Specific Religious Beliefs in a Cognitive Appraisal Model of Stress and Coping

A. Taylor Newton and Daniel N. McIntosh

University of Denver

Although religiousness is tied to coping, little work examines the role of specific religious beliefs in the coping process. Applying the transactional model of coping, positivity of God image and vertical religious focus were assessed in a national sample of 103 parents of children with disabilities. Controlling for general religiousness, these specific beliefs were correlated with parents’ appraisals. Positive God image was associated positively with appraisals that the disability is a challenge, a benefit, and God is in control; it was associated negatively with loss appraisal. Vertical religious focus was associated positively with the appraisal that God is in control. Consistent with the model, appraisals mediated the relation between specific beliefs and coping strategies. Loss appraisal mediated the relation of vertical focus and God image with engagement coping and the appraisal that God is in control further explained the relation between vertical focus and engagement coping.

Religion powerfully influences how individuals cope with stress (Pargament, 1997). It explains unique variance in coping and predicts outcomes beyond secular coping (Pargament, 2002). Despite this wealth of research demonstrating that religion is linked with coping, much less is known about how religion enters and forms the coping process. This study addresses this question using a cognitive appraisal approach, providing a broader evaluation of religion’s role in coping. We test how specific religious beliefs are related to appraisals of stressors, how these appraisals relate to coping, and how these beliefs fit into the whole coping process. Moreover, we explore the role that specific religious beliefs play beyond that of general religiousness.

THE TRANSACTIONAL MODEL OF STRESS AND COPING

Cognitive approaches to stress and coping assert that stressors are stressful only if an individual perceives them as such (Bandura, 1977; Roesch, Weiner, & Vaughn, 2002). Among the best-supported cognitive approaches is Lazarus and Folkman’s (1984) transactional model. It features cognitive appraisals of a stressor as mediators of the relations between individual difference variables and coping strategies used; these strategies then influence various outcomes.
The model’s components relate bidirectionally, creating a dynamic interplay of environmental and personal variables across time. Although the transactional model has undergone various alterations (e.g., Lazarus, 1991), the original model remains the most extensively applied in research. We therefore consider the role of religion in this model both because of the substantial empirical support for its utility and to understand the role of religion in coping in the same context as studies of other individual difference variables.

How people appraise events can influence their coping strategies (Lazarus & Folkman, 1984, 1987). Primary appraisal is the meaning of a situation for personal well-being and includes anticipation of gain (challenge appraisal), anticipation of harm (threat), or perceiving that the event has already caused harm or gain (loss and benefit, respectively). Secondary appraisal is the evaluation of resources (or lack thereof) for dealing with stressors. Interpretation of the controllability of the stressor is one way to think about secondary appraisal (Peacock & Wong, 1990). Events have been seen as uncontrollable, or as controllable by others or by self.

Individuals vary greatly in their perception of stressors, and some people cope in ways that increase positive outcomes more than others do. The transactional model proposes that this variation is due, in part, to individual differences such as personality and beliefs directly influencing cognitive appraisals and indirectly influencing coping strategies. One example is that mastery and interpersonal trust are related to primary and secondary appraisals and account for significant variance in psychological outcomes (Folkman, Lazarus, Gruen, & DeLongis, 1986). A second is that perceived personal competence and optimism are associated with primary and secondary appraisals, and both the dispositional variables and appraisals predicted the use of coping strategies and emotional outcome (Rovira, Fernandez-Castro, & Edo, 2005).

The evidence that individual differences can significantly influence appraisals, coping strategies and outcomes suggests that differences in religious beliefs may also affect coping strategies via influencing cognitive appraisals. Thus, this model provides a useful framework for examining the role of religious beliefs in the coping process.

RELIGION IN THE TRANSACTIONAL MODEL

Consideration of religion’s role in coping commonly takes one of two approaches. First, when religion is considered an independent variable, it is often measured behaviorally (e.g., how often do you pray and/or attend religious services?) or with a content-free item (e.g., how religious do you consider yourself?) or scale (e.g., intrinsic or extrinsic orientations; Allport & Ross, 1967). Second, when religion is considered in a more complex manner in the coping literature, constructs such as religious coping strategies and religious appraisals are typically emphasized rather than religious beliefs as individual difference variables (cf. Gall et al., 2005; Pargament, 1997). Because fully identifying the role of religion requires looking at how (a) specific aspects of religion relate to (b) specific aspects of the coping process, the present study examines individual differences in religious beliefs as predictors of appraisals and coping. Our approach builds on the previously discussed work showing that individual differences affect appraisals and coping. It also extends work examining associations between specific aspects of religion and a specific aspect of the coping process—cognitive appraisal of stress.

McIntosh (1995) proposed that religion acts as a cognitive schema, shaping cognitive processes including the perception of stress. Supporting this theory, Roesch and Ano (2003)
found that intrinsic religiousness (a committed approach to religion for its own sake) was associated with attributing the cause of a stressor to the will of God and actions of Satan; further, intrinsic religiousness and causal attributions were associated modestly with psychological outcomes directly and indirectly through religious coping. More general support for beliefs influencing coping is provided by Jeavons and Greenwood (2007). They demonstrated that basic positive beliefs like “the world is meaningful and benevolent” are associated with functional causal attributions and a task-oriented style of coping. However, as with Roesch and Ano, relations were either modest or insignificant between attributitional styles and coping strategies, suggesting causal attribution may not be the cognitive process most telling of the relationship between beliefs and coping strategies.

