Predictors of Prison Violence

Using Incident Characteristics to Predict Gang and Non-Gang violence

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Abstract

Prison violence is a concerning issue that threatens the well-being of staff, prisoners, and the wider community. In the past decade, over 2,000 such incidents have occurred within New Zealand prisons and although much research on prison violence exists, little is known about its relevance to understanding prison violence within New Zealand. Furthermore, despite global research indicating a disproportionate number of incidents involving prisoners who are gang members, little attention has been given to understanding the relevance of gang membership to involvement in prison violence. As a result, we know little about the characteristics or risk factors relevant to gang members involved in prison violence. This makes prediction and ultimately addressing such incidents difficult, an especially concerning situation given the prevalence of gang involvement. Therefore, in the current study we have tried to identify characteristics that predict prison violence involving gang or non-gang members. We identified prison violence incidents using an archival database provided by Te Ara Poutama Aotearoa (New Zealand Department of Corrections). We then analysed our data using a logistic regression stepwise approach and found a number of factors that significantly differed between incidents involving gang and non-gang members. Our findings increase our understanding of prison violence characteristics for gang and non-gang members. However, the current study does not provide insight regarding why such characteristics are more likely to predict involvement by a gang or non-gang member. As a result, there is still much more we need to do in unpacking the relevance of gang membership to prison violence if we wish to address it within our prisons.

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Dedication

To Karl, your support and whakaaro has actively inspired and shaped my personal and academic journey. You embody the most important aspects of this work, and I will be forever grateful for the role model and friend that you are to me. All those late-night talks will not be lost on me. He aha te mea nui o te ao? he tangata, he tangata, he tangata.

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Introduction

Prison Violence

Misconduct incidents involving physical violence against individuals within prison is a major concern for any justice system. Prison violence (PV) threatens the safety of staff and prisoners as well as the administration of programmes, routines, and activities that are carried out within correctional facilities. These incidents can take place between two or more prisoners (prisoner on prisoner) or between a prisoner(s) and prison staff. For incidents involving prisoners, researchers have found that between 12-20 percent of prisoners have either perpetrated or been a victim of PV (Powell & Nolan, 2003; Wolff et al., 2007; Boxer et al., 2009; Schenk & Fremouw, 2012). Such assault rates are 2-3 times higher than assault rates in the community (Steiner & Cain, 2016) and are likely to be higher when we consider possibilities such as underreporting by prisoners (Wooldredge, 1998). PV (at least for prisoner-on-prisoner incidents) also does not necessarily refer to a prisoner's role as a perpetrator. In prison, those who are most likely to perpetrate violence are also the most likely victims (Tasca et al., 2010; Edgar & O'Donnell, 1998; Fuller et al., 1977). Therefore, while we should not dismiss the individual experiences of perpetrators and victims, perpetration and victimization perspectives are likely to affect the same group of people.

Reducing PV is important for the wellbeing of prisoners, correctional staff and the wider community. Obviously, reducing violent incidents within prison cares for the physical safety of prisoners. But it also may decrease mental health issues amongst prisoners as well. Perhaps unsurprisingly, one study has demonstrated that prisoners who perpetrate or are victims of violent incidents in prison, are also more likely than others to sustain a traumatic brain injury (TBI) which can cause significant issues with mental health (Fahmy, 2020). Furthermore, reducing PV may also decrease the number of people who join gangs in prison and become embedded in gang life and the criminal lifestyle it can often promote and

facilitate (Weerman et al., 2015; Chu et al., 2012). Studies have identified that a large proportion of prisoners who join gangs shortly before or during their prison sentence do so out of concern for their own physical safety (Benson, 2015; Egan & Beadman 2011; Gundur, 2020; Paat et al., 2020). For example, Paat et al. (2020) found that in narratives of a sample of 25 former prisoners, 92 percent of them became gang members in prison due to the belief that being a gang member would minimize their chances of being violently victimized. In fact, one participant who had been sentenced to jail 12 times stated that prisoners would not survive if they did not join a gang.

Unfortunately, joining a gang can come with a high cost that can extend past prison walls. A common notion about gang life is that membership and loyalty to the gang is for life and that a member can only leave upon their death ("Blood in, blood out"). This perception of gang membership suggests that joining a gang is no small commitment and may be very dangerous to leave (Geldenhuys, 2020; Roks, 2018). Although most gang members who leave simply drift away over time (attributed to growing up/moving on or disillusionment; Decker, 2014; Fleisher, 2001; Roks, 2018; Peterson, 2012) without repercussions, there are still some who feel that they cannot leave due to threat of punishment (e.g. death) or try to leave and are intimidated and harassed by other members of the gang that they are trying to leave (Roks, 2018). Furthermore, even for those who do end up leaving a gang, a number of them still face difficulties escaping from their gang identity, reporting harassment from law enforcement and rival gang members because they are still seen as gang members (Decker, 2014; Carson, 2013). Therefore, reducing PV may help to prevent prisoners from taking a 'loaded' deal in joining a gang in prison for their protection, and subsequently dealing with the high and potentially lifelong, negative cost of a decision that they made to protect themselves.

Reducing PV among prisoners may also indirectly act to protect the general community from victimization as well with some studies suggesting that prisoners involved in PV are more likely than their counterparts to reoffend after finishing their sentence and being released back into the community (McGuire, 2018; Gendreau et al., 1997, Hill et al., 1985, Homant & Witkowski, 2003, Schnur, 1949, Zamble & Porporino, 2013).

Individual Prison Violence Risk Factors

With the problem that PV presents, researchers have been trying to understand relevant risk factors to predict and ultimately reduce rates within prisons. PV risk factors are diverse and exist on multiple levels, ranging from the level of the individual to aspects of the formal structure and environment of the prison. One review of prison violence risk factors (McGuire, 2018) indicates some of the most consistently identified individual PV risk factors which are: (1) Younger age. Prisoners who are younger than 21 have often been found to be involved in violent misconduct incidents more often than older prisoners. (2) Having a history of perpetrating violence whilst in prison. Perhaps unsurprisingly, those who have perpetrated violence before whilst incarcerated, are more likely than their peers to be involved in another violent prison incident. (3) Gang membership. Gang members tend to represent a large proportion of all prisoners who are involved in a PV event. In fact, studies measuring the proportion of incidents involving gang members in the US have found that between 43-80 percent of all PV incidents involve a gang member either as a perpetrator or a victim (Griffin & Hepburn, 2006; DeLisi et al., 2012; Mitchell et al., 2016).

Other factors positively linked to PV (though empirical support for these risk factors is less consistent than the previous factors or their correlation to PV is not as strong or even significant when control variables are accounted for) include: (1) Conviction for violent offence: Perhaps unsurprisingly, those who have been convicted for a violent offence are more likely than their peers to be involved in a PV incident whilst in prison. (2) Ethnicity. In

the US, a number of studies have demonstrated that despite being a minority in the general population, African Americans involved in violent incidents largely outnumber any other ethnicity. (3) Having served less time in prison. Some studies have suggested that the riskiest timeframe for prisoners to be involved in a violent misconduct incident is within the first year of incarceration. From these studies, those who have served less time in prison are more likely to be involved in PV than prisoners who have been incarcerated for longer periods of time. (4) Shorter overall sentences. Prisoners who have no "hope of release" (i.e. life sentences; McGuire, 2018, p. 3) tend to be less involved in PV than prisoners who have shorter overall sentences which seems counterintuitive given that such prisoners have 'nothing to lose'.

