Published in final edited form as:

Child Health Care. 2006 ; 35(2): 123–140.

Youth With Epilepsy: Development of a Model of Children's Attitudes Toward Their Condition

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Abstract

A model of children's attitudes toward their epilepsy was tested in 173 children (9–14 years) with epilepsy and their parents. Predictor variables tested were child characteristics, family mastery, child worry, child self-efficacy for seizure management, child psychosocial care needs, and seizure variables. Data were analyzed using structural equation modeling, leading to a revised model in which less child worry, greater family mastery, and greater child seizure self-efficacy were directly related to more child positive attitudes. Discussion focuses on potential targets for psychosocial interventions aimed at improving attitudes toward epilepsy.

Epilepsy, or recurrent unprovoked seizures, is the most common serious neurological disorder in childhood (Hauser, 1994; Shorvon, 1996). Children and adolescents with epilepsy are at risk for mental health problems such as poor self-concept and depression (Ettinger et al., 1998; McDermott, Mani, & Krishnaswami, 1995). Our past research has suggested that children's attitudes toward having epilepsy might influence their psychosocial adjustment. For example, we found more positive attitudes toward epilepsy to be associated with more positive self-concepts (Austin & Huberty, 1993), greater use of adaptive coping strategies (Austin, Patterson, & Huberty, 1991), and fewer behavior problems (Austin, Smith, Risinger, & McNelis, 1994). Child attitude toward illness was conceptualized as an important influence on adjustment in a recent study of children with chronic arthritis (LeBovidge, Lavigne, & Miller, 2005). In that study, children's attitudes toward their condition were found to moderate the relation between stress and child adjustment. These authors proposed that a positive attitude buffers the impact of increased stress (LeBovidge, Lavigne, & Miller, 2005). These findings suggested that identifying variables that might predict child attitude toward illness would provide a foundation for the development of psychosocial care interventions to enhance positive attitudes and, ultimately, psychosocial adjustment in children with chronic illness (Lavigne & Miller, 2005).

CHILDREN'S ATTITUDES TOWARD THEIR CONDITION: PRELIMINARY MODEL

Attitude theory and past empirical research influenced our selection of concepts for a preliminary model to predict children's attitudes toward having epilepsy (see preliminary model in Figure 1). A goal was to include predictive factors in the model that might be amenable to psychosocial interventions (Lavigne & Faier-Routman, 1993). In the preliminary model, six factors were identified as either direct or indirect predictors of child attitude: child characteristics, family environment, child worry about having epilepsy, child self-efficacy for seizure management, child psychosocial care needs, and seizure variables. Child worry and

self-efficacy were proposed to be mediating variables (Baron & Kenny, 1986). The empirical support for the initial selection of these variables follows.

Child Characteristics (Age and Gender)

Child age was included in the model because the child's developmental level influences how well he or she is able to understand and cope with having a chronic condition such as epilepsy (Thompson & Gustafson, 1996). We proposed that age would be negatively related to attitude based on past research showing older adolescents to have significantly more negative attitudes toward their epilepsy than younger adolescents (Heimlich, Westbrook, Austin, Cramer, & Devinsky, 2000). Past research also has identified female gender as a risk factor for symptoms of depression in youth with chronic illness. For example, in a study of adolescents with insulin-dependent diabetes mellitus, girls experienced poorer metabolic control and more symptoms of depression than boys (LaGreca, Swales, Klemp, Madigan, & Skyler, 1995). We propose that girls would have more negative attitudes than boys based on a study showing that girls had significantly more negative attitudes related to having epilepsy than did boys (Heimlich et al., 2000).

Family Environment (Mastery)

Although research is limited on the relationship between family environmental variables and child attitude, researchers have linked the family environment with mental health problems in the child. For example, greater family stress, low family mastery, and low extended family support were associated with more child behavior problems in a study of children with chronic epilepsy (Austin, Risinger, & Beckett, 1992). In a study of adolescents with chronic epilepsy, greater satisfaction with family relationships was associated with fewer symptoms of depression (Dunn, Austin, & Huster, 1999). For the model, we propose that greater family mastery (i.e., higher levels of family cooperation, organization, and communication) would be associated with a more positive child attitude toward epilepsy.

