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Neighborhood Context and Financial Strain as Predictors of Marital Interaction and Marital Quality in African American Couples

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Abstract

Demographic characteristics, family financial strain, neighborhood-level economic disadvantage, and state of residence were tested as predictors of observed warmth, hostility, and self-reported marital quality. Participants were 202 married African American couples who resided in a range of neighborhood contexts. Neighborhood-level economic disadvantage predicted lower warmth during marital interactions, as did residence in the rural south. Consistent with the family stress model (e.g., Conger & Elder, 1994), family financial strain predicted lower perceived marital quality. Unexpectedly, neighborhood-level economic disadvantage predicted higher marital quality. Social comparison processes and degree of exposure to racially based discrimination are considered as explanations for this unexpected result. The importance of context in relationship outcomes is highlighted.

Some fragile relationships survive forever because they never encounter a relationship-toxic environment and some very strong relationships dissolve...because fate...put their relationship in harm's way.

Ellen Berscheid, 1999, p. 265

Multiple contexts influence the course of relationships over time. Bronfenbrenner (1979, 1986) described the contexts that influence people's lives as concentric spheres, where the smallest sphere of the nuclear family is encircled by the larger sphere of extended family and friendship networks, which is, in turn, contained within the social context of neighborhood and local institutions, which is further contained within the economic, social, educational, and legal systems of the culture. The above quotation from Ellen Berscheid emphasizes the importance of environmental contexts to relationship outcomes. A weak relationship may persist intact in a supportive environment, whereas a strong relationship may deteriorate if it is embedded in an environmental context that continually assaults the ties that bind individuals.

The current study considers the effects of contextual variables on marital interaction and marital quality in African American couples who reside in various ecological settings, which range from rural poverty to suburban affluence. Most studies of African American families have been conducted in the inner cities of large metropolitan areas. We believed it was important to sample a broader range of contexts to reflect more accurately the diversity of settings in which African

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American families reside. The heterogeneity of African American experiences has been overlooked in much of the prior research. A concentration on comparisons across racial/ethnic groups has obscured differences within the African American population (McLoyd, 1990;Neighbors & Jackson, 1996).

Married African American couples have received relatively little research attention. Much more attention has been focused on African American single-parent families (Billingsley, 1992). Married couples are a vital part of the African American community (Billingsley, 1992;Hill et al., 1989;R. J. Taylor, Tucker, Chatters, & Jayakody, 1997). According to the 2000 census, married couples constitute the largest demographic group (57% of men and 42% of women) among African American individuals who earn \$25,000 or more annually (U.S. Census Bureau, 2001). The majority of married African American couples are relatively well-educated, own their own homes, are raising or have raised their biological children, and are employed (Billingsley, 1992). The Survey of Black Americans revealed that across all social classes, married African American men and women place high value on marriage as a context for raising children, companionship, and financial security (Billingsley, 1992).

Marital quality and interpersonal processes within the marriages of African Americans have been studied infrequently (Tucker & Mitchell-Dernan, 1995). In a decade review of research on African American families, McLoyd and colleagues concluded that current evidence, although limited, does not support fundamental differences in the predictors of marital satisfaction and stability for African American versus European American couples (McLoyd, Cauce, Takeuchi, & Wilson, 2000). A few distinctive characteristics of African American marriages have been identified, including high egalitarianism (Hunter & Sellars, 1998;Kane, 1992;Orbuch & Eyster, 1997), involvement with extended family (McAdoo, 1981), and mutual self-disclosure (Oggin, Veroff, & Leber, 1993).

We were unable to locate any observational studies of marital interaction among African American couples. Observational studies yield a wealth of information about the actual mechanisms through which marriages provide rewards and challenges to husbands and wives. The current study sought to discover predictors of marital interaction and perceived marital quality among African American couples. What makes the study unique is our inclusion of predictors at each of three levels: individual-level, couple-level, and neighborhood-level, reflecting Bronfenbrenner's (1979;1986) vision of concentric spheres of influence on human development.

As a starting place, we used the family stress model proposed by Conger and colleagues (Conger et al., 1990;Conger & Elder, 1994;Conger, Rueter, & Elder, 1999;Matthews, Conger, & Wickrama, 1996). The key prediction of the family stress model is that experiences of adversity, especially financial strain, predict deterioration in the quality of interactions between family members. Interaction quality, in turn, is an important predictor of perceived marital quality and stability. We added neighborhood-level economic disadvantage to the model as a source of stress. The model is shown in Figure 1. Each component of the model is discussed below.

As noted above, the family stress model proposed by Conger and colleagues states that stressful life events lead to deterioration in the quality of family interaction (Conger et al., 1990, 1999;Conger & Elder, 1994;Matthews et al., 1996). For example, in response to financial strain imposed by the farm crisis of the 1980s, rural couples showed diminished warmth and increased hostility in their interactions with one another (Conger et al., 1990,1999). A similar decrease in warmth and increase in hostility was observed in response to work-family stress (Matthews et al., 1996). The deleterious effects of stressful life events on self-reported quality of marital interaction have been documented across a wide range of stressors, including death of a parent

(Umberson, 1995), cancer diagnosis (Bolger, Foster, Vinokur, & Ng, 1996; Coyne & Anderson, 1999), the transition to parenthood (Gjerdingen & Chalonger, 1994; Goldstein, Diener, & Mangelsdorf, 1996), and unemployment (Vinokur, Price, & Caplan, 1996). A variety of mechanisms have been proposed to explain diminished warmth and elevated hostility in times of strain. Stressful events trigger negative emotions and make it more likely that people will express anger and dissatisfaction to one another (Abbey, Andrews, & Halman, 1995; Bolger et al., 1996). Stressed people are preoccupied with their problems and may not be attentive to the needs of their partner. Thus, they may not provide as much warmth to the other as they would under less taxing circumstances. When problems persist over long periods of time, individuals may become demoralized and simply lack the energy to behave affectionately to their partner (Bolger et al., 1996; Coyne & Fiske, 1992).

As noted above, we expanded the Conger et al. family stress model by adding neighborhood-level economic disadvantage to the model. We predicted that low-income neighborhoods would impose a high level of daily stress on residents, which would adversely affect the quality of their daily interactions with their spouse. These stressors include low-quality housing, inadequate health care, educational, and recreational facilities, and inadequate employment opportunities. We predicted that high income neighborhoods would offer benefits to residents, including attractive surroundings and safe, convenient access to needed resources. We predicted that residents of high income neighborhoods would experience less daily stress and would show more positive interactions with their spouse.