An important note about PV risk factors is that they do not necessarily differentiate between factors of perpetration or victimization. Instead, PV risk factors are simply associated with being involved in a PV incident whether that be as a perpetrator or as a victim. This enmeshment may make one think that we should be focusing more on perpetration risk factors rather than victimization due to the physical threat that perpetrators pose. However, being able to decrease perpetration and/or victimization ultimately achieves the same end goal, reducing PV. Therefore, addressing risk factors that decrease perpetration and victimization is important to the overarching goal of eliminating PV within correctional facilities. Furthermore, as mentioned previously perpetrators and victims of violence (in prison and in the community) may often be one and the same. At least one study has suggested that perpetration is "often retaliatory" (Tasca et al., 2010, p.238) implying that perpetrators have likely been assaulted themselves in the past and perpetrate violence against those who victimized them (Edgar & O'Donnell, 1998; Fuller et al., 1977). Therefore, risk factors that address victimization and/or perpetration are likely to be relevant to the same people.

Situational Risk Factors

Research has identified a range of individual risk factors associated with PV. However, we must be mindful that we do not reduce PV occurrence to individual characteristics as doing so underestimates the influence of the prison environment and conditions on prisoners' day-to-day behaviour (Johnstone & Cooke, 2010). Therefore, to get a well-rounded understanding of PV occurrence we must also look to situational risk factors. While the body of research pertaining to situational risk factors is smaller than research focusing on individual risk factors, there are some findings that are worth noting here (Jiang & Fisher-Giorlando, 2002; Steiner, 2009; Wooldredge & Steiner, 2012; Day et al., 2015; McGuire, 2018).

Treatment by staff

One study (Day et al., 2015) has indicated that how prisoners are treated by staff is associated with risk of violent misconduct. More specifically, mistreatment of prisoners by staff is positively associated with PV. Although mistreatment by staff is associated with an increased likelihood of involvement in violent incidents, the aforementioned study identifying this does not indicate if and how a staff member is involved in an incident which can be especially concerning as mistreatment may extend to being physically assaulted. This concern importantly suggests that prison staff m ay be relevant to reducing PV as well.

Routine structure and level of involvement in prison programmes

Some studies indicate that fewer work assignments, unstructured routines, and lower levels of programme participation (Pérez et al., 2010; Steiner, 2009; Meade & Steiner, 2013; Steiner & Wooldredge, 2009) increase a prisoner's risk of being involved in PV. This increased risk may be due to the amount of idle time that a prisoner has, leaving them free to engage in violence and other forms of misconduct in the meantime.

Level of structure and perception of staff legitimacy

Two studies have suggested that prisoner perceptions of rule enforcement and staff legitimacy (Wooldredge & Steiner, 2014) were linked to PV. More specifically, PV incidents were more frequent in prisons where prisoners felt that rules were underenforced or did not respect staff roles.

Feelings of safety

In their review, McGuire (2018) indicated that prisoners who reported that they did not feel safe and that correctional staff could not protect them, were more likely than their peers to have been involved in a PV incident. However, it was not clear if prisoner involvement in PV was taken prior to interview or if involvement was tracked post-interview. Furthermore, the review's author did not provide any references to research for this particular factor which made it impossible to corroborate its legitimacy. Further searching did not yield any supporting evidence suggesting that this risk factor may still require testing.

Although we have some information on situational risk factors, this body of research is still developing and does not have as much attention as studies looking at individual risk factors. It also lacks understanding of characteristics of the physical environment. This lack of attention is a unfortunate given that situational risk factors can provide easily actionable insights that some individual characteristics cannot. For example, understanding what locations tend to facilitate increased PV occurrence may be easier to address for PV reduction than knowing that a prisoner is a certain age.

A Note on Risk Factors

Risk factors provide valuable insight into problems by identifying easily measurable characteristics of a phenomena we are trying to understand (Fearon et al., 2001). However, there are a number of issues with such an approach that we need to keep in mind for violence in prison. In a critique of risk factor research in regard to schizophrenia, Fearon et al. (2001)

argued that for some phenomena, social factors which are harder to measure may be better for preventive purposes. In his critique of risk factors, he argued that understanding the social exposures that may lead a person or group to engage in certain kinds of behaviour (in this example, cannabis consumption for people suffering from schizophrenia) may result in the following outcomes:

- More effective intervention on a population basis
- A broader source of productive hypotheses concerning etiological mechanisms and
- A focus on a wider perspective than the ingestion by a certain individual of a certain amount of a certain substance at a certain point (or points) in time

When we consider risk factors such as gang membership, Fearon's critique of risk factors may be especially relevant. On a number of occasions, gangs have been referred to as a social problem and phenomenon (Gilbertson, 2009; McCorkle & Miethe, 2001; Gebo, 2018). In fact, some researchers have suggested that involvement in gangs, especially among ethnic minorities has primarily come about as a result of prejudice, poverty and social alienation (Knox, 1991; Gemert et al., 2013). With this consideration in mind, we need to be careful about how we view and apply risk factors and ensure that we are not dismissive of societal influences that can have a momentous impact on how some people become involved in PV.

Gangs, gang violence, and gang violence in prison

One of the most consistent risk factors of PV is gang membership. Concerningly, while gang members represent a small percentage of the overall prison population, in some cases they account for the majority of PV incidents (43% - 80%; Fahmy, 2020). Even more concerning is that despite most incidents of PV involving a gang member, research trying to understand PV involving gang members is lacking. When considering just how prevalent gang involvement can be in PV incidents, understanding why gang members are involved in PV more often than non-gang members may play a large role in reducing many of the

incidents that occur. However, understanding what a gang and gang violence is can be tricky which may alter how we approach PV reduction. Therefore, we must first turn to understanding gangs and gang violence before looking at the research regarding gang violence in prisons (GPV).

What is a gang?

Whether in prison or in the community, gangs have often been linked to criminality/misconduct and so present a major security threat in and outside of prison. However, defining what a gang is can be especially challenging as definitions of gangs can so easily overlap with groups that we would not typically identify as being a gang (e.g. stoners; Curry, 2015). Nearly two decades ago, a review of gang definitions stated how there was little, if any, consensus on what a gang is, what a gang member is, and what a gang does (Esbensen, 2001). Unfortunately, consensus does not seem to have improved much either in recent years (Curry, 2015; Densely, 2018). Not having a clear and accurate definition of gangs can be problematic for research as different definitions can render study findings impossible to compare and subsequently to support or generalize. Additionally, poor gang definitions can make it difficult to develop and implement policies and legislation to address gang activity. Therefore, a widely accepted gang definition that encompasses groups that we would typically call a gang but at the same time excludes groups that we would not call a gang, is fundamentally important for researchers and policy makers to understand.

The Eurogang definition

Possibly the most commonly used definition amongst policy makers and academics (Sanders, 2019) is the eurogang definition which stipulates three criteria for a group to be a gang:

- The group is durable (typically exists for at least three months)
- Street-oriented and

- Illegal activities are a core aspect of group identity

However, the eurogang definition has a number of issues in how it identifies a gang. More specifically, the eurogang criteria can describe groups that we would not usually consider to be gangs (e.g. stoners) and excludes groups that we would consider to be gangs. In their paper reviewing the eurogang definition, Aldridge et al. (2012) emphasized how groups usually considered by the public to be gangs in Britain avoided the streets to avoid harassment from law enforcement or drive-by shootings from rival gangs. The paper also discussed how stoners, ravers and other groups who take drugs and go to nightclubs also have illegal activities as a central part of their identity but that the public do not typically view these groups as being gangs.

