Attributions and Coping in Children's Pain Experiences

David A. Langer,[1] BA, Edith Chen,[2] PhD, and Janet D. Luhmann,[3] MD
[1]Department of Psychology, University of California—Los Angeles, [2]Department of Psychology, University of British Columbia, and [3]Department of Pediatrics, Washington University School of Medicine

Objective To examine how children's injury attributions and coping strategies relate to procedure-related distress during unplanned medical procedures (laceration repair). **Methods** Children (N = 50) with minor lacerations were assessed from emergency department admittance until discharge. Children's attributions of causes regarding their injury were assessed, and the Procedural Behavior Checklist was administered to each child (to assess coping strategies and procedure-related distress). **Results** Internally focused attributions of blame correlated with higher distress. Overall, children who reported primary-control coping, as opposed to secondary-control coping and relinquished-control coping, exhibited more pain during the procedure. Children who reported secondary-control coping, as opposed to relinquished-control coping, reported less pain after the procedure. **Conclusions** Injury attributions and coping style are significant factors in children's pain experiences. These results suggest that self-blame may heighten subsequent pain experiences. In addition, similar coping strategies appear to be adaptive for unplanned medical procedures as have been found for planned medical procedures.

Key words pain; child attribution; child coping; injury; medical procedure.

Medical procedures for children and adolescents are both frequent and often distressing because of the pain involved. From 1992 to 1994, over 2 million children, 20 years and younger, sought care for lacerations in United States' emergency departments (Weiss, Mathers, Forjuoh, & Kinnane, 1998). A variety of factors is thought to affect children's pain experiences, including both characteristics of the child and the child's social environment. This study focuses on psychological characteristics of the child that may affect his or her pain experiences in medical settings. Specifically, we focus on the way in which children conceptualize and explain pain (attributions) as well as the way in which children cope with pain (Franck, Greenberg, & Stevens, 2000; Frank, Blount, & Brown, 1997; Rudolph, Dennig, & Weisz, 1995). These variables are examined as predictors of medical-procedure distress (a broader term that encompasses both the pain and anxiety surrounding a painful medical procedure).

Attributions

Medical-procedure distress responses may in part be determined by how children understand the negative event that is occurring. One aspect of understanding such negative events is the explanation that children give for why they ended up in the emergency department. In this study, we focus on medical procedures resulting from an injury and thus examine children's explanations for the injury.

One important component of this explanation, or attribution, is where a child places blame in explaining the injury (Gable & Peterson, 1998). Attributions can be either external (e.g., blaming the situation) or internal (e.g., blaming oneself). Gable and Peterson found that

All correspondence concerning this article should be addressed to David A. Langer, UCLA Department of Psychology, 1285 Franz Hall, University of California Los Angeles, Los Angeles, California 90095. E-mail: dalanger@ucla.edu.

Journal of Pediatric Psychology 30(7) pp. 615–622, 2005
doi:10.1093/jpepsy/jsi047
Advance Access publication February 23, 2005
Journal of Pediatric Psychology vol. 30 no. 7 © Society of Pediatric Psychology 2005; all rights reserved.

when children attributed their injury to external causes (the situation and fate), they reported less post-injury fear. In contrast, internally focused attributions (self-blame) often result in negative psychological sequelae (Abramson, Seligman, & Teasdale, 1978; Seligman, 1975). For example, self-blame following a debilitating injury (spinal cord injury) has been associated with higher psychological distress, lower levels of adjustment and sociability, and lower life satisfaction (Buckelew, Baumstark, Frank, & Hewett, 1990; Hanson, Buckelew, Hewett, & O'Neal, 1993; Richards, Elliot, Shewchuk, & Fine, 1997). Self-blame regarding a chronic illness (cancer) also has been associated with poorer psychological adjustment (Glinder & Compas, 1999; Houldin, Jacobsen, & Lowery, 1996; Malcarne, Compas, Epping-Jordan, & Howell, 1995).

