2009 PAA Extended Summary
Joongbaeck Kim (Department of Sociology, University of Tennessee: jkim64@utk.edu)

SECTION 404. Community and Neighborhood Influences on Health and Mortality

Neighborhood, Social Relationships, and Health

Backgrounds

Individuals' locations in the social structure and the unequal availability of social resources expose them to stressors that can damage their health; the damage can be moderated or mitigated by the individuals' psychosocial resources. Possession of psychosocial resources is socially patterned in ways that potentially leave members of disadvantaged groups more vulnerable to the harmful effects of stress (Thoits 1995). It is thus recognized that the availability and presence of social relationships, marked by trust and ties based upon mutual reciprocity, have beneficial effects on both physical and mental health, net of individual socioeconomic and demographic attributes.

A growing body of studies has demonstrated that social relationships are associated with health outcomes. Surprisingly, few studies have paid attention to exploring the determinants of social relationships in the sociological study of health. Social relationships appear to be developed and sustained through interaction and reciprocity between members in varied social contexts, and the processes of social relationships are subject to structural dimensions of social contexts. As explicated by Bronfenbrenner and other leading scholars in social ecology, human behaviors and attributes are influenced by a variety of factors from multiple ecological levels, and change as a function of developmental and historical time; social ecology as a framework for behavioral research can be better understood by perceiving human behavior and outcomes in the contexts of societal circumstances (Bronfenbrenner 1979; Bronfenbrenner 1986; Stokols 1992a; Stokols 1992b; Stokols 2000). Thus, the structure and process of social relationships are associated with the social and structural dimensions of social contexts because individuals are nested and embedded in the social contexts of which social and structural dimensions are potential resources and barriers for the development and process of social relationships.

Neighborhood is a geographic environment in which people live among people in daily life. Neighborhood is one of the most frequently studied dimensions in a layer of social contexts, because most individuals reside in specific neighborhoods that contain structural and social characteristics impacting individual behavior and outcomes. Prompted by the influential work of Wilson (1987), a burgeoning number of studies have examined the association between neighborhood disadvantage and individual behavior and outcomes. Structural features of neighborhood context exert effects on the process and development of social relationships. First, neighborhood contexts provide social and institutional resources with group and organization members, and lay the groundwork by which social relationships would be developed and maintained because social and structural settings of neighborhoods appear to facilitate or exacerbate the development of social relationships. Second, social contexts are potential stressors for group and organization members and lay the groundwork by which social relationships develop and sustain. Variations in the availability of social relationships are dependent upon the differences in exposure to social stress, which arises substantially out of various life conditions (Aneshensel 1992; Turner and Marino 1994). This proposition is largely

supported by the social disorganization perspective. According to the concept of collective efficacy of social disorganization perspective, neighborhood contexts exert an impact on one's system of friendships and kinship networks, and the formal and informal associational ties rooted in ongoing socialization processes (Browning and Cagney 2002; Browning and Cagney 2003; Sampson and Grove 1989; Sampson, Morenoff, and Earls 1999).

Given aforementioned theoretical and empirical backgrounds, it is feasible to hypothesize that social relationships may mediate the association between neighborhood contexts and health. Embeddedness within neighborhood contexts shapes and conditions the process and structure of social relationships, and that social relationships are predictive of health. I suggest two analytical frameworks to account for the associations among neighborhoods, social relationships, and health outcomes: (1) Social relationships are consequential for health, and social relationships play a mediating role in the association between neighborhood contexts and health (*mediation* mechanism), and (2) social relationships are consequential for health, and this association may vary by the social contexts in which individuals are nested (*moderation* mechanism).

Methods

The data for the analyses in this study is taken from a panel survey titled *Americans' Changing Lives survey*, which were collected by the Survey Research Center at the University of Michigan on a multistage stratified area probability sample of non-institutionalized persons aged 25 and over, and living in the contiguous United States (House 1995). Blacks and persons over age 60 were sampled at twice the rate of Whites under 60 to facilitate comparisons by age and race. In the study, I used the first and second wave of the *Americans' Changing Lives survey* (hereafter ACL). Neighborhood variables are from 1980 census data information matched with the ACL. A total of 3,617 respondents were face-to-face interviewed for the first wave in 1986, while 2,867 respondents (83% of first wave) were reinterviewed in the second wave in 1989. The first wave had a response rate of 67 percent of sampled individuals. Of the 750 individuals who were not surveyed during the second wave, 584 were living but did not respond and 166 had died.

