Gang membership, Mental Illness, and Negative Emotionality:

A Systematic Review of the Literature

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Abstract

Gang-related violence poses detrimental consequences worldwide. Gang members suffer a range of adverse experiences, often as victims who then transition to adolescence and early adulthood as offenders. Such experiences may negatively affect their mental health. Yet, the relationship between gang membership and mental illness is, to date, not well understood. This systematic review synthesized the literature on gang member's mental health and emotions. A two-part search strategy of electronic and hand searches, dated from: January 1980 – January 2017, was conducted. A total of n = 306 peer papers were included in a preliminary scoping review, of which n = 23, met the inclusion criteria and study outcomes. Narrative synthesis revealed how gang members may be at increased risk of suffering from mental illnesses and negative emotions, such as anger and rumination. Yet, synthesis showed that understanding remains limited regarding gang members' experience of self-conscious emotions and how such emotions might link to persistent offending patterns and violence. The results suggest gang members may benefit from clinically tailored interventions to support their mental and emotional health. Clinical and research implications are discussed to inform future empirical, intervention, and prevention work with gang members and individuals at risk of gang involvement.

Key words: emotions, gangs, mental illness, psychological, violence

Gang membership, Mental Illness, and Negative Emotionality: A Systematic Review of the Literature

To date, gang membership has received scholarly attention, theoretically and empirically, from an array of disciplines; including criminology (Gordan et al., 2004; Howell & Egley, 2005; Klein & Maxson, 2006; Melde & Esbensen, 2013), sociology (Boruda, 1961; Eitle, Gunkel, & Van Gundy, 2004) and more recently, psychology (Beresford & Wood, 2016; Wood & Alleyne, 2010; Wood, Kallis, & Coid, 2017). In this breadth of literature, researchers have frequently examined how proclivity for gang involvement may be heightened by risk factors spanning five core domains: community, family, individual, peer, and school (Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003). These risk factors include, but are not limited to, individual factors, such as anti-social beliefs and behavior, low-self-esteem, and substance misuse (Bjerregaard & Smith, 1993; Curry, 2000; Hill, Howell, Hawkins, & Battin-Person, 1999); school and peer group factors, such as low attainment and engagement with delinquent peers (Craig, Vitaro, Gagnon, & Tremblay, 2002); family influences including disruptive family relationships, economic hardship, and poor parental supervision (Thornberry et al.; Eitle et al.); and community factors associated with neighborhood delinquency and disorganization (Hill et al.; Howell & Egley; Thornberry et al.). However, some risk factors (e.g. delinquent behaviors and exposure to violence) have also been linked to the onset of mental health difficulties among gang-affiliated youth (see Madan, Mrug, & Windle, 2011).

Currently, empirical research examining the association between gang involvement and mental illness remains in its infancy. This is despite research showing that gang involvement is associated with cumulative risk factors and stressors across all domains (see Hill et al., 1999) and how stressful life events are associated with negative emotional and psychological outcomes (Low et al., 2012; Turner & Lloyd, 1995; Vinokur & Selzer, 1975).

This suggests that examining links between gang membership and mental illness could deepen our understanding of gangs and as such, is a nexus, which warrants further investigation.

Links between gang membership, criminality, and violence are widely and deeply rooted in the international gang literature (Decker, 2007; Melde and Esbensen, 2013). Research in Europe (Coid et al., 2013; Klein, Weerman, & Thornberry, 2006; Wood et al., 2017), the United States (Melde & Esbensen), the Caribbean (Katz, Maguire, & Choate, 2011), and Asia (Pyrooz & Decker, 2013), illustrates how gang members are involved in higher levels of generalist and violent offending compared to non-gang offenders (Battin, Hill, Abbott, Catalano, & Hawkins, 1998; Esbensen, Winfree, He, & Taylor, 2001; Taylor, Peterson, Esbensen, & Freng, 2007). Gang members also experience a range of adverse stressful life events before gang membership (see Howell & Egley, 2005), and whilst they are members their experience of violence exceeds their pre-and/or post membership levels (Melde & Esbensen, 2013). Given how untreated mental illness links to cyclical offending patterns (see Marks & Turner, 2014) and how factors, such as low attainment and self-esteem, which are also among the risk factors for gang membership (see O'Brien, Daffern, Meng Chu, & Thomas, 2013), are linked to elevated levels of recidivism (see Matz, Stevens-Martin, & DeMichele, 2014); it is surprising that consideration of the mental health of gang members has not been examined more closely. Especially since research shows how gang members who receive psychotherapeutic interventions (according to their risk, need, and responsivity, see Andrews & Bonta, 2003), are less likely to reoffend than untreated gang members (Di Placido, Simon, Witte, Gu, & Wong, 2006).

The aim of this review is to synthesize current literature on gang member's mental health and their emotions. Consideration of how mental illness and emotions link to gang involvement before, during, and/or following gang membership may have significant

implications for theory development, empirical directions and prevention and intervention programs that seek to reduce gang membership. Findings will help identify empirical and theoretical gaps related to the affective and mental health needs of gang members.

Definition of gang membership

Sound conceptual definitions are the bedrock of rigorous scientific research. Yet, issues related to poorly formulated definitions continue in social science research (Podsakoff, MacKenzie, & Podsakoff, 2016). Definitional issues continue to cloud gang literature amid considerable debate of how best to define a gang (Esbensen et al., 2001), leaving researchers and practitioners, media outlets, and policy makers, using divergent conceptualizations of gang membership (see Curry, 2000). Whilst some suggest avoiding the term 'gang' because it creates misconceptions (Conley, 1993; see Ball & Curry, 1995), others see self-definition of gang membership as valid (Esbensen et al.). These discrepancies may result not only in the 'under- or overestimating' of gang activity (Esbensen et al., p. 106), but also in difficulties formulating conclusions that are meaningful and apply to the same entity (Wood & Alleyne, 2010). Equally, defining gangs according to the over-representation of ethnic minorities has occurred on a global scale; in the United States (see Tapia, 2011), in the United Kingdom (Cockbain, 2013; Davison, 1997), and the Antipodes (Poynting, Noble, & Tabar, 2001). This contrasts with other evidence indicating similar levels of gang membership across ethnic groups (Esbensen, Brick, Melde, Tusinski, Taylor, 2008) and that gang membership is based on the ethnic demographic of a particular neighborhood (Fagan, 1996).

Despite the discrepancies in defining gang membership continuing (Augustyn, Ward, & Krohn, 2017; Kerig, Chaplo, Bennett, & Modrowski, 2016), the Eurogang Network has promoted a standardized definition of gangs to enable rigorous comparisons of gangs across cultures, (see Weerman et al., 2009) and so for this review, the definition of gang membership adhered to the Eurogang definition of a gang as "any durable, street-orientated

youth group whose involvement in illegal activity forms part of its group identity." (Weerman et al., p.20).

Definition of mental illness

Two main classification systems for defining mental disorders are: The World Health Organization (WHO) International Classification of Diseases (ICD-10, 2016) and the American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013). Despite some similarities (e.g. the consideration of clinical symptoms and/or behaviors resulting in distress, see Tyrer, 2014), there are differences between their definitions of mental illness (Tyrer). In contrast to the ICD-10, which provides descriptive guidance on numerous mental and behavioral conditions, the DSM-5 adheres to set diagnostic criteria and is more widely employed for research purposes (Tyrer). The DSM-V has also been revised "to better fill the need of clinicians...and researchers for a clear and concise description of each mental disorder organized by explicit diagnostic criteria" (APA, p.5). For the purpose of this review we adhered to the DSM-V definition of mental illness as a, *"*clinically significant *disturbance in an individual's cognition, emotion regulation, or* behavior that reflects a dysfunction in the psychological, biological, or developmental processes under*lying mental functioning"* (APA, p. 20). Throughout, the terms mental health problems and mental illness are used interchangeably.

Rationale for systematic review

Findings from the UK (Coid et al., 2013; Wood & Dennard, 2017; Wood et al., 2017) and US (Harris et al., 2013; Madan et al., 2011) show that gang involvement relates to a range of problems such as antisocial personality disorder (ASPD), anxiety, conduct disorders, posttraumatic stress disorder (PTSD), paranoia and psychosis. Coid et al. identified that gang members, compared to violent and non-violent men, suffer higher levels of, and seek more professional help for, mental health difficulties such as anxiety, psychosis, and substance

abuse. Furthermore, affiliate gang members (who have loose associations to the gang) have been found to be as at risk of mental illness as core gang members (committed to the gang; see Petering, 2016). In contrast, Wood et al. (2017) show how gang members experience higher levels of anxiety, ASPD, psychosis, and substance abuse, compared to gang affiliates, but both had levels higher than other violent men. This seems to suggest that as gang membership deepens, so too do mental health problems. Comparisons between gang and non-gang prisoners also shows that gang members suffer higher levels of anxiety, paranoia, and PTSD, – and that each relates strongly to exposure to high levels of violence before incarceration (Wood & Dennard, 2017).