An answer to the shortcomings of the eurogang definition may present itself in the paper provided by Pyrooz et al., (2011). In their paper, Pyrooz discusses additional characteristics that gangs share, which aforementioned groups do not share. Furthermore, these characteristics also address those of gangs established and operated within prison (which the eurogang definition excludes). Although street-oriented gangs do differ from prison gangs in composition and structure (e.g. age of members, loyalty; Pyrooz et al., 2011), both groups still share a number of similarities (e.g. monoethnic, drug trafficking, use of violence) that are not shared by other groups. These similarities between prison and street gangs create a better separation between gangs and other groups that we would not typically call a gang. Based on the discussion regarding the eurogang definition, it seems that looking at the characteristics outlined by Pyrooz may be a better alternative to understanding how we define gangs.

Gang Violence

Although research indicates that gang members frequently engage in criminal behaviour, the proportion of crimes committed by them is still alarming. Gang members are more likely to be involved in all kinds of criminal behaviour than their non-gang member

peers (Bubolz & Lee, 2019) and involvement in violent crimes is no exception. In fact, gang-related violence or violence involving gang members (e.g. assault and homicide) in the community often accounts for the majority of violent offences (Decker et al., 2013; Howell, 2012; Bubolz, 2019). Within US cities (Boston, Chicago, Detroit, Los Angeles, Pittsburgh, and St. Louis), gang-related homicides accounted for 20-50% of all homicides in their respective cities (Howell, 2018). Sadly, much of the violence that gang members engage in not only affects rival gang members but also those closest to them as well. For example, in NZ, Roguski found that incidents of family violence, child abuse and neglect were more frequent among gang members (compared to non-gang members; Roguski, 2019). Such disproportionate levels of violence committed by a specific type of group indicates a problem particularly relevant to gang membership that needs to be explored for violence reduction efforts. Researchers have also identified multiple motivations underpinning violence involving gang members such as conflicts over gang turf, violations of group norms, threats to identity and honour, retaliation, and status progression within the gang (Decker et al., 1996; Hughes & Short 2005; Bubolz, 2019). Although not a motivation, gang embeddedness has also been linked to violence. Gang embeddedness refers to how entrenched or involved someone is in a gang with some research indicating that the more involved someone is in a gang, the more likely they are to be involved in a violent incident (Esbensen et al. 2001; Haynie 2001; Hughes 2013; Radil et al. 2010; Taniguchi et al. 2011; Brantingham et al. 2012; Wood et al., 2022).

Gang Violence in Prison

Considering the extensive research available on gangs and gang violence, we seem to have a good starting point to ask questions about the nature of gang violence in prisons (GPV). In fact, findings in GPV research tends to mirror observations of gang violence in the community. As is the case in the community, gang members are overrepresented in PV

incidents (Griffin & Hepburn, 2006; DeLisi et al., 2012; Mitchell et al., 2016). Motivations also seem to have some overlap as well. For example, gang members have reported retaliation and feelings of being disrespected as motivations for engaging in PV (Wulf-Ludden, 2013). As previously mentioned, gang members that are more involved in gang life are more likely than peripheral members to engage in violence within the community. At least one study has found that this may also be the case for gang members in prison (Gaes et al., 2002). In this study, researchers found that for gang members, engagement in violent prison misconduct varied by the level of involvement of the prisoner in their respective gang's activities. More specifically, peripheral or more casual members were less likely to engage in violent misconduct than central members of the gang. Interestingly, in this study gang embeddedness more strongly predicted PV than other individual risk factors for violent misconduct. Unfortunately, even though motivations may be consistent amongst gang members in prison, they may also be common among non-gang members. Each study looking at motivations of PV only had gang member samples but there is no reason to suspect that concepts of disrespect and retaliation would only or even largely apply to gang members. As a result, we do not understand the significance of gang membership to motivations of PV.

Some studies have also indicated that in prison, gang members are involved in more dangerous incidents of violence than non-gang members. Gaes et al., (2002) found that when compared to violent prison incidents involving non-gang members, incidents involving gang members were most likely to result in injury or involve weapon use. Wilson and Tamatea (2010) found similar results, with gang members more commonly than non-gang members using weaponry and intending to cause serious injury to a target. Fischer (2001) found that gang members were more likely than non-gang members to at least have been disciplined for serious violations. However, serious violations did not refer to the severity of violent incidents between gang members and non-gang members. Instead, serious violations referred

to violations that are generally more serious than other types of violations. For example, tampering with property equipment was one of the lesser violations. Unfortunately, Fischer was unclear about what constituted a serious violation and so it was difficult for us to ascertain what serious violations gang members were committing.

Group-on-group PV. At least one study has identified that in PV incidents, group-on-group violence more commonly involves prisoners from rival gangs than non-gang members (Meek, 1992). Meek (1992) found that 16 of 18 mass incidents of PV in New Zealand were brawls between two rival gangs. In a number of these scenarios, many prisoners were involved (up to 63 people). In another study (Wilson & Tamatea, 2010), group-on-group PV was usually viewed by correctional staff to be a result of risk calculation by a previously victimized prisoner where they felt that they could not retaliate on their own. At this point, the situation would escalate into a planned gang confrontation whereby participants would use weapons and actively seek to do serious harm to a target.

Premeditation. Two studies have identified varying levels of preparedness and premeditation of PV committed by gang members. According to Rocheleau (2015, p.361), prisoner-on-prisoner violence is not "random or mindless" but the result of poor coping strategies in response to conflicts between other prisoners. In contrast, another study (Wilson and Tamatea, 2010, p. 193) found that for prisoner-on-staff incidents, PV came down to opportunity, had "little planning" and more often involved gang members as opposed to non-gang members.

Problems with Gang Violence in Prison Research

A pervasive issue in GPV research is the lack of definitions regarding common terms such as gang violence, violent misconduct and even gangs which has carried over from gang research. The meaning of these terms may seem intuitive and straightforward but as we have discussed earlier, this is not the case. Relying on intuition and ignoring definitions can lead to

confusion regarding the interpretation of GPV findings which can affect how findings are implemented to reduce violence in prison.

Gangs. A number of GPV studies have outright ignored defining what counts as a gang, instead just choosing to ask if a prisoner is a gang member or not. Such an approach seems to rely on the assumption that people will know what 'kind' of people they are referring to when referring to gang members. Though it may not be problematic for people to envision a hypothetical and faceless individual or group whilst reading through research, it can present a particularly frustrating problem for correctional staff, policy makers and other relevant groups when trying to identify gang members for intervention and prevention efforts.

Violent misconduct. Any sort of physical assault is concerning and in need of our attention. However, studies have often ignored the severity of violent incidents or have only reported the worst of the worst cases. Furthermore, even in cases where incidents were reportedly serious, there is no explanation of what counts as a serious incident of violent misconduct. For example, one study (Woods, 2011) found that gang members were three times more likely to assault prison staff than non-gang members. However, the study gave no indication about what counted as serious. What is concerning about this ambiguity is that the issue of victimization, may be greater than what we think it is making the problem of PV even more alarming. Developing greater clarification around what counts as serious can help researchers and justice system staff to get a clearer picture of the problem of gang violence in prisons.

