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Gang involvement, mental health difficulties and exposure to violence in 11-16-year-old school students.

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Abstract

Background and goals

The current study investigated the relationship between gang involvement and multiple mental health difficulties; anxiety, depression, paranoia, victim trauma and perpetrator trauma. Additionally, it examined the mediating influence of an individual's exposure to violence within this relationship.

Method

One hundred adolescents aged 11-16 years old, completed two questionnaires and an interview which investigated their friendship groups, exposure to violence and mental well-being. Eighteen participants were identified as current or ex-gang members and the other eighty-two were classified as the non-gang comparison group.

Results

Findings show that gang members displayed more symptoms of depression and perpetrator trauma compared to non-gang members. The relationship between gang involvement and these mental health difficulties was mediated by exposure to violence.

Conclusions

Discussion focuses on the need for researchers, practitioners and policy makers to acknowledge the relationship between gang involvement and mental health difficulties and implement additional strategies to support young people currently or previously involved in gangs.

Keywords: Gangs, anxiety, depression, paranoia, victim and perpetrator trauma.

Gang involvement is a criminal justice concern, internationally (Decker, 2007). Gangs consist primarily of young males who, as groups, engage in illegal activities (Harris et al., 2013), the most common of which is violence (Melde & Esbensen, 2013). Research shows that gang involvement increases the likelihood of witnessing and perpetrating violence (Quinn, Pacella, Dickinson-Gomez & Nydegger, 2017), and of being violently victimized (Melde, Taylor & Esbensen, 2009). Estimates regarding gang involvement suggest that there are 30,000 gangs, and 75,000 gang members in the United States (Egley & Howell, 2012) and in the UK, gang activity is sufficiently widespread for the Government to have increased Ending Gang and Youth Violence priority areas from 32 in 2012 to 52 in 2016. Yet, despite the prevalence of gangs, research in the UK is far more limited than it is in the USA (Hallsworth & Young, 2004) and, internationally, we know little about the psychology (Wood & Alleyne, 2010) or the mental health of gang members.

Research examining youth in the US shows that gang involvement is not only a threat to members' physical wellbeing via violence (Quinn et al., 2017), it also links to mental illness (Madan, Mrug & Windle, 2011) such as suicidal behavior (Fried, Williams, Cabral & Hacker, 2013) and depression (Watkins & Melde, 2016). Further gang members are six times more likely to experience post-traumatic stress disorder (PTSD; Petering, 2016). The concept of gang membership linking to mental illness is supported by research in the UK which shows that compared to other violent men, adult gang members have higher symptom levels of: psychiatric morbidity, anxiety, self-harm, suicide attempts, psychosis, and addictions to drugs, alcohol, gambling or pornography (Coid et al., 2013). Even those loosely involved with gangs (affiliates) experience more symptoms of mental illness, other than depression, than do other violent men (Wood, Kallis & Coid, 2017). Yet, because UK findings are based on adult gang members, they are not necessarily relevant to youth at peak gang ages (13-15

years; Pyrooz, 2014). For this reason, the aim of the current study was to compare gang and nongang youth in the UK on their exposure to violence and symptoms of mental illness.

Gang theories, such as interactional theory, (Thornberry &Krohn, 2018) and unified theory (Wood & Alleyne, 2010) note the importance of individual factors in gang involvement, yet there is a paucity of work examining gang members' mental health and how it relates to their behavior. The small amount of research that has examined mental health and gang involvement also provides inconsistent findings. Some findings show that gang members have more symptoms of depression than nongang youth (Watkins & Melde, 2016), whilst others show that they do not (Madan et al., 2011). Some studies examining anxiety show no difference between gang and nongang youth (Madan et al., 2011; Gilman et al., 2014), whilst others show that gang members have higher levels of anxiety (Corcoran, Washington & Meyers, 2005; Harper, Davidson & Hosek, 2008). Although findings in the UK show that adult gang members experience more anxiety than comparisons, they also show that gang members do not experience more depression symptoms (e.g. Coid et al, 2013; Wood et al., 2017). Consequently, the sparse amount of research examining gang members' mental illness, together with the inconsistency of findings so far, leaves a need for clarity regarding the relationship between gang involvement and mental illness (Raby & Jones, 2016).

