Age Differences in Health Effects of Stressors and Perceived Control Among Urban African American Women

A. B. Becker, B. A. Israel, A. J. Schulz, E. A. Parker,
and L. Klem

ABSTRACT *A conceptual model of the stress process has been useful in examining relationships among a variety of stressors, health status, and protective factors that modify the health-stress relationship. The model can contribute to an understanding of variations in health among people living in urban environments experiencing high degrees of stress. This study examines social contextual stressors in the neighborhood, health outcomes, and perceived control at multiple levels beyond the individual as a protective factor, among a random sample (N=679) of predominantly low-income African American women who reside on Detroit's east side. Findings suggest that although stress has a consistently negative impact on health, perceived control may buffer against the deleterious effects of stress. The buffering role of perceived control, however, depends on age, the type of stressor examined, and the context or level at which perceived control is assessed (e.g., organizational, neighborhood, beyond the neighborhood). For young women, perceived control was found to be health protective. Among older women, perceived control in the face of stressors was inversely related to health. These findings suggest the need for health and social service programs and policy change strategies to both increase the actual influence and control of women living in low-income urban communities and to reduce the specific social contextual stressors they experience.*

KEYWORDS *African American women, Community empowerment, Perceived control, Stress, Urban health.*

INTRODUCTION

In the United States, people of color and individuals with lower socioeconomic status experience higher rates of morbidity and mortality than white and wealthier individuals.¹⁻⁵ A growing body of research recognizes the role that living in areas of concentrated poverty plays in producing social inequalities in health among different racial and ethnic groups in the United States.⁶⁻¹⁰ Areas of concentrated poverty are often found in urban settings and are created through processes of racial segregation and economic disinvestment.¹¹⁻¹³ These forces can create environments where health-threatening conditions or “stressors” (e.g., deteriorated housing, crime, and

Dr. Becker is with the Department of Community Health Sciences, Tulane University School of Public Health and Tropical Medicine, New Orleans, Louisiana; Drs. Israel, Schulz, and Parker are with the Department of Health Behavior and Health Education, University of Michigan School of Public Health, Ann Arbor, Michigan; and Ms. Klem is with the Center for Statistical Consultation and Research, University of Michigan, Ann Arbor, Michigan.

Correspondence: A. B. Becker, Community Health Sciences, Tulane University School of Public Health and Tropical Medicine, 1440 Canal Street, Suite 2301, New Orleans, LA 70112. (E-mail: abecker@tulane.edu)

violence) are abundant, and where resources that protect against these factors (e.g., social support, community empowerment) are stretched to their limits.¹¹⁻¹⁶

A focus on urban health can contribute to an understanding of inequalities in health between urban and suburban areas, or between racial, ethnic, or socioeconomic groups, and it is important to recognize that physical and mental health status vary among individuals within urban communities. Socioeconomic status, gender, ethnic identity, behavior, and access to insurance explain some of these differences.¹⁷⁻¹⁹ Variation among urban residents in exposure and response to stressful life conditions and the presence of protective factors that buffer against stressors may also help to account for differences in health outcomes. There is a need to understand better the role of stress and protective factors on health in urban areas. An exploration of the stress process in urban communities characterized in part by high degrees of poverty and racial segregation can lead to an increased understanding of health among residents of such communities and contribute to the development of interventions and policies to improve the health of urban populations and reduce racial and ethnic disparities in health.

THE STRESS PROCESS IN COMMUNITY CONTEXTS

Pathways through which stress can affect health are depicted in a conceptual model of the stress process.²⁰⁻²³ The stress-process model presented in the Figure is particularly

FIGURE. Conceptual model of the stress process as it relates to urban health. Adapted from Israel BA, Checkoway B, Schulz A, Zimmerman M. Health education and community empowerment: conceptualizing and measuring perceptions of individual, organizational, and community control. *Health Educ Q.* 1994;20:149-170.

NOTE: Solid lines between boxes indicate presumed relationships among variables. Dotted lines indicate the hypothesized buffering effects of the modifying variables on the relationship between stressors and perceived stress, between perceived stress and short-term responses, and between short-term responses and enduring health outcomes. Double-headed arrows represent the potentially reciprocal relationships among many of the variables, while recognizing that not all will be reciprocal (e.g., age and sex are not effected by stress or health).

relevant for racially segregated and economically marginalized urban communities. The model posits that stressors, when perceived as stressful, can lead to immediate or short-term responses (e.g., elevated blood pressure, use of alcohol or other substances). These immediate responses can lead to negative long-term health outcomes (e.g., cardiovascular disease, drug addiction).²⁰⁻²³

