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Assessing the Distinct Factors Driving Violent, Drug and Disorder-Related Prison Misconduct from Longitudinal Data in Northern Ireland

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Studies are increasingly interested in how different categories of prison misconduct may affect re-offending. Yet few studies investigate the distinct factors driving different types of misconduct and those that do are often cross-sectional or retrospective. This study uses a prospective longitudinal design to address this gap by investigating what factors influence future involvement in misconduct and if these factors vary by type. Administrative data drawn from the records of 429 imprisoned men are examined to predict misconduct during a 1-year follow-up period. Findings reveal distinct differences by type and suggestions for targeted support and tailored interventions are made to help prevent future infractions within, and potentially after, incarceration.

Key Words: prison misconduct, violence, drugs, disorder, rehabilitation, corrections

INTRODUCTION

Researchers are interested in understanding the factors associated with prison misconduct, as it is strongly linked to reoffending, re-arrest and reduced compliance with supervision orders on release from prison (Trulson et al. 2011; Cochran et al. 2014; Mooney and Daffern 2015; DeLisi et al. 2020). Prison misconduct can be defined as behaviour which is in contravention of prison rules (DeLisi 2003; Trulson et al. 2010; Steiner and Wooldredge 2014). Researchers have begun to investigate whether involvement in certain types of misconduct (e.g. violence, drugs or disorder) relates to reoffending upon release (Mooney and Daffern 2015; DeLisi et al. 2020). Studies demonstrate a link between misconduct, reoffending and compliance, with violent misconduct related to violent reoffending and drug-related misconduct associated with general reoffending and non-compliance (Mooney and Daffern 2015; DeLisi et al. 2020). Yet, despite growing interest in how different types of misconduct may influence reoffending/compliance, few studies examine the distinct risk factors for different categories of misconduct (e.g. Gaes et al. 2002; Kuanliang et al. 2008; DeLisi et al. 2011; Day et al. 2015). Additionally, those that do, often use cross-sectional or retrospective designs, limiting their ability to draw out

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causal inferences or temporal relationships (Gaes et al. 2002; Kuanliang et al. 2008; DeLisi et al. 2011; Day et al. 2015).

This paper addresses this gap by using a prospective longitudinal design to examine the factors associated with involvement in different types of misconduct. It contributes to new knowledge by expanding our theoretical understanding of the factors linked to prison misconduct by type, as well as providing a clearer investigation of the temporal relationships involved. Suggestions for how the findings can inform interventions and rehabilitative work aimed at reducing misconduct, and potentially reoffending on release from prison, are also offered.

Prison misconduct

Misconduct refers to a wide variety of rule-breaking behaviours, including violence (e.g. assaults, fighting, piercing with a needle or other implement), disorder (e.g. disobeying a lawful order, failure to comply, being disrespectful or insulting, committing an indecent or obscene act) and drug-related (e.g. buying, selling, possessing, using or manufacturing illegal/intoxicating items) (NIPS 2010). Previous studies indicate that while most people (though not all) will engage in misconduct, only a minority engage in frequent/serious misconduct (DeLisi 2003; Trulson et al. 2010). Official figures indicate that drug and disorder-related misconduct are most common, with violence accounting for between 10 per cent and 15 per cent of incidents, though statistics vary (e.g. Gaes et al. 2002; Ministry of Justice 2020). Official measures can underestimate the true prevalence of misconduct due to under-reporting, differential recording or enforcement practices (Bottoms 1999; