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A CULTURALLY-SENSITIVE COGNITIVE MODEL OF WORRY IN AFRICAN
AMERICAN YOUTH

By

Allyn Elizabeth Richards
B.S., Central Michigan University, 2011
M.A., University of Louisville, 2013

A Dissertation
Submitted to the Faculty of the
College of Arts and Sciences of the University of Louisville
in Partial Fulfillment of the Requirements
for the Degree of

Doctor of Philosophy in Clinical Psychology

Department of Psychological & Brain Sciences
University of Louisville
Louisville, Kentucky

August 2016

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A Dissertation Approved on

June 23, 2015

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DEDICATION

This dissertation is dedicated to my late grandfather, Alan Kanouse, whose love of learning, work ethic, and quiet benevolence have served as continuous inspiration throughout this journey.

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ABSTRACT

A CULTURALLY-SENSITIVE COGNITIVE MODEL OF WORRY IN AFRICAN AMERICAN YOUTH

Allyn E. Richards

June 23, 2015

Our understanding of worry in children and adolescents has been increasingly enhanced over the past decade through the downward extension of adult cognitive models. Although our knowledge about the cognitive factors that place children at risk for worry has grown, little is known about these processes within African American youth. This is particularly notable given extant work suggesting that risk and protective processes are influenced by contextual factors. The current study reviews literatures regarding cognitive factors associated with worry and sociocultural factors salient to the African American context in order to inform a culturally-sensitive cognitive model of worry in African American children. Next, the basic tenets of the proposed model are empirically tested. Specifically, the current study tests the hypothesis that cognitive factors would be significantly and positively associated with worry in African American children. In addition, the hypothesis that racial socialization, collective coping, and positive religious coping would be negatively associated with worry was examined. Finally, it was predicted that the aforementioned sociocultural variables would cumulatively moderate cumulative cognitive vulnerability in that higher levels of

sociocultural experiences would mitigate the relationship between cognitive factors and worry. In order to evaluate these hypotheses, 50 African American children and their parents were recruited from the community to complete self-report questionnaires. Overall, the results partially supported the study hypotheses. Cognitive factors, including intolerance of uncertainty, negative problem orientation, positive beliefs about worry, and negative beliefs about worry contributed significant variance to worry, with negative beliefs about worry emerging as the strongest predictor. However, the second two hypotheses were largely not supported, as racial socialization, positive religious coping, and collective coping did not significantly contribute to child worry in the expected direction nor cumulatively moderate the relationship between total cognitive vulnerability and worry. Follow-up exploratory analyses revealed that the relationship between sociocultural experiences and worry did not change as a function of familial ethnic identity. These findings are discussed in comparison to previously established literature in non-Hispanic White children and African American adults, and implications for conceptual models of worry and clinical work are discussed. Directions for future research are also provided.

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INTRODUCTION

Worry is a common phenomenon in children and adolescents. Indeed, research indicates that approximately 70% of children and adolescents report experiencing episodic worry (Henker, Whalen, & O'Neil, 1995; Muris, Merckelbach, Gadet, & Moulaert, 1995). While these transient experiences of worry are not pathological in nature, a proportion of youth will experience excessive, uncontrollable worry that results in distress and impairment in their daily lives (American Psychiatric Association, 2013). This type of worry is the hallmark feature of Generalized Anxiety Disorder (GAD), which presents as one of the most prevalent and pernicious disorders among children and adolescents (Pine, Cohen, Gurley, Brook, & Ma, 1998; Rapee, 2001). Specifically, epidemiological research indicates point prevalence rates of GAD ranging from .16 to 11.1% in community samples of youth (Boyle et al., 1993; Cartwright-Hatton, McNicol, & Doubleday, 2006; Ford, Goodman, & Meltzer, 2003). Further, existing literature denotes that GAD frequently demonstrates an early onset and chronic course, oftentimes lasting into adulthood (APA, 2013). Evidence suggesting that pediatric GAD is a risk factor for depression and a range of anxiety disorders in adulthood further elucidates the necessity of understanding the development of this disorder across the lifespan (Pine et al., 2001).

Although our understanding of the development of worry in children was once nebulous, a growing body of literature has begun to examine the etiological mechanisms and factors associated with worry in younger populations (see Kertz & Woodruff-Borden,

2011). While this empirical knowledge base remains underdeveloped compared to our understanding of causal and maintaining factors of worry in adults, burgeoning research provides preliminary support for the downward extension of adult models to youth. In particular, nascent work has predominately explored cognitive variables endemic to worry in children and adolescents (Cartwright-Hatton, 2006; Fialko, Bolten, & Perrin, 2012; Kertz & Woodruff-Borden, 2013; Laugesen, Dugas, & Bukowski, 2003). Results of these efforts have primarily garnered support for the extension of cognitive models to younger populations, as several overlapping cognitive risk factors between adults and youth have been demonstrated. While the existing evidence is promising, continued exploration of cognitive factors is particularly warranted, as integrated developmental models suggest that other etiological factors of worry may be mediated by these variables (Kertz & Woodruff-Borden, 2011).

While our understanding of the development of worry in children is growing, there is a paucity of literature examining these processes in diverse samples, including African American children and adolescents. The limited available research suggests that African Americans may differ in the prevalence and phenomenological experience of worry and GAD (Breslau et al. 2006; Carter et al., 2005; Chapman, Kertz, & Woodruff-Borden, 2009; Grant et al., 2005; Scott, Eng, & Heimberg, 2002); however, scant attention has been paid to factors associated with worry in this population. In particular, extant models of worry have failed to be examined within African American children, limiting our knowledge as to whether these models capture worry processes in these children. Further, existing models have neglected to integrate cultural variables, despite evidence that etiological and protective mechanisms are likely influenced by the context of the

individual (Cicchetti & Rogosch, 2002). The available frameworks for understanding the influence of sociocultural variables delineate the impact of African American contextual factors on the *expression* of anxiety and related processes, limiting knowledge about the *emergence* of these differences (Carter, Sbrocco, & Carter, 1996; Hunter & Schmidt, 2010). Given these limitations in the existing literature, a conceptual framework is presented that posits a protective role of cultural variables in worry outcomes in African American children and adolescents. The proposed model seeks to explain the potential influence of cultural constructs within a cognitive model of worry in order to 1) delineate the cognitive variables associated with worry development in African American youth, as well as 2) account for sociocultural variables that may interact with cognitive factors to impact worry development in African American children and adolescents. Finally, in order to provide a preliminary evaluation of the tenets of the model and contribute to our understanding of worry in African American youth, the current study tests the relationship of cognitive factors and culturally-specific coping variables on worry outcomes in an exclusively African American sample of children. Specifically, the study aims to evaluate the independent and interactive roles of intolerance of uncertainty, negative problem orientation, metacognitive beliefs about worry, positive religious coping, racial socialization, and collective coping in worry outcomes.

Worry in African American Youth

There is limited available literature examining worry in African American youth. Indeed, only one study has specifically explored worry in African American children to date. Silverman, La Greca, and Wasserstein (1995) investigated the relation of worry content and intensity to anxiety in a comparative sample of non-Hispanic White,

Hispanic, and African American school children. Utilizing a semi-structured interview to assess worry across a variety of domains (e.g., school, family, health), results indicated that African American children endorsed a greater number of worries and more intense worry than their non-Hispanic and Hispanic counterparts. Subsequent analyses revealed that these differences were largely accounted for by more worries related to war, personal harm, and family. Despite these significant differences, the study used an interview that was created for the purpose of the study and had not been validated in diverse samples (Silverman et al., 1995). As such, it is unknown whether the assessment procedures equally measured worry across the sample, limiting the conclusiveness of the findings. Given that the extant literature is limited to this one phenomenological study of worry, little is known about worry processes in African American children, including factors that are associated with worry development.

Given the dearth of literature examining the etiology of worry in African American youth, related findings in African American adults may contribute to our understanding of these processes. Although some mixed findings have emerged, epidemiological research generally suggests an overall lower lifetime prevalence rate and risk of GAD development in African American adults (Breslau et al., 2006; Grant et al., 2005; Wittchen, Zhao, Kessler, & Eaton, 1994). Recent research evaluating cross-ethnic differences in psychiatric disorder prevalence from the National Comorbidity Survey Replication yielded a significantly lower lifetime prevalence rate of GAD in African Americans, with African Americans demonstrating a 5.1% prevalence rate of GAD compared to 8.6% in non-Hispanic White adults (Breslau et al., 2006). Notably, these observed differences emerged in childhood, as retrospective reports indicated lower rates

across the lifespan. The authors posit that these early differences may be related to protective sociocultural variables in the childhood environment, such as racial socialization, rather than adult experiences. Despite experiencing fewer reported worries and a lower risk of the development of GAD, other work suggests that African Americans experience more chronic, severe cases of GAD (Breslau et al., 2005; Sibrava et al., 2013). For example, in a comparative sample of 5,657 Hispanic, Non-Hispanic African American, and Non-Hispanic White adolescents and adults (ages 15-54), Breslau and colleagues (2005) found that African Americans demonstrated a higher odds ratio of persistence of all anxiety disorders compared to Non-Hispanic Whites. These findings suggest that despite experiencing lower rates of GAD, when present, African Americans tend to experience more persistent, severe courses of this disorder than Non-Hispanic Whites. Given that this cross-ethnic variation in chronicity occurs following the emergence of GAD in African Americans, research is warranted to examine factors that contribute to and protect against the development of GAD in this population, particularly early in the lifespan.

Due to the observed differences in the prevalence of GAD in African American adults, research has begun to examine potential cultural variations in the assessment of worry and related constructs (Carter et al., 2005; Chapman et al., 2009; Scott et al., 2002). Despite one study demonstrating comparable rates of worry as assessed by the Penn State Worry Questionnaire (PSWQ; Scott et al., 2002), research has predominately yielded significantly fewer worries reported on both the PSWQ and Worry Domains Questionnaire in African American adults compared to non-Hispanic White samples (Carter et al., 2005; Chapman et al., 2009; Scott et al., 2002). Interestingly, these findings

are discrepant from those of Silverman and colleagues (1995) in their examination of worry in African American youth. This would be particularly notable given that research, primarily garnered from non-Hispanic White samples, indicates that the risk of developing of worry and GAD increases with age (Chorpita et al., 1997; Strauss et al., 1988). For example, Chorpita and colleagues (1997) found that older adolescents scored significantly higher on the children's version of the Penn State Worry Questionnaire than younger children, and older adolescents have been found to endorse more clinical symptoms of overanxious disorder than their younger counterparts (Strauss et al., 1988). Although yet to be subjected to empirical scrutiny, these discrepant findings may suggest that aspects of the African American context exert protective effects throughout the course of development.

In addition to differential patterns of self-reported worry frequency, factor analytic studies suggest cultural differences in the factor structure of worry. For example, Carter and colleagues (2005) found variant factor structures between African American and non-Hispanic White college students on the PSWQ. Specifically, a best-fitting two-factor model (general worry, worry absence) emerged in the non-Hispanic White sample, whereas a third factor (worry dismissal) was yielded from African American participants. Albeit limited, work has begun to suggest that sociocultural influences on etiological mechanisms of worry may contribute to differential manifestations of worry. Utilizing structural equation modeling, Chapman and colleagues (2009) investigated the contribution of perceived control and psychological distress to worry in a comparative sample of college students. The results revealed significantly different relationships between the factors, with perceived control contributing greater variance to self-reported

worry in non-Hispanic Whites and psychological distress contributing the most variance in African Americans. Despite participants' self-reported race being the only sociocultural indicator, the authors posit that the influence of other culturally-specific factors (e.g., religious coping) may account for the differences.

Overall, the available literature suggests some indicators of cross-cultural variation in the prevalence of worry and constructs related to this process. In order to explicate the potential pathways to these differences and sociocultural influences on anxiety manifestation, emergent work has developed explanatory models of anxiety expression in African American adults. For instance, Carter and colleagues (1996) developed a model in which ethnicity influences anxiety expression through racial identity and acculturation. Within the proposed model, these lower-ordered ethnicity factors interact with other demographic variables (i.e., SES, age, stress) to influence one's interpretations and beliefs about anxious symptoms. While Carter and colleagues (1996) do not delineate specific pathways to observed differences in worry manifestation or GAD in African Americans, the posited model suggests that differential patterns of anxiety expression and prevalence are globally related to the impact of ethnicity upon symptom presentation, treatment seeking behavior, and treatment outcome. In particular, the model denotes that African Americans demonstrating higher levels of racial identity and lower levels of acculturation are likely to have expectancies and beliefs about anxious symptoms (e.g., belief that anxious symptoms reflect medical rather than psychological conditions) that deviate from Eurocentric psychological explanations and result in misdiagnosis, failure to seek treatment, or ineffective treatment utilization. Notably, Carter and colleagues' model (1996) indicates that the phenomenological experience of anxiety is influenced by one's cultural identification.

More recently, Hunter and Schmidt (2010) proposed an explanatory model in which contextual variables, sociocultural beliefs and attitudes indirectly influence anxious symptomatology through culturally-specific interpretations and behaviors (e.g., cultural mistrust, somatic vigilance). The model is nested within a biopsychosocial, diathesis-stress framework, and purports that observed cross-ethnic disparities in anxiety and GAD prevalence results from *pathoplastic* interactions between cultural influences and existing vulnerabilities in which sociocultural variables do not cause anxiety outcomes, but rather modify the course or presentation of etiological factors (Hunter & Schmidt, 2010). Specifically, Hunter and Schmidt's (2010) model indicates that sociocultural variables exert influences following genetic predispositions to result in varying trajectories of anxiety expression. Advancing existing frameworks (Carter et al., 1996), the aforementioned model explicates the way in which sociocultural influences contribute to observed differences in specific anxiety disorders. With regard to GAD, Hunter and Schmidt (2010) posit that the awareness of racism, stigma of mental illness, and salience of physical illness endemic to African American culture leads to fears related to minority status and underreporting of cognitive symptoms that result in mis- and under-diagnosis of GAD. Building upon the specificity of Carter et al.'s (1996), Hunter and Schmidt (2010) also elucidate the influential role of cultural variables on shaping the experience of GAD within African American populations. Despite this advancement, however, Hunter and Schmidt (2010) fail to delineate how cultural factors may interact with vulnerability factors prior to the emergence of GAD. As such, while sociocultural factors in African American contexts are noted to interplay with the development of anxiety, little remains known as to *how* these factors exert influence throughout the development of worry.

Limitations. Given the scant literature examining worry in African American youth, our knowledge about the development of worry in this populations remains limited. Despite recent enhancements in our understanding of worry in African American adults, several limitations inhibit a full awareness of the factors and processes endemic to the development of worry in African American youth. In particular, the exploration of etiological mechanisms and factors associated with worry in African American children remains absent from the extant literature. The examination of such mechanisms is particularly warranted given that GAD often demonstrates an early onset and chronic course, and an understanding of underlying processes of worry is vital for treatment and prevention programming. While limited work has explored the relationship of isolated cognitive vulnerability factors and their relationship to worry in African American adults (Chapman et al., 2009), research is needed to reflect the dynamic, interactive nature of risk processes throughout early development. In order to provide an initial understanding of worry in African American youth, the examination of empirically supported vulnerability factors within this population is needed. Specifically, research should identify whether extant conceptual models of worry that have been validated in non-Hispanic White child populations demonstrate similar relationships to worry in African American youth samples.

The available literature also indicates that cultural factors and contexts salient to African Americans may influence the phenomenological experience of anxiety and GAD (Carter et al., 1996; Hunter & Schmidt, 2010). Indeed, existing conceptual models of worry and anxiety posit that contextual variables may interact with developmental processes to impact anxiety outcomes. In particular, it is generally believed that worry

and anxiety develops from a transactional relationship between constitutional (e.g., genetic, temperament, environment) and psychosocial factors (Barlow, 2002), and that culture may influence these dimensions to confer risk or protection to anxiety development (Harre & Parrott, 1996; Varela, Sanchez-Sosa, Biggs, & Luis, 2009). While existing frameworks clarify the impact of sociocultural variables on the expression of anxiety and GAD in African Americans (Carter et al., 1996; Hunter & Schmidt, 2010), our understanding of how these variables impact worry development remains limited. Given indications that contextual factors may result in anxiety outcomes that deviate from Eurocentric norms, research is needed to examine whether these variables interact with extant models of worry in African American youth. Further, such exploration should shed light on the nature of this interaction, and whether contextual factors exert risk or protective effects.

The Development of Worry

In order to elucidate the factors associated with worry in African American youth and the potential influence of sociocultural variables on the development of worry, one must understand the etiological mechanisms and variables related to worry development. While our understanding of etiological mechanisms of worry in African American children remains limited, knowledge about the processes underlying worry development in non-Hispanic White populations has been consistently enhanced and may help inform our understanding of worry in African Americans (Laugesen et al., 2003). Research on the development of worry suggests that this process results from a dynamic, complex interplay of multiple factors over time (Kertz & Woodruff-Borden, 2011). In particular, extant work has revealed several variables associated with worry and GAD in youth and

adults, including biological (e.g., genes, temperament), environmental (e.g., parenting behaviors), cognitive (e.g., intolerance of uncertainty), and affective (e.g., emotion regulation) processes (see Kertz & Woodruff-Borden, 2011 for review). While these risk factors demonstrate independent associations with worry, developmental models indicate that these variables interact and evince bidirectional relationships that yield multiple pathways to worry and GAD (see Kertz & Woodruff-Borden, 2011).

While it is likely that worry similarly develops from a complex interaction of the aforementioned factors in African American youth, research suggests that the extent to which cultural variables interact with specific risks may vary. In particular, learning theories on the development of anxiety posit that sociocultural influences may not impact distal vulnerabilities, such as genetics and temperament (Barlow, 1991; Mineka & Zinbarg, 2006). Recent work provides preliminary support for this presupposition, as African American youth have demonstrated similar patterns of genetic predisposition to anxiety outcomes (Chapman, Vines, Petrie, & Durrett, 2012). Although unexplored within the context of worry and GAD specifically, Chapman and colleagues (2012) revealed that African American children whose parent had an anxiety diagnosis were four times more likely to develop clinical anxiety, which is similar to rates observed in non-Hispanic White children.

While contextual factors may not impact the diathesis of distal factors in worry development, it is believed that sociocultural variables influence the trajectory of more proximal vulnerabilities (Barlow, 1991; Hunter & Schmidt, 2010; Mineka & Zinbarg, 2006). Specifically, the factors salient to the context of the child affect what is perceived to be threatening, how the associated distress is interpreted, and beliefs about appropriate coping responses (Hunter & Schmidt, 2010; Mineka & Zinbarg, 2006). Given the largely cognitive,

schematic nature of these effects, the proximal cognitive factors associated with worry development may be particularly susceptible to sociocultural influence. Indeed, empirically supported cognitive conceptual models of worry indicate cognitive factors that are associated to worry development and maintenance relate to perceptions of threat, one's distress, and one's ability to cope with perceived problems and distress (Dugas et al., 1998; Kertz & Woodruff-Borden, 2011; Laugesen et al., 2003). In order to understand these cognitive models and how they may extend to African American children, the available literature of cognitive factors associated with worry will be reviewed.

Cognitive Vulnerability Factors

Given that worry has been conceptualized as a largely cognitive and verbal-linguistic process, the preponderance of etiological literature examines the role of cognitive and metacognitive factors that contribute to worry development and maintenance (Kertz & Woodruff-Borden, 2011). In order to explain these processes, several cognitive models of worry have been developed. Although these theoretical models have been primarily formulated and tested in adults, a growing body of work has begun evaluating cognitive factors and models in younger populations (Fialko et al., 2013; Kertz & Woodruff-Borden, 2013; Laugesen et al., 2003). Despite these advancements, the burgeoning child literature has been limited by primarily relying upon direct-effect tests of single cognitive variables to worry outcomes. As such, our understanding of the dynamic processes in which these variables interact in order to promote or mitigate worry development is limited. Furthermore, the scant attention paid to the context in which cognitive vulnerabilities unfold has inhibited knowledge regarding the development of cognitive vulnerabilities and worry across diverse child

populations. Regardless of these limitations, the available literature provides a basis for understanding worry processes in children and adolescents. Specifically, research suggests that intolerance of uncertainty, beliefs about worry, negative problem orientation, and information processing may be particularly salient to the development of worry in children and adolescents. While other cognitive variables, such as cognitive avoidance, have been implicated in adult models of worry, they have received limited support in younger populations and will therefore not be reviewed (Laugesen et al., 2003).

