

Wood, Jane L. and Dennard, Sophie (2017) *Gang membership: links to violence exposure, paranoia, PTSD, anxiety and forced control of behavior in prison*. *Psychiatry: Interpersonal and Biological Processes*, 80 (1). pp. 30-41. ISSN 0033-2747.

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Word count:

Abstract: 229 words

Manuscript: 4,348 words

References: 1,097 words

No of tables: 2

**Gang membership: links to violence exposure, paranoia, PTSD, anxiety
and forced control of behavior in prison.**

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Abstract

Objective: Gang membership inherently links to violence, and violent experiences strongly relate to PTSD, anxiety, and paranoia. Yet to date, gang members' mental health has received little attention, and their paranoia has not been examined. This study, using established measures, assessed street gang and non-gang prisoners' levels of: violence exposure, symptoms of PTSD, paranoia, and anxiety, forced behavioral control, and segregation in prison. *Method:* Participants were 65 (32 gang & 33 non-gang) prisoners, recruited using opportunity sampling. Participants provided informed consent, and were interviewed individually. Interviews were anonymized to maintain confidentiality. Chi Square and discriminant function analyses were used to compare participants' demographics, segregation levels, mental health symptoms, and identify predictors of street gang membership. *Results:* As compared to non-gang prisoners, street gang prisoners have higher levels of exposure to violence, symptoms of paranoia, PTSD, anxiety, and forced control of their behavior in prison. Street gang prisoners were not more likely to be segregated, but they were more likely to belong to ethnic minorities. Street gang prisoners were only found to be younger than non-gang prisoners, when other variables were controlled for. *Conclusions:* Mental health deserves more attention in gang research. The implications of findings are that gang membership may undermine members' mental health, and/or that individuals with existing mental health problems, may be those attracted to gang membership. Moreover, justice responses, via policies and intervention strategies, need to identify and address the mental health needs in gang member prisoners, if successful rehabilitation of gang members is to be achieved.

Keywords: Gangs, violence, mental health, control.

Compared to non-gang members, gang members' violence is more frequent, more serious, involves more lethal weapons, causes more injuries, and creates more accidental victims (Klein, Weerman, & Thornberry, 2006). Compared to similar at-risk youth, gang members are 20 times more likely to commit a drive-by shooting, 10 times more likely to commit homicide, four times more likely to assault a rival, and three times more likely to assault friends, or fellow gang members (Huff, 1998). Although in the UK, the numbers of gangs, and gang members, are largely unknown, a mass of research indicates that gang violence has increased (Sharp, Aldridge, & Medina, 2006), and, in London, at least half of the murders of young people during 2007, were thought to be gang-related (Metropolitan Police Authority, 2008). In the US, the National Gang Intelligence Center (NGIC, 2011), documents an increase in gangs; reporting approximately 1.4 million active gang members, belonging to more than 33,000 gangs. To remediate the effects of gangs, we need to understand more about gang members, yet, to date, little is known about the psychological (Wood & Alleyne, 2010), and mental health correlates (Coid et al., 2013), of gang members. These are important oversights if we are to construct an appropriate response to gang membership. Our aim in the current study, was to identify if some of the mental health problems, noted as being associated with exposure to violence, were more prevalent in gang members than in non-gang members. To this end, we compared street gang and non-gang prisoners' symptom levels of anxiety, posttraumatic stress disorder (PTSD), and paranoia. We also compared both groups on their pre-prison exposure to violence, and their problematic behavior, and segregation in prison.

