

Gang Membership, Violence, and Psychiatric Morbidity

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Objective: Gang members engage in many high-risk activities associated with psychiatric morbidity, particularly violence-related ones. The authors investigated associations between gang membership, violent behavior, psychiatric morbidity, and use of mental health services.

Method: The authors conducted a cross-sectional survey of 4,664 men 18–34 years of age in Great Britain using random location sampling. The survey oversampled men from areas with high levels of violence and gang activities. Participants completed questionnaires covering gang membership, violence, use of mental health services, and psychiatric diagnoses measured using standardized screening instruments.

Results: Violent men and gang members had higher prevalences of mental disorders and use of psychiatric services than nonviolent men, but a lower prevalence of depression. Violent ruminative thinking,

violent victimization, and fear of further victimization accounted for the high levels of psychosis and anxiety disorders in gang members, and with service use in gang members and other violent men. Associations with antisocial personality disorder, substance misuse, and suicide attempts were explained by factors other than violence.

Conclusions: Gang members show inordinately high levels of psychiatric morbidity, placing a heavy burden on mental health services. Traumatization and fear of further violence, exceptionally prevalent in gang members, are associated with service use. Gang membership should be routinely assessed in individuals presenting to health care services in areas with high levels of violence and gang activity. Health care professionals may have an important role in promoting desistance from gang activity.

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Violence is a defining characteristic of gang membership (1, 2), together with extensive criminality and substance misuse (3). Street gangs are increasingly evident in U.K. cities (1, 4), with similarities to gangs in the United States, where fluctuations in gang activity correspond to changes in homicide rates (5), youth violence, and victimization (6, 7). Gun control has resulted in low rates of homicides involving firearms in the United Kingdom, but gang members are estimated to carry out half of all shootings and 22% of serious violent crimes in London (1). The spread of gang-related violence is held to resemble an epidemiological “core infection” model (8) through a process of social contagion (9) in which gangs evaluate and respond to the highly visible violent actions of other gangs, retaliate, and attempt to achieve dominance through violent retribution (10). Violence is necessary for building and maintaining personal status and enforcing group cohesion, is instrumental in obtaining sexual access and money through robbery and intimidation, and may be a source of excitement. It is essential to the regulation of local drugs markets by organized gangs (11). Gang violence represents a major public health problem. Gang members engage not only with criminal justice agencies (1) but also

with the health care system, by multiple entry points, particularly trauma services (2). To our knowledge, no previous research has investigated whether gang violence is related to psychiatric morbidity (other than substance misuse) or places burdens on mental health services. Epidemiological studies have shown that psychiatric morbidity is associated with violent behavior (12–15), although the mechanisms involved are complex and are not fully understood. In addition to violence toward others, gang violence can result in high levels of traumatic victimization and fear of violence (16).

Through their violence, gang members are potentially exposed to multiple risk factors for psychiatric morbidity. Our aim in this study was to investigate associations between gang membership, violent behavior, and psychiatric morbidity in a nationally representative sample of young men and to identify explanatory factors. We examined associations between violent behaviors, attitudes toward and experiences of violence, a range of mental disorders, and use of mental health services. To identify the specific effects of gang membership, we compared gang members with young men who were violent but not in gangs.

Method

Data Collection

We carried out the survey in 2011. It was based on random location sampling, an advanced form of quota sampling shown to reduce the biases introduced when interviewers choose a location to sample from. Individual sampling units (census areas of 150 households each) were randomly selected within British regions, in proportion to their population. The basic survey derived a representative sample of young men (18–34 years of age) from England, Scotland, and Wales. In addition, there were four boost surveys. First, young black and minority ethnic men were selected from output areas with a minimum of 5% black and minority ethnic inhabitants. Second, young men from the lower social grades (grades D and E, as defined by the Market Research Society, based on head of household: semi-skilled, unskilled, and occasional manual workers; and pensioners and welfare recipients) were selected from output areas in which there were a minimum of 30 men 18–64 years of age in these social grades. The final boost surveys were based on output areas in two locations characterized by high gang membership, the London borough of Hackney and Glasgow East, Scotland. The same sampling principles applied to each survey type.

A self-administered questionnaire piloted in a previous survey was adapted for this one. Informed consent was obtained from all survey respondents. Respondents completed the pencil-and-paper questionnaire in privacy and were paid £5 for their participation.