Researchers have posited that different types of stressors may have different health effects and that stressors need to be studied by type, not merely by their presence or absence.²⁴ Some stressors occur at the individual level (e.g., financial vulnerability, loss of a loved one), whereas others may be geographically linked, occurring at the community level. Community-level stressors can be referred to as social-contextual stressors and include threats to physical safety and violent crime,²⁵ sometimes defined as neighborhood disorder.^{26,27} Racially segregated, poor, urban communities of color are more likely than other communities to experience stressors in the social and physical environment.^{7,8,28,29} In a previous investigation in Detroit, Michigan, using the same data as in this study, the presence of a variety of stressors was found to be significantly and positively related to poorer general health and depressive symptoms.³⁰ Research in other urban communities of color has also linked stressors to behaviors that are deleterious to health such as cigarette smoking³¹ and to psychological factors such as a sense of hopelessness and powerlessness.^{32,33}

The conceptual model of the stress process illustrates, however, that stressors that occur community-wide may not affect all community members equally. Conditioning variables or protective factors (e.g., social support, perceived control, spirituality) may reduce the presence of stressors, the degree to which they are perceived as stressful, or their deleterious short- and long-term health effects.^{20-23,33-36} Variations in protective factors among individuals and communities might help to explain individual and group differences in the stress-health relationship.³⁶

Perceived Control as a Protective Factor

One protective factor often examined in stress research is perceived control. The protective or buffering role of perceived control at the individual level (defined as control over one's own life) has been demonstrated for a number of urban, community-specific stressors (e.g., noise, crowding, traffic).³⁷ Researchers have noted the need, however, to distinguish between definitions of control that treat the construct as an individual-level factor and definitions that include macro-level control and collective influence beyond the individual (e.g., interpersonal, community, sociopolitical).³⁷⁻³⁹

A more macro-level conceptualization of perceived control links research on the stress process to empowerment research. Often, empowerment is conceptualized and defined as a process and an outcome involving the perception and acquisition of power, where power is defined as the ability to influence individuals, organizations, and communities to attain desired goals.^{36,38-44} Perceived control beyond the individual refers to political and social influence that occurs through citizen participation and collective action.^{36,43} This study examines, as a dimension of empowerment, perceptions of control and influence at multiple levels beyond the individual (i.e., organizational, neighborhood, and beyond the neighborhood levels).

The Organizational Level Studies of occupational stress suggest that perceived control at the organizational level, defined as the perceived ability to influence organizational decision-making and outcomes, may influence the stress-health relationship. For example, Karasek⁴⁵ found that jobs with high demands and limited control are more likely to lead to negative health effects than jobs with high

demands and high control. Extending this work, Israel and colleagues³⁴ and Baker and colleagues⁴⁶ found that perceived control at the organizational level buffers against the deleterious health effects of a variety of occupational stressors. Membership and influence in organizations other than the workplace may have a similar health-protective effect. Membership in neighborhood and community organizations, for example, may lead to an increased sense of control and influence as members work together to solve neighborhood problems and improve the quality of their environment.^{40,47-51} Feelings of influence and control in such organizations may lead to improved health for members, especially when efforts are successful in bringing about change.

Community Levels: The Neighborhood and Beyond Empowerment research posits that participation in community-change efforts can enhance community problem-solving capacity, social relationships, and health.^{36,39-41} Such involvement has been associated with an increased sense of control and influence at the community level.^{50,51} Researchers have noted, however, that communities can be seen as overlapping units of identity.⁵¹⁻⁵³ Multiple communities of identity may exist within the same geographic boundaries. Communities of identity may also cross multiple geographically bounded communities.^{36,52,53} The distinction between the concept of “neighborhood” and a broader concept of “community” that extends beyond neighborhood is a reflection of this line of thought.⁵¹

Research on other concepts related to community empowerment such as “community competence”^{54,55} and “community capacity”⁵⁶ has also emphasized the importance to community health of social networks among people within a community and linkages across communities of varying degrees of power and resources. Conceptualizations of control and empowerment that examine these constructs at more specific levels of community (e.g., neighborhood and beyond the neighborhood) may capture more effectively the impact on health of control and influence. Little research has been done to assess the health effects of perceived control at the neighborhood or beyond the neighborhood levels. A greater understanding is needed of the role of perceived control at multiple levels beyond the individual (i.e., organizational, neighborhood, and beyond the neighborhood) in protecting the health of the members of urban communities experiencing stressful life conditions within that context. This study examines relationships among worries about safety, perceived control at multiple levels beyond the individual, and health among women raising children in a racially segregated area of concentrated poverty on the east side of Detroit, Michigan.