Gang membership tends to begin during adolescence (Klein et al., 2006), and this leaves members exposed to violence, at a time, identified by developmental theorists, as a vital, second sensitive developmental period, during which brain maturation, psychological, and biological changes, have important implications for a successful, and healthy transition to

adulthood (Viner et al., 2012). Given the importance of this developmental stage, it is no surprise that, by age 15, gang members are seven times more likely than non-gang youth, to be violent (Battin, Hill, Abbott, Catalano, & Hawkins, 1998), and to be more violently victimized (Decker & Pyrooz, 2010), particularly via inter-gang violence (Katz, Webb, Fox, & Shaffer, 2011). Exposure to violence can be profoundly detrimental to mental health (Fowler, Tompsett, Braciszewski, Jacques-Tiura, & Baltes, 2009), and research shows that compared to non-gang youth, gang members are more fearful of violent victimization (Taylor, Freng, & Esbensen, 2008), and experience higher levels of anxiety and psychosis (Coid et al., 2013). Gang members are also more likely to attempt suicide than either violent or non-violent others (Coid et al., 2013). Even in prison, where psychiatric disorders are more common than in the general population (Fazel & Seewald, 2012), findings show that gang members have higher levels of anxiety, and attempt suicide more frequently than non-gang prisoners (Corcoran, Washington, & Meyers, 2005). This suggests that gang members are particularly vulnerable to mental health problems. Yet, research examining mental health and gang membership, is in its infancy worldwide, and none, to our knowledge, has examined the mental health links to gang members' behavior in specific contexts, such as in prison.

Research conducted with prisoners highlights that disruptive and segregated prisoners are often mentally ill (Torrey et al., 2014), and gang member prisoners are more disruptive, and more violent than non-gang prisoners (DeLisi Berg, & Hochstetler, 2004). It is interesting, however, that gang member prisoners are even more likely than mentally ill prisoners to be segregated (O'keefe, 2007). What is not clear, is why this is. Gang members' disruptive behavior may be driven by undetected mental health problems such as paranoia. Paranoia has not previously been examined in gang members, but it links, conceptually, to previous findings that identify gang members' elevated levels of psychosis (Coid, et al., 2013), and to other mental health problems, such as anxiety and PTSD.

PTSD occurs mainly as a psychological consequence of being a victim of assault (Darves-Bornoz et al., 2008). Symptoms include re-experiencing traumatic events, avoidance of trauma-related stimuli, sleeplessness, irritability, angry outbursts, and feeling emotionally flat (Diagnostic and Statistical Manual-5 (DSM-5); American Psychiatric Association, 2013). It may lead to perceptions that an environment is unsafe and threatening (Overstreet & Braun, 2000), and prompt the use of strategies, such as avoidance, to minimize or control its adverse effects.

PTSD may develop following exposure to community violence (Fowler et al., 2009), and, compared to those suffering PTSD following violence experiences *either* as a witness, or as a victim, those exposed to a *combination* of direct violence (as a victim), and indirect violence (as a witness), suffer higher incidents of current, and lifetime, PTSD (Kulkarni, Graham-Bermann, Rauch, & Seng, 2011). Research examining young offenders shows a positive relationship between PTSD and violence (Abram et al., 2004), and, although gang members' PTSD levels are vastly under-researched, a review of mental health screenings shows how gang membership almost doubles the likelihood of youth meeting criteria for a PTSD diagnosis (Harris et al., 2013). Interestingly, more recent findings note how gang members' PTSD, links to their own violent actions (Kerig, Chaplo, Bennett, & Modrowski, 2015).

Research with non-offending populations shows that PTSD links to persecutory ideation (Campbell, & Morrison, 2007), and to paranoid thinking (Freeman, et al., 2011). Anxious worry, negative self-beliefs, and interpersonal sensitivity, are central to paranoia, and negative feelings, perhaps because of problems emanating from experienced events, sleep problems, or substance use, require explanations (Freeman, et al., 2013). Associations have also been identified between paranoia and: youth, being male, ethnicity, urban residence, alcohol, and/or drug dependence, and being victimized (Johns et al. 2004). The

above is all relevant to gang members. Gang members have high levels of substance abuse (Coid et al., 2013), they are generally young, male, urban residents (Klein & Maxson, 2006), and are more likely than non-gang others, to be victims of violence (Decker & Pyrooz, 2010). Freeman et al., (2013) note further, that in the general population, the highest levels of paranoia occur in those assaulted close to home by a perpetrator that they know. This also applies to gang members, who are most likely to be violently assaulted in their own residential area, even by members of their own gang (Hughes 2013).

If gang members suffer from paranoia then regardless of whether they have been threatened, in a prison, they are likely to be disruptive so that their behavior has to be forcibly brought under control by others (e.g. prison staff or other prisoners). As a result, they are likely to be segregated from the rest of the prison population. This is because paranoia generates anxiety, and an anticipation of danger, which, in turn, lead to misinterpretations of others' behavior as threatening, (Freeman et al., 2013). Paranoia also links to psychotic disorder in non-clinical samples (Poulton et al., 2000), and psychotic disorder, which is higher in community-based gang members, than it is in non-gang individuals (Coid et al., 2013), can generate violent behavior (O'Kane & Bentall, 2000), even when no clear threat is apparent (Gilbert, Boxall, Cheung, & Irons, 2005). It is therefore likely that gang members are vulnerable to paranoia, and to associated behavioral responses, such as misinterpreting others' intentions, aggression and disruption, which in prison, can result in their segregation.

To date, little research attention has examined how paranoia translates into situational responses (Freeman et al., 2013), and no work has, to our knowledge, examined paranoia in prisoners, or in gang members. Considering gang members' high exposure to violence as victims, perpetrators, witnesses (of other gang members' violence), their identified vulnerability to PTSD, and the conceptual links between PTSD, paranoia, and anxiety, it is likely that gang members will have higher symptom levels of paranoia, than will

non-gang others, even in prison, where mental illness is common. If so, gang members are likely to misinterpret others' intentions as hostile, respond aggressively, be disruptive, have their behavior forcibly controlled, and be segregated from the prison population. This study aimed to differentiate street gang from non-gang prisoners in terms of their violence exposure, their symptom levels of PTSD, paranoia, anxiety, the frequency that their behavior has been forcibly controlled, and whether they had experienced segregation from the prison population.

We hypothesized that, compared to non-gang prisoners, street gang prisoners: would report greater exposure to violence than non-gang prisoners; would show higher symptom levels of PTSD, paranoia and anxiety; would have experienced more frequent forced control of their behavior; and, were more likely to have been placed in segregation.

Method

Participants

Sixty five males ($M_{\text{age}} = 23.46$, age range = 18 – 29 years) were recruited from a Youth Offenders Institute, holding offenders from many gang affected areas in the UK. Thirty two (49.2%) were identified as street gang members and 33 (50.8%) as non-gang members. The sample was ethnically diverse with 41.5% ($N = 27$) Black or Black British, 38.5% ($N = 25$) White, 13.8% ($N = 9$) Mixed race, 3.1% ($N = 4$) Asian, or Asian British, and 3.1% ($N = 2$) Chinese, or other ethnic group.

Materials

Street Gang Membership and exposure to violence. Street gang affiliation was assessed using 21 Eurogang Youth Survey items, based on the Eurogang Network definition of a gang as: “*any durable, street-oriented youth group whose identity includes involvement*

in illegal activity” (p. 20, Weerman et al., 2009). The Eurogang method of classifying gang membership has good construct validity, and has been used in over 30 countries. Research by Medina, et al., (2013), notes that Eurogang criteria are good at discriminating between individuals involved with gangs, and those who are not. Examples of items include; *‘Did you have a group of friends that you spent time with, doing things together or just hanging out?’* If participants responded ‘yes’ to this item, they were asked further questions such as, *‘Did your group of friends spend a lot of time together in public places like the park, the street, shopping areas, or the neighborhood?’*, *‘Did your group think of itself as a group?’*, *‘How long did your group exist? (please specify in months/years)’*, *‘Did people in your group do illegal things together?’*. The word “gang” was not used because it has an emotionally charged meaning (Esbensen & Weerman, 2005). Participants were identified as being a gang member if they responded positively to all four key items: 1. having a stable group of friends (lasting 3 months or more), 2. who spent a lot of time in public places, 3. who accepted illegal activity in members and 4. engaged in illegal behavior together. To assess participants’ exposure to violence, we asked, *‘Were people in your group involved in acts of violence?’* This was assessed on a seven point Likert scale where, 1 = not at all, and 7 = very much so. Due to time constraints on data collection, individuals’ traumatic experiences were not included.