Previous research has largely focused on attributions related to chronic medical conditions. This study examines the role of attributions of blame in acute medical settings. This study extends previous research by determining whether attributions for an injury are related to the distress a child experiences during a medical procedure to repair that injury. We predicted that children who blame themselves for their injuries will experience greater distress during a medical procedure necessary for repairing their injury, a theory that is in line with previous literature on debilitating injuries.

Coping

In addition to how a child thinks about an injury, how a child copes with the medical procedure resulting from that injury may also affect procedural distress. Previous research has demonstrated that one pivotal component of coping relates to the way in which an individual attempts to exert control over a situation (Altshuler & Ruble, 1989; Peterson, 1989; Weisz, McCabe, & Dennig, 1994).

Band and Weisz (1988), Rothbaum, Weisz, and Synder (1982), and Weisz, Rothbaum, and Blackburn (1984) distinguish among three types of coping: primary-control, secondary-control, and relinquished-control coping. Exerting primary control over a situation involves changing objective conditions (e.g., environmental events and the manner in which a procedure may be performed) to be more favorable to the individual. In the pediatric medical setting, a child may exert primary-control coping by giving feedback to help the physician perform the procedure more accurately or by staying still so that the physician could work under favorable conditions. Secondary-control coping refers to maintaining control over one's reaction and response to a stressor. While undergoing minor laceration repair, children may exercise secondary-control coping by using relaxation techniques to ease their stress or by distracting themselves to stay calm. Moreover, some children may forfeit all forms of control over a situation, known as relinquished control.

The utility of a control-related coping strategy has been found to vary depending on the controllability of the stressor (Compas, 1987). That is, during stressors that are controllable, working to change the situation (primary-control coping) is theorized to be most effective, whereas during stressors that are uncontrollable, working to adapt oneself emotionally to the stressor (secondary-control coping) is theorized to be more effective. Medical procedures are typically conceptualized as uncontrollable and thus would be predicted to be best approached by secondary-control coping. Weisz et al. (1994) studied children undergoing medical stressors associated with leukemia (including painful procedures such as bone marrow aspirations and lumbar punctures). Those children who employed secondary-control coping, as opposed to primary- or relinquished-control coping, displayed significantly less procedure-related distress. With other types of life stressors, researchers have also demonstrated that matching one's control-coping approach to the characteristics of the situation results in fewer behavioral and emotional problems among children (Compas, Malcarne, & Fondacaro, 1988; Forsythe & Compas, 1987).

Whereas previous studies in medical settings have documented the effects of control-related coping during planned medical procedures (e.g., lumbar punctures for cancer patients), this study focused on unplanned laceration repair. Planned procedures allow the child to learn about the procedure beforehand and to prepare for it. In contrast, children experiencing injury have little time to prepare for their upcoming medical procedure, given the unanticipated nature of the event. We thus tested whether the relationship between control-coping and procedural distress would extend to a new domain of unplanned medical procedures. We predicted that children employing secondary-control coping strategies would experience less procedural distress relative to children who employ primary-control or relinquished-control coping strategies, a theory similar to that in previous literature.

Method

Participants

Fifty children and their guardians participated in this study. The children, ranging in age from 5 to 17 years (M = 10.0 years, SD = 3.7), were 70% male, 44.0% African

American, 34.0% Caucasian, and 22.0% other or mixed or unknown ethnicity. The guardians accompanying the children were 83% mothers, whereas the remaining 17% were fathers. Participating families' incomes ranged from $0 to over $150,000, with a mean income of $46,630.

All children were treated for minor lacerations in the Emergency Department of St. Louis Children's Hospital. Minor lacerations were those whose repair did not require sedation. Participants were excluded if there were other presenting diagnoses and chronic mental and/or physical health issues or if the laceration resulted from abuse or self-laceration. Fifteen children were excluded because of these reasons. Fifty-five children or their guardians declined participation in the study, because either the parent did not wish to participate (89%) or the child refused (11%).