When exploring the relationship between gang membership and mental health, limited consideration has been applied to understanding why this relationship may exist. Previous research has demonstrated that one common theme of gang membership is excessive exposure to violence (Coid et al., 2013). Research suggests that violence exposure relates to several mental health disorders including depression (Cisler et al., 2012), anxiety (Kennedy, Bybee, Sullivan & Greeson., 2009), paranoia (Wood & Dennard, 2017) and PTSD (Kelly, Anderson, Hall, Peden & Cerel, 2012), including PTSD from the violence individuals

perpetrate against others, known as “perpetrator trauma” (Kerig, Chaplo, Bennett & Modrowski, 2016). Researchers further suggest that cumulative violence exposure relates to internalizing (e.g. anxiety and depression) and externalizing problems (e.g. aggression) in youth (Mrug, Loosier & Windle, 2008). Consequently, this suggests that gang members may be vulnerable to developing adverse mental health due to their elevated exposure to violence. However, this mediation has not previously been investigated. It is crucial that our understanding of the relationship between gang involvement, mental illness and violence exposure is enhanced so that we can enhance gang theories and improve gang interventions which currently do not routinely include attention to or understanding of mental health needs (Wood & Dennard, 2017).”

The current study

In the current study we compared gang youth with nongang youth on their symptom levels of mental illness and their levels of exposure to violence. Based on existing findings, we anticipated that gang youth would have more symptom levels of anxiety, depression, paranoia and PTSD than nongang youth. We also anticipated that gang youth would report more exposure to violence as witnesses, victims and as individual and group-member perpetrators. Similarly, we expected that levels of violence exposure would relate to higher symptom levels of anxiety, depression, paranoia and PTSD. We also predicted that the relationship between gang involvement and symptoms of mental illness would be mediated by exposure to violence.

Method

Participants

Participants were recruited using a mixture of opportunity and random sampling. Multiple schools were contacted within the South of England, and three schools agreed to

take part within the research time frame. Within these schools, form classes were randomly selected from each year group. Our total sample included 51 boys and 49 girls with an age range of 11 - 16 years (M = 13.68, SD = 1.22). Originally, the sampled included 105 participants, but this reduced to 100 following data collection; one requested to withdraw his information, another was excluded as he explicitly stated that he did not answer questions honestly, another for not completing questions on friendship groups/gang involvement, and two were removed as more than 50% of their data was missing.

Materials

The Eurogang Youth questionnaire (Weerman et al., 2009) was used to assess demographics (e.g. age, gender), gang involvement and gang-related measures such as group and individual delinquency. Seven items requiring dichotomous yes/no responses were used to assess current or previous gang involvement. These included: “Some people have a certain group of friends that they spend time with, doing things together or just hanging out. Do you have a group of friends like that?” “Does this group spend a lot of time together in public places like the park, the street, shopping areas, or the neighborhood?” “Have you been part of this group of friends for more than 3 months?” “Is doing illegal things accepted by or okay for your group?” “Do people in your group do illegal things together?” “Would you consider your group to be a gang?” “If you are not now, have you ever been in such a gang?” Items assessing other measures were assessed on five-point Likert scales asking about the frequency of behavior (1 = *never* and 5 = *very frequently*). Items assessing group delinquency asked, how often as part of a group they had, in the past three months, for example, threatened people, robbed people and sold drugs. Individual delinquency items asked how often, in the previous three months, they had, as individuals, for example, “Purposely damaged or destroyed property that did not belong to you?” and “Carried a hidden weapon

for protection"? All measures had good internal reliability; group delinquency (Cronbach's α = .91) and individual delinquency (α = .90).

