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RESEARCH

An Initial Examination of Religious Coping in Children With Asthma

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This study evaluated the relations between positive religious coping (PRC) and negative religious coping (NRC) strategies and adjustment in 87 children and adolescents (described as "children") hospitalized for asthma. Children's adjustment during hospitalization and at follow-up was correlated with and regressed onto measures of PRC and NRC. After controlling for relevant variables, religious

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coping predicted up to 50% of the variance in adjustment measures. Religious coping also significantly predicted adjustment after controlling for established measures of secular coping. PRC did not predict adjustment as hypothesized, other than predicting spiritual growth. NRC predicted poorer adjustment during hospitalization and at follow-up, and an increase in anxiety over time suggesting potential risk to children's adjustment. Although methodological limitations are noted, these initial findings provide a foundation on which to further examine the palliative and potentially harmful effects of children's religious coping.

According to the Centers for Disease Control and Prevention, asthma is the most prevalent chronic illness in children, affecting an estimated 9 million American children and adolescents (Dey & Bloom, 2005). Each year, more than 14 million days of school are missed by children with asthma (American Academy of Allergy Asthma & Immunology [AAAAI], 2006). Hospitalizations because of asthma range from 4.3 to 180.3 per 10 thousand children, depending on demographic criteria (Getahun, Demissie, & Rhoads, 2005). In addition, asthma has a disproportionate impact on African American children and children living in poverty or the inner city (AAAAI, 2006; Getahun et al., 2005).

For children, asthma may be viewed as a multifaceted stressor, composed of primary physical symptoms (e.g., coughing, wheezing, shortness of breath, chest pain) and secondary psychosocial effects (e.g., anxiety and depression from the daily stress of managing asthma symptoms, social embarrassment and isolation, restriction from physical activities; Lemanek, Trane, & Weiner, 1999; McQuaid & Walders, 2003; Wallander & Thompson, 1995). Asthma increases children's risk for psychological, social, and emotional problems (Kanner, Feldman, Weinberger, & Ford, 1987; Lemanek & Hood, 1999; McQuaid, Kopel, & Nassau, 2001). Results of a meta-analysis indicated that children with asthma were at greater risk than healthy children for both emotional and behavioral adjustment problems (M effect size = .41, standard error of mean = .06; eight studies included; Lavigne & Faier-Routman, 1992). Additional evidence suggests that asthma severity may moderate the strength of the relationship between asthma and poor adjustment in children (McQuaid et al., 2001).

One factor contributing to adjustment in medically ill children is their coping activities (Lavigne & Faier-Routman, 1993). For the purpose of this study, coping is understood to be cognitive and behavioral responses to stress intended to decrease distress and promote progress toward significant life goals (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). A central goal in research on coping is to identify which coping strategies are most beneficial to promote enhanced adjustment for children. However, one specific resource

in the coping process has been largely overlooked by researchers—the child's religious beliefs and behaviors.

THE RELIGION–COPING CONNECTION

Adult Literature

To begin researching religious coping in children, a review of adult literature utilizing Pargament's (1997) definitions of religion and religious coping provide a framework for reviewing existing studies on children.

Research in adults has demonstrated that religion can be a viable and effective resource for coping via several pathways (Pargament, Koenig, & Perez, 2000). For example, religion may assist the individual in making meaning out of the stressor or reinterpreting the stressor in a positive manner, such as viewing one's medical diagnosis as a lesson from God and part of one's spiritual journey (Cole, Benore, & Pargament, 2004). These religious appraisals may be particularly helpful when coping with specific aspects of chronic illness, such as lack of personal control over the stressor (Dein & Stygall, 1997; Koenig, McCullough, & Larson, 2001). Religion may also provide alternative coping methods when others are not effective. For example, a hospitalized, chronically ill individual may use prayer as a means to work collaboratively with God to problem solve when access to other support (e.g., friends) is not available (Cole et al., 2004). Further, religion may provide additional socio-emotional support for individuals under stress. Chronically ill people may find that clergy, the religious community, and communion with a higher power (e.g., God) help to alleviate the fear, worry, and sadness that come with disease.

However, not all pathways of religious coping are equally effective (Pargament et al., 2000; Pargament, Zinnbauer, et al., 1998). Studies in adults suggest that religious coping strategies may be considered "positive" or "negative" based on empirically tested associations with adjustment measures. Positive religious coping (PRC) typically involves a sense of spiritual support, collaboration with the divine or religious communities, or benevolent reappraisal of the event (e.g., "God is trying to teach me something"). Alternatively, negative religious coping (NRC) typically involves discontent with the divine or with religious communities, or negative reframing of the event (e.g., "God is punishing me").

Prior research in adults has demonstrated the unique predictive power of religious coping. Religious coping is a stronger predictor of adjustment than global measures of religiousness (e.g., frequency of prayer, worship attendance) and

accounts for unique variance in adjustment beyond secular coping (Pargament, Smith, Koenig, & Perez, 1998). Additional studies have further demonstrated religious coping predicting important health outcomes, such as mortality (Pargament, Koenig, Tarakeshwar, & Hahn, 2001).

Child Literature

Current research on children's use of religious coping strategies is limited, in part because of the lack of quantitative measurement of religious coping. However, some important observations have been made to support this field of study. In Robert Coles's (1990) book *The Spiritual Life of Children*, children described in their own words how they turn to religion during stressful times. A separate study of young Jewish adolescents coping with ethnic-related stressors reported that strong Jewish identity was associated with more frequent use of religious coping (Dubow, Pargament, Boxer, & Tarakeshwar, 2000). Britt's (1993) study of eight religious coping strategies in schoolchildren demonstrated that religious coping was positively correlated to religious involvement and to secular coping strategies. These two studies support Pargament and Brandt's (1998) conclusion (in the adult literature) that religious coping is utilized more by those with stronger religious commitment.