To date, links between gang membership and emotional health has received limited attention. Indeed, Moran (2014, p. 556) states, "gangs - a highly conspicuous youth subculture – are only tangentially analyzed in emotional terms". It makes sense that a range of emotions, such as anger, guilt, rumination, and shame may be experienced by gang members, due to their perpetration of violence and their victimization (Peterson, Taylor, & Esbensen, 2004) and, potentially, their mental health problems. Yet, without research specifically examining gang members' experiences of emotions, we cannot know how these factors relate to gang involvement or to gang members' mental health. This review attempts to develop understanding on gang members, their mental health, and emotionality by reviewing how current gang research has addressed the mental and emotional needs of gang affiliates and members thus far. Accordingly, consideration of how affect and mental illness relate to gang involvement may advance intervention and policy developments, including the need to adequately fund holistic treatment programs to support gang members' rehabilitation.

Although research suggests that gang membership generally attracts discontented adolescent males (see Pyrooz & Sweeton, 2015; Watkins & Melde, 2016), it also shows increasing levels of female gang involvement (Snethen, 2010; Thornberry, Krohn, Lizotte,

Smith, & Tobin, 2003), and that compared to non-gang involved females, gang-affiliated females were at greater risk of sexual victimization (Chettleburgh, 2007; De La Rue & Espelage, 2014). This demonstrates how both males and females suffer violence due to gang connections. Given the consistent evidence regarding the relationship between how childhood and/or adolescent exposure to violence, particularly when coupled with community violence exposure, is related to mental illness (Cecil, Viding, Barker, Guiney, & McCrory, 2014; Kelly. Anderson, Hall, Peden, & Cerel, 2012; Mazza & Reynolds, 1999), investigating the relationship between gang involvement and mental illness in male and female gang members seems crucial for effective tackling of gang membership.

Aims of this review:

Our aim was to systematically review the literature on the mental and emotional health of gang members. Findings: (1) provide an overview of the current landscape on how gang involvement links specifically to the mental and emotional health of gang members; (2) highlight gaps in the literature to inform future empirical work; (3) discuss the implications of findings for research and policy and support the development of clinically tailored and responsive gang-focused interventions. To this end, this review addressed the following research questions:

(1). Do gang members suffer from higher levels of mental health problems (e.g. ASPD, anxiety, depression, paranoia, perpetration-induced trauma (PT), and PTSD) compared to non-gang members and gang-affiliated individuals?

(2). To what extent does the literature examine gang members' experience of emotions, such as anger (including angry rumination), guilt, and shame?

Method

Selection Criteria

Recent developments in evidence-based practice identify the use of specific frameworks to help guide appropriate and relevant literary searches, such as the Participants,

Intervention, Comparison, and Outcome (PICO) framework (Schardt, Adams, Owens, Keitz, & Fontelo, 2007). This highlights the importance of developing inclusion and exclusion criteria that are methodologically and practically sound (see Fink, 2005). Thus, studies included within this review are screened for eligibility based on the following criteria in close adherence to the PICO framework.

Inclusion Criteria

1). Participants. Research suggests that males and females suffer violence due to their gang involvement (Thornberry, Krohn, et al., 2003), with adolescents aged between 11 and 15 years being at greatest risk of gang joining (Esbensen et al., 2008). Despite the temporary nature of gang membership (see O'Brien et al., 2013; Peterson et al., 2004), research examining adult gang members suggests that they too experience mental health difficulties and violence (Wood et al., 2017). This suggests that although gang membership may be transitory for some youth, gang membership effects may well develop into adulthood. Thus, female and male, adolescents and adults, identified as gang affiliates or members, formed the population sample.

2). Comparison. To ensure the outcomes reflect potential differences between gang and non-gang members, papers with delinquent, gang affiliates, gang members, non-gang members, and violent men in clinical, community, and/or forensic populations were included.

3). Outcomes. Studies with outcomes relevant to the research questions under review were synthesized and presented. The outcomes included: emotions, mental health and/or illness, rumination, shame, guilt, and trauma.

4). Study design. To prevent 'intervention-selection bias', the systematic review included various design types (Petticrew & Roberts, 2008). Randomized Controlled Trials (RCT's), experimental studies, quantitative, and qualitative studies, and non-experimental research designs, such as thematic analyses, meta-analyses, and systematic literature reviews

were included. Due to limitations accessing gang populations (e.g. gang members may conceal their membership from researchers), sample sizes of all numbers were considered.

5). Data Extraction. To ensure the quality of papers, only published peer-reviewed research written in the English language were included. Historical and present literature ranging from 1980 to 2017 on gang membership were extracted.

Exclusion Criteria

1). Studies published in languages other than the English language.

Search Process

To maximize the efficacy of the search process, a scoping review was conducted to identify relevant search terms. An automated search was conducted using electronic databases listed in Table 1.

Literature Search

The following search terms were utilized in various combinations: anger, anxiety, juvenile delinquency, depression, emotions, gangs, guilt, mental health, mental illness, paranoia, perpetration, personality disorder, posttraumatic stress, rumination, shame, trauma, and violence (see Appendix A for definitions of search terms). To account for changes in vocabulary, subject headings for each database were scoped, and truncation was used to avoid excluding research papers in error. A Boolean search was also conducted. Figure 1 shows the search process at each stage ranging from the identification of papers to papers included within the narrative synthesis.

Petticrew and Roberts (2008) suggest reviews that include only automated, electronic searches may introduce unintentional bias. Thus, the inclusion of hand searches was important to ensure studies were extracted as per the inclusion/exclusion criteria rather than an inadequate search process. A two-part search strategy including an electronic and manual search of reference lists for all extracted studies meeting the inclusion criteria was employed.

A total of 23 papers were extracted: qualitative (n = 1), quantitative (n = 18), and theoretical (n = 4). Most of the quantitative studies utilized cross-sectional design (n = 13), and a minority of the papers employed longitudinal design (n = 4).

Data Extraction

Research papers were screened using the title and abstract. Selected papers were then screened for the study outcomes. The full texts for studies meeting the inclusion criteria were subsequently reviewed by the primary reviewer and assessed using the quality criteria by Kmet, Lee, & Cook (2004; see Appendices B and C). From each study, the following information was extracted: author(s), date of publication, country of study, study aims, design/measures (e.g. gang membership measure and mental health measures), sample, and comparison group characteristics (e.g. participant numbers, membership status; non-gang, affiliates of gangs, gang members), and study outcomes.

A random sample of papers (e.g. 35% to 40% of papers) were assessed by a secondary reviewer to demonstrate inter-rater reliability. Any disagreement among reviewers was resolved through discussion (see Kmet et al., 2004).

Results

Results are described using a narrative synthesis with a list of all summary scores presented in Tables 2 and 3. The quality assessment criteria devised by Kmet et al. (2004) for multidisciplinary research was utilized. This suggests papers employing a longitudinal design, with a summary score of 0.90 or more, indicates a ‘high-level’ paper. In contrast, papers employing cross-sectional designs with scores of less than 0.50 are considered ‘low-level’ papers.

Do gang members suffer from heightened levels of mental illness compared to non-gang members and gang-affiliated individuals?

There was clear evidence of an association between gang membership and mental illness. This was demonstrated through both cross-sectional (Coid et al., 2013; Wood et al., 2017) and longitudinal (Watkins & Melde, 2016) studies highlighting the need for practitioners, researchers, and law agencies to consider links between gang membership and gang members' mental and emotional health. Papers employing a cross-sectional design, such as Coid et al., Wood et al., and Wood & Dennard (2017) demonstrated that gang involvement links strongly to adverse mental health. For instance, Coid et al. via random location sampling in the UK, compared gang members, violent men, and non-violent men, aged 18 – 34 years on measures of violence, gang membership, psychiatric morbidity (e.g. ASPD, anxiety, depression, psychosis, and substance abuse), and use of mental health services. Similar to Wood et al., their findings illustrated an association between gang membership and psychiatric morbidity whereby gang members displayed the highest levels of psychiatric morbidity and service use, followed by violent men, and non-violent men.

Moreover, Dupere, Lacourse, Willms, Vitaro, and Tremblay (2007) showed how youth suffering from anxiety and hyperactive behavior were more likely to join a gang, and that gang involvement was even more likely if youth resided in neighborhoods characterized by instability, such as high delinquency levels and poverty. Thus, these findings are consistent with theories of gang membership, such as Interactional Theory (see Thornberry et al., 2003), and the Unified Theory of gang involvement (see Wood & Alleyne, 2010), and demonstrate how a range of factors, including individual, environmental, and social factors may exacerbate the risk of vulnerable youth joining a gang. However, given the cross-sectional nature of studies, the causal nature of gang membership and psychiatric morbidity could not be established. That is, it could not be demonstrated whether gang membership linked to an increase in risk of developing a mental health condition or whether mental health conditions pre-dated gang membership.