Violence exposure was measured using an amended version of Mrug and Colleagues' (2008) exposure to violence scale. Participants completed four questionnaires relating to violence they had witnessed, been victim to, perpetrated individually and perpetrated as a group in the previous 3 months. Within all four questionnaires there were six items regarding their exposure to violence which were related to; "A threat of physical violence", "Actual physical violence", "Actual physical violence to an extreme that someone experienced serious injuries", "A threat of violence with a weapon.", "Actual violence with a weapon", and "Violent sexual assault or rape". For the current study we amended the scale to a 5-point Likert scale to measure the frequency of participants' exposure to violence (1 = *never* and 5 = *very often*). Their combination score across all four questionnaires equated to a measure of total exposure to violence.This scale also had good reliability (Cronbach's α = .92).

The Hospital Anxiety and Depression Scale (HADS – 14 items, Zigmond & Snaith, 1983) was used to assess participants' symptom levels of anxiety and depression and consists of 14 items measured on a Likert scale (1 = *never* and 5 = *very often*) the frequency with which participants experienced symptoms of anxiety and depression in the previous three months. Items included, for example, "I have lost interest in my appearance" and "worrying thoughts go through my mind." Both scales had adequate reliability (depression: Cronbach's α = .71 and anxiety: Cronbach's α = .85).

The Green et al., paranoid thoughts scale (GPTS - 32 items, Green et al., 2008) was used to assess the frequency of participants' paranoid thoughts during the previous three months. A five-point Likert scale (1 = *never* and 5 = *very often*) assessed the frequency of

thoughts such as, “I spent time thinking about friends gossiping about me.” and “People definitely laughed at me behind my back.” and ‘People have intended me harm.’ This scale also had good internal consistency (Cronbach’s α = .97).

The Child PTSD symptom scale (CPSS – 19 items, Foa, Johnson, Feeny & Treadwell 2001) scale, adapted specifically for this study, asked participants to describe a traumatic event and report on a 5-point Likert scale how often (1 = *never* and 5 = *very often*) in the past month the event had troubled them to the extent that they had experienced, “having trouble falling or staying asleep” and “feeling irritable or having fits of anger.” To obtain scores for them as witnesses/victims and as perpetrators, the CPSS was completed twice; once for events participants had witnessed/been victim of and once for their behavior as perpetrators. Both versions had good internal reliability (Cronbach’s α = .87 -witness/victim and Cronbach’s α = .88 - perpetrator).

Ethics

Ethical approval for this study was obtained from a university ethics committee, and the first author completed an enhanced Disclosure and Barring Service (DBS) check before working with participants. Informed consent was obtained from the head teachers of the three schools to conduct the study, from parents to allow children to participate and from children before data was collected. Participants received two debriefs; one after they completed questionnaires in class and one following completion of the final trauma interview. This was to ensure that any children who did not want to continue on to the trauma interview stage, were fully debriefed. All debriefs outlined the aims of the study and included the researchers’ contact details and relevant helplines (e.g. Childline, Gangsline, Anxiety UK) in case they experienced any distress and needed support.

Procedure

Following consent from head teachers and parents, participants from each year group in each school were selected according to their availability and willingness to participate. All were given an information sheet outlining the aims and procedure of the study. It was emphasized to them that their answers would remain anonymous and confidential and that they had the right to remove themselves or their data from the study without penalty, at any time up to two months following data collection. Participants were then invited to ask questions and to sign the consent form, if they were happy to participate.

In a classroom setting, participants were provided with all questionnaires except the child PTSD symptom scale which they completed on a one-to-one basis with the first author. Some participants needed assistance with individual questions, which the researcher clarified. When questionnaires were complete, participants received the first debrief outlining the overall aims of the study and were thanked for their participation in this section of the research. All were then invited to the second part to complete the CPSS component in a one-to-one interview with the researcher; none refused. Individual interviews were conducted for this section of the study because of the sensitivity of the topics. On completion of each interview, all participants were given another debrief which included the researchers' and helpline contact details.

Results

Data were analyzed using SPSS and a $p < .05$ significance level.