Survey Measures

The Psychosis Screening Questionnaire (17) was used to screen participants for psychosis; a positive screening was one in which three or more criteria were met. Questions from the Structured Clinical Interview for DSM-IV Personality Disorders Screening Questionnaire (18) identified antisocial personality disorder.

The Hospital Anxiety and Depression Scale (19) was used to define anxiety and depression, based on a score ≥ 11 in the past week. Scores ≥ 20 on the Alcohol Use Disorders Identification Test (20) and scores ≥ 25 on the Drug Use Disorders Identification Test (21) were used to identify alcohol or drug dependence, respectively.

Participants were asked if they had ever deliberately attempted to kill themselves. They were also asked whether they were currently taking any prescribed psychotropic medications, had consulted a medical practitioner over the past 12 months for mental health problems, had ever seen a psychiatrist or psychologist, or had ever been admitted to a psychiatric hospital.

Gang Membership and Violence

All participants were questioned about violent behavior, including whether they had been “in a physical fight, assaulted or deliberately hit anyone in the past 5 years,” as used in previous surveys of violence (13, 15). Information was sought about the number of violent incidents they had been involved in and their attitudes toward and experiences of violence. They were additionally asked, “Are you currently a member of a gang?” For inclusion in the study, gang members had to endorse gang membership and one or more of the following: serious criminal activities or convictions, involvement with friends in criminal activities, or involvement in gang fights during the past 5 years.

Participants were divided into three mutually exclusive groups according to participation in violence and gang membership: 1) nonviolent men—participants reporting no violent behavior over the past 5 years and no gang membership; 2) violent men—participants reporting violence over the past 5 years but no gang membership or involvement in gang fights; and 3) gang members.

Statistical Analysis

Initially, we compared the demographic characteristics of nonviolent men, violent men, and gang members using logistic regressions to identify potential confounders. Three analyses were performed, comparing nonviolent men and violent men, nonviolent men and gang members, and violent men and gang members.

Differences between the nonviolent men, the violent men, and the gang members with respect to psychopathology and service use were established by performing logistic regression analyses in the three comparison groups. Linear trends were established by entering group membership as an ordinal variable. As above, three analyses were conducted, comparing nonviolent men and violent men, nonviolent men and gang members, and violent men and gang members.

Finally, we investigated whether associations between 1) gang membership, 2) violence, and 3) psychopathology or service use were explained by attitudes toward violence, victimization experiences, and characteristics of violent behaviors. Potential explanatory variables were first identified by testing their association with 1) gang membership or violence and 2) psychopathology or service use. Only if both associations were significant at an alpha level of 0.05 were variables selected and then entered in an adjusted model, with group membership as the independent variable and psychopathology or service use as the dependent variable. We examined the percentage reduction in the baseline odds of each mental disorder and type of service use after adding each of the potentially explanatory variables into the following equation: $(\beta_{unadjusted} - \beta_{adjusted}) / \beta_{unadjusted} \times 100$. In a final model, all explanatory variables were entered simultaneously. Comparisons between baseline-adjusted and fully adjusted coefficients were used to estimate the extent to which the association between group membership and psychopathology or service use was accounted for by the explanatory variable.

To control for differences between samples, survey type was included as a covariate in all analyses. We also used robust standard errors to account for correlations within survey areas because of clustering within postal codes. An alpha level of 0.05 was adopted throughout. All analyses were performed in Stata, version 12 (StataCorp, College Station, Tex.).

Results

Demography and Sampling

The weighted sample included 4,664 men 18–34 years of age: 1,822 (39.1%) from the main survey; 969 (20.8%) from the ethnic minority sample; 555 (11.9%) from the sample of men from lower social classes; 624 (13.4%) from Hackney; and 694 (14.9%) from Glasgow East. Of the total sample, 3,285 (70.4%) reported no violence over the past 5 years, 1,272 (27.3%) reported assaulting another person or involvement in a fight, and 108 (2.1%) reported current gang membership.

Violent men were younger on average than nonviolent men, more were U.K. born and unemployed, and fewer were black or from the Indian subcontinent. Gang members were also younger than nonviolent men, less likely to be single and non-U.K. born, and more likely to be unemployed, black, and from the Indian subcontinent. Compared with violent nonmembers, fewer gang members were single and non-U.K. born, while more were of minority ethnic origin (Table 1).

