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Racial Differences in Exposure and Reactivity to Daily Family Stressors

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Abstract

Using data from the National Study of Daily Experiences (NSDE), this study examined racial differences in exposure and reactivity to daily stressors involving family members. Respondents included African American and European American adults aged 34 to 84 (N = 1,931) who participated in 8 days of daily interviews where they reported on daily stressors, affect, and physical health symptoms. Results revealed racial similarities in family stressor exposure. Both races were also emotionally reactive to family arguments and family network events (i.e., events that happen to a family member), whereas African Americans were more physically reactive to family arguments. For African Americans, reactivity to family arguments endured; the increased negative affect and physical symptoms associated with family arguments lasted into the next day. Findings provide evidence for racial similarities and differences, suggesting that family relationships are universally stressful, whereas the negative effects of family stressors are more enduring among African Americans.

Differential exposure to stressful events is often cited to explain African Americans' health disadvantage (Kessler, Mickelson, & Williams, 1999; Pearlin, Schieman, Fazio, & Meersman, 2005; Williams & Mohammed, 2009), whereas supportive family networks are considered a health-enhancing resource that buffers African Americans from the harmful effects of stressors (Chatters, Taylor, Lincoln, & Schroepfer, 2002; Dilworth-Anderson, Williams, & Gibson, 2002). A growing body of work, however, also emphasizes the value of considering the negative implication of these same family ties because even supportive family relationships are at times conflicted, demanding, and sources of concern (Durden, Hill, & Angel, 2007; Lincoln, Chatters, & Taylor, 2003; Williams, 2002). Although the negative effects of chronic stressors (e.g., discrimination and economic deprivation) on African Americans' health and well-being are substantial and well-documented (Gee, 2002; Kessler et al., 1999; Williams & Mohammed, 2009), few studies have examined the extent to which the stressful aspects of family relationships are stratified by race. The current study explores the negative side of African Americans' family ties by focusing attention on daily interpersonal stressors, such as family arguments, that are an inevitable part of daily family life. We focus on daily events because stress research emphasizes that these minor challenges of daily life have significant implications for health and well-being (Almeida, 2005; Bolger, DeLongis, Kessler, & Schilling, 1989; McIntyre, Korn, & Matsuo, 2008) both

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by disrupting functioning on the day they occur and by piling up over a series of days (Almeida, 2005; Bolger, Davis, & Rafaeli, 2003). We extend previous racial disparities research by examining how differential exposure and reactivity to these naturally occurring daily stressors of family life compromise African Americans' health and psychological well-being.

The Current Study

The current study utilizes a daily diary design in order to examine differences in exposure and reactivity to daily family stressors between African Americans and European Americans. By definition, stress is a process that occurs within the individual when an individual encounters a challenging or disruptive event (i.e. stressor exposure) and evidences an emotional, physiological or behavioral reaction to the event (i.e., stressor reactivity). Daily family stressors are the routine challenges and frustrations of day-to-day family life that disrupt family relationships, and are likely to have direct, immediate effects on well-being (Almeida, 2005). The daily diary approach captures within-person processes, making it possible to examine day-to-day fluctuations in associations between family stressors and well-being within the same individual over time (Almeida, 2005; Bolger et al., 2003). This design is a step toward understanding how proximal processes, such as stressor reactivity, may have consequences for racial disparities in long-term health and well-being (Bolger et al., 2003; Williams & Mohammed, 2009).

An adapted version of the Daily Stress Process Model, the Daily Family Stress Model, provides the conceptual framework for examining the linkages between race, family relationships, and the daily stress process (Almeida, 2005; Figure 1). In this model, race represents a sociodemographic factor that is proposed to shape both exposure and reactivity to daily family stressors. We anticipate that African Americans will be particularly vulnerable to daily family stressors. Previous research provides support for racial stratification of stress, where African Americans are disproportionately exposed to stressful life events and chronic strains (e.g., Mujahid, Roux, Cooper, Shea, & Williams, 2011). In African American families, frequent contact with family network members (Chatters et al., 2002; Sarkisian & Gerstel 2004) coexists with the residential segregation, racial discrimination, and economic strains that exist for African Americans at all incomes levels (Murry, Brown, Brody, Cutrona, & Simons, 2001; Williams & Mohammed, 2009). The unique context of African Americans' lives is proposed to play a role in determining the kinds of family stressors African Americans experience and how they react emotionally and physically to daily family stressors.

In considering racial differences in the stress process, the adapted Daily Stress Process Model also indicates that it is necessary to consider objective characteristics of stressors, such as stressor content (Almeida, 2005; McIntyre et al., 2008). Family stressors represent a specific class of daily stressors that include both interpersonal tensions as well as network events (Almeida, Wethington, & Kessler, 2002). *Interpersonal tensions* occur when one family member experiences dissatisfaction or frustration with the behavior of another family member, and involve both overt conflicts (i.e., family arguments) as well as tense social interactions where individuals chose to avoid an argument (i.e., avoided family arguments; Charles, Piazza, Luong, & Almeida, 2009). *Network events* refer to stressful events that happen to a family member (e.g., sister's illness) that elicit adaptation in the participant. Stressors that directly threaten family relationships and directly involve the respondent, such as interpersonal tensions, may hold greater implications for daily health and well-being than network events that do not involve the respondent, but rather involve another family member's stressors. Further, it is possible that racial differences characterize exposure and reactivity to some family stressors and not others. Therefore, the current study distinguishes

between different types of family stressors in order to capture this variability in the daily stressors of family life.