Gang involvement was computed (current/ex-gang member or nongang member) based on key identification items in the Eurogang questionnaire. Participants were identified as gang-involved if they answered yes to the five key gang identifying questions and/or stated that they had previously belonged to a gang. Using this classification, we identified 18 (10 boys and 8 girls; $M = 13.72$ years old, $SD = 0.75$) as currently or previously involved with a

gang and 82 nongang youth (41 boys and 41 girls; *M* = 13.68, *SD* = 1.29). Table 1 shows the sample's demographics according to their gang involvement status.

Table1

Demographics of gang-involved and nongang youth

		Gang/ex members (N = 18)	Nongang (N = 82)
Age	11	0	2
	12	1	18
	13	5	16
	14	10	17
	15	2	26
	16	0	3
	Mean	13.72	13.68
	Standard Deviation	0.75	1.29
Gender	Boys	10	41
	Girls	8	41
Nationality	White British	14	69
	BAME	2	2
	Non-British white	1	8

Not specified	1	3

Our first hypothesis was that gang involved youth would have higher symptom levels of anxiety, depression, paranoia and PTSD than nongang youth. To test this hypothesis, we used a logistic regression using mental health variables as IVs and gang involvement as the DV. The regression model significantly related to gang involvement, χ^2 (5, N = 98) = 16.11, p = .007 and successfully predicted gang involvement 84.7% of the time (see Table 2).

Table 2

Prediction of gang membership based on mental health symptom levels

	Gang membership.		
Mental health variable	B	Sig.	Exp(B)
Anxiety	-.02	.78	0.98
Depression	.3	.003	1.34
Paranoia	-.03	.07	0.97
Perpetrator Trauma	.08	.03	1.08
Victim Trauma	-.05	.23	0.95

Notes. Nagelkerke R^2 = .25, p=.007

As Table 2 shows, within the regression analysis the strongest predictors of gang involvement were depression and perpetrator PTSD. That is, a one-point increase in depression symptom score was connected to a 1.34 increase in the odds of being gang-involved and a one-point increase in perpetrator PTSD score, was connected to a 1.08 increase in the odds of being gang-involved.

Our second hypothesis was that gang-involved youth would report more exposure to violence than would nongang youth. To test this hypothesis, we used a one-way ANOVA to

compare gang-involved and nongang youth on their total violence exposure and exposure to violence as witnesses, victims, group perpetrators and individual perpetrators. Results showed that gang-involved youth reported more exposure to violence across all measures (see Table 3).

Table 3

Gang vs nongang levels of exposure to violence

	Gang (*N* = 18)		Nongang (*N* = 80)				
	M	*SD*	*M*	*SD*	*F* (1, 98)	*p*	*CI*
Total exposure	44.78	14.38	27.97	4.77	74.93	<.001	29.09 -33.04
Witnessed	14.22	5.13	8.21	2.62	52.2	<.001	8.51 - 10.07
As victim	10.61	4.85	6.97	1.92	27.2	<.001	7.04 – 8.24
Committed as group member	10.33	4.85	6.43	0.86	62.35	<.001	6.65 – 7.61
Committed individually	9.44	3.60	6.31	0.72	54.50	<.001	6.47 – 7.30

Our third hypothesis was that levels of exposure to violence would positively relate to higher symptom levels of anxiety, depression, paranoia and PTSD. To test this hypothesis, we conducted a multiple regression, using mental health variables as IVs and overall exposure to violence as the DV. Analysis produced a significant model which explained 21%

of the variance (see Table 4). As Table 4 shows, within this regression analysis the strongest predictors of exposure to violence were depression and perpetrator trauma.

Table 4

Symptom levels of mental illness as predictors of overall exposure to violence.