TABLE 1. Demographic Characteristics of Nonviolent and Violent Men and Gang Members

Characteristic	Nonviolent Men		Violent Men		Gang Members		Violent Men Compared With Nonviolent Men		Gang Members Compared With Nonviolent Men		Gang Members Compared With Violent Men	
	N	%	N	%	N	%	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI
Non-U.K. born	520	16.1	102	8.1	5	4.6	0.76*	0.58, 0.99	0.15***	0.06, 0.38	0.19**	0.07, 0.51
Single	1,944	59.9	862	68.1	70	57.7	1.16	0.97, 1.39	0.45**	0.27, 0.74	0.38***	0.23, 0.65
Unemployed	1,128	35.1	542	43.8	51	50.4	1.23*	1.04, 1.45	1.96**	1.21, 3.16	1.59	0.97, 2.61
Ethnicity												
White (reference)	1,961	59.8	980	77.1	37	34.1						
Black	473	14.4	135	10.6	53	49.3	0.62**	0.45, 0.85	9.81***	5.50, 17.48	15.9***	8.57, 29.50
Indian subcontinent	788	24.0	143	11.2	16	15.3	0.41***	0.29, 0.57	2.36*	1.15, 4.87	5.78***	2.71, 12.30
Other	57	1.7	13	1.0	1	1.2	0.62	0.30, 1.28	2.3	0.52, 10.29	3.74	0.75, 18.75
Survey type												
Main (reference)	1,228	37.4	575	45.2	19	17.8						
Ethnic minorities	786	23.9	175	13.8	8	7.9	0.85	0.58, 1.24	0.27*	0.10, 0.74	0.32*	0.11, 0.89
Lower social classes	350	10.7	190	14.9	16	14.6	1.06	0.84, 1.33	2.41*	1.09, 5.33	2.28*	1.04, 5.01
London, Hackney	459	14.0	111	8.7	54	49.9	0.66*	0.48, 0.90	4.04**	1.83, 8.92	6.16***	2.86, 13.26
Glasgow East	462	14.1	221	17.4	11	9.8	0.83	0.63, 1.08	2.39	0.84, 6.82	2.89*	1.01, 8.25
	Mean	SD	Mean	SD	Mean	SD						
Age (years)	26.6	4.9	25.4	5.0	25.1	5.3	0.96***	0.94, 0.97	0.93**	0.88, 0.98	0.97	0.92, 1.02

* $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

Psychiatric Morbidity and Service Use

Table 2 summarizes the psychiatric morbidity and service use of nonviolent men, violent men, and gang members. The data show a marked gradient: psychiatric morbidity and service use were infrequent among nonviolent men but increased progressively from violent nonmembers to gang members. This gradient was confirmed for all outcomes ($p < 0.001$) except depression.

The three pairwise sets of analyses were used to explore the relationships in more detail (Table 2). Violent men differed significantly from nonviolent men on all measures of psychopathology except drug dependence, and on all service use variables. The differences between gang members and nonviolent men in relation to psychopathology and service use were considerably greater (Figure 1). After adjustment, depression was significantly less prevalent among gang members and violent men. Gang members were significantly less likely than violent men to be depressed but demonstrated higher levels of other mental disorders, except psychosis and anxiety disorders. They were also significantly more likely than violent men to report use of all forms of service (Table 2).

Attitudes Toward Violence and Victimization and Characteristics of Violent Behavior

As shown in Table 2, violent men differed from the nonviolent reference group in their attitudes toward

violence and violent victimization. However, greater differences were observed between gang members and nonviolent men. Gang members were significantly more likely than nonviolent men to have been victims of violence and to fear further violent victimization. They were also more likely to experience violent ruminations and more prepared to act violently if disrespected. These attitudes and experiences were also significantly higher in gang members than in violent men. The characteristics of violence among gang members also differed considerably from those in violent men who were not gang members. Gang members reported significantly more violent incidents and were more likely to have previous convictions for violence, to report using instrumental violence, and to be excited by violence (Table 2).

Explaining Links Between Psychopathology, Service Use, and Violence/Gang Membership

Violent men and gang members were significantly more likely to acknowledge positive attitudes toward violence, increased violent victimization, and more severe characteristics of violence (Table 2). Many of these same variables were significantly associated with psychopathology and service use (see Table S1 in the data supplement that accompanies the online edition of this article). We therefore investigated whether violence variables explained the elevated rates of psychopathology and service use among violent men and gang members.