METHODS

The data used in this study were collected in a community survey conducted by the East Side Village Health Worker Partnership (ESVHWP).^{57,58} The ESVHWP is a community-based participatory research project of the Detroit Community-Academic Urban Research Center^{59,60} and is funded by the Centers for Disease Control and Prevention. The ESVHWP is made up of Village Health Workers (community members serving as lay health advisors), and representatives from community-based organizations, health care and public health agencies, and an academic institution. The ESVHWP was established in 1995 to address social conditions that influence the health of families on the east side of Detroit and began its work with a lay health advisor intervention aimed at improving the health of women raising children within the project boundaries.

Data Collection

Individuals eligible for the baseline survey were women who lived within the ESHWP boundaries, were at least 18 years old, and had nonprofessional caregiving responsibility, five hours a week or more, for at least one child under the age of 18. The census tract block groups to be included in the intervention, and thus the survey area, were selected by the project's steering committee. Respondents were chosen from randomly selected households in the area and interviewed by trained neighborhood residents. A total of 700 women were interviewed. The completed interview rate (the number of completed interviews divided by the number of eligible households) was 81%.⁵⁸ Of the 700 women interviewed, 679 (97%) were African American. The study sample is comprised of these 679 women.

Measurement of Variables

Dependent Variables SELF-REPORTED GENERAL HEALTH. A single-item measure was used to assess general health. Respondents were asked, "in general, would you say your health is excellent, very good, good, fair, or poor," and answered using a five-point Likert scale (1, "poor"; 5, "excellent"). This item is a reliable indicator of future mortality at the population level.⁶¹ This scale had a mean for all respondents of 3.29 (minimum, 1; maximum, 5) with a standard deviation of 1.0.

DEPRESSIVE SYMPTOMS ($\alpha = .83$). The shortened version of the Center for Epidemiologic Studies Depression (CES-D) scale⁶² was used to measure depressive symptoms. This scale consists of 11 items assessing how often in the past week respondents experienced a variety of feelings that are symptomatic of depression (e.g., "everything I did was an effort," "sleep was restless," "felt lonely"). Respondents answered using a three-point Likert scale (1, "hardly ever"; 2, "some of the time"; 3, "most of the time"). The mean for this scale for all respondents was 1.50 (minimum, 1; maximum, 2.64; SD = 0.39).

Independent Variables SOCIODEMOGRAPHIC VARIABLES. Age was measured by respondents' date of birth. For the purposes of this study, age was categorized into three groups (18–34 years, 35–54 years, and 54 years and older) to explore differences in the relationships among stress, perceived control, and health within each age group and among the three groups. Education was assessed as an ordinal variable in four categories (less than high school, high-school diploma or GED, some college, and college degree). Income was measured as an ordinal variable with nine categories corresponding to ranges of household income (<\$5,000/year, \$5,000–9,999/year, \$10,000–14,999/year, \$15,000–19,999/year, \$20,000–24,999/year, \$25,000–29,999/year, \$30,000–39,999/year, \$40,000–49,999/year, and >\$50,000/year).

SOCIAL CONTEXTUAL STRESSORS: WORRIES ABOUT SAFETY ($\alpha = .84$). Worries about safety were measured with a scale of seven items asking how often respondents worried about, or considered to be a problem, issues related to physical safety in the neighborhood or home and the safety of personal property (e.g., your physical safety in the neighborhood, being robbed, or your home broken into). Respondents answered using a five-point Likert scale (1, "never"; 5, "almost all the time"), with higher values representing greater worries about safety.

PERCEIVED CONTROL ACROSS MULTIPLE LEVELS BEYOND THE INDIVIDUAL ($\alpha = .81$). The Revised Perceived Control Scale used in this study is an adaptation of the Perceived Control Scale developed by Israel and colleagues.^{36,50} Perceived control is measured as the

degree of control and influence respondents feel that they, their organizations, and their neighborhoods have beyond the individual level (i.e., in organizations, the neighborhood, and beyond the neighborhood), as opposed to measures that assess individuals' sense of control in their own lives (e.g., locus of control). In all items, respondents were asked how much they agreed or disagreed with a series of statements regarding their individual and collective influence on their most important organization, their neighborhood, and beyond the neighborhood.

Correlations among the three subscales were 0.35 between organizational and neighborhood; 0.27 between organizational and beyond the neighborhood; and 0.46 between neighborhood and beyond the neighborhood, indicating that the three subscales are distinct constructs, with modest association. A composite scale including all three subscales ($\alpha = .81$) was created to assess perceived control across multiple levels beyond the individual as an overall measure of control and influence. This composite scale is referred to in this study as perceived control across multiple levels. In all perceived control scales, high values signified high degrees of perceived control. All scales were constructed by using unstandardized items,⁶³ giving greater weight to items with greater variance, though inter-item differences in variance were minimal (results available from first author).