Symptoms of anxiety, PTSD and paranoia: To assess symptom levels of anxiety, PTSD, and paranoia, we used subscales included in the Millon Clinical Multiaxial Inventory – Third Edition (MCMI-III; Millon, 1994). For each scale, participants are required to provide categorical ‘True’ or ‘False’ responses to each item. The anxiety subscale includes 14 items, (e.g. *‘I guess I’m a fearful and inhibited person’*). The PTSD subscale includes 16 items relating to flashbacks, unpleasant or traumatic memories, trouble sleeping, and mood (e.g. *The memory of a very upsetting experience in my past keeps coming back to haunt my*

thoughts). The paranoia subscale includes 17 items, (e.g. *'People make fun of me behind my back, talking about the way I act or look'*). Reliability for each scale was assessed using Cronbach's Alpha, and results indicated that all three scales had good reliability. The anxiety scale had a reliability of .82, the PTSD scale had a reliability of .89, and the paranoia scale had a reliability of .86. As the purpose of this study was to compare the overall symptom levels of street gang and non-gang prisoners, we report the means of each measure for each group (see Table 1).

Forceful control and Segregation.

To assess the how often participants' behavior had been forcibly controlled by others, we asked, *'Have you ever experienced another person(s) using force to control your behavior?'* Responses were recorded on a scale of 1 to 5, where 1, indicated 'never,' and 5, indicated very often. We then asked participants to indicate either, 'yes' or 'no' regarding whether they had been segregated, following forced control of their behavior. If they responded 'yes', we then asked how many times this had happened.

Procedure

Participants were recruited via opportunity sampling. The aims of the study and participation rights were explained before consent was obtained, but to reduce response bias participants were told that the research aimed to assess their group (not gang) membership, before coming to prison. Following consent, participants were interviewed individually in a quiet and private area of the prison, to maintain confidentiality. Interviews lasted for approximately half an hour, and, to offset potential literacy difficulties, questions were read to participants. Debriefing, which was conducted verbally and in writing, included the researchers' contact details should participants have further questions, or wish to withdraw their data.

Ethical Considerations

The research was conducted in accordance with the latest version of the Declaration of Helsinki, and the American Psychological Association (APA) ethical code of conduct. It was reviewed, and approved, by the University of Kent, at Canterbury, Kent, UK, Ethics Committee, and the National Offender Management Service (NOMS) Ethics Committee in London, United Kingdom. In accordance with the Declaration of Helsinki, and the APA ethical code of conduct, participants were fully informed of the aims of the study, and given the opportunity to ask questions, before agreeing to participate. Before consenting to take part, participants were told that they could refuse to participate without penalty, and informed of their rights to: stop the interview at any point, without giving a reason; withdraw from the study for up to two months following interview; and to full confidentiality and anonymity, except for caveats required by NOMS, which were explained in full. Caveats included disclosures regarding: breach of prison security, disclosure of further identifiable offences, for which they have not been convicted, breaking a prison rule during interview, or disclosure of intention to harm themselves, or others. Once they were happy to continue, they were asked to sign a consent form, which was not numbered, and, to maintain anonymity and confidentiality, was kept separate from all numbered interview materials. Completed interviews were held securely, to which only the two researchers had access.