TABLE 2. Independent Associations of Violence and Gang Membership With Psychiatric Morbidity and Service Use^a

Measure	Nonviolent Men		Violent Men		Gang Members		Violent Men Compared With Nonviolent Men		Gang Members Compared With Nonviolent Men		Gang Members Compared With Violent Men	
	N	%	N	%	N	%	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI
Psychiatric morbidity												
Psychosis ^b	25	0.8	61	4.9	26	25.1	2.94**	1.49, 5.78	4.16**	1.50, 11.59	1.42	0.54, 3.68
Anxiety ^b	343	10.6	242	19.2	63	58.9	1.83***	1.39, 2.42	2.25*	1.09, 4.65	1.23	0.61, 2.45
Depression ^b	303	9.4	107	8.5	21	19.7	0.65*	0.44, 0.97	0.18**	0.05, 0.63	0.27*	0.08, 0.89
Alcohol dependence ^b	191	6.0	174	14.2	68	66.6	1.63**	1.14, 2.34	6.49***	3.04, 13.87	3.97***	1.90, 8.30
Drug dependence ^b	26	0.8	61	5.0	59	57.4	1.40	0.59, 3.33	12.71***	3.64, 44.37	9.06***	3.60, 22.83
Antisocial personality disorder ^b	117	3.6	359	29.2	86	85.8	8.84***	6.75, 11.58	57.39***	23.94, 137.62	6.49***	2.73, 15.43
Suicide attempt ^c	94	2.9	121	9.7	35	34.2	3.32***	2.40, 4.60	13.09***	7.74, 22.16	3.94***	2.34, 6.63
Psychiatric service use^c												
Consulted medical practitioner	213	6.6	144	11.4	28	27.1	1.91***	1.48, 2.48	4.31***	2.33, 7.96	2.25**	1.21, 4.18
Consulted psychiatrist or psychologist	40	1.2	45	3.6	13	12.1	2.71***	1.65, 4.47	7.75***	3.51, 17.10	2.86**	1.29, 6.32
Psychiatric admission	76	2.4	63	5.0	21	20.7	2.21***	1.48, 3.29	7.80***	3.66, 16.62	3.53***	1.67, 7.46
Psychotropic medication	95	3.0	77	6.3	16	15.9	2.04***	1.44, 2.89	5.00***	2.23, 11.22	2.45*	1.11, 5.41
Attitudes toward violence^c												
Violent if disrespected	272	9.3	513	46.7	87	87.3	8.84***	7.18, 10.89	68.27***	29.81, 156.34	8.10***	3.65, 17.97
Violent ruminations	98	3.1	202	17.0	68	70.1	5.49***	4.10, 7.36	61.76***	34.71, 109.88	12.63***	7.33, 21.75
Violent victimization^c												
Fear violent victimization	510	16.3	236	19.5	67	65.4	1.32**	1.08, 1.62	8.84***	5.00, 15.62	6.69***	3.78, 11.86
Violent victimization	281	8.6	410	32.2	41	38.6	4.96***	4.03, 6.10	10.37***	6.17, 17.45	2.09**	1.25, 3.50
Characteristics of violence^c												
Number of violent incidents												
0			0	0	10	10.0					4.70***	2.21, 20.00
1			238	23.1	1	0.9						
2			336	32.6	10	9.9						
≥3			456	44.3	80	79.1						
Previous conviction for violence			208	16.4	37	34.6					7.54***	3.99, 14.23
Excited by violence			203	16.4	58	62.8					7.87***	4.39, 14.13
Instrumental violence			122	9.7	77	72.7					21.80***	12.20, 38.96

^a All 95% confidence intervals are computed using robust standard errors to account for correlations within survey areas due to clustering within postal codes.

^b Adjusted for all other psychiatric morbidity outcomes, non-U.K. birth, being single, unemployment, ethnicity, age, Index of Multiple Deprivation (a relative measure of deprivation at small-area level across the United Kingdom), and survey type.