ORGANIZATIONAL LEVEL PERCEIVED CONTROL ($\alpha = .76$). Respondents were asked whether they were members of a variety of organizations listed in the survey. They were then asked to think about their most important organization and respond to the five items in the organizational level subscale (e.g., I can influence the decisions that this organization makes, this organization can influence decisions that affect the neighborhood). A four-point response scale (1, "agree strongly"; 4, "disagree strongly") was used. Thirty-seven percent of respondents did not indicate membership in an organization (nonmembers), were not asked these questions, and are not included in analyses including organizational-level perceived control.

NEIGHBORHOOD LEVEL PERCEIVED CONTROL ($\alpha = .81$). The neighborhood level subscale consists of five items assessing individual and collective influence on the neighborhood (e.g., I can influence decisions that affect my neighborhood, people in my neighborhood work together to influence decisions that affect the neighborhood). A four-point response scale (1, "agree strongly"; 4, "disagree strongly") was used, with high values representing greater degrees of perceived control at the neighborhood level.

BEYOND THE NEIGHBORHOOD ($\alpha = .63$). The beyond the neighborhood level subscale includes two items, "People in this neighborhood have connections to people who can influence what happens in the neighborhood" and "People in my neighborhood work together to influence decisions at the city, state or national level." These two items had a five-point and four-point response scale respectively, with higher values representing greater degrees of perceived control beyond the neighborhood.

Data Analysis

Ordinary least squares (OLS) regression analyses were conducted to examine the relationships among stress, control, and health. Self-reported general health was treated as an interval-level variable because of the symmetric distribution of scores.⁶⁴ Analyses were conducted to examine the direct and stress-buffering effects of perceived control on self-reported general health and depressive symptoms (analyzed separately) beyond the effects of demographic factors and perceptions of stress. Independent variables were entered in blocks in four separate models. First, demographic factors (age, education, and income) were added (model 1). Next, the

social contextual stressor, worries about safety, was added (model 2). Third, perceived control was added (model 3). Finally, an interaction term between stress and control was added to determine possible stress-buffering effects of perceived control (model 4). Interaction effects were interpreted by using plotting procedures described by Aiken and West.⁶⁵ This series of analyses were conducted separately among women in three-different age groups, among organizational members and nonmembers, and at varying levels of perceived control. Analyses were also conducted (results available on request from the first author) that included problems with the physical environment and problems with gangs and drugs as the social contextual stressors.

RESULTS

In analyses examining relationships among worries about safety, perceived control, and health in the sample as a whole, worries about safety and other social contextual stressors were consistently associated with poorer self-reported health and more frequent depressive symptoms (data not shown). This relationship persisted with all of the stressors that were examined and was only slightly attenuated when other variables were included in analyses. This robust negative health effect of stressors in this sample has been reported elsewhere.⁶⁶ There were no significant direct or stress-buffering effects of perceived control on health for the sample as a whole. The sample was stratified by age to determine whether the stress-control health relationships differed by age and was masked in analyses including the entire sample. Significant effects of perceived control were found in the separate age groups. The results of age-stratified analyses are presented and discussed below.

Description of Sample by Age Group

Results are presented in Table 1 describing demographic characteristics, worries about safety, and perceived control across multiple levels by age group (18–34, 35–54, 55+). In general, older women reported lower levels of education and higher levels

TABLE 1. Demographic characteristics, worries about safety, and perceived control at multiple levels beyond the individual by age group

Variable	18–34 (n = 316)	35–54 (n = 234)	55+ (n = 117)	F	P
Education (%)					
≤ High school/general equivalency diploma	63	60	86		
Income (%)					
<\$10,000	60	46	44		
Within-group means					
Self-reported general health	3.58	3.23	2.67	37.52	.000
Depressive symptoms	1.51	1.51	1.43	2.30	.101
Worries about safety	2.51	2.36	2.10	11.34	.000
Perceived control					
Multiple levels(members and nonmembers)	2.49	2.69	2.81	11.24	.000
Multiple levels (members only)	2.80	2.90	3.04	6.13	.002

of income than the youngest women. Self-reported general health declined with age, whereas the frequency of depressive symptoms was similar across all age groups. Worries about safety were the greatest among the youngest women. Perceived control across multiple levels was the highest among the eldest group.

Age-Specific Health Effects of Perceived Control

When the sample was divided into three subgroups according to age, significant effects varied across the three groups. For each age group, analyses were conducted including: (1) demographic factors; (2) social contextual stressors; (3) different levels of perceived control (which necessitated analysis of organizational members separately); and (4) different health outcomes (self-reported general health and depressive symptoms). The different patterns suggest that stress and control have different effects on health outcomes depending upon the outcome, age, and organizational membership of the respondent, the type of stressor, and the level of perceived control in question. Tables 2–4 summarize selected results of analyses by age group with worries about safety included as the social contextual stressor. These results are discussed below.

