Contextual Determinants of Race Differences in Condom Use: The Respective Roles of Concentrated Affluence and Family Planning Clinics

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Extended Abstract

In the late 1980s through the early 1990s, young African Americans reported about the same or less condom use than their White counterparts (The Alan Guttmacher Institute 1994). However, the most recent national data on adolescent condom use reveal a marked increase over the last 13 years in condom use among all sexually active adolescents, with the largest increase among African American adolescents. Today, non-Latino African American adolescents are more likely to use condoms than White or Latino adolescents (Child Trends Data Bank 2004).

Much of the research on contraceptive choice has focused on relational, individual, or family-level determinants of contraceptive use and choice (Manning et al. 2000; Brewster et al. 1998). However, contraceptive choice may be affected, at least in part, by contextual determinants, such as the characteristics of an adolescent's neighborhood of residence, and these contextual determinants may help to explain racial differences in contraceptive choice. While some research has examined the role of neighborhood context in adolescent contraceptive use (Averett et al. 2002; Grady et al. 1993), to date, no research has specifically examined the contextual determinants of observed racial differences in adolescent condom use.

The race difference in condom use is somewhat unexpected, given that African American youths are more likely to experience early sexual initiation, multiple partnering, and other sexual risk behaviors than White adolescents (Browning et al. forthcoming; South and Baumer 2000; Upchurch et al. 1999; Tanfer et al. 1995). These disparate sexual behaviors have been explained in part by the differential location of African American adolescents in disadvantaged neighborhood contexts; neighborhoods that are economically disadvantaged are often also socially disadvantaged, and are thus less able to protect local children from engaging in problem behavior. However, if African American adolescents are more likely to use condoms, then they are at least taking steps to limit risks to a greater extent than sexually active White adolescents. These differences may be due to the characteristics of neighborhoods in which White adolescents are disproportionately located.

Current theory on neighborhood effects includes a focus on the dearth of institutional resources such as schools, churches, and medical facilities in disadvantaged neighborhoods (Leventhal and Brooks-Gunn 2000; Jencks and Mayer 1990). More affluent neighborhoods are more likely to possess institutions that can ameliorate the effects of poverty for low income families, whereas neighborhoods characterized by concentrated poverty are less likely to possess high quality institutions. For example,

researchers have noted that access to medical services differs by neighborhood socioeconomic status, with implications for residents' health and well-being (Brooks-Gunn et al. 1998).

However, publicly funded family planning clinics specifically target those in low income areas for whom private physicians are too expensive (Frost and Bolzan 1997). For example, many facilities have been funded through the states' welfare block grant, Temporary Assistance to Needy Families (TANF), and are directed at reducing out-of-wedlock births in accordance with the 1996 welfare reform law (Donovan 1999).

Researchers have found that African American adolescents visit family planning clinics sooner than White or Latino adolescents. Similarly, poor adolescents are more likely to visit family planning clinics than adolescents from higher income families (The Alan Guttmacher Institute 1993). These tendencies may be due in part to either the greater placement of family planning clinics in low income neighborhoods, or the greater awareness of the presence of family planning clinics in these neighborhoods.

Residents of middle- and upper-class neighborhoods may not welcome the placement of family planning clinics in their communities (particularly if most residents have private physicians), or may not publicize the presence of such clinics for fear that adolescents may be encouraged to engage in sexual activity. For adolescents who have private physicians, however, family planning clinics may be less daunting, and may promise greater privacy, than a family physician. The absence (or lack of awareness) of family planning clinics in these settings may lead to lower rates of condom use among adolescents. Extant research has shown that the presence of family planning clinics at the county level is associated with positive contraceptive outcomes (Averett et al. 2002; Grady et al. 1993). We expand upon this existing research, and posit that more proximate access to family planning clinics may serve as an explanation for observed racial differences in condom use.

Research Questions

In this research, we employ data from the Project on Human Development in Chicago Neighborhoods (PHDCN) along with data from the 1990 Decennial Census to examine race differences in condom use among sexually active adolescents in the city of Chicago. We consider the following hypotheses: (1) to what extent are race differences in adolescent condom use explained by neighborhood concentrated affluence; and (2) to what extent are these differences attributable to the aggregate perception of the presence of a neighborhood family planning clinic?