Child Worry

The inclusion of child worry in the model was influenced by Fishbein and Ajzen's (1975) model of attitude, which identified the importance of underlying beliefs; child worry items reflect underlying beliefs about having epilepsy. In past research, children with new-onset seizures were found to have many fears and concerns related to having and being treated for seizures (Austin, 1993). We propose that greater worry would be related to more negative attitudes based on a study of children with new-onset seizures showing higher levels of child worry being associated with more negative attitudes (Austin, Dunn, Huster, & Rose, 1998).

Self-Efficacy for Seizure Management

Self-efficacy was included because it has been found to influence health behavior (DiIorio, Faherty, & Manteuffel, 1992; DiIorio & Henry, 1995) and to mediate the relationship between disease severity and quality of life in adults with epilepsy (Amir, Roziner, Knoll, & Neufeld, 1999). In this study, self-efficacy was conceptualized as the child's confidence in his or her ability to handle situations related to having seizures. We hypothesize that when children had predominately negative beliefs about their ability to handle future seizures, they would also have greater worry and more negative attitudes related to having epilepsy. Support for this relationship was found in a prior study (Caplin, Austin, Dunn, Shen, & Perkins, 2002). For our preliminary model, we propose that greater self-efficacy would be associated with more positive attitudes about having epilepsy. In addition, we propose that greater self-efficacy would be associated with less child worry about having epilepsy. Our rationale for proposing this relationship was that children who feel more confident in their ability to handle their seizures would worry less about having epilepsy.

Psychosocial Care Needs

An important component of providing care to children with epilepsy is teaching the child about the condition and providing emotional support to the child and the family (Austin et al., 1998). Only a few psychosocial interventions have been tested for children with epilepsy and their families, and all have provided information and emotional support as components of the intervention (Austin, McNelis, Shore, Dunn, & Musick, 2002; Hoare & Kerley, 1992; Lewis, Hatton, Salas, Leake, & Chifalo, 1991; Lewis, Salas, de la Soto, Chifalo, & Leake, 1990). We have previously found that many children feel that they lack information about their seizure condition, and this could contribute to worry about their health (Austin, 1993; McNelis, Musick, Austin, Dunn, & Creasy, 1998). Therefore, we propose that the greater the child's need for information and emotional support, the more the child would worry and the less capable the child would feel about managing his or her seizures. In the preliminary model, we propose that child worry and self-efficacy would mediate the relationship between psychosocial care needs and attitude.

Seizure Variables

Three seizure variables were selected for inclusion in the model: age of onset, seizure severity, and seizures in the past year (yes or no). We propose a positive correlation between age of onset and child attitude, based on past research indicating that earlier age of onset was associated with more mental health problems in children with epilepsy (Hoare, 1984). The severity of the seizures experienced by the child is important to include because some seizures are more intrusive in nature than others (Carpay & Arts, 1996; Hermann, Whitman, & Dell, 1989). For example, generalized tonic clonic seizures (e.g., those that involve loss of consciousness and shaking of the limbs) and partial seizures that generalize are among those considered the most severe. These seizures are obvious to others and generally have a longer period of confusion afterward. In contrast, absence seizures (i.e., those that involve brief losses of consciousness that often appear as staring spells) and simple partial seizures (i.e., those that involve uncontrolled movement in one part of the body with no loss of consciousness) are among those that are generally rated less severe because they are usually short in duration and have no confusion afterwards (Dreifuss & Nordli, 2001). Past research studies indicated that active seizures in the past year (Schoenfeld et al., 1999; Wirrell et al., 1997) are associated with more behavior problems in children and adolescents with chronic epilepsy. In the preliminary model, we propose that seizure variables would be related to both child worry and self-efficacy.

Purpose

The purposes of this study are to test a preliminary model of child attitude toward epilepsy, revise the model based on results, and test the revised model. Initially, we explore the relationships proposed in the preliminary model that were based on prior research (see Figure 1). Based on these preliminary analyses, we drop variables and relationships from the model that are not empirically supported. We then explore the bivariate relationships between the remaining variables and use these findings to construct a revised model. Finally, we test the revised model. It is anticipated that the revised model will provide a foundation for the development and testing of psychosocial interventions aimed at improving child attitude toward epilepsy, which would ultimately help reduce the mental health problems found in this population.