The transactional model proposes that cognitive appraisals are the intermediaries between beliefs and coping strategies (Lazarus & Folkman, 1987). Although no study has directly assessed specific religious beliefs as individual differences in the full model, several studies addressing relations between various components of the model are suggestive. For example, belief in a just and benevolent God and religious primary appraisal of a stressful event as the will of God are related to positive religious and general outcomes (Pargament et al., 1990). Differing beliefs about God (e.g., as a benevolent or a wrathful being) are associated with differing religious coping styles (e.g., a benevolent God concept correlated with surrendering control to God), though experimental manipulation of primary appraisals did not affect religious coping strategy used (Maynard, Gorsuch, & Bjorck, 2001). Park, Cohen, and Herb (1990) examined religion and secondary appraisals, finding that intrinsically religious Protestants who used religious coping more had less psychological distress when coping with uncontrollable negative events. However, Catholics showed no associations between intrinsic religiousness, locus of control, and distress. The investigators tentatively attributed these disparities to differences in specific religious belief imbued by the respective Catholic versus Protestant theologies—“works versus faith.”

These studies reveal that specific religious beliefs (i.e., beliefs about God and differing theological emphases) are associated with appraisals, coping strategies, and outcomes. The transactional model implies that the initial causal cascade of these associations is (a) specific religious beliefs directly influence cognitive appraisals, (b) specific religious beliefs indirectly influence coping strategies through cognitive appraisals, and (c) coping strategies influence outcomes (Lazarus & Folkman, 1984). Although the results of previous studies are consistent with the transactional model, no study directly tests the psychological mechanisms identified in the second part of the cascade (cognitive appraisals mediating the relationship between specific religious beliefs and coping strategies). Further, these studies assess religious coping strategies rather than the broad, nonreligious coping strategies more common in research using the transactional model. Although it is important to know that religious beliefs influence religious appraisals or religious coping strategies, testing relationships between religious beliefs and nonreligious appraisals and coping strategies provides a more expansive and complete account of the role of specific religious beliefs as individual difference variables in coping.

THE PRESENT STUDY

We addressed these issues with religiously diverse individuals coping with shared stressors: parenting a child with a disability. Religion may be particularly relevant to coping with such
chronic stress (Bennett, Deluca, & Allen, 1995; Coulthard & Fitzgerald, 1999; Tarakeshwar & Pargament, 2001). This study had three objectives: (a) to test new predictions about associations between specific religious beliefs and cognitive appraisals, (b) to replicate tests of the transactional model by demonstrating relations between appraisals and coping strategies, and (c) to assess specific religious beliefs as individual difference variables in the model.

To address these objectives, we selected two categories of specific religious beliefs that provide ample opportunity for individual differences and have a high likelihood of influencing primary and secondary appraisals: God image and vertical/horizontal religious focus. God image is how a person experiences and understands God, the sacred, or a higher power. Lawrence (1997) identified challenging, accepting, benevolent, influential, present, or providential images of God. Horizontal religious focus refers to a person-focused, humanistic approach to religion, whereas a vertical focus refers to a deity-centered, spiritual approach. Although horizontal and vertical dimensions have been examined independently (Benson, Donahue, & Erickson, 1993), recent work identifies the importance of their relative emphasis (Newton & McIntosh, 2009).

God images are linked to religious coping strategies (Maynard et al., 2001; Pargament et al., 1990). Building on this, we propose that more positive God images facilitate meaning making, leading to more positive appraisals. For example, believing that God is good might lead to appraising the stressful event as an opportunity from God to grow, whereas believing that God is not good might lead to an appraisal that God is punishing by allowing this stressful event to occur. Therefore, we predicted that a positive God image would relate positively to primary appraisals of challenge and benefit and negatively to primary appraisals of threat and loss.

Because relative focus on vertical or horizontal aspects of religion is conceptually linked to where people may expect to find coping resources, this difference should be associated with secondary appraisals. Indeed, among college students coping with the effects of hurricanes Katrina and Rita, vertical relative to horizontal religious focus was positively associated with the appraisal that God is in control and negatively related to the appraisal that oneself and others are in control (Newton & McIntosh, 2009). Consistent with this finding, we expected that people who focus more on God than on others in religion are more likely to think that God is in control of stressful situations and less likely to think that the self or others are in control. Therefore, we predicted that verticality would be associated positively with God-control appraisals and negatively with secondary appraisals of self-control and others-control.

To replicate and extend research on the transactional model regarding coping strategies, we examined engagement and disengagement coping. Although coping strategies share the goal of overcoming or tolerating stressful events, researchers have drawn broad divisions in coping types. Whether a person engages the stressful situation (e.g., active coping, planning, seeking support) or disengages from it (e.g., distraction, substance use, blaming others) has proven particularly useful (Osowiecki & Compas, 1999). Although individual and situation characteristics likely influence the adaptivity of certain coping strategies, engagement coping strategies generally are associated with better outcomes and less stress than are disengagement strategies (see Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001, for a review).

These are similar, but not identical, to conceptions of coping (e.g., problem solving vs. emotion coping; Ferguson, Matthews, & Cox, 1999; Roesch et al., 2002) used previously. We predicted that primary appraisals of challenge and benefit would be associated with engagement coping strategies, whereas threat and loss primary appraisals would be associated with disengagement coping strategies. Further, we predicted that secondary appraisals of any
control, whether by self, others, or God, would be associated with engagement coping strategies, whereas no-control secondary appraisal would be associated with disengagement coping.