Gang violence. By putting these two words together, readers may understandably assume that a violent incident is driven by a gang's agenda or goals (gang-related). However, when we turn back to motivations underpinning PV, gang violence seems to merely reflect that at least one participant is a gang member. The issue with such a definition is that we do not know how gang membership is relevant to the occurrence of PV. We do not know if the

violent incidents are a result of gang agendas or simply if gang members exhibit characteristics that make them generally higher risk for being involved in a violent incident. Making such a distinction between violent incidents that are gang-related and those that simply involve gang members may provide insight about the relevance of gang membership to PV.

Lack of practical utility. Despite studies offering insight into GPV occurrence, the body of research is small, with a number of even basic questions being left unanswered or fragmented. For example, GPV research has looked at whether gang membership and PV are related or not. This focus is helpful to verify that there is in fact a problem. But this finding does not help us to understand why gang membership specifically is relevant to PV. From this approach, we only know that violence involving gang members in prison is a significant issue. What we need to do now is move on to hypothesizing and testing why gang membership is a risk factor for PV. Earlier, we discussed some insights beyond the gang membership/PV correlation (e.g. gang motivations). However, even with some of these findings (e.g. retaliation), their specific relevance to gangs is unclear since their respective studies have not provided a comparison to non-gang members. Subsequently, we may consider such findings to simply be risk factors for individuals, rather than motivations/risk factors for gang members. For us to claim that particular risk factors are specific to gangs, we need to understand that they are significantly unique amongst gang members than non-gang members. To do this, we need to compare the prevalence of risk factors between gang members and non-gang members.

Situational characteristics/risk factors. Although research has identified some situational characteristics that are linked to PV, this body of research is small and has not been tested among gang populations.

The Current Study

In discussing a number of problems that are present within GVP research, the current study intends to address risk factors that are relevant to gang members. More specifically, this study intends to investigate the specificity of established prison violence risk factors to see if they can be used to predict events involving gang and non-gang members. Therefore, in the current study our research questions are:

1. Can event characteristics predict PV perpetrated by gang members and non-gang members?
2. Do event characteristics differ based on the gang status of victims?

Method

Data Source

To answer these questions, we used a sample from an archival database. The database collates reports of incidents perpetrated by prisoners from every prison in New Zealand since 2016 and includes violent and non-violent incidents against prisoners and staff. However, our sample database only included incidents that involved physical harm between two prisoners (n= 2516). These incidents were separated into incidents that resulted in no injury (n= 996), incidents that resulted in an injury that did not require medical attention (n= 1434), and incidents that resulted in a serious injury requiring medical attention (n= 86). Incident reports included prisoner information (for perpetrators and victims) and details about the incident which were split into multiple categories. Prisoner information consisted of various variables taken from a snapshot at the end of the month prior to the incident and included: incident role, prisoner identification number (ID), ethnicity, age, RoC*RoI (Risk of ReConviction*Risk of Imprisonment), security classification, length of sentence given, primary offence (leading to imprisonment), number of convictions, number of orders, gang membership status, and gang name. Details about the incident included: incident ID, location,

date, and time that the incident occurred. After we decided on our analysis variables, we went through all incidents and removed incidents where relevant prisoner or incident information was missing. From our initial sample (n= 2516), 18 incidents were missing either the perpetrator or victim's ethnicity, 401 incidents were missing RoC*RoI scores, and 53 incidents had "unclassified" security classifications. We also excluded incidents where incident location (e.g. "H2") and role (i.e. perpetrator or victim) were ambiguous (e.g. "prisoners fighting"; 453 and 53 incidents respectively). After all exclusions, our final sample consisted of 1538 incidents perpetrated by 1240 prisoners against 1386 victims. We then separated the remaining incidents into two categories: those perpetrated by gang members (G) and incidents perpetrated by non-gang members (NG).

Data Preparation and Analytic Strategy

Our research question is: can incident characteristics predict prison violence perpetrated by gang members and non-gang members? To investigate our question, we opted to analyse our data using a logistic regression model. Due to the nature of our research question and data, logistic regression seems best for analysis due to its ability to predict dichotomous outcome variables (gang versus non-gang perpetrator) using nominal (e.g. location) and numerical (e.g. age) predictors. Prior to running the regression, we anonymized the database by removing prisoner and incident IDs. We then went through the database variables to determine the incident characteristics that we would include for primary analysis, and to recode those variables with a large range of values. From the prisoner information, we used ethnicity, age, and RoC*RoI scores. We also used gang affiliation and incident role to sort our sample into two prediction groups: gang perpetrators and non-gang perpetrators. All other prisoner information mentioned earlier was excluded from analysis due to our focus on investigating proximate characteristics of prison violence. From the incident details, we used security class, location, date, and time of the incident as our predictors for gang and non-gang

perpetrated incidents. For all nominal variables, we coded each response within a variable into levels before creating a dummy variable for each level. Levels within each predictor are outlined below.

Ethnicity

Ethnicity refers to the ethnic identity of a prisoner. Initially, ethnicity was split into four categories: Māori, European, Pacific, and Other. However, due to the fewer numbers of Pacific and Other classifications when compared to Māori and European, the former two categories were collapsed into one category. The reference category for ethnicity was the Māori category.

Age

Age refers to how old (in years) a prisoner was at the time of their involvement in an incident of prison violence. As a continuous variable, we did not dummy code age and used prisoners' actual ages in our logistic regression analysis.

*RoC*RoI*

The RoC*RoI (risk of (re)conviction*risk of (re)imprisonment) is an actuarial risk assessment tool that assesses a prisoner's risk of reconviction and reimprisonment (Bakker, O'Malley, and Riley. 1999). According to the RoC*RoI, a low score (0.0 - 0.29999; Johnston, 2021) indicates a low probability of reconviction leading to reimprisonment in the following 5 years. Developed by the New Zealand Department of Corrections, ROC*ROI scores have demonstrated a strong positive relationship to actual rates of recidivism that leads to imprisonment. ROC*ROI scores were for the month prior to the incident occurrence. As a continuous variable, we used the actual ROC*ROI scores for prisoners in our logistic regression analysis.

Security classification

Security classification refers to the security level of the prisoner prior to incident occurrence. Originally, there were six security classifications (Minimum, Low, Low Medium, High, Maximum, and Remand) but these were collapsed into four (Low, Medium, High, Remand) due to lacking numbers for some classifications. Low included the Minimum and Low classifications, Medium included the Low Medium classification, High consisted of the High and Maximum classifications, and Remand consisted only of the Remand classification. The reference category for security classification was the Low category.

Location

Location refers to the approximate location where an incident occurred within the prison. Because there were many unique places in which incidents occurred (e.g. cells, recreation rooms, bathrooms), we ended up coding location IDs into two levels which reflected whether an incident occurred in a public (e.g. the yard, rec rooms) or private area (e.g. cells). The reference category for location was the Public category.

Date

Date refers to the day that the incident occurred. For analysis, we coded the dates to reflect the day of the week ("day") that an incident occurred (e.g. Sunday = 1). The reference category for day was the first category (i.e. Sunday).