Intolerance of Uncertainty

One cognitive variable that has been implicated in the development and maintenance of worry is intolerance of uncertainty (IU). Defined as “the tendency to react negatively on an emotional, cognitive, and behavioral level to uncertain situations and events” (Buhr & Dugas, 2006, p. 223), the construct of IU has yielded a growing body of work suggesting a particularly robust relationship with the manifestation of worry (see Kertz & Woodruff-Borden 2011 for review). At the phenomenological level, IU represents a cognitive schema in which ambiguity and uncertainty inherent to everyday life are perceived as distressing, negative experiences that should be avoided. Indeed, this perceived intolerable nature of uncertainty and beliefs about its associated impairment are conceptualized to result in negative reactivity, heightened distress, and worry responses when confronted with ambiguity in daily living (Buhr & Dugas, 2002; Buhr & Dugas, 2006; Dugas, Buhr, & Ladouceur, 2004). As such, conceptual models suggest that IU directly increases one’s vulnerability to excessive levels of worry, and may indirectly promote worry risk through predisposing individuals to other cognitive factors related to

worry development (e.g., cognitive avoidance, negative problem orientation, beliefs about worry; Dugas, Gagnon, Ladouceur, & Freeston, 1998).

Empirical investigation in adult populations suggests a particularly salient relationship between IU and worry in both clinical and non-clinical samples (Buhr & Dugas, 2006; Dugas, Gosselin, & Ladouceur, 2001; Dugas, Schwartz, & Francis, 2004; Ladouceur et al., 1999). In particular, cross-sectional research has yielded IU to be more significantly related to worry than other anxiety symptomatology (Dugas et al., 2001) and depression (Dugas et al., 2004) in non-clinical samples, as well as demonstrating a unique relationship with worry beyond other cognitive variables. For example, in a sample of 197 students, Buhr and Dugas (2006) found IU to be significantly correlated with and contribute unique variance to worry when controlling for intolerance of ambiguity, perfectionism, perceived control, and demographic variables. Similar support for the role of IU in worry has been garnered from clinical samples, with IU significantly discriminating GAD from other anxiety disorders and being more predictive of self-reported and clinician-rated worry severity than other cognitive variables (Dugas et al., 2007; Ladouceur et al., 1999).

Extending beyond correlational methodologies, studies utilizing experimental and intervention data have provided support for the role of IU in worry development (Dugas et al., 1997; Ladouceur, Gosselin, & Dugas, 2000; Rosen & Knauper, 2009). Specifically, the manipulation of IU within a gambling task resulted in subsequent changes in self-reported worry in an undergraduate sample, with increases in IU leading to increased worry (Ladouceur et al., 2000). Similar results were yielded from an experimental study that involved the manipulation of IU and situation uncertainty (SU), in which participants

in the high IU and high SU condition demonstrated the greatest level of worry (Rosen & Knauper, 2009). Further support for the direct role of IU in worry development extends from intervention data in clinical samples of individuals with GAD. In particular, treatment data for GAD suggests decreases in IU prior to changes in worry throughout the course of treatment (Dugas et al., 1998).

Although IU has demonstrated a consistent relationship with worry, this knowledge has been largely derived from adult samples; however, burgeoning literature suggests promising support for the downward extension of these findings to youth samples. Despite being in its infancy, research in children and adolescents demonstrates relatively consistent relationships between IU and worry in younger populations (Boelen, Vrinssen, & van Tulder, 2010; Comer et al., 2009; Fialko et al., 2012; Kertz & Woodruff-Borden, 2013; Laugesen et al., 2003). For example, self-reported measures of IU have been found to be significantly correlated with worry (Boelen et al., 2010; Comer et al., 2009), and evidence abilities to discriminate children with anxiety disorders from non-clinical controls (Comer et al., 2009). Further, in empirical investigations of the application of cognitive models of worry to children and adolescents, IU has consistently emerged as a robust predictor of worry (Fialko et al., 2012; Kertz & Woodruff-Borden, 2013; Laugesen et al., 2003). For example, in the examination of the role of metacognition, negative problem orientation, and IU in a sample of 80 school children, Kertz and Woodruff-Borden (2013) found IU to be significantly predictive of excessive worry, as IU was the only individual predictor of clinical or non-clinical status. Contrarily, IU was not found to individually predict general worry scores.

While extant literature has consistently supported IU as a cognitive vulnerability factor for worry development, this relationship has been largely derived from non-Hispanic White samples. Indeed, only two available studies have explored IU in African American adults (Norton, 2005; Rucker, West, & Roemer, 2010). In particular, Norton (2005) conducted a psychometric analysis of a widely used measure of intolerance of uncertainty (the Intolerance of Uncertainty Scale, IUS) among four racial groups (African American, White, Hispanic/Latino, and Southeast Asian). Across the groups, results revealed no significant differences in mean IUS scores and similar associations of IU and chronic worry (Norton, 2005). More recently, in a sample of 249 African American college students, self-reported IU was significantly predictive of self-reported worry and racial stress (Rucker et al., 2010). Further, IU was found to fully mediate the relationship between racial stress and worry. Although these findings demonstrate similar relationships between IU and worry as those found in non-Hispanic White adults, research is warranted to establish this association in African American children. Additionally, given that racially-specific experiences may contribute to the development of IU (Rucker et al., 2010), further research is needed in order to understand how culturally-specific variables interact with IU and worry outcomes. In particular, work is needed to identify whether other sociocultural factors and experiences endemic to African American youth impact IU and result in deviations from established findings regarding the relationship between this construct and worry.

Negative Problem Orientation

Problem-solving and related constructs have also been consistently cited as developmental cognitive vulnerability factors associated with the manifestation of worry.

Phenomenologically, worry has been conceptualized as a continuous, cognitive attempt to anticipate or resolve potential problems in daily life (Davey, 1994; Davey, Tallis, & Capuzzo, 1996). This anticipatory problem-solving style is characterized by monitoring strategies, in which one is highly attuned to potential threat-related information in their environment (Davey, 1994; Davey, Hampton, Farrell, & Davidson, 1992). This style is suggested to become problematic when the perceived threat is uncontrollable in nature or rather unsolvable, and worry is employed as a strategy to control or ineffectively solve the problem (Davey, 1994).

While early hypotheses conceptualized problem-solving skill deficits as contributing to worry, more recent research suggests that it is one's beliefs about their problem-solving abilities that are associated with worry development. Evidence for this paradigmatic shift has been derived from both cross-sectional and experimental data. For example, cross-sectional research within adult populations has demonstrated that problem-solving skills do not significantly differ across high and low worriers, but rather their confidence about their problem-solving abilities (Davey, 1994; Dugas et al., 1995; Ladouceur, Freeston, & Dugas, 1998). Further, change in one's confidence about their problem-solving abilities has been associated with worry. For example, in a sample of undergraduate students, Davey, Jubb, and Cameron (1996) experimentally manipulated participants' problem-solving confidence by providing positive or negative feedback regarding their problem-solving solutions to daily problems. Results indicated that participants who received negative feedback, which served to decrease problem-solving confidence, evidenced subsequent increases in catastrophic worry.

Although the relationship between problem-solving beliefs and worry has been predominately generated from adult samples, preliminary work also supports this relationship in children and adolescents. For example, utilizing MANOVA analyses on self-report data from 247 British school children (ages 8-11) who were categorized as high or low worriers, Parkinson and Crewell (2011) found significant differences between the groups on problem-solving beliefs. Notably, despite these differences in the participants' beliefs about their problem-solving abilities, no differences were observed in their problem-solving skills. Subsequent analyses also indicated that worry significantly contributed to variance in problem-solving confidence, but not problem-solving control.

More recently, problem orientation, or an individual's perceived responses to problems and metacognitive processes involving one's schemata about problems and problem-solving abilities, has been implicated in the development of worry (Belzer, D'Zurilla, Maydeau-Olivares, 2002; Ladouceur et al., 1998). Problem orientation has been conceptualized as either positive or negative, which serves to either facilitate or inhibit the employment of effective problem-solving strategies (Belzer et al., 2002). Negative problem orientation (NPO), which is characterized by beliefs that problems are personally threatening to one's well-being, doubts about one's ability to effectively solve problems, and the anticipation of subsequent negative outcomes, has been consistently linked to excessive worry in both clinical and non-clinical samples (Dugas et al., 1995; Dugas et al., 1998; Ladouceur et al., 1998). For example, NPO has been found to contribute significant variance to worry frequency, controllability, and distress in non-clinical undergraduate samples (Belzer et al., 2002; Dugas et al., 1997). Additionally,

self-reported NPO has been found to discriminate high and low worriers, as well as non-clinical worriers from GAD patients (Ladouceur et al., 1998; Robichaud & Dugas, 2005).

Although a robust relationship between NPO and worry has been demonstrated in adult samples, there is a dearth of literature within child and adolescent populations. Research has yielded mixed results regarding the role of NPO in youth worry. In particular, in an evaluation of a cognitive model of worry in a sample of adolescents, Laugesen and colleagues (2003) found NPO to contribute unique variance to worry scores when regressed with other cognitive variables (i.e., IU, positive beliefs about worry, cognitive avoidance). Contrarily, in a similar study in children, NPO did not emerge as a significant individual predictor of worry when regressed with other variables; however, correlational analyses revealed a significant association between NPO and self-reported worry (Kertz & Woodruff-Borden, 2013). While these findings provide promising preliminary support for the role of NPO in worry in youth, future research utilizing longitudinal and process-oriented approaches is needed in order to explicate the development of NPO and its role in worry processes. In addition, the evaluation of NPO has been to date limited by its use of predominately non-Hispanic White samples. As such, our understanding of this construct in ethnic minority children, including African Americans, remains obscure.

Information Processing

Cognitive models of anxiety highlight the role of information processing in the development and maintenance of anxiety disorders, including GAD, and related processes (i.e., worry; Beck & Clark, 1997; Waters, Mogg, Bradley, & Pine, 2008).

Broadly, cognitive theories suggest that anxiety is precipitated and perpetuated by the tendency for anxious individuals to selectively attend to environmental threat cues, as well as overestimate the personal salience and likelihood of these threats (Clark & Steer, 1996; Matthews, 1990). These processes, as well as the tendency to interpret ambiguous situations as threatening, serve to perpetuate elevated levels of vigilance for personal danger that maintain worry (Matthews, 1990). While these attentional biases are often conceptualized as “pre-attentive” and automatic, other work has elucidated voluntary search for threat (Matthews & Funke, 2006). It is hypothesized that this systematic prioritization of attending to threat is facilitated through voluntary attention to threat-related information (Matthews & Harley, 1996), difficulty disengaging from threat-related information (Derryberry & Reed, 2002), and the automatic encoding of potentially threatening cues or information (Mathews & Mackintosh, 1998).

Evidence for the role of the aforementioned information processes in worry has been predominately demonstrated utilizing emotional Stroop and visual probe task paradigms. Studies using the emotional Stroop task involve the presentation of threatening and neutral words in varying colors, during which participants are asked to name the colors. Within adult populations, Stroop studies have demonstrated relatively consistent findings in which anxious individuals and high worriers yield slower reaction times in naming the color of threat words compared to neutral words (see Waters et al., 2008). This delay is significant, as it has been purported to be caused by threat word content interfering with worried individuals’ attentional processes. Within visual probe tasks, vigilance is operationalized as the reaction time to the presentation of threat cues. In order to assess vigilance or attentional biases towards threat, the probe task presents

pairs of threatening and neutral words followed by a neutral dot probe. Results yielded from studies utilizing visual probe tasks indicate that individuals with GAD (Mogg, Mathews, & Eysenck, 1992) or in simulated worry conditions (Oathes, Squillante, Ray, & Nitschke, 2010) demonstrate significantly faster response times to probes following threat words compared to neutral cues, suggesting heightened attentional vigilance to threat.

In addition to visual probe and Stroop tasks, differences in information processing in individuals with GAD and high levels of worry have been observed in their interpretation of ambiguous situations. Specifically, individuals with GAD are more likely to produce threatening interpretations of ambiguous situations than non-anxious controls (Butler & Matthews, 1983), as well as rate these threats as more likely to occur. It is also suggested that worry may impact the secondary appraisals of threats, or one's ability to cope with threatening situations. Research has supported this notion, with high worriers and individuals with GAD perceiving more significant negative implications of ambiguous scenarios (Vasey & Borkovec, 1992). More recent work suggests that these interpretative biases may be highly interactive and related to other cognitive facets of worry. For example, Dugas and colleagues (2005) found a stronger association between threat interpretations of ambiguous situations and IU than worry; however, additional research is warranted to examine the temporal relationship between information processing, cognitive vulnerabilities, and worry outcomes.

Although understudied compared to adults, the available literature suggests similar relationships between information processing and worry in child and adolescent populations. Utilizing similar methodological paradigms as adult populations, research

has demonstrated that worried children and adolescents demonstrate attentional biases towards threat and emotional information (Taghavi et al., 1999; Taghavi et al., 2003). Specifically, adolescents with GAD have been found to demonstrate significant interference for threat and depression-related words, but not positive or neutral words on a Stroop task (Taghavi et al., 2003), as well as attentional bias towards threat words in a visual-probe task (Taghavi et al., 1999). Modified visual probe tasks that utilize emotionally-laden faces compared to neutral faces have yielded similar results. In particular, Waters and colleagues (2008) found that children with severe GAD evidence significantly faster response times towards angry and happy faces, which was related to anxiety severity. This pattern of attentional bias may be unique to GAD compared to other anxiety disorders. Specifically, in an examination of attentional bias towards emotionally-valenced faces, Salum and colleagues (2013) analyzed reaction times in a comparative sample of children with fear-based anxiety disorders (e.g., specific phobia), distress-based disorders (e.g., GAD, MD), behavioral disorders, and non-disordered controls. Results suggested significantly different response styles between disorder type and severity of internalizing symptoms, with both distressed-based disorders and controls demonstrating attentional bias toward emotional faces at high levels of internalizing symptoms. While the aforementioned studies lend support to the relationship between information processing and GAD in children and adolescents, they may be confounded by the presence of other anxiety symptomatology in participants. Specifically, participants in the studies also demonstrated significant social anxiety symptoms (Waters et al., 2008) or were analyzed with children diagnosed with mood disorders (Salum et al., 2013).

In addition to attentional bias to threat, research suggests that children with GAD demonstrate similar patterns of interpretative bias of ambiguous situations. For example, when generating subjective probabilities for the likelihood of physical-threat and social-threat related scenarios, anxious children have been found to indicate higher future probabilities of both types of events compared to children with depression and non-disordered controls (Daggleish et al., 1997). Further, Suarez-Morales and Bell (2006) examined the threat interpretation of ambiguous situations, the severity of perceived threat, and perceived probability of future threat occurrence in a diverse, community sample of 5th and 6th grade children. Results indicated a robust relationship between worry and interpretation biases, with high worriers reporting more threatening interpretations of ambiguous and threatening situations and greater probability estimates of future threat. Notably, cross-ethnic comparisons did not yield significant differences in interpretative biases between African American, Hispanic, and non-Hispanic White children when SES and stress level were controlled. Research has also indicated that children with GAD endorse greater other-referent probability estimates of threat compared to children with depression; however, these analyses also included children diagnosed with PTSD (Daggleish et al., 2003). Overall, while our understanding of information processing and worry in youth has been enhanced, the way in which these biases develop and interact with other cognitive, social, and contextual variables over time remains understudied.

Metacognition (Beliefs About Worry)

The metacognitive model of worry postulates that metacognitions, or cognitive processes and appraisals that are involved in the perception and regulation of one's

thoughts, are related to the development and maintenance of worry (Wells, 1995). Within the model, metacognition related to worry is conceptualized as involving positive and negative beliefs related to both the content and process of worrying, including appraisals regarding the utility and potential danger of worry (Wells, 1995; Wells, 2004). The metacognitive model delineates positive and negative metacognitive beliefs as temporally interacting with worry processes. Specifically, positive metacognitions are thought to interact with Type 1 worry, or content-based worries about daily events such as finances and physical health (Ellis & Hudson, 2010; Kertz & Woodruff-Borden, 2011; Wells, 1995). It is hypothesized that Type 1 worry is a coping response to an intrusive thought, and is maintained by positive beliefs regarding its utility as a coping strategy. This interaction between Type 1 worry and positive metacognitions is inherent to both clinical and non-clinical worry; however, when Type 1 worry becomes intrusive, negative metacognitions are activated and contribute to the onset of pathological worry. Specifically, negative appraisals about the controllability and danger of worry result in worry about worry, or Type 2 worry. As a result of this activation, an individual may engage in cognitive attempts to control the worry (e.g., thought suppression), behavioral responses to minimize distress (e.g., reassurance-seeking, avoidance of worry triggers), and experience increased negative emotion, which serve as a feedback loop to reinforce metaworry (Ellis & Hudson, 2010; Wells, 1995, 2009).

Indeed, the metacognitive model has been largely supported in adult populations, with factor analyses on both free responses and extant measures of metacognitions consistently supporting a two-factor model consisting of positive and negative consequences of worry (Davey et al., 1996; Freeston et al., 1994; Wells, 2005). For

example, Davey and colleagues (1996) utilized factor analysis to evaluate the responses of 128 undergraduates regarding the negative and positive outcomes related to worry. The findings yielded three factors related to negative consequences and two positive consequences also emerged. In addition to support for a two-factor model, existing literature highlights a relationship between Type 1 worry and a range of anxious psychopathology, including worry proneness and trait anxiety (Cartwright-Hatton, 1997; Davey et al., 1996). Type 2 worry has also been found to be a more significant predictor of pathological worry than Type 1 worry (Wells & Carter, 1999), and has differentiated participants with GAD from those meeting criteria for other anxiety disorders and controls (Wells, 2005; Wells & Carter, 2001). For example, Wells (2005) found that GAD participants endorsed significantly greater levels of meta-worry than those with somatic anxiety and controls. Further, Type 2 worry was found to discriminate GAD participants from controls, even when controlling for Type 1 worry. Notably, this relationship was dependent upon the frequency of meta-worry; however, numerous studies have suggested that negative metacognition is a better predictor of pathological worry than the frequency or content of worry (e.g., Cartwright-Hatton & Wells 1997; Davis & Valentiner 2000; Wells & Carter 2001; Wells & Papageorgiou, 1998).

Albeit limited in comparison, there is burgeoning research examining the role of metacognitions in worry in children and adolescents. At present, there is growing, yet mixed support for the downward extension of the metacognitive model to younger populations. In a review of the available literature, Ellis and Hudson (2010) cite consistent support for the relationship between positive beliefs about worry and worry severity and frequency, yet mixed findings regarding the role of positive beliefs in

clinical and non-pathology worry. Further, largely consistent support for the relationship between high levels of negative beliefs and aspects of worry (e.g., intensity, controllability) has been demonstrated, yet relatively mixed evidence has accrued regarding the relationship between negative metacognitions and pathological worry (Ellis & Hudson, 2010).

Preliminary evidence for the extension of the metacognitive model to children and adolescents has been derived from measure development and validation. Cartwright-Hatton et al. (2004) developed an adolescent version of the Meta-cognitions Questionnaire (Meta-cognitions Questionnaire for Adolescents; MCQ-A) for use in 13-17 year olds. Factor analyses revealed a five-factor model, including factors related to positive beliefs about worry and beliefs regarding its uncontrollability and danger. Adaptations of the Meta-Cognitions Questionnaire for children have also yielded promising support for the original model, including positive meta-worry, negative meta-worry, superstitious/punishment/responsibility beliefs, and cognitive monitoring (Bacow, Pincus, Ehrenreich, & Brody, 2009), which have been associated with excessive worry in a clinical sample. Nascent research examining a modified version of the Meta-Worry Questionnaire in a sample of adolescents suggested that the questionnaire possesses strong psychometric properties and significantly predicted self-reported worry frequency and controllability (Fisak, Mentuccia, & Przeworski, 2013).

In addition to measure validation, emergent work has begun to examine the association of metacognitions and worry in children and adolescents; however, mixed findings have been yielded. Specifically, within the evaluation of a cognitive model to worry in a sample of children and adolescents, Fialko et al. (2013) found that positive

beliefs about worry emerged as a unique contributor to worry in adolescents. Notably, the model suggested that positive beliefs about worry may stem from intolerance of uncertainty, as it served as a lower-ordered factor to IU. In addition, positive beliefs about worry were not found to independently contribute to worry in children, which the authors attributed to the possibility that positive beliefs about worry increase with age. Other work examining cognitive variables in child samples suggests a unique contribution of negative beliefs to worry when regressed with other cognitive vulnerabilities (Kertz & Woodruff-Borden, 2013). Interestingly, in discriminant analyses within the same study, positive beliefs about worry emerged as a significant individual predictor of clinical worry. Again, however, positive and negative beliefs were found to be highly related to IU, as IU mediated the relationship between metacognitions and worry.