Racial Differences in Exposure to Daily Family Stressors

The *stressor-exposure* path in Figure 1 examines how race plays a role in the likelihood of experiencing family stressors (Almeida, 2005; Bolger & Zuckerman, 1995). Family members represent the majority of African Americans' social network members (Ajrouch, Antonucci, & Janevic, 2001), and daily family stressors are most likely to arise out of the routine circumstances of everyday life (Almeida, 2005). Therefore, frequent contact with extended family members in African American families (Chatters et al., 2002; Sarkisian & Gerstel, 2004), is expected to increase African Americans' opportunities to encounter family stressors.

Family stressors, such as an argument with a spouse or a parent's illness, are embedded in the larger social context of African Americans' lives. After adjusting for socioeconomic status, African Americans are also at elevated risk for disease, have lower wealth compared to European Americans, and are more likely than European Americans to face financial worries and be exposed to issues with neighborhood safety (Mujahid et al., 2011; Williams, 2002; Williams & Mohammed, 2009). Chronic stressor exposure represents a risk factor that increases the likelihood of encountering daily hassles (Ong, Fuller-Rowell, & Burrow, 2009). African Americans also report lower marital satisfaction, more frequent marital disagreements, and a greater emphasis on parental authority (Broman, 2005; Bulanda & Brown, 2007; Smetana & Chuang, 2001). Further, African Americans' family networks seem to create a contagion of stress, where other family members are also experiencing their own chronic strains that generate additional stressors (Everett, Hall, & Hamilton-Mason, 2010). The nature of African Americans' family ties and racial disparities in health and income may create a context for family tensions to arise while increasing African Americans' vulnerability to network events, such as a parent's health problem or brother's financial hardship. Therefore, we hypothesize that African Americans will be exposed to more family stressors compared to European Americans (Hypothesis 1).

Racial Differences in Reactivity to Daily Family Stressors

As stated earlier, African Americans' health disadvantage is often attributed in part to reactivity to social stressors (Pearlin et al., 2005; Williams & Mohammed, 2009). Therefore, the *stressor-reactivity* path in our conceptual model examines how race is associated with family stressor-related changes in daily affect and daily physical health symptoms (Almeida, 2005; Bolger & Zuckerman, 1995). Arguably, the ability to manage stress is complicated by sociocultural context (Everett et al., 2010; Williams, 2002). Research indicates the importance of strong family ties and high levels of interdependence in African American families (Ajrouch et al., 2010; Everett et al., 2010; Goodwin, 2003). Stressful experiences seem to have greater relational consequences for African Americans than for their European American counterparts (Broman, 1993), and African Americans often describe family as their most trusted confidantes (Ajrouch et al., 2010). Therefore, when family relationships are threatened by negative experiences, such as family conflicts or network events, we expect that African Americans' health and well-being will be more vulnerable to the negative effects of these stressors reflected in greater emotional (i.e., daily affect) and physical reactivity (i.e., physical symptoms) to daily family stressors compared to European Americans (Hypothesis 2).

Racial Differences in the Lagged Effects of Daily Family Stressors

The daily stressors of family life may also have enduring or lagged effects on daily health and well-being (Caspi, Bolger, Eckenrode, 1987). Individuals expect their family relationships to be maintained in the face of these adverse experiences, and so they may behave more negatively toward and make greater demands on family members compared to other members of their social networks (Sillars, Canary, & Tafoya, 2004). The unique nature of family ties may contribute to individuals continuing to relive the stress of a negative interaction involving family for more than one day. For example, the sadness or concern that accompanies experiencing a family network event may endure because one is worried about providing support to the family member in need (Durden et al., 2007). This prolonged distress may be exacerbated among African Americans due to the close, supportive family networks that characterize African American families (Chatters et al., 2002; Sarkisian & Gerstel, 2004). Given the salience and importance of family relationships in African American families (Ajrouch et al., 2010; Everett et al., 2010; Goodwin, 2003), we anticipate that the effect of the previous day's family stressor on the next day's daily health and well-being will be most evident among African Americans (Hypothesis 3).

Sociodemographic and Psychosocial Covariates

Our models also adjust for sociodemographic predictors of family stressor exposure and reactivity, including socioeconomic status, marital status, age, and gender that have been shown to vary by race and contribute to the stress process (Almeida, 2005; Gryzwacz, Almeida, Neupert, & Ettner, 2004; Mroczek & Kolarz, 1998; Pearlin et al., 2005). We also account for psychosocial resilience/vulnerability factors by controlling for individual differences in global perceptions of the quality of family relationships, including perceptions of support and strain.

In summary, the present study uses a daily diary design to examine racial differences in: (a) exposure to naturally occurring daily family stressors, (b) emotional and physical reactivity to daily family stressors, and (c) the lagged or enduring effects of daily family stressors on health and well-being. The present study contributes to research on race and relationships by focusing on negative aspects of African Americans' family relationships, by distinguishing between different sources of family stressors, and by considering both the emotional and the physical implications of the daily stressors of family life as markers of daily health.

Method

Participants

Participants include respondents from the second wave of the National Study of Daily Experiences (NSDE II, $N = 1{,}931$), one of the in-depth satellite studies from the National Survey of Midlife in the United States (MIDUS II; Friedman, Williams, Singer, & Ryff, 2009). Respondents include a nationally representative subsample of European American men and women aged 35–84 years from across the United States ($n = 1{,}703$) and a subsample of African Americans from Milwaukee, WI ($n = 228$). African American respondents were recruited from Milwaukee, WI due to the city's high rates of racial segregation (Massey & Denton 1993; Farley & Frey 1994). Areas of Milwaukee were stratified according to the proportion of the population that was African American and by income using data from the 2000 United States Census in order to increase socioeconomic diversity. The characteristics of the Milwaukee sample were comparable to the general population of African Americans in Milwaukee particularly in terms of education and employment (U.S. Census Bureau, 2000).