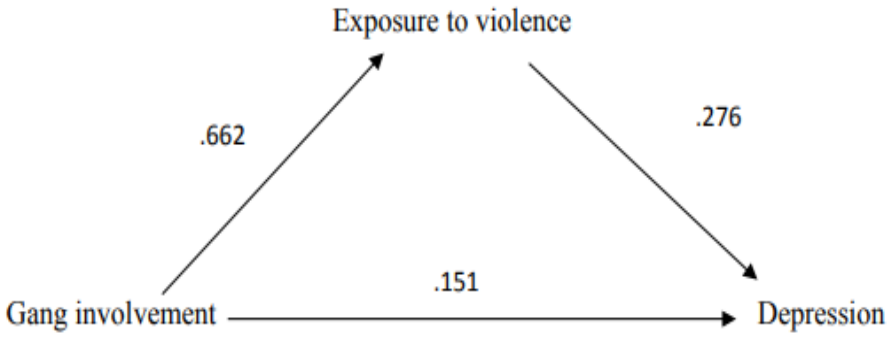
	Violence exposure			
Mental health variable	*B*	*t*	*p.*	*CI*
Anxiety	-.21	-1.45	.15	-.77 - .12
Depression	.28	2.21	.03	.06 – 1.16
Paranoia	.25	1.84	.07	-.01 - .20
Perpetrator Trauma	.32	2.63	.01	.066 - .47
Victim Trauma	-.07	-.63	.53	-.28 - .15

Adj. R^2 =.21, *df* 5, 90, F = 6.07, $p < 0.001$

Our final prediction was that gang involvement would relate indirectly to symptoms of mental illness and that exposure to violence would mediate this relationship. Within the prior regressions analyses the strongest predictors of gang involvement and exposure to violence were depression and perpetrator trauma, so we used these as outcome variables in mediation analyses. We first examined if exposure to violence mediated the relationship between gang involvement and depression (see Figure 1). In Step 1 of the mediation model,

the regression of gang involvement and depression was significant, b = .334, t(97) = 3.49, p = .001. In step 2 the regression of gang involvement and exposure to violence (the mediator), was also significant, b = ..662, t(97) = 8.66, p < .001. In step 3 the regression between the mediator (exposure to violence) and depression, controlling for gang involvement, was significant, b = 376, t(96) = 3.955, p < .001. Step 4 of the mediation analysis showed that, controlling for the mediator (violence exposure), gang involvement was no longer a significant predictor of depression, b = 151, t(94) = 1.19, p =.235. A Sobel test confirmed that violence exposure mediates the relationship between gang involvement and depression, (z =2.12, p < .030).

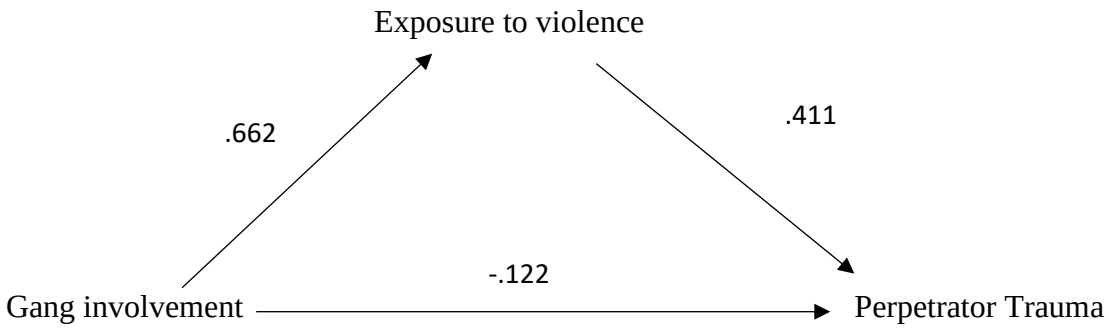
Figure 1: Exposure to violence mediates the relationship between gang involvement and depression.



In the second mediation analysis, we examined if exposure to violence mediated the relationship between gang involvement and perpetrator trauma (see Figure 2). In Step 1 of the mediation model, the regression of gang involvement and perpetrator trauma was significant, b = .211, t(98) = 2.121, p = .036. In step 2 the regression of gang involvement and exposure to violence (the mediator), was also significant, b = .662, t(97) = 8.66, p < .001. In step 3 the regression between the mediator (exposure to violence) and

perpetrator trauma, controlling for gang involvement, was significant, b = .492, t(96) = 3.936, p < .001. Step 4 of the mediation analysis showed that, controlling for the mediator (violence exposure), gang involvement was no longer a significant predictor of perpetrator trauma, b = -.122, t(96) = -.975, p =.332. A Sobel test confirmed that violence exposure mediates the relationship between gang involvement and perpetrator trauma, (z =3.59, p < .001).