The question addressed in research on neighborhood contexts is whether neighborhood characteristics predict individual behavior and well-being beyond the variance explained by individuals' personal characteristics, such as age, education, and income. When controlling for individual-level demographics, links have been documented between neighborhood-level economic disadvantage and physical health problems, psychological distress, and delinquency (e.g., Cutrona, Russell, Hessler, Brown, & Murry, 2000; Leventhal & Brooks-Gunn, 2000; Robert, 1998; Sampson, Raudenbush, & Earls, 1997). A small number of studies have examined links between neighborhood characteristics and interpersonal relationships. In one study, neighborhood-level residential stability predicted number of neighborhood friends and frequency of social activity, when controlling for individual-level demographics and length of residence in the neighborhood (Sampson, 1988). Following Hurricane Andrew, neighborhood-level poverty predicted giving less assistance to others, beyond the effects of family income, size of personal social networks, and amount of personal damage sustained (Haines, Hurlbert, & Beggs, 1996). Among mothers of low-birth-weight infants, the percentage of community residents with incomes below the poverty line was negatively associated with observed warmth in mothers' interactions with their infants, when controlling for family demographics (Klebanov, Brooks-Gunn, & Duncan, 1994).

As shown in Figure 1, we predicted that observed marital warmth and hostility would be significant predictors of perceived marital quality. Karney and Bradbury (1995) summarized the results of 14 different studies that examined the relation over time between observed marital interaction behavior and subsequent marital satisfaction. Although the results were somewhat inconsistent, the general pattern for both men and women was that negative behavior showed a negative association and positive behavior showed a positive association with marital satisfaction over time. More recent studies have found the same pattern of results (e.g., Conger et al., 1999; Karney & Bradbury, 1997).

Although we predicted that family- and neighborhood-level economic stressors would affect marital quality through their impact on marital interaction, we also predicted direct links between these stressors and perceived marital quality. The processes through which individuals evaluate their marriages are highly complex and experiences of adversity may influence

perceived marital quality through their impact on emotional and/or cognitive processes that are not mediated by partner behavior.

As stated earlier, the question posed in studies of neighborhood-level variables is the extent to which they predict outcomes over and above the influence of individual-level demographics. We selected a set of individual-level and couple-level demographic variables to include in our models. They included the age and education of each spouse and duration of marriage. Because data were collected in two geographic regions, we also included state of residence. We included these demographic variables in all analyses.

Method

Sampling strategy

Participants were drawn from a larger sample of 897 families who were participants in the Family and Community Health Study, a large-scale study of African American families conducted in Iowa and Georgia. To be eligible for the larger study, adults had to be the primary caregiver for a 10- to 12-year old child. The Family and Community Health Study was conducted to investigate determinants of mental health and well-being among nonurban families. We thus limited the sample to residents of moderate-to-small cities, suburbs, small towns, and rural areas. To select our sample, block group areas (BGAs) from the 1990 census were identified in both Iowa and Georgia in which the proportion of African American families was high enough to make recruitment economically practical (10% or higher) and in which the proportion of families with children living below the poverty line varied widely. A BGA is a cluster of blocks within a census tract. A typical census tract contains four or five BGAs. The United States Census Bureau strives to use naturally occurring neighborhood boundaries when constructing BGAs. For the 1990 census, BGAs averaged 452 housing units or 1,100 people. BGAs in Northeast Georgia that excluded inner-city Atlanta and met the criteria for racial composition and extent of poverty were identified. We drew from small towns and rural areas in 12 counties. All but two of the counties had populations of 30,000 or less. To sample affluent African American neighborhoods, we also drew some of our participants from Athens and suburbs of Atlanta. In Iowa, we identified BGAs that met the criteria for proportion of African American residents, all of which were in two moderate-sized cities: Waterloo, with a population of 65,000, and Des Moines, with a population of 193,000. As reported previously (Cutrona et al., 2000), comparisons to census data suggest that our sampling strategy yielded a fairly representative set of neighborhoods, although upper income BGAs in Georgia were underrepresented.

Once BGAs were identified, we constructed rosters of eligible families from information provided by public and private schools and other community organizations, including churches, youth organizations, and community centers. Across sites, 25% of families contacted were ineligible due to child age or race. Among those families we believed to be eligible, we were unable to locate 19%. Among those whom we invited to participate, 24% refused and 5% did not complete the interview. We thus completed interviews with 71% of the eligible families whom we were able to contact. Low-income and minority populations are somewhat more difficult to recruit and retain in research samples than are higher income and majority populations (Vernon, Roberts, & Lee, 1984). Our recruitment rate was similar to that achieved in the National Survey of Black Americans (Jackson, 1991), which recruited a national probability sample of African American adults.

Participants

For the current study, we selected families from the larger sample that were headed by a married couple ($N = 322$). We were able to recruit 233 (72%) of the husbands to participate in the study.

Of the participating husbands, 214 (92%) participated in the observational component of the study. Complete questionnaire and observational data were available for 202 couples. We conducted analyses to determine whether the sample with complete data differed on study variables from married couples without complete data from both spouses. Compared to those with incomplete data, the couples with complete data from both spouses lived in neighborhoods that were significantly lower on neighborhood-level economic disadvantage. In addition, couples with complete data reported significantly higher income, and wives reported higher quality marriages than those with incomplete data. Thus, the study sample is biased toward more affluent couples who reside in better neighborhoods, in which the wives are relatively satisfied with their marriages.

Just over half of the couples in our final sample (52%) were from Iowa and the rest were from Georgia. The mean number of years married was 12.5 and ranged from less than one year to 52 years. The mean age for women in the sample was 37.5 ($SD = 7.6$; range = 21-73 years) and the mean age for men was 40.4 ($SD = 8.9$; range = 23-88 years). Eighty percent of the women and 87% of the men were employed. The sample was quite well-educated: 10% of the women had not completed high school, 32% were high school graduates, 41% had completed one or more years of college, 10% held a four-year college degree, and 7% held an advanced graduate degree. Among the men, 14% had not completed high school, 36% were high school graduates, 29% had completed one or more years of college, 13% held a four-year college degree, and 8% held an advanced graduate degree. The sample was also relatively affluent. Mean yearly gross family income in 1997 dollars was \$47,530 ($SD = \$27,401$) and ranged from \$5000 to \$201,000. The 25th percentile for income was \$29,000 and the 75th percentile was \$60,000. It should be noted that only 88% of the couples were willing to provide income information. In the sample as a whole, employment data suggested that lower income respondents were more likely to refuse to provide income information, so the actual average income for the study sample may be somewhat lower.