Two additional studies were identified that examined religious coping in hospitalized children. Ebmeier, Lough, Huth, and Autio (1991) qualitatively studied religious coping in 28 hospitalized children ages 8 to 10 years old. Religious themes from children's responses to four pictured hospital events were coded. In general, children described God as helping, protecting, comforting, loving, and approving. The authors concluded that this orientation (similar to benevolent reappraisal) is likely to benefit their coping efforts. Silber and Reilly (1985) examined spiritual and religious concerns in adolescents hospitalized for treatment of various medical conditions. The authors concluded that spiritual/religious concerns were significantly stronger among seriously ill patients and that seriously ill adolescents reportedly became significantly more engaged in spiritual issues during hospitalization. Further, Blacks, Catholics, and parochial school children reported greater religious concerns than their respective comparison groups. In spite of measurement limitations, these studies suggest that spiritual issues are important to hospitalized children, and spiritual behaviors may be utilized during hospitalization, particularly for seriously ill individuals.

Other studies have documented the role of religion in children's coping with various pediatric illnesses, noting factors of positive and negative religious coping as it is labeled in the adult literature (see Johnson, 1988; Spilka, Zwartjes & Zwartjes, 1991; Tebbi, Mallon, Richards, & Bigler, 1987).

In an effort to strengthen the theory guiding research on religious coping in children, Pendleton, Cavalli, Pargament, & Nasr (2002) conducted a qualitative data analysis using grounded theory to assess religious coping in children (ages 5–12) with cystic fibrosis and their parents. Children in this study represented a variety of religious denominations. They were administered semistructured interviews, asking them to describe (a) what they do to get better when feeling sick; (b) their thoughts about God, faith, prayer, and the roles of God in health and healing; and (c) the roles of religion in the doctor–patient relationship. Children were also asked to draw themselves and God when they are sick. Data analysis identified 11 sets of religious coping strategies emerged. These strategies were Declarative (child announces something to happen and God will automatically do it), Petitionery (child appeals to God to intercede), Collaborative (child and God both take responsibility for dealing with the stressor), Divine Support (God is viewed as assisting, benefiting, protecting, and comforting the child), Divine Intervention (God intercedes without direction or appeal from child), Divine Is Irrelevant (child does not rely on God at all), Benevolent Reframing, Negative Religious/Spiritual Reframing, Spiritual Social Support, Discontent with God or Congregation, and Ritual Response (use of ritual in an effort to cope with the stressor).

Several significant findings were drawn from this study. First, some of these identified strategies (e.g., Divine Is Irrelevant) did not directly align with adult religious coping strategies (cf., Pargament et al., 2000). In addition, the children indicated that most religious coping strategies were adaptive to their physical, mental, spiritual, and social adjustment. Few maladaptive outcomes of religious/spiritual coping were identified (e.g., remaining ill). The authors suggested these results align with an existing model of resilience theory. Overall, religious coping appeared to function similarly to secular coping in children and religious coping in adults. Namely, there was a variety of religious strategies that children used to adjust to stress, and, to some extent, religious coping strategies differentially predicted adjustment.

A review by Mahoney, Pendleton, and Ihrke (2005) provided detailed support for a theoretical framework on children's religious coping, focusing on both adaptive and maladaptive forms of coping. The authors delineated the various forms of coping found in adult and child samples and correlates in research on children. They concluded that future research is needed to adequately operationalize and measure the construct of children's religious coping. Given methodological limits of past research, they recommended attending to both positive and negative aspects of the coping process with theoretically based operational definitions, determining the unique quality of religious coping (beyond secular forms of coping), utilizing improved measurement of religious coping to allow for replication studies, and utilizing cross-sectional and longitudinal designs to best assess coping outcomes.

STUDY OBJECTIVE

This is an initial exploratory study examining the relations between religious coping and adjustment in children and adolescents hospitalized because of asthmatic episodes. Based on previous research on religious coping in adults (Pargament, Smith, et al., 1998) and in children (Pendleton et al., 2002), two main hypotheses were tested. First, it was hypothesized that children's religious coping strategies would be manifested as two distinct factors, PRC and NRC, that would differentially predict adjustment of these children during hospitalization and at 1-month follow-up. Specifically, PRC was hypothesized to relate to positive scores on measures of adjustment (during hospitalization and at 1-month follow-up). In contrast, NRC was hypothesized to relate to negative scores on measures of adjustment (during hospitalization and at 1-month follow-up). Second, it was hypothesized that religious coping will differentially predict change in adjustment. PRC was hypothesized to relate to an increase in measures of adjustment over a 1-month period. In contrast, NRC was hypothesized to relate to a decrease in adjustment over time. For both hypotheses, religious coping was also hypothesized to predict adjustment above and beyond the effects of secular coping.

METHODS

Participants

A convenience sample of eligible children and adolescents (ages 8–17) admitted for inpatient treatment of asthma were approached to participate in the study. The sample is described as "children" in this article. The children were recruited from a tertiary care, teaching hospital located in an urban Midwest city. Children newly diagnosed with asthma were excluded from the study. A total of 87 children were enrolled as participants. Parent/caretaker data were available for 68 children. Participants were predominantly African American and Christian, with a slightly greater proportion of male participants and a mean age of 11.6 years (see Table 1). The race and religious affiliation is consistent with the local region participants were recruited from. Given recruitment procedures, it is possible that this sample has a greater proportion of children with difficulty managing asthma symptoms because of medical factors (e.g., asthma presentation) or personal factors (e.g., compliance with medications at home).

Procedure

Upon admission to the inpatient unit, children and their parents were administered survey questionnaires. Researchers provided assistance in reading ques-

TABLE 1
Child Demographics and Control Variables

Items	*N*	*(Valid %)*	*M (SD)*
Age (8–17)	87		11.6 (2.45)
Child	57	(66)	
Teen	30	(34)	
Gender	87		
Male	48	(55)	
Female	39	(45)	
Ethnicity	64		
African American	60	(94)	
Other	4	(6)	
Religious Affiliation	61		
Baptist	35	(57)	
Jehovah's Witness	6	(10)	
Other Christian	14	(23)	
None (no religious affiliation)	6	(10)	
Perceived overall health[a]	87		3.4 (0.95)
Perceived control of asthma[a]	87		3.2 (1.13)
Perceived challenge of asthma[a]	87		3.3 (1.27)

Note. [a]Data were derived from single 5-point Likert items with higher values indicated greater health, control, and perceived challenge.

tionnaire items if requested by children. Completion of the survey took approximately 45 minutes. All children cooperated with the procedure, and no one declined to participate because of questionnaire length. Upon completing the first questionnaire, children received $5 for compensation. If the parent was not present, verbal informed consent was provided over telephone and the parent questionnaire was left in the hospital room with directions to complete it and return it via the hospital mail system.

Approximately 1 month later, children completed a 15-min phone survey. Researchers made 10 attempts to call children at their given number over a 3-week period. If contact was not made, a paper-based follow-up questionnaire was mailed to home. This resulted in available follow-up data from 62 children (29% attrition). Sixty-one children provided phone call follow-up data. The average time between discharge and follow-up was 36 days ($SD = 4.9$).

Control Variables

Asthma-related stress appraisals. The appraised stressfulness of asthma was assessed as potential control variables in subsequent analyses, using several single-item measures (Table 1). Children were asked to report their perceptions of their overall health, personal control of asthma, and challenge of asthma using

5-point Likert scales. Single-item measures were used because no standardized or validated brief measures were identified.

Religious variables. Children and parents reported information regarding spiritual beliefs and practices based on prior unpublished dissertation research because these data were part of a larger study (Britt, 1993; see Ezop, 2002; see Table 2). For the variables religious importance and religious importance-proxy, children and their parents reported the relative importance of religion to family members, using Likert scales ranging from 1 (*not at all important*) to 4 (*very important*). The variable child religious activity, is based on parent

TABLE 2
Descriptive Statistics

Items	*N*	*M*	*SD*	r *With Adjustment During Hospitalization*
Religious variables				
Religious Importance	87	3.5	0.59	
Religious Importance-Proxy	66	3.6	0.57	
Religious Activity	68	0.0	0.66	
Children's religious coping				
Positive Religious Coping	87	2.5	0.89	
Negative Religious Coping	87	0.8	0.60	
Children's secular coping				
Approach coping	87	2.5	0.63	
Avoidance coping	87	1.1	0.57	
Distraction coping	87	2.1	0.75	
Adjustment during hospitalization				
Asthma-related quality of life	87	2.2	0.63	
Symptoms	87	1.5	0.81	
Treatment	87	2.9	0.77	
Worry	87	2.0	1.17	
Communication	87	2.5	1.18	
Psychosocial competence	80	3.1	0.57	
Depression	85	11.8	2.32	
Anxiety	84	31.8	6.44	
Children's adjustment at follow-up				
Asthma-related quality of life	62	2.2	0.89	.596***
Psychosocial competence	61	3.1	0.54	.396***
Depression (lonely)	62	1.2	0.51	.483***
Anxiety (not calm)	62	1.4	0.49	.315*
Anxiety (worried)	62	1.1	0.38	.078
Coping effectiveness	62	3.5	0.37	N/A
Spiritual growth	62	3.1	0.86	N/A

report of seven child and family religious/spiritual behaviors: the child's frequency of attendance at religious services, the parent's attendance at religious services with child, the child's frequency of attendance at religious education classes, the child's frequency of participation in additional religious activities, the frequency of family prayer, the frequency of child individual prayer, and the child's frequency of spiritual devotions. These seven items were reduced to a single variable using principal components analysis, in which one factor explained 45% of the variance, and all items loaded on this factor at greater than .475. This variable was labeled child religious activity and was computed by summing the z scores of all religious activity items. Internal reliability was good (Cronbach's $\alpha = .82$).

Children's Coping

Children's religious coping. Children's religious coping strategies were assessed using the Children's Religious Coping scale (Ezop, 2002; see Table 3). This 34-item scale was adapted from the RCOPE (Pargament et al., 2000), a 105-item measure evaluating religious coping in adults and qualitative data regarding children's use of spiritually-based coping strategies (Pendleton et al., 2002). The argument for adapting the RCOPE was to reduce the complexity of wording for a younger participant pool and to include unique child coping strategies not present in the RCOPE. In this adapted version, children responded to the item stem, "When I am hospitalized because of my asthma, I _____." Children were asked to report the relative frequency with which they engage in particular religious coping strategies on a Likert-format scale ranging from 0 (*never*) to 4 (*always*). Total scores for each subscale were computed by taking the mean of item responses.

In prior analysis (Ezop, 2002), the scale items supported a two-factor model, reflecting the higher order factors in the RCOPE (Positive Religious Coping–PRC and Negative Religious Coping–NRC; Pargament et al., 2000). For our study, five additional negative coping strategies were adapted from the RCOPE (Pargament et al., 2000) and added to the scale to increase the potential variance in NRC (e.g., "I think God does not love me"; "I think the Devil did this to me"). These items were added in the computation for the NRC total score and evaluated for inclusion based on the internal consistency of the scale. In this analysis, the Cronbach's alpha change was not great ($<.020$); therefore, all items were included in the computation of total scores. Flesch-Kincaid readability index for the item leafs ranged between 5.9 and 9.2. Both PRC and NRC demonstrated adequate internal consistency (Cronbach's αs $= .93$ and .75, respectively).

Children's secular coping. The frequency with which children engage in commonly measured coping strategies was assessed using Causey and Dubow's

TABLE 3
Children's Religious Coping Scale Items

When I am hospitalized because of my asthma . . .	*M*	*SD*	*Item-Total Correlation*
Positive religious coping			
I try to see how God might be making me a better person.	2.5	1.35	.825
I think that God will help me get through it.	3.3	1.10	.782
I pray to God to take away my problems.	2.7	1.37	.765
I pray that God will make me feel better.	2.9	1.42	.753
I ask others to pray for me.	2.4	1.56	.759
I try to get to know God better.	2.8	1.28	.744
I talk with God and He tells me how to feel better.	2.2	1.51	.737
I ask God to help me understand it.	2.6	1.40	.697
I think about what my faith says about fixing problems.	2.4	1.39	.708
I think my family and friends are praying for me.	3.1	1.26	.627
I think about God always being with me.	3.3	1.06	.632
I thank God that my asthma is not worse.	3.0	1.18	.667
I think God is watching over me.	3.4	1.02	.615
I pray that I do not die.	2.8	1.46	.623
I go to church/temple/synagogue.	1.5	1.58	.669
I read the Bible.	1.5	1.36	.600
I tell God to help me and He does it.	2.5	1.55	.555
I think God is calming me.	2.0	1.52	.547
I think that God gave some of us asthma for a reason.	1.9	1.59	.505
I talk with a minister/priest/rabbi.	1.0	1.35	.499
Negative religious coping			
I just let God take care of me and I do nothing.	2.3	1.50	.471
I wonder why God lets this happen to me.	1.7	1.44	.530
I get angry at God.	0.1	0.65	.068
I think the Devil did this to me.	1.9	1.74	.542
I tell myself God tried to help me but it didn't work.	1.1	1.39	.515
I do not think about God much.	1.1	1.47	.282
I think people at church/temple/synagogue blame me for it.	0.3	0.85	.579
I stop believing in God.	0.3	0.97	.558
I think God did this because I was a bad person.	0.4	0.99	.543
I think God does not love me.	0.2	0.74	.497
I think God cannot help me.	0.5	1.07	.612
I think people didn't pray for me.	0.7	1.22	.557
I think maybe God is punishing me.	0.7	1.18	.542
I wonder if God is mad at me.	0.6	1.24	.560

(1992) Self-Report Coping Scale. This 45-item scale has established reliability and validity measuring three coping factors, using a modifiable stem-and-leaf structure to adjust for stressor type: Approach Coping (attending to the stressor to reduce distress), Avoidance Coping (avoiding the stressor and using alternative efforts to reduce distress), and Distraction Coping (attending to factors other

than the stressor to reduce distress). Internal reliability was adequate in this study (Cronbach's $\alpha = .76–.80$).

Children's Adjustment During Hospitalization

Children's adjustment during hospitalization was assessed using existing measures of quality of life, psychosocial competence, depression, and anxiety. To assess acute adjustment states during hospitalization, participants were asked to indicate the extent to which they had experienced problems "during the past one day." At the 1-month follow-up, children were asked to indicate the extent to which they have experienced problems "since leaving the hospital one month ago." One month was chosen as a time lag to assess relatively short-term changes in adjustment following hospitalization. The exception was State Anxiety, in which children were asked how they feel "right now."

Quality of life. Health-related quality of life was assessed using the Pediatric Quality of Life Inventory 3.0 Asthma Module (child and teen version; Varni, 1998). This 28-item measure assesses child functioning in four asthma-specific domains: asthma symptoms, treatment issues, asthma-related worry, and communication abilities. A total score was computed from all 28 items, and subscales represented the four asthma specific domains. All items were reverse scored prior to data analysis, such that higher scores indicate better adjustment. Internal reliability for all factor scores were adequate for analyses (Cronbach's αs $= .71–.94$). Scores were collapsed across age groups for convenience of reporting data—in this sample this did not affect the pattern of results.

Psychosocial competence. Psychosocial competence was assessed using the Self-Perception Profile, Child and Adolescent versions (Harter, 1985, 1988). The Self-Perception Profile, Child assesses six domains of functioning: scholastic competence, social acceptance, athletic competence, physical appearance, behavioral conduct, and global self-worth. The Self-Perception Profile, Adolescent assesses these same six domains plus job competence, romantic appeal, and close friendship. For our study, only key items described by the scale author as "most representative items" were used to assess psychosocial competence (11 items for child, 13 items for adolescent). A total score was computed from the mean of all items. Internal reliability was adequate for children and adolescents (Cronbach's $\alpha = .77$ and .76, respectively). Scores were collapsed across age groups for convenience of reporting data—in this sample, this did not affect the pattern of results.

Depression. Children's depression was assessed by the Children's Depression Inventory–Short Form (CDI–S) (Kovacs, 2001). This 10-item forced choice measure reflects the intensity of depressive symptoms in children aged 7 to 17 years. The total score is generated from the sum of responses, with higher scores reflecting greater depression. The CDI–S has demonstrated adequate reliability and validity, and it correlates with the CDI full scale ($r = .89$). However internal reliability was low in this sample (Cronbach's $\alpha = .68$).