Procedures

Participants were first recruited by MIDUS II between 2004–2006, where they participated in a telephone interview and completed a self-administered questionnaire. Respondents in the Milwaukee sample completed in-person surveys as well as self-administered questionnaires. Approximately, three months later, participants were contacted by the NSDE. Prior to receiving telephone contact, NSDE respondents received a package containing a recruitment letter and a check for $25. During both waves of the NSDE, respondents participated in 8 consecutive days of daily telephone interviews, where they answered questions about their daily experiences. The response rate was 76% for European Americans and 71% for African Americans. On average, European Americans participated in 7.5 of the 8 interviews, whereas African Americans participated in 6.7 interviews per 8 days. Table 1 provides descriptive statistics for all study variables separately by race.

Results revealed significant racial differences in respondents' age ($F(1, 1{,}929) = 7.21$, $p < .01$), level of education ($\chi^2 = 25.12$, $p < .001$), marital status ($\chi^2 = 120.22$, $p < .001$), and income ($F(1, 1{,}821) = 59.05$, $p < .001$). European Americans were older, more likely to have completed 2 or more years of college, were more likely to be married compared to African Americans, and reported higher household incomes. In order to account for these differences, we controlled for age, education, household income, and marital status in all analyses.

Measures

Daily family stressors—Family stressors were assessed using the Daily Inventory of Stressful Events (DISE; Almeida et al., 2002) that includes a series of questions about whether respondents had experienced different stressful events, including arguments, instances of avoided arguments (i.e., arguments respondents let pass to avoid a disagreement), and events that occurred to a close friend or relative (i.e., network events). Network events refer to stressors that do not directly involve the respondent that still turn out to be stressful for the respondent, such as learning about a sister's marital difficulties. Respondents indicated who else was involved in the event, where family stressors include arguments, avoided arguments, and network events that involve a child, parent, spouse/partner, grandchild, and other relatives (e.g., siblings).

Daily affect—Daily positive and negative affect were assessed using items from both the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) and the Non-Specific Psychological Distress Scale (Kessler, Andrews, Colpe, Hiripi, Mroczek, Normand et al., 2002; Mroczek & Kolarz, 1998). Using a 4-point scale from 0 (*none of the time*) to 3 (*all of the time*), respondents indicated how often during the past day they experienced thirteen different positive emotions (e.g., cheerful, calm; $\alpha = .96$) and fourteen different negative emotions (e.g, sad, angry; $\alpha = .91$). Higher scores indicate greater positive and negative affect.

Daily physical symptoms—Each day, participants were asked whether they had experienced each of 25 physical symptoms: pain and musculoskeletal symptoms (e.g., headache), gastrointestinal (e.g., nausea), flu and respiratory symptoms (e.g., cough), and other physical symptoms (e.g., teeth-related symptoms). This variable was created by taking the sum of the number of symptoms, where higher scores reflect a greater number of physical symptoms.

Sociodemographic and Psychosocial Covariates

Demographics—Respondents reported on their age (continuous, standardized), gender (1 = *male*, 0 = *female*), race (1 = *European American*, 0 = *African American*), and marital status (where 1 = *married*, 0 = *never married/separated/divorced/widowed*). Respondents' education was coded into four categories (1 = *less than high school*, 2 = *high school diploma/some college*, 3 = *college degree*, and 4 = *graduate/professional degree*). Household income from wages, pensions, Social Security, government assistance, etcetera was coded into seven categories (0 = *$0–$10,000*, 1 = *$10,001–$20, 000*, 2 = *$20, 001–$35,000*, 3 = *$35,001–$50,000*, 4 = *$50, 001–$75,000*, 5 = *$75,001–$100,000*, 6 = *$100,001–$150,000*, and 6 = *more than $150,000*).

Family support and strain—Family support (e.g., item: *How much can you rely on family for help when you have a serious problem?*) and family strain (e.g., item: *How often do they get on your nerves?*) were assessed using 4-item scales ranging 1 (*a lot*) to 4 (*not at all*; Schuster, Kessler, & Aseltine, 1990; Whalen & Lachman, 2000). Both scales were recoded, so that higher scores reflect higher perceived family support (α = .82) and family strain (α = .80).

Analytic Strategy

Racial differences in family stressor exposure—Racial differences in exposure to family stressors were assessed using a series of two-level logistic multilevel models, such as the following:

$$\text{Level 1:} \quad \text{FAMILY STRESSOR}_{di} = \beta_{0i} \quad (1)$$

$$\text{Level 2:} \quad \beta_{0i} = \delta_{00} + \delta_{01}\,(\text{RACE}_i) + U_{0i} \quad (2)$$

where, at the within-person Level 1, FAMILY STRESSOR_{di} indicates the log odds of the probability of family stress (p_{di}), Family $\text{Stress}_{di} = \ln(p_{di}/1-p_{di})$ Person_i reported a Family Stressor on Day_d (coded 0 if no family stressor occurred, and 1 if a family stressor occurred). The intercept (β_{0i}) reflects the proportion of study days that Person_i experienced a family stressor. At the between-subject Level 2, the odds of exposure are modeled as a function of an intercept and race. The δ_{01} coefficient is used as an estimate of racial differences in family stressor exposure.

Racial differences in emotional and physical reactivity—We examined racial differences in emotional and physical reactivity to family stressors using a two-level multilevel model. The simple form of MLM can be conceived of as two separate models, including a within person (Level 1) and a between person (Level 2) model (Raudenbush and Bryk, 2002). This model can be expressed as:

$$\text{Level 1:} \quad \text{WELL–BEING}_{di} = \beta_{0i} + \beta_{1i}(\text{FAMILY STRESSOR}_{di}) + e_{di} \quad (3)$$

$$\text{Level 2:} \quad \beta_{0i} = \delta_{00} + \delta_{01}\,(\text{RACE}_{.i}) + \delta_{02}(\text{FAMILY STRESSOR}_{.i}) + \delta_{03}(\text{RACE}_{.i} * \text{FAMILY STRESSOR}_{.i}) + U_{0i} \quad (4)$$

$$\beta_{1i} = \delta_{10} + \delta_{11}(\text{RACE}_{.i}) + U_{0i} \quad (5)$$

Well-Being_{di} is the reported well-being (i.e., daily affect, physical symptoms) on Day_d of Person_i, Family Stressor_{di} indicates whether a family stressor was experienced by Person_i on

Day_d, β_{0i} is the intercept indicating $Person_i$'s level of well-being on days when Family Stressor = 0, β_{1i} is the change in affect or symptom reports from a non-family stressor day to a family stressor day, indicating the emotional (i.e., affect) or physical reactivity (i.e., physical symptoms) of $Person_i$ to the daily family stressor. e_{di} is the residual variance. In order to estimate average effects for the entire sample, the intercepts and slopes of the Level 1 within-person model become the outcomes for the Level 2 between-person equations. Equations 4 and 5 model racial differences in Level 1 (Equation 3) intercepts and slopes. Of particular interest here is Equation 5 which tests whether the reactivity slopes (β_{1i}) vary by race. δ_{00} and δ_{10} are the average within-person intercept and the daily family stressor effect (i.e., the fixed effects), and U_{0i} is the person-specific deviations from the intercept (i.e., random effect). δ_{10} and δ_{11} are the Level 2 effects and reflect racial differences in the average levels of well-being and the within-person daily family stressor effects. It is important to note that the within- and between-person family stressor effects were created using grand-mean centering. As such, δ_{02} is the person-mean frequency of family stressors across the 8-day diary period, and reflects a context effect, or the incremental prediction of individual differences in family stressors over and above the day-level prediction (c.f., Hoffman & Stawski, 2009). The between-person effect of family stressors can be obtained by simply adding this context effect to the level 1 family stressor effect. In the remainder of the paper, we will only report the between-person effects for ease of clarity and interpretation.

It is important to acknowledge that our measure of reactivity is an approximation that reflects the amount by which an individual's daily affect (physical symptoms) increases or decreases on family stressor days compared to days without family stressors (Sliwinski, Almeida, Smyth, & Stawski, 2009). Although our design prevents us from establishing a temporal link between family stressors and daily affect (physical symptoms), we operate under the assumption that the end of the day reports of affect and physical symptoms are influenced by family stressors experienced earlier in the day (Sliwinski et al., 2009).

Results

Racial Differences in Exposure to Daily Family Stressors

To test for racial differences in exposure to daily family stressors, we estimated a series of multilevel logistic models (SAS, PROC NLMIXED), predicting daily reports of family stressors as a function of race. Models were estimated separately for each type of family stressor (i.e., family arguments, avoided family arguments, and family network events). Contrary to our expectations, our results revealed no significant racial differences in exposure to any type of family stressor (Hypothesis 1). It is important to note that both races reported family stressors on a small proportion of days. On average, both African Americans and European Americans reported family arguments on ~ 5% of days, reported avoided family arguments on less than 10% of days, and reported family network events on ~ 3% of days.

Racial Differences in Reactivity to Daily Family Stressors

Prior to testing hypotheses, we examined the correlations between types of family stressors (Table 2). Based on the modest correlations between the different types of family stressors, we examined all three types of family stressors simultaneously in the same model in order to assess the unique effects of each type of family stressor after controlling for the occurrence of other types of family stressors.

To examine family stressor reactivity we tested the extent to which daily affect and number of physical health symptoms increased or decreased as a function of whether respondents

reported experiencing family stressors. In addition, we tested whether race moderated family-stressor related changes in affect and number of physical symptoms. We estimated separate multilevel models with the effects of race and daily family stressors on daily negative affect (NA), positive affect (PA), and number of daily physical symptoms (Symptoms). Each model included the following covariates: age, gender, household income, education, marital status, family support, and family strain. Missing data were handled by estimating models using Full Information Maximum Likelihood (FIML) to maximize cases where complete data were available and minimize the influence of cases with missing data.

First, we examined whether there were racial differences in daily NA, daily PA, and Symptoms. African Americans reported significantly more daily NA on average than did European Americans (estimate = −0.05, $SE = 0.02$, $p < .01$). Results revealed no significant racial differences in daily PA or in the average number of physical health symptoms.

Next, race, between- and within-person daily family stressors, and the interactions between daily family stressors and race were entered as predictors of daily affect and physical symptoms. We estimated separate models for each outcome: daily NA (Model 1), daily PA (Model 2), and Symptoms (Model 3). In addition to concurrent stressor effects, we also included lagged family stressor effects in the same models in order to examine whether the effects of family stressors on daily affect and physical symptoms endures on subsequent days (Caspi et al., 1987). We also included the interactions between race and the lagged family stressor effects to explore whether the lagged effects varied by race. Finally, the level of the dependent variable from the previous day was also included as a control so that the lagged family stressor effects were adjusted for any influence of NA, PA or symptoms from the previous day to assess how prior day family stressors predict a change in the affect (symptoms) from one day to the next.

We also estimated models with the interactions between the covariates and the daily family stressor effects (e.g., family arguments x education) in order to control for potential demographic influences on family stressor reactivity. The pattern of results was consistent across the two sets of models, so for the sake of simplicity, the models presented in the tables included only the main effects for the covariates. Only the significant effects that remained after including the interactions between the covariates and the daily family stressors are presented in the table.