Procedures

All interviewers were African American. Most resided in or near the communities where the study was conducted. Data collection included questionnaire administration and a video-recorded assessment of marital interaction. Interviews and interaction assessments were conducted in participants' homes, or, if the family preferred, in a convenient location near their home (e.g., library, school, church). Couples were reimbursed \$150 for participating in the study. We administered a wide range of questionnaires and two interaction tasks, a subset of which is the focus of this study. Interviews were administered using computer-assisted personal interviewing (CAPI). Interview questions were preprogrammed into laptop computers and responses were immediately entered into the computer by the interviewer. All questions were administered aloud. The 20-minute video-recorded couple-interaction task was designed to tap into both positive and negative dimensions of couples' relationships.

Creation of neighborhood clusters for multilevel analyses

As reported elsewhere (Cutrona et al., 2000), the families in the larger sample were nested within 259 block group areas. Experts in multilevel modeling typically recommend a minimum of 15 subjects per group for multilevel data analysis (Bryk & Raudenbush, 1992). This minimum was not achieved within many of our BGAs. We addressed this problem by using cluster analysis to combine geographically proximal BGAs with similar socioeconomic characteristics into larger community units. For example, Des Moines was divided into four quadrants and cluster analyses were conducted within each quadrant. Five census variables were used to perform the cluster analyses: average per capita income, proportion of households that were female-headed, proportion of persons on public assistance, proportion of households below the poverty level, and proportion of unemployed males. Previous studies have used some

combination of these variables to assess neighborhood socioeconomic status (Sampson et al., 1997; Sucoff & Upchurch, 1998). Our analysis identified 21 clusters in Iowa and 20 in Georgia, for a total of 41 clusters. Each cluster consisted of a collection of BGAs or neighborhoods of comparable socioeconomic status that shared a similar location within a given city, town, or rural area. Although neighborhoods within a cluster were not necessarily adjacent, they were all in the same region of the city or county.

In the study sample of married couples, 39 of the 41 neighborhood clusters were represented. The average number of study couples residing in each neighborhood cluster was 5.13 (range = 1 to 14). The neighborhood clusters varied widely on demographic characteristics. Mean education of adult residents within clusters ranged from ninth grade to three years of college. The 25th percentile for education was 12th grade (high school graduate) and the 75th percentile was two years of college. Regarding income, the mean gross yearly household income of adult residents within clusters ranged from \$9,600 to \$70,000. The 25th percentile for mean income within cluster was \$32,000 and the 75th percentile was \$56,000.

Measures

Neighborhood-level economic disadvantage—An index of neighborhood-level economic disadvantage was computed for each cluster, based on 1990 census data. The same five variables that were used in the cluster analysis to combine BGAs were used to compute this index. The mean for each of the BGAs within each cluster was computed for each of the five economic variables. The standardized means were then averaged to create an aggregate economic disadvantage score for each cluster. Higher scores reflect greater economic disadvantage.

Geographic locale/rurality—Geographic location was coded 1 for Iowa and 0 for Georgia. It should be noted that geographic location and rurality were largely confounded in the current study. As previously noted, Iowa participants were recruited from midsized cities because an insufficient number of African Americans reside in rural Iowa to make recruitment practical. Georgia participants were recruited from more rural BGAs, although a small number of participants were recruited from suburbs of larger cities to satisfy our need for affluent counties with large numbers of African American families.

Individual-Level Self-Report Measures

Marital quality—Three measures of marital quality were administered. Marital satisfaction was assessed with two items. Participants, using 6-point Likert scales, responded to items asking about the degree to which they were happy and satisfied with their marriage. The alpha coefficient for this two-item scale in the current sample was .83 for women and .78 for men. Marital stability was assessed with five items from the Marital Instability Scale (Booth, Johnson, & Edwards, 1983). On a four-point scale, respondents indicated how recently they had taken any of a number of steps toward dissolution of their marriage (e.g., discussed divorce with a friend, talked about consulting a divorce attorney). The alpha coefficient in the current sample was .89 for women and .83 for men. The third measure of marital quality concerned satisfaction with the spouse's contributions to house-work and child care (Conger & Elder, 1994). On a four-point scale, respondents rated their satisfaction with their partner's contributions in these two domains. Coefficient alpha for this two-item scale was .55 for women and .42 for men. The subscales were combined into a single marital quality scale, which reflected general satisfaction with the relationship, specific satisfaction with partner role performance, and expected marital stability. The reliability of this composite measure was .87 for women and .88 for men, using Nunnally's (1978) formula for calculating the reliability of a linear combination of measures.¹

Financial strain—Four measures were combined to form an index of perceived financial strain. They were administered to both members of the couple. The measures were all developed by Conger and Elder (1994). (a) *Unmet financial needs* taps specific needs that cannot be met due to financial hardship (e.g., Not enough money to buy the food we need). Reliability for this four-item scale was .79 for women and .87 for men. (b) *Can't make ends meet* consists of two items that tap the general perception that financial resources are insufficient (e.g., During the last 12 months, how much difficulty have you had paying your bills?). Coefficient alpha was .73 for women and .78 for men. (c) *Financial adjustments* is an 11-item scale that taps specific ways the family has tried to economize to lessen their financial problems (e.g., Reduced or eliminated medical insurance because of financial need). Reliability was .77 for women and .82 for men. (d) *Negative financial life events* taps 15 specific negative financial events in the previous 12 months (e.g., cut in wages, layoff from work). Reliability was .55 for women and .63 for men. The reliability of the composite measure was .88 for women and .92 for men, using Nunnally's (1978) formula for calculating the reliability of a linear combination of measures.