Measures

Attributions The Injury Attributions Questionnaire (Gable & Peterson, 1998) was administered to each child. This questionnaire divides attributions for an injury into four categories: parent's behavior, child's behavior, uncontrollable factors, and chance or fate. Children rated the relevance of each attribution on a 10-point Likert scale, 10 being completely relevant and 1 being not at all relevant. Children responded to this measure using a visual analogue scale (VAS), a vertical bar going from small in width and light in color to large in width and dark in color. Children rated their response by moving a marker on the scale. The back of the scale divided the vertical bar into a 10-point scale, and a research assistant noted the child's rating. This measure has been successfully administered to children as young as 8 years old (see Gable & Peterson, 1998, for a more detailed explanation of the questionnaire's previous use), though reliability and validity data were not reported. Before administering the measure, children's ability to understand the rating system was tested by asking them to respond to simple questions (i.e., how much they like pizza and how able they are to fly) and explain their reasoning. The measure was only administered if the interviewer deemed the child's response and explanation to be adequate. We found the responses of the younger children to be consistent with those of the older children.

Coping Children were administered questions from the Procedural Behavior Checklist (PBCL; LeBaron & Zeltzer, 1984) to assess their coping strategies. Previous research has employed the primary- or secondary-control coping paradigm to code the coping responses of children as young as 5 years old (Weisz et al., 1994). Before the procedure, children were asked if there was anything they could think of or do to help themselves feel better during the procedure. If they responded "yes," the interviewer followed up with the standard open-ended questions, "what things?" and "why would you (coping response)?" Similar questions were asked after the procedure to assess children's retrospective views of how they coped during the procedure. Interviewers were instructed not to use prompts or cues to assist any child participant. All children who endorsed having a coping strategy were able to offer some form of description, and 76% of children who endorsed a coping strategy were able to verbally explain why they would cope in such a way. Two raters coded all coping-strategy responses as primary-, secondary-, or relinquished-control coping on the basis of primary- or secondary-control coping paradigm (Rothbaum et al., 1982; Weisz et al., 1984). Both raters coded the coping statements while blind to participants' attributions and distress ratings. With 88 coping-strategy statements coded, interrater reliability, in the form of Cohen's kappas, was .96. Landis and Koch (1977) rated "strength of agreement" as almost perfect for kappas of .81–1.00.

Procedure-Related Distress Procedure-related distress was assessed in three ways: self-report, physician-rated distress, and observed distress. The pain experience can be divided into pain and anxiety components. Pain and anxiety can be probed separately when asking the individual experiencing the procedure; however, it is difficult for outside observers to separate the two components. Thus, observers were asked about children's distress (reflecting both pain and anxiety), whereas children were asked separately about pain and anxiety. To respond to pain and anxiety questions, children used the same VAS discussed previously. Children as young as 3 years old have demonstrated the ability to express their pain and anxiety levels using a VAS (Chen, Zeltzer, Craske, & Katz, 1999). To assess pain, the researchers asked children, "How much pain do you think you will have during this procedure?" To assess anxiety, the researchers asked children, "How nervous or afraid are you about this procedure?" After the procedure, the questions were slightly modified to, "How much pain did you feel at its worst?" and "How nervous or afraid were you during the procedure?" Physician rating of procedural distress was assessed verbally, also on a 10-point scale. Higher numbers indicate more distress.

Observed distress was rated using the PBCL (LeBaron & Zeltzer, 1984). The PBCL codes the procedure as a whole, globally assessing the intensity and duration of distress behaviors (e.g., crying, screaming, and flinching). The scale consists of 10 procedure-related distress

behaviors that were chosen for the high frequency of their occurrence out of a larger list of distress behaviors the scale's authors had compiled from and their extensive medical experience and interviews with children. Each item was rated on a 1–5 scale, a higher number indicating a longer and more intense distress behavior. Previous research with the PBCL found interrater correlations to be high, $r = .80$, $p < .001$, and correlations between the PBCL and patient and general observer ratings of pain and anxiety to be highly significant, $ps < .001$ (LeBaron & Zeltzer, 1984). An observed distress score was created by summing the individual behavior scores. Twenty-six percent of the videotaped sample was rated by a second coder to assess reliability on the PBCL. Interrater reliability (correlation between the two coders' ratings) was $r = .74$. The videotape coders were blind to attribution and coping data.