Data analysis

Data analyses were carried out using SPSS for Windows, version 20 (IBM), with the significance level set at .05. Our analyses included three steps: First, a chi square analysis, and an independent t test, were used to identify demographic differences between street gang and non-gang prisoners. Second, independent t tests were used to address the hypotheses. Third, a discriminant function analysis was used to predict group membership of participants

as gang, or non-gang, prisoners. We chose to conduct a discriminant function analysis rather than a logistic regression analysis because discriminant function is robust in comparing categorical dependent variables in smaller sample sizes, whereas smaller sample sizes can create a number of problems for logistic regression (Tabachnick & Fidell, 1996). To predict gang/non-gang membership, and identify important predictors, predictor variables were entered into the discriminant analysis in a single block: Exposure to violence, symptoms of PTSD, paranoia, and anxiety, ethnicity, and age. The resulting model consisted identified the importance of variables using a discriminant loading cut-off of .3.

Results

To determine if gang and non-gang prisoners differed according to demographic variables we compared their ages and ethnicity. To compare ethnicity, we created a classification of White and Non-White. This was because 39% of the sample were White whilst 61% belonged to several diverse ethnic minority groups. Chi square analysis showed that more non-White, than White prisoners, were gang members, $\chi^2(1, N = 65) = 4.83, p = .028$. To compare ages, we conducted an independent *t* test, which showed no significant difference (See Table 1 for details). However, taking into account that a direct comparison of age does not allow for the control of other variables, we decided not to exclude it from further analyses.

To compare gang and non-gang prisoners' exposure to violence, symptom levels of anxiety, PTSD, paranoia, and forced control of their behavior, we conducted *t* tests. Results showed that gang prisoners had greater exposure to violence, more symptoms of anxiety, PTSD and paranoia. Results also showed that significantly more gang prisoners ($N = 15$) than non-gang prisoners ($N = 8$) had experienced forced control of their behavior. Table 1 shows the means, SDs and significance levels for all variables.

INSERT TABLE 1 HERE

To examine gang and non-gang prisoners' segregation, a chi square analysis was used. Findings showed that the number of gang prisoners who had experienced segregation ($N = 17$), was not significantly more than the number of non-gang prisoners ($N = 15$), $\chi^2 (1, N = 64) = .45, p = .309$.

We established the most salient characteristics of gang prisoners, using a discriminant function analysis. We entered violence exposure, anxiety, paranoia, PTSD, frequency of forced control, ethnicity, and age as predictors, and street gang and non-gang groupings, as dependent variables. Although we did not identify a significant difference in age between the groups in the earlier analysis, we included it in this analysis because it may have more importance when controlling for other variables. Results showed a significant discriminant function $\lambda = .50, \chi^2 (7) = 23.93, p = .001$. The Canonical correlation of .575 shows that the model accounts for 33% of the variance, and the cross-validated classification shows that overall, 73.8% of cases were correctly classified.

Taking structure matrix loadings of above or nearing .3 as indicators of variable importance, the most important predictors of gang membership were identified (see Table 2). All predictors were above the accepted .3, and high levels of exposure to violence, and symptoms of paranoia, PTSD, and anxiety were more important predictors of gang membership than either age, or ethnicity. Age gained an importance it did not have previously, and its coefficient shows that younger prisoners were most likely to be street gang

members. The coefficient for ethnicity shows that non-White prisoners were more likely than White prisoners, to be street gang members.

INSERT TABLE 2 HERE

Discussion

The primary aim of this study was to identify the differences between street gang and non-gang prisoners according to their exposure to violence, symptom levels of paranoia, anxiety, PTSD, forced control of their behavior and segregation. We had four hypotheses, and three were supported. Our findings successfully differentiated street gang from non-gang prisoners, and the resulting model explained a third of the variance. As predicted, compared to non-gang prisoners, street gang prisoners experienced more violence exposure, had higher symptom levels of paranoia, PTSD, and anxiety, and they were more likely to have their behavior forcibly controlled, during imprisonment. Counter to predictions, street gang prisoners were not more likely to be segregated. Overall, our findings indicate that mental health variables deserve far more attention in gang research than they have received to date. This point is all the more apparent when it is considered that the mental health variables we examined, were more important predictors of gang membership than variables such as either age and ethnicity, which have been robustly and consistently linked to gang membership.