Overall, there is growing empirical support for the role of metacognitions in worry in youth; however, available research suggests that this relationship may interact with developmental and other cognitive variables over time. Despite this evidence, the preponderance of research has utilized correlational, direct-effects tests that limit our understanding of the dynamic role of metacognitions in worry development. Furthermore, the existing research has relied solely upon non-Hispanic White populations, thereby inhibiting our understanding of metacognitive processes in diverse youth.

Integrated Models

Although the existing research on cognitive vulnerabilities has predominately focused on the relationship between one variable and worry outcomes, research has begun to examine integrated cognitive models in youth (Fialko et al., 2012; Kertz &

Woodruff-Borden, 2013; Laugesen et al., 2003). Albeit limited, these studies have helped to shed light on the relative influence of cognitive mechanisms in youth and the interactive nature of cognitive vulnerabilities. In an evaluation of an integrated cognitive model in a non-clinical sample of 528 adolescents, Laugesen and colleagues (2003) found that IU, positive beliefs, NPO, and cognitive avoidance accounted for 27% of the variance in self-reported worry when controlling for gender and somatic anxiety symptoms. Notably, IU, positive beliefs, and NPO emerged as significant individual predictors of worry. In addition, the four cognitive variables were found to significantly discriminate moderate and high worriers. Similar results have also been demonstrated in younger children (i.e., ages 8-12; Kertz & Woodruff-Borden, 2013). Specifically, in a school sample of children, metacognitions, NPO, and IU accounted for 41% of the variance in self-reported worry; however, negative beliefs emerged as the only individual predictor worry. Within this study, the cognitive variables were also predictive of worry severity, as they discriminated clinical from non-clinical levels of worry. Despite the discriminative variables as a whole, the study suggested that IU and positive beliefs may be particularly salient to clinical worry, as they emerged as individual predictors.

While the aforementioned studies significantly enhance our understanding of the relative contribution of cognitive factors to worry in youth, the use of correlational methodologies limits the exploration of the interaction of cognitive mechanisms in worry outcomes. To date, one study has utilized structural equation modeling in order to assess the applicability of a cognitive model to children and the interrelationships of cognitive mechanisms (Fialko et al., 2012). Specifically, Fialko and colleagues modeled the relationship of IU, cognitive avoidance, and positive beliefs to worry and anxiety in 515

school-aged children. Results indicated differential best fitting models between children and adolescents in the sample. Within both models, IU served as a higher-order construct that both directly impacted worry and directly influenced worry through other cognitive mechanisms. Variation occurred, however, in the lower-ordered constructs that contributed to worry. Specifically, both cognitive avoidance and positive beliefs were found to contribute to worry in adolescents, but only cognitive avoidance was found as a lower-ordered construct in children (Fialko et al., 2012).

Limitations. Albeit limited, the available research suggests that cognitive vulnerabilities develop and interact over time. While cross-sectional, correlational examinations of cognitive models have enhanced our understanding of the downward extension of cognitive models, they limit knowledge regarding the complex interactions of cognitive vulnerabilities in developing children. Further, the applicability of cognitive models across varying contexts remains nebulous, as the available literature has utilized primarily non-Hispanic White samples of youth. In addition to age and cognitive development, continued work examining the influence of cultural, social, and other contextual factors on cognitive mechanisms is necessary for a more complete understanding of cognitive models across diverse youth.

Culturally-Sensitive Cognitive Model of Worry in African American Youth

As the reviewed literature indicates, cognitive factors appear to play an integral role in the development of worry in children and adolescents. Specifically, emergent work has provided particularly strong support for the relationship of intolerance of uncertainty, negative problem orientation, information processing, and metacognitive beliefs to worry in younger

populations (Cartwright-Hatton, 2006; Fialko et al., 2012; Kertz & Woodruff-Borden, 2013; Laugesen et al., 2003). While our understanding of these individual variables has been increasingly enhanced over the past decade, additional research is needed to more fully elucidate the applicability of cognitive models to children (Fialko et al., 2012; Kertz & Woodruff-Borden, 2013). Specifically, continued research is needed to test coherent cognitive models in order to examine the interactive nature of these variables in child samples.

In addition, integrated empirical models need to be examined across diverse child populations, including African American youth. At present, support for the relationship of cognitive vulnerabilities to worry has been derived largely from non-Hispanic White samples. Thus, it is unknown whether these associations generalize to African American youth and capture the process of worry in this population. While examining the relationship of cognitive factors to worry in African American children is imperative, the literature indicates that sociocultural variables are important to consider in this investigation (Barlow, 1991; Hunter & Schmidt, 2010; Mineka & Zinbarg, 2006). Specifically, contextual factors may influence one's perceptions and beliefs about threat, distress, and coping and therefore modify the nature of the relationship between vulnerabilities and outcomes. As such, research is needed to clarify the potential interaction of sociocultural variables and integrated cognitive vulnerabilities in worry outcomes in African American youth.

In order to address the aforementioned limitations of extant research on worry in African American youth, a culturally-sensitive cognitive model of worry in African American children is delineated (see Figure 1). The proposed model represents an integration of existing literature on cognitive models of worry and sociocultural processes endemic to the African American childhood context in order to clarify cognitive processes related to worry in African

American youth and potentially explain cross-ethnic variation in worry development. Specifically, the model seeks to explain the interaction of predisposing cognitive factors and culturally-specific protective processes that may impact the emergence of worry in African American youth. The proposed model transcends existing direct-effect methodologies that conceptualize both cognitive and sociocultural factors as demonstrating a static relationship to worry by providing a framework for understanding the dynamic, multidimensional interaction of the risk and protective processes in worry outcomes. Within the model, none of the variables (e.g., intolerance of uncertainty, religious coping) are required or work in isolation to produce or mitigate worry development. As such, the process-oriented framework put forth by the proposed model accounts for multiple pathways to both the development and mitigation of worry manifestation that are neglected by direct-effect models.

The proposed model is nested within existing integrated cognitive models of worry (Kertz & Woodruff-Borden, 2010). Although our understanding of these models remains limited in African Americans, the limited available research suggests that empirically-supported cognitive variables in representative and non-Hispanic Whites samples are similarly associated with worry in this population (Norton, 2005; Rucker et al., 2010; Suarez-Morales & Bell, 2006). As such, the proposed model hypothesizes that IU, information processing, NPO, and beliefs about worry serve as cognitive vulnerabilities to the development of worry in African American children. As research suggests, these cognitive factors likely interact and reinforce one another (Fialko et al., 2012). For example, when a child is intolerant of uncertainty, they are likely to attend to threat cues when confronted with uncertain situations (i.e., information processing), perceive themselves as unable to cope effectively with the uncertain situations (i.e., negative problem orientation), and may believe that worry will help

them cope with their associated distress (i.e., metacognitions). While these interactions are probable, the extent to which they are present and impact worry development likely vary at the individual level, and is therefore unspecific in the current model. Certainly, the impact and manifestation of these cognitive factors are expected to vary as a function of time and various aspects of a child's development (see Kertz & Woodruff-Borden, 2011).

Despite the likelihood that the aforementioned cognitive vulnerabilities are associated with worry in African American youth, this understanding remains grounded in a largely Eurocentric perspective. Indeed, our understanding of the developmental processes of anxiety and worry has been predominately derived from non-Hispanic White populations, and African American children have been historically underrepresented in worry research (APA, 2008; Chapman et al., 2009; Scott et al., 2002; Suarez-Morales & Bell, 2006). In order to address these limitations and elucidate the potential influence of cultural variables on worry development, the proposed model integrates a factor of sociocultural influence within an existing cognitive model of worry.

Culturally-Specific Factors. Research has consistently demonstrated the increased risk of internalizing pathology in African Americans due to experiences such as oppression, low economic status and stress (Chen, 2010; McMahon, Coker, & Parnes, 2013; Sanchez, Lambert, & Cooley-Strickland, 2013). Despite these risks, however, African American adults and youth generally demonstrate lower rates of internalizing disorders and processes, including worry and GAD (Breslau et al., 2006; Carter et al., 2005; Grant et al., 2005; Wittchen et al., 1994). Given these findings, research has sought to understand the unique experiences and competencies that emerge from African American culture and promote positive adaptation in the face of risk (APA, 2008; Barbarin, 1993; Gaylord-Harden, Burrow, & Cunningham, 2012).

Such exploration has highlighted the protective role of culturally-specific coping responses to a myriad of psychological and developmental outcomes (Constantine et al., 2002; Gaylord-Harden et al., 2012; Utsey et al., 2007).

Culturally-specific coping refers to strategies utilized within African American cultures to mitigate adversity and stress (Gaylord-Harden et al., 2012). Emerging from cultural experiences endemic to African Americans such as discrimination and oppression, culturally-relevant coping responses are grounded in an African-centered worldview and based upon African heritage and culture (Chambers et al., 1998; Utsey, Adams, & Bolden, 2000). For example, research has highlighted the role of racial socialization, religious coping, and collectivistic coping/kin networks to positive psychosocial outcomes in African Americans (Chapman & Steger, 2010; Gaylord-Harden et al., 2012; Hughes et al., 2006). These responses may promote adaptive outcomes beyond individual, Eurocentric coping mechanisms in African American populations. Indeed, in a sample of 361 African American adults, Utsey and colleagues (2007) found that culturally-specific coping contributed unique variance to a measure of quality of life above and beyond traditional protective factors (e.g., cognitive factors, social support). While our understanding of cultural coping responses has often been derived from adult samples, these processes permeate the context of African American youth. For instance, African American children and adolescents have been found to utilize culturally-specific coping responses, including collective coping and religious coping, when faced with both stress and adverse situations (Constantine et al., 2002; Gaylord-Harden & Cunningham, 2009; Spencer, Fegley, & Harpalani, 2003). Further, culturally-specific coping responses have been found to mitigate negative outcomes for youth, including internalizing symptomatology (Gaylord-Harden & Cunningham, 2009). In a sample of 268 African American adolescents,

Gaylord-Harden and Cunningham (2009) found that communalistic coping moderated the relationship between discrimination stress and internalizing symptoms.

Although the protective role of culturally-specific processes to worry outcomes in African American youth has yet to be empirically investigated, several lines of research suggests a potential interaction between these processes and cognitive vulnerabilities endemic to worry development. As such, relevant literature regarding the culturally-specific coping processes of racial socialization, religious coping, and collectivism/kinship networks will be reviewed. Given the nascent nature of the examination of these processes within African American youth, related adult literature will also be highlighted.

Racial Socialization. Racial socialization refers to a set of parenting behaviors and processes through which minority parents transmit information and expectancies about race and ethnicity to their children (Hughes et al., 2006; Stevenson, Cameron, Herrero-Taylor, & Davis, 2002). Research suggests that the preponderance of African American parents engage in racial socialization practices that communicate a range of dynamic messages regarding race (Coard, Wallace, Stevenson, & Brotman, 2004; Hughes, 2003, 2006). In their review of the existing literature, Hughes and colleagues (2006) operationalized racial socialization as consisting of themes regarding cultural socialization (e.g., cultural heritage), preparation for bias, promotion of mistrust, and egalitarianism/silence about race. These practices have been purported to protect African American children from institutionalized stressors, and racial socialization has been linked to a myriad of developmental outcomes (see Hughes et al., 2006). Specifically, research suggests that racial socialization is related to both internalizing and externalizing

symptomatology in African American youth (Caughy, O'Campo, Randolph, & Nickerson, 2002).

Although racial socialization remains unexplored within the context of worry, several lines of work suggest a potential protective effect of this sociocultural variable to worry development. Specifically, the available literature highlights the role of racial socialization in facilitating adaptive and culturally-relevant coping in response to adversity and distress (Hughes, 2003; Phinney & Chavira, 1995). Indeed, studies evaluating the content of the information transmitted throughout racial socialization indicate a range of messages, including communication regarding effective coping strategies when faced with adverse interpersonal events (Hamm, 2001; Hughes & DuMont, 1993; Ward, 1991). While this coping has been largely examined within the context of discriminatory experiences, racial socialization may serve as a mitigating factor between more global stressors and negative outcomes for African American youth through its impact on coping behaviors (see Gaylord-Harden et al., 2012). For example, in a study of 218 parents of African American first graders, Caughy, Nettles, and Lima (2011) found that racial socialization practices characterized by an emphasis on coping and cultural pride were associated with lower behavioral problems and internalizing symptoms in the youth.

Despite limited direct evaluation, the literature suggests that racial socialization may moderate the relationship between cognitive vulnerabilities and worry outcomes. For example, available research highlights a relationship between perceived racial socialization and coping strategies employed during uncertain and potentially threatening experiences (Scott, 2003, 2004). In a sample of 74 African American adolescents, Scott

(2004) found that racial socialization significantly contributed to the utilization of support-seeking and problem-solving strategies to cope with perceived discrimination. In addition, a growing body of literature highlights the relationship between racial socialization practices, self-esteem, and self-efficacy in African American youth (Blash & Unger, 1995; Phillips-Smith et al., 1999; Stevenson, Reed, Bodison, & Bishop, 1997). In particular, several studies have yielded a positive relationship between racial socialization and self-esteem (Constantine & Blackmon, 2002; Stevenson et al., 1997). Given that self-esteem has been found to be related to social problem solving abilities, perceived problem solving confidence, and negative problem orientation (D'zurilla, Chang, & Sanna, 2003; Lochman & Lampron, 1986), it stands to reason that racial socialization practices may impact African American children's perception of their ability to effectively manage problems and adversity in daily life.

In addition to promoting adaptive coping responses to situations perceived as threatening and uncertain, existing work suggests that racial socialization may deter the use of worry in response to cognitive vulnerabilities. Indeed, cultures have been found to facilitate and discourage the use of specific coping responses (Slavin, Rainer, McCreary, & Gowsa, 1991), and African Americans may demonstrate differential beliefs regarding the utility of worry as a response to anxiety. For example, in a study of anxiety in African American women, Neal-Barnett and Crowther (2000) found that the majority of women did not seek mental health treatment by choice. The authors posit that despite awareness of their cognitive symptoms of anxiety, African Americans consciously engaged in the dismissal of these symptoms, which may indicate perceptions of worry as an ineffective coping response to dealing with distress. As such, African Americans may employ other

coping strategies to deal with distress associated with cognitive vulnerabilities to worry. In particular, through racial socialization African American children may learn about culturally-sanctioned coping mechanisms. Indeed, research demonstrates a relationship between strong cultural identification and the utilization of culturally-relevant coping strategies in African American adolescents (Constantine et al., 2002).

Religious Coping. Religion and religious involvement have historically played central roles in the lives of African Americans and been used to mitigate negative experiences of oppression (Billingsley & Caldwell, 1991; Boyd-Franklin, 2003; Frazier, Mintz, & Mobley, 2005). In particular, faith-based social networks and religion have traditionally served as sources of support for African Americans and have been utilized to cope with life stressors (Boyd-Franklin, 2003; Chatters et al., 2008). Research has indicated that the benefits of religious coping, which involves utilizing one's beliefs about a higher power when faced with adversity, may be particularly salient for African Americans (Chatters et al., 2008; Utsey, Adams, & Bolden, 2000). Within adult samples, positive religious coping has been related to a variety of psychosocial outcomes, including anxiety (Chapman & Steger, 2010; Ellison, Boardman, Williams, & Jackson, 2001). For example, in a sample of African American and European American young adults, Chapman and Steger (2010) found that positive religious coping was related to less anxiety in African Americans.

Despite limited evaluation, research suggests that spirituality and religious coping may permeate the childhood context of African Americans. Specifically, research indicates that African American children with higher collective self-esteem utilize spiritual-centered coping strategies more frequently to deal with life stressors

(Constantine et al., 2002). Additionally, familial religiosity has been found to impact African American adolescent outcomes, with higher levels of parental religiosity related to significantly fewer internalizing and externalizing difficulties in youth (Brody, Stoneman, & Flor, 1996). These findings paired with cross-ethnic differences in GAD in childhood have led researchers to posit that religious constructs in the early environment of African American children may protect against the development of GAD (Breslau et al., 2006).

Although a direct examination remains absent from the current literature, religiosity and religious coping may moderate the relationship between cognitive variables and worry in African American youth. Specifically, several lines of research implicate religious coping as a salient strategy utilized by African Americans in response to distress and anxiety. Indeed, psychological frameworks that seek to explain the association between religious variables and mental health posit that religious practices may be utilized to gain control or manage one's appraisals or reactions to threatening events (Taylor, Chatters, & Levin, 2004), may promote self-regulation of metacognitive beliefs (James & Wells, 2003), and foster one's appraisals of their ability to cope with stress (James & Wells, 2003). Further, research consistently indicates that African Americans utilize religious coping when confronted with adversity, personal problems, and uncertain situations more than other racial or ethnic groups (Chatters et al., 2008; Ellison & Taylor, 1996; Mattis, 2002; Spencer et al., 2003). Notably, African Americans use religious coping strategies more frequently than cognitive or emotional coping strategies when faced with stress (Constantine, Wilton, Gainor, & Lewis, 2002) and are more likely to

seek help from faith-based sources and social networks for anxiety concerns (Chatters et al., 2008).

Kinship Networks/Collectivism. A collectivistic worldview, in which the self is viewed as an interdependent part of a collective group, is another characteristic of African American culture (Allen & Bagozzi, 2001; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). Within this collective, kin relationships appear to be particularly relevant to the development and psychological outcomes of African American youth (Boyd-Franklin, 2003; Caldwell & Koski, 1997; McCabe, Clark, & Narnett, 1999; Murry et al., 2001). In particular, African American adults and children have been found to employ relational coping strategies when facing adversity more than their non-Hispanic White counterparts (Kenny & Stryker, 1996; Tolan et al., 2002). Further, familial support and collective identity have been found to be related to a range of psychosocial outcomes in African American youth (Taylor, 1996; Lamborn & Nguyen, 2004), including anxiety (Zimmerman, Ramirez-Valles, Zapert, & Maton, 2000).

While an exploration of the impact of kinship networks and collectivism on worry outcomes is absent from extant literature, existing work highlights the role of these constructs to adaptive coping in African Americans. Indeed, the kin support and collectivism endemic to African American culture may promote a thinking style in which individuals perceive themselves as interdependent and supported in the face of adversity of stressful situations (Allen & Bagozzi, 2001). Perhaps related, research has demonstrated an association between collective identity and numerous positive social outcomes (Allen & Bagozzi, 2001). While the mechanisms underlying this relationship remain largely unexplored, kin support may impact one's appraisals of events.

Specifically, research has demonstrated an association between kinship support and dispositional optimism, which is defined as an orientation in which one tends to expect positive outcomes as a result of internal, stable characteristics (Lee & Seligman, 1997; Peterson, 2000). Utilizing a sample of 149 African American adults, Mattis, Fontenot, and Hatcher-Kay (2003) found a significant relationship between self-reported friendship support and dispositional optimism. While the aforementioned study did not examine this relationship within the context of worry, other work has demonstrated an association between dispositional optimism and lower levels of internalizing symptomatology and psychological distress (Chang, 1998; Chang, Maydeu-Olivares, & D’Zurilla, 1997; Vickers & Vogeltanz, 2000). As such, it is plausible that the perceived support inherent to African American culture may reduce appraisals of threat and foster adaptive coping strategies in the face of distress.

Research also highlights the possible impact of collectivism and kin networks on African Americans’ secondary appraisals of their ability to cope with threat and distress. Collective identity is related to one’s self-referent appraisals of threatening situations and subsequent coping behaviors (see Branscombe, Schmitt, & Harvey, 1999). Specifically, in-group identification is related to attributing race-based threat to one’s group status rather than individual competency (Branscombe et al., 1999). As such, it is possible that African American children view themselves as supported in the face of threat, thus promoting more adaptive secondary appraisals. Although unstudied within the context of worry, research has found that community support may promote perceptions of predictability and control in African American youth and promote more positive psychological outcomes (Yakin, McMahon, & University, 2003).

Literature also suggests that both African American adults and children frequently use support-seeking and relational coping strategies when faced with stress and perceived problems (Chapman & Mullis, 2000; Daly & Beckett, 1995; Moore & Constantine, 2005; Taylor, 1996; Utsey et al., 2007). The extended family and kinship network endemic to African American culture appears particularly salient to these coping processes and has been described as a “problem-solving and stress-coping system that addresses, adapts, and commits available family resources (e.g., emotion support) to normal and non-normal situations (Harrison et al., 1990, p. 350).” Literature supports cultural variations in the organization of social problem solving and indicates that these differences may emerge in early life. Specifically, in a comparison of problem solving between African American and European American child siblings (age 6-12), Budak and Chavajay (2012) found that African American siblings engaged in more collaborative problem solving strategies when given a construction task than their European American counterparts. Additionally, Murry and colleagues (2001) reviewed literature highlighting the protective nature of extended kin networks to child developmental outcomes.