Procedure

Trained research assistants approached parents in the waiting room to explain the study and request participation. All participating parents were required to sign a consent form before participation in the study, and the children signed an assent form. This study was approved by the Human Subjects Committee at Washington University School of Medicine. Enrollment took place from noon to midnight, beginning August 2002 and ending April 2003. The study ran all days except for those holidays on which classes were not in session for the undergraduate research assistants.

Before the beginning of the medical procedure (laceration repair), the parent or guardian provided injury-related information (e.g., time, location, and child's action during injury). Before administering any scales to a child, the researchers required the child to demonstrate proficiency in the use of a VAS. The scales included in the study were administered to all children in the sample. Only one child in the current sample was not able to successfully use the VAS, and that child did not complete any measures requiring its use (i.e., the attributions or coping scales). Research assistants then administered the Injury Attributions Questionnaire and the preprocedure section of the PBCL (i.e., inquiring about predictive coping style) to the child. The research assistants read all questions out loud to all children, regardless of the child's age. Children also were asked how painful and how scared they expected to be during the procedure (which they rated on the VAS). If the procedure room was equipped with videotaping capabilities (i.e., an unobtrusive video camera hidden in the ceiling), the research assistants began to record the participant approximately 5 min before the topical analgesic application and continued until the participant was discharged. Twenty-two participants in the current sample were videotaped.

After laceration repair was completed, children were asked how painful and nervous they felt during the procedure, how painful and nervous they felt after the procedure, and about the coping strategies they used during the procedure.

Data Analysis

Analyses for child attributions were conducted using partial correlations of attributions with distress, controlling for child age (given the wide age range in this sample). For coping, given the categorical nature of this variable, analyses were conducted as ANCOVAs with type of coping (primary, secondary, vs. relinquished) predicting distress, controlling for child age.

Results

Descriptive Information

Table I summarizes means and standard deviations for the sample's responses on items assessing attributions and distress. When asked about coping strategies, 12% of the sample predicted that they would use a primary-control coping strategy, whereas secondary-control coping and relinquished control were predicted by 37 and 51%, respectively. After the procedure, only 2% of the sample reported using a primary-control coping style, whereas 68% reported using a secondary-control coping style and 26% reported relinquishing control. Four percent of the children reported using both primary- and

Table I. Attribution and Distress Ratings

	M	*SD*	Range
Child's attributions ratings			
Child's behavior	4.6	3.2	1–10
Parent's fault	1.5	2.0	1–10
Outside circumstances	6.1	3.3	1–10
Chance	6.8	3.3	1–10
Distress			
Anticipatory: child report	5.7	3.9	1–10
Procedural: child report	4.7	3.6	1–10
Procedural: physician report	1.9	1.8	0–9
Procedural: observed distress	11.5	1.7	10–16

Attribution ratings were made on a 10-point scale, 1 being not at all due to the specified cause and 10 being completely due to the specified cause. Child and physician distress ratings were also given on a 10-point scale, higher numbers indicating more distress. Observed distress ratings were on a scale of 10–50, higher numbers indicating more distress.

secondary-control strategies and were excluded from the analyses.

We examined associations of child age with the study variables. Child age was not significantly correlated with attributions, distress, or coping style, *p*'s > .33.

Lastly, we explored the relationship between injury severity and a child's attributions. Injury severity was assessed by the location of the laceration (face vs. body) and procedure difficulty, as rated by the physician on a 1–10 scale (higher numbers indicating increased difficulty). There was no significant relationship between a child's attributions and location of the laceration, nor was there a significant relationship between a child's attributions and physician-rated procedure difficulty, *p*'s > .12.

Attributions

Overall, external attributions of blame for the injury were associated with less procedure-related distress. Children who attributed their injuries to chance expected to feel less pain during the procedure, $r(48) = -.29$, $p < .05$. Similarly, children who attributed their injuries to outside circumstances had marginally lower observed distress during laceration repair, $r(21) = -.37$, $p < .10$. External attributions were not related to physician-rated distress.