The screening process revealed one high-level research paper with a longitudinal design examining developmental trends between gang membership and depression. Using data from a longitudinal study of adolescent to adult health across two-time points (see Appendix B for details on design and measures), Watkins and Melde (2016) examined: (1) whether adolescents who later decided to join a gang, compared to the general population, reported significantly higher levels of depression and suicidal internalizing and externalizing symptoms; and (2) whether gang membership aggravated these symptoms. Their findings showed that adolescent gang-members, compared to non-gang adolescents, had higher levels of mental health indicators prior to their membership. They also found that once part of a gang, levels of depression and suicidal ideation increased. Indeed, Watkins and Melde concluded that "if gang youth suffer from internalizing problems manifested through depression…, coupled with the well-documented enhancement effect of gang membership…, their risk for serious mental and physical health problems in late adolescence and early adulthood are exacerbated." (p. 4). Thus, mental illness may increase their likelihood of joining a gang, but once in a gang, they experience further mental health deterioration. This suggests a difference exists between youth who join a gang and those who do not, where pre-existing mental illness may be deemed a risk factor for prospective gang involvement.

The longitudinal work of Watkins and Melde (2016) is valuable and provides a positive contribution to the literature examining the mental health of gang members. Firstly, a robust statistical analysis using propensity score analysis was used where gang membership was assessed at baseline (time point 1) and at 12 months (time point 2), to determine whether a causal relationship exists between mental health difficulties (specifically depression and suicide ideation) and gang membership. Secondly, a range of confounding variables were controlled for to reduce the risk of inaccurate estimates on mental health outcomes. Thus,

this allowed for an increasingly reliable means of estimating whether a bi-directional relationship exists between gang membership and mental health outcomes.

There are, however, limitations to the work of Watkins and Melde (2016). As stated by the authors, employing a national school sample meant that gang members may have been significantly under-represented; especially as gang members have higher levels of educational absenteeism compared to non-gang peers (Peterson et al., 2004). Thus, longitudinal work that provides an additional focus on contexts where gang members are known to operate (e.g. communities with high gang presence and/or forensic samples) may better inform the literature. Furthermore, unlike Wood et al. (2017) who examined the differences between gang members and gang-affiliated individuals, Watkins and Melde, similar to other research, such as, Coid et al., 2013, failed to account for differential levels of gang involvement and mental illness. However, in support of Wood et al.'s finding of differential levels of gang membership, Maxson (1998) suggests that "the terms 'wannabe', 'fringe', 'associate'…reflect the changing levels of involvement…of gang membership…" (p. 2). Thus, some studies are limited because of their narrow take on gang involvement (i.e. they are either gang members or not). The findings by Wood et al. suggests that gang involvement may be more complex with important distinctions to be made between levels of gang involvement (e.g. gang members vs. affiliate gang members) and mental illness.

Across studies, discrepancies were identified in levels of the same mental illness. Some cross-sectional (and cross-cultural) studies report how gang members, as demonstrated in the UK by both Coid et al. (2013) and later by Wood et al. (2017), suffered significantly lower levels of depression, whilst in the US, Petering (2016) and Watkins and Melde (2016), found higher depression among gang-affiliated youth. There may be various explanations for these differences. First, although similarities exist between gangs in the US and the UK, such as similarities in gang-related delinquency (Bennett & Holloway, 2004), cross-cultural

differences between samples have been noted. Gang-affiliated individuals in the UK are generally younger compared to gang members (Alleyne & Wood, 2010) whilst in the US, gang affiliates and gang members are similar in age (Petering, 2016) and gang involvement may be motivated by several factors, including territorial inter-gang violence (see Klein, Weerman, & Thornberry, 2006).

Second, Coid et al. (2013) and Wood et al. (2017) utilized sample data from men aged 18-34 years. In contrast, Petering (2016) and Watkins and Melde (2016) recruited adolescent samples. Thus, it may be that adolescent gang members, who may not yet be fully immersed in gang life, were more likely to self-report their experiences with depression, especially since depressive symptoms may have motivated their gang involvement. Due to the dynamics of gang membership, younger gang members may also fear becoming ostracized from the group if they show vulnerability and are perceived as 'weak' (see Watkins & Melde), which may have contributed to their experiences of depression. Older gang members, on the other hand, may have adopted coping strategies, such as engaging in violence to cope with depressive symptoms and, in turn may experience other mental health difficulties, such as anxiety from their experiences of violence (see Coid et al.). Thus, contrasting findings may result from demographic and socio-cultural differences and the duration of gang membership between samples (adolescent vs. adult members). Age may also have influenced how participants self-reported their experiences of mental illness.

Similar to variations in the conceptualization of mental illness, variation in the measures of mental illness across studies may also explain inconsistent findings. Coid et al. (2013) and Wood et al. (2017) employed the Anxiety and Depression Scale (Zigmund & Snaith, 1983), which required participants to score 11 or more on indictors of depression. The measure of depression used by Petering (2016) and Watkins & Melde (2016) was the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) and this

required a lower score of 7. Although both measures have high internal consistency, (a =.83; Bjelland, Dahl, Haug, Neckelmann, 2002; vs. a =.85 - .90; Radloff) respectively, both are suited for a variety of populations. The Anxiety and Depression Scale was designed for clinical settings and the CES-D for the general population. The rationale for employing each measure with gang members is understandable. Gang members are likely to attend emergency hospital departments due to gang-related violence and also live in the community. Nonetheless, using different measures prevents conclusions being drawn regarding the relationship between gang membership and mental illness.

Due to the cross-sectional design employed in most studies, the causal mechanisms between mental health and gang involvement could not be inferred. However, cross-sectional papers, especially those of a higher quality (e.g. >0.90; see Table 4 for all sum scores), suggest that there are links between gang membership and mental illness. Studies (Coid et al., 2013; Petering, 2016; Wood et al., 2017) show that gang members experience mental ill health and that this relates to their exposure to violence. Yet, at present, the ability to draw conclusions regarding the underlying mechanisms surrounding gang membership and mental health remains unclear as shown in a recent review of the literature by Beresford and Wood (2016) who concluded that although there is a scarcity of research in the area, gang-related violence has behavioral, social, and psychological consequences.

Kelly's (2010) review of the effects of gang violence on adolescents concluded that anxiety, ASPD, depression, and use of violence were among the outcomes associated with adolescents' exposure to gang-related community violence. However, Kelly also stated how "…these studies had limitations, including use of convenience samples, self-reports, and cross-sectional surveys, and a lack of causal links between variables" (p. 67). For example, research by Harper, Davidson, and Hosek (2008), examining African-American homeless youth on negative emotions, substance use, and antisocial behavior, concluded that gang

members had higher levels of mental illness, as well as higher involvement in antisocial and violent behavior. However, use of self-report measures, a small sample size, and one-time point prevented clear and causal conclusions. Such methodological constraints are also found in the Harris et al. (2013) study which reported that gang membership linked to higher conduct disorder, oppositional defiant disorder, PTSD, and substance abuse. Thus, methodological limitations continue to cloud our ability to draw definitive conclusions on the gang-mental health nexus.

Some studies used additional sampling techniques to increase the reliability of estimates relating to gang membership effects (see Marshall, 1996). For example, Coid et al.'s (2013) study used random location sampling to over-sample populations with high levels of gang activity. Thus, the ability to estimate an association between gang membership and psychiatric morbidity is enhanced. However, since gang membership also occurs in rural areas (Watkins & Taylor, 2016), the need to sample populations in both urban and rural communities is important to further understanding about the differences (if any) between gangs in diverse geographical locations. This suggests that robust longitudinal, multi-site, empirical work is needed to develop understanding of the causal mechanisms surrounding gang membership and mental illness.

In most papers gang membership was self-reported (see Appendix D). Indeed, self-reported gang membership is considered a reliable form of identifying gang membership (see Esbensen et al., 2001); and it is of interest and importance to gauge how youth who self-report and identify themselves as gang members also report their mental health experiences. They may be at risk youth who present a range of social, emotional, and behavioral needs which need to be understood, responded to, and treated. Their identification with gangs may form part of a significant group process, whereby the gang provides a social support network and promotes a sense of belonging and safety (see Wood, 2014), which may be seen as a

means of reducing personal suffering. However, self-reports are vulnerable to subjective interpretations of belonging to a gang. Consequently, inaccurate conclusions may be drawn and impact on intervention and policy initiatives.

Although Esbensen et al. (2001) note that self-nomination is valuable in assessing gang membership, objective measures are surely the 'gold standard' methodology because they reduce the likelihood that individuals will 'big themselves up' or 'play themselves down' – in other words, have their own agenda for the responses they give. Accordingly, ensuring consistency when measuring gang membership is crucial if professionals - researchers and practitioners are to develop their understanding of gang members' mental health. A robust, gang measurement tool, such as the Eurogang Youth Survey (Weerman et al., 2009), allows professionals to establish gang membership via a series of questions in addition to a self-report assessing whether youth also perceive themselves as gang members (Esbensen & Weerman, 2005). However, only a handful of studies in this review (n = 4) used the Eurogang definition. This suggests that inconsistencies in the definition of a gang may also lead to at best incomparable and at worst, inaccurate conclusions about the links between gang membership and mental illness.