Racial Differences in Reactivity to Concurrent and Lagged Family Arguments

Daily affect—The *within-person (WP) family argument effect* was significant for NA for both African Americans (estimate = 0.19, $SE = 0.03$, $p < .001$) and European Americans (estimate = 0.18, $SE = 0.01$, $p < .001$), indicating that NA was higher on days adults reported experiencing family arguments compared to days without family arguments (Table 3, Model 1). The WP family argument effect was also significant for PA (Table 3, Model 2). PA was lower on days both African Americans (estimate = −0.23, $SE = 0.05$, $p < .01$) and European Americans (estimate = −0.16, $SE = 0.02$, $p < .001$) reported family arguments compared to non-family argument days. In contrast, the *lagged family argument effect* was only significant for NA. NA was greater for both African Americans (estimate = 0.13, $SE = 0.03$, $p < .001$) and European Americans (estimate = 0.02, $SE = 0.01$, $p < .05$) the day after they reported experiencing a family argument. The racial difference was significant, indicating that the effect of the previous day's family argument on daily NA was greater for African Americans than for European Americans.

Physical symptoms—The *WP family argument effect* was significant for both African Americans (estimate = 0.64, $SE = 0.17$, $p < .001$) and European Americans (estimate = 0.11,

SE = 0.05, $p < .05$; Table 3, Model 3). The racial difference in the WP effect was also significant (Table 3, Model 3), indicating that Africans Americans are more physically reactive to family arguments compared to European Americans. The *lagged family argument effect* was only significant for African Americans (estimate = 0.30, *SE* = 0.14, $p < .05$), not for European Americans (estimate = 0.04, *SE* = 0.05, *ns*), although the racial difference was not statistically significant. African Americans reported increased physical symptoms the day after they reported a family argument.

Contrary to our hypothesis, results provided support for racial similarities in same day emotional reactivity to family arguments (Hypothesis 2). Both races reported family argument-related increases in NA and decreases in PA, whereas as anticipated, the lagged effect of family arguments on NA was greater for African Americans than for European Americans (Hypothesis 3). Also, consistent with our hypothesis, African Americans were more physically reactive to family arguments than were European Americans and the effect of the previous day's family argument on African Americans' physical symptoms lasted into the next day (Hypotheses 2 & 3).

Racial Differences in Reactivity to Avoided Family Arguments

Daily affect—Avoided arguments refer to events where the person could have argued but actively chose to avoid the disagreement (Charles et al., 2009). The *WP avoided family argument effect* was significant for African Americans (estimate = 0.08, *SE* = 0.02, $p < .001$) and for European Americans (estimate = 0.07, *SE* = 0.01, $p < .001$). NA was higher on days respondents avoided arguments with family compared to days without avoided arguments (Table 3, Model 1). The *WP avoided family argument effect* was also significant for PA, indicating that PA was lower on days both African Americans (estimate = −0.14, *SE* = 0.04, $p < .001$) and European Americans (estimate = −0.04, *SE* = 0.02, $p < .01$) avoided family arguments compared to days without avoided family arguments (Table 3, Model 2). The racial difference was significant, indicating that African Americans reported greater avoided family argument-related changes in PA than did European Americans.

Physical symptoms—In comparison, the *WP avoided family argument effect* was significant for both African Americans (estimate = 0.32, *SE* = 0.13, $p < .01$) and European Americans (estimate = 0.10, *SE* = 0.05, $p < .05$), indicating that respondents reported more physical symptoms on days they avoided a family argument compared to days they did not avoid a family argument (Table 3, Model 3).

In summary, results provided more support for racial similarities than differences in reactivity to avoided family arguments. Both African Americans and European Americans reported increased NA and physical symptoms on days they avoided family arguments, although African Americans did exhibit greater decreases in PA than European American did on days they avoided family arguments (Hypothesis 2). Inconsistent with Hypothesis 3, there were no lagged effects of avoided family arguments.

Racial Differences in Reactivity Family Network Events

Daily affect—The *WP family network event effect* was significant for African Americans (estimate = 0.10, *SE* = 0.04, $p < .01$) and European Americans (estimate = 0.05, *SE* = 0.01, $p < .001$), indicating that NA was higher on days when respondents reported experiencing family network events compared to days without family network events (Table 3, Model 1). For PA, the *WP family network event effect* was only significant for African Americans (estimate = −0.31, *SE* = 0.07, $p < .001$), not for European Americans (estimate = −0.01, *SE* = 0.02, *ns*; Table 3, Model 2). PA was lower on days when African Americans reported experiencing family network events compared to days without these events. The racial

difference in the WP effect was significant for PA. For NA, there was also a significant racial difference in the *lagged family network event effect*. The lagged family network event was significant for both African Americans (estimate = −0.07, $SE = 0.04$, $p < .05$) and European Americans (estimate = 0.03, $SE = 0.01$, $p < .05$). European Americans' NA was greater the day after they reported experiencing a family network event, whereas African Americans' NA was lower the day after they reported experiencing a family network event. There were no significant effects of concurrent or lagged family networks events on physical symptoms.

In summary, respondents were emotionally, not physically, reactive to family network events. Both African Americans and European Americans reported increased NA on days with family network events, whereas only African Americans reported decreased PA on days with family network events (Hypothesis 2). Unexpectedly, the distress associated with family network events appeared to be prolonged among European Americans, whereas African Americans reported decreased NA the after they reported a family network event (Hypothesis 3).

Discussion

The current study adds to our understanding of race and family relationships by examining racial differences in exposure and reactivity to the naturally occurring stressors of family life. Our results revealed no racial differences in family stressor exposure, suggesting that family stressors may be an inevitable byproduct of all family relationships regardless of racial background. As anticipated, African Americans were more physically reactive to arguments involving family, and this endured into the next day. Unexpectedly, there were fewer racial differences in emotional reactivity, although the negative feelings associated with family arguments were more enduring for African Americans. Overall, our findings provided more support for racial similarities than differences in the daily family stress process, indicating that family relationships may be a universal source of stress that transcends race. Still, African Americans' greater physical reactivity and prolonged reactivity suggest that the significance of family in African Americans' lives may still contribute to their health disadvantage.