Conversely, internal attributions were associated with more distress. Children who blamed themselves for their injury had higher physician-rated distress during laceration repair, $r(48) = .35$, $p < .05$, though internal attributions did not significantly correlate with observed distress ratings on the PBCL or self-reported pain.

Coping

Children who predicted that they would use primary-control coping strategies during laceration repair exhibited greater distress. There was an overall main effect of coping (primary, secondary, and none) on observed distress score, $F(2,15) = 4.98$, $p < .05$, and a marginal effect on physician-rated distress, $F(2,38) = 2.50$, $p < .10$. For observed distress, simple main effect analyses revealed that children who reported (before the procedure) that they would use primary-control coping strategies had greater observed distress during laceration repair than children who either reported secondary-control coping strategies, $F(1,7) = 2.34$, $p < .05$, or relinquished-control coping strategies, $F(1,8) = 2.75$, $p < .05$.

The patterns for physician-rated distress, although only marginally significant, were similar. Children who reported that they would use primary-control coping strategies had higher physician-rated distress ($M = 3.80$, $SD = 3.27$) than those who reported secondary-control ($M = 1.87$, $SD = 1.68$) or no coping strategies ($M = 1.71$, $SD = 1.65$).

Lastly, coping also was associated with post-procedure pain. There was a marginal main effect of type of coping during the laceration repair on children's rating of how much pain they were experiencing after the procedure, $F(2,42) = 2.69$, $p < .10$. Children who reported using secondary-control coping during the laceration repair reported less pain after the procedure ($M = 1.46$, $SD = 1.83$) compared to those who reported relinquished-control coping strategies ($M = 3.33$, $SD = 3.58$).

Discussion

The results demonstrate that during an unplanned medical procedure, internally focused attributions of blame were correlated with higher distress and that externally focused attributions of blame were correlated with lower distress. Specifically, children who attributed their injuries to chance anticipated less pain, and children who attributed their injuries to outside circumstances exhibited lower distress during laceration repair. Conversely, children who blamed themselves for their injuries were more likely to display higher levels of distress during laceration repair.

These results are consistent with the existing literature on attributions. Though previous studies have not addressed the relationship between injury attributions and subsequent medical procedures, the general trend in the literature has been that internally focused attributions, such as self-blame, are associated with negative psychological sequelae (Glinder & Compas, 1999; Peterson & Seligman, 1987; Richards et al., 1997). This study's results suggest that the pattern observed for chronic, debilitating conditions also applies to acute events directly related to the attribution—in this case, a medical procedure necessitated by an injury.

This study also found primary-control coping to be associated with greater distress during a medical procedure. Children who predicted that they would cope by exerting primary control over the situation had greater observed distress during the procedure than those who reported secondary-control coping or relinquished-control coping. Results were similar for physician-rated distress. In addition, children who used secondary-control coping strategies during the procedure reported less pain afterward than children who endorsed relinquished-control during the procedure.

Previous research suggests that secondary-control coping is the most effective coping style in uncontrollable situations (Band & Weisz, 1988; Compas, 1987).

This study's results are consistent with previous findings that have used planned medical procedures (Weisz et al., 1994), but also suggests that the benefits of secondary-control coping extend to unplanned medical procedures as well.

Coping is likely a dynamic process that changes as one continually evaluates the efficacy of one's coping strategy (Weisz et al., 1994). Children who predict using a certain coping approach (i.e., primary-control coping) before the start of the procedure may find it ineffective and switch coping strategies during the procedure to one that more effectively deals with their distress (i.e., secondary-control coping). The fact that nearly twice as many children *retrospectively* reported coping by exerting secondary control as opposed to children who *predicted* secondary-control coping supports this hypothesis and reinforces the finding of the strong efficacy of secondary-control coping skills in uncontrollable situations.