Gang-related violence and mental illness

Across papers, the role of violence featured prominently and was associated with mental illness. Coid et al. (2013) reported how positive attitudes towards violence and frequent experiences of violent victimization linked to an increase in levels of ASPD and service use. Wood et al. (2017) supported these findings and demonstrated how affiliate and gang members, both of whom had higher symptom levels of mental illness than non-gang violent men, would respond with violence if they felt disrespected and yet affiliates, who were less involved in a gang and hence its violence, had lower levels of mental ill health. This supports other findings (Mrug, Loosier, & Windle, 2008), which show how higher levels

of internalizing and externalizing conditions, such as anxiety, PTSD, and psychosis, link to violence. Corcoran, Washington, and Myers (2005) suggest that the mental health of gang members and their antisocial behavior is what separates them from non-gang involved youth and both need to be addressed in gang interventions. Yet, despite evidence showing an association between gang-related violence and mental illness, directionality could still not be determined.

Madan et al. (2011) noted how witnessing community violence and delinquency positively mediated the relationship between suicidal behaviors and gang membership. However, their results showed no direct association between gang membership and anxiety or depression. Since gang members typically have lower levels of attainment (Levitt & Venkatesh, 2001), it is possible that members are unable to articulate specific affective and mental health difficulties and potentially engage in externalizing behaviors, such as suicidal behaviors, to ease the distress of internal suffering. Moreover, Madan et al.'s cross-sectional assessment cannot explain whether, and if so, how, gang membership influences mental health over time. Equally, it cannot explain the role that mental health plays in joining a gang. Thus, in line with previous contentions, the need remains to understand why some youth exposed to the same risk factors (e.g. suffer from mental health and reside in unstable, poor locations) do not join a gang, whilst others do (Thrasher, 1927; see Watkins and Melde, 2016). The scant longitudinal work available so far, suggests that pre-existing mental health difficulties may contribute to young people's decisions to join a gang and, in turn, this supports the notion that gang membership results from a range of pre-existing risk factors (Howell & Egley, 2005; Thrasher; Watkins & Melde, 2016; Wood & Alleyne, 2010).

Some authors theorize that gang members may be considered as similar to child soldier victims and perpetrators in war because adolescents who experience traumatic events at a crucial period in their life development may be increasingly susceptible to suffer

'developmental trauma' (Kerig, Wainryb, Twali, & Chaplo, 2013). Recent findings support this by showing how street gang prisoners, compared to non-gang prisoners, have experienced more exposure to violence and also have higher symptom levels of anxiety, paranoia, and PTSD (Wood & Dennard, 2017).

Building on this theoretical proposition, Kerig et al.'s (2016) work examined how gang members' mental health may also suffer due to their perpetration of violence. The authors found that both male and female gang members experienced traumatic events and presented posttraumatic stress symptoms, such as dissociation, numbing, and perpetrator trauma (PT). They reported how male gang members were more likely to suffer from trauma due to witnessing and experiencing community violence, whereas female gang members, were exposed to trauma via emotional abuse. Although no significant differences were found in PTSD outcomes between gang and non-gang members, female gang members compared to non-gang female members were more likely to be diagnosed with PTSD. However, this contrasts with the Wood and Dennard's (2017) findings, but this could be because the Wood and Dennard sample were slightly older (18 – 29 years vs. 11 – 18 years) and so symptoms of PTSD had more time to develop.

Some other conflicting findings were found in cross-sectional studies. For example, Cepeda, Valdez, and Nowotny (2016), who matched samples of delinquents and gang members, compared trajectories of childhood trauma: emotional, physical, and sexual abuse. Cepeda et al. reported lower scores across all trajectories of trauma among gang members, aside from physical neglect. Thus, their findings suggest that gang joining may result from cultural, familial, and social factors rather than mental health. Specifically, gang membership was 'intergenerational' and linked to economic deprivation where families sought to meet financial needs through gang membership. However, Cepeda et al.'s findings require careful interpretation. Their findings represent responses from just one Mexican American

community, which may not be generalizable to broader socio-cultural contexts rife with gang involvement.

To What Extent Does the Literature Examine Gang Members' Emotionality? The search process indicated a limited quantity of literature exploring the links between gang membership and emotionality. The available research evidence, such as Vasquez, Osman, & Wood, 2012, demonstrated how gang membership was associated with increased levels of angry rumination – "repetitive thinking about aversive events, including provocations" (Vasquez et al., p. 89). Furthermore, the study by Coid et al. (2013) revealed how rumination and fear and experiences of victimization were associated with higher levels of anxiety. However, as with most studies, male-only samples were recruited, which limits understanding of female gang members' emotional and mental health needs. Vasquez et al., however, did include a female sample but they found that only males affiliated with gangs, experienced high rumination and were likely to displace their aggression towards innocent others; female gang members did not.

The search process did not identify papers that directly examined shame and guilt in gang members. However, research examining delinquent populations shows how guilt is linked to lower levels of delinquency and shame is linked to increases in levels of offending and risky behaviors (e.g. Schalkwijk, Jan Stams, Stegge, Dekker, & Peen, 2016; Stuewig et al., 2015). Given the links between gang membership and delinquency, empirical research focusing on the gang members' emotions may provide useful insight in the development of intervention programs that aim to mediate cycles of violence. For instance, in one study gang members and affiliates both expressed regret over some of their violence (Wood et al., 2017). This suggests that gang members may experience guilt and/or shame proneness (how prone one is to experiencing each emotion; see Tangney, Stuewig, & Mashek, 2011) due to their violent acts but because they may be reluctant to express such emotions during their

membership, they may experience continued emotion dysregulation even after leaving the gang (see Melde & Esbensen, 2013). Nonetheless, given the sparsity of research examining gang members' emotions, there is a lack of literature to clarify such speculations and so, currently, we are left with only tentative theoretical propositions. Research needs to examine both the emotions and mental health of gang members, as both are likely to inter-relate. Additional research on emotions and mental health, therefore, can further develop our understanding of gang-related needs to enhance the responsivity of gang-targeted interventions.

Discussion

This review provides an overview of the existing research into the mental and emotional health of gang members. Narrative synthesis reveals gaps in the literature and methodological issues that preclude conclusions regarding the causal mechanisms between variables. Studies identified were largely cross-sectional and of those that were not (e.g. longitudinal, retrospective), methodological limitations such as a lack of comparable groups, and inconsistencies with measuring gang membership, prevent conclusions. Nonetheless, our findings suggest that gang members are a vulnerable sub-group of offenders who have a range of mental health and potentially, emotional needs. This review also included female gang members yet they appeared in only a handful of studies. For instance, despite the lack of clarity regarding the causal mechanism between gang membership and mental health, the findings by Kerig et al. (2016) revealed how PTSD symptoms among gang members was associated with the perpetration of violent crimes, but only female gang members had levels of symptoms relevant to the criteria for posttraumatic stress diagnosis. This suggests that gender differences may have significant implications for gang research and interventions, especially given the current reported increase in female gang participation (Snethen, 2010).

The measures for diagnosing mental health in studies also employed differential measures which were designed for varying populations (e.g. measures for clinical vs. community samples). This has clinical implications since some gang members may, dependent on the assessment used, be wrongly, or not, diagnosed. Inaccurately identifying the mental health needs of gang members, who may have a range of unmet needs, may contribute further to maladaptive behavior and contribute to the onset and/or persistence of mental illness. This was demonstrated in the case of 'GH' where an unrecognized mental health illness (PTSD) was missed by clinicians (see Bailey et al., 2014). Consequently, the sporadic behavior displayed by 'GH', was misunderstood and not treated. Any diagnosis with this population should be approached with caution given that most gang members reside in urban neighborhoods characterized by significant socio-economic deprivation, where delinquency and gang membership may be used as a means of coping (Bailey et al.; Watkins & Melde, 2016). However, as seen with the case study presented by Bailey et al. and the findings by Coid et al. (2013) and Wood et al. (2017), gang members' elevated fear of victimization, anxiety, and reported increased service use, suggests that their needs are several. Thus, future research should learn from existing studies and engage in multi-agency work including systemic practice between the criminal justice system and mental health services to develop appropriate mental health screening tools specific to gang members.

Indeed, the extent to which current interventions in the CJS, such as gang exit programs include targeting the emotional and mental health needs of gang-affiliated individuals and members is unclear (Mayor's Office for Policing and Crime, 2014); with trauma-related interventions for gang members only introduced in recent years (Bailey et al., 2014).

It is also imperative that emotions are given more attention in the gang literature. The examination of gang members' emotional experience has important implications for their

treatment, in addition to, prevention work among vulnerable individuals at risk of gang involvement. For instance, we do not know how guilt and shame proneness vary according to differential involvement and status within a gang. We also do not know if gang affiliates become increasingly prone to experiencing guilt due to their fleeting, as opposed to fixed, involvement with gang-related criminality. If so, it may be that affiliate gang members are more 'malleable to treatment' than those more deeply involved in a gang (see Wood et al., 2017). We also do not know how emotions such as shame and guilt link to gang members' heightened engagement in criminality and violence and how these emotions relate to the rehabilitation of gang members. Research that attempts to answer such questions is sparse and as such, this review has identified more questions than answers. Thus, there are significant clinical, research, and policy implications invested in the conducting of research related to the mental and emotional health of gang members. Nonetheless, methodological issues such as the measurement of mental health and study designs must be addressed if gang research is to influence clinical and policy settings and benefit individuals and communities.

