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Gang Involvement and the Health of African American Female Adolescents

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ABSTRACT. *Objective.* To examine the association between gang involvement and female adolescents' health.

Methods. African American adolescent females ($N = 522$) completed a survey that assessed their history of gang involvement and health behaviors and provided specimens that were analyzed for marijuana use and sexually transmitted diseases.

Results. In logistic regression analyses, adolescents with a history of gang involvement were more likely to have been expelled from school (odds ratio [OR]: 3.6), be a binge drinker (OR: 3.3), have a positive toxicologic test for marijuana (OR: 2.6), have been in 3 or more fights in the past 6 months (OR: 3.8), have a nonmonogamous partner (OR: 2.4), and test positive for *Trichomonas vaginalis* (OR: 2.2) and *Neisseria gonorrhoeae* (OR: 3.6).

Conclusion. This study extends the current research on risk behaviors associated with gang involvement to include biological markers for substance use and sexual health outcomes, namely, marijuana use and sexually transmitted diseases. *Pediatrics* 2002;110(5). URL: <http://www.pediatrics.org/cgi/content/full/110/5/e57>; female gang involvement, sexually transmitted diseases, marijuana.

ABBREVIATIONS. STD, sexually transmitted disease; HIV, human immunodeficiency virus.

The proliferation of youth gangs in the 1980s and 1990s has made gang involvement a growing social and public health concern for adolescents and society in general. Initially, research on gangs concentrated almost exclusively on males,¹ tacitly assuming that females did not typically participate in "masculine" acts of vandalism, violence, and other serious threats. Recent studies, however, consistently indicate that although female gang members, relative to male gang members, have

lower delinquency rates, they are higher than those of nongang-involved males and females.²⁻⁴

The prevalence of female gang involvement is substantial. Several recent nationwide surveys conducted by law enforcement agencies have estimated that between 8% and 11% of all gang members are female.^{5,6} This may be an underestimate, however, as surveys of at-risk youth in a wide range of cities have identified between 9% and 22% of females as claiming gang membership.^{7,8} Although statistics have not been recorded by gender, the National Youth Gang Center reported that in 1999, among gang members, 47% were Hispanic, 31% were African American, and 13% reported being white.⁵

Female adolescents' gang involvement has been associated with their participation in a diverse array of health-compromising behaviors such as violence,⁸⁻¹⁰ risky sexual behaviors,^{3,11,12} antisocial behaviors,^{8,9} drug abuse,^{3,13-15} and alcohol abuse.¹⁴ Although these studies have been valuable in describing the prevalence and some of the adverse health consequences associated with female gang involvement, their validity and generalizability may be limited. Generally, these findings are derived from studies of incarcerated youth,^{10,16} school-based populations,^{7,8} or youth in large urban areas in the West^{18,14} and Midwest.^{20,21} Furthermore, most studies have relied on relatively small samples of females^{10,14,17,19} and adolescents' self-report⁸⁻¹⁶ as the primary data collection methodology to estimate the prevalence of risk behaviors and adverse outcomes. It is unclear, however, whether these findings are applicable to gang-involved female adolescents who are not incarcerated or reside in other geographic regions of the United States.

The present study examines the association between a history of gang involvement and its association with adolescents' health-compromising behaviors and adverse health outcomes among a community-recruited sample of African American female adolescents in the South.

METHODS

Study Sample

From December 1996 through April 1999, project recruiters familiar with the local community approached and screened a purposeful sample of 1130 female teens from school health classes, county health department clinics, and adolescent health clinics to determine their eligibility to participate in a human immunodeficiency virus (HIV) prevention trial. Adolescents were eligible to participate if they were African American females, were between

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the ages of 14 and 18 at the time of enrollment, were sexually active in the previous 6 months, and provided written informed consent. Over half of the teens screened (609 [53.9%]) were eligible. Of the 609 eligible adolescents, 522 (85.7%) agreed to participate in the study. The majority of eligible teens who did not participate in the study were unavailable because of conflicts with their employment schedules. The study protocol was approved by the Committee on Human Research before implementation.