Time

This predictor refers to the time of day that the incident occurred. Although the database did contain the exact time of an incident, we converted time into a two-level nominal variable based on the routine of the prison (In Cell and Out of Cell). The In Cell level refers to incidents that took place between 3pm and 9am, to approximate the period when prisoners are typically confined to their cells. The Out of Cell level refers to incidents that took place between 9am and 3pm when prisoners were typically likely to be in other

parts of the unit or prison (e.g., exercise yard, work, programmes). The reference category for time was the Out of Cell category.

Results

Description of Sample

In the current study, we performed all analyses using SPSS version 28. Demographic information of our sample is presented in Table 1. Table 1 shows that non-gang members made up a larger proportion of perpetrators when compared to gang members. Regardless of gang affiliation, Māori accounted for the highest percentage of our overall sample population with more than half of our sample being Māori. European prisoners were the second largest ethnic group in our sample with prisoners from Other ethnicities making up the smallest ethnic groups. With regards to gang affiliation, Māori prisoners made up the majority of those who were gang members and non-gang members. Europeans prisoners made up the second largest ethnic group of prisoners who were gang and non-gang members while prisoners from Other ethnicities made up the smallest number of prisoners who were gang and non-gang members. In regard to perpetrator or victim status, Māori made up the largest portion of our sample's perpetrator and victim population with European prisoners making up a larger proportion of perpetrators and victims than prisoners from Other ethnicities. Overall, the ethnic proportions of our study sample reflect the ethnic makeup across correctional institutions across the country. From these findings, we can see that in addition to being disproportionately represented in prisons, Māori are also disproportionately involved in prison violence incidents.

To compare the mean ages and ROC*ROI scores of perpetrators and victims based on gang status, we used an ANOVA test. On average, perpetrators who were non-gang members were older than perpetrators who were gang members. Furthermore, perpetrators who were non-gang members had a slightly lower RoC*RoI score on average than perpetrators who

were gang members. For victims, non-gang members were older on average than victims who were gang members. Lastly, victims who were non-gang members had a lower RoC*RoI score on average than victims who were gang members. We also tested our predictors for multicollinearity and found no strong relationships between them. Therefore, we retained all predictors for primary analyses.

Table 1: Ethnicity, Age and RoC*RoI of Perpetrators and Victims in the Final Sample (*n* = 2626) Based on Gang Status

	Non-Gang	Gang	Total			
Variables	Final, *n* (%)	Final, *n* (%)	Final, *n* (%)	$\chi 2$	*p*	φ
Perpetrator ethnicity	903 (34.4)	337 (12.8)	1240 (47.2)	21.46	<.001	0.12
Maori	537 (59.5)	240 (71.2)	777 (62.7)			
European	206 (22.8)	42 (12.5)	248 (20.0)			
Other	160 (17.7)	55 (16.3)	215 (17.3)			
Victim ethnicity	1165 (44.4)	221 (8.4)	1386 (52.8)	78.59	<.001	0.21
Maori	479 (41.1)	152 (68.8)	631 (45.5)			
European	532 (45.7)	45 (20.4)	577 (41.6)			
Other	154 (13.2)	24 (10.9)	178 (12.8)			
Total	2068 (78.8)	558 (21.2)	2626 (100.0)	117.2	<.001	0.21
Maori	1016 (49.1)	392 (70.3)	1408 (53.6)			
European	738 (35.7)	87 (15.6)	825 (31.4)			
Other	314 (15.2)	79 (14.2)	393 (15.0)			

	Non-Gang		Gang				
Variables	*M*	*SD*	*M*	*SD*	*F*	*p*	Cohen's d
Perpetrator age	29.77	8.93	27.39	7	8.76	<.001	-0.03
Perpetrator RoC*RoI score	0.61	0.2	0.64	0.18	19.43	0.003	0.83
Victim age	31.28	9.66	28.75	8.16	14.35	<.001	-0.03
Victim RoC*RoI score	0.48	0.22	0.57	0.19	31.44	<.001	2.13
Total sample age	30.67	9.38	27.93	7.5	40.7	<.001	0.32
Total sample RoC*RoI score	0.53	0.22	0.61	0.19	59.71	<.001	0.39

Prediction of Prison Violence by Gang vs. Non-Gang Perpetrators

Next, we conducted 3 logistic regression analyses. For each model, we used a stepwise approach to analyse the predictive ability of victim and perpetrator characteristics independently. We used a stepwise approach for analysis because we thought certain predictors (victim characteristics in Model 1 and perpetrator characteristics in Model 2) would be less predictive than others. Therefore, we wanted to see what the contribution of these predictors would be and whether these variables would allow a significant model to be estimated, before adding stronger predictors.

Model 1

Model 1 (Table 2) used the variables outlined earlier to predict prison violence incidents perpetrated by gang vs. non-gang members. In Model 1, we first examined whether environmental (e.g. time, and location) and victim variables predicted whether the perpetrator was a gang members or non-gang member. The overall model is significant, but the Nagelkerke pseudo R-squared value indicates it is only slightly better than the null model. For the first step which only included environmental and victim variables, victim age and victim security class significantly improved violence type prediction over the null model. More specifically, prisoners who were victimised by gang members were younger than prisoners victimised by non-gang members. Furthermore, prisoners who were victimised by gang members had higher security classifications than prisoners who were victimised by non-gang members.

When adding perpetrator variables for our second step, predictive efficacy of our model was also significantly better than a null model and demonstrated greater goodness of fit than Step 1 and the null model. The predictive efficacy of all our perpetrator predictors was significant. Furthermore, the predictive ability of our victim variables were no longer significant, indicating that they did not provide any predictive value beyond that offered by

our perpetrator variables. Table 2 also indicates that each level of our perpetrator predictors significantly predicted violence perpetrated by a gang or non-gang member.

Model 2

Model 2 (Table 2), of our regression model was employed to distinguish between incidents of prison violence perpetrated by non-gang members against gang and non-gang victims. For Model 2, victim status was coded as two levels (non-gang victim = 0 and gang victim = 1). In the first step, we analysed environmental and perpetrator variables (Step 1) before adding victim variables (Step 2). Analysis indicated that goodness of fit for both Steps and the overall model was better than the null model. For the first step, analysis only identified perpetrator ethnicity as a significant predictor of victim type. Furthermore, within perpetrator ethnicity only one level (European) significantly predicted violence type. This result indicated that victims who were European were more likely to be non-gang members than victims who were Māori. The R2 value for Step 1 also indicated that while a better fit for our data than the null model, this was not substantially so. For Step 2, analysis indicated a significant improvement from the null model. Furthermore, Step 2's R2 value indicated a goodness of fit for our data better than the null model and Step 1. All victim variables (except for victim age) significantly predicted victim status and each level within our victim variables also significantly predicted victim status. More specifically, victims who were European or an Other ethnicity were less likely to be gang members than victims who were Māori. Victims who had a low, medium or high security classification were less likely to be gang members than victims with a remand security classification. Lastly, victims with higher RoC*RoI scores were more likely to be gang members than victims with lower RoC*RoI scores.

Model 3

Model 3 (Table 2), of our regression model was employed to distinguish between incidents of prison violence perpetrated by gang members against gang and non-gang victims. For Model 3, non-gang victims acted as the reference category. Like Model 2, we then tested environmental and perpetrator predictors first (Step 1) before adding victim predictors (Step 2) to the analysis. Analysis indicated that Step 1 was not a significantly better fit for our data than the null model. Furthermore, Step 1 analysis revealed no significant predictors of violence type for Model 3. For Step 2, goodness of fit (0.33) for our data was an improvement over the null model. In Step 2, victim ethnicity, RoC*RoI score, and victim security class significantly predicted violence type. More specifically, results indicated that the higher a victim's RoC*RoI score was, the more likely they were to be a gang member. Victims who were European or another ethnicity were less likely to be gang members than victims who were Māori. Lastly, victims with a low, medium or high security classification were less likely than victims with a remand security classification to be a gang member.

TABLE 3: Binary Logistic Regressions Using Characteristics of Perpetrators, Victims and the Incident to Predict Whether Prison Violence Was Perpetrated by Gang or Non-Gang Members (*n* = 1,538)

	Model 1									
	Step 1					Step 2				
Predictors	*B*	*SE*	Wald	*p*	OR [95% CI]	*B*	*SE*	Wald	*p*	OR [95% CI]
Victim ethnicity			4.92	0.09				3.65	0.16	
Māori	-	-	-	-	-	-	-	-	-	-
European	-0.21	0.13	2.80	0.09	0.81 [0.64, 1.04]	-0.17	0.16	1.08	0.30	0.84 [0.61, 1.16]
Other	-0.37	0.19	3.62	0.06	0.69 [0.47, 1.01]	-0.46	0.25	3.45	0.06	0.63 [0.39, 1.03]
Victim security class			19.68	<.001				2.70	0.44	
Remand	-	-	-	-	-	-	-	-	-	-
Low	-0.38	0.16	5.36	0.02	0.69 [0.50, 0.94]	-0.19	0.21	0.81	0.37	0.83 [0.55, 1.25]
Medium	-0.50	0.19	6.70	0.01	0.61 [0.42, 0.89]	-0.19	0.25	0.59	0.44	0.83 [0.51, 1.34]
High	-0.70	0.19	13.86	0.00	0.50 [0.35, 0.72]	-0.36	0.25	2.06	0.15	0.70 [0.43, 1.14]
Victim gang affiliation	0.16	0.17	0.98	0.32	1.18 [.85, 1.63]					
Gang member	-	-	-	-	-	0.25	0.22	1.31	0.25	1.28 [0.84, 1.97]
Victim age	-0.01	0.01	4.48	0.03	0.99 [0.97, 1.00]	-0.01	0.01	1.32	0.25	0.99 [0.97, 1.01]
Victim ROC*ROI score	0.32	0.29	1.20	0.27	1.37 [0.78, 2.42]	0.50	0.38	1.74	0.19	1.64 [0.79, 3.43]
Perpetrator ethnicity								33.89	<.001	
Māori	-	-	-	-	-	-	-	-	-	-
European	-	-	-	-	-	-1.17	0.21	32.03	0.00	0.31 [0.21, 0.46]
Other	-	-	-	-	-	-0.51	0.21	6.23	0.01	0.60 [0.40, 0.90]
Perpetrator security class								317.31	<.001	
Remand	-	-	-	-	-	-	-	-	-	-
Low	-	-	-	-	-	-3.35	0.34	96.60	<.001	0.04 [0.02, 0.07]

Medium	-	-	-	-	-	-3.22	0.32	103.24	<.001	0.04 [0.02, 0.074]
High	-	-	-	-	-	-4.30	0.33	171.48	<.001	0.01 [0.01, 0.03]
Perpetrator age	-	-	-	-	-	-0.03	0.01	8.03	<.001	0.97 [0.95, 0.99]
Perpetrator ROC*ROI score	-	-	-	-	-	2.12	0.41	26.49	<.001	8.31 [3.71, 18.60]
Day			1.35	0.97				2.52	0.87	
Sunday	-	-	-	-	-	-	-	-	-	-
Monday	0.10	0.23	0.18	0.67	1.10 [0.71, 1.71]	0.22	0.29	0.55	0.46	1.24 [0.70, 2.20]
Tuesday	-0.08	0.22	0.12	0.73	0.93 [0.60, 1.43]	-0.04	0.28	0.02	0.90	0.96 [0.56, 1.67]
Wednesday	0.10	0.22	0.21	0.64	1.11 [0.72, 1.69]	0.12	0.28	0.19	0.67	1.13 [0.65, 1.97]
Thursday	0.09	0.22	0.16	0.69	1.09 [0.71, 1.68]	0.29	0.29	1.02	0.31	1.34 [0.76, 2.36]
Friday	-0.05	0.22	0.04	0.84	0.96 [0.62, 1.48]	0.03	0.28	0.01	0.93	1.03 [0.59, 1.79]
Saturday	0.04	0.23	0.04	0.85	1.04 [0.67, 1.63]	-0.03	0.29	0.01	0.92	0.97 [0.55, 1.71]
Time	-0.18	0.13	1.80	0.18	0.84 [0.65, 1.09]	-0.27	0.17	2.56	0.11	0.76 [0.55, 1.06]
Location	-0.09	0.13	0.42	0.52	0.92 [0.71, 1.19]	-0.18	0.17	1.17	0.28	0.84 [0.60, 1.16]
Step	Nagelkerke R^2 = 0.04, χ2 (15) = 38.08, p <.001					Nagelkerke R^2 = 0.52, χ2 (7) = 644.33, p <.001				
Model	Nagelkerke R^2 = 0.52, χ2 (22) = 682.41, p <.001									

Model 2

	Step 1					Step 2				
Predictors	*B*	*SE*	Wald	*p*	OR [95% CI]	*B*	*SE*	Wald	*p*	OR [95% CI]
Victim ethnicity								31.36	<.001	
Māori	-	-	-	-	-	-	-	-	-	-
European	-	-	-	-	-	-1.27	0.23	30.07	<.001	0.28 [0.18, 0.44]
Other	-	-	-	-	-	-0.70	0.31	5.10	0.02	0.50 [0.27, 0.91]
Victim security class								68.84	<.001	
Remand	-	-	-	-	-	-	-	-	-	-
Low	-	-	-	-	-	-1.8	0.4	24.8	<.001	0.17 [0.09, 0.34]
Medium	-	-	-	-	-	-2.6	0.5	24.3	<.001	0.07 [0.03, 0.21]