Observational assessment of marital interaction

During the home visits in which questionnaires were administered, a video-recorded assessment of marital interaction was conducted (Conger et al., 1990,1999;Melby & Conger, 2001). Both members of the couple were seated at a table and a portable video camera was set up to record their interaction. The couple was given a set of cards containing questions about their relationship. Questions included the extent to which members of the couple agree about child rearing, satisfaction with employment, what the couple found most rewarding in the past year, their biggest disappointments during the past year, and other topics designed to elicit both supportive and conflictual responses. Couples were instructed to proceed through the cards and discuss each topic as long as they wanted, taking turns reading the cards aloud. After providing instructions, the research assistant started the video camera and left the room to allow the couple to discuss topics in private. After 20 minutes, the research assistant returned to the room and terminated the interaction. The videotaped interactions were rated by trained African American observers who used the Iowa Family Interaction Rating Scales (IFIRS; Melby & Conger, 2001). The IFIRS is a macrolevel behavior rating system designed to assess ongoing characteristics of individuals and relationships.² The system consists of 60 behavioral scales, in which each behavior is rated on a scale from 1 to 9 where 1 = *not at all characteristic*, 3 = *mainly uncharacteristic*, 5 = *somewhat characteristic*, 7 = *moderately characteristic*, and 9 = *mainly characteristic of the individual, dyad, or group being evaluated*. Ratings of "characteristicness" are based on combinations of frequency and intensity of the behavior, with strong consideration given to affect, context, and proportion. Context refers to the circumstances surrounding the behavior that help explain and give meaning to the behavior (e.g., a neutral exchange of information vs. a heated argument). Proportion refers to the proportion of total interaction behaviors represented by a particular behavior (e.g., a person may say very little, but if all he or she says is hostile, then hostility would be scored more

¹The formula for the reliability of a linear combination of measures given by Nunnally (1978) is based on the assumption in measurement theory that error variance in each of the component measures is uncorrelated. Therefore, the error variance in each of the measures should be present in the total score based on adding together scores on each of the measures. The formula is:

$$r_{yy} = 1 - \frac{\sum \sigma_t^2 - \sum r_{tt} \sigma_t^2}{\sigma_y^2},$$

where r_{yy} represents the reliability of the total score, r_{tt} represents the reliability of the measures being summed together, σ^2 represents the variance of the measures being summed together (with the subscript t) or the variance of the total score based on summing the measures together (with the subscript y).

²An IFIRS manual with complete descriptions of all rating and task procedures is available from Janet Melby, Institute for Social and Behavior Research, Iowa State University, 2625 N. Loop Dr. Suite 500, Ames, Iowa 50010.

highly than if the person's communications were an equal mix of hostile and warm or neutral). All observers received 200 hours of training (20 hours per week for 10 weeks) and passed extensive written and viewing reliability tests. Once they were assessed as reliable, observers attended at least two rater-training sessions each week to ensure continued reliability. To assess interrater reliability, 25% of all videotaped tasks were randomly selected to be rated by a second independent observer. The primary and secondary ratings were then compared using intraclass correlations (Choukalas, Melby, & Lorenz, 2000; Suen & Ary, 1989).

In the current study, we employed a subset of the IFIRS dyadic interaction scales, which were designed to rate each individual's behavior toward the other person in the interaction. We combined 11 scales to form an overall observed hostility scale (hostility, contempt, angry coercion, escalation of hostility, reciprocation of hostility, verbal attack, physical attack, lecturing/moralizing, denial, interrogation, and anti-socialness) and 9 other scales to form an overall observed warmth scale (warmth/support, endearment, physical affection, escalation of warmth, reciprocation of warmth, assertiveness, listener responsiveness, communication, and prosocialness). The intraclass correlations for assessing interrater reliability for husband to wife ranged from .47 to .79 for the hostility scales and from .35 to .80 for the warmth scales. Interrater reliability for wife to husband ranged from .32 to .77 for the hostility scales and from .37 to .76 for the warmth scales. The reliability of the composite hostility scale was .82 for husbands and .83 for wives. The reliability of the composite warmth scale was .86 for husbands and .87 for wives.

Results

Descriptive analyses

Means and standard deviations for husbands and wives on study variables are shown in Table 1. Husbands were significantly older than wives, but no gender difference was found for level of education. On average, both husbands and wives had completed approximately one year of college. Couples had been married an average of 11.6 years ($SD = 8.6$). Financial strain was relatively low overall, and did not differ significantly by gender. Marital quality was quite high, with a mean of 34.3 for women and 35.3 for men out of a possible range of 6 to 39. Men rated overall marital quality significantly higher than did women. Turning to the observational measures, mean observed warmth was 4.3 for both husbands and wives on a 9-point scale, which indicates that warmth was somewhat characteristic of the marital interactions. We compared our ratings of observed warmth to those obtained in a study of European American couples who were recruited from economically depressed rural counties in Iowa (Conger & Melby, 2003). Mean observed warmth scores were approximately one point higher in our African American sample than in the Conger and Melby sample (e.g., for men: $t[572] = 10.13, p < .001$. Results were similar for women.) The variance in the two samples did not differ significantly. Turning next to observer-rated hostility, women scored significantly higher on observed hostility than men. Mean observed hostility was 1.9 for husbands and 2.1 for wives on a 9-point scale, which indicates that hostility was mainly uncharacteristic of the interactions for both genders (see Melby & Conger, 2001). Mean observed hostility scores were approximately .5 points lower in our African American sample than in Conger and Melby's (2003) rural European American sample (e.g., for men: $t[572] = 5.24, p < .001$. Results were similar for women.) The variance in the two samples did not differ significantly. The higher mean observed warmth and lower mean observed hostility found in our sample compared to Conger and Melby's (2003) sample may be due to a variety of factors. Our sample of African American married couples was, on average, more affluent than Conger and Melby's sample, which was recruited in economically depressed rural areas. The couples in the Conger and Melby sample were, on average, about four years older and had been married about six years longer than those in our sample. Furthermore, Conger and Melby's sample had been

videotaped yearly for three years as part of an ongoing longitudinal study, whereas our sample had not previously engaged in a videotaped interaction task. Thus, our sample may have shown a higher level of self-consciousness or been influenced to a greater extent by social desirability considerations than participants in the Conger and Melby study. Thus, although cultural factors may have contributed to differences in observed behavior, other factors probably contributed as well.

Table 2 shows correlations between neighborhood-level economic disadvantage and state and the couple-level variables ($N = 39$). Before conducting the correlation analyses, couple-level variables were first aggregated into a mean score for each neighborhood cluster. As expected, neighborhood-level economic disadvantage was positively related to financial strain, although the correlation was only statistically significant for wives. A significant negative correlation was found between neighborhood-level economic disadvantage and mean observed warmth for wives. This correlation approached significance for husbands. A significant positive correlation was found between neighborhood-level economic disadvantage and mean observed hostility for wives only. Correlations with state indicated that residence in Iowa was associated with higher mean observed warmth for both husbands and wives.