Data Collection

At baseline, all 522 adolescents completed a self-administered psychosocial survey that assessed their sociodemographic characteristics, history of gang involvement, and health risk behaviors. Next, adolescents were escorted to a private room where they completed a face-to-face interview. African American female medical school and public health students were trained to administer the interview. The interview assessed adolescents' relationship characteristics and sexual behaviors.

Subsequently, adolescents were asked to provide self-administered vaginal swab specimens that were analyzed to detect 3 prevalent sexually transmitted pathogens, *Chlamydia trachomatis*, *Neisseria gonorrhoeae*, and *Trichomonas vaginalis*. The acceptability of providing vaginal swab specimens for sexually transmitted disease (STD) testing was high; none of the adolescents refused to provide a vaginal swab.²² Furthermore, all vaginal swabs yielded valid specimens for STD testing.²² The validity of self-collected vaginal swab specimens has been reported in several studies.^{23–25} Adolescents were informed of their STD results within 1 week of completing their baseline assessment and were treated with single-dose therapy. In addition, adolescents provided a urine specimen that was assayed for marijuana metabolites. Adolescents were reimbursed \$20 for their participation in the baseline data collection.

Laboratory Methods

STDs

The first vaginal swab was placed in a specimen transport tube and evaluated for *C trachomatis* and *N gonorrhoeae* by ligase-chain reaction assay using newly developed DNA amplification technology (Abbott LCx Probe System, Abbott Laboratories Inc, Abbott Park, IL).^{23,24} The second swab was used to inoculate culture medium for *T vaginalis* (In Pouch TV test; BioMed Diagnostics Inc, Santa Clara, CA). This culture was incubated at 37°C and examined daily by light microscopy (magnification $\times 100$) for 5 days for the presence of motile trichomonads.²⁵ All STD assays were conducted at the University of Alabama Birmingham Division of Infectious Diseases research laboratory.

Marijuana Use

Adolescents' urine specimen was tested at the University of Alabama Birmingham toxicology laboratory for the presence of marijuana metabolites using the EMIT II assay. EMIT II is a widely used immunosorbent enzyme assay that can reliably detect the presence of marijuana use, at the 100 ng/mL cannabinoid cutoff, for up to 30 days.²⁶ Positive tests were confirmed using gas chromatography.

Measures

Sociodemographics

Sociodemographic variables assessed included adolescents' age, education, work status, residence, and whether their family received public assistance.

Gang involvement, the primary predictor variable, was assessed by asking adolescents if they had ever been in a gang.

Violence was assessed by asking adolescents if they had been in a fight during the past 6 months. For adolescents responding affirmatively, they were asked how many fights they were involved in during the past 6 months.

Sexual behaviors assessed during the 30 days included whether they used condoms, and whether they had multiple sexual partners or a nonmonogamous male sexual partner (a male partner who has concurrent female sex partners).

Antisocial behaviors were assessed by asking adolescents if they had been expelled from school in the past 30 days.

Binge drinking was defined as having 5 or more drinks at 1 time.²⁷

Illicit drug use was assessed by asking adolescents about each of 6 drugs separately. Adolescents were asked if in the past 30 days they used either tranquilizers, marijuana, amphetamines, LSD, cocaine, or crack. Adolescents who reported that they used at least 1 of these drugs were classified as having a current history of illicit drug use.