Data and Measures

We use data from the 1990 Decennial Census and the Project on Human Development in Chicago Neighborhoods (PHDCN) in our analysis. The PHDCN consists of a community survey (PHDCN-CS) and the PHDCN Longitudinal Cohort Study (PHDCN-LC). The PHDCN-CS is a probability sample of 8,762 residents of

Chicago age 18 and older from 1994-1995. For the PHDCN-CS, 865 census tracts were combined into 343 "neighborhood clusters" (NCs) that maintained relative population homogeneity with respect to racial/ethnic, socioeconomic, housing, and family structure characteristics. Each NC averages 8,000 people. The PHDCN-CS employed a three-stage sampling strategy that selected city blocks within NCs, dwelling units within blocks, and respondents within dwelling unit. The response rate for the PHDCN-CS was 75%.

The PHDCN-LC employed a two-stage sampling strategy that included selecting a random sample of 80 of the 343 NCs stratified by racial/ethnic composition (7 categories) and SES (high, medium, low). Within these 80 NCs, children falling within 7 age cohorts (birth and ages 3, 6, 9, 12, 15, and 18) were sampled from randomly selected households. Extensive in-home interviews and assessments were conducted with these children and their primary caregivers at two points in time over a 4-year period, at roughly 2-year intervals (Wave 1 in 1995-1996 and Wave 2 in 1998-1999). The sample for this analysis is limited to 543 adolescents in the 12, 15, and 18 year-old cohorts in 78 neighborhoods who indicated that they have had sexual intercourse. (Separate analyses were conducted to address issues of potential selectivity, including the use of a Heckman corrected probit model. These analyses did not differ substantially from those presented here for the sexually active subsample, with the exception that the effect of age was significantly, and positively, associated with condom use.)

Neighborhood level measures of residential stability and concentrated affluence were derived from census data. Neighborhood level perceptions of family planning are derived from the aggregate responses to the PHDCN-CS. Individual and family level measures were derived from the PHDCN-LC.

The outcome for the analysis is a dichotomous indicator of the adolescent's contraceptive use at last intercourse, with 1=condom use (on its own or in combination with another method) and 0=all other contraceptive methods (including use of oral contraceptives and nonuse of contraception). This indicator was derived from Wave 2 of the PHDCN-LC.

Other individual measures included in the analysis are dichotomous indicators of race (Latino and non-Latino African American, with White as the comparison group) and gender (male=1), age (measured at Wave 2), number of sexual partners, prior problem behavior, inhibitory control, reading achievement, peer delinquency, mother's educational attainment, and parents' marital status (1=married). The number of sexual partners variable is a dichotomous variable with 1=five or more partners. Prior problem behavior was measured by adolescents' reported participation (yes/no) in nineteen activities involving violent behavior, property crime, and use of illegal drugs. Measures were combined using a multilevel Rasch model (Cheong and Raudenbush 2000; Raudenbush et al. forthcoming). Inhibitory control is derived from a subscale of the Emotionality and Sociability Inventory (EASI, Buss and Plomin 1984), which was administered to primary caregivers (and in the case of older adolescents, the adolescents themselves), who reported how characteristic each behavior was of the subject (from "1"

uncharacteristic to "5" characteristic). Item responses were summed and divided by the number of items to derive the scale. Reading achievement was assessed by the respondents' performance on the reading component of the Wide Range Achievement Test (WRAT-3; Wilkinson 1993), a standardized test (mean=100, standard deviation=15) that evaluates reading achievement. Peer delinquency was constructed from 17 items asking adolescents to report on the behavior of the people they "spend time with." Questions asked how many of these people ("none of them," "some of them," or "all of them") engage in alcohol and drug use, property and violent crime, and "sexual intercourse." The measure used in the analysis is the empirical Bayes residual from a multilevel ordinal logit (rating scale) analysis. Mother's education is a measure of the mother's educational attainment.

Residential stability is the first principal component of measures of continuity of residence (percent living in the same house as 1985), and the percent of households headed by a female. Concentrated affluence is the proportion of households with income over $50,000. Family planning is comprised of the empirical Bayes residual from the level two model of residents' responses in the PHDCN-CS to the question "Is there a family planning clinic in the neighborhood?"

Results

In the multivariate analyses described below, we employ random effects logistic regression models in order to take account of the clustering of adolescent respondents in Chicago neighborhoods. Results are set forth in Table 2, attached (descriptive statistics are set forth in Table 1). Model 1 includes only demographic characteristics; Model 2 adds in other individual level characteristics; Model 3 includes peer and family level variables; Model 4 assesses the contribution of residential stability; Model 5 includes the measure of concentrated affluence; and Model 6 includes neighborhood knowledge of the presence of a family planning clinic.

Model 1 indicates that, consistent with the most recent research, African Americans in this sample are significantly more likely to report condom use than their White counterparts. This effect remains in Model 2, which also indicates that adolescents who exhibit prior problem behavior are less likely to use condoms.