This study uses the data from the 1980 U.S. census in conjunction with data from the ACL panel survey to match information on the socioeconomic and structural characteristics of communities. The data from the 1980 census were used instead of the 1990 census because characteristics of neighborhood contexts in 1980 census most likely affected the subsequent social relationships and health status of respondents in the 1986 and 1989 ACL study (Robert 1998). The census data came from the data set that was extracted from the original 1980 decennial census tape file 3A (Adams 1992).

The contextual dimensions of neighborhoods were measured by seven items: (1) percentage of households receiving public assistance, (2) percentage of all persons in households with incomes below federal poverty threshold, (3) percentage of adults unemployment, (4) percentage of persons aged 25 or more who have completed 16 or more years of schooling, (5) percentage of persons Foreign-Born, (6) percentage of families with Female "Head," and (7) percentage of persons aged 5 or more living in the same housing unit as 5 years ago. I do not use the summed index or latent construct to measure socioeconomic and demographic characteristics

of neighborhoods because each measurement of neighborhood attribute does not exactly show same

Social relationships are measured by three categories: Social support, Social participation, and Social integration. Collective efficacy was proposed to measure the extent of social (dis)organization of neighborhood in previous studies, but few scholars include all three measures of social relationships in a single study; thus, no clear understanding and inter-structure of sub-concepts about social relationships has been established (House 1987). Social support was measured by four items: confidant support, friends/relatives support, health regulation, and enacted support. Social participation was measured by two items: Volunteering and Church Attendance. Social integration was measured by two items: Advisory integration and informal social integration.

Health is a multidimensional construct which embraces various dimensions. Social contexts and social relationships may affect various dimensions of health. This study, thus, includes two health measures to represent the multidimensional attribute of health status: depression for mental health and self-rated health for physical health.

For controls, I adjust for socio-demographic variables which appear to covary with explanatory variables and health outcomes. Demographic variables included age (years), race and ethnicity (Black=1; Non-black=0), and gender (Female=1; Male=0). Individual socioeconomic status variables are also considered because individual socioeconomic status is the precursors of social relationships and health status. Education and family-level income are employed in the study. Education was measured to represent the highest year to complete and had been recoded; 0 (0-11 years), 1 (12-15 years), and 2 (16 + years). Family income was measured to represent actual dollar value and assigned midpoints for each category from $2,500 to $110,000. Income is recoded ten categories from 1 (less than $5,000) to 10 ($80,000 or more).

As is true for most longitudinal data sets, the ACL sample had attrition over time. By the second wave, 21% (750 of 3617) of the original sample was counted as attrition. Previous studies using the ACL documented that mortality was patterned by some demographic factors, other forms of attrition are not random (Musick and Wilson 2003). Additional analyses (results not shown) found that the elderly, men, blacks, less educated, and low income persons are more likely to drop in the second wave. Nevertheless, this project does not use a specific technique to adjust for sample attrition because sample attrition did make few differences (Musick and Wilson 2003). The way dealing with missing variables has been already used in studies using the multiple waves of the ACL (Lantz, Lynch, House, Lepkowski, Mero, Musick, and Williams 2001; Musick and Wilson 2003). This study, thus, simply regresses health outcomes at the first and second waves on explanatory variables at first wave to estimate the association between social contexts, social relationships, and health outcomes. The data were weighted for all analyses to adjust for variation in probabilities of selection, variation in response rates by primary sampling units, and deviation of the ACL data sample from 1985 Bureau of Census estimates of population by age, sex, and region of the country (House 1995). Post-stratification weights adjust the ACL first wave sample results to Bureau of the Census population estimates by sex, age, and region of the county for July, 1986.

Joongbaeck Kim (Department of Sociology, University of Tennessee: jkim64@utk.edu)

This study examines the association between social contexts, social relationships, and health status in both cross-sectional and longitudinal settings because cross-sectional analysis does not efficiently control for selection effects of health on social relationships. Health status in a longitudinal study is investigated in a variety of ways. Because of strong correlation between first wave (W1) and second wave (W2) health variables, regressing W2 health status on explanatory variables without considering the effect of W1 health status on W2 health status may distort the results. Therefore, I conduct OLS regression analyses for depression because depression in the ACL data was measured as a continuous variable. Self-rated health is originally measured as an ordinal variable in the data, however, I conduct multinomial regression analyses to make full use of the nominal scale of self-rated health following a previous study using same data (Lantz, et al. 2001). In this case, odds ratios are estimated via maximum likelihood to predict the relative risk of being in a specific health category, having died, or not participating in the second wave survey compared with being in the excellent or very good status.