In light of these findings regarding the potential protective nature of racial socialization, religious coping, and kin networks/collectivism, the proposed model attempts to elucidate the relationship of culture to cognitive vulnerabilities and worry in African American youth. Specifically, the model integrates a higher-order factor of culturally-specific coping processes that may be salient to African American youth and may buffer the association between intolerance of uncertainty, negative problem orientation, information processing biases, and metacognitive beliefs and worry. Given that cognitive models conceptualize worry as a response to the distress associated with

the aforementioned cognitive vulnerabilities, racial socialization, religious coping, and collective coping/kinship networks may serve as alternative coping responses to this distress for African American youth. Additionally, as the reviewed literature demonstrates, culturally-specific coping strategies may be more salient and reinforced within African American youth's context, thus increasing the likelihood of their utilization. Consistent with previous models delineating the nature of protective cultural influences (Garnezy et al., 1984; Fergus & Zimmerman, 2005; Zolkoski & Lyndal, 2012), the proposed model posits that culturally-specific coping responses represented by the integrated sociocultural factor will diminish the relationship between cognitive vulnerabilities and worry in African American youth.

Overall, the proposed model seeks to account for multiple culturally-specific coping processes that may influence worry manifestation in African Americans through its integration of existing research on African American youth within the theoretical underpinnings of cognitive models of worry. In an attempt to expand existing models and direct-effect methodologies, the model utilizes a process-oriented approach in its delineation of the interaction of sociocultural variables and cognitive factors associated with worry in African American youth. Indeed, the model posits that the cultural processes are likely dynamic and bidirectional in nature, and may decrease the risk associated with cognitive vulnerabilities to worry development in a multitude of coping trajectories.

Developmental considerations. While the aforementioned model is hypothesized to be applicable to both children and adolescents, there is recognition that the extent to which worry and related processes develop vary given the cognitive development of the child.

Although young children (i.e., 3-6 years old) have been found to demonstrate worry (Muris, Merckelbach, Gadet, & Moulaert, 2000), one's potential to worry (particularly to a pathological level) increases with age and cognitive developments. Given the nature of worry, it has been suggested that a child must be able to mentally conceptualize the future, identify multiple negative implications of thoughts, and be capable of verbally representing threatening information (Vasey, 1993). Research has supported this notion, with increases in age being associated with increased worry (Chorpita, Tracey, Brown, Collica, & Barlow, 1997; Strauss, Lease, Last, & Francis, 1988). As such, the proposed model may not be as applicable to young children who do not possess the aforementioned cognitive capabilities; however, future longitudinal work is warranted to explore how cognitive and sociocultural factors influence worry development over time.

The Current Study

The proposed model is notable due to its attempt to ground the conceptualization and understanding of worry development within an Africentric perspective. The integration of culturally-specific processes significantly diverges from extant models that have been largely derived from a Eurocentric worldview and data from non-Hispanic White samples. The limited research that has explored worry in African Americans and diverse samples predominately utilizes comparative designs to assess worry content and severity. Although this literature represents a first step in the examination of worry across cultures, it has limited our understanding of worry in African Americans in that findings simply highlight differences in the phenomenological experiences of worry from Eurocentrically normative data. As such, knowledge regarding the factors associated with the development of worry, as well as sociocultural influences on the emergence of worry remains unknown. The examination of the

relationships of these processes to worry within African American child samples will be an imperative step to clarify how worry unfolds within this population. Such information is crucial for the development of culturally-sensitive interventions to mitigate risk processes and prevention programs to build upon the unique competencies and protective factors within the African American context.

Hypotheses

The proposed model was created to explain the potential influence of cultural constructs within a cognitive model of worry in order to 1) delineate the cognitive variables associated with worry development in African American youth, as well as 2) account for sociocultural variables that may interact with cognitive factors to mitigate worry development in African American children and adolescents. In order to provide a preliminary evaluation of the basic tenets of the model, the current study seeks to examine the role of cognitive factors and culturally-specific coping responses in an exclusively African American child sample. As delineated in Figure 1, the proposed model indicates that the cognitive factors of intolerance of uncertainty, negative problem orientation, information processing, and metacognitive beliefs are associated with worry. Specifically, these factors are posited to exert both interactive and individual effects on worry levels. In addition, the model purports that culturally-specific factors, including racial socialization, religious coping, and collective coping, interact with the aforementioned cognitive vulnerabilities to influence worry manifestation. In particular, the enumerated sociocultural variables moderate the relationship between cognitive factors and worry by minimizing their negative relationship. In order to provide a preliminary analysis of the underlying tenets of the model, the current study explores the individual contribution of intolerance of uncertainty, negative problem orientation,

metacognitive beliefs, positive religious coping, racial socialization, and collective coping to child worry, as well as the interaction of these variables. While information processing is included in the conceptual model due to support for its role in worry, the most accepted measurement paradigms for this construct include Stroop and visual probe methodologies. As such, the assessment of information processing biases is beyond the scope of the current study. Therefore, the current study aims to examine the following three hypotheses:

Hypothesis 1. Intolerance of uncertainty, negative problem orientation, and positive and negative beliefs about worry will significantly contribute to child worry in an African American sample. Specifically, it is predicted that cognitive vulnerability factors will demonstrate a positive relationship with child worry, with greater levels of intolerance of uncertainty, negative problem orientation, and beliefs about worry being related to higher levels of worry.

Hypothesis 2. There will be a significant negative relationship between culturally-specific protective factors and worry in participants. Specifically, higher levels of reported religious coping, collectivism, and racial socialization will be related to lower levels of reported worry.

Hypothesis 3. Culturally-specific protective factors will moderate the relationship between cognitive vulnerability factors and worry in African American youth. Specifically, it is hypothesized that higher cumulative levels of religious coping, racial socialization, and collectivism will be related to a decreased positive relationship between cumulative cognitive factors (i.e., intolerance of uncertainty, positive beliefs about worry, negative beliefs about worry, and negative problem orientation) and self-reported worry.

METHODS

Power Analysis

An a priori power analysis for the proposed study was conducted using G*Power 3.1.3 (Erdfelder, Faul, & Buchner, 1996). Given the exploratory nature of the proposed study, a medium effect size of .15 was utilized for the power analysis. Further, in order to obtain a conservative estimate for the necessary sample size, the highest number of potential predictors (i.e., 7) was entered. Results indicated that a multiple linear regression model analyzing the effects of cognitive vulnerability factors and culturally-specific factors on child worry outcomes would require a minimum sample size of 43 to detect a medium effect size ($f^2=.15$) with an alpha of .05 and a power of .80. Thus, a total of 43 children were required for this study.

Participants

Participants in the current study included 50 African American, biological parent-child dyads recruited from the Louisville community. The children in the sample ranged in age from 8 to 13 ($M=10.46$, $SD=1.91$) and 62% were female. The parents that participated in the current study were predominately mothers (92% female, 8% male), and ranged in age from 24 to 58 with a mean age of 34.42 ($SD= 6.23$). The sample largely fell in the low to lower-middle income brackets, with 85.7% of the sample earning less than \$40,000 annually. Although the sample yielded largely lower incomes,

the preponderance of the parents were highly educated, endorsing at least some college education. This discrepancy between education level and income likely reflects the fact that a substantial portion of the parents in the current sample were currently enrolled in college. Indeed, a large percentage of the participants were recruited through a non-profit organization that provides educational and residential assistance to families who have experienced generational poverty. For additional participant demographics, see Table 1.

Measures

Demographic Questionnaire. A demographic questionnaire was created for the current study. The demographic questionnaire consisted of 11 items that obtained information pertaining to the participant's gender, age, parental marital status, parental education level, family size, and annual household income. Participant age was assessed using an open-ended format, and gender was obtained through a closed-ended question. The participant's income was assessed in a closed-ended format in which participants chose the most accurate estimate of their annual household income. Responses were coded as 1= *less than \$10,000*; 2= *\$10,000-\$19,999*; 3= *\$20,000-\$29,999*; 4= *\$30,000-\$39,999*; 5= *\$40,000-\$49,999*; 6= *\$50,000-\$59,999*; 7 = *\$60,000-\$69,999*; 8= *\$70,000-\$79,999*; 9= *\$80,000-\$89,999*; and 10= *\$90,000+*. Education was assessed by asking participants to select the response that included their highest grade completed. Responses were coded as 1= *Grades 9, 10, or 11*; 2= *high school graduate*; 3= *some college or specialized training*; 4= *college graduate*; and 5= *graduate or professional training*. Marital status was also assessed utilizing a multiple-choice format. Responses were coded as 1= *single without partner*; 2= *single with partner*; 3= *married*; 4= *divorced and remarried*; 5= *divorced and single*; 6= *separated*; and 7= *never been married*.

Child Measures.

Penn State Worry-Child (PSWQ-C; Chorpita, Tracey, Brown, Collica, & Barlow, 1997). The Penn State Worry Questionnaire-Child Version is a 16-item self-report measure designed to assess worry in children and adolescents ages 7-18. Participants indicate the extent to which each item is accurate for them utilizing a four point Likert scale with verbal anchors (i.e., 0= never true, 3= always true). The PSWQ-C has demonstrated good internal consistency in community and school samples of children and adolescents, with Cronbach's alphas ranging from .82 to .89 (Chorpita et al., 1997; Muris, Meesters, & Gobel, 2001). Within clinical samples, the PSWQ-C has yielded excellent one week test-retest reliability ($r = .92$; Chorpita et al., 1997) and internal consistency ($\alpha = .91$; Pestle, Chorpita, & Schiffman, 2008). Factor analytic studies have consistently supported a unifactorial model of the measure when the three reverse-scored items are eliminated (Chorpita et al., 1997; Muris et al., 2001; Pestle et al., 2008). Validity analyses of the PSWQ-C have found this measure to be significantly convergent with related constructs, including GAD diagnosis, self-reported GAD symptoms, depression, self-reported anxious symptoms, and negative affect (Chorpita et al., 1997; Esbjorn et al., 2013; Muris et al., 2001; Pestle et al., 2008). Internal consistency was good in the current sample ($\alpha = .85$).

Cognitive factors.

Intolerance of Uncertainty Scale-Child Adaptation (IUS-C; Comer et al., 2009). The original Intolerance of Uncertainty Scale was developed in French and consists of 27 items utilized to assess one's perceptions of the unacceptability of uncertainty, and beliefs that uncertainty of ambiguous situations results in frustration, stress, and difficulty

taking action. The measure demonstrated excellent internal consistency, good test-retest reliability, and adequate criterion validity in its ability to distinguish high from low worriers in a non-clinical sample (Dugas et al., 1997; Freeston et al., 1994). An English version of the measure was created for use in adult samples, and has also demonstrated excellent internal consistency ($\alpha = .94$) and test-retest reliability ($r = .74$) in a non-clinical sample. In order to assess the construct of IU in children and adolescents, Comer and colleagues (2009) adapted the English adult version of the IUS. Specifically, items were adapted in order to reduce the metacognitive content and complex understanding of cognitions, to eliminate figurative and complex language that may not be accessible to children, and to minimize the use of polysyllabic words. The child adaptation yielded a 27 item measure in which children rate the extent to which they agree with each item on a 5-point Likert Scale (1= not at all, 3= somewhat, 5= very much). Item responses are summed, with higher scores reflecting a greater intolerance of uncertainty. The IUS-C has demonstrated excellent internal consistency in both clinical and community samples of children, with Cronbach's alphas of .94 and .91, respectively (Comer et al., 2009). The measure has also demonstrated strong convergent validity with related constructs, including worry, anxious symptomatology, and reassurance-seeking behavior, in a mixed sample of community and anxiety-disordered youth (Comer et al., 2009). Notably, this convergent validity was found across varying age cohorts (i.e., children ages 7-8 and adolescents ages 16-17; Comer et al., 2009). The total score of the IUS-C was utilized in the current study to represent intolerance of uncertainty. The IUS-C yielded excellent internal consistency in the current sample ($\alpha = .95$).

Metacognitive Questionnaire for Children (MCQ-C; Bacow et al., 2009). The MCQ-C is a 24-item self-report measure that assesses levels of cognitive monitoring, positive meta-worry, negative meta-worry, and superstitious responsibility (SPR) beliefs in children 7 to 17 years in age. The MCQ-C was adapted from the 30-item Metacognitions Questionnaire for Adolescents (Cartwright-Hatton et al., 2004). Items were revised in order to be applicable to a broader range of children, including the removal of complex or advanced language, the reduction of polysyllabic words, and the modification of non-colloquial terms for American youth (Bacow et al., 2009). The child version of the MCQ also eliminated the cognitive confidence scale of the MCQ-A. The adapted MCQ-C asks children to indicate the extent to which they agree with statements on a 4-point Likert scale (1= do not agree, 4= agree very much). The items are summed and comprise four subscales, including Cognitive Monitoring, Positive Meta-Worry, Negative Meta-Worry, and SPR Beliefs. Factor analyses have confirmed the aforementioned scales, yielding a best-fitting four factor model of the MCQ-C (Bacow et al., 2009). The measure has also demonstrated good internal consistency in a comparative sample of clinical and non-clinical youth, with subscale coefficients ranging from .75 to .87 (Bacow et al., 2009). The MCQ-C has also demonstrated good concurrent and criterion validity (Bacow et al., 2009). Age comparisons of the MCQ-C suggest that older children may endorse higher levels of cognitive monitoring; however, no other significant age differences have been demonstrated (Bacow et al., 2009). The Positive Meta-Worry and Negative Meta-Worry subscales served as indicators of positive beliefs about worry and negative beliefs about worry, respectively, in the current study. The Positive Meta-

Worry subscale and the Negative Meta-Worry subscale yielded good internal consistency in the current sample ($\alpha = .85, .77$, respectively).

Negative Problem Orientation- Child Version (NPO-C). Measures assessing negative problem orientation in children and adolescents are currently absent from the literature. Given this limited availability of extant measures, an adaptation of the Negative Problem Orientation Questionnaire (Robichaud & Dugas, 2005) was utilized. The Negative Problem Orientation Questionnaire (Robichaud & Dugas, 2005) is a 12-item self-report measure that assesses one's level of negative problem orientation, including the tendency to perceive problems as threatening, to doubt one's problem-solving abilities, and to anticipate negative outcomes associated with problems. Participants indicate the extent to which each item reflects the way they react or think when confronted with a problem using a 5-point Likert scale (1= "not at all true of me", 5= "extremely true of me"). Psychometric analyses of the NPOQ within non-clinical adult samples have yielded excellent internal consistency ($\alpha = .92$) and strong test-retest reliability ($r = .80$). The NPOQ has also been shown to demonstrate significant associations with related constructs, including other measures of negative problem orientation, pessimism, subjective anxiety, and worry (Robichaud & Dugas, 2004; Robichaud & Dugas, 2005). Examinations of the measure's construct validity indicate that the NPOQ demonstrates greater specificity to worry than depression (Robichaud & Dugas, 2005²). Further, factor analytical studies of the NPOQ in adult samples have yielded a unifactorial model (Robichaud & Dugas, 2005¹). For the purposes of the current study, the 12 items of the NPOQ were revised to increase accessibility to children and adolescents. Specifically, the adapted child measure revised wording to reflect a third-

grade reading level and reworded or eliminated more complex concepts (e.g., “I see problems as a threat to my well-being,” became “I see problems as scary.”). The total score of the NPOQ-C was utilized as a measure of negative problem orientation in the current study, and demonstrated good reliability with a Cronbach’s Alpha of $\alpha = .89$.

Culturally-specific protective factors. Given a lack of measures assessing the sociocultural constructs of racial socialization, positive religious coping, and collective coping, existing adult self-report measures were adapted for the purpose of the current study. In order to ensure that the children demonstrated a sufficient awareness of sociocultural processes and constructs to produce valid responses to these measures, culturally-sensitive trained research assistants queried each child’s understanding of ethnicity and culture. Specifically, prior to the administration of the adapted measures, children were first asked to self-identify their ethnicity. Although the children demonstrated varied language (e.g., Black), all children in the sample self-identified as African American. Further, when prompted to generate examples of other ethnic groups, the majority of children were able to accurately identify other classifications of ethnic status (e.g., Hispanic, Asian American). If the child did not appear to possess a clear understanding of ethnicity, additional explanation was provided by the trained research assistants. In particular, it was explained that there are many different ethnic groups that people belong to, and examples of these groups were provided. The children were also informed that ethnic groups were based upon not only differences in external appearances and biological factors (e.g., ancestors from Africa), but also culturally-based traditions and preferences, such as diet, music, and celebrations.

Overall, the children in the sample appeared to have an understanding of culture and ethnicity sufficient to assess the sociocultural constructs. Not surprisingly, the depth of this understanding tended to vary based upon the child's age and developmental level. Indeed, younger children in the sample tended to provide more concrete, observable descriptions of ethnicity, such as differences in physical features. However, the older children more readily incorporated elements of culture, such as traditions and history, into their dialogue regarding ethnicity. This observation is consistent with previous research that suggests that a child's understanding of ethnicity relates to their cognitive development. For instance, it has been posited that as a result of the development of concrete operational skills, children begin to exhibit more accurate and mature categorizations of themselves and others between the ages of 6 and 10 (see Quintana, 1998). While future research should explore the nuances of how this understanding develops over time, the children in the study appeared to have an adequate understanding of the assessed constructs for the purposes of this study.

Brief Religious Coping- Child Version (Brief-RCOPE; Pargament, 1999). Due to a lack of measures assessing religious coping in children and adolescents, an adapted version of the Brief RCOPE was utilized in the current study. The Brief RCOPE is an adult self-report questionnaire consisting of 10 items designed to assess the extent to which an individual engages in religious coping behaviors using a 4-point Likert-type scale ranging from "not at all" to "a great deal." Based on factor analyses, the Brief RCOPE is comprised of two subscales, including Positive Religious Coping and Negative Religious Coping. The Positive Religious Coping subscale reflects positive religious coping behaviors such as religious forgiveness, seeking spiritual support, collaborative

religious coping, spiritual connection, religious purification, and benevolent religious reappraisals (e.g., “I look to God for strength, support, and guidance in crisis.”). The Negative Religious Coping subscale contains items designed to measure religious attitudes that direct one away from utilizing religious coping, such as spiritual discontent, punishing God reappraisals, interpersonal religious discontent, and reappraisals of God’s powers (e.g., “I wonder whether God has abandoned me.”). The 10 items of the Brief RCOPE were revised for the proposed study to reflect a third grade reading level and to reduce the use of complex language and concepts. The adult version of the Brief RCOPE has demonstrated strong reliability for the Positive Religious Coping subscale across diverse populations, including African American women (Bradley, Schwartz, & Kadlow, 2005; Pargament, Feuille, & Burdzy, 2011); however, the Negative Religious Coping subscale has generally demonstrated less reliability across populations ($\alpha=.54-.70$, Egbert, Micklye, & Coeling, 2004; Pargament et al., 2011). Given extant literature suggesting less reliability of the Negative Religious coping scale, as well as research indicating a protective function of positive religious coping (Chapman & Steger, 2010), the Positive Religious Coping subscale of the adapted Brief RCOPE was utilized, and yielded good internal consistency ($\alpha= .84$).

Racial Socialization- Child Report (Hughes & Johnson, 2001). Due to a lack of measures assessing children’s perceptions of their racial socialization experiences, the current study utilized an adapted version of the Racial Socialization- Parent Report. The Racial Socialization- Parent Report is a 15-item measure designed to assess the frequency of parenting behaviors and communication related to race and intergroup relations. Within the parent version, parents indicate the frequency that they have engaged in a

specific behavior with their children. The Racial Socialization- Parent Report was created to assess four dimensions of racial socialization, including Cultural Socialization, Preparation for Bias, Promotion of Mistrust, and Pluralism (Hughes & Johnson, 2001). The Cultural Socialization domain reflects parents' practices that teach children about the culture, heritage, and history of one's racial group. The Preparation for Bias facet assesses the extent to which parents educate children about prejudice and discrimination. The Promotion of Mistrust dimension assesses the degree to which parents communicate warnings or reinforce mistrust of other cultural groups. Finally, the Pluralism domain measures the extent to which parents promote knowledge regarding diversity and awareness of other racial groups. While the items were intended to reflect the four aforementioned domains, factor analyses suggest a best fitting 3-factor model. Specifically, Cultural Socialization and Pluralism were not statistically distinguished within preliminary factor analyses, and therefore were merged into a single factor. The three distinct factors of the Racial Socialization- Parent Report have demonstrated strong reliability ($\alpha = .73-.86$; Hughes & Johnson, 2001). The 15 items of the parent version of the measure were revised for the current study to assess children's perceptions of their parent's racial socialization practices. Specifically, items were adapted to reflect a third grade reading level, to reduce the use of polysyllabic language, and to minimize the inclusion of complex language and concepts. Given that African American parents endorse more frequently engaging in Cultural Socialization/Pluralism practices than the other facets of racial socialization, and that these practices are related to positive psychosocial outcomes in African American youth (see Hughes et al., 2006), this

subscale served as an indicator of racial socialization. This subscale demonstrated good internal consistency in the current sample, with a Cronbach's alpha of .85.