Psychosocial Factors

The self-administered survey included several standardized scales to assess relevant psychosocial constructs including the Rosenberg Self-Esteem Scale ($\alpha = .79$),²⁸ the Center for Epidemiologic Studies-Depression scale ($\alpha = .84$),²⁹ and 3 subscales from the MultiDimensional Scale of Perceived Social Support that assesses support received from a family member ($\alpha = .86$), support received from friends ($\alpha = .87$), and support received from a special person ($\alpha = .82$).³⁰ Parental monitoring was assessed by asking 2 items: When you are away from home and not at school or work, does your parent(s) know where you are? When you are away from home and not at school or work, does this parent(s) know who you are with?³¹

Data Analysis

The data analysis was comprised of several sequential steps. First, descriptive statistics were used to describe the lifetime prevalence of gang involvement. In subsequent bivariate analyses, adolescents reporting a history of gang involvement were compared with adolescents not reporting a history of gang involvement with respect to specified outcomes (eg, violence, sexual behaviors, alcohol consumption, drug use, and antisocial behaviors). Next, to identify potential covariates, adolescents reporting a history of gang involvement were compared with adolescents not reporting a history of gang involvement with respect to sociodemographic characteristics and psychosocial factors. Finally, outcomes and observed covariates significantly associated with a history of gang involvement in bivariate analyses ($P < .05$) were included in logistic regression analyses. Model statistics computed include adjusted odds ratios and their corresponding 95% confidence intervals.³²

RESULTS

Between December 1996 and April 1999, 522 single African American females, 14 to 18 years of age (mean: 16 years) participated in the study. Most (81.2%) were full-time students. Less than one-fifth (17.8%) reported having a paying job, and 18.4% reported living in a household that received public assistance. Most adolescents reported living with their mother (57.5%), with fewer living with both parents (21.6%). A history of gang involvement was reported by 14.8% ($N = 77$) of adolescents.

Overall, 29% of adolescents tested positive for having any 1 of the 3 assessed sexually transmitted infections. The prevalence of *C trachomatis*, *T vaginalis*, and *N gonorrhoeae* was 17.5% ($N = 91$), 12.9% ($N = 67$), and 5.2% ($N = 13$), respectively.

Bivariate Analyses

A history of gang involvement was associated with a greater prevalence of health-compromising behaviors and poorer health indices. In addition, a history of gang involvement was marginally associated with less parental monitoring ($P < .07$). Because this variable has been shown to be related to a range of health risk behaviors in adolescents,³¹ it was included as a covariate in subsequent logistic regression analyses. No other associations were observed between a history of gang involvement and psychosocial factors, such as depression, self-esteem, social

support, or sociodemographic characteristics including having a parent who was a recipient of public assistance, employment status, or age (Table 1).

Logistic Regression Analyses

In logistic regression analyses, adjusting for parental monitoring, a history of gang involvement was associated with a spectrum of health-compromising behaviors and laboratory-confirmed STDs and marijuana use (Table 2). A history of gang involvement was associated with sexual sequelae including having a nonmonogamous sexual partner and testing positive for *T vaginalis* and *N gonorrhoeae*. Specifically, females with a history of gang involvement were 2.2 times as likely to test positive for *T vaginalis* and 3.6 times as likely to test positive for *N gonorrhoeae*. A history of gang involvement was also associated with engaging in violent and antisocial behaviors. Females with a history of gang involvement were 3.6 times as likely to have been involved in 3 or more fights within the past 6 months and to have been expelled from school in the past 30 days. Finally, a history of gang involvement was associated with using alcohol and drugs. Specifically, females with a history of gang involvement were 2.2 times more likely to self-report illicit drug use in the past 30 days, were 2.6 times more likely to have a positive toxicologic test for the presence of marijuana metabolites, and were 3.3 times as likely to be a binge drinker.

DISCUSSION

In this analysis of a community-recruited sample of African American female adolescents, 14.8% reported having a history of gang involvement. This is consistent with the existing literature regarding the prevalence of female gang involvement.^{33,34} Although this estimate may be subject to desirability bias, Curry³⁵ suggests that self-reported gang membership is a reliable indicator of gang involvement.