Anxiety. Children's anxiety was assessed using the State Anxiety scale of the State-Trait Anxiety Inventory for Children (STAIC). The STAIC is a simplified version of the State-Trait Anxiety Inventory (Spielberger, 1973) that was designed specifically for use in younger participants. This 20-item scale assesses presence and absence of anxiety using 3-point forced-choice items. State anxiety was chosen because it is more strongly correlated to asthma symptom perception than trait anxiety (Fritz, McQuaid, Spirito, & Klein, 1996). Item scores were summed to yield a total score, ranging from 20 to 60 (with select items reverse scored), with higher scores reflecting greater anxiety. Cronbach's alphas for the STAIC were .82 for boys and .87 for girls (Spielberger, 1973). Test–retest reliability was low, as expected, given the construct of state anxiety. In this sample, internal reliability was adequate (Cronbach's $\alpha = .85$).

Children's Adjustment at One Month Follow-Up

Children's adjustment. Children's adjustment at 1-month follow-up was assessed via abbreviated versions of initial adjustment measures. Because of the practical time limitations for the 1-month follow-up phone survey, key items from each initial criterion were selected to assess adjustment at follow-up. Five items were taken from the PedsQL-Asthma, assessing asthma symptoms, treatment problems, and asthma worry. Six items from the Self-Perception Profile were identified by the scale author to best represent school, social, athletic, physical, and behavioral functioning, and global self-worth (Harter, 1985, 1988). Two items were taken from the STAIC scale (i.e., worried and calm) to measure anxiety after a group of 11 psychology graduate students and 2 professors in clinical psychology familiar with this scale rated these items as having the highest face validity for the construct of state anxiety. Finally, one item was taken from the CDI–S to measure depression (i.e., loneliness) because it had the highest item-total correlation with the CDI (Kovacs, 2001). On the items taken from the CDI–S and PedsQL-Asthma, children were asked to report their functioning "since you were treated in the hospital one month ago."

There are notable problems is using abbreviated measures, especially given the limited support in the literature. The low correlation between adjustment during hospitalization and 1-month follow-up was expected, although this is not

enough to validate the measurement. Abbreviated measurement of adjustment was necessary at follow-up to reduce anticipated attrition associated with long phone interviews. This is further discussed in the Discussion section.

In addition to the aforementioned adjustment measures, two additional adjustment measures 1-month following discharge were assessed: coping effectiveness and spiritual growth.

Coping effectiveness. Children were asked six questions about the perceived effectiveness of their coping strategies. Children reported their agreement with statements describing the perceived outcomes of coping strategies during their hospital stay (e.g., "I handled the event well given the circumstances"; Causey & Dubow, 1993). Responses to these items ranged from 1 (*not true at all*) to 5 (*very true*). Internal reliability for this scale was .63 in this sample.

Spiritual growth. In addition, four items used in this area of research assessed spiritual growth at follow-up (Pargament et al., 1990). Children reported their agreement with statements describing how they had changed since leaving the hospital (e.g., "I have grown closer to God"; "I have learned more about my religion"). Responses to these items ranged from 1 (*not true at all*) to 5 (*very true*). Internal reliability for this scale was .85.

Data Preparation

Because of skewed or kurtotic distributions, four scales were recalculated using statistical transformations to ensure a normal distribution of the data (see Kleinbaum, Kupper, & Muller, 1988). The three items that assessed anxiety and depression at follow-up also had highly skewed distributions but could not be transformed using statistical transformations. These items were recoded as dichotomous variables, indicating whether a child *did* or *did not* present with anxious or depressive symptoms. Finally, bivariate correlations were highly similar in child and adolescent scale versions. Therefore adjustment scores were pooled across age groups to aid in data presentation.

RESULTS

The frequency data of religious activities and coping activities of these children are reported in Table 2. Both children and caretakers noted that religion was important (Ms > 3 on a 4-point scale). Children reported more frequent PRC than NRC (Ms $= 2.5$ and 0.8, respectively). Children's secular coping strategies were as frequent or less frequent than PRC (Ms ≤ 2.5). Also, PRC was significantly associated with all religious variables and coping variables ($r \geq .274$). In

contrast, NRC was not significantly correlated with any religious variables other than PRC but was significantly associated with approach and avoidance coping (rs = .306 and .536, respectively).

Associations With Adjustment

The relationships between religious and coping measures and children's adjustment are presented in Table 4. Of interest, religious importance and religious activity were unrelated to a vast majority of adjustment measures. However, both PRC and NRC were significantly associated with several measures of *poorer* adjustment during hospitalization (rs = .205–.499). This association between PRC and poorer adjustment is in stark contrast to the hypothesis of a differential relationship between PRC and NRC with adjustment during acute stress. Neither religious coping measure was significantly related to psychosocial competence during hospitalization. In regards to adjustment at the 1-month follow-up, PRC was related to poorer quality of life but also to spiritual growth (rs = .277–.657). NRC continued to be related to poorer adjustment but also with spiritual growth (rs = .262–.463). Neither religious coping measure was related to coping effectiveness.

It is important to compare this result with the associations between secular coping strategies and adjustment. Specifically, approach and avoidance coping were both associated with significantly poorer adjustment during hospitalization and at follow-up, although *both* were also related to spiritual growth (rs = .209–.496). Distraction coping was not significantly related to any adjustment measure, during hospitalization or at follow-up.

Religious Coping as a Predictor of Initial Adjustment and Adjustment a Follow-Up

To test the relations between religious coping and adjustment, it was important to control for the impact of relevant demographic, religious, and stress appraisal variables. Parent data were not included in regression equations because of lack of available data and nonsignificant associations between parent data and child adjustment measures. Child ratings of religious importance was included given its theoretical link with religious coping and adjustment (Pargament, Smith, et al., 1998), although only one correlation with adjustment was statistically significant. In total, six variables (age, gender, religious importance, perceived overall health, control of asthma, and challenge of asthma) were controlled in the following regression models (see Tables 5 and 6).