Summary of Selected Results

Social relationships mediate some of the associations between neighborhood contexts and health status. Social relationships account for the associations between the percentage of households receiving public assistance (See Table 1), foreign-born, and female headed on depression in 1986. None of the social relationships account for the association between neighborhood contexts and depression in 1989, because neighborhood contexts are not predictive of depression in 1989. For self-rated health, social relationships do not largely account for the effects of neighborhood contexts on self-rated health at both waves. No social relationship has a suppressing effect on the association between neighborhood context variables and health status.

The associations between social relationships and health status are moderated by some social and structural characteristics of neighborhood contexts, but the moderating effects are not uniform by the types of social relationships and neighborhood characteristics (See Table 2). Social relationships are related to lower levels of depression and better self-rated health, or higher levels of depression and poorer self-rated health, contingent upon the conjunctures of the specific type of social relationships and the neighborhood contexts in which residents are embedded. Thus, the salutary effects of social relationships on health status appear to be stronger or weaker, by the contextual dimensions of neighborhoods.

Discussion

The mediating effects of social relationships vary by the neighborhood contexts; social relationships accounted for the association between the percentage of households receiving public assistance, foreign-born residents, and female-headed households, and depression, but accounted for only some of the association between the percentage of adults unemployment and depression. These results support the proposition of social disorganization in that disadvantaged neighborhoods do not possess collective capacity to promote health-enhancing environment. Previous studies using *collective efficacy* or similar measurements of social support and social ties showed inconsistent results; however, the findings of this study demonstrate the existence of diverse mechanisms by which neighborhood contexts influence health status.

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Social relationships are generally beneficial for health status, but their effects on health may be stronger or weaker by social contexts in which they are embedded. Following the aforementioned findings, social contexts and social relationships are generally associated with social relationships; thus, associations between social relationships and health status may be conditioned by social contexts because social resources, relational contents, and specific role and positions within each social context may affect social relationships and health. Life stress perspective can be one of the theoretical backgrounds to explain why respondents get more benefit from social relationshipsm if they are placed in disadvantagrous contexts such as higher level of neighborhood disadvantage, psychological demands in the workplace, or parental chronic stress in the family, because the salutary effects can be stronger for those with more troubles or negative life events.

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Table 1. Regression of W1 (1986) Depression on the Percentage of Households Receiving Public Assistance and Social Relationships (OLS Regression Estimates) [a]

	Model 1	Model 2	Model 3	Model 4	Model 5
Neighborhood Contexts					
% of HH Receiving Public Assistance	.004^{+}	.003	.004	.003	.003
Social Support					
Confidant Support	--	-.034***	--	--	-.023*
Friends/Relatives Support	--	-.234***	--	--	-.211***
Health Regulation	--	.161***	--	--	.167***
Enacted Support	--	-.031***	--	--	-.023***
Social Participation					
Volunteering	--	--	-.013***	--	-.007***
Church Attendance	--	--	-.040***	--	-.029***
Social Integration					
Advisory Integration	--	--	--	-.014***	-.007***
Informal Integration	--	--	--	-.083***	-.037*
Constant	.647***	.271***	.670***	.766***	.324**
Adjusted R^2	.069	.175	.080	.092	.184

[a] Unstandardized estimates are shown. All models are adjusted for age, gender (Female), race (Blacks), education, and family income.

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

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Table 2. Unstandardized Coefficients from the Aggregate Results of Regression of W1 Depression on Interactions between Neighborhood Contexts and Social Relationships (OLS Regression Estimates) [a]

	Social Support				Social Participation		Social Integration	
	Confidant Support	Friends/Relatives Support	Health Regulation	Enacted Support	Volunteering	Church Attendance	Advisory Integration	Informal Integration
% HH Receiving Assistance	--	--	--	-.001*	--	-.003*	--	--
% HH under Poverty	--	--	--	--	--	-.003*	--	--
% Adults unemployment	--	--	.006*	--	--	--	--	--
% Education 16+ years	--	--	--	--	-.001**	.003***	--	--
% Foreign-born	-.003*	--	--		--	--	--	--
% Female-headed HH	--	--	--	-.001+	--	--	--	-.003*
% Residential Stability	-.002*	--	--	-.001*	--	--	--	--

[a] Only significant interaction terms are shown. All models are adjusted for age, gender (Female), race (Blacks), education, and family income.
+ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

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