Finally, to assess religion’s role in the transactional model more fully, our third hypothesis was that primary and secondary appraisals would mediate relationships between specific religious beliefs and coping strategies.

METHOD

Participants
Respondents were 103 parents (90 mothers) of children with disabilities, all from different families. Participants were 87% White/European American and 91% attended at least some college. They were from 31 U.S. states and 1 each from the United Kingdom, Scotland, Germany, and Canada. Religious affiliations included nondenominational Christian (n = 20), Catholic (20), Baptist (11), Anglican/Episcopalian (8), Methodist (7), Presbyterian (5), Latter-Day Saints (5), Pentecostal (4), Unitarian (3), Lutheran (3), Assembly of God (3), Jewish (2), Quaker (1), and Jehovah’s Witness (1). Eight were agnostic or atheist. Two declined to respond. In congruence with national trends (Baylor Institute for Studies of Religion, 2006), on average, participants considered themselves to be moderately to very religious (range = 1–10, M = 6.77, SD = 2.02) and scored high on intrinsic religiousness (range = 1–5, M = 3.90, SD = .78). Most (80%) had one child with a disability or disabilities (20% had more than one). Disabilities reported by the parents included learning, developmental, and physical disabilities. On a scale from 1 to 7, on average, parents rated their child’s disability as moderately severe (M = 4.30, SD = 1.21).

Procedure
We designed an anonymous online survey using Surveymonkey.com. It had two parts to ensure the highest completion rate for the most critical measures. The required portion (15–20 min) measured demographics, God image, vertical/horizontal religious focus, and appraisals. The 15-min optional portion measured general religiousness and coping.

We recruited participants by (a) distributing flyers at events hosted by the disability community, (b) sending e-mails to organizations that have contact with parents of children with disabilities, (c) posting announcements on Internet message boards frequented by parents of children with disabilities, and (d) taking out a search-specific Internet advertisement with Google Adwords. Surveys were collected over a 14-month period.

Measures

Demographics. Gender, parent ethnicity, state or country of residence, type of disability, and religious or spiritual affiliations were assessed. Severity of disability was assessed with

---

1Atheism and agnosticism fall along a range of belief. Because we did not force anyone to answer the questions (i.e., atheists and agnostics could have chosen “not applicable” in every case), we did not drop them. When these participants did choose scorable responses, we saw no reason to exclude those responses from analysis.
the question, “How would you rate the severity of your child’s disability?” rated on a 7-point scale anchored by 1 (least severe) and 7 (most severe).

**Religious beliefs.** God image was assessed by a 36-item measure comprising items with the highest loadings on factors from the 156-item God Image Inventory (Lawrence, 1997). There are 6 six-item subscales: Challenge, Acceptance, Benevolence, Influence, Presence, and Providence. Responses range from strongly agree to strongly disagree, or not applicable to items such as “God, the sacred, or a higher power asks me to keep growing as a person” (Challenge subscale). In both the original God Image Inventory and our measure, intercorrelations between scales are high ($r = .42–.79$). Therefore, we combined the six God images to create an index of overall positivity in God image ($\alpha = .92$). Higher scores represent a more positive God image.

Vertical/horizontal religious focus was assessed by the Verticality Scale, a 13-item forced-choice measure used in a previous study of religion and appraisals (Newton & McIntosh, 2009). We used forced-choice to decrease central tendency, acquiescence, and social desirability biases (Baron, 1996) that may occur with individuals being uncomfortable emphasizing one religious focus over the other. Participants chose either a vertically or a horizontally focused response to complete a sentence stem. For example, “When I donate money to a church, religious or spiritual organization, or charity, I do it more to . . . ” This stem can be completed with either “give back generously to God, the sacred, or a higher power” or “help those less fortunate.” Alternatively, participants could indicate that neither option is reflective of their beliefs, or that the item is not applicable to them. This third option is useful not only so participants are not forced to agree to an option when they agree with neither but also to introduce variance in the measure. Vertical responses were summed and divided by the sum of horizontal responses to produce a ratio of the relative emphasis of verticality. As ratio data are bound by zero and are therefore naturally skewed, an additional transformation before analysis is suggested to improve normality (Tabachnick & Fidell, 2007). A base-10 logarithmic transformation was used here.

Intrinsic religiousness was measured with the eight-item Intrinsic Scale (Gorsuch & McPherson, 1989). Respondents ranked agreement with statements on a scale from 5 (strongly agree) to 1 (strongly disagree). Reliability was good ($\alpha = .86$). Consistent with other work identifying intrinsic religiousness as a measure of general religiousness (Maltby, 1999), intrinsic religiousness was strongly correlated with measures of religion in general, including attendance at religious services or meetings in the past year ($r = .68$) and with a single-item asking “How religious or spiritual do you currently consider yourself to be?” ($r = .61$). Therefore, we refer to intrinsic religiousness as general religiousness henceforth.