Our finding regarding gang members' higher symptom levels of anxiety supports previous findings (Coid et al., 2013). Our finding that gang members have higher symptom levels of PTSD, adds to the newly emerging examinations of PTSD in gang members (Kerig et al., 2015), and supports arguments that gang members are particularly vulnerable to PTSD. Our finding regarding paranoia contributes a new, and novel,

perspective to the examination of gang membership and mental health, as this is the first known study to examine paranoia in gang members. The higher level of paranoia, and its level of importance as a predictor of gang membership, second only to violence exposure, also makes intuitive sense. Gang members are frequently victims of assault, even by members of their own group (Hughes et al., 2013), and, as research shows, those with this profile are particularly vulnerable to paranoid thoughts, as interpersonal sensitivity creates notions of personal vulnerability, and worry generates negative and implausible ideas (Freeman et al., 2013). The importance of paranoia for gang members, particularly in a prison setting, lies in its potential to shape their violent responses to others, by generating misinterpretations of innocuous behavior as potentially harmful.

However, our data cannot state with any certainty, where gang members' elevated symptoms of PTSD originate. As we did not assess gang members' trauma histories, we cannot be certain that their symptoms of PTSD originate from their gang membership, or from pre-gang experiences, which may motivate individuals to join a gang for the perceived protection it offers. However, recent findings indicate that this may not be the case. Research comparing gang members with delinquent youth, shows that gang members do not have higher levels of childhood trauma (Cepeda, Valdez, & Nowotny, 2014). This suggests that the higher symptoms of PTSD we found in gang members, occurs following gang membership, and this makes intuitive sense. For example, we know that exposure to a combination of violence as a victim, and as a witness, links to higher current, and lifetime, PTSD (Kulkarni et al., 2011). Since gang members are frequent victims of violence (Decker & Pyrooz 2010), and, as our findings show, are exposed to high levels of community violence, gang members appear to have high risk levels for developing PTSD. This is further strengthened by findings showing how gang members are vulnerable to PTSD as a result of their own perpetration of violence, (Kerig et al., 2015),

It is possible that individuals with high levels of paranoia will be attracted to gang membership, and, subsequent high exposure to violence, their existing paranoid thoughts are exacerbated, generating further feelings of threat. High levels of anxiety, which is associated with both paranoia and PTSD, may also exist before gang membership, and, again, motivate gang membership, for the apparent protection a gang offers. Without longitudinal research, the causal relationships between gang membership and the mental health factors examined in this study, cannot be deciphered.

As higher exposure to violence was the most important predictor of gang membership in our findings, whilst ethnic minority and younger age were less important, this suggests that mental health factors deserve as much research attention as demographic factors in gang studies. However, our population was quite young overall (maximum age = 29 years), and this may explain why age was not significantly different in our univariate analysis. Age did gain some importance in our discriminant function model, which, consistent with previous findings such as Battin et al's (1998), suggests that younger age is an important predictor of gang membership, and supports that gang members are exposed to high levels of violence at a critical stage in their mental and social development (as noted by Viner et al., 2012). When considering our findings in context: that gang members' violence exposure was higher than other offenders', many of whom have probably experienced violent lifestyles; it seems that gang members' higher symptom levels of PTSD and anxiety, are exacerbated, if not caused, by their violence exposure.

It is possible that in a prison setting, the mental health needs of gang members are not easily identified, particularly if gang members' paranoia prevents them seeking the support that they need from justice officials. This is concerning. If interventions are to succeed in encouraging gang members to leave their gang, there is a need to address gang membership as much, if not more, from a mental health perspective, than from a violent

perpetrator one. If the mental health needs of gang members are not addressed, then their offending/gang membership is likely to continue as paranoia feeds their perceptions of perpetual threat, and encourages them to remain a part of their gang, for the protection it seems to offer.