Hierarchical regression analyses tested whether religious coping strategies accounted for a unique portion of variance in adjustment during hospitalization and at the one-month follow-up. The hierarchical regression included two steps,

TABLE 4
Correlations Between Religious and Coping Variables and Children's Adjustment

	Religious Variables			*Children's Religious Coping*		*Children's Secular Coping*		
Adjustment During Hospitalization	*Religious Importance*	*Religious Importance-Proxy*[a]	*Religious Activity*[a]	*Positive Religious Coping*	*Negative Religious Coping*	*Approach Coping*	*Avoidance Coping*	*Distraction Coping*
Asthma-related QoL	−.076	.075	−.065	−.381***	−.508***	−.409***	−.496***	.001
Symptoms	−.081	.008	−.143	−.269**	−.225*	−.351***	−.225*	.062
Treatment	−.025	.174	.065	−.205*	−.479***	−.214*	−.489***	.072
Worry	−.091	−.129	−.176	−.499***	−.377***	−.468***	−.400***	−.171
Communication	−.063	.065	.092	−.271*	−.377***	−.209	−.345***	−.096
Psychosocial Competence	.164	.159	−.050	.059	−.183	−.027	−.272*	−.029
Depression	−.088	−.045	.109	.071	.337***	.143	.322**	−.073
Anxiety	.174	−.098	−.105	.231*	.365***	.220*	.342***	.043
Adjustment at 1-month follow-up								
Asthma-related QoL	−.061	.123	.186	−.324**	−.403***	−.325**	−.345**	−.009
Psychosocial Competence	.195	.254	−.038	−.175	−.322*	−.290*	−.266*	−.186
Depression (lonely)	−.167	−.269	.018	−.059	.178	.152	.209	.059
Anxiety (not calm)	−.022	−.388**	−.076	.128	.408***	.321*	.415***	.211
Anxiety (worried)	.024	.095	.190	.193	.262*	.176	.425***	−.038
Coping effectiveness	.213	.351*	.043	.067	−.114	.179	.081	.189
Spiritual growth	.332**	.191	.317*	.657***	.463***	.457***	.265*	.157

Note. QoL = quality of life.
[a]$N = 68$.
*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

TABLE 5
Religious Coping Predicting Adjustment During Hospitalization and 1-Month Follow-Up

	Model 1[a]				*Model 2*[b]			
Adjustment During Hospitalization	R^2	ΔR^2	*B PRC*	*B NRC*	R^2	ΔR^2	*B PRC*	*B NRC*
Asthma-related QoL	.458	.192***	−.197	−.357***	.572	.053*	−.171	−.217*
Symptoms	.390	.053*	−.189	−.107	.462	.016	−.158	−.054
Treatment	.301	.136***	.016	−.408***	.413	.039	−.014	−.252*
Worry	.324	.248***	−.471***	−.154	.411	.072*	−.385**	−.027
Communication	.202	.099**	−.135	−.261*	.236	.025	−.107	−.158
Psychosocial competence	.152	.036	.128	−.235	.194	.022	.213	−.125
Depression	.303	.083*	−.122	.353**	.355	.037	−.150	.254*
Anxiety	.243	.113**	.004	.364**	.271	.046	.017	.274*
Adjustment at 1-month follow-up								
Asthma-related QoL	.342	.134**	−.197	−.272	.382	.058	−.203	−.208
Psychosocial competence	.301	.071	−.185	−.159	.342	.015	−.026	−.149
Depression (lonely)	.112	.032	−.119	.220	.169	.040	−.297	.154
Anxiety (not calm)	.344	.169**	−.066	.473***	.414	.085*	−.266	.378*
Anxiety (worried)	.243	.060	.099	.207	.354	.015	.159	.039
Coping effectiveness	.134	.009	.051	−.118	.223	.057	−.161	−.236
Spiritual growth	.510	.337***	.497***	.245	.245	.215***	.548***	.240

Note. QoL = quality of life.

[a]Controlling for age, gender, religious importance, perceived overall health, control of asthma, and challenge of asthma. [b]Controlling for age, gender, religious importance, perceived overall health, control of asthma, challenge of asthma, and secular coping strategies.

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$.

TABLE 6
Religious Coping Predicting Change in Adjustment from Hospitalization to the 1-Month Follow-Up

	Model 3[a]				*Model 4*[b]			
Change in Adjustment	R^2	ΔR^2	*Ḅ PRC*	*Ḅ NRC*	R^2	ΔR^2	*Ḅ PRC*	*Ḅ NRC*
Asthma-related quality of life	.421	.030	−.122	−.136	.429	.024	−.147	−.137
Psychosocial competence	.395	.060	−.228	−.081	.433	.015	−.098	−.107
Depression (lonely)	.270	.003	−.061	.052	.309	.022	−.227	.036
Anxiety (not calm)	.351	.126**	−.066	.439**	.418	.076*	−.267	.357*
Anxiety (worried)	.266	.079	.100	.271	.402	.024	.163	.109

Note. [a]Controlling for age, gender, religious importance, perceived overall health, control of asthma, and challenge of asthma, and adjustment criterion during hospitalization. [b]Controlling for age, gender, religious importance, perceived overall health, control of asthma, challenge of asthma, adjustment criterion during hospitalization, and secular coping strategies.
$^*p \leq .05$. $^{**}p \leq .01$.

testing two separate models. In Model 1, all demographic and control variables were entered in Step 1 of the regression. In Step 2, religious coping variables were entered. Model 2 assessed whether religious coping could uniquely predict adjustment criteria above and beyond secular coping. In Model 2, all demographic, control variables, and secular coping variables were entered in Step 1 of the regression. In Step 2, religious coping variables were entered. Changes in R^2 scores and standardized beta weights of religious variables are listed in Table 5.