**Appraisal.** Primary appraisal was assessed with the Appraisal of Life Events scale (Fergusson et al., 1999), a 16-item adjective checklist of how relevant a stressor is to well-being. Participants completed the scale with reference to stressors associated with parenting a child with a disability. The Appraisal of Life Events scale assesses threat, loss, and challenge. To keep with the transactional model (Lazarus & Folkman, 1984), we added four adjectives assessing benefit appraisal. The salience of each adjective was rated on a 6-point scale anchored by 0 (not at all) and 5 (very much so). Adjectives include “beneficial,” “demanding,” “depressing,” and
“terrifying.” Subscale reliabilities were satisfactory (Threat $\alpha = .82$, Loss $\alpha = .82$, Challenge $\alpha = .85$, Benefit $\alpha = .93$).

Secondary appraisal was measured with the 15-item control scale of the Stress Appraisal Measure assessing perceptions of who is and is not in control of a situation (Peacock & Wong, 1990). The situation was the corpus of stressors associated with parenting a child with a disability. The Stress Appraisal Measure includes subscales of Self-Control, Others-Control, and No-Control. We added God-control items used by Newton and McIntosh (2009). Participants responded with a 5-point scale anchored by 1 (not at all) and 5 (extremely). Example items include “Can God, the sacred, or a higher power change this situation for the better?” (God-control) and “Is it beyond anyone’s power to do anything about this situation?” (no-control example). The subscale reliability alphas were .71 (No-Control), .64 (Self-Control), .88 (Others-Control), and .88 (God-control).

**Coping.** The 28-item Brief COPE (Carver, 1997) assessed participants’ coping strategies. It contains 14 subscales (e.g., Active Coping, Denial, Substance Use, and Venting). Reliability coefficients ranged from .44 (Venting) to .96 (Substance Use). Respondents reported reactions to situations related to parenting a child with a disability on a 4-point scale anchored with 1 (I haven’t been doing this at all) to 4 (I’ve been doing this a lot). For example, “I’ve been refusing to believe that it has happened” (Denial).

To decrease repetition in planned analyses and Type I error by reducing the number of coping variables, principle axis factoring with varimax rotation was performed on the 14 subscales of the Brief COPE (method recommended by Carver, 1997). Five factors emerged with eigen values over 1, but the scree plot had a sharp elbow demarcating a two factor extraction. The squared multiple correlations of the variables with each factor (.87 and .79) showed they were internally consistent. With a factor loading cutoff of .45 for inclusion of a variable in the composite, the first factor comprised active coping (.84), planning (.69), positive reframing (.62), and seeking instrumental support (.52); the second comprised distraction (.62), substance use (.59), blaming (.57), disengaging (.55), and venting (.45). These two factors may be interpreted broadly as engagement coping (factor 1) and disengagement coping (factor 2). Means of the items comprising the two factors ($\alpha$s = .74 and .73) were used in subsequent analyses.

**Analytic Strategy**

Hypotheses were addressed with multiple mediation analyses. The primary difference between simple and multiple mediation models is that in the latter mediators are analyzed as a set, resulting in both a total indirect effect of all mediators as a whole as well as specific indirect effects controlling for all other indirect effects (Preacher & Hayes, 2008). Path coefficients between religious beliefs and cognitive appraisals ($a$ paths) provided tests of our first hypothesis. Path coefficients between cognitive appraisals and coping strategies ($b$ paths) provided tests of our second hypothesis. The difference between the total effect of specific religious beliefs on coping strategies and the direct effect (i.e., total and specific indirect effects) provided a test of our third hypothesis that specific religious beliefs indirectly affect coping through appraisals.
The large number of variables in the model necessitated addressing hypotheses in a series of analyses. Specifically, each multiple mediation analysis had one specific religious belief (verticality or God image), one set of cognitive appraisals (primary or secondary), and one type of coping strategy (engagement or disengagement).

Following Coulthard and Fitzgerald (1999), all analyses controlled for parents’ report of severity of disability, which eliminated the effect of a potential confound and offered a cleaner interpretation of results. Zero-order correlations between variables of interest and severity of disability are in Table 1. Further, when considering associations with specific religious beliefs, it is necessary to isolate these beliefs from general religiousness to prevent the specific belief scales to act merely as proxies for general religiousness. Statistical control by including general religiousness as a covariate is one way to achieve this isolation (Newton & McIntosh, 2009; Shortz & Worthington, 1994). For example, Cohen and Hill (2007) used this method to isolate effects of religious group (Jewish or Protestant) from general, intrinsic religiousness.

Although we predicted several specific associations, by default the multiple mediation analyses test all relationships between specific religious beliefs, cognitive appraisals, and coping strategies. This inclusion enables statistical control of all relevant variables. Further, in addition to testing predicted associations, nonsignificance of unpredicted relationships help confirm hypotheses and significance of unpredicted relationships suggest directions for future research.

