factors may contribute to miscarried helping, two separate multiple regression analyses were performed with parent and child report of miscarried helping as the outcome variables. In both models, child age and sex, child pain
characteristics (pain intensity and activity limitations), child depressive symptoms, and parental protectiveness were entered as simultaneous predictors. The parent model was significant ($R^2 = .24$, $F(6, 196) = 10.24$, $p < .001$; Table IV), with child depressive symptoms and parental protectiveness each contributing unique variance to parental miscarried helping. Thus, parents who perceived their children as being more depressed and parents who reported more protective responses to their child’s pain were also more likely to endorse greater perceived miscarried helping. Child age, sex, and pain characteristics did not emerge as significant predictors.

In the second model evaluating these factors on teen miscarried helping, pain intensity, activity limitations, depressive symptoms, and parental protectiveness each contributed unique variance to miscarried helping ($R^2 = .25$, $F(6, 196) = 10.68$, $p < .001$; Table V). Consistent with the parent model, youth who reported more depressive symptoms and greater perceived parental protectiveness were more likely to endorse miscarried helping. Pain characteristics also explained unique variance in teen miscarried helping, with lower pain intensity and greater activity limitations uniquely contributing to greater child miscarried helping.

**Discussion**

Interactions within the family form a core of interpersonal and environmental experiences that are relevant to chronic pain and related disability. Parents, as essential components of the family system, both influence and are influenced by their child’s pain experience. Although the family system can be a tremendous source of support and positive influence for youth with chronic health conditions, there is a growing appreciation that parental attempts to help can sometimes lead to or exacerbate negative health outcomes (Harris et al., 2008). This study is the first to evaluate miscarried helping in a pediatric pain sample, and

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**Table IV. Hierarchical Regressions Predicting Miscarried Helping-Parent Model**

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>$t$</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$b$</td>
<td>SE b</td>
<td>$\beta$</td>
<td></td>
</tr>
<tr>
<td>Overall model $F(6, 196) = 10.24^{***}$</td>
<td>Age</td>
<td>-.05</td>
<td>5.11</td>
<td>-.01</td>
<td>-15</td>
</tr>
<tr>
<td></td>
<td>Child sex</td>
<td>.35</td>
<td>1.26</td>
<td>.02</td>
<td>.28</td>
</tr>
<tr>
<td></td>
<td>Pain intensity</td>
<td>-.59</td>
<td>.35</td>
<td>-13</td>
<td>-1.69</td>
</tr>
<tr>
<td></td>
<td>Activity limitations</td>
<td>.07</td>
<td>.14</td>
<td>.03</td>
<td>.46</td>
</tr>
<tr>
<td></td>
<td>Protection</td>
<td>4.96</td>
<td>.99</td>
<td>.33</td>
<td>5.02^{***}</td>
</tr>
<tr>
<td></td>
<td>Child depression</td>
<td>.50</td>
<td>.13</td>
<td>.26</td>
<td>3.98^{***}</td>
</tr>
</tbody>
</table>

Note. All nondemographic predictor variables were centered before entry.

^{***}p \leq .001.

**Table V. Hierarchical Regressions Predicting Miscarried Helping-Child Model**

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>Unstandardized coefficients</th>
<th>Standardized coefficients</th>
<th>$t$</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$b$</td>
<td>SE b</td>
<td>$\beta$</td>
<td></td>
</tr>
<tr>
<td>Overall model $F(6, 196) = 10.68^{***}$</td>
<td>Age</td>
<td>.11</td>
<td>.40</td>
<td>.02</td>
<td>.29</td>
</tr>
<tr>
<td></td>
<td>Child sex</td>
<td>-.17</td>
<td>1.38</td>
<td>-.05</td>
<td>-.85</td>
</tr>
<tr>
<td></td>
<td>Pain intensity</td>
<td>-.95</td>
<td>.38</td>
<td>-.19</td>
<td>-2.54*</td>
</tr>
<tr>
<td></td>
<td>Activity limitations</td>
<td>.43</td>
<td>.16</td>
<td>.20</td>
<td>2.72**</td>
</tr>
<tr>
<td></td>
<td>Protection</td>
<td>1.85</td>
<td>.85</td>
<td>.14</td>
<td>2.17*</td>
</tr>
<tr>
<td></td>
<td>Child depression</td>
<td>.80</td>
<td>.13</td>
<td>.41</td>
<td>6.36^{***}</td>
</tr>
</tbody>
</table>

Note. All nondemographic predictor variables were centered before entry.