METHODS

Sample

Participants were 173 children (85 girls and 88 boys) ages 9 through 14 years ($M = 11.74$, $SD = 1.85$) recruited from clinics, schools, and private practices of pediatric neurologists in a large midwestern city. Inclusion criteria were that the children had been prescribed antiepileptic medication and had a definite diagnosis of epilepsy. Exclusion criteria were diagnosis of mental retardation or intellectual disability (i.e., $IQ < 70$ per school records, parent report of low IQ, or placement of child in a mentally handicapped classroom), another major chronic physical disorder, or a progressive brain disorder. Because of privacy issues, the research team did not have access to health care information prior to informed consent. Therefore, recruitment was primarily carried out through placing posters about the study in clinics and asking health care professionals to provide fliers describing the study to parents of children who met the criteria. Fliers were also sent to school nurses asking them to give them to parents of children who met the criteria. Parents then contacted the research team directly to learn more about participation. A limitation of this recruitment approach is that nothing is known about the parents who were given fliers but choose not to contact the research team about the study.

Seizure data were obtained from parent interview and clinical records. In a structured telephone interview, major caregivers were asked the age of onset of their child's seizures, number of seizures in the past year, date of most recent seizure, and to describe their child's seizures. Clinical records were reviewed for seizure type, date of most recent seizure, and results from electroencephalograms. The mean age of seizure onset was 6.56 years ($SD = 3.68$, range = 0–14.5 years). Most of the children (69%) had had at least one seizure in the past year. The large majority of children (79.8%) had only one type of seizure. Percentages for primary seizure types were absence, 17.9%; atonic, akinetic motor, 1.2%; elementary partial, 6.9%; complex partial, 32.9%; generalized tonic/clonic, 19.7%; partial with secondary generalization, 19.7%; unclassified, 1.7%.

With few exceptions, the major caregiver was the mother. A majority of the sample was Caucasian (91%), 6% were African American, and 3% were other. On average, the children's primary caregiver had greater than a high school education ($M = 13.53$ years, $SD = 2.28$). The average duration of the disorder in the sample was slightly over 5 years ($M = 5.18$, $SD = 3.83$).

Procedures

The university institutional review board approved the study. Informed consents were obtained from the parents and informed assents from the children before data collection. Data were collected using computer-assisted telephone interviews as part of an ongoing longitudinal study of adjustment in children with chronic epilepsy. Baseline data were used for this study. For the data collection, parents and children were mailed the rating scales for each of the instruments prior to the interview. The questionnaire items were placed on computers using the FOXPRO program. During the interviews, trained research assistants read the items for each instrument to the participants over the phone and entered their responses onto the computer.

Measures

Family mastery—Family mastery was measured using caregivers' ratings on the family mastery and health subscale of the Family Inventory of Resources for Management (McCubbin, Thompson, & McCubbin, 1996). Our study used an abbreviated subscale consisting of the 18 items with the highest factor loadings in previous research. The items on this subscale reflect family emotion, sense of control over events, level of cooperation among family members, family organization, and degree of communication of concerns among family members. Parents responded to items on 4-point scales in regard to how often each statement

described their family situation in the past year: 0 (*never*), 1 (*sometimes*), 2 (*usually*), and 3 (*always*). The coefficient alpha was .88 for the proposed study. A mean score was obtained by summing scores and dividing by the number of items. A higher score reflects a more adaptive family environment. For this sample, the mean score was 2.01 ($SD = .45$).

Psychosocial care needs—The need for information and support subscale of the Child Report of Psychosocial Care Scale (Austin et al., 1998) was used. This subscale has 12 items that measure needs related to living with a seizure condition on a response scale of 1 (*not very much*), 2 (*some*), and 3 (*a lot*). Sample items are “How much more information do you need about how to handle future seizures?” “How much do you need to talk to someone about your feelings about having a seizure disorder?” Coefficient alpha was .80 in this study. A mean score was obtained by summing scores and dividing by the number of items. A higher score reflects greater need. The mean score for this sample was 1.84 ($SD = .41$).