High	-	-	-	-	-	-2.2	0.4	31.7	<.001	0.11 [0.05, 0.23]
Victim gang affiliation										
Gang member	-	-	-	-	-	-	-	-	-	-
Victim age	-	-	-	-	-	-0.01	0.01	1.32	0.25	0.99 [0.96, 1.01]
Victim ROC*ROI score	-	-	-	-	-	2.29	0.50	20.61	<.001	9.88 [3.68, 26.54]
Perpetrator ethnicity			12.60	0.002				4.83	0.09	
Māori	-	-	-	-	-	-	-	-	-	-
European	-0.87	0.28	9.82	<.001	0.42 [0.24, 0.72]	-0.62	0.30	4.41	0.04	0.54 [0.30, 0.96]
Other	0.24	0.24	1.06	0.30	1.27 [0.80, 2.02]	0.07	0.26	0.07	0.80	1.07 [0.64, 1.79]
Perpetrator security class			2.24	0.52				2.66	0.45	
Remand	-	-	-	-	-	-	-	-	-	-
Low	0.13	0.27	0.25	0.62	1.14 [0.68, 1.93]	0.42	0.29	2.03	0.16	1.52 [0.85, 2.70]
Medium	-0.32	0.30	1.12	0.29	0.73 [0.40, 1.31]	-0.05	0.33	0.02	0.88	0.95 [0.50, 1.81]
High	0.04	0.24	0.02	0.88	1.04 [0.65, 1.65]	0.19	0.26	0.49	0.48	1.20 [0.72, 2.02]
Perpetrator age	-0.01	0.01	1.52	0.22	0.99 [0.97, 1.01]	0.00	0.01	0.01	0.93	1.00 [0.97, 1.02]
Perpetrator ROC*ROI score	0.70	0.52	1.81	0.18	2.01 [0.73, 5.54]	0.54	0.56	0.94	0.33	1.72 [0.58, 5.14]
Day			7.35	0.29				6.04	0.42	
Sunday	-	-	-	-	-	-	-	-	-	-
Monday	0.29	0.37	0.63	0.43	1.34 [0.65, 2.78]	0.19	0.41	0.21	0.65	1.20 [0.54, 2.66]
Tuesday	0.58	0.34	2.80	0.09	1.78 [0.91, 3.49]	0.45	0.38	1.44	0.23	1.57 [0.75, 3.27]
Wednesday	0.17	0.36	0.22	0.64	1.18 [0.58, 2.42]	0.27	0.40	0.46	0.50	1.31 [0.60, 2.84]
Thursday	0.34	0.36	0.88	0.35	1.41 [0.69, 2.86]	0.23	0.39	0.36	0.55	1.26 [0.59, 2.72]
Friday	0.55	0.35	2.54	0.11	1.74 [0.88, 3.42]	0.38	0.38	1.03	0.31	1.47 [0.70, 3.06]
Saturday	-0.16	0.40	0.16	0.69	0.85 [0.39, 1.86]	-0.38	0.43	0.81	0.37	0.68 [0.30, 1.57]
Time	-0.55	0.22	6.38	0.01	0.58 [0.38, 0.88]	-0.49	0.23	4.33	0.04	0.61 [0.39, 0.97]
Location	0.12	0.20	0.33	0.57	1.12 [0.76, 1.66]	0.15	0.22	0.49	0.49	1.17 [0.76, 1.79]
Step	Nagelkerke R^2 = 0.06, $\chi 2$ (15) = 37.11, p = 001					Nagelkerke R^2 = 0.28, $\chi 2$ (7) = 147.14, p <.001				

Model	Nagelkerke R^2 = 0.28, $\chi 2$ (22) = 184.25, p <.001									
	Model 3									
	Step 1					Step 2				
Predictors	*B*	*SE*	Wald	*p*	OR [95% CI]	*B*	*SE*	Wald	*p*	OR [95% CI]
Victim ethnicity								17.22	<.001	
Māori	-	-	-	-	-	-	-	-	-	-
European	-	-	-	-	-	-1.41	0.34	17.08	<.001	0.24 [0.13, 0.48]
Other	-	-	-	-	-	-0.63	0.46	1.86	0.17	0.53 [0.22, 1.32]
Victim security class								34	<.001	
Remand	-	-	-	-	-	-	-	-	-	-
Low	-	-	-	-	-	-2.58	0.66	15.15	<.001	0.08 [0.02, 0.28]
Medium	-	-	-	-	-	-3.26	1.04	9.85	<.001	0.04 [0.01, 0.29]
High	-	-	-	-	-	-2.61	0.69	14.21	<.001	0.07 [0.02, 0.29]
Victim gang affiliation										
Gang member	-	-	-	-	-					
Victim age	-	-	-	-	-	-0.01	0.02	0.52	0.47	0.99 [0.95, 1.02]
Victim ROC*ROI score	-	-	-	-	-	1.98	0.73	7.31	0.01	7.22 [1.72, 30.22]
Perpetrator ethnicity			2.50	0.29				4.83	0.09	
Māori	-	-	-	-	-	-	-	-	-	-
European	-0.67	0.46	2.17	0.14	0.51 [0.21, 1.25]	-0.58	0.50	1.38	0.24	0.56 [0.21, 1.48]
Other	-0.28	0.37	0.58	0.45	0.76 [0.37, 1.55]	-0.82	0.41	4.01	0.05	0.44 [0.20, 0.98]
Perpetrator security class			3.11	0.37				5.52	0.14	
Remand	-	-	-	-	-	-	-	-	-	-
Low	1.19	0.69	2.97	0.09	3.29 [0.85, 12.74]	1.97	0.89	4.93	0.03	7.14 [1.26, 40.55]
Medium	-0.20	0.80	0.06	0.81	0.82 [0.17, 3.97]	-0.57	0.92	0.39	0.53	0.57 [0.09, 3.42]
High	-0.18	0.81	0.05	0.82	0.83 [0.17, 4.04]	-0.44	0.94	0.22	0.64	0.65 [0.10, 4.07]
Perpetrator age	0.03	0.02	2.52	0.11	1.03 [0.99, 1.06]	0.04	0.02	3.55	0.06	1.04 [1.00, 1.08]

Perpetrator ROC*ROI score	0.90	0.75	1.43	0.23	2.46 [0.56, 10.71]	0.46	0.84	0.30	0.59	1.58 [0.30, 8.27]
Day			2.67	0.85				3.47	0.75	
Sunday	-	-	-	-	-	-	-	-	-	-
Monday	0.45	0.48	0.88	0.35	1.57 [0.61, 4.03]	0.69	0.55	1.55	0.21	1.99 [0.67, 5.88]
Tuesday	0.33	0.48	0.47	0.50	1.38 [0.55, 3.51]	0.52	0.55	0.88	0.35	1.67 [0.57, 4.90]
Wednesday	0.08	0.48	0.03	0.87	1.08 [0.42, 2.77]	0.12	0.55	0.05	0.83	1.13 [0.38, 3.30]
Thursday	-0.23	0.50	0.22	0.64	0.79 [0.30, 2.11]	-0.11	0.57	0.04	0.84	0.89 [0.30, 2.70]
Friday	0.10	0.49	0.04	0.84	1.10 [0.42, 2.88]	0.21	0.57	0.14	0.71	1.23 [0.41, 3.74]
Saturday	0.06	0.51	0.01	0.91	1.06 [0.39, 2.87]	0.40	0.58	0.47	0.49	1.49 [0.48, 4.59]
Time	-0.53	0.32	2.86	0.09	0.59 [0.32, 1.09]	-0.47	0.35	1.80	0.18	0.63 [0.32, 1.24]
Location	-0.03	0.29	0.01	0.93	0.98 [0.55, 1.72]	-0.05	0.33	0.02	0.88	0.95 [0.50, 1.81]
Step	Nagelkerke R^2 = 0.33, $\chi 2$ (7) = 83.33, p <.001					Nagelkerke R^2 = 0.33, $\chi 2$ (7) = 83.33, p <.001				
Model	Nagelkerke R^2 = 0.33, $\chi 2$ (22) = 96.83, p <.001									

Note. Location (Private = 0, Public = 1), Time (In Cell = 0, Out of Cell = 1), and Victim Gang Affiliation (Non-Gang = 0, Gang = 1) was coded as two levels with the second category acting as the reference category.