Racial Similarities in Exposure to Daily Family Stressors

Contrary to our expectations, African Americans and European Americans did not differ significantly in their exposure to interpersonal tensions or network events involving family. Daily family stressors, such as an argument with a spouse, arise out of the routine circumstances of daily family life (Almeida, 2005). Although the nature of specific family ties vary by race/ethnicity (Broman, 2005; Bulanda & Brown, 2007; Smetana & Chuang, 2001), our findings suggest that these social circumstances do not contribute to differential family stressor exposure between African Americans and European Americans.

It is also important to acknowledge that family stressors were reported on a small proportion of days, such that a low frequency of family stressors may have contributed to the lack of racial differences in exposure. In the current study, respondents were asked about the most stressful arguments, avoided arguments, and network stressors that they experienced. Conceivably, this methodological approach may underestimate the number of stressors involving family ties because other stressful experiences, such as a disagreement with a co-worker, may be reported at the expense of stressors involving family. Future research should continue to examine racial differences in exposure to the naturally occurring stressors of family life.

Racial Similarities and Differences in Reactivity to Daily Family Stressors

Our findings also provide support for the Daily Family Stress Process Model as a theoretical approach to studying family stress by highlighting how different types of family stressors hold different implications for daily health and well-being. Interpersonal family tensions, including both overt conflicts and avoided disagreements, compromised daily health and emotional well-being, whereas family network events (i.e., the problems of a close family member) were only associated with compromised emotional well-being. These findings are supported by prior research that describes interpersonal tensions as among the most upsetting stressful experiences (Bolger et al., 1989). Further, our results suggest that even though an argument may not actually occur, the unexpressed tension may still hold implications for emotional and physical health (Charles et al., 2009). Together, our findings emphasize the importance of distinguishing between different sources of family stress.

Race and Concurrent and Lagged Reactivity to Family Arguments and Avoided Arguments

Family arguments appear to be among the more disruptive of family stressors. Family tensions appeared to elicit similar emotional responses from both races on the day they occurred, whereas the enduring or lagged effects on negative affect were greater for African Americans than for European Americans. Disagreements with close family may be particularly disruptive to daily affect for both races because individuals expect their family relationships to be maintained in the face of conflict, and so individuals tend to behave more negatively toward family members compared to other social network members (Sillars et al., 2004). Family ties, unlike friendships, are not necessarily voluntary, are more difficult to severe, and the time spent with family tends to be more negative than the time spent with friends (Sillars et al., 2004). Still, the negative effects may be enduring among African Americans because of the strong importance of family ties in African American families (Goodwin, 2003), providing additional support for the significance of negative relational experiences for African Americans' well-being (Broman, 1993).

In contrast, our results provided more support for racial differences in physical reactivity to family arguments. Moreover, racial differences in physical reactivity and racial similarities in emotional reactivity are both consistent with previous research that reveals racial disparities in physical health (Geronimus, Hicken, Keene, & Bound, 2006) as opposed to mental health (Neighbors, Sellers, Zhang, & Jackson, 2011). As expected, African Americans reported greater family argument-related increases in physical health symptoms than European Americans did, and African Americans' physical reactivity lasted into the next day. These findings suggest that negative family interactions may take a greater toll on African Americans' than on European Americans' physical health. Prolonged reactivity may further undermine African Americans' health and well-being due to the negative repercussions associated with repeated activation of the stress response (Geronomius et al., 2006), thus contributing to African Americans' well-documented health disadvantage (Williams, 2002; Williams & Mohammed, 2009). The enduring effects of family arguments may depend on the conflict behaviors used during the disagreement. Future studies should consider daily assessments that explicitly capture these behaviors. In contrast, avoiding arguments with family only appeared to have negative implications on the day the stressor occurred, suggesting that for the effects to endure, a disagreement has to take place.

Race and Concurrent and Lagged Reactivity to Family Network Events

In comparison to family arguments, family network events appeared to primarily compromise emotional well-being. Both African Americans and European Americans were emotionally reactive to family network events on the day these events occurred. Although both races exhibited family network event-related increases in negative affect, only African Americans exhibited decreased positive affects on days with family network events. African

Americans' positive affect may be more vulnerable to family network events because of the cultural imperative in African Americans families to provide support to family members in need (Chatters et al., 2002; Goodwin 2003).

Emotional reactivity to family network events provides support for the "cost of caring hypothesis", which states that individuals experience emotional distress in response to the problems of close others, such as family (Kessler & McLeod, 1984). On a daily basis, however, other family members' problems may not go so far as to compromise individual's physical health because these events do not directly involve the respondent. Over the long-term, however, prolonged exposure to other family members' problems may exhaust an individual's coping resources, thus allowing family network events to take a physical toll. Providing needed support to family may expose individuals to additional sources stress, such as interpersonal tensions or financial worries (Dominguez & Watkins, 2003), thus undermining positive emotions. Future research should examine the effects of prolonged exposure to other family members' problems.

Contrary to our expectations, however, European Americans were more vulnerable to the lasting negative effects of family network events, whereas African Americans' well-being improved the day after they reported a family network event. In European American families, the distress associated with another family member's problem may be exacerbated because there may be fewer family members available to share the burden of providing support, whereas African Americans' more extensive family networks may buffer individuals from the persistent concerns that accompany family network events (Chatters et al., 2002; Sarkisian & Gerstel, 2004). Our results suggest that for European Americans, being called upon to listen and provide assistance to family may exhaust an individual's ability to cope with the negative feelings of worry and concern elicited by these stressors (Almeida, 2005).