**RESULTS**

**Missing Data and Assumptions**

Missing data on key variables ranged from 12 to 39%. The majority of missingness was due to failure to complete the survey. As the last variables assessed, coping strategies (39%) and general religiousness (35%) had the most missing data. Cases with five or more variables for analysis missing (11% of cases) did not differ on age, gender, ethnicity, severity of child’s disability, number of children with a disability, time since diagnosis, or general religiousness from complete cases. However, those with complete data had higher levels of education, \( r(95) = 2.5, p = .01 \). This level of non–missing completely at random data necessitated data imputation. For scale composite scores (e.g., coping strategies), the mean of available values was used to compute the composite variable. For variables with too few values to create a composite and for noncomposite variables, values were imputed using an expectation maximization algorithm, as recommended by Roth (1994) for data missing more than 10% and not missing completely at random (implemented using Amelia II; Honaker, King, & Blackwell, 2007). Overimputation, a diagnostic test that treats observed values as if they had been missing and compares the imputed results to the observed values, indicated adequate fit of the imputation model for all variables.\(^2\)

\(^2\)Complete case analyses (i.e., listwise deletion) for associations between religious variables and cognitive appraisals yielded identical effect directionality and similar effect sizes compared to imputed case analyses. However, with substantially less power fewer associations were significant. Imputation also helped control nonresponse bias and enabled analysis of more representative data.
<table>
<thead>
<tr>
<th>Religious Beliefs</th>
<th>Cognitive Appraisals</th>
<th>Coping Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary</td>
<td>Secondary</td>
</tr>
<tr>
<td></td>
<td>Challenge</td>
<td>Threat</td>
</tr>
<tr>
<td>Severity</td>
<td>.01</td>
<td>.10</td>
</tr>
<tr>
<td>General</td>
<td>—</td>
<td>.32***</td>
</tr>
<tr>
<td>Vertical</td>
<td>—</td>
<td>.48***</td>
</tr>
<tr>
<td>God image</td>
<td>—</td>
<td>.24*</td>
</tr>
<tr>
<td>Challenge</td>
<td>—</td>
<td>.11</td>
</tr>
<tr>
<td>Threat</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Benefit</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Loss</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Others</td>
<td>—</td>
<td>.28***</td>
</tr>
<tr>
<td>Self</td>
<td>—</td>
<td>.28***</td>
</tr>
<tr>
<td>God</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>None</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Engage</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Disengage</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**Note.** df = 100.

†p < .10. *p < .05. **p < .01. ***p < .001.
### TABLE 2
Means, Standard Errors, Skewness and Kurtosis for Measures of Religious Variables, Cognitive Appraisals and Coping Strategies

<table>
<thead>
<tr>
<th>Range</th>
<th>M</th>
<th>SE</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Religious variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General religiousness(^a)</td>
<td>1–5</td>
<td>3.94</td>
<td>.10</td>
<td>−.99***</td>
</tr>
<tr>
<td>God image(^a)</td>
<td>1–5</td>
<td>3.08</td>
<td>.09</td>
<td>−2.45***</td>
</tr>
<tr>
<td>Verticality(^b)</td>
<td>0–13</td>
<td>1.84</td>
<td>.25</td>
<td>3.10***</td>
</tr>
<tr>
<td><strong>Primary appraisals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenge</td>
<td>1–6</td>
<td>3.92</td>
<td>.12</td>
<td>−.31</td>
</tr>
<tr>
<td>Threat</td>
<td>1–6</td>
<td>3.25</td>
<td>.10</td>
<td>.33</td>
</tr>
<tr>
<td>Loss</td>
<td>1–6</td>
<td>2.60</td>
<td>.11</td>
<td>.46</td>
</tr>
<tr>
<td>Benefit</td>
<td>1–6</td>
<td>3.65</td>
<td>.15</td>
<td>−.20</td>
</tr>
<tr>
<td><strong>Secondary appraisals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>1–5</td>
<td>3.56</td>
<td>.09</td>
<td>−.18</td>
</tr>
<tr>
<td>Self</td>
<td>1–5</td>
<td>4.04</td>
<td>.06</td>
<td>−.22</td>
</tr>
<tr>
<td>God(^a)</td>
<td>1–5</td>
<td>3.76</td>
<td>.12</td>
<td>−1.10**</td>
</tr>
<tr>
<td>None(^b)</td>
<td>1–5</td>
<td>2.22</td>
<td>.09</td>
<td>.82**</td>
</tr>
<tr>
<td><strong>Coping strategies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engagement</td>
<td>1–5</td>
<td>3.25</td>
<td>.05</td>
<td>−.18</td>
</tr>
<tr>
<td>Disengagement</td>
<td>1–5</td>
<td>1.60</td>
<td>.04</td>
<td>.38</td>
</tr>
</tbody>
</table>

**Note.** N = 100.

\(^a\)For analysis, base 10 logarithmic transformed and reflected. \(^b\)For analysis, base 10 logarithmic transformed.

**p < .01. ***p < .001.**

After data imputation, all variables were examined for assumptions of multivariate analysis. Three cases were univariate or multivariate outliers; these were deleted. Skewness and kurtosis are reported in Table 2. Although assessments of God image and benefit primary appraisal were nonnormal, even after transformation, the bootstrapping procedure in analyses used to assess hypotheses does not assume normality (Preacher & Hayes, 2008). Only one multivariate dimension exceeded the multicollinearity criteria suggested by Belsley, Kuh, and Welsch (1980), indicating that general religiousness and positive God image are collinear. Rather than correcting this violated assumption by merging two theoretically different variables, we tested our hypotheses with the variables intact because the strong relationship between general religiousness and positive God image provided a more conservative estimate of our hypotheses. That is, because general religiousness and God image are so strongly related, predicted relationships between God image and cognitive appraisals above and beyond general religiousness should be more difficult to find. By controlling for general religiousness in analyses of specific religious beliefs, we eliminated the statistically erratic effects of multicollinearity and tested our hypotheses conservatively.\(^3\)

\(^3\)Because general religiousness and God image are collinear and general religiousness is controlled in analyses, it may be suggested that we are assessing measurement error in God image rather than meaningful variance independent from general religiousness. However, the relationships between God image and cognitive appraisals controlling for general religiousness were significant in predicted directions, whereas measurement error would not be predictable. Further, when general religiousness was not controlled, directions of relationships remained the same, but were stronger in magnitude.
Hypothesis 1: Religious Beliefs and Appraisals

The first hypothesis was that specific religious beliefs (verticality and positive God image) would be related to both primary and secondary cognitive appraisals of stressors. As displayed in Figures 1 to 3, this hypothesis was largely supported.