Consistent with our hypothesis, religious coping predicted a significant amount of variance in adjustment during hospitalization and at the 1-month follow-up. Specifically, after controlling for selected variables, religious coping significantly predicted variance in asthma-related quality of life, depression, and anxiety during hospitalization ($\Delta R^2 = .053$–$.248$). Religious coping also significantly predicted variance in asthma-related quality of life, anxiety (not calm), and spiritual growth 1 month following discharge from the hospital ($\Delta R^2 = .134$–$.337$).

An analysis of beta weights for Model 1 indicates the unique effects of PRC and NRC. Controlling for other factors, children who used PRC were more likely to report greater worry regarding their asthma during hospitalization ($B = -.471$) and greater spiritual growth in the month following discharge ($B = .497$). In Model 1, NRC predicted poorer asthma-related quality of life, greater difficulty with one's medical regimen and communication with others about asthma, and greater depression and anxiety during hospitalization (Bs $= .261$–$.407$). In addition, children who used NRC were more likely to report greater anxiety 1 month following discharge ($B = .473$).

Model 2 demonstrates that PRC remained a significant predictor of greater asthma-related worry and spiritual growth after controlling for the influence of

secular coping strategies. However, the prediction of asthma-related worry was in the opposite direction than hypothesized. As with PRC, Model 2 demonstrates that, after accounting for secular coping strategies, NRC remained a significant predictor of poorer asthma-related quality of life, greater difficulty with one's medical regimen, greater depression, and greater anxiety during hospitalization, as well as greater anxiety at the 1-month follow-up. Further, all predictions with NRC were in the expected direction.

Religious Coping as a Predictor of Change in Adjustment

To assess whether religious coping was predictive of changes in children's adjustment over a 1-month time period, a separate set of hierarchical regression analyses were used. In these analyses, adjustment at follow-up was the criteria. These analyses again tested two separate models (Models 3 and 4, Table 6). In Model 3 all demographic and control variables retained from earlier correlations were entered in Step 1, along with the corresponding adjustment criterion during hospitalization. This controlled for the stability of the adjustment criterion, with the remaining variance reflecting any change in adjustment (see Causey & Dubow, 1993). In Step 2, religious coping variables were entered. In Model 4, all demographic and control variables retained from earlier correlations and secular coping variables were entered in Step 1, along with the corresponding adjustment criterion during hospitalization. In Step 2, religious coping variables were entered (Model 4). Changes in R^2 scores and standardized beta weights of religious variables were recorded from Steps 2 in both models and listed in Table 6.

Religious coping predicted a unique amount of variance in changes in adjustment only for anxiety ("not calm" item). Specifically, after controlling for anxiety during hospitalization in Model 3, NRC predicted greater anxiety ratings at follow-up, as hypothesized. This result remained significant after accounting for the influence of secular coping (Model 4). No other prediction of change in adjustment was found. In addition, roughly 20 to 40% of the variance in follow-up data was explained with the control variables and initial measures of adjustment.

DISCUSSION

The purpose of this study was to empirically evaluate the relationship between religious coping and adjustment in children. The sample came from a known at-risk child population actively coping with an acute stressor—children hospitalized because of asthma. The central theory behind this study was that children who used their religious resources to seek comfort, positively reappraise, or

problem solve (i.e., positive religious coping) would report greater adjustment when dealing with a specified stressor, whereas children who doubt or avoid religious resources or negatively reappraise their situation (i.e., negative religious coping) would report poorer adjustment (Cole et al., 2004; Koenig et al., 2001; Pargament et al., 2000; Pargament, Smith, et al., 1998). It was hypothesized that PRC and NRC would differentially predict children's adjustment during hospitalization and 1-month follow-up, that these religious coping strategies would predict change in adjustment over a 1-month period, and that the effects of religious coping would be unique, predicting adjustment above and beyond the effects of secular coping.

Religious Coping Differentially Predicts Adjustment

Negative religious coping. As a coping construct, NRC functioned as predicted. Specifically, these results suggest that children who frequently engage in NRC during their hospitalization are more likely to have poorer perceptions of their adjustment. These children also are more likely to have difficulty with their standard protocol for managing asthma symptoms or communicating with others about their asthma during their hospital stay. After discharge, these children continue to report concern about asthma-related quality of life. Further, they report increased state anxiety. This is consistent with existing literature on negative religious coping in adults (Harrison, Koenig, Hays, Eme-Akwari, & Pargament, 2001) and with children (Ezop, 2002). This study also demonstrates that the significant link between NRC and poorer adjustment continues several weeks after the stressor occurs. Further, several results remained significant after controlling for secular coping, supporting the hypothesis that religious coping predicts a unique portion of variance in children's adjustment (Pargament, Smith, et al., 1998).

NRC also significantly predicted a decrease in adjustment over time. Specifically, NRC predicted significantly increased anxiety across a 1-month period. This is consistent with research in adults, suggesting that NRC may lead to negative change in adjustment in individuals facing medical distress (Pargament et al., 2001). Again, this effect remained significant after controlling for secular coping strategies. Given that PRC was not predictive of a change in adjustment in this sample, this finding underscores the idea that NRC may be a more salient predictor of adjustment than PRC (Pargament, Zinnbauer, et al., 1998).