Africultural Coping Systems Inventory (ACSI; Utsey, et al., 2000). The Africultural Coping Systems Inventory (ACSI; Utsey et al., 2000) is a 30-item self-report measure designed to assess the culture-specific coping strategies used by African American adults. As a result of a dearth of measures available to measure collectivistic coping in African American youth, the adult version of this measure was revised for the current study. Within the adult and adapted child version of the measure, respondents indicate the extent to which they utilized specific culturally-relevant strategies to cope with a stressor that occurred during the previous week. Items are rated on a 4-point Likert scale, ranging from 0 ("did not use") to 3 ("used very much"). For the current study, the 30 items of the ACSI were revised in order to reflect a third grade reading level, to reduce the use of polysyllabic words, and to minimize complex concepts. The original ACSI is composed of four subscales, including Cognitive/Emotional Debriefing, Spiritual-Centered Coping, Collective Coping, and Ritual Coping. Factor analyses have yielded support for the intended four factor model of the ACSI (Utsey et al., 2001). The adult version of the measure has also demonstrated sound psychometric properties, including internal consistency ranging from $\alpha=.71-.84$ (Utsey et al., 2000; Utsey et al., 2007). The Collective Coping subscale of the revised ACSI was used as a measure of collectivism in the current study. This subscale evidenced good reliability, with a Cronbach's Alpha of $\alpha=.77$.

Parent Measures. Given that the child self-report measures of sociocultural variables were adapted for the current study, parent reports of these constructs were

included for comparative purposes. Additionally, parent measures were utilized for exploratory analyses in the current study.

Brief Religious Coping (Brief-RCOPE; Pargament, 1999). The Brief RCOPE is an adult self-report questionnaire composed of 10 items designed to assess the extent to which one engages in religious coping behaviors using a 4-point Likert-type scale ranging from “not at all” to “a great deal.” The Brief RCOPE consists of two subscales that assess positive religious coping behaviors (e.g., “I look to God for strength, support, and guidance in crisis.”) and negative religious coping (e.g., “I wonder whether God has abandoned me.”). The Positive Religious Coping subscale is composed of 5 items that measure religious forgiveness, seeking spiritual support, collaborative religious coping, spiritual connection, religious purification, and benevolent religious reappraisals. The Negative Religious Coping Subscale also consists of 5 items that reflect negative religious coping strategies such as spiritual discontent, punishing God reappraisals, interpersonal religious discontent, demonic reappraisal, and reappraisals of God’s powers. The Brief RCOPE has demonstrated high reliability ($\alpha=.81-.91$) for the Positive Religious Coping subscale; however, the Negative Religious Coping subscale has yielded lower internal consistency ($\alpha=.54-.70$; Egbert, Mickley, & Coeling, 2004). The Positive Religious Coping subscale of the Brief RCOPE was included in the current study and demonstrated good reliability in the current sample ($\alpha= .80$).

Racial Socialization- Parent Report (Hughes & Johnson, 2001). The Racial Socialization-Parent Report is a 15-item questionnaire designed to assess culturally-based parenting practices regarding race and cross-racial relations. Parents are asked to denote how frequently they have engaged in specific behaviors during the past 12 months using

a 6-point Likert-type scale ranging from 0 (“none”) to 5 (“more than seven times”). The measure assesses four dimensions of racial socialization including, Cultural socialization, Preparation for Bias, Promotion of Mistrust, and Pluralism (Hughes & Johnson, 2001). The Cultural Socialization dimension assesses the extent to which parents expose children to culturally-specific media, events, and history. The Preparation for Bias domain measures the degree to which parents transmit messages regarding racial discrimination. The Promotion of Mistrust domain measures the extent to which parents reinforce mistrust in intergroup interactions. Finally, the Pluralism domain addresses parental communications fostering cultural awareness of other races. Preliminary factor analytic studies of the measure yielded a 3-factor solution as the best-fitting model, in which the Cultural Socialization and Pluralism dimensions were not empirically discernible. As such, three subscales were retained on the measure and have demonstrated high internal consistencies (i.e., Cultural Socialization/Pluralism, $\alpha=.86$; Preparation for Bias, $\alpha=.81$; Promotion of Mistrust, $\alpha=.73$; Hughes & Johnson, 2001). The Cultural Socialization/Pluralism subscale was utilized in the current study and demonstrated excellent internal consistency in the current sample ($\alpha=.90$).

Africultural Coping Systems Inventory (ACSI; Utsey, et al., 2000). The Africultural Coping Systems Inventory (ACSI; Utsey et al., 2000) is a 30-item self-report measure designed to assess the culture-specific coping strategies used by African American adults. Respondents are asked to rate the extent to which they utilized different culturally-specific coping strategies during a stressful situation that occurred during the previous week. Items are rated on a 4-point scale ranging from 0 (“does not apply/did not use”) to 3 (“used a great deal”). The items of the ACSI comprise four subscales,

including Cognitive/Emotional Debriefing, Spiritual-Centered Coping, Collective Coping, and Ritual Coping. Factor analytic studies of the ACSI have supported the 4-factor structure of the measure, and internal consistency for the four ACSI subscales range from adequate to highly desirable ($\alpha=.71-.84$; Utsey et al., 2000; Utsey et al., 2007). Correlations across subscales ranged from .14 to .35, suggesting that the four dimensions measured by the ACSI are related, yet distinct constructs. The Collective Coping subscale was included, and yielded adequate reliability in the current sample ($\alpha=.68$).

Multigroup Ethnic Identity Measure- Brief Version (MEIM; Phinney, 1992).

The MEIM is 6-item self-report measure of one's ethnic identity and other group orientation using a 5-point Likert scale (1=strongly disagree; 5=strongly agree; Phinney, 1992). The MEIM assesses two aspects of ethnic identity, including Ethnic Identity Exploration and Ethnic Identity Commitment, and a two factor model has been supported by factor analytic studies (Lee, Falbo, Doh, & Park, 2001; Phinney, 1992; Ponterotto, Gretchen, Utsey, Stracuzzi, & Saya, 2003). The MEIM has been shown to demonstrate adequate to excellent reliability (Lee, Falbo, Doh, & Park, 2001; Phinney, 1992; Ponterotto, Gretchen, Utsey, Stracuzzi, & Saya, 2003). The MEIM Total scale, which includes both ethnic identity exploration and commitment, was used in the current study. The Total scale demonstrated excellent reliability, with a Cronbach's alpha of .90.

Procedure

Participants in the current study were recruited from the community through flyers, brochures, and presentations at local community centers, health fairs, public

libraries, churches, and through word of mouth. Subjects were recruited as a part of a larger study, The Multiracial Family Wellness Project, which aimed to examine resilience to anxiety and related constructs in African American, non-Hispanic White, and Biracial parent-child dyads. Participants in the current study attended a single session at the Developmental Psychopathology Research Lab or a local community agency in proximity to the participant's neighborhood, during which they completed self-report questionnaires. All data collection was conducted by the study coordinator and trained research assistants from both non-Hispanic White and African American ethnic backgrounds. All research assistants received training in culturally-sensitive practice and assessment, including understanding cultural influences on explanatory models of anxiety and language used to describe distress, as well as knowledge of culturally-specific differences in anxiety manifestation. Prior to the initiation of data collection, informed consent and assent were reviewed with the parent and child participant, and an opportunity to ask questions prior to signing the consent documents was provided. Once consent and assent were obtained, the participants were given a packet of self-report questionnaires to complete that included the PSWQ, IUSC, NPOQ-C, MCQ-C, and adapted versions of the Brief RCOPE, ACSI, and Racial Socialization questionnaire. The questionnaires were presented in a randomized sequence in order to control for order effects. The questionnaires took approximately one hour to complete, and trained researchers were available to answer any participant questions. Participants received \$27.00 compensation for their time and participation in the study. Further, feedback was offered to the participants and their parents including information about anxious symptoms and community resources to assist with difficulties related to specific

symptoms endorsed in the questionnaires if so desired; however, no participants requested feedback.

RESULTS

Preliminary Examination of Measures

The final sample consisted of 50 African American children and a biological parent. Of these 50, 47 children returned completed packets of questionnaires. The three children who had missing data included two who failed to fully complete the MCQ-C and one who did not complete the ACSI-C. Given that this represented more than 20% of the data for the included subscales (Peng et al., 2006), mean substitution was not utilized. However, in order to maximize power, these individuals were included in the individual sociocultural factor and cognitive factor regressions, respectively, but not included in the moderation analyses. Of the 50 parents included in the study, 47 returned completed packets of questionnaires. The three who had missing data included one who failed to complete the MEIM and two who failed to fully complete the ACSI. As such, they were not included in the analyses.

Of the 47 completed child packets, 10 items were missing, which represented less than 1% of the data (48 children X 86 items = 4,128 total items). No participant demonstrated more than 1 missing item for each subscale (or 20% of the data for a given subscale), thus subscale mean substitution was utilized.

Descriptive Statistics of Measures

Given the novel exploration of cognitive vulnerability factors and worry within an exclusively African American child sample, the descriptive statistics of each of these

measures will be briefly discussed in comparison to previously established psychometric properties in normative and/or predominately non-Hispanic White samples. As the sociocultural measures and NPOQ-C were adapted for use in the current study, no literature exists for comparative purposes. Descriptive statistics for each study measure are presented in Table 2.

Overall, the children in the current study endorsed higher levels of worry than expected in comparison to previous community samples of youth. Specifically, psychometric evaluations of the PSWQ-C in normative and predominately non-Hispanic White community children have yielded means ranging from 11.79 (SD= 5.9; Comer et al., 2009) to 12.2 (SD= 6.3; Muris et al., 2001). Interestingly, the mean PSWQ-C in the current sample was similar to that found in a clinical sample of youth between the ages of 5 and 12 (M= 16.60; Pestle, Chorpita, & Schiffman, 2008); however, another psychometric evaluation of this measure in a sample of children with anxiety disorders indicated a higher mean (M= 23.84; Comer et al., 2009). The differences in self-reported worry between genders in the current study was also discrepant from the extant literature. In particular, existing research consistently indicates that boys report less worry than girls (Chorpita et al., 1997; Muris et al., 2001). The males in the current study demonstrated a higher mean PSWQ-C score than the females, however, this was not found to be a significant difference.

Overall, the current sample endorsed higher levels of intolerance of uncertainty as well as positive and negative metacognitive beliefs about worry than anticipated. Indeed, the mean IUS-C yielded was higher than that found in previous community samples, and was more similar to that demonstrated in a clinical sample of youth (Comer et al., 2009).

Additionally, both positive and negative metacognitive beliefs about worry were slightly higher than those found in non-clinical children in the original validation of the MCQ-C (Bacow et al., 2009). Specifically, in a normative sample of non-clinical youth between 7 and 17, Bacow and colleagues (2009) found a mean of 10.15 (SD= 2.91) on the positive beliefs about worry subscale and a mean of 12.50 (SD= 4.11) on the negative beliefs about worry subscale of the MCQ-C.

Examination of Model Assumptions

Normality of all study variables was assessed using several techniques, including visual inspection of the histograms, and skewness and kurtosis examination (with the cut-off of 2.58 due to the small sample size; Field, 2005). All variables were within limits for normal distribution. Linearity was examined using the scatterplots of the variables, which indicated largely linear relationships between the independent and dependent variables.

Preliminary Analyses

Bivariate Correlations. Bivariate correlations were conducted in order to examine the relationship between all study variables. Results indicated a significant positive association between all cognitive vulnerability factors (i.e., intolerance of uncertainty, negative problem orientation, positive beliefs about worry, negative beliefs about worry) and self-reported worry. A significant positive relationship emerged between cultural socialization/pluralism and worry, as well as collective coping and worry; however, no significant relationships were found between positive religious coping and worry. Significant positive associations were found between all cognitive vulnerability factors. With regard to sociocultural variables, cultural

socialization/pluralism was positively correlated with collective coping, and collective coping and positive religious coping were positively associated. Due to these significant correlations and potentially problematic multicollinearity, the variance inflation factor (VIF) and tolerance values were evaluated in subsequent regressions. See Table 3 for correlation coefficients.

Given that the measures of sociocultural variables were adapted for use in the current study, correlations were conducted between children's reports of cultural/socialization/pluralism, positive religious coping, and collective coping and their parent's report of these processes. The only significant relationship that emerged was between child self-reported positive religious coping and parent self-report of their own positive religious coping, $r = .36, p = .01$. In order to determine whether the relationship between parent and child report on the aforementioned measures was impacted by the child's age, partial correlations were examined. Specifically, the relationship between parent and child reported cultural socialization/pluralism, positive religious coping, and collective coping while controlling for child age was analyzed. Results indicated that only parent and child positive religious coping remained significantly associated, $r = .34, p = .02$.

Mean Comparisons. In order to determine covariates for subsequent analyses, mean comparisons were conducted. Given research suggesting an effect of child gender and age on worry and related processes, study variables were examined across these groups. There were no significant differences in self-reported worry between boys ($M = 18.42, SD = 8.64$) and girls ($M = 15.94, SD = 7.78$) in the sample, $t(48) = -1.05, p > .05$. Independent samples t-tests revealed no other significant differences between the genders

on any other cognitive factor, positive religious coping, or collective coping. However, boys in the current sample self-reported significantly greater cultural socialization/pluralism ($M= 17.30, SD= 6.42$) than the girls ($M= 11.87, SD= 8.95$), $t(46)= -2.25, p=.03$. Between group ANOVAs were utilized to examine whether there were any significant differences on the study measures between the children at each age (e.g., 8 years old, 10 years old); no significant differences emerged. Given the small number of children in each age group, an independent samples t-test was also utilized to explore whether younger and older children yielded differences on study measures. Results revealed no significant differences on any study measure between children ages 8-10 and children ages 11-13. Between group ANOVAs were also used to determine whether there were significant differences in measures between parents at each education level. No significant effect of parent education was found on any study variable.

Poverty has also been demonstrated as a risk factor for numerous psychopathological processes and outcomes, including anxiety (Spence, Najman, Bor, O'Callaghan, & Williams, 2002). As there was a large presence of low-income families in the current sample, mean comparisons were examined on study variables between income levels. Specifically, these mean comparisons were conducted between participants who fell at or above the federal poverty line and those who fell below the poverty line. This determination was made by comparing the reported family size to the 2015 federal poverty line for that family size (e.g., \$20,090 for a family of 3) as delineated by the U.S. Centers for Medicare and Medicaid Services (Federal Poverty Line, 2015). Participants whose family fell below the poverty line were coded as 1, and those who fell at or above the poverty line were coded as 2. In total, 31 participants fell

below the poverty line, and 18 made incomes commensurate with or above the federal poverty line (1 failed to provide income information). Independent t-tests revealed that children who fell below the poverty line reported significantly higher levels of worry ($M= 18.90, SD= 8.42$) as compared to participants who had higher incomes ($M= 13.83, SD= 6.62$), $t(47)= 2.19, p= .03$. A significant difference was also yielded in the mean self-reported positive beliefs about worry, $t(45)= 2.13, p= .003$, with children from lower SES backgrounds reporting significantly greater positive beliefs about worry ($M= 13.33, SD= 4.62$) as compared to those at or above the poverty line ($M= 9.24, SD= 3.67$). No other significant differences emerged, however, due to the aforementioned mean discrepancies, income level was entered as a covariate in all subsequent analyses.

Despite having lower incomes, the current sample was highly educated due to a large proportion of the parents being enrolled in college. As such, it was hypothesized that the current sample may not be analogous to other low income, African American samples; therefore, income may not fully represent the children's socioeconomic environment. Thus, a socioeconomic status composite was calculated that accounted for both income level and parent education. Specifically, each of these variables were transformed into z-scores, and then added together to create a socioeconomic composite. Study measures were then compared to determine whether there were differences in the variables between children from higher and lower socioeconomic statuses. As the composite was z-transformed, independent t-tests between children above the mean and below the mean on the socioeconomic status composite were analyzed. Within these analyses, 20 children fell at or above the mean SES, and 27 children fell below the mean SES. Results indicated no significant differences on any study measures with the

exception of collective coping. Specifically, children from lower SES families reported significantly more collective coping ($M= 11.33$, $SD= 6.64$) than those from higher SES families ($M= 10$, $SD= 4.09$). Given that there were no differences in mean worry based upon SES, it was not included as a covariate.

Hypothesis Testing

Given the small number of fathers included in the current sample and research suggesting differences in parenting between males and females (Bögels & van Melick, 2004), all hypothesis tests were analyzed both with and without the fathers included. Results indicated no significant differences in outcomes when the fathers were excluded from analyses. As such, the fathers were retained in order to maximize power.

Hypothesis 1.

Intolerance of uncertainty, negative problem orientation, and positive and negative beliefs about worry will significantly contribute to child worry in an African American sample. Specifically, it is predicted that cognitive vulnerability factors will demonstrate a positive relationship with child worry, with greater levels of intolerance of uncertainty, negative problem orientation, and beliefs about worry being related to higher levels of worry.

A multiple linear regression was utilized to examine the relationship between cognitive factors and worry while controlling for income level. Income level was entered into Block 1, and intolerance of uncertainty, negative problem orientation, positive beliefs about worry, and negative beliefs about worry were entered into Block 2. The first model was significant, $F(1, 45) = 4.82$, $p < .05$, with income level accounting for 9.7% of

the variance in child worry (R^2 adjusted = .077). The second model consisting of the cognitive vulnerability factors as independent variables was significant, $F(5, 41) = 13.174$, $p < .001$, and accounted for an additional 52% of the variance in worry, R^2 adjusted = .570. Within the model, negative beliefs about worry emerged as the only individual contributor of variance to worry, $\beta = .50$, $t(46) = 2.68$, $p = .01$, uniquely accounting for 6.76% of the variance in self-reported worry (see Table 4).

Model assumptions were examined to determine the goodness of fit of the aforementioned regression analysis. Linearity was determined through the examination of scatter plots, which yielded linear relationships between the independent and dependent variables. The distribution of the residuals was evaluated to determine homoscedasticity of each variable. DFit, Cook's Distance Values, Leverage, and Mahalanobis distances were calculated and explored in order to determine the presence of potential multivariate outliers, and none were identified. The normality assumption was met as the standardized residuals of the model were normally distributed. In addition to model assumptions, the presence of potentially problematic multicollinearity was evaluated through the variance inflation factor (VIF) and tolerance values. No problematic multicollinearity was present, as VIF and tolerance values were within normal limits, as indicated by a VIF less than 10 and tolerance values greater than .1.

Hypothesis 2.

There will be a significant negative relationship between culturally-specific protective factors and worry in participants. Specifically, higher levels of reported

religious coping, collectivism, and racial socialization will be related to lower levels of reported worry.

A multiple linear regression was also used to test this hypothesis. Given that positive religious coping did not demonstrate a significant correlation with child worry in preliminary analyses, it was excluded from the model. One multivariate outlier was identified through the examination of Cook's Distance Values, Leverage values, and Mahalonbis distance and was removed prior to running the regression. Income level was entered into Block 1, and collective coping and cultural/pluralism racial socialization were entered into Block 2. Income level did not produce a significant model, $F(1, 43) = 3.45, p = .07$. The second model was significant, $F(3, 41) = 3.83, p = .02$, and accounted for 14.4% of the variance in child worry. Within the model, racial socialization demonstrated a significant positive relationship with child worry, $\beta = .38, t(44) = 2.68, p = .01$, and uniquely accounted for 11.29% of the variance in self-reported worry. Collective coping did not emerge as a significant individual predictor of self-reported worry (see Table 5).

Model assumptions were examined to determine the generalizability of the aforementioned regression analysis. Linearity was established through examination of scatter plots, which evidenced roughly linear relationships between the variables. The assumption of homoscedasticity was determined through the distribution of the residuals. DFit, Cook's Distance Values, Leverage, and Mahalonbis distances were calculated and explored in order to determine the presence of potential multivariate outliers, and none were identified. The normality assumption was met as the standardized residuals of the model were normally distributed. In addition to model assumptions, the

presence of potentially problematic multicollinearity was evaluated through the variance inflation factor (VIF) and tolerance values. No problematic multicollinearity was present, as VIF and tolerance values were within normal limits, as indicated by a VIF less than 10 and tolerance values greater than .1.

Hypothesis 3.

Culturally-specific protective factors will moderate the relationship between cognitive vulnerability factors and worry in African American youth. Specifically, it is hypothesized that higher cumulative levels of religious coping, racial socialization, and collectivism will be related to a decreased positive relationship between cumulative cognitive factors (i.e., intolerance of uncertainty, positive beliefs about worry, negative beliefs about worry, and negative problem orientation) and self-reported worry.