^{***}p \leq .001; ^{*}p \leq .05; ^{**}p \leq .01; ^{*}p \leq .05.
is also the first to obtain both parent and child report of miscarried helping.

With respect to our first hypothesis, we found low agreement between parent and teen report of miscarried helping. This finding was consistent with expectations, and is in line with well-documented differences in parent–child report of behavior (e.g., Maurizi et al., 2012; Tein et al., 1994). Although one could argue that such low agreement contradicts our conceptualization of miscarried helping as a reciprocal construct and obviates the need for dyadic data analysis, we believe that it merely underscores the importance of obtaining information from both members of the parent–child dyad, as each clearly brings unique perspective to their interactions.

We next evaluated parent and child associations between miscarried helping and poorer family functioning. The results of our APIM revealed significant actor effects, meaning that parents who reported more miscarried helping were more likely to report greater family conflict and less family cohesion. Similarly, teens who reported more miscarried helping were also more likely to report poorer family functioning. Contrary to expectations, results were not supportive of partner effects—meaning that a parent’s self-reported tendency to engage in miscarried helping did not impact her child’s perception of family functioning. Likewise, a teen’s report of miscarried helping did not impact his parent’s perception of family functioning. Thus, the impact of miscarried helping on family functioning is specific to individual perceptions of whether a miscarried helping process is taking place. These findings again underscore the importance of obtaining reports from both members of the dyad and are hypothesis generating. For example, we suspect that the absence of partner effects, in conjunction with low parent–child agreement regarding miscarried helping, may be a reflection of attempts to minimize or avoid conflict within families of youth with chronic pain. In other illness populations, where what is “helpful” may be unambiguous and stakes for noncompliance may be higher (i.e., type 1 diabetes, solid organ transplants, cystic fibrosis), conflict may be more overt, and consequently parent and child may exhibit greater agreement on whether a miscarried helping process is taking place. In pain populations, miscarried helping and parent–child conflict may be more subtle but equally problematic. Future research should consider whether and to what extent the miscarried helping process varies within and between illness populations.

Finally, we considered individual-level factors, including child pain characteristics, parental protective ness, and child depressive symptoms, as predictors of miscarried helping. For both parent and child models, parent protective pain responses and child depressive symptoms explained unique variance in the miscarried helping construct. Notably, in the child model only, lower pain intensity and higher functional impairment also uniquely contributed to perceived miscarried helping. These findings are hypothesis generating and suggest that the relationship among pain experiences and miscarried helping may be complex. Child emotional functioning has been found to moderate the relationship between parental protective behaviors and pain outcomes (e.g., Peterson & Palermo, 2004). Further research is needed to better understand the possible link between miscarried helping and individual child and parent behavioral and emotional functioning, especially over the course of coping with a chronic pain condition.