Seizure variables—Three seizure variables were measured: age of onset, seizure severity, and seizures in the last year (yes or no). Age of onset was determined by parent report. Severity of the seizure condition was measured by items from the Seizure Severity Scale for adults (Baker et al., 1991). This scale reflects the degree to which seizures disrupt everyday life for adults and the extent of the seizure. We substantially revised the scale (with consultation from the developers) because the original scale was developed as a self-report scale for adults with intractable seizures. Therefore we needed to revise several items so an observer could complete them. In addition, because the seizure frequency and seizure severity were substantially different in our sample, several items were dropped because they were not endorsed by our participants. The final number of items was 9 and the coefficient alpha was .79. On this scale, items are given weights from 0 to 3. Items reflect intrusiveness of the seizure (e.g., incontinence or loss of consciousness), disruptiveness of the seizure (e.g., bizarre movements or undressing self), and effects of the seizure (e.g., injury, confusion, and sleepiness). These items are rated as follows: 0 (*never*), 1 (*sometimes*), 2 (*usually*), and 3 (*always*). Other items measure time of disruption. Seizure length is coded as follows: 0 (*less than 1 min*), 1 (*between 1 and 2 min*), 2 (*between 2 and 5 min*), and 3 (*more than 5 min*). Length of confusion after the seizure is coded as follows: 0 (*less than 1 min*), 1 (*between 1 and 5 min*), 2 (*between 5 min and 1 hr*), and 3 (*more than 1 hr*). Parents completed the scale once for each kind of seizure observed. For children with multiple kinds of seizures, the maximum score was used in analysis. The total score was divided by the number of items to derive a mean score with a range between 0 and 3. The mean item score for this sample on this revised seizure severity scale was 1.41 ($SD = .64$). We also wanted a measurement of how frequently the child was having seizures. Because 31% had been seizure-free in the previous year and because the interpretation of whether or not seizure frequency is high depends on seizure type, we measured whether or not the child had had a seizure in the last year. This final variable was measured using parent report and health provider records of the date of the most recent seizure.

Child worry—Child worry was measured using 13 items that ask children how often they worry about particular aspects of having epilepsy on 5-point scales of 1 (*never*) to 5 (*very often*), with a higher mean score reflecting greater worry. Areas of concern addressed in the scale items include causes of seizures, being alone in case of a seizure, getting blood tests, getting hurt during a seizure, and not being able to do some things because of the seizures. The items on this scale were originally obtained from open-ended interviews with children in past research (Austin, 1993). The coefficient alpha was .83 for this sample. The mean item score for this sample was 2.57 ($SD = .80$).

Child self-efficacy for seizure management—The Seizure Self-Efficacy Scale for Children (SSES-C; Caplin et al., 2002) is a 15-item scale that measures the degree of self-

efficacy related to the management of the seizure disorder. Children rate each statement on a 5-point scale of 1 (*I'm very unsure I can do that*) to 5 (*I'm very sure I can do that*). Sample items are “I can manage my seizure condition even if I am at a friend's, on vacation, or on a school trip.” “I can talk to the doctor or nurse if I have questions about my seizure condition.” A mean score was obtained by summing across all items and dividing by the number of items. A higher score reflects greater self-efficacy. Support for reliability and validity has been found (Caplin et al., 2002). The coefficient alpha for this sample was .93 and the mean item score was 4.15 ($SD = .65$)

Child attitude toward epilepsy—Attitude was measured by the Child Attitude Toward Illness Scale (CATIS; Austin & Huberty, 1993). The CATIS is a 13-item scale that measures, along one dimension, children's positive and negative feelings about having a seizure condition. It had good reliability and validity in past studies (Austin & Huberty, 1993; Heimlich et al., 2000). The possible range of mean item scores is 1 to 5, with scores of 1 and 2 indicating negative feelings, 3 being neutral, and 4 and 5 indicating positive feelings. The coefficient alpha for this sample was .78 and the mean was 3.34 ($SD = .65$).

Data Analyses

Basic descriptive statistics were first generated for the sample. Structural equation modeling was used to assess the fit of the proposed models. This procedure simultaneously assesses all paths in a model and provides global indexes of fit. Because of the relatively small sample size, we modeled constructs using observed variables rather than latent variables. In addition, Jöreskog and Sörbom (1996a) discussed three approaches used when fitting and testing models: strictly confirmatory, model generating, and model comparison. Because this is the first attempt to develop a model for child attitude towards epilepsy based on psychosocial variables, we chose to take a model-generating approach, first specifying our model based on past research and theoretical constructs and then examining bivariate (product moment) correlations to see if there were other relationships that had a sound basis for consideration. To reduce the possibility of declaring effects statistically significant when they were not clinically significant, we did not consider bivariate correlations significant if their magnitude was less than .20.