These findings suggest important implications for future research and intervention development. The findings suggest that working toward changing the attributions a child has for negative events such as injuries may help alleviate children's distress during the ensuing medical procedure. Previous research has found that changing a child's conceptualization and memory of previous medical procedures reduces distress during subsequent medical procedures (Chen et al., 1999); the same may be true of events leading to the medical procedure. However, this approach must be balanced by an awareness that having a child take responsibility for his or her actions may help prevent future injuries. In addition, the current findings suggest that teaching secondary-control coping strategies in the emergency department may reduce children's procedure-related distress. Even brief interventions while children are in the waiting area may be beneficial. This could involve short handouts to families that explain different types of coping strategies with descriptions of the types that have been found to be most helpful. Future studies that test the efficacy of emergency department interventions for unplanned medical procedures would contribute greatly to this field.

The construct of distress was measured by self-report, physician report, and an observer. It is important to note the lack of agreement among these sources in the sample. This pattern is similar to that found in other studies of painful medical procedures (Labus, Keefe, & Jensen, 2003; LeBaron & Zeltzer, 1984). These findings indicate the importance of utilizing multiple modes of assessing distress in childhood pain studies, because any single approach may miss out on aspects of the pain experience. The reasons for the differential patterns across the various distress measures remain unclear but would be an important area for future research.

Limitations to this study include the small sample size and the lack of observational data for all participants. Furthermore, there was a high participation refusal rate. Though this is understandable given the setting of the study (pediatric emergency department where families are making unplanned visits), it is possible that families who refused may have been more likely to have children with certain coping or attributional styles. This study involved a preliminary analysis of the role of child attributions and coping; however, future studies that recruit larger samples would allow us to determine whether this study's findings are reliable. In addition, the small sample size precluded our analyzing the data separately by age group. Developmental factors likely affect both the type of coping and attributions children engage in, as well as their ability to report on these constructs. Understanding how control coping and attributions change by age is an important direction for future research. Moreover, this study assessed some constructs, such as injury severity and self-reported pain, with single items that lack validity data. Multiple items to assess each construct as well as more detailed coping questions would allow future researchers to more consistently assess all included constructs and gain a better understanding of children's goals versus behaviors when they experience painful medical procedures.

In sum, this study examined the role of children's attributions and coping in a previously untested context—during unplanned medical procedures. This study demonstrated that internal attributions of blame are associated with greater procedure-related distress and that secondary-control coping is associated with lower levels of procedure-related distress. Further research in this area will help researchers and practitioners better understand and prepare for commonly occurring, yet distressing, medical procedures in children.

Acknowledgment

This research was supported in part by William T. Grant Foundation and Michael Smith Foundation for Health Research. The authors thank the faculty and staff of the St. Louis Children's Hospital Emergency Department for their support of this study and the Washington University undergraduate students who helped with data collection.

Received January 1, 2004; revisions received June 7, 2004 and August 10, 2004; accepted August 11, 2004

References

Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49–74.

Altshuler, J. L., & Ruble, D. N. (1989). Developmental changes in children's awareness of strategies for coping with uncontrollable stress. *Child Development, 60*, 1337–1349.

Band, E. B., & Weisz, J. R. (1988). How to feel better when it feels bad: Children's perspectives on coping with everyday stress. *Developmental Psychology, 24*, 247–253.

Buckelew, S. P., Baumstark, K. E., Frank, R. G., & Hewett, J. E. (1990). Adjustment following spinal cord injury. *Rehabilitation Psychology, 35*, 101–109.

Chen, E., Zeltzer, L. K., Craske, M. G., & Katz, E. R. (1999). Alteration of memory in the reduction of children's distress during repeated aversive medical procedures. *Journal of Consulting and Clinical Psychology, 67*, 481–490.

Compas, B. (1987). Coping with stress during childhood and adolescence. *Psychological Bulletin, 101*, 393–403.

Compas, B. E., Malcarne, V. L., & Fondacaro, K. M. (1988). Coping with stressful events in order children and young adolescents. *Journal of Consulting and Clinical Psychology, 56*, 405–411.