Table 3 shows correlations among individual and couple variables for husbands and wives. A few key results from the table will be highlighted. Correlations between husband and wife ratings of the same variables were uniformly high, and ranged from .46 for marital quality to .65 for observed warmth. Financial strain, rated by both husband and wife, was negatively correlated with wives' observed warmth during the marital interaction. Neither partner's rating of financial strain correlated significantly with husband's observed warmth. Financial strain did not correlate significantly with husbands' or wives' hostility. Financial strain was significantly negatively correlated with marital quality for both husbands and wives. Turning to the effects of spouse behavior on marital quality, both husband warmth and hostility were significantly correlated with wife marital quality. As expected, husband warmth correlated positively and husband hostility correlated negatively with wife marital quality. Only wife warmth correlated significantly with husband marital quality. As expected, this correlation was positive. Regarding correlations between each individual's own behavior and marital quality, warmth was positively associated with marital quality for women and hostility was negatively associated with marital quality for men.

Tests of predictions

Data analyses—Each participant was nested within a couple and each couple was nested within a neighborhood cluster. One problem this creates for standard data analysis procedures, such as ordinary least squares regression, is that the sample violates the assumption that each participant is independent of all other participants. That is, to the extent that persons within couples or neighborhood clusters resemble one another and differ from persons in other couples or clusters, the sample cannot be viewed as representing a simple random sample from the population. Such nonindependence of members of the sample tends to reduce the error terms that are employed in testing the significance of predictor variables, which in turn leads to a bias in tests of significance that are conducted for the individual-level variables (see discussion by Kreft & de Leeuw, 1998, and Snijders & Bosker, 1999).

In order to address these issues, the data were analyzed using a multilevel approach to the data, as operationalized by the Proc Mixed procedure provided by the SAS statistical package (Littell, Milliken, Stroup, & Wolfinger, 1996). In addition to permitting the simultaneous examination of individual-level, couple-level, and neighborhood-level predictors of the dependent variables, this procedure also corrects for nonindependence of the observations in testing the effects of the individual-level variables on the dependent variables. As noted by Singer (1998), results derived from the Proc Mixed procedure are very similar to those derived

from the Hierarchical Linear Modeling program developed by Bryk, Raudenbush, and Congdon (1996).

We conducted separate multilevel regressions predicting each of the three outcome variables: observed warmth, observed hostility, and marital quality. We included a set of demographic variables in each analysis, including age, education, number of years married, and state of residence. We originally included income as well. However, only 88% of the participants provided income information. We conducted the analyses with the subsample that included income. Income was not a significant predictor of any outcome variable when the full set of variables was included in the regression equations. Therefore, we dropped income from the analyses to maximize the sample size. Finally, we tested for gender differences in the relation of all predictors with the outcome variables. Tests of moderation by gender are reported for each analysis below.

Each analysis included three levels: individual, couple, and neighborhood. Individuals were nested within couples, which were, in turn, nested within neighborhood clusters. Variables analyzed at the individual level included age, education, sex, financial strain, observed warmth and hostility, and marital satisfaction. The single variable analyzed at the couple level was number of years married. Variables analyzed at the neighborhood-cluster level included neighborhood-level economic disadvantage and state. As noted by Singer (1998), the interpretability of the results of such a multilevel analysis is improved by centering the predictor variables around the sample mean. We therefore standardized all variables prior to the analysis. As a consequence, the beta weights reported in the tables are comparable to standardized regression coefficients.

The first multilevel regression predicted observed warmth. Together, the variables significantly predicted observed warmth, $\chi^2(7, N = 404) = 40.20, p < .001$ (see Table 4). Using the procedure described by Snijders and Bosker (1999), the variance in observed warmth explained by the set of variables was computed. The variables accounted for 17% of the variance in warmth at the individual level, 19% of the variance in warmth at the couple level, and 37% of the variance in warmth at the neighborhood level. Four variables attained significance: education, years married, neighborhood-level economic disadvantage, and state of residence. Individuals with higher education displayed significantly higher warmth. The longer individuals were married, the less warmth they displayed. Contrary to prediction, financial strain did not significantly predict observed warmth. As predicted, those who lived in economically disadvantaged neighborhoods displayed lower warmth. Residents of Iowa displayed more warmth than residents of Georgia. We tested for gender differences in the relation between predictor variables and observed warmth. We entered a set of interaction terms into the equation, each of which was formed by multiplying the standardized value of the predictor variable by gender (1 = *female*, 0 = *male*). None of the interaction terms attained significance, which indicates that the relations between predictor variables and observed warmth did not vary significantly by gender.

Turning next to the prediction of observed hostility, results are shown in Table 5. Together, the variables significantly predicted observed hostility, $\chi^2(7, N = 404) = 22.60, p < .01$. The set of variables accounted for 6% of the variance at the individual level and 7% of the variance at both the couple and the neighborhood levels. One variable, age, attained significance in the prediction of observed hostility. Older individuals displayed less hostility than younger individuals. Contrary to prediction, neither financial strain nor neighborhood-level economic disadvantage significantly predicted observed hostility. There was a marginally significant association between state of residence and hostility, such that lower hostility was evidenced in Iowa than Georgia. We tested for gender differences in the relation between predictor variables and observed hostility using the method described above. One significant interaction with

gender was found: Education interacted significantly with gender, which signifies that the association between education and hostility differs for men and women. An analysis of the simple effects of this interaction revealed a marginally significant positive association between education and hostility among husbands ($\beta = .11, t(359) = 1.80, p = .07$), but not among wives ($\beta = -.05, t(359) = -.72, p = .47$).

The next analysis examined predictors of marital quality. The demographic predictors (age, education, number of years married), financial strain, observed warmth and hostility received from the spouse, neighborhood-level economic disadvantage, and state were entered into the equation predicting marital quality. Results are shown in Table 6. As a group, these variables were found to be significant predictors of marital satisfaction, $\chi^2(9, N = 404) = 41.6, p < .001$, accounting for 15% of the variance in marital satisfaction at the individual level, 21% of the variance in marital satisfaction at the couple level, and 29% of the variance in marital satisfaction at the neighborhood level. Two variables attained significance: financial strain and neighborhood-level economic disadvantage. As predicted, higher financial strain was associated with lower marital quality. Contrary to prediction, higher neighborhood-level economic disadvantage was associated with higher marital quality. Observed warmth and hostility were marginally significant, such that higher warmth and lower hostility were associated with higher marital quality. Based on Conger et al.'s (1990) model, we predicted that much of the effect of the couple-level and neighborhood-level financial stress variables on marital quality would be mediated through observed warmth and hostility. The significant associations of financial strain and neighborhood-level economic disorder with marital quality, beyond the variance explained by observed warmth and hostility, reflect direct effects of these two financial stressors on marital quality. The inclusion of warmth and hostility in the regression equation predicting marital quality did not diminish the strength of the relations of financial strain or neighborhood-level economic disadvantage with marital quality (see Baron & Kenny, 1986). Indeed, the strength of the associations between observed warmth and hostility and marital quality were quite low.

Analyses were also conducted to test for sex differences in the associations between predictor variables and marital quality. None of the interactions with sex attained significance.

Discussion

We began with a model proposed by Conger and colleagues (1990) of how financial strain affects marital outcomes. We embedded the model within the larger contexts of neighborhood characteristics and geographic locale (midwest vs. south). Using multilevel regression techniques, we were able to simultaneously test associations among variables at the individual level, couple level, and neighborhood level. Because they provide a context for findings at the couple and individual levels, findings at the neighborhood level will be discussed first.

Neighborhood-level results

Neighborhood-level economic disadvantage and relationship outcomes—

Analyses conducted at the neighborhood level test the extent to which characteristics of the neighborhood predict differences in the mean level of couple-level and individual-level variables across neighborhoods. As predicted, neighborhood-level economic disadvantage shows a significant negative relation to interaction warmth. The relation between neighborhood-level economic disadvantage and warmth is consistent with prior studies that have shown an effect of stress on marital interaction. Both major negative life events and chronic daily hassles are associated with lower quality of spousal interactions (Cohan & Bradbury, 1997; Conger et al., 1990, 1999; Repetti, 1989). Although research has focused primarily on the effect of life stress on negative behavior, our finding that warmth is lower in high-stress environments is consistent with at least two prior studies: Repetti found that high

stress during the workday is associated with withdrawal from spousal interaction and Conger et al. (1990) found that family economic strain is associated with lower warmth in marital interactions.

Contrary to prediction, neighborhood-level economic disadvantage is not significantly associated with level of observed hostility. This suggests that warmth may be somewhat more susceptible to environmental influences than hostility, although this conclusion remains tentative until it has been replicated in other samples. It should be noted that both warmth and hostility were assessed in the context of a discussion task rather than in the context of a conflict resolution task. The context in which behaviors are observed is important and may affect results. Warm, supportive behaviors can be measured with greater validity in contexts that elicit prosocial behaviors than in those that elicit conflict (Melby, Ge, Conger, & Warner, 1995). Presumably, hostile behaviors can be measured with greater validity in contexts that elicit conflict than in those that elicit prosocial behaviors. Our discussion task was designed to elicit a range of behaviors, but it was not specifically designed to elicit conflict. It may be that in the context of a conflict resolution task, we would have obtained a more valid measure of hostility. Specifically, we would probably have seen more behaviors that were scored at the higher end of the hostility scale. The variance on our observed hostility scale is relatively low, although it does not differ significantly from the variance found in a previous study of rural European American couples (Conger & Melby, 2003). Future research is required to determine whether environmental contexts reliably influence warm behaviors more strongly than hostile behaviors across racial and ethnic groups, economic status levels, and stimulus contexts.

We found an unexpected positive relation between neighborhood-level economic disadvantage and marital quality, which is very difficult to explain. It is especially difficult to understand given that neighborhood-level economic disadvantage is associated with lower warmth, which predicts marital quality, albeit weakly. It is possible that only good marriages are able to survive the stress of life in an economically disadvantaged context. In less challenging circumstances, lower quality marriages may persist to a greater extent. Another possibility is that married couples, most of whom enjoy relative affluence, are better off financially than their neighbors when they live in economically disadvantaged neighborhoods. Downward comparison with their neighbors may engender positive emotions, which favorably influence people's evaluations of their marriage. A third possibility involves racially based discrimination. Two recent studies have found that, among African Americans, exposure to discrimination is *positively* associated with socioeconomic status and education level (Kessler, Mickelson, & Williams, 1999; Sigelman & Welch, 1991). Sigelman and Welch (1991) speculated that greater affluence and education lead to more frequent interactions outside of the African American community, which are, in turn, associated with greater exposure to discrimination. The stress of exposure to racially based discrimination increases psychological distress, which in turn negatively influences relationship quality within the family (Murry, Brown, Brody, Cutrona, & Simons, 2001).

Geographic locale/rurality and warmth—A second unexpected finding was that the mean level of warmth displayed among Iowa couples was higher than that displayed by Georgia couples. As noted previously, geographic locale and rurality were confounded in the current study. Our Midwestern sample was drawn from midsized cities whereas our southern sample was drawn from rural and suburban areas. Thus, it is difficult to provide a definitive explanation for this finding. Network ties are generally stronger and more extensive among southern than among northern African Americans (Chatters & Taylor, 1993; Taylor & Chatters, 1991). If network involvement supports marital quality, we would expect higher marital quality among southern couples. In fact, there is no effect of geographic locale on overall marital quality. The other factor we identified that might differentiate the experiences of northern versus southern couples is quality of the neighborhoods. Neighborhood quality is a source of dissatisfaction

among more southern than northern respondents in the National Survey of Black Americans (Phillips, 1996). However, in our study, neighborhood-level economic disadvantage does not correlate with state of residence ($r = .00$). It is also possible that local norms for displays of warmth to one's marital partner differ by region or by rurality. For example, it may be that rural people are socialized to be less demonstrative than urban residents. Future research that does not confound region with rurality will be required to test various explanations of our findings.

Individual-Level Findings

Conger et al. (1990) found that family economic strain predicted increased observed hostility and decreased observed warmth among husbands who were coping with the farm crisis of the 1980s. In the present study, the simple correlation between financial strain and observed warmth among wives is significant. The correlation fails to attain significance among men, but is almost identical in magnitude to that for women (.13 vs. .14). Furthermore, when financial strain is included as one of a set of personal-level, couple-level, and neighborhood-level variables predicting observed warmth, it fails to attain significance for either gender. Financial strain does not correlate significantly with observed hostility in either the bivariate or the multivariate analyses for either gender. Thus, we find only weak support for a direct link between financial strain and actual behavior in our sample.