Our findings should be interpreted in light of several limitations. First, our study methodology was limited to the same type of assessment across constructs. With our application of the APIM, the actor effect is based on information from one source, whereas the partner effect is based on information from two different sources. An advantage of the APIM is that these effects are tested simultaneously, so actor and partner effects are mutually controlled; however, there may be systematic bias because shared method variance may differentially influence actor and partner effects. Further, bias in one effect may contribute to bias in the other effect because the effects are mutually controlled (Orth, 2013). Thus, our significant actor effects, in conjunction with our nonsignificant partner effects, could be the result of shared method variance. A solution to this problem is to control for shared method variance by obtaining reports from multiple sources for the predictor and outcome variables. Future research would benefit from obtaining reports from multiple family members (e.g., siblings, a second caregiver) regarding family functioning and miscarried helping. Importantly, although miscarried helping does rely on interpretations of others’ feelings and behavior, its measurement could be expanded to allow for another informant to provide a report. A related concern is that we were also limited to the participation of one parent caregiver in the study, which was primarily mothers (90%) and therefore, we are limited in our understanding of paternal miscarried helping. Future studies that incorporate assessments from all parental caregivers will provide additional important information on miscarried helping among multiple family members.

Given that we used cross-sectional data to examine the process of miscarried helping in families of youth seeking treatment for chronic pain, we are limited in understanding how miscarried helping may change with the course of a
pain condition and whether our findings are generalizable to nonclinical samples. Miscarried helping is conceptualized as a dynamic process that unfolds over time; with the cross-sectional methodology used in this study, we are only able to capture what we presume is the final phase of this process. Future research would benefit from examining miscarried helping and related (or possibly prodromal) constructs (e.g., parent–child relationship quality, instrumental aid, conflict, parental pain beliefs) as a function of pain duration, including in community samples and in youth with sub-chronic pain. Examining whether and how miscarried helping changes with effective pain treatment will also add to our understanding of this construct.

Most of the measures of family factors in youth with chronic pain are of individual-level factors (i.e., parental protectiveness) or systems-level factors (i.e., family functioning). A unique feature of miscarried helping is that it emphasizes the dyadic relationship between parent and child. Examining dyadic factors like miscarried helping adds to our understanding of the interactional processes related to pain that occur between parent and child (Palermo & Chambers, 2005); however, a limitation of the HHI as a measure of the affective valence within the miscarried helping process is that it does not assess the content of these negative dyadic interactions. Additional measures of parent–child conflict that provide an understanding of the content of the interactions (e.g., arguments about going to school, taking naps, etc) may complement assessment of this process.

There are several clinical implications that stem from our findings concerning the area of miscarried helping as a potential avenue for intervention. Teens who perceive their parents as nagging them about their health behaviors, and parents who perceive their teens as being resistant to their attempts to help, are reporting less positive and cohesive family environments in general. Thus, targeting specific miscarried helping behaviors in treatment—or parent–child disagreement about miscarried helping—may help improve family functioning overall. Although family functioning has been found to be worse in families of youth with chronic pain compared with otherwise healthy peers (Lewandowski, et al., 2010), at present, little is known about specific interpersonal mechanisms that explain this observation.

Investigators have emphasized the importance of including parents in their child’s treatment for chronic pain (Palermo, 2012). Based on our findings, parents may benefit from instructions on more adaptive ways that they can help support their teen while encouraging independence. Intervention strategies that focus on improving parent–child communication and problem-solving abilities may be especially beneficial for those families in which a miscarried helping process has developed. Because our findings demonstrated that parent–child dyads showed low agreement regarding this relational process, families may benefit from guided perspective-taking. Further, establishing more reasonable and age-appropriate expectations for health-related responsibilities may be an important goal for these families. As pediatric clinicians increasingly incorporate family-oriented treatment approaches, it will be important to assess the specific parent and child interaction patterns that contribute to adherence and treatment outcomes. Miscarried helping refers to a specific behavioral process that may offer a suitable target for intervention.

Acknowledgments

The authors would like to thank contributors to the Palermo Lab’s Writer’s Workshop series for their feedback regarding earlier drafts of this manuscript. We would also like to extend our appreciation to the parents and adolescents who contributed their time and effort to this study.

Funding

Research reported in this publication was supported by the Eunice Kennedy Shriver National Institute of Child Health & Human Development of the National Institutes of Health under Award Numbers R01HD062538-01A1 and K24HD060068-03 (PIs: Tonya M. Palermo). The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Conflicts of interest

None declared.

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