Effects of Perceived Control by Age Groups

18–24 Year Olds Results are presented in Table 2 of analyses of organizational members and nonmembers combined, in which self-reported general health was regressed on demographic factors, worries about safety, perceived control at the neighborhood level, and the stress–control interaction term. When depressive symptoms were regressed on the other variables of interest, only social contextual stressors were significant predictors (data not shown).

Of the demographic variables, only income was a significant predictor of self-reported general health. Those reporting higher income also reported better general health. Worries about safety significantly and negatively predicted self-reported general health controlling for education and income. Those reporting greater worries about safety reported poorer general health. Perceived control at the neighborhood level was a significant predictor of self-reported general health. Those reporting greater perceived control also reported better general health. Perceived control beyond the neighborhood and across multiple levels was also positively related to health, whereas perceived control at the organizational level did not significantly predict the health of organizational members (data not shown).

The impact of the interaction of perceived control and stress on health was less straightforward. The significance of the interaction term depended upon the level of perceived control being analyzed. As seen in Table 2, the interaction term including worries about safety and perceived control at the neighborhood level significantly and positively predicted general health. Interpreted using plotting procedures described by Aiken and West,⁶⁵ the stress–control interaction term was a positive predictor of self-reported general health. At the same levels of stress, those women in this youngest age group reporting higher levels of perceived control at the neighborhood level also reported better general health. The stress–control interaction term was not significant when other levels of perceived control (i.e., organizational, beyond the neighborhood) were included (data not shown). These results suggest that perceived control at the neighborhood but not other levels buffers against the deleterious health effects of worries about safety for young women in this sample.

TABLE 2. 18–34 year olds: self-reported general health regressed on sociodemographic variables, worries about safety, perceived control at the neighborhood level, and the stress–control interaction term (N = 314–316)

Independent variable	Model 1			Model 2			Model 3			Model 4		
	B	SEB	β	B	SEB	β	B	SEB	β	B	SEB	β
Education	0.02	0.07	.02	–0.01	0.07	–.01	–0.03	0.07	–.03	–0.03	0.07	–.02
Income	0.06	0.03	.13*	0.06	0.03	.13*	0.05	0.03	.11	0.06	0.03	.13*
Worries about safety				–0.24	0.07	–.20†	–0.23	0.07	–.19†	–0.22	0.07	–.18†
Perceived control—neighborhood level							0.21	0.08	.14†	0.16	0.08	.11
Worries about safety × perceived control										0.25	0.10	.14†
Model F	3.19*			6.51†			6.58†			6.65†		
Total R ²	0.02			0.06			0.08			0.10		
Change R ²	0.02			0.04			0.02			0.02		
F change	3.19*			12.90†			6.46†			6.44†		

This analysis includes all respondents. Perceived control at the organizational level is not included. Analysis was carried out using pairwise deletion of missing data.

*P ≤ .05.

†P ≤ .01.

‡P ≤ .001.

TABLE 3. 35–54 year olds: self-reported general health regressed on sociodemographic variables, worries about safety, perceived control across multiple levels, and the stress–control interaction term: organizational members (N = 143–152)

Independent variable	Model 1			Model 2			Model 3			Model 4		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Education	0.12	0.11	.10	0.11	0.10	.09	0.11	0.10	.09	0.10	0.10	.08
Income	0.11	0.04	.28 [‡]	0.12	0.03	.29 [‡]	0.12	0.04	.29 [‡]	0.12	0.03	.30 [‡]
Worries about safety				–0.23	0.10	–.18*	–0.23	0.10	–.18*	–0.26	0.10	–.20*
Perceived control—multiple levels							–0.01	0.17	–.005	0.04	0.17	.19
Worries about safety $\times$ perceived control										–0.44	0.17	–.20 [‡]
Model F	8.91 [‡]			7.80 [‡]			5.81 [‡]			6.15 [‡]		
Total R ²	0.11			0.14			0.14			0.18		
Change R ²	0.11			0.03			0.00			0.04		
F change	8.91 [‡]			5.07*			0.004			6.59 [‡]		

This analysis includes only organizational members. Perceived control at the organizational level is included. Analysis was carried out using pairwise deletion of missing data.

* $P \leq .05$.

[†] $P \leq .01$.

[‡] $P \leq .001$.