Positive religious coping. In contrast to NRC, the results of PRC were inconsistent with study hypotheses and difficult to decipher. During children's hospital stay, PRC predicted greater worry about one's asthma. This effect remained significant after controlling for secular coping. This contrasts with previous research linking religious coping to existential growth (Tebbi et al.,

1987), less fear and sadness, increased social and educational functioning (Spilka et al., 1991) and greater overall adjustment (Pendleton et al., 2002). The only positive relationship that emerged between religious coping and adjustment was the link between PRC and spiritual growth, which is consistent with existing research on adults (Pargament et al., 2000; Pargament, Smith, et al., 1998). Children who used PRC during their hospital stay reported increased closeness with God and their church and stronger faith development. Adjusting for secular coping strategies did not weaken this relationship.

These results are not consistent with several previous studies in this field that identify PRC as a predictor of positive adjustment. Further, there were significant bivariate correlations between PRC and poorer adjustment across several variables (Table 4). One interpretation of this association between PRC and poorer adjustment is the mobilization of religious coping in the face of stress (Pargament, Smith, et al., 1998). According to this theory, when presented with a stressor, individuals will mobilize coping resources to reduce the impact of the stressor and promote adjustment. However, the positive outcomes of coping will not appear until a sufficient length of time has passed; a "snapshot" of these variables early in the coping process would reveal an association of frequent engagement of coping with poorer adjustment. An adequate metaphor for this phenomenon is a thermostat and heating system. When the thermostat first activates the heating system, the house will continue to feel cool for some time. In the same way, children may engage in a greater frequency of PRC when first hospitalized for asthma and demonstrating poor adjustment. The crisis leading to emergency care and hospitalization, the unstable respiratory functioning, the invasiveness and/or isolation of medical care, and the associated emotional upset, all may prompt children to turn to religious thoughts and behaviors to understand their plight and find relief (Coles, 1990; Ebmeier et al., 1991; Tebbi et al., 1987). This is consistent with one study (Silber & Reilly, 1985), in which spiritual concerns were significantly stronger among seriously ill patients, and seriously ill adolescents reportedly became significantly more engaged in spiritual issues during hospitalization. Thus, it is possible that religious coping, as well as secular coping, is triggered by greater perceived distress related to asthma. The positive effects of some coping strategies might not arise until a later point in time.

Limitations

Although this study produced interesting results regarding the association of religious coping and adjustment in children, several limitations in this study should be noted and considered in future research in this area. First, this sample was predominantly African American and Baptist. Although this homogeneity may assist in interpreting results associated with cultural issues, it impedes

generalization of results. In addition, there are unique aspects of chronic illness that may interfere with generalization of results across pediatric conditions. Further, children and adolescents were merged into one group to aid interpretation of the data; however, there are developmental differences in these groups that may influence or be influenced by religious coping.

Second, data were predominantly self-report or parent report. Some objective clinical data were unavailable, and many objective outcome variables associated with asthma were medically managed in this acute setting. Still, objective outcome variables that might be influenced by religious coping strategies should be included in future investigations.

Third, there was no assessment of adjustment prior to hospitalization because of asthma. Therefore, it was not possible to assess or control for any acute change in adjustment that occurred as a result of hospitalization. It is possible that religious coping's primary influence may be to buffer the initial distress following exposure to a given stressor. Absence of adjustment measures during the children's treatment in the Emergency Department prohibited the analysis of immediate responses to coping in the Emergency Department. It is possible that some coping strategies may predict acute changes in adjustment from the time children enter the Emergency Department to the time they are hospitalized. Further, some coping strategies may actually promote recovery from an asthma episode during Emergency Department procedures and prevent the need for hospitalization. This was not evaluated in this study.

Fourth, the size of this study's sample limited the power to identify results with smaller effect sizes. For example, the number of children needed at both time points to sufficiently (e.g., with power of .80) identify a medium effect size (i.e., $R^2 = .13$) is approximately 165 (Cohen, 1977). Therefore, future studies should make every effort to increase the sample size during data collection to increase the power of regression analyses.

Fifth, there are notable measurement problems in adjustment at 1 month following discharge from hospital. There was limited support for choice of abbreviated measures and the predominant factor driving use of abbreviated measures was short time frame of phone call interviewing to maintain retention of participants. More thorough follow-up is needed, using validated tools for longitudinal data analysis, and multiple measurements over time (e.g., 3-, 6-, and 12-month follow-ups). Although adjustment to acute asthmatic exacerbation was measured over 1 month, adjustment to chronic health conditions should also be assessed using longitudinal designs.

A final limitation with this research is the lack of disease-specific outcome variables. It may be helpful to assess physiological outcomes in future research beyond quality of life questionnaires. For example, research may examine how religious coping influences bronchial hyperresponsiveness, medication adherence, peak flow or spirometry testing, preventative avoidance of asthma triggers,

and the daily stress of asthma management. Future research would also benefit from a control group of relatively healthy children coping with psychosocial stressors. This comparison would further detail the complex and disease-specific relationship between religious coping and children's adjustment.

Despite these limitations, this study provides a first step to empirically evaluate children's religious coping. Religion provides a wide variety of thoughts and behaviors children may engage in to cope with stressful events. In the case of serious and chronic health conditions, many efforts to reduce health-related stress are in the hands of medical professionals—still, children can mobilize their personal coping resources, such as religion, to enhance their adjustment. To better understand the full impact of religious coping on adjustment, considerable research must be devoted to exploring how children can best use these spiritual resources and how parents, clergy, and clinicians can best facilitate the religious coping of children. Replication studies with various stressors and modifications in longitudinal designs are needed to develop and support a generalizable theory of religious coping in children. This study provides a solid foundation on which to build this body of knowledge.

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