As with any study, the current review is not without its limitations. Any review may miss significant papers that have recently been published and this review is no exception. However, our two-part search strategy adopted until very near the write-up process hopefully minimized this effect. The magnitude of gang literature required that comprehensive inclusion criteria was used to ensure relevant papers were not excluded. These ample criteria resulted in difficulties extracting relevant information from studies to assess suitability. For instance, the screening process included an initial screening of the title, abstract, and study outcomes (listed within the method section). However, gang members form part of a delinquent population, and some studies may have included gang members in their delinquent samples, though this was not evident from the initial screening process. Gang members are also hard-to-reach participants, and therefore, to ensure the review was as informed as

possible, sample sizes regardless of how small, were included in this study. Consequently, our conclusions may not be based on national or international representations of gang members. Understandably, this raises further questions about the quality and applicability of empirical work in this area. However, such issues suggest even more the need for additional and increasingly robust empirical research that seeks to address these methodological concerns. Lastly, this review included only those studies published in the English language due to the researchers being English-speakers and so the data extracted may have dismissed important gang-related work published in other languages. Nonetheless, despite the above limitations, this systematic review, to our knowledge, is the first to synthesize the literature on the mental and emotional health of gang members and it identifies some important gaps in the current academic literature that may be addressed in future empirical work.

Conclusion

This review examined current literature on the mental and emotional health of gang members. It identifies that current research, whilst invaluable to further our understanding, must progress to include rigorous, longitudinal, multi-site, with robust measures. Furthermore, the review indicates that a role exists for academics across disciplines to engage in systemic practice and promote inclusion by examining the mental health and emotional health needs of vulnerable young people at risk of gang involvement. Our findings suggest that there are significant preventative and rehabilitative implications for gang desistence and prevention invested in further empirical examinations of the mental health and emotions of at risk and gang populations.

Figures

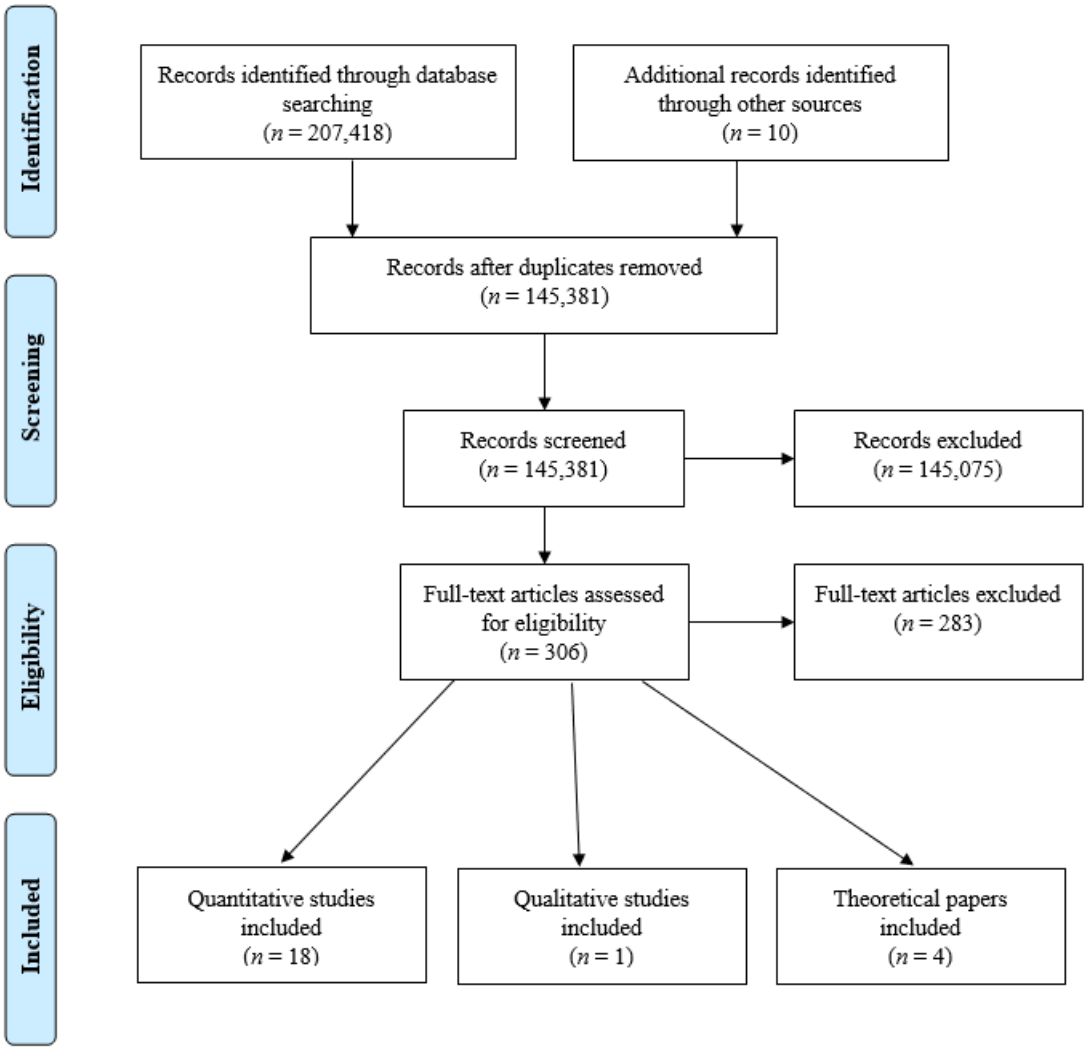

Figure 1. Search process of systematic review adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA; Moher, Liberati, Tetzlaff, Altman; 2009).

Tables

Table 1

Electronic databases utilized in a systematic automated search to identify peer-reviewed research.

Electronic Databases	
Academic Search Complete	PsycINFO
Cochrane Database of Systematic Reviews	PubMed
Criminal Justice Abstracts	Scopus
National Institute of Clinical Excellence (NICE)	Web of Science
PsycARTICLES	

Table 2

Quality Assessment of Quantitative Studies (Kmet et al., 2004)

Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Sum Score
Alleyne & Wood (2010)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	No (0)	Yes (2)	Partial (1)	Total sum: 19 Total possible sum: 22 Summary score: 0.86
Ang et al. (2015)	Yes (2)	Yes (2)	Partial (1)	Partial (1)	N/A	N/A	N/A	Yes (2)	Partial (1)	Yes (2)	Yes (2)	Partial (1)	Yes (2)	Partial (1)	Total sum: 17 Total possible sum: 22 Summary score: 0.77

Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Sum Score
Cepeda et al. (2016)	Yes (2)	Partial (1)	Yes (2)	Partial (1)	N/A	N/A	N/A	Partial (1)	No (0)	Partial (1)	Yes (2)	Yes (2)	Yes (2)	Partial (1)	Total sum: 15 Total possible sum: 22 Summary Score: 0.68
Coid et al. (2013)	Yes (2)	Yes (2)	Yes (2)	Partial (1)	N/A	N/A	N/A	Partial (1)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Total sum: 20 Total possible sum: 22 Summary Score: 0.91
Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Sum Score

Corcoran et al. (2005)	Yes (2)	Partial (1)	Partial (1)	Partial (1)	N/A	N/A	N/A	Yes (2)	Partial (1)	Partial (1)	Partial (1)	Yes (2)	Partial (1)	Partial (1)	Total sum: 14 Total possible sum: 22 Summary Score: 0.66
Dmitrieva et al. (2014)	Yes (2)	Yes (2)	Yes (2)	Partial (1)	N/A	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Total sum: 21 Total possible sum: 22 Summary Score: 0.95
Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Sum Score
Dupere et al. (2007)	Yes (2)	Partial (1)	Yes (2)	Yes (2)	N/A	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Partial (1)	Yes (2)	Yes (2)	Total sum: 20

														Total possible sum: 22 Summary Score: 0.91
Harper et al. (2008)	Yes (2)	Yes (2)	Partial (1)	Partial (1)	N/A	N/A	N/A	Yes (2)	Partial (1)	Yes (2)	Partial (1)	No (0)	Yes (2)	Yes (2)	Total sum: 16 Total possible sum: 22 Summary Score: 0.73
Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Sum Score
Kerig et al. (2016)	Yes (2)	Yes (2)	Partial (1)	Yes (2)	N/A	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	Partial (1)	Partial (1)	Yes (2)	Partial (1)	Total sum: 18

Li et al. (2002)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	N/A	Yes (2)	Partial (1)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Total possible sum: 22 Summary Score: 0.82 Total sum: 21 Total possible sum: 22 Summary Score: 0.95
Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Sum Score
Madan et al. (2011)	Yes (2)	Yes (2)	Partial (1)	Partial (1)	N/A	N/A	N/A	Yes (2)	Partial (1)	Partial (1)	Partial (1)	Partial (1)	Partial (1)	Partial (1)	Total sum: 14

															Total possible sum: 22 Summary Score: 0.64
Melde & Esbensen (2013)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Total sum: 22 Total possible sum: 22 Summary Score: 1

Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Sum Score
Vasquez et al. (2012)	Yes (2)	Partial (1)	Partial (1)	Yes (2)	N/A	N/A	N/A	Partial (1)	Yes (2)	Yes (2)	Partial (1)	Yes (2)	Yes (2)	Partial (1)	Total sum: 17