In order to examine whether culturally-specific factors as a whole moderated the relationship between cumulative cognitive vulnerability and self-reported worry, composite scores were created for both sociocultural variables and cognitive factors. As positive religious coping did not demonstrate a relationship with child worry, it was excluded from the sociocultural composite. Prior to creating the composite scores, each variable was centered by subtracting the subscale mean from each value in order to address issues of multicollinearity (Aiken & West, 1991). Next, the centered ACSI-C Collective Coping subscale and Cultural/Pluralism subscale of the Racial Socialization Questionnaire were added together to create the sociocultural variable composite score for each participant. The centered IUS-C total score, NPOQ total score, MCQ-C Positive Meta-Worry, and MCQ-C Negative Meta-Worry were added together for each participant

to generate the cognitive factor composite. These composites were then examined to ensure that they met model assumptions. Visual inspection of the histograms revealed that these composites were normally distributed, and scatter plots indicated that they demonstrated a roughly linear relationship with the dependent variable.

Moderation was examined utilizing regression. Income level was entered into Block 1, and the cognitive factor composite, sociocultural factor composite, and the interaction term were entered into Block 2. Results indicated that the model as a whole was significant, $F(4, 38) = 14.47, p < .001$. However, the interaction term was not significant, $\beta = -.10, t(42) = -.88, p = .39$, and the cognitive composite remained significant when the interaction term was entered into the model, $\beta = .70, t(42) = 6.52, p < .001$. Thus, sociocultural variables did not moderate the relationship between cognitive factors and self-reported worry (see Table 6).

The goodness of fit of this regression was determined by evaluating whether the model assumptions had been adequately met. Linearity of the variables was indicated by the scatterplots of the variables, which were approximately linear. The assumption of homoscedasticity was met through the examination of the plot of standardized residuals against standardized predicted values. The standardized residuals of the model were normally distributed upon inspection of the histogram. The presence of multivariate outliers and problematic multicollinearity was examined through the DFit, Cook's Distance Values, Leverage values, Mahalanobis distances, VIF and tolerance values. No problematic outliers or multicollinearity were identified.

Exploratory Analyses

Given that the findings with regard to the protective effect of sociocultural variables to worry were not consistent with a priori hypotheses, exploratory analyses were conducted in order to determine whether other factors impacted the moderation. In particular, it was hypothesized that sociocultural experiences may not be equally salient within the context of all of the children, thus impacting whether these processes were effectively utilized in buffering worry. Indeed, literature suggests that the extent to which the family system identifies with their ethnicity may impact the use of culturally-specific coping responses (Constantine, Donnelly, & Myers, 2002; Spencer, Fegley, & Harpalani, 2003). In particular, parents' ethnic identity has been found to be related to the frequency with which they racially socialize their children, which may include messages regarding cultural coping strategies (see Hughes et al., 2006). As such, an independent t-test was utilized to examine whether there was a significant difference between mean worry reported by children with parents of high and low ethnic identity. In order to make this comparison, the MEIM Total subscale (obtained from parent self-report), was coded into 0= Low Ethnic Identity, and 1= High Ethnic Identity. Specifically, given that a Total Score with a mean of 4 indicates that the parents endorsed feelings of affiliation with their ethnic group, this was used as the cut-off when determining high and low levels of ethnic identity. Overall, 26 children had parents who demonstrated a low ethnic identity, and 23 had parents who reported a high ethnic identity. An independent t-test revealed that children with parents of low ethnic identity reported significantly more worry ($M= 19.27$, $SD= 8.52$) compared to those with parents who strongly identified with their ethnicity ($M= 14.52$, $SD= 6.70$), $t(47)= 2.11$, $p= .04$. However, t-tests indicated that there were no significant differences in children's self-reported cultural socialization/pluralism,

collective coping, or religious coping between participants from high ethnic identity parents and low ethnic identity parents.

Due to the significant differences in child worry, the relationship between parent ethnic identity and worry were explored using linear regression. One multivariate outlier was identified, and was therefore removed prior to the analysis. Income level was entered into Block 1, and parent ethnic identity, as measured by the MEIM Total scale, was entered into Block 2. Results revealed that the model as a whole was significant, $F(2, 44) = 4.26, p = .02$, and accounted for 16.2% of the variance in child worry. Once the outlier was removed, MEIM did not emerge as a significant unique predictor of child worry within the model, $t(46) = -1.881, p = .07$.

In order to determine whether parent ethnic identity influenced the relationship between child reported sociocultural variables and worry, a moderation model was tested using regression. Prior to the analysis, MEIM Total scores were centered, and a centered interaction term was computed. Next, income level was entered into Block 1, and the centered MEIM Total, sociocultural composite, and interaction term were entered into Block 2. Results indicated that neither the model, $F(4, 39) = 2.54, p = .06$, nor the interaction term were significant, $t(43) = -.53, p = .60$. Thus, parent ethnic identity did not moderate the relationship between cumulative child sociocultural experiences and child worry.

DISCUSSION

The current study sought to examine the relationship of cognitive factors, sociocultural variables, and worry in a sample of African American youth. Specifically, the study aimed to validate cognitive factors that have demonstrated relationships to worry in non-Hispanic White children within African American youth, as well as test whether these relationships are impacted by sociocultural variables endemic to the African American context. To achieve these aims, the study tested components of a culturally-sensitive model of worry in which cognitive factors (i.e., intolerance of uncertainty, negative problem orientation, beliefs about worry) are posited to be associated with child worry, and this relationship is predicted to be attenuated by protective sociocultural variables (i.e., racial socialization, positive religious coping, collective coping) in the African American context (see Figure 1). Given the lack of literature examining worry and the cognitive factors associated with worry within African American children, preliminary analyses were conducted in order to compare the current sample's self-reported rates of these variables as compared to those established previously in normative and predominately non-Hispanic White community samples of children. Preliminary analyses were also utilized to investigate differences in study measures as a function of demographic factors. Following these preliminary analyses, several tenets of the proposed conceptual model were tested. Specifically, regression analyses were used to evaluate hypotheses regarding the relationship of cognitive vulnerability factors and sociocultural variables to self-reported worry. It was predicted

that cognitive factors would demonstrate a significant positive association with worry, whereas sociocultural factors were hypothesized to evince a negative relationship with worry. Finally, regression was used to test a moderation model in which cumulative sociocultural experiences were predicted to moderate the relationship between cumulative cognitive vulnerability and worry. Specifically, it was hypothesized that the composite sociocultural factor would serve as a moderator inasmuch as high levels of sociocultural experiences would minimize the positive relationship between cognitive risk and worry.

Preliminary Analyses

Preliminary analyses revealed that the current sample endorsed higher levels of mean worry than expected as compared to previous studies in normative and predominately non-Hispanic White community children. Indeed, the mean self-reported worry in the current sample was more analogous to that previously found in a clinical sample (Pestle, Chorpita, & Schiffman, 2008). These findings were consistent with Silverman and colleagues (1995) who found that African American children reported more worries than their non-Hispanic White and Hispanic counterparts, particularly in the areas of personal harm, family, and war. The authors posit that these differences may be related to the differential environmental experiences of African American children, particularly given the disproportionate prevalence of lower SES in African American populations. Certainly, participants in the current sample were largely from low income backgrounds and when compared, children from families below the poverty line reported significantly higher levels of worry than those from higher incomes. Given that the measure of worry in the current study did not include worry content, rather worry

frequency and controllability, it may be that the higher levels of worry were related to greater daily stressors or concerns associated with low income.

Taken together, these results suggest that African American children may self-report more worry than their non-Hispanic White counterparts; however, future research is needed to identify the pathways to these differences. Specifically, comparative methodologies that allow for comparisons between ethnic groups and SES are needed in order to disentangle whether worry levels are accounted for by low SES stress, or if race accounts for additional variance in worry levels in ethnic minority children. Research in African American adults suggests that racial stress, which is related perceived racism, is significantly associated with worry (Rucker et al., 2010) when controlling for SES; however, exploration of the effects of racial experiences on worry has yet to be explored in child samples. Subsequently, research should seek to explore the mechanisms between these environmental experiences and higher levels of worry. For example, worry has been conceptualized as a maladaptive problem-solving strategy utilized in response to distressing problems. Paired with findings that stressful life experiences (which may be related to race or SES) have been related to higher levels of anxiety and poorer social solving in children (Compas, 1987; Dubois, Felner, Meares, & Krier, 1994), it may be that worry is utilized more frequently as a problem solving response to daily experiences in African American children, thus resulting in a higher frequency of worry. Additionally, it could be that experiences related to race and/or low SES result in increases in cognitive and other individual vulnerability factors to worry and account for higher worry levels. Indeed, children in the current sample reported higher levels of intolerance of uncertainty and metacognitive beliefs about worry as compared to previous

non-Hispanic White samples. Further, research in adults suggests that racial stress is related to greater intolerance of uncertainty (Rucker et al., 2010). As such, future research is needed to explore mediational models between culturally-specific experiences, cognitive vulnerability factors, and worry in African American youth.

Interestingly, these findings in children are discrepant from those found in the adult literature. African American adults have been found to endorse lower levels of worry as assessed by the Penn State Worry Questionnaire (Carter et al., 2005; Chapman et al., 2009; Scott et al., 2002) as well as demonstrate lower rates of GAD (Breslau et al., 2005) compared to normative samples and non-Hispanic Whites. Future work is needed to explore the trajectory of this decline in African Americans and if there are unique experiences in this population that result in lower rates of worry. For instance, it may be that normal developmental processes, such as increases in executive functioning and emotion regulation, contribute to these differences in worry between African American youth and adults. However, research should also explore whether environmental variables within the African American context (e.g., emotion socialization practices, parenting) exert mitigating effects at varying points during development between childhood and adulthood.

Hypothesis Testing

First, the hypothesis that cognitive factors would demonstrate significant positive associations with worry was examined and supported. Preliminary bivariate correlations revealed that intolerance of uncertainty, negative problem orientation, positive beliefs about worry, and negative beliefs all demonstrate significant, positive relationships with

self-reported worry in African American youth, with negative beliefs about worry demonstrating the strongest correlation. These findings are consistent with previous relationships established within predominately non-Hispanic White and normative children and adolescents, and the strength of the observed correlations in the current study were analogous to some previous findings and even stronger than others (Bacow et al., 2009; Fialko et al., 2013; Laugesen et al., 2003). Subsequent regression analyses also revealed that when controlling for income level, the aforementioned cognitive factors contributed significant variance to worry (i.e., 52%). Within this regression, negative beliefs about worry emerged as the only unique predictor of worry. These results are consistent with studies that tested these cognitive factors in non-Hispanic white samples. For instance, Kertz and Woodruff-Borden (2013) found that intolerance of uncertainty, negative problem orientation, positive beliefs about worry, and negative beliefs about worry contributed 41% of the variance in self-reported worry in children ages 8 to 12.

Taken together, the results of the first study hypothesis provide additional support for the downward extension of cognitive models to children, indicating that the tested cognitive factors may be present and related to worry as early as age 8. Interestingly, preliminary analyses revealed no significant differences in worry and cognitive vulnerability factors between older and younger children, which is contrary to previous findings suggesting increases in worry with age throughout childhood (Chorpita et al., 1997). As such, intolerance of uncertainty, negative problem orientation, and metacognitive beliefs may yield similar relationships to worry as in adults, even in younger children. In addition to adding to our understanding of cognitive vulnerabilities associated with worry in youth, the current study extends the applicability of cognitive

models to African American children, and suggests that these models may be invariant across youth from differing ethnic groups. Further, the results indicate that the relationships between cognitive vulnerabilities and worry not only hold, but may be even stronger in African American children. While additional research is needed to generalize these findings to other samples of African American children, the current study preliminarily indicates that worry may stem from similar cognitive processes or pathways in African American youth as compared to non-Hispanic White children. This finding is significant, as research implicates cognitive factors as mechanisms of worry manifestation (Vasey, 1993). Thus, it may be that while environmental experiences differ across children from varying ethnic groups, when these experiences foster cognitive patterns in which uncertainty is perceived as distressing, one's problem solving abilities are doubted, and/or worry is viewed as an effective, yet uncontrollable, coping mechanism, children are susceptible to higher levels of worry.

The generalizability of these factors and cognitive models in children, including African American children, has significant treatment implications. In particular, several cognitive-behavioral treatments have been developed over the past decade in order to address cognitive factors that may precipitate and maintain GAD, and have demonstrated efficacy in adult populations (Dugas & Ladouceur, 2000; Ladouceur et al., 2000; Wells, 2009). For instance, treatments that specifically target intolerance of uncertainty, faulty beliefs about problem solving and beliefs about the utility of worry have been related to decreases in worry in adults with GAD (Dugas & Ladouceur, 2000; Ladouceur, Dugas, Freeston, Leger, Gagnon, & Thibodeau, 2000). More recently, metacognitive therapy has accrued evidence of its efficacy in treating GAD in adults through addressing both

positive and negative beliefs about the usefulness and controllability of worry (Wells & King, 2006; Wells et al., 2010). Given that these cognitive factors evidenced a strong relationship to worry in African American youth, particularly negative beliefs about worry, it is possible that these therapies could be adapted to be developmentally appropriate to treat worry in this population.

The hypotheses that sociocultural variables would be negatively associated with worry, and would mitigate the association between cognitive vulnerability and worry, were unsupported. Preliminary correlations revealed only weak associations between collective coping and racial socialization and worry. Additionally, these correlations were in the direction opposite of expectation. Follow-up regressions also indicated that only racial socialization was significantly related to worry in African American children; however, the nature of this association was opposite of expectation. Specifically, children in the current study who self-reported greater levels of cultural socialization and pluralism demonstrated higher levels of worry. This is contradictory to previous findings that suggest a negative relationship between this aspect of racial socialization and anxiety in African Americans (Caughy et al., 2002). While it may be that in the current sample, messages regarding cultural pride and pluralism were iatrogenic and related to greater anxiety, this finding may also be due to conflation with other aspects of racial socialization not included in the study's analyses. For instance, research has previously demonstrated a positive correlation between facets of racial socialization, including cultural socialization, promotion of mistrust, and preparation for bias (Hughes & Johnson, 2001). Although cultural socialization and pluralism has been posited to be the most frequently utilized form of racial socialization (Hughes et al., 2006), research

suggests that perceived discrimination and negative social climates may increase the use of other strategies aimed at protecting African American children from discrimination, such as promotion of mistrust and preparation for bias (Caughy, O'Campo, Nettles, & Lohrfink, 2006; Hughes, 2003). Given that the data collection of the current study occurred during a time period in which racial hostility was a particularly salient part of the social context, it may be that children receiving cultural socialization messages were also exposed to greater messages regarding bias and mistrust. It may be that these cumulative messages, paired with the social context, resulted in greater levels of worry within African American youth in the current sample.

Despite the positive relationship between cultural socialization and worry, collective coping did not account for significant variance in child worry, nor did sociocultural variables cumulatively moderate the relationship between cumulative cognitive vulnerability and worry. Given the novelty of the examination of the relationship between sociocultural factors and worry in African American youth, these findings can be interpreted in a number of ways. Firstly, these findings may indicate that sociocultural experiences (i.e., religious coping, collective coping) within the African American context are not relevant to, or do not exert influence, on worry or cognitive factors associated with worry. While cultural socialization/pluralism, collective coping, and religious coping have been linked to other positive outcomes in African American youth (e.g., academic achievement, externalizing problems; Gaylord-Harden et al., 2012; Hughes et al., 2006), it may be that they do not confer protective effects with regard to worry, specifically. Given that worry is an internally manifested process and its triggers

tend to be diffuse, it may be more difficult to understand and apply various culturally-specific coping strategies to prevent this process in childhood.

In addition, these null findings may be due to measurement error. In particular, the measures utilized to assess cultural socialization/pluralism, collective coping, and positive religious coping were adapted from adult measures for use with the children in the current study. Although the measures appeared to be internally consistent, as evidenced by good Cronbach alpha values, it is possible that they did not validly capture these sociocultural processes in the current sample. Indeed, there was mixed support for the anticipated correlations between these measures and with parents' endorsement of their own engagement in racial socialization, collective coping, and positive religious coping. Consistent with previous research, child reported positive religious coping and collective coping were correlated (Constantine et al., 2002); however, no relationship was observed between cultural socialization and religious coping, despite research suggesting that these two processes may be associated (Stevenson, 1994). Further, there were no significant correlations between child self-reported sociocultural experiences and parent sociocultural experiences, with the exception of positive religious coping. This is inconsistent with research suggesting that these processes tend to be familial, and demonstrate at least moderate overlapping child and adult self-report (Hughes et al., 2009; Thomas & King, 2007). For instance, utilizing interview data about racial socialization practices, Peck and colleagues (2014) found significant relationships between parent and adolescent report of these practices in African American parent-child dyads; however, no such relationship emerged in the current study. While it may be that the adapted measures did not capture the intended sociocultural processes overall, it is

also possible that their validity was further compromised by child age. In particular, the majority of research that has examined racial socialization practices, collective coping, and religious coping in youth has utilized adolescent samples. While partial correlations revealed no differences in the relationship between parent and child report when age was controlled for, it may be that the limited age range in the current study prevented the identification of effects. Thus, it is unknown whether measurement of these constructs is validly captured by self-report in children, or if these constructs are too abstract for accurate measurement at this point in development.

An alternative explanation may also capture why there was no significant or protective relationship between sociocultural factors and worry. It is possible that these processes are not relevant, or utilized, at the developmental stage of the participants in the current study. In particular, religious coping, collective coping, and racial socialization are delineated as culturally manifested practices (Utsey, Adams, & Bolden, 2000), however, the level of individual embeddedness within African American culture appears to play a key role in their utilization (Constantine et al., 2002; Zaff, Blount, Phillips, & Cohen, 2002). In particular, the level with which one ethnically identifies with African American culture has been found to be related to the way in which African American youth cope with distress. For instance, Constantine and colleagues (2002) found that African American adolescents who endorsed their cultural group as a salient part of their identity were more likely to use spiritually and collectively-centered coping strategies when faced with stressful problems.

If it is such that one's ethnic identity as African American is a precursor to the understanding and use of the study's sociocultural variables, it is likely that these factors

would not be relevant to the participants until later in their development. In particular, research suggests that, much like the process of personal identity development, one's ethnic identity also follows a developmental trajectory. Indeed, research that examines the longitudinal process of ethnic identity development indicates that it begins largely unexplored nor integrated within one's self-concept to becoming increasingly understood and integral to one's sense of self (see Greig, 2003). This work highlights adolescence as a period in which ethnic identity becomes greatly enhanced, and several studies have found significantly higher levels of ethnic identity endorsed later in adolescence as compared to the early stages of adolescence (Phinney & Chavira, 1992; Phinney, Ferguson, & Tate, 1997). Interestingly, research suggests that increases in African Americans ethnic identity in adolescence is also related to reductions in anxiety (Mandara et al., 2009). As such, it may be that the children in the current study were not developmentally mature enough to fully integrate their culture into their identity, which prevented racial socialization, religious coping, and collective coping from being salient to their experiences and coping patterns. Indeed, the mean level of ethnic identity endorsed by the children in the current study fell largely in the "neutral" range, suggesting that they did not have strong feelings regarding their attachment to African American culture. Thus, these sociocultural experiences may not be relevant or have an impact on the manifestation or response to worry until the participants are older. Although future research will be needed, it may be that culturally-relevant processes, such as coping, require more advanced development (e.g., cognitive, emotional) than worry to develop and exert effects on African Americans. It is possible that this longer

developmental trajectory of sociocultural protection is related to the observed switch in self-reported worry in late adolescence to early adulthood in this population.

Exploratory Analyses

Exploratory analyses were undertaken to explore why the a priori hypotheses regarding the influence of sociocultural factors were not supported. Specifically, it was hypothesized that the level of ethnic identity within the home may impact the relevance of culturally-specific processes, hence influencing whether they are utilized and protective against worry. Initial comparisons of worry level between children with parents of high and low ethnic identity revealed significant differences. In particular, children with parents of lower ethnic identity reported significantly greater worry than those with parents of higher ethnic identity. A follow-up regression indicated that parent ethnic identity contributed an additional 6.7% of variance in child worry; however, it did not emerge as a unique predictor when income level was controlled. Despite these relationships, parent ethnic identity did not moderate the relationship between child sociocultural experiences and worry. Overall, these results provide partial support for the hypothesis that the salience of ethnic identity in the home may impact child sociocultural experiences and worry. It may be that while greater parent ethnic identity results in parenting practices that are protective against worry in children (e.g., facilitating increased culturally-specific coping, emotional socialization practices, accessing extended kin networks), they do not impact the children's practices at this point in development. It is also possible that parents are not the only determinant of the child's ethnic identity and sociocultural experiences. In particular, the school and peer context of African American youth may be influential in their level of enculturation (Wong, Eccles,

& Sameroff, 2003). Future research is needed to shed light on how the greater context of African American youth (e.g., parents, school environment) relate to the salience of sociocultural processes throughout development, and whether this influences worry trajectories across childhood and adolescence.