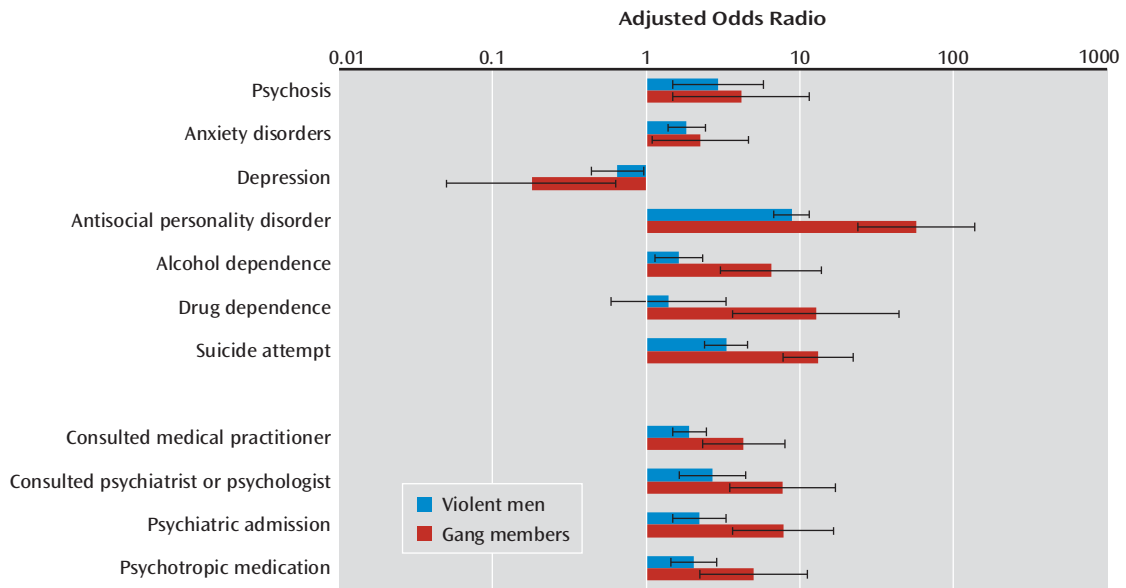
^c Adjusted for non-U.K. birth, being single, unemployment, ethnicity, age, Index of Multiple Deprivation, and survey type.

*p<0.05. **p<0.01. ***p<0.001.

Table 3 presents the change in odds of psychopathology and service use among violent men after accounting for their attitudes toward violence and their violent victimization experiences (percentage of change in odds explained by these variables). Once violent ruminations,

fear of victimization, and violent victimization were taken into account, some of the previously observed associations between violent men and psychosis were considerably reduced in size and no longer significant. These same variables also explained the elevated likelihood in this

FIGURE 1. Adjusted Odds Ratios of Psychiatric Morbidity and Service Use for Violent Men and Gang Members Compared With Nonviolent Men as Reference Group^a



^a Error bars indicate 95% confidence intervals.

group of having consulted a psychiatrist or psychologist and of psychiatric admission. However, these reductions were not seen for some of the outcomes: anxiety disorders, alcohol dependence, antisocial personality disorder, suicide attempt, general practitioner consultation, and use of psychotropic medication were reduced in size but still significant.

A similar pattern was observed when gang members were compared with nonviolent men (Table 4), with the addition that the discrepant prevalence of anxiety disorders was also explained by violent ruminations, fear of victimization, and being a victim of violence.

Comparison of gang members and violent men (see Tables S2 and S3 in the online data supplement) showed that their higher rates of antisocial personality disorder, suicide attempt, consultation with a psychiatrist or psychologist, and psychiatric admission were substantially explained by their positive attitudes toward violence, their greater victimization experiences, and the characteristics of their violent behavior.

Discussion

We found inordinately high levels of psychiatric morbidity and associated health service use among young British men who are gang members. Street gangs are concentrated in inner urban areas characterized by socioeconomic deprivation, high crime rates, and multiple social problems (1). One percent of men 18–34 years of age in Great Britain are gang members, compared with 8.6% in the London borough of Hackney, where 1 in 5 black men in that age group reported gang membership. Our findings imply that gang members make a large

contribution to mental health disability and burden on mental health services in these areas. This represents an important public health problem, previously unreported.