															Total possible sum: 22 Summary Score: 0.77
Watkins & Melde (2016)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Total sum: 22 Total possible sum: 22 Summary Score: 1

Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Sum Score
Wood & Dennard (2017)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	N/A	Yes (2)	Partial (1)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	Partial (1)	Total sum: 20

															Total possible sum: 22 Summary Score: 0.91
Wood et al. (2017)	Yes (2)	Yes (2)	Yes (2)	Yes (2)	N/A	N/A	N/A	Yes (2)	Yes (2)	Yes (2)	Partial (1)	Yes (2)	Yes (2)	Partial (1)	Total sum: 20 Total possible sum: 22 Summary Score: 0.91

Table 3

Quality Assessment of Qualitative Studies (Kmet et al., 2004)

Author	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Sum Score
Bailey et al. (2014)	Yes (2)	Partial (1)	Yes (2)	Yes (2)	No (0)	Partial (1)	Partial (1)	No (1)	Yes (2)	Yes (2)	Total sum: 13 Total possible sum: 20 Summary Score: 0.65

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Appendix A

Definition of Terms

Antisocial Personality Disorder	"An enduring pattern of unlawful behavior, aggressiveness, deceitfulness, impulsivity, irresponsibility, reckless disregard for the welfare of others, and/or remorselessness manifest during adulthood, as well as evidence of conduct disorder in childhood or adolescence (see Edens, Kelley, Skeem, Lilienfeld, & Douglas, 2015. p. 123).
Anxiety	Anxiety is characterized by feelings of unease and worry experienced consistently and effecting daily life. (APA, 2013).
Depression	Depression is characterized by a state of consistent low mood. (APA, 2013).
Gang	A durable, street-orientated youth group whose involvement in illegal activity forms part of its group identity (Weerman et al., 2009, p.20).
Guilt	Guilt can arise from wrongful conduct, but is related to regret over a particular act, rather than an attack on the self. Guilt has been found to be reparative and motivates the individual to correct his/her transgression (Lewis, 1971).
Mental Health	A state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and can contribute to her or his community (World Health Organization, 2014).

Paranoia	It is characterized by a sense of fear that others wish to cause you harm (see Bebbington et al., 2013). Paranoid thinking may characterize mental health, such as psychosis, if experienced consistently and regularly, but it is also present among the general population.
Perpetration Induced Trauma	Individuals who commit acts of violence or inflict harm on others may suffer trauma symptoms as a consequence (see Kerig et al., 2016).
Posttraumatic Stress Disorder	A form of anxiety disorder that develops following exposure to an extremely threatening or catastrophic event, such as sever violence. Symptoms include re-experiencing the traumatic event, avoidance of stimuli associated with the trauma, feeling emotionally flat, and increased arousal (Public Health England: Meeting the mental health needs of gang-affiliated young people, 2015).
Rumination:	"The process of thinking perseveratively about one's feelings and problems rather than in terms of the specific content of thoughts" (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008. p. 400).
Self-conscious emotions	Self-conscious emotions require self-awareness and mental representations of the self. These emotions include embarrassment, guilt, pride, or shame. (Tracy & Robins, 2004).

Shame:	Shame can occur due to committing a transgression or behavior, which causes the individual to attribute this to an inadequate self (e.g. “I am awful, I can’t believe I did that”; Lewis, 1971).

Appendix B

Kmet et al. (2004) inclusion and quality criteria for quantitative studies included in systematic review.

Question No.	Questions for inclusion of quantitative studies
1.	Is the question or objective sufficiently described?
2.	Is the design evidence and appropriate to answer the study question?
3.	Is the method of subject selection (and comparison group selection, if applicable) or source of information input variables (e.g. for decision analysis) described and appropriate?
4.	Are the subject (and comparison group, if applicable) characteristics or input variables information (e.g. for decision analysis) sufficiently described?
5.	If random allocation to treatment group was possible, is it described?
6.	If interventional and blinding of investigators to intervention was possible is it reported?
7.	If interventional and blinding of subjects to intervention was possible, it is reported?
8.	Are outcome and (if applicable) exposure measure(s) well defined and robust to measurement/misclassification bias? And are means of assessment reported?
9.	Is the sample size appropriate?
10.	Is the analysis described and appropriate?
11.	Is some estimate of variance (e.g. confidence intervals, standard errors) reported for the main outcomes and results (e.g. those directly

addressing the study question/objective upon which the conclusions are based)?

12. Are confounding factors controlled for?

13. Are results reported in sufficient detail?

14. Do the results support the conclusions?

Summary Score: Total sum: (number of "yes" * 2) + (number of "partials" * 1)

Total possible sum: 28 – (number of "N/A" * 2)

Summary Score: total sum / total possible sum

Appendix C

Kmet et al. (2004) inclusion and quality criteria for qualitative studies included in systematic review.

Question No.	Questions for inclusion of quantitative studies
1.	Is the question or objective sufficiently described?
2.	Is the design evidence and appropriate to answer the study question?
3.	Is the context for the study clear?
4.	Connection to a theoretical framework/wider body of knowledge?
5.	Sampling Strategy described and systematic?
6.	Data collection methods clearly described and systematic?
7.	Data analysis clearly described and systematic?
8.	Use of verification procedure to establish credibility?
9.	Conclusions supported by the results?
10.	Reflexivity of the account?
Summary Score:	Total sum: (number of "yes" * 2) + (number of "partials" * 1)
	Total possible sum: 20
	Summary Score: total sum / total possible sum

Appendix D

Studies included in Systematic Review

Author(s)	Study Aims	Sample	Comparison Group	Design/Measures	Outcomes
Alleyne & Wood (2010) United Kingdom	The study explored the behavioral, psychological, and social characteristics specific to gang-related crime when compared to group crime perpetrated by non-gang youth aged 12 – 18 years. Two objectives were proposed (1) identify the typology of crime committed by gang members and (2) examine what the specific	Total: n = 798 (male: n = 566; female: n = 232) Gang members: n = 59 (male: n = 38; female: n = 21)	Non-gang youth: n = 739 (male: n = 528; female: n = 211)	Design: Quantitative, cross-sectional design. Gang membership: Eurogang Youth Survey	The results revealed differences in the types of crime committed by gang vs. non-gang youth whereby gang members engaged in higher levels of group crime overall. In addition, specific types of criminal activity committed more so by gang members included: threatening people, robbery, theft and destroying property.

	characteristics that are conducive to group crime committed by gang members compared to non-gang members.				
Ang et al. (2015) Singapore	The study examined whether delinquency, psychopathy, aggression and school engagement was significantly associated with gang membership.	Total: n = 1027 Gang members: n = 51 (based on 5% prevalence rate).	Non-gang affiliated youth: n = 976	Design: Quantitative, cross-sectional study. Gang membership: Participants were asked to self-report whether they had ever been involved in gang fights or belonged to a gang. Psychopathy (including callous-unemotional behavior): Antisocial processes screening device.	A significant relationship between psychopathy and gang membership was not found.
Bailey et al. (2014) United States	The study aimed to provide a case study examination of a young, male, ex-gang	Previous gang member aged 18 years, of	N/A	Design: Qualitative, case study. Gang membership: Identified through historical case notes	In his initial screening using M.I.N.I, GH was diagnosis with social anxiety disorder, but no

member named GH engaging in an intervention program and assess outcomes including psychological well-being, delinquency, and employment.	Latin-American descent: n = 1	documenting gang involvement at age 16. Mental health: General mental health: Mini-International Neuropsychiatric Interview, a brief screening instrument for mental illnesses. Anxiety: The Anxiety Disorders Interview Schedule (ADIS-IV). PTSD: PTSD section of the ADIS-IV. ASPD and Conduct Disorder: Antisocial Behaviors scale, Negative and Positive Impressions Scale from Personality Assessment Inventory (PAI).	other mental health difficulties. Review progress reports revealed that although GH demonstrated enthusiasm and attended the intervention program regularly, he demonstrated maladaptive patterns of behavior irregularly, such as engaging in fights, substance abuse, and delinquency. The case study reported that GH was aware of his transgressions but 'did not understand his own behavior' (p.201), with counsellors also being unable to fully identify his behavior. A psychological assessment towards the end of his

					intervention program revealed that due to GH's experiences of violence as a perpetrator, victim, and witness, he presented symptoms, such as hyper-arousal/vigilance, flashbacks and emotional numbing, consistent with a diagnosis of PTSD, which was unrecognized during his attendance to the intervention program. Consequently, unrecognized PTSD resulted in recidivism and lapsed success of the treatment program.
Beresford & Wood (2016)	A review of gang and other research examining the links between gang membership	N/A	N/A	Design: Theoretical paper/literature review.	Using a wide range of literature, such as referring to child soldiers and mental health, the authors