TABLE 4. 55+ year olds: depressive symptoms regressed on sociodemographic variables, worries about safety, perceived control across multiple levels, and the stress-control interaction term (N = 115–117)

Independent variable	Model 1			Model 2			Model 3			Model 4		
	B	SEB	β	B	SEB	β	B	SEB	β	B	SEB	β
Education	–0.10	0.05	–.22*	–0.09	0.04	–.19*	–0.09	0.04	–.19*	–0.10	0.04	–.21*
Income	–0.02	0.02	–.14	–0.03	0.02	–.16	–0.03	0.02	–.16	–0.02	0.01	–.10
Worries about safety				0.14	0.04	.31‡	0.14	0.04	.32‡	0.14	0.04	.32‡
Perceived control—multiple levels							0.01	0.05	.01	0.05	0.05	.09
Worries about safety × perceived control										0.19	0.05	.30‡
Model F	6.02†			9.00‡			6.70‡			8.30‡		
Total R ²	0.10			0.20			0.20			0.28		
Change R ²	0.10			0.10			0.000			0.08		
F change	6.02†			13.61‡			0.02			12.03‡		

This analysis includes all respondents. Perceived control at the organizational level is not included. Analysis was carried out using pairwise deletion of missing data.

*P ≤ .05.

†P ≤ .01.

‡P ≤ .001.

35–54 Year Olds When all members of the middle age group were included in analyses, income was a significant and positive predictor of self-reported general health and negatively associated with depressive symptoms. As with the youngest women, worries about safety significantly and negatively predicted health such that increased worry was associated with poorer general health and greater frequency of depressive symptoms. Perceived control and the stress–control interaction term were not significant predictors at any level of either health outcome for this age group when organization members and nonmembers were combined (data not shown). There were significant effects, however, when worries about safety and perceived control were combined in an interaction term and examined among 35- to 54-year-old organizational members.

As seen in Table 3, the stress–control interaction was a significant predictor of general health (model 4) among organizational members when perceived control across multiple levels and worries about safety were included in the interaction term. Similar results were found for perceived control at the organizational level (data not shown). The interaction is, however, inversely related to general health. The interaction of stress and perceived control across multiple levels has a β coefficient of $-.20$. This inverse relationship indicates the opposite of a stress-buffering effect. Organizational members in the middle age group who experience high degrees of stress and high levels of perceived control at the organizational level and across multiple levels reported poorer general health than those who experience high degrees of stress and lower levels of perceived control at these levels.

55+ Year Olds There was little variance in self-reported general health in the eldest group and income was the only variable that significantly predicted general health, with higher income being associated with better general health. Results are presented in Table 4, therefore, for analyses conducted with organizational members and nonmembers combined, in which depressive symptoms was the dependent variable, “worries about safety” was included as the social contextual stressor, and perceived control across multiple levels was included. Education, and not income, significantly predicted depressive symptoms. Higher levels of education were associated with less frequent depressive symptoms when all members of this age group were included. However, in the subset of this group who were members of organizations, neither income nor education was a significant predictor of depressive symptoms (data not shown).

Worries about safety in the eldest group significantly and positively predicted depressive symptoms. Greater perceived stress was associated with greater frequency of depressive symptoms for all respondents in this age group combined and for organizational members when included separately. Perceived control on its own did not significantly predict depressive symptoms at any level (organizational, neighborhood, beyond the neighborhood, or across multiple levels). The interaction terms, however, did significantly predict depressive symptoms in some cases.

As seen in Table 4, the interaction between worries about safety and perceived control across multiple levels was a significant predictor of depressive symptoms. The control–stress interaction terms including perceived control at the neighborhood level and beyond the neighborhood level were also significant predictors of and positively related to depressive symptoms, when organization members and nonmembers were combined (data not shown). Results were the same when only members were included in analyses (data not shown). As with the 35–54 age group, the positive direction of these interaction effects suggests that at higher levels of stress, those eldest respondents who report greater perceived control at each of the

three levels (neighborhood, beyond the neighborhood, and across multiple levels) experience depressive symptoms more frequently than do those with lower levels of perceived control.

DISCUSSION

The conceptual model of the stress process guiding this study posits that stressful conditions may lead to negative health outcomes (e.g., more frequent depressive symptoms, poor self-reported general health). In the analyses presented here, as reported elsewhere,^{30,66} and consistent with the literature on the health effects of stress, self reports of stressors in the social and physical environment were associated with poorer self-reported general health status and more frequent depressive symptoms. While only the results of analyses including worries about safety as the contextual stressor are reported here, analyses including other social contextual stressors consistently support the hypothesis that increased stressful conditions in the physical and social environment have deleterious effects on health (results available on request from the first author).^{20–23,26,27} These effects were only slightly attenuated when perceived control and the interaction terms were included in the analyses.

The model of the stress process also posits that perceived control is one of a number of protective factors that may directly and positively impact health and buffer against the deleterious effects of stress on health. In this study, perceived control was measured at multiple levels beyond the individual, linking the construct to community empowerment, also posited in the conceptual model as a protective factor. This study provides mixed support for the direct effect and stress-buffering hypotheses. Direct effects on health of perceived control at multiple levels beyond the individual were not consistently significant across all age groups or across all levels of perceived control. Results reported here also indicate that the interaction among perceived control and social contextual stressors significantly predicted general health and depressive symptoms in some cases but not always as expected. Examining these differences can contribute to an improved understanding of health risk and protective factors for women living in urban environments experiencing an abundance of stressors.