Limitations and Future Directions

Despite this study's contributions to research on race and daily stressors, several limitations should be acknowledged. It is possible that the findings would be different in a larger, more diverse sample of African Americans that considers diversity within as well as between racial groups (David & Collins, 1997; Williams, 2002). This study also focused on only one class of stressors, daily hassles, although previous work also emphasizes the consequences of stressful life events and chronic strains (Gee, 2002; Kessler et al., 1999; Williams & Mohammed, 2009). Future research should continue to disentangle how exposure to chronic stressors, such as racism, exacerbates reactivity to other daily stressors, such as stressors involving family.

Although beyond the scope of this study, family stressor reactivity may also indirectly contribute to African Americans' health disadvantage through the mechanism of health behaviors (Mezuk, Rafferty, Kershaw, Hudson, Abdou, Lee, et al., 2010). In an effort to cope with the negative emotions elicited by family tensions, individuals of both races may engage in behaviors, such as emotional eating or smoking that further compromise health (Mezuk et al., 2010), although African Americans' disproportionate exposure to other chronic stressors may increase their likelihood of engaging in these behaviors (Mezuk et al., 2010). Conceivably, efforts to cope with stressors, such as emotional eating, may buffer emotional well-being at the expense of physical health (Mezuk et al., 2010). Future research should consider the underlying mechanisms that link differential stressor reactivity and coping resources to long-term health.

Conclusion

Overall, our findings revealed racial similarities in exposure and reactivity to certain types of family stressors, emphasizing the value of differentiating between different sources of family stress. Both races were emotionally reactive to family arguments, suggesting that stressors are associated with compromised well-being across all family contexts, regardless of race. In contrast, African Americans were more physically reactive to family arguments, and stressor reactivity was more enduring among African Americans, lasting into the next day. Together, our findings suggest that the context of African Americans' family lives may play a role in undermining African Americans' daily health through differential physical reactivity and prolonged reactivity to family stressors.

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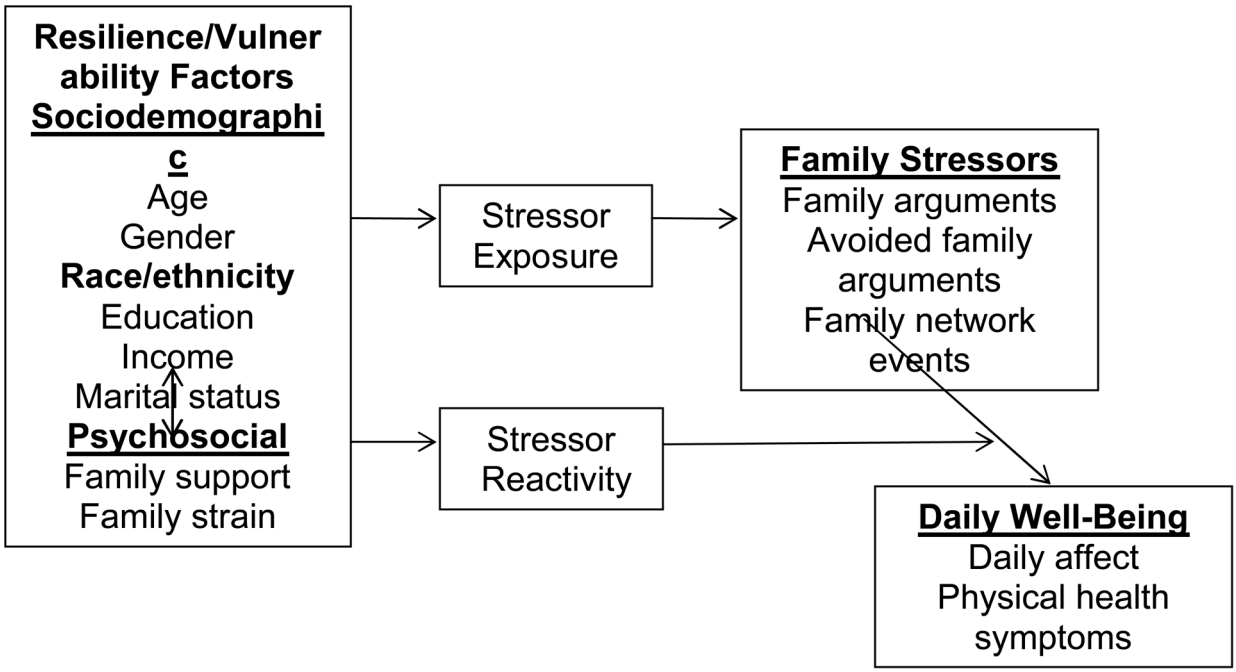

Figure 1.
Daily Family Stress Model

Table 1

Descriptive Statistics on Sociodemographic Characteristics, Family Stressors, and Outcome Variables (N = 1,931)

Variables	African Americans *n* = 228 % or Mean (*SD*)	European Americans *n* = 1,703 % or Mean (*SD*)
Age, mean (*SD*)	54.3 (11.6)	56.6 (12.2)
Gender (% female)	56.1	68.0
Education, mean (*SD*)[a]	2.1 (0.83)	2.5 (0.81)
Income, mean (*SD*)[b]	2.4 (2.0)	3.8 (2.0)
Marital status (% married)[c]	36.0	73.2
Family arguments (% of days)	4.7	5.5
Avoided family argument (% of days)	7.3	7.8
Family network events (% of days)	2.4	3.1
Average positive affect[d]	2.7 (0.83)	2.7 (0.70)
Average negative affect[d]	0.29 (0.38)	0.20 (0.25)
Average number of physical symptoms	2.4 (2.5)	1.8 (1.8)
Perceived family support[e]	3.4 (0.69)	3.5 (0.58)
Perceived family strain[e]	2.2 (0.75)	2.0 (0.58)

Note. Proportions do not sum to 100 due to missing data.

[a]Education: 1 = *less than high school*, 2 = *high school diploma/some college*, 3 = *college degree*, and 4 = *graduate/professional degree*.