After constructing and fitting the preliminary model, we then considered the bivariate correlations and constructed a revised model that removed the nonsignificant paths from the preliminary model and added paths indicated by significant bivariate correlations. Global indexes of fit are reported for both models. We report the chi-square value, Goodness of Fit Index (GFI), Comparative Index of Fit (CFI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR). The p value for the chi-square test should be non-significant in a good-fitting model. The GFI should be .9 or higher. The CFI is also reported because it is not affected by systematic bias due to small sample size (Bentler, 1990). The CFI should also be .9 or higher. The RMSEA follows a non-central chi-square distribution. Values less than or equal to .05 indicate good fit, values between .05 and .08 indicate acceptable fit, and values above .10 indicate poor fit (Browne & Cudeck, 1993). Similar rules apply for the SRMR. LISREL was used to fit all models (Jöreskog & Sörbom, 1996b). Of the 173 children, 92% ($n = 160$) had complete data (i.e., no missing values) on all 10 variables of interest. The data for these 160 children were used in modeling and examining bivariate correlations.

Of special interest were the proposed mediating effects of worry and self-efficacy. To test these relationships, we (a) explored the bivariate correlations between psychosocial care needs and seizure condition variables, respectively, and child attitude; (b) used path model results to confirm the respective relationships of psychosocial care needs and seizure condition variables to worry and self-efficacy and of worry and self-efficacy to child attitude; and (c) fit additional

path models that included a direct effect for any psychosocial or seizure condition variables that met criteria (a) and (b) on child attitude, as well as indirect paths through worry and self-efficacy. These steps were included to explore mediation as described in Baron and Kenny (1986).

RESULTS

Preliminary Model

GFI for the model in Figure 1 include a chi-square value of 19.69 ($p = .032$), GFI of .98, CFI of .95, RMSEA of .08 (90% CI = .02 to .13), and SRMR of .04. Each of these indexes indicates an acceptable fit with the exception of the chi-square test. Many but not all of the hypothesized relationships were supported by the fitted model (results not shown). Worry was significantly negatively associated with child attitude, and self-efficacy was significantly positively associated with child attitude. In addition, worry and self-efficacy were significantly negatively associated. Family mastery was significantly positively associated with child attitude. Psychosocial care needs had a significant positive association with worry and a significant negative association with self-efficacy. Finally, active seizure status was significantly positively associated with worry. Not significant at the .05 level were the respective relationships of age and gender to attitude, seizure severity to worry and self-efficacy, and age of onset to worry and self-efficacy. Finally, active seizure status in the past year was not associated with self-efficacy.

Bivariate Correlations

The results observed for the preliminary model were supported by the bivariate correlations (Table 1). The only relationship that was identified strictly from the bivariate correlations as being potentially important (and thus added to the revised model) was that between female gender and worry; these variables had a significant point biserial correlation of $-.22$. This finding makes sense on theoretical grounds because girls have been found to use more rumination coping strategies than boys (Nolen-Hoeksema, 1994).

Revised Model

The chi-square from the revised model was 5.71 ($p = .57$). In addition, the GFI was .99, CFI was 1.00, RMSEA was 0.00 (90% CI = .00 to .09), and SRMR was .03. The beta coefficients from the revised model are reported in Figure 2. All beta coefficients were significant in both the preliminary and revised model at the .05 level with the exception of the relationship between gender and worry, which was significant in the revised model but was not included in the preliminary model.

Mediation Effects

Of the four psychosocial and seizure condition variables, only psychosocial care needs was related to worry, self-efficacy, and attitude. Age of onset and seizure severity were not related to worry or self-efficacy either in the preliminary model or through bivariate correlations, and the point biserial correlation between seizure status and attitude was not significant. Although seizure severity had a bivariate correlation with attitude of $\alpha < .05$, its magnitude was less than 0.2. The bivariate correlation between psychosocial care needs and attitude was $-.39$ and highly statistically significant ($p < .0001$). In addition, based on both the preliminary and the revised model, it was evident that psychosocial care needs was also significantly related to both worry and self-efficacy, and that worry and self-efficacy were both significantly related to attitude. However, when a direct effect between psychosocial care needs on attitude was added to the model in Figure 1, this direct effect was not statistically significant ($p = .088$). Similarly, when it was added to the model in Figure 2, again the direct effect was not statistically significant

($p = .088$). This indicates that psychosocial care needs were being mediated by worry and self-efficacy.