Specifically, perceived control was a significant predictor of self-reported general health among 18–34 year olds. Respondents in this age group who reported higher levels of perceived control at most levels also reported higher levels of general health, even after controlling for social contextual stressors. The more limited significant and positive effect of the stress–control interaction term suggests that perceived control has a buffering effect among younger women, countering the effects of stress on self-reported general health, but only at the neighborhood level.

There was no such effect of perceived control on either self-reported general health or depressive symptoms among women aged 35–54 when considered as an entire group. However, among the subset of women in the middle age group who belong to at least one organization, there was a significant negative interaction between stress and perceived control. Among women who were members of organizations, those who reported greater perceived control across multiple levels reported poorer general health than those who reported less perceived control at the same levels of stress. A similar result was found among the eldest group of respondents when depressive symptoms were the dependent variable. Among respondents 55 and older, those with higher perceived control reported greater frequencies of depressive symptoms than those with lower perceived control at the same levels of stress.

The patterns reported here are suggestive of the complexity of relationships among stress, perceived control, and health outcomes among women residing in this urban community. The contrasting results for women of different age groups and organizational membership statuses, combined with differences based on the specific contextual stressors included in the analyses, support recommendations by others that perceived control be considered as a function of contextual factors and not simply as a static psychological state.^{36–38} Specific stressors and the role that perceived control plays in their effects on health may differ depending on the context and population. Within this population, the general health of the youngest age group may be the most positively affected by increased perceptions of influence and control in the face of high levels of stress in the environment. James and colleagues, in an unpublished analysis of data from the same data set used in this study, found that the youngest women reported the lowest social integration (measured by indicators of organizational membership and marital status) and the highest levels of a variety of stressors. Feelings of and experiences with control and influence may be more important to the youngest women in this population in confronting the high levels of stress they experience. This stress-buffering effect of perceived control may also reflect a sense of optimism among young women in this community, particularly important when they have fewer social and economic resources to which they can turn to address such stressors.

The unexpected negative impact of perceived control and influence on some instances within the older two age groups may be partially understood in the light of the theory of “John Henryism.”⁶⁷ John Henryism posits that individuals who believe that they are in control of the events that occur in their lives but experience constraints in achieving goals report poorer health outcomes than those who experience constraints but believe that they cannot control the events that occur.⁶⁷ Some of the results reported here are consistent with John Henryism and other studies that suggest that high levels of perceived control are not inherently healthy, and may be deleterious to health when they are contrary to the reality of an individual’s actual control and influence, as shaped by social context.^{68,69} Women who maintain the perception that their organizations or their neighborhoods can be effective in improving community conditions may suffer poorer health outcomes if conditions do not improve or they worsen over time. Although we cannot directly test this hypothesis by using these cross-sectional data, the cohort effects reported here are consistent with this potential mechanism.

The finding of the health protective role of perceived control in the face of stressors among the youngest age group and deleterious effects of perceived control on health in the two older age groups may be important to consider when intervening to improve health among urban African American women. These findings suggest the importance of understanding these relationships as dynamic rather than static, potentially changing over time. These results have implications for urban health research and practice, discussed below. Before turning to a discussion of those implications, the methodological limitations of this study and suggestions for future research are discussed.

METHODOLOGICAL LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Several limitations suggest caution in interpreting and applying the results of this study. To be eligible for the survey, respondents had to be female, over 18, and have

some caregiving responsibility for a child. While these inclusion criteria were appropriate given the focus of the intervention, they may have resulted in an underrepresentation of older women. Further, the study does not include women not involved in childrearing. Results cannot be generalized to individuals who do not fit the study criteria.

Perceptions of control and influence were assessed by using closed-ended survey items, pertaining to a specific set of contexts (i.e., organizational, neighborhood, and beyond the neighborhood). A more open-ended assessment of perceptions of control and influence would allow respondents to use their own language and focus on the aspects of control and influence that are most relevant to their lives and most likely to be connected to their sense of well-being. The current measures may not capture other types of influence that have positive health effects. Further research is needed to determine whether there are other levels of perceived control and influence (e.g., family or work) that are important to the health of women in marginalized communities. The collection of qualitative data, in which respondents discuss and describe experiences of control and influence, or lack thereof, can contribute to an understanding of these complex concepts.

Although perceived control was defined and measured as a multilevel construct that can change across different contexts, control over the specific stressors included in this analysis was not assessed. Questions such as “I believe I have influence over the degree of safety in my neighborhood” or “my neighbors can work together to increase safety in this neighborhood” might provide a more precise measure of the stress-control relationship and its effect on health. In addition, controlling for perceived control at the individual level and including a more developed measure of perceived control beyond the neighborhood (e.g., including more items, specifically using the term “beyond the neighborhood” in those items) might lead to an even greater understanding of the stress-control health relationship.