There are several possible explanations for our findings. The fact that the modest bivariate correlation between financial strain and warmth failed to attain significance when it was tested in the context of other predictors suggests that financial strain and one or more of the other variables in the equation overlap in the variance they explain in observed warmth (e.g., education and neighborhood-level economic disadvantage). A second possibility is that financial strain may only affect behavior through the mediation of psychological distress. Indeed, in a replication of their earlier study with a larger sample, Conger et al. (1999) found that economic strain directly influences distress and only indirectly influences observed conflict behavior, through the mediation of psychological distress. Finally, the financial strain in our sample is somewhat less severe than that in the Conger et al. (1990) sample. If placed under greater economic deprivation, perhaps the couples in our sample would have shown stronger evidence of a link between financial strain and behavior.

Although financial strain did not significantly predict interaction behavior in our study, it did show a significant negative relation with marital quality. Rather than an indirect effect through the mediation of behavior, financial strain shows a significant direct effect on marital quality for both men and women. Couples experiencing financial problems evaluate their marriages less positively than those with more secure financial circumstances. These findings are consistent with previous research that has found a strong influence of economic factors on marriage among African Americans (Brown, 1996; Taylor, Tucker, & Mitchell-Kernan, 1999; Williams, Takeuchi, & Adair, 1992). When changes in the economy lead to increased levels of unemployment among African American men, marriage rates among African Americans decline (Williams et al., 1992). Among African American couples, the male's performance in the traditional role of breadwinner is very important, and increasing unemployment among African American men has been linked to divorce rates among African American couples (R. J. Taylor et al., 1997; Williams et al., 1992).

In the couple-level model, most paths are similar for males and females. Financial strain has the same deleterious effects on marital quality for both husbands and wives. This is somewhat different from findings for European American couples reported by Conger and colleagues, who found that economic strain has a stronger negative influence on men than on women (Conger et al., 1990; Conger, Lorenz, Elder, Simons, & Ge, 1993). African American couples strongly endorse egalitarianism in marital relationships (Hunter & Sellars, 1998; Kane,

1992;Orbuch & Eyster, 1997). It follows that husband and wife both assume responsibility for the family's financial well-being and are both affected by financial problems. Although men's performance in the breadwinner role is valued highly, economic factors have necessitated full participation of African American women in securing families' economic well-being (Burgess, 1994).

One significant gender difference that emerged concerns the link between level of education and observed hostility during interactions. A significant interaction is found between gender and education in the prediction of observed hostility, signifying different slopes for men and women in the relation between education and hostility. For men, a marginally significant positive association is found between education and hostility, whereas for women, education is not related to hostility. This finding is consistent with work by Stewart (1994), who found a negative relation between education and family life satisfaction among African American men in the Survey of Black Americans. A similar pattern was reported by Orbuch and colleagues, who found that educational level predicts lower divorce rates among African American women, but not among African American men (Orbuch, Veroff, & Hunter, 1999). Stewart (1994) explained the failure of education to serve as a protective factor among well-educated African American men as a reflection of the frustration experienced by highly educated African American men who realize that, despite their educational attainment, career advancement is not commensurate with their qualifications. This frustration may spill over into the marital relationship. More highly educated men may also have more contact with racially based discrimination than less-educated men whose lives bring them into less frequent contact with the white world. As noted above, Murry et al. (2001) found evidence that experiences of racially based discrimination magnify the negative impact of stressful life events on the quality of intimate relationships among African American couples.

Limitations

A number of limitations of the current study should be mentioned. The census data, on which the assessment of neighborhood economic disadvantage is based, were dated, posing a threat to their accuracy. The block group areas that were combined into neighborhood clusters were not all contiguous, so emergent properties of actual neighborhoods may have been distorted by the combination of nonadjacent areas. The sample comprised only married couples raising a 10- to 12-year-old child, so findings may not be generalizable to a broader spectrum of African American families. For example, among childless couples, neighborhood characteristics may not be as influential because individuals need not worry about potential harmful effects of the neighborhood on their children. Although our neighborhoods did span a wide range of socioeconomic levels, if an even broader range of neighborhoods had been sampled, it is possible that economic disadvantage would have shown stronger effects. Restriction of range may have prevented some relations from attaining statistical significance (Stoolmiller, 1999).

A limitation that is inherent in observational assessments of behavior is that a very limited sample is obtained of the couple's way of interacting. Behaviors captured during 20 minutes of discussion may not adequately reflect the couple's actual warmth or hostility, especially given the inhibiting influence of the video camera. Furthermore, as noted above, we may not have captured the full range of hostile behaviors because our interaction task was not designed to elicit conflict.

The most serious liability is the cross-sectional design of the study. As a consequence, the direction of all bivariate relations is ambiguous. Above all, longitudinal research is needed to examine the long-term trajectories of marriages in different neighborhood contexts. We also need research that follows individuals as they move from one neighborhood context to another. Even then, it will be difficult to assign causality, because changes in individual circumstances are the most likely causes for moving to a new neighborhood. It will be difficult to disentangle

the effects of individual change from change in neighborhood environment. Individuals choose and influence their environments, and, in turn, they are modified by the environments that they have chosen. Understanding the complexity of such reciprocal relations will provide considerable challenge. However, in one of the few true experimental studies in which low-income families were randomly assigned to live in government-subsidized housing projects or to receive rent vouchers that allowed them to live in better quality neighborhoods (Katz, Kling, & Liebman, 2001; Rosenbaum & Harris, 2001), significant differences were found on multiple indicators of child outcomes (e.g., mental and physical health, school performance, behavior problems). The children who lived in better-quality neighborhoods had better outcomes than those who remained in housing projects in areas of highly concentrated poverty. Among adults, higher quality parenting was found among those who moved to the higher quality neighborhoods. This work suggests that neighborhoods may have actual causal effects on important dimensions of well-being and behavior.

Conclusions

What have we learned about the lives of African American couples? Our results highlight the significance of the contexts in which relationships are embedded. The stress load, norms, and support structures imposed by neighborhood contexts can shape behaviors and attitudes toward close relationships in important ways. It is necessary to understand these influences so that we can work toward modifying external forces that put relationships in harm's way.