We found a marked gradient in level of psychopathology across the three groups. In general, mental disorders were more prevalent among violent men and gang members than among nonviolent men, and both groups reported significantly higher use of psychiatric services. However, depression was *less* prevalent among violent men and gang members. Violence can be construed as one of several displacement activities and mechanisms for enhancing self-esteem that are used to reduce the deleterious effects of negative environment, including childhood maltreatment and educational failure (22). However, since we cannot determine the direction of association, it is equally possible that higher levels of depression resulted in a reduction of violence because depressed individuals are less inclined or able to behave violently.

Violent men did not differ from the nonviolent reference group with respect to their relatively low prevalence of drug dependence. In contrast, over half of gang members had drug dependence. This is unsurprising given the large proportion of gang members actively involved in the underground drug economy.

The associations with antisocial personality disorder were unsurprising, as violence before age 15 persisting into adulthood is a criterion for this diagnosis. Criminality and violence both demonstrate escalation in frequency during gang membership (23). Associations with lifetime suicide attempts may partly reflect other psychiatric morbidity, including anxiety disorders and depression. However, they also correspond to the notion that impulsive violence may be directed both outward and inward (24). The relationship

TABLE 3. Testing Explanations for the Links Between Gang Membership, Violence, and Psychopathology and Service Use: Violent Compared With Nonviolent Men^a

Measure	Baseline		Violent If Disrespected			Violent Ruminations		
	Odds Ratio	95% CI	Odds Ratio	95% CI	% ^b	Odds Ratio	95% CI	% ^b
Psychosis	2.94**	1.49–5.78	—			2.43*	1.19–4.98	18
Anxiety	1.83***	1.39–2.42	—			1.79***	1.34–2.39	4
Depression	0.65*	0.44–0.97	—			—		
Alcohol dependence	1.63**	1.14–2.34	—			1.56*	1.07–2.28	9
Antisocial personality disorder	8.84***	6.75–11.58	5.47***	4.01–7.45	22	7.50***	5.63–10.00	8
Suicide attempt	3.32***	2.40–4.60	2.93***	1.94–4.43	10	2.74***	1.91–3.94	16
Consulted medical practitioner	1.91***	1.48–2.48	—			—		
Consulted psychiatrist or psychologist	2.71***	1.65–4.47	—			—		
Psychiatric admission	2.21***	1.48–3.29	—			1.81**	1.20–2.74	25
Psychotropic medication	2.04***	1.44–2.89	—			—		

^a All 95% confidence intervals are computed using robust standard errors to account for correlations within survey areas resulting from clustering within postal codes.

^b Percentage change in beta coefficient (beta=log[odds ratio]) from baseline model to final adjusted model.

*p<0.05. **p<0.01. ***p<0.001.

TABLE 4. Testing Explanations for the Link Between Gang Membership, Violence, and Psychopathology and Service Use: Gang Members Compared With Nonviolent Men^a

Measure	Baseline		Violent If Disrespected			Violent Ruminations		
	Odds Ratio	95% CI	Odds Ratio	95% CI	% ^b	Odds Ratio	95% CI	% ^b
Psychosis	4.16**	1.50–11.59	—			3.46*	1.06–11.25	13
Anxiety	2.25*	1.09–4.65	—			2.00	0.88–4.54	14
Depression	0.18**	0.05–0.63	—			—		
Alcohol dependence	6.49***	3.04–13.87	—			5.05***	2.06–12.37	13
Drug dependence	12.71***	3.64–44.37	6.51**	1.81–23.38	26	10.76**	2.53–45.79	7
Antisocial personality disorder	57.39***	23.94–137.62	33.60***	11.98–94.28	13	45.26***	15.66–130.83	6
Suicide attempt	13.09***	7.74–22.16	9.57***	5.10–17.98	12	5.92***	3.12–11.24	31
Consulted medical practitioner	4.31***	2.33–7.96	—			—		
Consulted psychiatrist or psychologist	7.75***	3.51–17.10	—			—		
Psychiatric admission	7.80***	3.66–16.62	—			5.60***	2.48–12.64	16
Psychotropic medication	5.00***	2.23–11.22	—			—		

^a All 95% confidence intervals are computed using robust standard errors to account for correlations within survey areas resulting from clustering within postal codes.

^b Percentage change in beta coefficient (beta=log[odds ratio]) from baseline model to final adjusted model.

*p<0.05. **p<0.01. ***p<0.001.

between alcohol misuse and violence is highly complex (25). However, heavy alcohol use is a well-documented aspect of gang life (26) and a well-established risk factor for violent behavior.