As anticipated, verticality was associated positively with a secondary appraisal of God-control \((B = .21, SE = .04, p < .001; \text{Figure 1A})\). However, counter to the predicted direction, verticality had a positive relationship with secondary appraisal of others-control \((B = .58, SE = .22, p = .01)\) and no relation with self-control secondary appraisal. Although we made no prediction about the relations between verticality and primary appraisals, this was tested as part of the analysis. Verticality was negatively associated with a primary appraisal of loss \((B = -.77, SE = .27, p = .005)\) and positively associated with a primary appraisal of benefit \((B = .86, SE = .37, p = .02; \text{Figure 1B})\).

As predicted, positive God image was related positively to challenge \((B = 2.55, SE = 1.07, p = .02)\) and benefit \((B = 4.30, SE = 1.33, p = .002)\) primary appraisals and negatively to loss primary appraisal \((B = -3.02, SE = 98, p = .003)\); not supporting our predictions, it had no relationship with threat appraisal (see Figures 2A and 2B). Also as predicted and seen in Figure 3, positive God image was related positively to a secondary appraisal of God-control \((B = 1.02, SE = .13, p < .001)\). Unexpectedly, positive God image was also related positively to self-control secondary appraisal \((B = 1.28, SE = .55, p = .02)\).

Hypothesis 2: Appraisals and Coping Strategies

Consistent with previous work, we predicted that cognitive appraisals would associate with coping strategies. The relation between appraisals and coping strategies was confirmed for both primary and secondary appraisals. However, not all relations were in predicted directions.

Threat primary appraisal was related positively to disengagement coping \((B = .16, SE = .06, p = .01; \text{Figure 2B})\), as predicted, but also unexpectedly to engagement coping \((B = .30, SE = .07, p < .001; \text{Figures 1B, 2A})\). Loss primary appraisal was associated negatively with engagement coping, as predicted \((B = -.16, SE = .07, p = .03)\). However, unexpectedly, benefit appraisal was related positively to disengagement \((B = .09, SE = .04, p = .04)\).

Regarding secondary appraisals, the predicted positive association between God-control and engagement coping was found (Figures 1A; \(B = .94, SE = .32, p = .004\)). There was also an unexpected positive association between God-control and disengagement coping \((B = .73, SE = .32, p = .02)\). As predicted, secondary appraisal that others are in control was marginally and positively related to engagement coping \((B = .10, SE = .06, p = .08)\). Further, as predicted, a marginal and positive relationship was found between the appraisal that no one is control and disengagement coping \((B = .49, SE = .30, p = .10; \text{see Figure 3})\).

Hypothesis 3: Mediation by Appraisals

Our third hypothesis addressed the role of specific religious beliefs in the larger context of the transactional model. We predicted that primary and secondary appraisals would mediate the relationship between specific religious beliefs and coping strategies, controlling for general
FIGURE 1  Multiple mediation models for verticality and engagement coping for (A) secondary appraisals and (B) primary appraisals. Note. Displayed are $a$ and $b$ path coefficients, the total effects of verticality on engagement coping (in parentheses), and the direct effect. For Panel A, secondary appraisals as a set, others-control, and God-control secondary appraisals mediated the positive relationship between verticality and engagement coping. $^\dagger p < .10$. $^* p < .05$. $** p < .01$. $*** p < .001$. For Panel B, loss primary appraisal mediated the positive relationship between verticality and engagement coping. $^* p < .05$. $** p < .01$. $*** p < .001$. 

(a)

(b)
FIGURE 2  Multiple mediation models for positive God image, primary appraisals, and coping. Note. Displayed are a and b path coefficients, the total effects of positive God image on coping (in parentheses), and the direct effect. Panel A shows primary appraisals and engagement coping; loss primary appraisal mediated the positive relationship between positive God image and engagement coping. †p < .10. *p < .05. **p < .01. ***p < .001. Panel B shows primary appraisals and disengagement coping; benefit primary appraisal suppressed the negative relationship between positive God image and disengagement. †p < .10. *p < .05. **p < .01. ***p < .001.
FIGURE 3  Multiple mediation model for positive God image and disengagement coping through secondary appraisals. Note. Displayed are $a$ and $b$ path coefficients, the total effects of positive God image on disengagement coping (in parentheses), and the direct effect. God-control secondary appraisal suppressed the negative relationship between positive God image and disengagement coping. $\gamma p < .10$. $^*p < .05$. $^{***}p < .001$.

religiosity. Multiple mediation analyses were based on 1000 bootstrap samples. Table 3 displays total and specific indirect effects for the tests reported below.

Both primary and secondary appraisals mediated the relationship between verticality and coping strategies. Loss primary appraisal mediated the relationship between verticality and engagement coping beyond the effect of other primary appraisals. Specifically, more vertical focus in religion led to less primary appraisal of loss, which in turn led to less engagement coping. In addition, secondary appraisals as a set mediated the effect of verticality on engagement coping. Secondary appraisals that others and God are in control contributed to this effect beyond other secondary appraisals. The directions of the $a$ and $b$ paths are consistent with the interpretation that a more vertical orientation in religion led to more secondary appraisals that others and God are in control which in turn led to more engagement coping.