Results also suggest that family financial strain has an impact on the quality of marriages in the African American community. Interventions designed to strengthen marriages should not ignore the importance of economic well-being. In addition to interpersonal and communication skills, programs should include resources that help people meet their financial goals, such as financial management and employment counseling.

A third important finding is the fragility of warm behaviors in couple interactions. Lower warmth was found in specific neighborhood contexts and even in regional contexts. Thus, we join a growing chorus of marital researchers who have called for greater emphasis on promoting and maintaining positive behaviors in marital interventions, rather than focusing exclusively on preventing negative behaviors (e.g., Bradbury, Rogge, & Lawrence, 2001).

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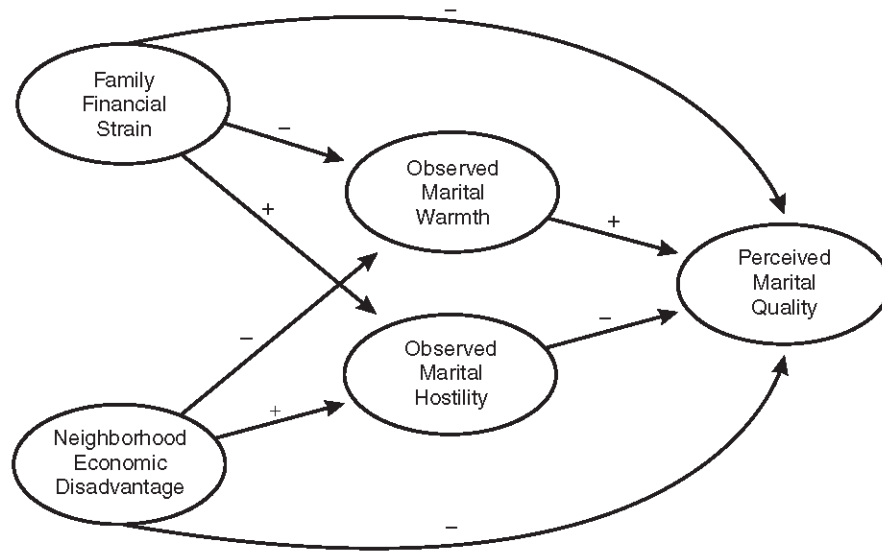


Figure 1.
Hypothesized relations among variables.

Table 1

Study variables by gender

Variables	Possible range of scores	Wives		Husbands		t
		M	SD	M	SD	
Age		37.8	7.9	40.4	9.0	-6.3***
Education		13.3	2.3	13.3	2.5	0.4
Financial strain	6-54	16.0	5.9	15.0	6.3	1.3
Observed warmth	1-9	4.3	1.2	4.3	1.2	0.4
Observed hostility	1-9	2.1	.9	1.9	.8	2.5**
Marital quality	9-39	34.3	5.0	35.3	4.6	-2.8**

Note. N = 202 women and 202 men.

**
p < .01.

p < .001.

Table 2

Neighborhood-level correlations

Variables	Neighborhood economic disadvantage	State
State	.00	
Financial strain		
Women	.32*	.07
Men	.22	.03
Observed warmth		
Women	-.43**	.39*
Men	-.30 ⁺	.59**
Observed hostility		
Women	.35*	-.03
Men	.18	-.18
Marital quality		
Women	-.03	-.04
Men	.14	-.15

Note. N = 39. State of residence is coded 1 = Iowa and 0 = Georgia.

⁺ p < .10.

* p < .05.

** p < .01.

Table 3

Correlations among couple-level variables

Variables	Wives			Husbands				
	Financial strain	Observed warmth	Observed hostility	Marital quality	Financial strain	Observed warmth	Observed hostility	Marital quality
Wives								
Observed warmth	-.14*							
Observed hostility	.13	-.20**						
Marital quality	-.28**	.18*	-.13					
Husbands								
Financial strain	.60***	-.17*	.09	-.23**				
Observed warmth	-.08	.65***	-.14	.14*	-.13			
Observed hostility	.06	-.13	.56***	-.17*	.06	-.14*		
Marital quality	-.26***	.17*	-.12	.46***	-.33***	.13	-.19**	

Note. N = 202 men and 202 women.

* p<.05.

** p<.01.

*** p<.001.

Table 4
Individual-level, couple-level, community-level variables as predictors of observed warmth

Variables	β	SE	df	t
Individual level				
Education	.15	.05	360	3.10**
Age	.03	.06	360	0.57
Sex	.01	.06	360	0.14
Financial strain	-.06	.05	360	-1.20
Couple level				
Years married	-.20	.07	360	-2.87**
Neighborhood level				
Economic disadvantage	-.14	.06	36	-2.36*
State	.43	.12	36	3.63***

Note. Sex is coded 1 = female, 0 = male. State is coded 1 = Iowa, 0 = Georgia.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 5
Individual-level, couple-level, community-level variables as predictors of observed hostility

Variables	β	SE	DF	t
Individual level				
Education	.04	.05	360	0.83
Age	-.23	.06	360	-3.53***
Sex	-.01	.07	360	-0.08
Financial strain	.04	.05	360	0.79
Couple level				
Years married	.03	.07	360	0.38
Neighborhood level				
Economic disadvantage	.05	.06	36	9.79
State	-.24	.13	36	-1.93 ⁺

Note. Sex is coded 1 = female, 0 = male. State coded 1 = Iowa, 0 = Georgia.

⁺ $p < .10$.

*** $p < .001$.

Table 6
Individual-level, couple-level, community-level variables as predictors of marital quality

Variables	β	SE	DF	t
Individual level				
Education	.00	.05	358	0.04
Age	.05	.06	358	0.83
Sex	-.01	.07	358	-0.09
Financial strain	-.27	.05	358	-5.36***
Couple level				
Years married	.01	.07	358	0.13
Observed warmth	.10	.05	358	1.82 ⁺
Observed hostility	-.08	.05	358	-1.65 ⁺
Neighborhood level				
Economic disadvantage	.17	.06	36	2.96**
State	-.12	.12	36	-1.03

Note. Sex is coded 1 = female, 0 = male. State is coded 1 = Iowa, 0 = Georgia.

⁺ $p < .10$.

** $p < .01$.

*** $p < .001$.