Implications for a Conceptual Model of Worry in African American Youth

The results of the current study have important bearing on the proposed cognitive conceptual model. Support for the first hypothesis suggests that the pathway between cognitive factors and worry holds within African American children. Specifically, higher levels of intolerance of uncertainty, negative problem orientation, and metacognitive beliefs about worry likely are related to higher levels of worry in African American youth as young as 8 years old. While continued research will be needed to validate the generalizability of information processing biases, there is preliminary evidence that cognitive vulnerabilities confer equal risk to worry in African American youth samples. Although this first pathway of the model appears to be statistically accurate, the findings from the current study indicate that the moderating pathway of sociocultural variables is not supported in African American children between the ages of 8 and 13. Additional research will be needed to determine whether sociocultural variables begin to exert influence on cognitive factors over time. Indeed, it may be that this pathway begins to emerge in adolescence and becomes strengthened over time. Further, future research is warranted to determine whether the model is strengthened by the inclusion of ethnic identity. Specifically, it may be that ethnic identity serves as a higher order construct that impacts (e.g., moderates) the relationship between cognitive factors and worry through

promoting sociocultural processes and culturally-relevant coping throughout development between adolescence and adulthood.

While cultural socialization/pluralism, positive religious coping, and collective coping appear to not influence worry in African American children, the current study's findings indicate that other sociocultural experiences may exert influence on worry early in a child's development. In particular, income level appears to have an effect on worry in children between 8 and 13. While the pathway between lower income and worry in this population remains unknown, future models may be strengthened by the inclusion of income level and or SES. For instance, it may be that income level evinces a direct effect on worry or an indirect effect through impacting cognitive vulnerabilities and other risk variables. As previously mentioned, future research that elucidates whether racially-specific stress (e.g., acculturation stress, perceived discrimination) results in additive variance to worry is also needed to determine if the addition of this construct will also improve existing models.

Limitations

Although the current study was characterized by a number of strengths, its findings are restricted by several limitations. The cross-sectional design was necessary for recruitment purposes, however, it hindered our understanding of the directionality of effects. While the study findings and previous research have consistently demonstrated a relationship between cognitive factors and worry in youth, there is limited attention as to whether intolerance of uncertainty, negative problem orientation, and metacognitive beliefs serve as causal mechanisms to worry development. The use of a longitudinal

design would enhance our understanding of causality, as well as the timing and dose of these factors that is related to worry manifestation.

In addition to a cross-sectional design, characteristics of the current sample undoubtedly affected the results. In particular, the sample demonstrated higher levels of worry than expected in a community sample, which likely inflated the strength of the relationship between cognitive factors and worry compared to previous community samples. Given the small sample size, the exploration of whether differential associations between cognitive vulnerabilities, sociocultural variables, and worry emerged between high and low worriers was not possible, as there would not be adequate power to detect effects. Thus, it is unknown as to whether the findings of the current study represent a “typical” African American child. The small number of males in the current study may have also hindered our ability to detect gender differences on the study variables. A sample that had a more even distribution of genders would have been better able to determine whether the results covaried between males and females. Further, although the distribution of ages was roughly even in the sample, the small number of participants at each age may have deterred the observation of age-related effects. A larger sample size that utilized even numbers of children at each age would be beneficial in clarifying whether the relationship between cognitive factors equally holds across childhood. Further, the current sample was not representative of a typical community sample inasmuch as the children came from low-income, yet largely educated homes. As such, it is unknown as to whether the findings generalize to other African American children in the community.

Finally, the use of self-report measures was also a limiting factor in the current study. In particular, the measures utilized were adapted from adult measures to be developmentally appropriate for use with children; however, it is unknown as to whether these measures were valid indicators of the assessed constructs. While the psychometric properties of these measures were assessed as much as possible within the confines of the study, our understanding of their construct validity remains obscure. Thus, future studies would benefit from systematized evaluation of self-report measures that assess sociocultural processes in young children. In addition, future work may also benefit from the use of multi-informant data that assesses child behavior, rather than child and parent behavior.

Summary and Directions for Future Research

Overall, results of the study suggest that a cognitive model of worry can be generalized to African American children as young as 8 years old. Specifically, intolerance of uncertainty, negative problem orientation, negative beliefs about worry, and positive beliefs about worry demonstrate similarly strong associations with self-reported worry in African American children as compared to non-Hispanic White and normative populations. While cognitive factors appear important to worry in African American children, results of this study indicate that the sociocultural variables of racial socialization, religious coping, and collective coping may not exert influence on worry processes at this point in development. While these individual and often intrafamilial processes do not appear salient to worry in African American children, one's income level may impact their experience of worry and cognitive factors associated with worry.

This study makes an important contribution to the scarce literature regarding worry in African American children. Indeed, it represents the first study to go beyond examining the phenomenological experience of worry to validate factors associated with worry manifestation in this population. Future research should continue to clarify the role of cognitive factors in worry manifestation in African American children throughout development, including cognitive variables not assessed in the current study (e.g., information processing biases, cognitive avoidance). Specifically, research indicates that cognitive variables are likely dynamically related and interact with aspects of the child's maturation, such as cognitive development. As such, future research is needed to disentangle these relationships to determine which cognitive processes are most salient to worry at varying points in development. Understanding the temporal relationships between these variables and the timing and levels with which they become problematic will be important for prevention efforts.

In addition, the validation of other factors that predispose African American children to worry are needed, including temperamental, biological, emotional, and parenting variables. Although the sociocultural processes examined in the current study were not significant, the validation of the aforementioned factors should continue to clarify potential within-group and cross-ethnic variation. This focus is warranted given research suggesting differential patterns between risk factors and anxiety across African American families and non-Hispanic White families. For instance, research suggests that the relationship between parental control and child anxiety may not hold in African American parent-child dyads (Lamborn, Dornbusch, & Steinberg, 1996). Ethnicity has also been found to moderate relationship between parent self-efficacy and anxiety, inasmuch

as a relationship between this risk and outcome was observed in non-Hispanic Whites, but not African American families (Hill & Bush, 2001). Thus, consideration of culture and ethnicity will be crucial to creating a more complete empirical picture of how these processes impact African American youth.

In addition to continued validation of factors associated with worry development, longitudinal research is needed to examine worry in African Americans from childhood to adulthood, particularly given research suggesting discrepancies in worry levels between these times. Specifically, longitudinal designs that clarify when African Americans begin endorsing lower levels of worry than non-Hispanic White samples and what factors account for this switch may be particularly beneficial. Such studies should explore the relative role of normal developmental processes, traditionally established protective factors (e.g., approach coping, sense of mastery), as well as potential cultural influences (e.g., ethnic identity) in contributing to the reduction in self-reported worry. While exploring how these mean differences in worry occur, such work would be strengthened by also focusing on varying trajectories- including those that do not result in lower worry levels and increase the likelihood of clinical worry manifestation. Longitudinal studies would also be useful in determining whether the sociocultural processes explored in the current study become salient at later points in development and intersect with worry. This work should also seek to elucidate within-group variation in the use and efficacy of culturally-relevant coping strategies, such as the moderating or mediating effect of ethnic identity.

Finally, future research should determine whether cognitive models are applicable to clinical samples of African American youth. Although the participants in the current

study endorsed high levels of worry, it is unknown whether the findings would generalize to children who are diagnosed with an anxiety disorder, specifically GAD. As such, continued research on the influence of cognitive factors, sociocultural processes, and other vulnerability factors is needed in clinical samples of African American children and adolescents. Investigating what factors place children at risk of, as well as those that protect them from, the development of pathological worry will be essential for early prevention and intervention.

Table 1

Participant Demographics

	<i>N</i>	<i>%</i>
Child Gender		
Female	31	62
Male	19	38
Parent Gender		
Female	46	92
Male	4	8
Parent Education Level		
Grade 9	1	2
Grade 10 or 11	6	12
High School Graduate	7	14
Some college or specialized training	13	26
College Graduate	17	34
Graduate or Professional Training	6	12
Income		
<\$10,000	26	52
\$10,000-\$19,999	3	6
\$20,000-\$29,999	8	16
\$30,000-\$39,999	5	10
\$40,000-\$49,999	3	6
\$50,000-\$59,999	0	0
\$60,000-\$69,999	0	0
\$70,000-\$79,999	1	2
\$80,000-\$89,999	2	4
\$90,000-\$99,999	0	0
>\$100,000	1	1

Table 2

Descriptive Statistics of Child Self-Report Measures between Genders

Measure	Females	Males
	M (SD)	M (SD)
1. PSWQ-C	15.85(8.31)	18.72(8.79)
2. IUS-C	65.86(26.23)	64.64(25.45)
3. NPO-Q	29.16(12.77)	27.67(7.67)
4. MCQ-C Positive Beliefs	11.92(4.44)	12.17(5.27)
5. MCQ-C Negative Beliefs	13.04(4.93)	13.46(4.43)
6. ACSI-C Collective Coping	10.22(5.85)	12.00(5.87)
7. Cultural Socialization/Pluralism	12.19(9.35)	17.80(6.42)
8. RCOPE-C Positive	9.18 (4.52)	10.11(3.91)

Table 3

Correlation coefficients (r) for all study variables.

	1.	2.	3.	4.	5.	6.	7.	8.
1.PSWQ-C	1.00							
2.IUS-C	.68**	1.00						
3. NPO	.66**	.85**	1.00					
4. MCQ- Positive	.50**	.61**	.41**	1.00				
5. MCQ- Negative	.73**	.84**	.75**	.42**	1.00			
6.ACSI Collective Coping	.29*	.18	.12	.21	.14	1.00		
7.Positive Religious Coping	-.01	.07	-.06	-.09	.09	.47**	1.00	
8.Cultural Socialization	.32*	.21	.07	.17	.19	.49**	.18	1.00

Note: *p<.05; **p<.01

Table 4
Predicting PSWQ-C from Cognitive Variables

PSWQ-C				
	t	β	F	R ²
Block 1			4.82*	.097
Income Level	-2.19*	-.31		
Block 2			13.17***	.616
Income Level	-1.16	-.13		
IUSC	-.37	-.11		
NPO	1.5	.31		
MCQ-Positive	1.12	.16		
MCQ-Negative	2.68*	.50		

*p<.05, **p<.01, ***p<.001

Table 5

Predicting PSWQC from Sociocultural Factors

PSWQ-C				
	t	β	F	R ²
Block 1			3.45	.074
Income Level	-1.86	-.27		
Block 2			3.83	.219
Income Level	-1.68	-.23		
Racial Socialization	2.44	.42		
ACSI-Collective	-.38	-.38		

*p<.05, **p<.01, ***p<.001

Table 6

Moderation Model predicting PSWQ-C

PSWQ-C				
	t	β	F	R ²
Block 1			3.51	.079
Income Level	-1.87	-.28		
Block 2			14.47***	.604
Income Level	-1.06	-.11		
Cognitive Composite	6.51***	.70		
Sociocultural Composite	1.28	.14		
Interaction	-.88	-.10		

*p<.05, **p<.01, ***p<.001

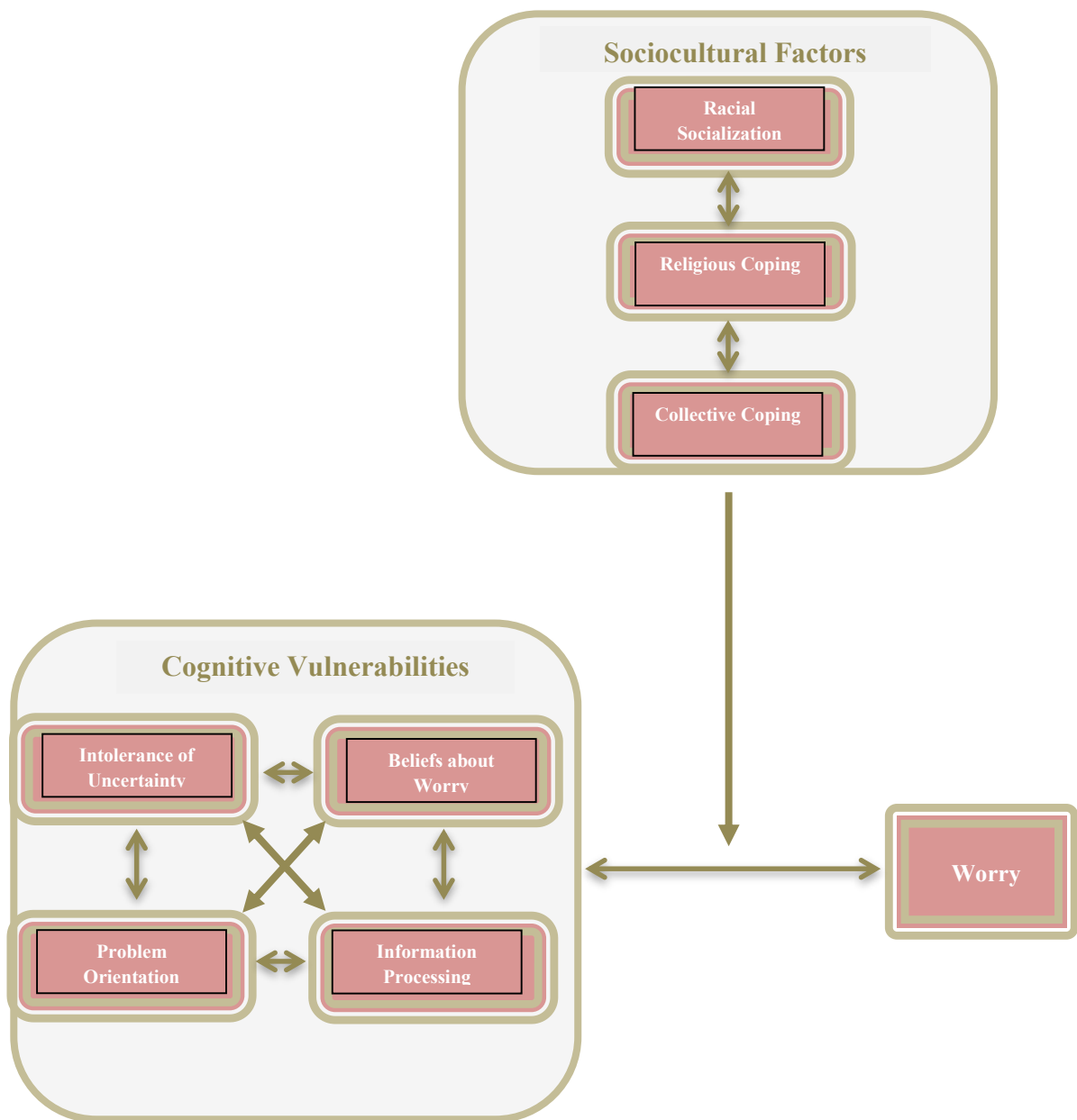


Figure 1. *Proposed culturally-sensitive cognitive model of worry in African American youth.*

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- Zolkoski, S. M., & Lyndal, M. B. (2012) Resilience in Children and Youth: A Review.” *Children and Youth Services Review*, 34(12), 2295–2305.
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CURRICULUM VITAE
Allyn E. Richards, M.A.

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Louisville, KY 40292	Email: aerich04@louisville.edu

EDUCATION

- 2016 (expected) Ph.D. University of Louisville (Louisville, KY)
Clinical Psychology
Faculty mentor: Janet Woodruff-Borden, Ph.D.
- 2013 M.A. University of Louisville (Louisville, KY)
Clinical Psychology
Faculty mentor: L. Kevin Chapman, Ph.D.
- 2010 B.S. Central Michigan University (Mount Pleasant, MI)
Psychology, Family Studies
Summa Cum Laude
Undergraduate Honors Program

DISSERTATION TOPIC

“A Culturally-Sensitive Cognitive Model of Worry in African American Youth”

RESEARCH EXPERIENCE

2014 – Present Graduate Research Assistant, Developmental Psychopathology
Research Laboratory, Department of Psychological and Brain Sciences,
University of Louisville
Supervisor: Janet Woodruff-Borden, Ph.D.

Study the developmental psychopathology of stress and anxiety in diverse families and children. Cross-sectional and longitudinal research approaches are utilized to examine factors that predispose and mitigate anxiety development across the lifespan in order to promote resilience and wellness. Emphasis is placed

on the influence of cultural milieu on worry processes, particularly the protective effect of sociocultural variables. Responsibilities include recruitment, data collection, data entry and analysis, and supervision of undergraduate research assistants. Specific research projects include

The Multiracial Family Wellness Project (MFWP) study: Cross-sectional research study aimed at examining stress, anxiety, and resilience in a comparative sample of non-Hispanic White, African American, and Biracial families. Assisted in the development of the Institutional Review Board protocol, writing of an intramural research grant initiative, and recruitment of the community-based, low income, diverse sample. Conducted client and parent/child ADIS-IV interviews with diverse families and assisted with data collection, entry, and management.

2011 – 2014 Graduate Research Assistant, The Center for Mental Health Disparities, Department of Psychological and Brain Sciences, University of Louisville
Supervisor: L. Kevin Chapman, Ph.D.

Studied anxiety and related constructs in African American families and children. In particular, research emphases included the assessment of anxiety in diverse families, sociocultural factors that promote resilience to anxiety, and program development and evaluation for traditionally-underserved youth. Duties included assisting in the writing of internal grants for the Multiracial Family Wellness Project and the West End School Project, which sought to examine stress, anxiety, and resiliency in low-income African American youth at a residential school. Duties also included data analysis and scholarly production from the CAFÉ Project, a study that explored the familial transmission of anxiety in a community sample of African American parent-child dyads. Assisted in the development of a curriculum for a 6-week program aimed at promoting resilience and reducing recidivism in male juvenile offenders (ages 12-17).

2009 – 2011 Research Assistant, The Center for Community-Academic Initiatives for Development, Department of Psychology, Central Michigan University
Supervisor: Richard Mattson, Ph.D.

Research emphases included the development, adaptation, and dissemination of services for Latino youth, particularly those at-risk of gang-affiliation. Developed and completed a study that evaluated the efficacy of a positive youth development program on emotional and behavioral outcomes in Latino youth. Assisted in the coding of focus group data and manuscript preparation examining sexual education attitudes and parenting among gang-diverging Latino/a youth and their parents.

2010 – 2011 Research Assistant, Parent-Child Interaction Therapy Clinic, Department of Psychology, Central Michigan University
Supervisor: Larissa Nicole Niec, Ph.D.

Aided in a study examining the impact of behavior observations on in-vivo coaching in Parent-Child Interaction Therapy. Duties included coding therapist behaviors in Parent-Child Interaction Therapy sessions utilizing a therapist coding scheme developed for the study.

2009 Research Assistant, Social Psychology Laboratory
Department of Psychology, Central Michigan University
Supervisor: Melvyn Jaffa, Ph.D.

Assisted in data collection, including management of SONA systems, in a study examining the unconscious nature of cognitive dissonance.

SCHOLARLY PUBLICATIONS

- 2015 Richards, A. E., Szabo-Long, C., & Woodruff-Borden, J. (in preparation). Ethnic Identity as a moderator of temperament, parental anxiety, and worry in African American youth.
- 2014 Kassab, V.A., Acevedo-Polakovich, I.D., Grzybowski, M.M., Stout, S., Richards, A.E., Barnett, M.L., Guerra-Morales, A., Bell, K.M., Crider, E.A., Beck, K.L., Brookins-Fisher, J., Alfaro, M., & Saxena, S.R. (2014). Views on Sex and Sex Education among Gang-Involved Latino Youth in the United States. *Qualitative Health Research*. Advanced online publication.
- 2014 Richards, A., Chapman, L.K., & Petrie, J. (accepted for publication). Religious coping as a moderator of perceived control and panic symptoms in African Americans. *The Journal of Black Psychology*.
- 2014 Richards, A., & Woodruff-Borden, J. (under review). A culturally-sensitive cognitive model of worry in African American youth. Manuscript submitted at *Cultural Diversity & Ethnic Minority Psychology*.
- 2013 Petrie, J., Chapman, L. K., & Richards, A. (under review). The efficacy of self-report measures in predicting social phobia in African American adults. Manuscript submitted for publication at *The Journal of the National Medical Association*.
- 2013 Chapman, L.K., Richards, A., & DeLapp, R. (2014). Assessment of Phobia, Panic, & GAD with African Americans. In L.T. Benuto (Ed.), *Guide to Psychological Assessment with African Americans*. New York, NY: Springer.
- 2012 Petrie, J., Richards, A., & Chapman, L. K. (in revision). The relationship between resiliency and psychopathology in African American youth. Manuscript in revision.