Figure 2: Exposure to violence mediates the relationship between gang involvement and perpetrator trauma.



Discussion

This study investigated the relationship between gang involvement, symptoms of mental illness and how these relate to exposure to violence. We anticipated that gang-involved youth would display more symptoms of anxiety, depression, paranoia, perpetrator trauma and victim trauma and this prediction was upheld, in part. We also expected that gang-involved youth would report more exposure to violence as witnesses, victims and as lone and group-member perpetrators. This prediction was upheld. Further, we predicted that levels of violence exposure would positively relate to symptom levels of anxiety, depression, paranoia and PTSD and this prediction was upheld in part. Last, we anticipated that violence

exposure would mediate the relationship between gang involvement and mental illness and this was upheld.

The demographic data in this study suggests that the peak age for gang involvement is 14 years. In our sample, gang involvement begins at age 12 and appears to drop off by age 16. This supports US findings suggesting that gang involvement peaks at age 14 (Pyrooz & Sweeten, 2015). This does not, however, suggest that all gang involvement will end, or have even started by age 16 (see Pyrooz, 2014 for a more in-depth discussion on gang membership and age). What it does suggest is that in school samples (i.e. where youth are still attending school), youth in the UK seem to follow a gang involvement trajectory similar to that identified in the US. A further interesting demographic finding in our study was the similarity in numbers of male and female gang involved youth. This supports research which indicates a growing involvement of females within gangs (Alleyne & Pritchard, 2016; Auyong, 2018). As female gang involvement seems to be increasing, our findings also highlight the need to further investigate the effect of gang involvement on girls as well as boys, because currently the majority of literature focuses primarily on male participants (Raby & Jones, 2016) and this leaves findings and theories underinformed.

Our findings demonstrate that mental illness symptoms significantly relate to gang involvement and that depression and perpetrator trauma are the strongest factors in this relationship. Other mental health variables such as victim trauma, anxiety and paranoia were not as important. The lack of a relationship between anxiety and gang involvement supports previous studies by Madan and colleagues (2011), and Gilman and colleagues (2014), who found no significant relationship between gang involvement and anxiety. Conversely, multiple studies have previously demonstrated that gang members have higher levels of anxiety (Corcoran, Washington, & Meyers, 2005; Coid et al., 2013; Harper et al., 2008) and anxiety, paranoia and PTSD (Wood &Dennard, 2017).

One explanation for the discrepancies between the current findings and some of the earlier work in relation to anxiety symptoms may be due to sample selection. The two papers which do not identify a relationship between gang involvement and anxiety (Gilman et al., 2014; Madan et al., 2011), like our study, included young adolescent samples. However, the four studies (Coid et al., 2013; Corcoran et al., 2005; Harper et al., 2008; Wood et al., 2017) which did identify higher anxiety in gang members, included older samples (16 years and over). If we consider these discrepancies in context with our findings of higher levels of perpetrator trauma and depression it seems highly feasible that gang-involved youth, if left untreated, will develop further symptoms of mental illness as their gang membership continues. Our data cannot attest to this, so it is purely speculative, but future work could examine this in more detail.

In relation to the discrepancy in our current findings, research which demonstrated that gang members have significantly higher levels of paranoia (Wood & Dennard, 2017), may also be explained by sample selection. Within Wood and Dennard's (2017) research, the only research we could locate investigating gang membership and paranoia, the sample selected were prisoners (gang members vs non-gang members) and therefore it could be that the higher rates of paranoia in gang members is justified considering that gang members are especially likely to experience high levels of prison violence members (Gaes, Wallace, Gilman, Klein-Saffran & Suppa, 2002). This suggestion also highlights a general concern with measuring paranoia in gang members, as gang members experience heightened exposure to violence victimization (Melde, Taylor & Esbensen, 2009). Although the paranoid thoughts scale (Green et al., 2008) utilized within this study focuses on general paranoia, there are still several items which relate directly to victimization of violence. Consequently, future research should consider utilizing or amended a scale to exclude items which could be interpreted as valid concerns, instead of paranoia.