Loss primary appraisal mediated the positive relationship between God image and engagement coping with a more positive image of God leading to less loss appraisal which in turn led to less engagement coping. In addition to this mediation effect, suppression of the relation between positive God image and coping by primary and secondary appraisals was evident. Suppression occurs when the total effect of one variable on another is smaller than the indirect effect, indicating that the intermediary variable(s) neutralize(s) the relationship between the two variables. A primary appraisal of benefit suppressed the negative

\(^4\)The opposite direction of relations (coping strategies influencing religion variables mediated by appraisals) was also tested; effect sizes were uniformly smaller, supporting predicted directionality.
TABLE 3
The Association of Verticality and Positive God Image With Coping as Mediated by Cognitive Appraisals

<table>
<thead>
<tr>
<th></th>
<th>Engagement Coping</th>
<th>Disengagement Coping</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Point Estimate</td>
<td>SE</td>
</tr>
<tr>
<td>Verticity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Appraisal</td>
<td>Total</td>
<td>.15</td>
</tr>
<tr>
<td></td>
<td>Threat</td>
<td>−.03</td>
</tr>
<tr>
<td></td>
<td>Challenge</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Loss</td>
<td>.13*</td>
</tr>
<tr>
<td></td>
<td>Benefit</td>
<td>.05</td>
</tr>
<tr>
<td>Secondary Appraisal</td>
<td>Total</td>
<td>.26*</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>.06*</td>
</tr>
<tr>
<td></td>
<td>God</td>
<td>.20*</td>
</tr>
<tr>
<td></td>
<td>Self</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>−.01</td>
</tr>
<tr>
<td>Positive God image</td>
<td>Primary Appraisal</td>
<td>.39</td>
</tr>
<tr>
<td></td>
<td>Threat</td>
<td>−.16</td>
</tr>
<tr>
<td></td>
<td>Challenge</td>
<td>−.01</td>
</tr>
<tr>
<td></td>
<td>Loss</td>
<td>.35*</td>
</tr>
<tr>
<td></td>
<td>Benefit</td>
<td>.21</td>
</tr>
<tr>
<td>Secondary Appraisal</td>
<td>Total</td>
<td>.77</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>God</td>
<td>.62</td>
</tr>
<tr>
<td></td>
<td>Self</td>
<td>.07</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>.01</td>
</tr>
</tbody>
</table>

Note. All analyses control for disability severity, general religiousness, and all other appraisals in the set; CI = 95% bias corrected and accelerated confidence intervals; 1,000 bootstrap samples.

* *p < .05.

relationship between positive God image and disengagement coping. Benefit primary appraisal was positively related to both positive God image and disengagement coping, making the negative relationship between positive God image and disengagement coping less negative. Similarly, God-control secondary appraisal was positively related to both positive God image and disengagement coping, neutralizing the negative relationship between God image and disengagement coping.

DISCUSSION

This study is the first to examine the role of specific religious beliefs in the full context of Lazarus and Folkman’s (1984) transactional model of stress and coping. The data indicated that specific religious beliefs relate to cognitive appraisals. Moreover, specific religious beliefs fit well into the model because primary and secondary appraisals mediated their relationship with coping strategies. These relations were strong even controlling for severity of the disability.
Specific Religious Beliefs

It is particularly important that specific religious beliefs, vertical/horizontal religious focus and God image, were associated with perceptions of stressors and resources beyond the effect of general religiousness. First, they related to primary appraisals of stressors. Regardless of religiousness, those with a more positive God image were more likely to perceive stressors as challenging and beneficial and less likely as a loss. Similarly, those with a more vertical religious focus perceived less loss and more benefit. Consistent with the model and the view of religion as a schema that influences perceptions of the world (McIntosh, 1995), these data suggest that differences in specific religious beliefs affect how people understand stressful events.

Second, specific beliefs related to participants’ understandings of control over these stressors. Both positive God image and vertical religious focus predicted more perceived God control, regardless of general religiousness. Of importance, the two beliefs also predicted differing perceptions of control in the models. Having a positive God image was linked with more perceived self-control, and (unexpectedly) vertical religious focus was related positively to the belief that others are in control (family, friends, organizations, etc.). This difference underscores the importance of considering specific beliefs when examining the role of religion in coping.

More generally, that perceptions of control combined in differing ways supports Pargament, Smith, Koenig, and Perez’s (1998) proposition that God and self-control can combine in various ways, including deferring control to God (God is in control and the self is not) and collaborative coping (God and the self are in control). A more vertical focus may be associated with perceiving control outside oneself (though the correlation of vertical and self-control is marginally positive), whereas a positive God image supports more collaborative control. Because this collaborative view is associated with better health (McIntosh & Spilka, 1990), future research may profitably investigate whether these specific religious beliefs (or others) influence coping outcomes. In addition, further investigation of the ways in which control perceptions influence each other and combine is likely to be helpful in understand religion’s role in coping.