The current findings corroborate the empirical literature indicating that gang involvement is associated with health-compromising behaviors such as violence, risky sexual behavior, drug and alcohol use, and antisocial behavior.⁸⁻¹⁵ Furthermore, our findings add to the empirical literature by characterizing the effect of gang involvement on an understudied population—nonincarcerated African American female adolescents in the southern United States. Moreover, the present study extends the current research by using objective and quantifiable biological measures to corroborate self-reported risk

practices and assess key outcomes, namely marijuana use and current STD status.

A key finding is the significant association between gang involvement and STD/HIV-associated sexual behaviors and STD status, with adolescents reporting a history of gang involvement being more than 3½ times as likely to test positive for *N gonorrhoeae* and twice as likely to test positive for *T vaginalis*. This is of particular concern, given the association of *N gonorrhoeae* and pelvic inflammatory disease,^{36,37} and the sequelae of pelvic inflammatory disease including tubal factor infertility and ectopic pregnancy.³⁸ Furthermore, recent studies have identified a possible role of *T vaginalis* in the acquisition of HIV.³⁹

Social network theory may be a useful heuristic to understand the relationship among gang membership and their involvement in high-risk behaviors. Social network theory examines the impact of the social groups or networks in which a person is involved.⁴⁰ Networks shape and control the behavior of their members and channel that behavior to be more consistent with group norms. Prosocial networks (ie, Girl Scouts) increase the likelihood of conforming behavior; antisocial networks (ie, gangs) increase the likelihood of antisocial behavior.⁴⁰ Our findings are consistent with this theoretical framework and the research literature by illustrating that compared with females who did not have a history of gang involvement, females involved in gangs were more likely to engage in antisocial and other high-risk behaviors.

This study corroborates other investigations that observed a relationship between gang involvement and physical fighting.^{8-10,41} In this study, females having a history of gang involvement were more likely to have engaged in a fight within the previous 6 months. The relationship between gang involvement and fighting was even stronger in girls who had been involved in 3 or more fights within the past 6 months.

In addition, this study extends the empirical research literature by documenting a relationship between females involved in a gang, drug use, and binge drinking. Other studies conducted among females have also observed an association between gang involvement and the use of illicit drugs^{3,13-15,42-44} and alcohol.^{3,14} Research suggests that alcohol and drugs are not used solely for enhancing social interactions with others, but also for helping to improve one's self-image and for blunting emotional and physical pain.¹⁴

TABLE 1. Bivariate Associations of History of a Gang Involvement and Psychosocial Factors

Characteristic	History of Gang Involvement	No History of Gang Involvement	Prevalence Ratio	P	95% CI
	% N	% N			
Depression	48.1 (37)	47.5 (208)	0.99	.927	(.77-1.32)
Low self-esteem	51.9 (40)	44.3 (194)	0.85	.213	(.67-1.08)
Less than 17 y of age	39.0 (30)	35.3 (157)	0.91	.534	(.67-1.23)
Currently employed	16.9 (13)	18.1 (80)	1.1	.791	(.63-1.83)
Parent is a welfare recipient	22.1 (17)	17.8 (77)	0.81	.371	(.51-1.28)

TABLE 2. Logistic Regression Analyses Examining the Association Between Gang Involvement and Health Among African American Females (N = 522)

Health Indices	Bivariate Analyses			Logistic Regression Analyses	
	History of Gang Involvement	No History of Gang Involvement	P	AOR*† (95% CI)	P
	% (N)	% (N)			
Sexually transmitted infections					
Positive for <i>N gonorrhoeae</i>	13.0 (10)	3.8 (17)	.001	3.6 (1.6–8.4)	.002
Positive for <i>T vaginalis</i>	22.4 (17)	11.2 (49)	.008	2.2 (1.2–4.0)	.02
Positive for <i>C trachomatis</i>	15.6 (12)	17.8 (79)	.638	.86 (0.4–1.7)	.67
Sexual behavior					
Nonmonogamous sexual partner	24.7 (19)	11.2 (50)	.001	2.4 (1.3–4.5)	.004
Violence					
Involved in fight in past 6 mo	53.2 (41)	34.5 (152)	.002	2.4 (1.3–4.5)	.004
Involved in 3 or more fights in the past 6 mo	26.0 (33)	8.4 (140)	.0001	3.8 (2.0–7.0)	.0001
Antisocial behavior					
Expelled from school in the past 30 d	48.1 (37)	19.3 (86)	.0001	3.6 (2.1–5.9)	.001
Drug use					
Test positive for marijuana	12.0 (9)	4.3 (19)	.006	2.6 (1.1–6.3)	.03
Current self-reported drug use	59.7 (46)	38.7 (172)	.001	2.2 (1.3–3.6)	.002
Alcohol consumption					
Binge drinker	16.3 (7)	5.4 (10)	.02	3.3 (1.1–9.3)	.03