Discussion

Within this study, we aimed to understand incident characteristics that could predict and differentiate between PV involving gang members and non-gang members with our results indicating limited support for our hypotheses. We also noticed a number of similarities and differences from existing PV research. We discuss each of these in turn, with references to our research questions, before considering limitations and areas for further research

Our Research Questions and Hypotheses

Our first research question was "Can incident characteristics predict PV perpetrated by gang members and non-gang members?" We examined this question in Model 1. Findings indicated a limited capacity to predict PV type from the available variables in the incident database. None of our proximal incident characteristics (e.g. location, time of day) significantly differentiated between PV incidents committed by gang members or non-gang members. Instead, the only incident characteristics that significantly predicted violence type were the individual characteristics of the prisoner at the time that the incident occurred (e.g. age, ethnicity, security classification). Interestingly, victim characteristics did significantly predict violence type in the first model when perpetrator characteristics were not included. However, victim characteristics did not improve prediction when perpetrator characteristics were added to the model.

Models 2 and 3 tested our second research question: "Do incident characteristics differ based on the gang status of victims?" These findings also indicated a limited capacity of our characteristics to differentiate between PV incidents against gang or non-gang victims, whether committed by non-gang (Model 2) or gang (Model 3) perpetrators. Similar to our findings with our first question, none of our proximal incident characteristics significantly differentiated between victim type (gang or non-gang victim) in either model. In fact, only characteristics of the victim significantly predicted victim status.

Comparisons to Past Research

We also observed findings that were consistent with previous research regarding violence committed within correctional facilities. In the current study, our analyses indicated that the age, ethnicity, RoC*RoI score (actuarial risk estimate of reconvictions leading to reimprisonment), and unit security classification significantly predicted whether a PV incident was perpetrated by a gang or non-gang member. Gang perpetrators were more likely to be younger, have higher ROC*ROI scores, higher security classifications, and be Māori when compared to non-gang perpetrators. These findings are similar to those reported in other PV research where perpetrators tend to be young (late teens to twenties), have higher security classifications, and come from minority ethnic groups (Pyrooz et al, 2011; McGuire, 2018). However, what we need to keep in mind regarding our findings and past research is that these characteristics are not exclusive to PV research. Furthermore, due to the scope of the current study our choice of data analysis did not enable us to explain the mechanisms that link our predictors to PV committed by gang or non-gang members. Therefore, the analysis in the current study does not provide insight about why gang perpetrators in our sample were more likely to embody particular characteristics than non-gang perpetrators. Consequently, when we also consider the consistency of perpetrator characteristics across settings, it may be the case that our analysis does not even necessarily provide understanding for PV specifically but violence occurrence broadly.

Despite some of our observations reflecting similar conclusions from past research, other findings also differed from what other researchers have observed. As cited by Fahmy (2020) in their literature review, gang members disproportionately perpetrate PV, accounting for anywhere between 43-80 percent of perpetrators. However, Fahmy's reported figures were in direct contrast to the make-up of our sample where over 2,000 participants were non-gang members and approximately 400 participants were gang members. This discrepancy

between New Zealand and other prisons indicates a potential limitation when interpreting the generalizability of our findings beyond New Zealand correctional facilities. Such a disparity between New Zealand and other prisons prompts us to wonder why gang members are not disproportionately involved in PV to the extent that we see in other prison settings. It also raises a question about whether this disparity is relevant to the findings that we observed in the current study and if so, how? Future research may be interested in exploring the mechanisms behind the distribution of violence within New Zealand prisons. By doing so, we may gain valuable contextual insight about the occurrence of PV within New Zealand prisons that can aid in prediction and prevention.

Limitations

In addition to the limitations mentioned above, there are a number of important considerations that we need to keep in mind. Several of our incident characteristics did not significantly predict violence type in any of our models and this may be attributed to the data we had available to us as well as the coding process for our predictors. In the current study, we had four violence group types: (1) non-gang perpetrator on non-gang victim, (2) non-gang perpetrator on gang victim, (3) gang perpetrator on non-gang victim, and (4) gang perpetrator on gang victim. However, more than half of the cases in our sample came under the first violence type category. The other three violence types collectively made up approximately 30 percent of the overall sample. When also considering the number of predictors and number of levels for each predictor, it was difficult to develop significant models based on so few cases from the three smaller violence types. Future research should look to have a greater number of cases throughout each violence type to develop a more significant and reliable model than was possible in the current study.

For each of our logistic regression models, analysis indicated that day, time, and location did not significantly predict violence type at all. A lack of significance may have

been due to the way that we coded such proximal characteristics. For incident location, there were too many unique location descriptions for the number of incidents in the database. Furthermore, each location description did not appear consistently enough to construct several usable levels of the location variable that we could analyse. Because of the number of unique incident locations, it was impossible to run a proper analysis without collapsing these locations into broader, overarching levels. Ultimately, we ended up needing to significantly water down the location variable, to the point where we only took into account whether an incident location was a public place or not. For example, instead of differentiating between locations such as “the yard”, “dining halls”, “outside of cell”, and “day room”, all were subsumed under the “public” level of the location variable. Perhaps if we were able to organise locations into more meaningful levels, analysis may have yielded better predictive efficacy of the location variable. However, in order for us to achieve better coded proximal characteristics, we would need more data which would require a greater sample, especially with more participants in the second, third, and fourth groups. Furthermore, we would need to have greater specificity in the information from prison reports (e.g. location within a block rather than just the block). For time, we also found it difficult to construct meaningful levels. In general, prisoners in New Zealand facilities spend a limited amount of time outside of their cell and so we constructed our time variable to reflect this. However, we did not know how time was managed across prisons when prisoners were in or out of their cells (i.e. prison schedules). Due to the controlled environment within correctional facilities, it would have been interesting to understand how times that an incident occurred (within and across prisons) matched up with the incident location. Furthermore, understanding the time an incident occurred in relation to a prison’s schedule at the time the incident occurred could have helped us to understand the activities that are relevant to violence type.

Future research

Despite our findings, the current study outlines some important points that we need to address within future research. First, although we have an idea of PV characteristics, we need to continue trying to understand which PV characteristics are unique to gang members. Much of the gang and PV research presented earlier in this paper outlines characteristics and factors that may be common amongst gang members but are doubtfully unique to them. With gangs tending to be overrepresented in PV statistics, this past research ignores the special relevance that gang membership has to PV and subsequently misses a key point of understanding and ultimately reduction for PV. Comparing PV characteristics between gang and non-gang members can help us to rectify this issue. To do this, future research may look to utilise similar processes from the current study using a larger sample as well as a more detailed database for codification. Better codification, especially for location variables could provide some interesting insight that we were unable to gather in this study. Researchers should also be concerning themselves with why characteristics are unique to gang members. Understanding characteristics can help us to know what we need to address, but why they are significant can help us know how to address them within our prisons. One way to do this may be to take PV characteristics that are unique to gang members and then unpacking motivations of involvement in a similar manner to past PV motivation research. By merging these two types of research we may be able to not only understand what makes gang membership relevant to increased involvement in PV but also why.

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Appendices

Appendix A: Ethics Approval Letter

Kia ora Aaron

HREC(Health)2021#28 : Turning the tide on prison violence : Understanding violent incidents in prison with and without gang member involvement

Thank you for your responses to the Committee feedback.

We are now pleased to provide formal approval for your project.

Please contact the committee by email (humanethics@waikato.ac.nz) if you wish to make changes to your project as it unfolds, quoting your application number with your future correspondence. Any minor changes or additions to the approved research activities can be handled outside the monthly application cycle.

We wish you all the best with your research.

Regards,

Emeritus Professor Roger Moltzen MNZM
Chairperson
University of Waikato Human Research Ethics Committee