Our finding that street gang prisoners have experienced more forced control of their behavior, compared to non-gang prisoners, supports previous work. As noted above, gang members are more disruptive than non-gang prisoners, and as gang members' paranoia may lead to misinterpretations of others' intentions, and their anxiety may perpetuate a sense of danger (Freeman et al., 2013), it is likely that their mental health, and/or, their anti-authority attitudes (Alleyne & Wood, 2010), influence their disruptive behavior. Equally, attempts to suppress unwelcome thoughts, and ruminating about traumatic events, will maintain the event's presence in the individual's mind, generate further anxiety, and nurture a sense of current danger (Freeman et al. 2013).

This situation may be intensified by the potential that street gang members, in prison, probably also face *actual* threats from rivals, or even members of their own gang. If the real threats that gang members experience then combine with their mental health-driven perceptions, it is understandable that disruptive responses result. It seems likely then, that the net effect of imprisoning gang members will support their paranoid thoughts, and intensify their anxiety as they dwell on both the real and the perceived threats that the prison environment generates.

The reasons why street gang members were not more likely to be segregated than non-gang prisoners, is inconsistent with previous findings (eg O'Keefe, 2007). The reasons for our finding are not clear. Segregation, in prison, is used to protect others from disruptive and aggressive behavior (Adams & Ferrandino, 2008). However, as younger prisoners value

displays of masculine behavior (Woodall, 2007), aggressive behavior may be quite common, and, this may result in only the most severe cases facing segregation. Our data cannot attest to this, but it could be a topic for future work.

Although not all gang members will necessarily suffer from PTSD, anxiety, and paranoia, their vulnerability to these problems needs to be considered when addressing, and researching, gang membership. First, in a prison setting, there is a need for awareness of the relationship between gang-affiliation and mental health issues. That these two factors may independently increase the likelihood of disruptive behavior, should be used to inform prison policies, support services, and treatment strategies, relating to gang members – especially since research shows that mental illness has a negative relationship with rehabilitation strategies (O’keefe & Schnell, 2007). Second, if the criminal justice system aims to decrease gang membership, then mental health practitioners, and mental health screening, will be needed, as a matter of urgency. Currently, no treatment programs specifically address gang membership, and yet, there is an increase in gang membership in the community, in both the UK (Centre for Social Justice, 2009), and in the US (NGIC, 2011). Our results suggest that gang members are a unique subset of the offending population, and in need of mental health support. Consequently, this needs to be highlighted if gang membership, and its associated mental health problems, are to be effectively reduced.

Our findings are not without limitations. First, our data cannot identify whether the PTSD, anxiety, and paranoia symptoms we identified, were pre-existing conditions. However, even if their symptoms pre-dated their gang membership, it is highly likely that becoming a member of a group where violence is a norm, will exacerbate these pre-existing problems. Further, our selection of symptoms is limited, and a more extensive set of measures may have identified a more complex pattern of symptom interaction. This should be remedied in future work. A further limitation is our sample size. With in-depth interview

methods it is frequently difficult to access a large number of prisoners, but ideally, a larger sample including a wider age range of both males and females, would provide more insight into the relationship between gang membership and adverse mental health symptoms. We must also bear in mind that the effects of incarceration may increase gang members' levels of anxiety (as noted above), and so responses may differ if participants were interviewed in the community. Again, this is an issue that future research could address.

Conclusions

This study provides insight into the links between symptoms of PTSD, anxiety, and paranoia, in gang members, and its findings have several implications for reducing gang membership. As noted above, young people often join gangs at a critical stage of their development. In turn, gang membership, and the exposure to violence that it brings, may generate, and/or exacerbate, mental health problems. Even though gang membership typically lasts for less than four years (Gatti, et al., 2005), our findings suggest that its effects on members' mental health, could far outreach this time frame. Our findings further suggest that gang membership could be a unique predictor of mental health problems, which are even likely to exceed those in populations where mental health problems are rife. There is consequently a critical need for the mental health problems associated with gang membership to be given more consideration, if gang membership is to be adequately addressed, and reduced.

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[doi:10.1177/0017896907076752](https://doi.org/10.1177/0017896907076752)