* No history of gang involvement is the referent for computing the adjusted odds ratio (AOR).

† Odds ratio is adjusted by parental monitoring.

This study also documented a relationship between females involved in a gang and having non-monogamous sex partners. Similarly, a study conducted by Little and colleagues⁴⁵ revealed that male gang members often have sex relationships with multiple female partners. Knowing that a male partner with whom you have had sexual relations has also had sexual relations with other women may result from female gang members being sexually exploited by male gang members. Several recent studies—conducted in Arizona, Chicago, Milwaukee, and Ohio—have reported the sexual abuse and exploitation of female gang members by male gang members.^{11–13,46} Unfortunately, sexual relationships with gang members constitutes a circumscribed social sexual network that may enhance the transmission of sexually transmitted infections. Gang membership has been conceived as a risk marker that may influence the probability of acquiring a sexually transmitted infection if exposed.⁴⁷ If a male gang member acquires a sexually transmitted infection and has sexual relationships with several female gang members, the infection may spread throughout this sexual network.

Implications for Pediatricians

In 1999, the American Academy of Pediatrics Task Force on Violence issued a policy statement that recommended assessing and screening for gang involvement and gang exposure in the family, school, or neighborhood.⁴⁸ The task force recommended that pediatricians play a critical role in helping adolescents involved in gangs by making referrals to local community violence prevention programs, promoting clinical practice guidelines that include promoting a healthy environment for all children, and advocating increased recreational, therapeutic, and occupational programs for children. A coordinated

national policy on gangs is urgently needed, one with a prime focus of preventing the root causes of gang involvement.^{49–51} Public health prevention programs should be developed to enable young female adolescents to progress from adolescence through adulthood without encountering the social and public health threats that accompany gang involvement.

Limitations

The present study is not without limitations. Foremost, this study uses a cross-sectional research design that precludes the determination of a causal direction between having a history of gang involvement and female adolescents' health risk behaviors. Future research examining the impact of gang involvement on adolescents' health would benefit from longitudinal research designs. Moreover, the sample was limited to African American female adolescents. Thus, the findings from this sample may not be generalizable to other racial/ethnic groups, males, or adolescents residing in larger urban environments. In addition, this study did not examine contextual factors associated with gang involvement, including the length of time adolescents were in gangs, whether participants were involved in male gangs or female-only gangs or the types of gangs in which participants were involved (ie, street or drug gangs). Examining larger social contextual factors associated with gang involvement may be crucial for developing prevention programs designed to deter female gang membership.

CONCLUSION

Unfortunately, female gangs have received little programmatic attention.⁵² However, noteworthy efforts directed at reducing or eliminating females' participation in gangs have been made by the Boys and Girls Clubs of America and the Office of Juvenile

Justice and Delinquency Prevention's Comprehensive Community-wide Approach to Gang Prevention, Intervention and Suppression. Much more remains to be done.⁵² As a society, we cannot ignore the health threat posed by gang involvement to adolescents' health and welfare. Programs designed to reduce health-compromising behaviors (ie, substance use) and their adverse sequelae (ie, STDs) among this vulnerable population are urgently needed.

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