United Kingdom	and mental health conditions.				concluded that gang membership exposes members to a range of difficulties, including psychological and social problems. The authors suggest directions for future research and the development of interventions.
Cepeda et al. (2016) United States	The authors examined childhood trauma by comparing traumatic events between Mexican American gang members and delinquents with normative samples of adolescent inpatients and an undergraduate sample.	Total: n = 75 males Gang members: n = 50	Non-gang delinquent group: n = 25	Design: Quantitative, cross-sectional, pilot study. Gang membership: Gang membership was defined using the definition by Valdez and Sifaneck (2004; as cited in Cepeda et al., 2016) "…a group of adolescents who engage in collective acts of delinquency and violence, and are perceived by others and	Findings revealed that gang members reported lower levels on all categories of abuse excluding neglect – were levels demonstrated least variation. Thus, although delinquent participants reported overall higher levels of physical neglect, there was no significant difference between groups.

				themselves as a distinct group" (p. 206). Trauma: Childhood Trauma Questionnaire (28-item measure with 5 subscales; emotional abuse, emotional neglect, physical abuse, physical neglect and sexual abuse).	Furthermore, the emotional needs of gang members seem to have been met and in part characterized by familial gang joining due to economic deprivation and social exclusion, more so than emotional abuse.
Coid et al. (2013) United Kingdom	To examine associations between gang membership, psychiatric morbidity, violence and use of mental health services.	Total: n = 4,664 men only aged 18-34 years. Gang members: n = 108	Non-violent men: n = 3,285 Violent men: n = 1,272	Design: Quantitative, cross-sectional survey using random location sampling. Gang membership: Self- report: "Are you currently a member of a gang?" and opting for one of three	Findings revealed increased levels of psychiatric morbidity (excluding depression), service use, positive attitudes towards violence and violent victimization among gang members compared to violent and non-violent men.

				statements: (1) participation in serious criminality, (2) involvement with delinquent friends, or (3) gang fights. Mental health: Psychosis Screening Questionnaire. Questions from Structured Clinical Interview for DSM-IV Personality Disorders for ASPD. The Hospital Anxiety and Depression Scale. Alcohol and Drug Use Identification Test.	Violent characteristics accounted for high levels of anxiety and psychosis in gang members, but not violent men.
Corcoran et al. (2005)	The study addressed whether incarcerated gang	Total: n = 73 male	Non-gang members:	Design: Quantitative, cross-sectional study.	Analyses revealed that compared to non-gang members, gang

United States	members report more mental health symptoms and behavioral difficulties, increased antisocial criminality, and whether the differences between gang and non-gang members were predicted by mental health symptomology.	participants aged 13 – 19 years Gang members: n = 24	n = 49	Gang membership: Not sufficiently described, but self-report membership briefly indicated. Mental health: Oregon Mental Health Referral Checklist (OMHRC). The OMHRC assessed numerous symptoms from hallucinations to anxiety. External and Internal symptoms related to behavior problems were also assessed via the Child Behavior Checklist (CBCL) to identify behaviors, such as aggressiveness, anxiety, depression, delinquency, social problems, and thought problems.	members experienced greater mental health symptoms (e.g. hallucinations, suicide attempts, and anxiety), behavior problems (e.g. aggressiveness and delinquency), and reported increased levels of antisocial conduct 12 months prior to their incarceration. However, the association between mental health and levels of antisocial criminality was not supported. Thus, the authors concluded that even when addressing the mental health needs of gang members, antisocial criminality should also be of focus in interventions.

Dmitrieva et al. (2014) United States	The study examined how self-esteem, psychopathy, and psychosocial maturity relate to youth gang status (low-level vs. gang leader), both as predictors and consequences of gang membership.	Total (all male): n = 1,170 Gang Leaders: n = 130. Affiliate members: n = 305.	Delinquent non-gang youth: n = 735	Design: Quantitative, longitudinal study over 7-year period utilizing hierarchal level modelling to assess changes in gang status over time. Gang membership: Participants were asked to self-report gang membership and their position in the gang: “Have you ever or are you currently in a gang?” and whether they were a gang member or gang leader. Mental health: Youth Psychopathic Traits Inventory. The YPI is a three-dimensional measure of grandiose-manipulation,	Both similarities and differences were found between low-level and high-level gang members. Over the period of 7 years, both gang members and gang leaders showed higher levels of psychopathy. Thus, both low-level members and gang leaders showed higher ss on dimensions of grandiose-manipulation, callousness-unemotionality, and impulsiveness-irresponsibility. However, gang leaders, when compared to low-level gang members, were characterized by high levels of grandiose manipulations traits.

				callousness and unemotionality, and impulsiveness and irresponsibility.	Interestingly, changes in impulsive-irresponsible traits at a younger age, but not in adulthood was associated with holding a leadership position in a gang.
Dupere et al. (2007) Canada	The study investigated whether neighborhood characteristics, such as residential instability or economic deprivation when combined with individual's predisposition to psychopathic traits predicted youth gang joining.	Total (all male): n = 3,522 Gang members: n = 211	Non-gang youth: n = 3,311	Design: Longitudinal survey of adolescents using parental reports. Gang membership: Participants self-reported whether they were "part of a gang that broke the law by stealing, hurting people, damaging property, etc." Mental health: Anxiety (and hyperactivity and pro-sociality) levels were assessed by parental self-reports adapted from the Montreal Longitudinal Survey.	Findings revealed that youth with pre-existing psychopathic tendencies were more likely to join a gang, and this effect was heightened when youth resided in residentially unstable as opposed to economically disadvantaged areas.

Harper et al. (2008) United States	The study investigated outcomes for negative affect, substance use, and antisocial behavior among homeless male youth aged 16 to 21 years.	Total: n = 69 Gang members: n = 31	Non-gang members: n = 38	Design: Quantitative, cross-sectional study. Gang membership: 1 self-report item: "Are you a member of a gang?" Mental health: Anxiety: State-Trait Anxiety Inventory Depression: Center for Epidemiological Studies-Depression Scale	Gang involved homeless youth reported greater levels of antisocial behavior (e.g. gang fights and vandalism), negative affective states of anxiety and depression and violence compared to non-gang youth.
Harris et al., (2013) United States	The study aimed to investigate levels of psychiatric disorders (adjustment disorder, conduct disorder, PTSD, substance abuse,	Total (males and females): n = 7,615 Gang members: n = 833	Delinquent population of non-gang members: n = 5,537.	Design: Quantitative, retrospective record review of mental health data obtained by master or doctoral professionals at a detention center, Data was obtained through clinical	Findings supported the author's conclusions whereby gang members, compared to non-gang members, revealed greater odds of suffering from conduct disorder, oppositional defiant

	oppositional defiant disorder, and substance abuse) among adolescent delinquents. The author's reviewed data to compare outcomes on these mental health indicators for gang members, gang affiliates and non-gang members.	Gang affiliates: n = 2,911		interview and available medical records. Gang membership: Participants were asked to self-report gang membership having been asked whether they were: (1) gang members; (2) friend of a gang member (affiliate) or (3) non-gang members. Mental health: This was obtained through clinical interviews and medical records, but specific measures used to obtain this data was unspecified.	disorder, PTSD, and current (and not past) substance abuse. However, no differences between PTSD levels for gang affiliates and non-gang members were found, with levels of adjustment disorder for both gang and affiliate members lower than non-gang members.
Kelly, S. (2010) United States	A review of the literature on the psychological effects of exposure to gang related	The report included an inclusion and	N/A	N/A	The report revealed that methodological issues are present amongst research examining the

violence among adolescents. The review focused on papers whereby community violence included gang violence and papers which solely focused on gang violence.	exclusion criteria whereby comparable populations were included, with a consideration of gang vs non-gang and gender differences.	psychological influence of exposure to gang violence in the community. It found that although research is lacking in this area, internalizing (e.g. depression and anxiety) and externalizing (e.g. antisocial behavior, use of violence) were found to be the reactions of adolescents exposed to some form of community violence relating to gang activity. Their review highlighted the need for collaborative, longitude work examining the mental health of gang members.

Kerig et al. (2013)	A theoretical paper examining research on child soldiers and their experiences of PTSD, developmental, and perpetration induced trauma due to violence exposure. The authors aimed to apply research findings from work with child soldiers to inform a research agenda, which assesses trauma exposure among gang members, given their similar exposure to violence at different levels (e.g. as victims of violent	N/A	N/A	Design: Theoretical, literature review identifying similar themes from literature on child soldiers to the study of trauma among gang members.	The review suggests that future research on gang involvement and associated trauma can learn from previous research on child soldiers. They suggest that understanding the moral agency and varying experiences of trauma, interventions for gang desistence would be better informed.

	victimisation and perpetrators of violence).				
Kerig et al. (2016)	The study explored the construct of perpetration-induced trauma (PT), symptoms of posttraumatic stress and gang membership among a youth sample aged 11 to 18 years from a detention center.	Total: n = 660 (males: n = 484; females: n = 176). Gang members: n = 239 (male: n =; 175 females: n = 64)	Non-gang members: n = 421 (male: n = 312; female: n = 109)	Design: Quantitative, cross-sectional study. Gang membership: Participants were asked three questions to self-report either current or previous gang membership; (1) whether they currently or had recently identified themselves as being members of a street gang; (2) how many gang fights they had participated in, in their lifetime; (3) how active they had been in gang activities recently. Mental health:	Analyses revealed that overall females were more likely to report trauma based emotional abuse, compared to males who were more likely to experience and witness community violence. A main effect for gang membership was found whereby gang members reported heightened trauma exposure. Furthermore, despite no gender effects being found, gang members overall, when compared to non-gang members, were more likely to experience perpetration-