[b]Income: 0 = *$0–$10,000*, 1 = *$10,001–$20, 000*, 2 = *$20, 001–$35,000*, 3 = *$35,001–$50,000*, 4 = *$50, 001–$75,000*, 5 = *$75,001–$100,000*, 6 = *$100,001–$150,000*, and 6 = *more than $150,000*.

[c]Marital status: 0 = *separated/divorced/widowed/never married*, 1 = *married*.

[d]Positive and negative affect: 0 = *none of the time*, 1 = *a little of the time*, 2 = *some of the time*, 3 = *most of the time*, and 4 = *all of the time*.

[e]Family support and strain:1 = *not at all*, 2 = *a little*, 3 = *some*, and 4 = *a lot*.

Table 2

Correlations Between Daily Family Stressors, Daily Outcomes, and Covariates

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Argument	-											
2. Avoid. argum.	.37***	-										
3. Network event	.11***	.15***	-									
4. Average PA	−.17***	−.17***	−.08***	-								
5. Average NA	.19***	.21***	.12***	−.50***	-							
6. Symptoms	.10***	.19***	.13***	−.36***	.51***	-						
7. Age	−.17***	−.08***	.03***	.20***	−.16***	.02**	-					
8. Gender[a]	−.07***	−.13***	−.13***	.01	−.07***	−.15***	.02**	-				
9. Income[b]	.08***	.04***	−.00	.01	−.08***	−.17***	−.27***	.13***	-			
10. Education[c]	.08***	.06***	.06***	−.06***	−.02**	−.12***	−.11***	.10***	.31***	-		
11. Marital status[d]	.13***	.10***	.03***	.06***	−.12***	−.11***	−.04***	.17***	.40***	.10***	-	
12. Race[e]	.03**	.01	.04***	.01	−.11***	−.09***	.06***	.08***	.21***	.15***	.26***	-

Note. $N = 1,931$

[a]Gender: 0 = *male*, 1 = *female.*

[b]Income: 0 = *$0–$10,000*, 1 = *$10,001–$20, 000*, 2 = *$20, 001–$35,000*, 3 = *$35,001–$50,000*, 4 = *$50, 001–$75,000*, 5 = *$75,001–$100,000*, 6 = *$100,001–$150,000*, and 6 = *more than $150,000.*

[c]Education: 1 = *less than high school*, 2 = *high school diploma/some college*, 3 = *college degree*, and 4 = *graduate/professional degree.*

[d]Marital status: 0 = *separated/divorced/widowed/never married*, 1 = *married.*

[e]Race: 0 = *African American*, 1 = *European American.*

*$p < .05$,

**$p < .01$,

***$p < .001$.

Table 3

Multilevel Model Parameter Estimates for the Effects of Race and Family Stressors on Daily Affect and Physical Symptoms

Predictors	Model 1: NA		Model 2: PA		Model 3: Symptoms	
	Unstandardized coefficient	*SE*	Unstandardized coefficient	*SE*	Unstandardized coefficient	*SE*
Intercept	−.04**	0.02	.00	0.03	−.29**	0.10
Race[a]	.01	0.01	−.01	0.01	.03	0.04
Family support	.01*	0.01	−.00	0.01	.03	0.02
Family strain	.00	0.00	−.00	0.01	−.01	0.02
Family argument (wp)	.19***	0.03	−.23***	0.05	.64***	0.17
Family argument (bp)	.08	0.06	−.16	0.12	.15	0.36
Family avoided argument (wp)	.08***	0.02	−.14***	0.04	.32**	0.13
Family avoided argument (bp)	.01	0.05	−.07	0.09	.09	0.28
Family network event (wp)	.10**	0.04	−.31***	0.07	.02	0.22
Family network event (bp)	−.03	0.10	−.00	0.17	−.34	0.53
Race x argument (wp)	−.01	0.03	.07	0.06	−.53**	0.18
Race x argument (bp)	−.06	0.07	.13	0.12	−.14	0.37
Race x avoided argument (wp)	−.01	0.03	.10*	0.05	−.22	0.14

Multilevel Model Parameter Estimates for the Effects of Race and Family Arguments on Daily Affect and Physical Symptoms

Predictors	Model 1: NA		Model 2: PA		Model 3: Symptoms	
	Unstandardized coefficient	*SE*	Unstandardized coefficient	*SE*	Unstandardized coefficient	*SE*
Race x avoided argument (bp)	−.00	0.05	−.07	0.10	.00	0.29
Race x network event (wp)	−.05	0.04	.32***	0.08	.13	0.23
Race x network event (bp)	.05	0.10	.02	0.18	.38	0.55
Person-centered dv	.96***	0.01	1.02***	0.01	.98***	0.01
Lagged family argument	.13***	0.03	−.03	0.05	.30*	0.14
Lagged avoid. Argument	.03	0.02	−.07	0.04	.17	0.12
Lagged network event	−.07*	0.04	.10	0.07	−.34	0.20
Race x lagged family argument	−.11***	0.03	.02	0.05	−.25	0.15

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Multilevel Model Parameter Estimates for the Effects of Race and Family Arguments on Daily Affect and Physical Symptoms

Predictors	Model 1: NA		Model 2: PA		Model 3: Symptoms	
	Unstandardized coefficient	*SE*	Unstandardized coefficient	*SE*	Unstandardized coefficient	*SE*
Race x lagged avoid. argument	−.02	0.02	.08	0.04	−.03	0.13
Race x lagged network event	.10**	0.04	−.10	0.07	.45*	0.21

Note. Models also adjust for age, gender, household income, education, and marital status (N = 1,852).

[a]Race: 0 = *African American,* 1 = *European American.*

*$p < .05$,

**$p < .01$,

***$p < .001$.