The high prevalences of anxiety disorders and positive screening for psychosis among gang members were unexpected. Although psychotic illness and psychiatric admissions are more common in inner urban areas, including those characterized by gang violence, these factors could have provided only a partial explanation. This issue warrants further investigation.

Characteristics of Violence

Violence is commonly reported by young men, and 1 in 3 of our nationally representative sample reported getting

into a fight or assaulting someone in the past 5 years. Correspondingly, fear of violent victimization was relatively high even among young British men who did not report violence. Nevertheless, rates of violent victimization and fear of violent victimization were significantly higher among violent men and greater still among gang members. Frequent violent ruminations and the propensity to react violently to perceived disrespect differentiated violent and nonviolent men but were highest in gang members.

There were quantitative and qualitative differences in the violence of gang members and other violent men. Instrumental (purposeful) violence was a defining characteristic of gang activity, as was repetitive violence. Gang members were also more likely to report violent

Fear of Victimization			Victim of Violence			Final Model		
Odds Ratio	95% CI	% ^b	Odds Ratio	95% CI	% ^b	Odds Ratio	95% CI	% ^b
2.91**	1.48–5.74	1	2.67**	1.34–5.32	9	2.04	0.99–4.21	34
1.76***	1.32–2.33	7	1.70***	1.28–2.26	12	1.58**	1.15–2.16	25
—			—			0.65*	0.44–0.97	0
—			—			1.56*	1.07–2.28	9
—			7.46***	5.65–9.85	8	4.43***	3.19–6.15	32
3.26***	2.33–4.55	2	2.47***	1.74–3.50	25	2.08**	1.34–3.23	39
			1.56**	1.18–2.06	32	1.56**	1.18–2.06	32
2.44***	1.45–4.12	10	1.84*	1.08–3.16	39	1.70	0.98–2.97	47
1.95**	1.30–2.91	16	1.65*	1.05–2.58	37	1.28	0.80–2.07	69
1.81**	1.24–2.65	16	—			1.81**	1.24–2.65	16

Fear of Victimization			Victim of Violence			Final Model		
Odds Ratio	95% CI	% ^b	Odds Ratio	95% CI	% ^b	Odds Ratio	95% CI	% ^b
3.83*	1.29–11.35	6	3.75*	1.29–10.85	7	2.77	0.76–10.14	28
1.66	0.76–3.62	38	2.15*	1.03–4.46	6	1.04	0.40–2.75	95
—			—			0.18**	0.05–0.63	0
—			—			5.05***	2.06–12.37	13
14.28***	4.24–48.13	–5	11.00***	3.24–37.36	6	5.46*	1.41–21.07	33
—			52.13***	21.80–124.64	2	22.64***	7.62–67.28	23
8.65***	4.97–15.04	16	8.90***	5.09–15.54	15	2.82*	1.25–6.34	60
			3.25***	1.71–6.19	19	3.25***	1.71–6.19	19
3.61**	1.50–8.70	37	4.53***	1.96–10.51	26	2.26	0.92–5.52	60
3.42**	1.57–7.44	40	5.30***	2.38–11.80	19	1.96	0.78–4.92	67
2.73*	1.18–6.29	38	—			2.73*	1.18–6.29	38

ruminations, excitement from violence, and being prepared to be violent if disrespected. They were correspondingly more likely to have criminal convictions for violence.

Can the Associations With Psychopathology and Service Use Be Explained by Characteristics of Violence?

Given that violent men and gang members were significantly more likely to have positive attitudes toward violence, more experiences of violence, and fear of violent victimization and that violence among gang members was qualitatively different than among violent men, we investigated whether these factors explained the increased psychiatric morbidity and service use in these groups. We found that none of these variables explained the high levels of alcohol and drug dependence, antisocial personality disorder, and suicide attempts or the lower rates of

depression, suggesting that they were accounted for by other, unmeasured, variables. However, the combination of violent ruminations, experiences of being violently victimized, and fear of future victimization explained associations of gang membership with both anxiety disorders and psychosis. Violent men who were not gang members also reported significantly higher levels of anxiety disorders. However, in contrast to gang members, their anxiety was not explained by violent characteristics as demonstrated for gang members, suggesting that the causes of anxiety in gang members differ from those of other violent young men.