Additionally, while individuals are likely to base their perceptions of influence and control on their lived experiences, the Revised Perceived Control Scale used in this study does not measure actual control and influence. Though previous studies have found that the perception of control and influence is an important predictor of health and well-being in a variety of populations, the deleterious effects of perceived control in the face of high stress among the two older age groups in this study combined with James’ work on John Henryism suggest that actual control and influence that leads to positive change may be particularly important for health outcomes. Studying observable measures of control and influence could help to disentangle perceptions of control from actual influence on a variety of contexts and contribute to an enhanced understanding of the health effects of these constructs.

It is possible that an individual’s health influences her perceptions of stressful conditions, her perceptions of influence and control, and her actual attempts to have influence and control on organizations, her neighborhood, and broader community. The directions of these effects cannot be examined with these cross-sectional data. Similarly, length of residence in the neighborhood was not included in this study and may be a predictor of both perceptions of stress and perceived control at multiple levels. A longitudinal study including length of residence would add to an understanding of the roles that stress, control, and residence play on health.

The investigations proposed here can take place not only within basic research studies but within intervention and evaluation research as well. Interventions that aim to increase and evaluate the effects of perceived control and influence on health in a variety of settings and with a variety of public health

issues, especially if community-based in nature, can contribute to a clearer understanding of these concepts, grounded in local realities, and to the process of empowerment itself as researchers, practitioners, and community members work together to develop capacity, increase knowledge, and address common interests and concerns.^{70–72}

IMPLICATIONS FOR URBAN HEALTH PRACTICE

The analyses presented here are unique in drawing upon a large sample of African American women from a geographically defined urban neighborhood. The results suggest several implications for practice and research in economically marginalized urban areas. The direct and stress-buffering effects of perceived control on health in this study varied by age, organizational membership, type of stressor, and level of perceived control. Interventions that aim to improve health in urban communities experiencing high degrees of stressful conditions may be enhanced by careful consideration of the specific contextual stressors of interest, the characteristics of the group, and the multi-faceted nature of relationships among stressors, potential protective factors, and individual characteristics suggested in the stress-process model (Figure). Such interventions might, for example, choose a specific set of stressors and work with women to develop multi-level strategies for reducing those stressors and enhancing protective factors that are appropriate for the particular group of women.

In addition, the results reported here reinforce the importance of efforts to address directly the stressful life conditions faced by women residing in racially segregated, high poverty urban neighborhoods, and the potential deleterious effects that can occur when the sole responsibility for such change efforts is placed on women residents of those neighborhoods. Interventions might be more effective if they support urban women of color in identifying stressors amenable to local change efforts while helping them to build partnerships to enhance their capacity to influence broader fiscal or public policies (e.g., community investment strategies) that affect more systemic stressors. Certain stressful conditions may be better addressed at some levels than others. For example, a neighborhood crime watch may reduce worries about safety whereas concerns over the quality of housing may need to be addressed beyond the neighborhood (i.e., city government). Policy change strategies that include urban community members in the process (e.g., community organizing, media advocacy) are examples of interventions that show promise in increasing control and influence while addressing aspects of the social context that compromise health.⁷³

Empowerment practice must go beyond interventions that build a sense of personal efficacy and self-esteem to include a realistic understanding of the forces that shape community conditions,⁴¹ especially in urban environments. The social-ecological framework^{74,75} can assist urban change agents to examine and incorporate factors at multiple levels (e.g., individual, organizational, community, social policy) that produce and maintain social problems. This framework also suggests tangible and realistic targets for intervention (e.g., moving beyond individual education to social change).

CONCLUDING COMMENTS

Urban communities are more likely than nonurban communities to experience social contextual stressors resulting, in part, from external policies and broad structural factors.^{76–78} Recent literature addressing urban health has called for an exploration

of the factors that may help to reduce the deleterious effects of stress among residents of urban communities. Perceptions of control have been associated with positive health outcomes in workplace settings²² as well as in community studies³⁷ and have been suggested as a buffer against the negative effects of stressful urban environments on health.

This study examined the health effects of perceived control in organizations, neighborhoods, and beyond among African American women living in an urban community and supports the perspective that perceived control can have positive effects on health. As discussed here, an improved understanding of the impact on physical and mental health of perceived control among African American women living in an urban area of concentrated poverty can aid those interested in developing and enhancing capacity and resources of individuals and groups who work to counter the influences of stress in their communities. Such activities may be a crucial step in reducing racial and ethnic disparities in health and in improving the health of residents of urban communities.

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