Because psychosocial care needs had the strongest correlation with worry and worry had the strongest association with attitude, we explored frequencies for each of the items on the scale to identify areas in which children had the greatest needs for care. Percentages are presented in Table 2. The most information needs (i.e., combining percentages for “some” and “a lot”) related to causes of seizures, handling future seizures, and injury protection. Those support items with the highest endorsement of need related to discussing the future, talking with others who also have seizures, and handling seizures at school.

DISCUSSION

The major goal of this study was to generate a model that identified factors related to child attitude toward having epilepsy, with an emphasis on variables that might be amenable to psychosocial interventions. We focused on child attitudes because children with more negative attitudes toward having epilepsy had been found to have poorer adjustment in past research (Austin et al., 1994; LeBovidge et al., 2005). We considered attitude toward the condition to be an important influence on adjustment and developed a preliminary model with concepts that might be predictors of child attitude. Testing of a preliminary model based on the literature led to a revised model identifying three variables as being directly related to child attitudes: child worry about seizures, child self-efficacy for seizure management, and caregiver rating of family mastery. Four child variables were associated with more child worry: female gender, greater child psychosocial care needs, active seizure status, and poorer child self-efficacy for seizure management. In addition, more psychosocial care needs were associated with poorer self-efficacy for seizure management. These findings suggest that worry, self-efficacy for seizure management, family mastery, and psychosocial care needs are potential targets for interventions to address negative attitudes in children with epilepsy. Because psychosocial care needs are relevant to the other three variables, they are discussed in relation to each of them. The discussion primarily focuses on the potential of the revised model to guide the development and testing of psychosocial interventions.

Child Worry

Worry had the strongest association with attitude. In addition, worry mediated the relationship between female gender, psychosocial care needs, and seizure in the past year, respectively, and attitude. These findings suggest that children's concerns and fears related to having epilepsy might be a good target for psychosocial interventions. Reducing worry about epilepsy might lead to more positive attitudes toward having epilepsy and possibly a better psychosocial adjustment to the disorder. The findings that both girls and children with active seizure conditions had relatively more worry suggest that these children might be most in need of interventions.

The high correlation between psychosocial care needs and worry suggests that worry might result, in part, from the child's feelings of having inadequate amounts of information and support related to having epilepsy. The individual items on the scale measuring psychosocial care needs suggest potential areas of information and support that might be included in an intervention. Findings indicated that over half of the children wanted at least some more information about each of the six areas listed on the scale. The area of greatest need for information related to handling future seizures, which might indicate that these youths were becoming aware that they needed to assume more responsibility in this area. The highest support needs related to the children's desire to talk about their future and to talk with others who also have seizures. These findings suggest that interventions should provide opportunities for youth to talk with those who have expertise related to epilepsy so that children can receive

specific information about handling seizures, how epilepsy might affect their future, and strategies for preventing problems in these areas. In addition, the expressed need to talk with others who also have seizures indicates that incorporating such opportunities might be considered for inclusion in an intervention.

Self-Efficacy for Seizure Management

Of the four variables directly related to attitude, child self-efficacy for handling seizures had the second strongest bivariate association. Lower seizure self-efficacy also was significantly associated with more worry. These findings suggest that interventions that enhance the child's self-efficacy for managing his or her seizures might promote more positive attitudes both directly and indirectly through reducing worry. The finding that the need for psychosocial care was highly associated with low seizure self-efficacy suggests that the latter might result, in part, from lack of knowledge and emotional support. The strong expressed need for information about handling future seizures, protection of injuries from seizures, and the need to talk about strategies for dealing with seizures that occur at school indicate that these might be areas to include in an intervention aimed at enhancing self-efficacy.

Family Mastery

Family mastery—which reflects a family whose members are relatively happy, organized, work together well, and deal with problems effectively—was associated with a more positive child attitude. This finding is consistent with the review of literature by Drotar (1997), indicating that adaptive family functioning is related to children's psychological adjustment. In addition, the finding is consistent with research indicating that regularity of family activities can serve as a protective mechanism in children who are chronically ill. For example, Markson and Fiese (2000) found that family rituals protected against anxiety in youth with asthma. Routines provide for a regularity of family activities, with particular persons responsible for planning and carrying out activities on a regular basis. An organized family environment might be protective by providing a structure for children who are dealing with an unpredictable condition such as epilepsy. The negative correlation between family mastery and psychosocial care needs might indicate that families with lower levels of mastery also have less communication between parents and children related to the child's epilepsy. Overall, these findings suggest that psychosocial interventions might include encouraging children to talk with their parents about their condition. For example, communication about strategies for dealing with future seizures and talking about the child's future might be topics for communication in interventions.