The race effect is somewhat reduced by the inclusion of the peer delinquency, mother's education, and parents' marital status variables in Model 3, but it remains significant at the .10 level. The negative delinquency effect increases in magnitude with the addition of these variables. The addition of residential stability in Model 4 does not have a significant effect. However, the addition of the measure of concentrated affluence in Model 5 reduces the magnitude of the race effect by 44%, rendering it insignificant, while prior problem behavior increases in magnitude. Affluence itself is significantly negatively associated with condom use (at the .10 level). Further, the surprisingly positive effect of peer deviance approaches significance at the .10 level with the addition of the affluence measure.

Finally, in Model 6, the family planning measure is added to the model. As expected, neighborhood level knowledge of the presence of a family planning clinic is positively associated with condom use, and the inclusion of this measure reduces the affluence effect by 17% (and the coefficient for affluence also loses significance at the conventional level).

These results indicate that: 1) race differences in condom use can be explained in part by the differential location of White adolescents in more affluent settings; and 2) at least part of the negative effect of affluence on condom use is attributable to either the lack of family planning clinics in more affluent neighborhoods or the perceived absence of family planning clinics from these neighborhoods. Although these results indicate that adolescents in more advantaged settings might benefit from additional community resources directed at condom use, the message is a positive one for residents of disadvantaged communities—the presence (or perceived presence) of family planning clinics in these neighborhoods does, to some extent, affect adolescent condom use. These results thus support the predictions of institutional resource theories of neighborhood effects.

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Table 1. Descriptive Statistics for Variables used in the Analysis

Independent Variables	Mean	Standard Deviation
Race/ethnicity		
African American	.438	-
Latino	.354	-
White/other	.208	-
Age	17.913	2.170
Male	.536	-
Prior problem behavior	.434	1.196
More than five sex partners	.260	-
Inhibitory control	2.756	.889
Reading achievement	96.193	16.674
Peer deviance	.540	1.292
Mother's education	2.924	1.276
Parents' marital status	.433	-
Neighborhood characteristics		
Residential stability	.069	1.020
Affluence	.177	.092
Family planning clinic	-.204	.868

Neighborhood level N=78; Person level N=543.

Table 2. Random Effects Logistic Regression Models of Condom Use

Independent Variables	Model 1		2		3		4		5		6	
Race/ethnicity												
African American	.597	**	.565	**	.561	*	.567	*	.377		.284	
	(.274)		(.275)		(.290)		(.289)		(.302)		(.304)	
Latino	.315		.273		.270		.249		.068		.022	
	(.270)		(.272)		(.282)		(.283)		(.296)		(.295)	
Age	.053		.037		.026		.025		.033		.034	
	(.043)		(.044)		(.045)		(.045)		(.046)		(.045)	
Male	.015		.015		.028		.027		.013		.017	
	(.184)		(.192)		(.193)		(.193)		(.192)		(.192)	
Prior problem behavior			-.184	**	-.277	***	-.278	***	-.287	***	-.278	***
			(.084)		(.104)		(.104)		(.104)		(.104)	
Five or more sex partners			.352		.329		.330		.359		.339	
			(.233)		(.236)		(.235)		(.236)		(.236)	
Inhibitory control	-		.029		.015		.017		.021		.019	
			(.106)		(.107)		(.107)		(.107)		(.107)	
Reading achievement	-		.000		.000		.000		.001		.001	
			(.006)		(.006)		(.006)		(.006)		(.006)	
Peer deviance	-		-		.142		.142		.150		.148	
					(.092)		(.092)		(.092)		(.092)	
Mother's education	-		-		.005		.010		.026		.031	
					(.083)		(.083)		(.083)		(.083)	
Parents married	-		-		-.025		-.015		.007		.015	
					(.209)		(.209)		(.209)		(.209)	
Neighborhood characteristics												
Residential stability	-		-		-		-.075		.108		.160	
							(.110)		(.143)		(.074)	
Concentrated affluence	-		-		-		-		-3.270	*	-2.710	
									(1.695)		(1.707)	
Family planning clinic	-		-		-		-		-		.227	*
											(.136)	
Intercept	-1.043		-.777		-.556		-.555		-.199		-.197	
	(.831)		(1.049)		(1.075)		(1.074)		(1.087)		(1.083)	

[a] Neighborhood level $N = 78$; Person level $N = 543$.

* p<.10. ** $p < .05$. *** $p < .01$. (two-tailed tests). Standard errors in parentheses.