- 2011 Kassab, V.A., Acevedo-Polakovich, I.D., Grzybowski, M.M., Stout, S., Richards, A.E., Barnett, M.L., Guerra-Morales, A., Bell, K.M., Crider, E.A., Beck, K.L., Brookins-Fisher, J., Alfaro, M., & Saxena, S.R. (Under Review). Understanding views on parenting and fatherhood among gang-involved U.S. Latino youth. Manuscript under review at Family Process.

OTHER PUBLICATIONS

- 2010 Acevedo-Polakovich, I.D., & Richards, A.E. (2010). The 2010 Supporting our Leaders Program: An initial evaluation and directions for future development. Mount Pleasant, MI: Center for Community-Academic Initiatives for Development at Central Michigan University.
- 2010 Gerhart, J. I., Acevedo-Polakovich, I.D., & Richards, A.E. (2010). The Hispanic Center of West Michigan's Gang Awareness Workshop: A Formative and Effectiveness Evaluation. Mount Pleasant, MI: Center for Community-Academic Initiatives for Development at Central Michigan University.

CONFERENCE PRESENTATIONS

- 2015 Szabo-Long, C., Richards, A., & Woodruff-Borden, J. (April, 2015). Ethnic identity as a moderator of temperament and worry in African American youth. Poster presented at the Anxiety and Depression Association of America 2015 Conference, Miami, FL.
- 2014 Simms, J., Richards, A., Petrie, J., & Woodruff-Borden, J. (November, 2014). Perceived control as a mediator of religious coping and trait anxiety in African American adults. Poster presented at the Behavior and Spirituality Special Interest Group, Association for Behavioral and Cognitive Therapies Annual Conference, Philadelphia, PA.
- 2013 Bahojb Nouri, L., Richards, A., DeLapp, R., & Chapman, L.K. (November, 2013). The impact of the Gentleman's Academy on anger and related constructs in African American youth with a history of delinquency. Poster presented at the African Americans in Behavioral Therapy Special Interest Group, Association for Behavioral and Cognitive Therapies Annual Conference, Nashville, TN.
- 2013 DeLapp, R., Keen, A., Richards, A., & Chapman, L.K. (November, 2013). Individual characteristics related to the psychological functioning of at-risk inner city youth. Poster to be presented at the African Americans in Behavioral Therapy SIG, ABCT, Nashville, TN.
- 2012 Richards, A., Chapman, L.K., & Petrie, J. (November, 2012). Religious coping as a moderator of perceived control and panic symptoms in African American adults. Poster presented at Association for Behavioral and Cognitive Therapies Annual Conference, National Harbor, MD.

- 2012 DeLapp, R., Petrie, J., Richards, A., Davis, D., Bahojb-Nouri, L., Buckner, E., & Chapman, L.K. (November, 2012). Patterns of fear in African American urban youth: A factor analysis of Fear Survey Schedule — Revised in a community-based African American youth sample. Poster presented at the African Americans in Behavioral Therapy Special Interest Group, Association for Behavioral and Cognitive Therapies Annual Conference, National Harbor, MD.
- 2011 Richards, A., Petrie, J., & Chapman, L. K. (November, 2011). The relationship between resiliency and psychopathology in African American youth. Poster presented at the Association for Behavioral and Cognitive Therapies Conference, Toronto, ON.
- 2011 Richards, A. (April, 2011). The 2010 Supporting our Leaders Program: An initial evaluation and directions for future development. Poster presented at the Student Research and Creative Endeavors Exhibit, Mount Pleasant, Michigan.

INVITED PROFESSIONAL PRESENTATIONS

- 2011 Acevedo-Polakovich, I.D., Kassab, V.A., Grzybowski, M.M., Bell, K.M., Abbenante, E.S., Barnett, M.L., Crider, E.A., & Richards, A.E. (April, 2011). Addressing disparities while building community: Community-based participatory prevention research with historically underserved adolescents. Invited presentation delivered to the Department of Psychology at the University of Louisville. Louisville, KY.
- 2011 Barnett, M., Niec, L., & Richards, A. ([September, 2011](#)). How behavior observations guide in vivo coaching in parent child interaction therapy. Symposium presented at the 2011 Biennial PCIT International Convention, Gainesville, FL.

CLINICAL EXPERIENCE

Clinical Experience

- 2013 - Present: Graduate Clinical Assistant;
Noble H. Kelley Psychological Services Center, University of Louisville;
Supervisor: Bernadette Walter, Ph.D.

Conduct intake interviews with incoming clients, produce integrative reports and initial diagnostic impressions and case conceptualization to present to clinical treatment teams. Serve as the point person for managing crisis situations that occur both within the clinic and by telephone communication. Within crisis situations, advise students and facilitate community contacts and resources as necessary. Supervise graduate students' clinical activities, including intake assessments, therapy sessions, and mandatory reporting situations. Collaborate

with external agencies to facilitate referrals, outreach, and client case management. Responsible for the management of clinical operations, including chart audits, scheduling, and payment records. Educate graduate students and clinical supervisors regarding clinic policies, and ensure that clinical protocols are appropriately followed by clinic staff. Collaborate with the clinic director to reason through and resolve ethical dilemmas as they arise. Attend weekly supervisory meetings with the clinical director to discuss incoming clients and other clinical concerns. Serve as a liaison between the clinical director and clinical treatment teams.

2013 – Present: Graduate Student Therapist; Cognitive-Behavioral Therapy Team; Noble H. Kelley Psychological Services Center, University of Louisville
Supervisor: Janet Woodruff-Borden, Ph.D.

Conceptualize and implement interventions within a cognitive-behavioral theoretical framework with diverse clients and presenting problems. Through the integration of idiographic data and the scientific literature, adapt empirically-supported treatments to meet the unique needs of individual clients across the lifespan (i.e., children, adolescents, adults, older adults). Utilize empirically-supported approaches in the treatment of numerous psychological disorders, including panic disorder, obsessive-compulsive disorder, mood disorders, and emotion regulation. Participate in weekly conceptualization-driven supervision, including support and feedback for other team members' clinical activities and didactic discussion regarding manualized treatments for discrete disorders and empirically-driven case conceptualization. Serve as the team leader during supervisory absence, including facilitating team discussion and feedback, and coordinating with the clinical director regarding case assignment.

2015-Present: Graduate Student Therapist; Athena's Sisters
Supervisor: Bernadette Walter, Ph.D.

Provided consultation services, including brief assessments and referrals, to female veterans. Received psychoeducation regarding factors impacting mental health and wellness in veteran women.

2011 – 2013: Graduate Student Therapist; Children with AD/HD and Related Disorders Therapy Team
Noble H. Kelley Psychological Services Center, University of Louisville
Supervisor: Paul J. Rosen, Ph.D.

Conducted intake assessments with children and families, produced integrated reports, and provided an initial case conceptualization of client difficulties. Conceptualized and implemented therapeutic strategies from a cognitive-behavioral perspective with children and adolescents from diverse families and with varied presenting problems. Adapted manualized treatments to meet the unique needs of individual children and their families, who presented with

AD/HD, mood disorders, and emotion dysregulation. Adjusted treatment delivery based upon diverse family contexts. Received didactic training and implemented empirically-supported treatments, including behavior management and Collaborative Problem Solving. Consulted with school personnel regarding psychoeducation, case conceptualizations, and classroom accommodations. Served as a group leader for various psychoeducation and psychotherapeutic groups, including a Managing Frustration group for children, a Social Skills group for children, and an AD/HD Psychoeducation group for parents.

Assessment Experience

2011 – Present: Graduate Student Therapist,
Noble H. Kelley Psychological Services Center, University of Louisville;
Supervisors: Bernadette Walter, Ph.D.; David Wunsch, Ph.D.; Paul Rosen, Ph.D.

Child experience: administration of assessments and completion of integrative reports under the supervision of licensed psychologists including: Advanced Placement, ADHD, and Autism Spectrum Disorders assessments of children and adolescents. Conducted structured interviews with children, adolescents, families, and professionals. Administered various psychodiagnostic tests, including but not limited to, the WISC-IV and the WJ-III. Communicated results of assessment to community professionals.

Adult experience: administration of assessments and completion of integrative reports under the supervision of licensed psychologists. Assessments included the administration of the WAIS-IV, Woodcock-Johnson III, Trail Making Test, CPT, Developmental Test of Visual-Motor Integration, personality assessments (MMPI-II and MCMI-III) and adult structured interviews for the assessment of cognitive functioning, learning disabilities, mood disorders, and ADHD.

External Practicum Experience:

2014: Graduate Student Therapist, Family Scholar House, Louisville, KY
Supervisor: Bernadette Walter, Ph.D.

Facilitated a weekly didactic group aimed at fostering adaptive coping strategies, promoting resilience, and mitigating distress to low-income, ethnically-diverse, single parents enrolled in the Family Scholar House program. Provided psychoeducation and practice in cognitive, behavioral, and mindfulness-based techniques. Within sessions, utilized group members' individual experiences in order to modify treatment strategies and promote optimal learning. Administered psychometric assessments at the initiation and completion of the groups in order to determine treatment efficacy.

2013 – Spring, 2015: Graduate Student Intern, Forensic Mental Health Services, University of Louisville, KY
Supervisors: Kelli N. Marvin, Ph.D., Kristen McCrary, Ph.D.

Assisted in court-ordered child abuse and neglect and parent custody evaluations with predominately low-income, rural respondents. Conducted semi-structured interviews regarding respondents' background history, fund of parental knowledge, and mental status. Assessed respondents' reading level and administered psychometric tests, including the WAIS-IV, MMPI-2-RF, and CAPI-2. Reviewed, documented, and integrated records pertaining to the instant proceedings and the respondent's and subject children's Cabinet involvement, background history (e.g., familial, legal, psychological, residential), and response to court-ordered recommendations. Aided in the writing of court-ordered assessment reports utilizing psycholegal language. Contacted respondents prior to evaluations and gathered information about previous legal, psychological, and medical service history in order to obtain records. Received weekly supervision from a licensed forensic psychologist.

2013: Group Leader, The Gentleman's Academy, Louisville Metro Police Department, KY.
Supervisor: L. Kevin Chapman, Ph.D.

Co-facilitate bi-weekly psychoeducational groups for low-income, adolescent boys ages 12-17 who were identified "at-risk" of juvenile delinquency. Presented psychoeducation regarding emotional reactivity and related concepts (e.g., emotional awareness, frustration management, emotion regulation strategies, problem-solving, goal setting).

Additional Clinical Experience:

2010-2011: Parent-Child Interaction Therapy Assistant, Central Michigan University, Mount Pleasant, MI
Supervisor: Larissa Niec, Ph.D.

Supervised children during parent training in Parent-Child Interaction Therapy (PCIT). Utilized PCIT PRIDE skills in order to manage child behavior. Attended weekly team supervision with a licensed clinical psychologist.

COMMUNITY PRESENTATIONS

2015 Richards, A. (March, 2015). Stress management. Presented at PAL Coalition, Louisville, KY.

2014 Richards, A. (November, 2014). Stress management in the work place. Presented at Wesley House Community Ministries, Louisville, KY.

- 2014 Petrie, J., & Richards, A., (April, 2014). Stress management. Presented at Family Scholar House, Louisville, KY.
- 2014 Richards, A., DeLapp, R., Buckner, E., & Chapman, L.K. (January, 2014). Overcoming the effects of bullying: Parental support. Presented at the Lincoln Foundation, Louisville, KY.
- 2013 Richards, A., DeLapp, R., & Chapman, L.K. (April, 2013). Overcoming test anxiety. Presented at the Lincoln Foundation, Louisville, KY.
- 2013 Richards, A. & Hart, M. (April, 2013). Stress in the work place. Presented at Dress for Success monthly meeting, Louisville, KY.

TEACHING EXPERIENCE

- 2014 Graduate Teaching Assistant/Clinical Assistant, Noble H. Kelley Psychological Services Center, Louisville, KY
 Course: Intellectual and Cognitive Assessment
 Supervisor: Bernadette Walter, Ph.D.

Discussed and demonstrated the administration of cognitive assessments, including the WISC-IV, WAIS-IV, and WJ-III to incoming clinical graduates students. Led group discussions regarding the assessment of cognitive functioning in diverse clinical populations. Graded WISC-IV, WAIS-IV and WJ-III administrations and integrative reports. Provided feedback of administration accuracy and areas for improvement. Presented on and facilitated discussion regarding conducting assessments with children and families.

- 2013 - 2014 Graduate Teaching Assistant/Clinical Assistant, Noble H. Kelley Psychological Services Center, Louisville, KY
 Course: Clinical Interview Skills
 Supervisor: Janet Woodruff-Borden, Ph.D.

Facilitated and developed courses regarding basic clinical interviewing skills with incoming clinical psychology graduate students. Responsibilities included leading group discussions, facilitating clinical role-plays, and grading weekly written assignments. Provided both real-time and post-hoc feedback in order to facilitate continued learning. Within various roles, challenged students to think critically about multicultural considerations within clinical interviewing and therapeutic contexts.

- 2013 Graduate Teaching Assistant, University of Louisville, Louisville, KY
 Course: Experimental Psychology
 Supervisor: Lora Haynes, Ph.D.

Developed the content for and facilitated recitation classes to complement lecture material. Assisted students in the development and completion of an APA research paper. Responsible for grading class papers and quizzes. Held weekly office hours in order to address student questions and facilitate student learning.

- 2012 Graduate Teaching Assistant, University of Louisville, Louisville, KY
Course: Experimental Psychology
Supervisor: Melinda Leonard, Ph.D.

Developed the content for and facilitated recitation classes to complement lecture material. Assisted students in the development and completion of an APA research paper. Responsible for grading class papers and quizzes. Held weekly office hours in order to address student questions and facilitate student learning.

- 2012 Graduate Teaching Assistant, University of Louisville, Louisville, KY
Course: Multicultural Psychology
Supervisor: L. Kevin Chapman, Ph.D.

Attended weekly classes and assisted in the facilitation of course discussion. Graded quizzes and written assignments, and assisted in the development of class assignments. Conducted class presentations and led discussion during instructor's absence. Held weekly office hours in order to address student questions and enhance learning.

- 2012 Graduate Teaching Assistant, University of Louisville, Louisville, KY
Course: Multicultural Psychology
Supervisor: L. Kevin Chapman, Ph.D.; Monnica Williams, Ph.D.

Attended weekly classes and assisted in the facilitation of course discussion. Graded quizzes and written assignments, and assisted in the development of class assignments. Conducted class presentations and led discussion during instructor's absence. Held weekly office hours in order to address student questions and enhance learning.

- 2012 Graduate Teaching Assistant, University of Louisville, Louisville, KY
Course: Cognitive Processes
Supervisor: Julia Chariker, Ph.D.

Attended weekly classes and assisted in the facilitation of course discussion. Graded quizzes and class assignments. Facilitated study groups prior to exam administration. Held weekly office hours in order to address student questions and enhance learning.

VOLUNTEER/COMMUNITY SERVICE EXPERIENCE

- 2013 – Present Clinical Psychology Graduate Student Representative, University of

Louisville, KY

Attended faculty meetings and facilitated communication between clinical psychology graduate students and faculty. Assisted in the implementation of initiatives to enhance faculty-student communication, including establishing a cohort-liaison system, monthly liaison meetings, and biannual Director of Clinical Training and student meetings. Organized events to promote student cohesion, including with other Psychological and Brain Sciences programs. Assisted in the organization and implementation of departmental interviews for graduate student applicants, as well as orientation for incoming clinical psychology students.

2014-Present: Graduate Clinic Assistant Outreach Coordinator, University of Louisville, Louisville, KY

Organize outreach opportunities for graduate students and the Psychological Services Center. Foster community connections in order to promote awareness of mental health issues and facilitate access to quality care for populations that have been traditionally underserved.

2013-2014 Graduate Clinic Assistant Colloquium Organizer, University of Louisville, Louisville, KY

Organized the monthly Psychological Services Center Colloquium Series in which community professionals conducted didactic presentations regarding issues pertaining to research and practice within the field of clinical psychology. Facilitated the inclusion of numerous colloquia addressing multicultural considerations within the realm of clinical practice and research. Responsible for organizing the bi-annual workshop series, where students, faculty, and community practitioners received a full-day training on a specialized empirically-supported practice. Record keeping and distribution of CE certificates were included in responsibilities. Organized the program's Brown Bag series, in which fourth-year clinical students presented their dissertation topic and methodologies to graduate clinical psychology students.

2012-2013 Graduate Student Representative Alternate, University of Louisville, KY

Attended faculty meetings in the case of student representative absence. Facilitated communication between students and faculty. Assisted in the organization and implementation of clinical psychology applicant interviews and incoming student orientation.

2010 Summit Clubhouse Volunteer, Community Mental Health, Mount Pleasant, MI

Assisted a psychosocial rehabilitation center for individuals diagnosed with severe mental illness with daily functions (e.g., meal preparation, activity implementation, social support).

- 2008 HEV 320H Service Learning Course, Central Michigan University, Mount Pleasant, MI

Engaged in a three-week service learning course in Oaxaca, Mexico. Worked in an orphanage for developmentally-delayed youth. Planned and performed activities targeting the development of fine motor, large motor, and reading skills.

WORKSHOPS AND SUPPLEMENTAL TRAINING

- 2014 Seminar in Solution-Focused Therapy
University of Louisville

Full day psychoeducational and experiential workshop on Brief Solution-Focused Therapy within diverse clinical presentations and treatment contexts. Workshop included psychoeducation regarding Solution-Focused Therapy efficacy and treatment strategies, as well as role-play components.

- 2013 Seminar in Treatment Courses in Post-Traumatic Stress Disorder,
University of Louisville

Full day psychoeducational seminar on current approaches to symptoms, diagnosis, and treatment of post-traumatic stress disorder with a focus on interventions with military veterans.

- 2013 Seminar in Functional Analytic Psychotherapy,
University of Louisville

Full day didactic and experiential seminar devoted to utilizing functional analytic psychotherapy treatment strategies with diverse clients, including interactive and role-play components.

- 2012 Seminar in Comprehensive Behavioral Intervention for Tics Disorder,
University of Louisville

Full day didactic seminar devoted to treatment courses for tics and Tourette's disorders, including interactive and role-play components.

CULTURAL COMPETENCY

- 2013 Volunteer Activity Leader; Transgender Awareness Week, Louisville, KY

Developed and facilitated a structured workshop for community individuals to promote awareness of issues affecting LGBT individuals. Specific discussion

included sensitivity to LGBT issues and factors that promote resilience within LGBT communities.

2014 Research Assistant, Multiracial Family Wellness Project, University of Louisville: Conducted ADIS-IV interviews with predominately low-income, African American families. Met for weekly supervision to discuss cultural influences on psychopathology, including differentiating culturally-appropriate behaviors from pathological symptoms.

2011-2013 Courses: Multicultural Psychology, Gender and Queer Issues in Psychology, Forensic Assessment

2011 – 2014 Seminars attended: Multicultural Awareness, Tailoring Psychotherapy to Service Members, Eating Disorder Treatment, Substance Abuse Treatment, Severe Psychopathology, Mindful Eating and Healthy Behaviors, Distress Tolerance, LGBTQ issues in psychotherapy, Trauma and PTSD, How Human Experience Shapes Health Care Delivery, Early Intervention for Infants and Toddlers, Culture and Mental Health

PROFESSIONAL ORGANIZATION MEMBERSHIPS

2011 - 2013 Association for Behavioral and Cognitive Therapies, African Americans in Behavioral Therapy Special Interest Group member.

2008 - Present Psi Chi National Honors Society in Psychology, student affiliate

ACADEMIC AND EXTRACURRICULAR HONORS

2011 Association for Behavioral and Cognitive Therapies, African Americans in Behavior Therapy Special Interest Group “Most Important Research” award

2011 Central Michigan University Honors Program Outstanding Senior Project Award

2007-2011 Central Michigan University Centralis Scholar Scholarship (competitive scholarship that covers 100% of fees, tuition, and room and board for four year)

2007-2011 Central Michigan University Honors Program

INTRAMURAL GRANT FUNDING

2015 Arts & Sciences Research & Creative Activities Grant

Project title: Multiracial Family Wellness Project
Authors: Richards, A., & Woodruff-Borden, J.
Status: Awarded (Total costs: \$500)

- 2013 Intramural Research Incentive Grants: Research Initiation Grant, University of
Louisville
Project title: Multiracial Family Wellness Project
Authors: Petrie, J., Richards, A., & Chapman, L.K.
Status: Awarded (Total costs: \$3,500)