Limitations

Certain limitations of the study might have influenced the results. Participants were primarily Caucasian and findings might have been different for a more ethnically diverse sample. Also, the longitudinal nature of the ongoing larger study may have attracted highly motivated families or families. Caregivers who were overwhelmed by responsibilities might not have participated. Another limitation is that not all of the variables that might have accounted for variance in child attitude were included in the study. For example, measures of child psychopathology such as depression symptoms or self-concept were not included. Another limitation is the cross-sectional nature of the study, which made it impossible to test causal relationships. It might be that some of the relationships among model variables were reciprocal. For example, negative attitudes might have led to more worry, lower self-efficacy for seizure management, and greater need for support as well as vice versa. There is also the possibility that attitudes, worry, and psychosocial care needs might all be dimensions of a broader construct related to overall concern about having epilepsy. Future research should be conducted to explore causal relationships among the variables. Another possible limitation relates to the fact that, although

child age did not meet our criteria for inclusion in the revised model, the bivariate correlations showed low, but significant, associations with worry, self-efficacy, and psychosocial care needs. These findings suggest that child age should be considered in future tests of the model. Certainly, child age would influence both the content and process of any intervention. Finally, future research needs to determine if model relationships hold over time and if interventions that enhance more positive attitudes also reduce mental health problems in children with epilepsy.

IMPLICATIONS FOR PRACTICE

This preliminary test of the Child Attitude Toward Epilepsy Model has identified variables associated with child attitude toward epilepsy that are potentially amenable to clinical interventions. Further research is needed to determine if interventions that reduce worry, increase self-efficacy for seizure management, and increase family mastery will lead to enhancement of positive child attitudes toward having epilepsy. In addition, research is needed to determine if addressing psychosocial care needs in the clinical setting leads to less child worry and greater child self-efficacy to manage their seizures.

ACKNOWLEDGMENT

This research was supported by Grant PHS R01 NR04536 from the National Institute of Nursing Research to Joan K. Austin. We acknowledge assistance from B. Garg and O. Markand, as well as the Epilepsy and Pediatric Neurology Clinics at Riley Hospital, Indiana University Medical Center, Indianapolis. We thank C. P. Shore and J. Kain for help with data collection, P. Dexter for editorial comments, and C. Benson for editorial assistance.

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FIGURE 1.
Preliminary model.

FIGURE 2.
Revised model. Beta coefficients are provided for relationships.

TABLE 1

Bivariate Correlations^a

	1	2	3	4	5	6	7	8	9	10
1. Age	—									
2. Gender		.08								
3. Family mastery			.03	.16*	.19	-.05	.19*	.18*	.16*	.07
4. Psychosocial care needs			.02	-.17*	-.00	-.04	.02	-.22*	-.01	.09
5. Seizure severity			—	.22*	-.15	-.15	.05	-.13***	.12	.22**
6. Seizure status				—	.12	.17*	-.04	.56***	-.20*	-.39***
7. Age of onset					—	.11	-.22*	.07**	-.15	.19*
8. Worry						—	.00	.25**	.03	-.08
9. Seizure self-efficacy							—	.04	.09**	.14***
10. Child attitude								—	.25**	-.46***
									—	.32***

^a *n* = 160.
* *p* < .05.
** *p* < .01.
*** *p* < .001.

TABLE 2

Percentages for Psychosocial Care Needs Items

	Not Much	Some	A Lot
Information needs			
About seizures	42	38	20
Medication	48	31	21
Causes of seizures	26	37	37
Handling future seizures	31	30	39
Activity restrictions	38	41	21
Injury protection	37	35	28
Support needs			
Talk about feelings	49	32	19
How to tell friends	54	28	18
Discuss concerns and fears	51	36	13
Discuss future	33	44	23
Talk with others who have seizures	38	34	28
Handling seizures at school	40	35	25