Forsythe, C. J., & Compas, B. E. (1987). Interaction of cognitive appraisals of stressful events and coping: Testing the goodness of fit hypothesis. *Cognitive Therapy & Research, 11*, 473–485.

Franck, L. S., Greenberg, C. S., & Stevens, B. (2000). Pain assessment in infants and children. *Pain, 47*, 487–512.

Frank, N. C., Blount, R. L., & Brown, R. T. (1997). Attributions, coping, and adjustment in children with cancer. *Journal of Pediatric Psychology, 22*, 563–576.

Gable, S., & Peterson, L. (1998). School-age children's attributions about their own naturally occurring minor injuries: A process analysis. *Journal of Pediatric Psychology, 23*, 323–332.

Glinder, J. G., & Compas, B. E. (1999). Self-blame attributions in women with newly diagnosed breast cancer: A prospective study of psychological adjustment. *Health Psychology, 18*, 475–481.

Hanson, S., Buckelew, S. P., Hewett, J., & O'Neal, G. (1993). The relationship between coping and adjustment after spinal cord injury: A 5-year follow-up study. *Rehabilitation Psychology, 38*, 41–52.

Houldin, A. D., Jacobsen, B., & Lowery, B. J. (1996). Self-blame and adjustment to breast cancer. *Oncological Nurse's Forum, 23*, 75–79.

Labus, J. S., Keefe, F. J., & Jensen, M. P. (2003). Self-report of pain intensity and direct observations of pain behavior: When are they correlated? *Pain, 102*, 109–124.

Landis, J. R., & Koch, G. G. (1977). An application of hierarchical kappa-type statistics in the assessment of majority agreement among multiple observers. *Biometrics, 33*, 363–374.

LeBaron, S., & Zeltzer, L. (1984). Assessment of acute pain and anxiety in children and adolescents by self-reports, observer-reports, and a behavior checklist. *Journal of Consulting and Clinical Psychology, 52*, 729–738.

Malcarne, V. L., Compas, B. E., Epping-Jordan, J. E., & Howell, D. C. (1995). Cognitive factors in adjustment to cancer: Attributions of self-blame and perceptions of control. *Journal of Behavioral Medicine, 18*, 401–417.

Peterson, L. (1989). Coping by children undergoing stressful medical procedures: Some conceptual, methodological, and therapeutic issues. *Journal of Consulting and Clinical Psychology, 57*, 380–387.

Peterson, L., Oliver, K. K., & Saldana, L. (1997). Children's coping with stressful medical procedures. In S. A. Wolchik & I. N. Sandler (Eds.), *Handbook of children's coping: Linking theory and intervention* (pp. 333–360). New York: Plenum Press.

Richards, J. S., Elliot, T. R., Shewchuk, R. M., & Fine, P. R. (1997). Attribution of responsibility for onset of spinal cord injury and psychosocial outcomes in the first year post-injury. *Rehabilitation Psychology, 42*, 115–124.

Rothbaum, F. M., Weisz, J. R., & Synder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology, 42*, 5–37.

Rudolph, K. D., Dennig, M. D., & Weisz, J. R. (1995). Determinants and consequences of children's coping in the medical setting: Conceptualization, review, and critique. *Psychological Bulletin, 118*, 328–357.

Seligman, M. E. P. (1975). *Helplessness: On depression, development, and death*. San Francisco, CA: Freeman.

Weiss, H. B., Mathers, L. J., Forjuoh, S. N., & Kinnane, J. M. (1998). *Child and adolescent emergency department visit databook*. Pittsburgh, PA: Allegheny University of the Health Sciences.

Weisz, J. R., McCabe, M., & Dennig, M. D. (1994). Primary and secondary control among children undergoing medical procedures: Adjustment as a function of coping style. *Journal of Consulting and Clinical Psychology, 62*, 324–332.

Weisz, J. R., Rothbaum, F. M., & Blackburn, T. C. (1984). Standing out and standing in: the psychology of control in America and Japan. *American Psychologist, 39*, 955–969.