Our findings show that the strongest factor relating to gang involvement is depression. That is, gang-involved youth had more symptom levels of depression than their non-gang counterparts. This supports US findings showing that gang youth have higher levels of depression (Watkins & Melde, 2013). Perpetrator trauma was also important in in the relationship of gang involvement. This suggests that those who are gang involved at a young age experience significant levels of PTSD which also links to their behavior as perpetrators of violence. This form of trauma, commonly identified in violent individuals, has been linked to increases in other mental health symptoms, such as depression (Chung, Di & Wan, 2016), which our findings seem to support. It is particularly concerning that we identified perpetrator trauma in such a young school-based sample, because this suggests that gang-involved youth experience trauma from their own violence at a very young age. It is also concerning because research shows that PTSD can adversely impact success in offender treatment programs (Peller, Najavits, Nelson, LaBrie & Shaffer, 2010). This implies that unless the possibility of PTSD in gang-involved youth is appropriately addressed, gang-involved youth may struggle to engage with gang prevention and intervention programs.

Our findings also show how gang-involved youth are exposed to more violence than their nongang counterparts in multiple ways, including as victims, witnesses, and perpetrators at both the group and individual level. The levels of violence that gang involved youth were exposed to were also significantly related to symptom levels of depression and perpetrator trauma. Our mediation analyses expanded this to show that violence exposure mediates both the relationship between gang involvement and depression and the relationship between gang involvement and perpetrator trauma. Consequently, our findings suggest that the significant relationship between gang involvement and symptoms of mental illness can be explained by the levels of exposure to violence that young people experience, rather than by gang involvement alone. Nevertheless, our findings cannot confirm that participants' violence

exposure resulted solely from their gang involvement. It is possible that they were also exposed to violence in domains other than the gang arena. This is something that future research would benefit from exploring in more detail with this and possibly younger age groups.

As with any study, this one has its limitations. It is inherently difficult to gain access to young people for studies such as this and so our sample included a limited number of gang-involved youth from a small area of the UK. In turn, this limits the generalizability of our findings. Nonetheless, even with a small sample, our study adds to existing literature by successfully differentiating gang-involved youth, male and female, from nongang youth on several important factors. Our findings show the significant relationship between gang involvement and symptoms of mental illness; particularly perpetrator trauma and depression. We have also demonstrated that this relationship is mediated by exposure to violence. Although, it is important to bear in mind that this suggested mediation is explored with a larger sample due to the complexity of the relationship between these three factors, and the limited sample size available within this research. Nevertheless, these finding suggest that the mental health of gang members deserves more research attention to enhance our knowledge and facilitate expansion of gang theories.

With cross sectional data we cannot identify the cause/effect relationship between gang involvement and poor mental health and the role that exposure to violence may play in this relationship. For example, does an individual's mental health symptoms and exposure to violence increase the likelihood of an individual joining a gang, or are these factors effects of gang membership. Only longitudinal work can address such questions of cause and effect between these three variables. However, our findings suggest that this is an important area of work that future research should develop in more detail. Equally, because we identified high levels of gang-involved females, additional research may benefit from focusing more on

female gang members due to the lack of research attention they have received compared to their male counterparts, as noted above.

In conclusion, the current study adds to the limited literature regarding gang involvement and mental health difficulties. It also has implications for tackling gang membership. More mental health services need to be made available for youth involved with gangs to encourage mental well-being and to increase the likelihood that youth will leave their gang (Watkins & Melde, 2016). Importantly, our findings should also encourage future research to examine more closely the mental health difficulties associated with gang involvement. In turn findings from this work will help to enhance gang theories and increase our level of understanding regarding the links between gang involvement and mental ill health.

CONFLICTS OF INTEREST: The authors declare they have no biomedical or financial conflicts of interest relevant to this work.

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