				Trauma Exposure and PTSS: UCLA Posttraumatic Stress Disorder Reaction Index – Adolescent Version Perpetration Trauma: "Have you ever experienced in your lifetime any traumatic event that involved Doing or being forced to do something very scary, dangerous, or violent to another person?" Dissociation: The Adolescent Dissociative Experiences Scale Emotional Numbing: The Emotional Numbing and Reactivity Scale	induced trauma. A significant relationship was not found between gang members and non-gang members on meeting the criteria for PTSD. However, female gang members when compared to female gang members were more likely to meet the criteria for PTSD.
Li et al., (2002). United States	Differences between male African-American, gang and	Total: n = 349	Non-gang members:	Design: Quantitative, cross-sectional study.	Findings revealed no differences between current and former gang

non-gang members were explored on levels of violence exposure, resilience and distress (mainly symptoms like PTSD) to explore whether risk behaviors or gang membership itself was associated with the study outcomes.	Current gang members: n = 24 (male n = 16; female n = 8) Former gang members: n = 32 (male n = 19; female n = 13)	n = 290 (male n = 158; female n = 132)	Gang membership: Participants were asked a risk item from the "Child Health and Illness Profile – Adolescent Edition". On a 5-point scale, they were asked whether they had been in a gang "never, more than a year ago, in the past year, in the past month, and in the past week". Current gang members identified their membership as in the past month or week, whereas former gang members, in the past year or more than a year ago. Non-gang members stated they had never been part of a gang. Mental health:	members. It was found that when compared to non-gang members, both current and former gang members suffered elevated levels of delinquency, victims of violence through direct and indirect forms, psychological distress indicative of PTSD, exposure to violence and lower resilience (e.g. pro-social support and problem-solving skills). Furthermore, when involvement with risk was controlled for, gang members experienced PTSD symptoms due to gang membership, rather than risk involvement.

				Psychological distress was measured using the Checklist of Children Distress Symptoms, which corresponded to symptoms of PTSD (distraction; re-enactment of event; avoidance of related cues).	
Madan et al. (2011) United States	This study investigated whether the relationship between gang membership and internalizing problems, such as anxiety, depression and suicidal behavior was mediated by witnessing community violence and delinquency.	Total: n = 589 (female n = 290; male n = 299) Gang members: n = 31 (gender unspecified)	Non-gang members: n = 572	Design: Quantitative, cross-sectional survey. Gang membership: Self- report: "I belong to a gang" – with participants responding between either "True for me" vs. "Not true for me" from the 'Attitudes Towards Gang's' questionnaire. Mental health:	Gang membership was associated with higher levels of suicidal behavior, but not with anxiety or depression. Furthermore, the relationship between gang membership and suicidal behavior was mediated by witCROnessing community violence and delinquency.

				Anxiety: Revised Children's Manifest Anxiety Scale 28-item scale. Depression: DISC Predictive Scale.	
Melde & Esbensen (2013) United States	This study examined how changes in gang status (e.g. current vs. former gang members) may impact on 'turning points' in an individual's life with an examination of delinquency levels and emotions.	Gang-involved youth (male and female): n = 512.	Gang membership was assessed at each wave of the study, with 6 time-points in total. Thus, comparison groups included former gang members at each time point who had desisted from gang involvement.	Design: Quantitative, longitudinal study. Gang membership: Participants were asked to self-report gang membership through the item "Are you currently a gang member?" Guilt: A 7-item scale was used to assess feelings of guilt on a scale ranging from "not very guilty; bad to very guilty/ bad). An example item included "How bad would	Findings revealed that youth involved in gangs suffered from long-lasting effects and whilst delinquency levels decreased following involvement in a gang, these levels failed to correspond to pre-gang levels of delinquent behavior. Furthermore, gang-involved young people did not experience feelings of guilt for violating acceptable norms of behavior.

				you feel if you attacked someone with a weapon?"	
Petering, R. (2016) United States	An examination of gang involvement, negative risk taking behaviors, substance abuse, mental health outcomes and traumatic experiences.	Total: n = 505 Homeless youth gang members: n = 86 (female n = 21; male n = 65) Homeless gang-affiliated youth: n = 232 (female	Non-gang youth: n = 187 (female n = 52; male n = 135)	Design: Quantitative, cross-sectional study. Gang membership: Self-report using a single item measure as to whether participants were or had ever been gang members. Gang affiliation: Participants were asked three separate questions to indicate affiliation based on whether they had a close friend, family members or romantic partner in a gang. Mental health: Depression: Centre for Epidemiological Studies	Significant differences were found between gang, gang affiliate and non-gang homeless youth. Gang involved youth were 6 times more likely to suffer from depression, suicide (only gang members and not affiliates), and symptoms of PTSD and trauma variables.

		n = 67; male n = 165)		Depression (CES-D) Scale, 10-item measure. PTSD: Primary Care PTSD Screen. Trauma: Participants were asked questions to assess childhood physical abuse, familial violence, and sexual abuse.	
Vasquez et al. (2012) United Kingdom	This study examined the association between gang affiliation, rumination and aggression among youth aged 13 to 16 years affiliated to gangs.	Total: n = 323 (male: n = 185; female: n = 125). Gang members: n = unspecified	Non-gang youth: n = unspecified	Design: Quantitative, cross-sectional study. Gang membership: Participants self-reported gang membership using three items: (1) “I have friends that are members of a gang”; (2) I spend time with people who belong to a gang”; (3)	The findings showed that male, gang affiliated youth engage in ruminative processes whereby they repetitively thought about their proactive experiences. Furthermore, it was found through regression analyses that rumination, after controlling for confounding variables, such as

				"I consider myself as belonging to a gang". Rumination: The angry rumination scale, a 19-item measure.	anger, hostility, and irritability, independently predicted aggression displaced towards innocent individuals.
Watkins & Melde (2016) United States	To examine the relationship between mental health indicators, such as depression, self-esteem, and suicidal behaviors and thoughts, the authors addressed two questions: (1) whether a relationship exists between mental health indicators and the decision to join a gang and (2) whether gang membership	Gang membership (wave 2 only): n = 704	Wave 1 total: n = 21,000 participants Wave 2 total: n = 14,738 Non-gang members at Wave 2: 12,328	Design: Quantitative, longitudinal study across two time-points (over 12 months). Gang membership: Self-reported gang membership using a single-item measure, participants were asked if they had been initiated into a named gang in the preceding 12 months. Mental Health: Modified version of the CES-D scale using a 19-item version.	Results showed that youth who became gang members presented internalizing symptoms (e.g. depression self-esteem, and suicidal thoughts), and externalizing behaviors (e.g. attempted suicide) at levels that exceeded that of the population. Findings also revealed that gang membership worsened these pre-existing difficulties leading to significantly higher levels of

	exacerbates these same mental health indictors.				depression, suicidal thoughts and behaviors.
Wood & Alleyne (2010) United Kingdom	To synthesize the current theoretical and empirical state of gang research from a variety of disciplines, such as Criminology and Psychology.	N/A	N/A	A theoretical framework using theory knitting to combine elements of valuable models applicable to gang membership.	The role of psychology is significant to the study of gang membership with the proposition of a multi-disciplinary integrated model, which considers mental health problems as a factor in the study of gangs.

Wood & Dennard (2017) United Kingdom	The study investigated the differences between street gang and non-gang prisoners on outcomes of violence exposure, paranoia, anxiety, PTSD, forced behavior control and segregation.	Total: n = 65 (male only). Gang members: n = 32	Non-gang members: n = 33	Design: Quantitative, cross-sectional study. Street Gang Membership and Exposure to Violence: Twenty-one Eurogang Youth Survey items and for violence "Were people in your group involved in acts of violence?" with responses scaled on a 7-point Likert scale. Mental Health: Anxiety, PTSD, and paranoia were measured using the Millon Clinical Multiaxial Inventory – Third Edition (MCMI-III).	The study reported that street gang prisoners experienced higher levels of violence exposure, anxiety, paranoia, and PTSD compared to their non-gang counter-parts. Furthermore, street gang prisoners were more likely to experience behavior control, but were not more likely to be segregated.

Wood et al. (2017) United Kingdom	To examine how and affiliate gang members compare to violent men on psychiatric morbidity, attitudes/involvement in violence, substance abuse, and traumatic events.	Total (male only): n = 1,539 gang members: n = 108 Affiliate gang members: n = 119	Violent men: n = 1,312	Design: Quantitative, cross-sectional survey. Gang membership: Self-reported: "Are you currently a member of a gang?" Gang members agreed they were in a gang and committed one or more serious offences. Affiliate gang members reported involvement in violence and gang fights, but did not identify as gang members.	Findings demonstrated a high-to-low gradient from to affiliate to violent men on psychiatric morbidity, with anxiety, ASPD, pathological gambling, stalking and substance dependence highest among members followed by affiliate and violent men. Levels of suicide and self-harm were similar for gang and affiliate members. Depression levels were stable across groups. Differential involvement in a gang did not vary levels of violence.