Associations of Appraisals and Coping Strategies

Cognitive appraisals were associated with coping strategies, consistent with previous research. As expected, more perception of threat was linked with more disengagement coping, such as distraction and substance use. Curiously, perception of threat was also linked with more engagement coping, such as seeking social support and planning, albeit this effect was smaller than with disengagement. This finding is largely contrary to the findings of previous research. For example, Ferguson and colleagues (1999) found that threat appraisal of pressure at work was positively associated with avoidance coping (similar to disengagement coping) but not associated with task-focused coping (similar to engagement coping). One explanation for our finding is that because threat appraisal suggests harm merely anticipated, then with effort, that harm might be prevented. This account is particularly fitting for our participants, because they have marked motivation to do whatever possible to make the threatening situation better. The connection between primary appraisals and coping strategies may be moderated by the nature of the stressor.
The temporal focus of primary appraisals may also explain findings for loss and benefit appraisals, both of which related to outcomes already experienced. More perception of loss meant less engagement coping, and more perception of benefit was linked to more disengagement coping. This latter relation has not been found previously. It may be that for a benefit already experienced, no proactive response is required, so disengagement may be fitting.

Certain secondary appraisals were also linked to coping strategies. Perceptions that God and others are in control of stressors were associated with engagement coping, as we predicted. Unexpectedly, perception that God is in control was also associated with disengagement coping, though less than the association with engagement coping. Perhaps associations of God-control with both engagement and disengagement coping reflect individual differences in religious coping styles proposed by Pargament and colleagues (1998; i.e., deferring control to God, self-directing coping, and collaborative coping). If this typology of religious coping is correct, then the perception that God is in control may not be particularly meaningful in and of itself, but rather only in the context of other perceptions of control. Associations between patterns of appraisal and coping strategies may be a rich area of future research to tease apart these relations.

Cognitive Appraisals Linking Religion to Coping Strategies
Consistent with the transactional model, cognitive appraisals explained the relations between specific religious beliefs and coping, both as total sets of primary and secondary appraisals and as specific mediators controlling for other appraisals in the set. Less perception of loss explained the positive relationships of verticality and positive God image with engagement coping. As a set, secondary appraisals accounted for the positive relationship between verticality and engagement. Further, the belief that God and others are in control independently mediated that relationship, also. Therefore, as ways of interpreting stressors, loss primary appraisal and others-control and God-control secondary appraisals are especially important for understanding the relation between specific religious beliefs and coping strategies. Future work should focus on these particular appraisals to explain their robust status as mediators of religion and coping.

In addition to mediation, cognitive appraisals also suppressed associations between specific religious beliefs and coping strategies. Benefit primary appraisal and God-control secondary appraisal neutralized the negative relationship between positive God image and disengagement coping. Believing that God is good in the context of perceptions that the disability of one’s child is really a blessing and/or that God is in control seems to lead to using disengagement coping strategies. Perhaps these parents think that it doesn’t matter what they do, God can take care of it. Although suppression effects are difficult to interpret and we did not predict any here, their presence suggests a more complicated story for future studies to address.

Limitations and Implications
As cross-sectional research, this study suffers interpretive limitations. Mediation analyses assume that the predictors (e.g., positive God image) predate the mediators (e.g., primary appraisals), which precede the outcomes (e.g., engagement coping). Further, the transactional model is nonrecursive, making the starting point of the coping process difficult to pinpoint. As even nonrecursive systems start somewhere, our model predicts that beliefs influence appraisals
which in turn influence coping behaviors and outcomes. However, with time, appraisals, coping, and outcomes may influence religious variables. Both directions of relationships were tested here and the unpredicted direction produced uniformly smaller effect sizes; nonetheless, this snapshot of the transactional model must be interpreted with caution. Although this study provides a good foundation for understanding key variables in relations between religion and coping, prospective and longitudinal studies will be necessary to unpack the multidirectional relations among religion variables, appraisals, and coping strategies with more certainty.

An additional limitation is that the study examined only two specific religious beliefs and only one measure of secondary appraisals. Although the beliefs were selected as especially likely to influence appraisals, many more religious beliefs may influence cognitive appraisals. For example, beliefs about whether the universe is random, the existence of an afterlife, and whether humanity is good or evil may be individual differences that affect coping (Koltko-Rivera, 2004). By controlling for general religiousness, we tapped into nuanced aspects of religion that explained unique variance. With this technique, myriad possibilities await exploration. Similarly, studies should examine other perceived resources that may affect coping.

Finally, women, Caucasians, and the highly educated were overrepresented in our sample. Generalizing beyond these demographics should be done with caution.

Despite these limitations, the study demonstrated the value of considering religious variables as individual differences in the transactional model of stress and coping, allowing a more fine-grained, process-oriented look at the relationship between religion and coping. These findings suggest that clinicians working with parents of children with disabilities should be sensitive to both general religiousness and specific religious beliefs in their clients as these factors are associated with both cognitive interpretations and subsequent behaviors. As Roesch and colleagues (2002) noted, cognitive approaches to stress and coping remain an important area of development with rich opportunities for research and great therapeutic potential.

In coping with stressors associated with parenting a child with a disability, specific religious beliefs were connected with how parents interpreted these stressors and perceived available resources. Specific religious beliefs were a good fit as individual difference variables in the transactional model of stress and coping. This study demonstrates that specific religious beliefs have differential association with cognitive appraisals and the entire coping process.

ACKNOWLEDGMENTS

Special thanks to Anne DePrince for her helpful comments on an earlier draft of this article.

REFERENCES