The high levels of consultations with psychiatrists or psychologists among violent men and gang members were accounted for by their fear of, and actual experiences of, violent victimization. These variables, together with violent ruminations, also explained their high rates of

admission to psychiatric hospitals, suggesting the importance of violent traumatization in determining service use. Posttraumatic stress disorder (PTSD) is the most frequent psychiatric outcome of exposure to violence. Epidemiological surveys suggest that 15%–24% of those exposed will develop PTSD, with the highest risk following violent assault (27). Psychotic symptoms frequently occur in PTSD (28) and have been reported as particularly frequent among military combat veterans (29). Additional symptoms include anxiety and misuse of alcohol. It has been suggested that gang membership increases the risk of posttraumatic stress (30). Furthermore, a combination of PTSD and psychotic illness is associated with high levels of cognitive, emotional, and behavioral disturbance, including violent ruminations and behaviors (31). It is probable that among gang members, high levels of anxiety disorders and psychosis were explained by PTSD. However, this would only partly explain the high prevalence of positive screens for psychosis in gang members. Psychosis is more likely than PTSD to lead to psychiatric hospitalization in the United Kingdom. Further research should determine whether the high prevalence of positive screens for psychosis among gang members was explained by psychotic illness or severe PTSD with psychotic symptoms.

Limitations

Our survey had several limitations, including the definition used to determine gang membership. However, there is no consensus about definition because gang structures have considerable heterogeneity. Nevertheless, we included three of the five U.K. criminal justice agency criteria (1) that could be captured using self-report, covering predominantly street-based individuals who see themselves as a discernible group, engage in criminal activity or violence, and are in conflict with similar gangs. However, because participants were 18–34 years of age and the mean age for gang membership in the United Kingdom is 15 years, gang members in this study should be considered “core” members who have not desisted by early adulthood. Longitudinal study is needed to investigate whether age and remaining in the gang were key factors determining our findings (32). Furthermore, U.S. national surveillance studies of gangs have observed longitudinal trends of increased prevalence of gang members 18 years and above.

Violent behavior within the past 5 years was also assessed by self-report and did not include objective information, such as data on arrests or convictions. Self-report may have underestimated the true prevalence because socially undesirable behaviors tend to be less frequently reported. Diagnoses were also derived from self-report questionnaires and not confirmed by clinical interview, although self-report instruments can compare favorably with clinicians’ assessments (33). Furthermore, prevalences of mental disorders among young men in two

previous surveys in Great Britain (34, 35) were similar to those of nonviolent men in this survey.

Dating of episodes of mental disorders proved difficult, and we did not identify whether violent incidents related to times when symptoms were present. However, the community-based design and large sample size allowed us to examine associations between different categories of mental disorders and violent behavior, thus avoiding the selection bias associated with clinical samples. Furthermore, the sample size provided sufficient statistical power to test complex models and to control for confounding from demographic characteristics and comorbidity.

Implications

Our study highlights a complex public health problem at the intersection of violence, substance misuse, and mental health problems among young men. Gang membership and involvement in gang violence should be routinely assessed in young men presenting to health care services with psychiatric morbidity in inner urban areas with high levels of gang activity. Risk of relapse and failed intervention are elevated among those who return to gang activities, and gang members should be helped to understand the risks to their mental health. Readiness to retaliate violently if disrespected, excitement from violence, and short-term benefits from instrumental violence lead to further cycles of violence and risk of violent victimization (36). Our study suggests that these factors can increase anxiety to a level that requires treatment and can increase the risk of psychotic symptoms. Substance misuse, while temporarily increasing excitement and reducing the associated anxiety, may increase anxiety and paranoid thinking in the long term and be accompanied by additional addictive behaviors (37).

Further research is needed on effective interventions for gang members with psychiatric morbidity. Other risk factors that were not measured here but to which gang members are more frequently exposed are likely to contribute to a high prevalence of psychiatric morbidity and use of health care services—for example, involvement in the underground drug economy and drug dependence, which may increase risk for other psychiatric disorders irrespective of involvement in violence. Nevertheless, violent victimization and fear of further violence were predominant explanations for high levels of service use. Violent victimization is an important motivator for leaving the gang (38), suggesting that health care professionals may have a key role in helping gang members disassociate from gang activities.

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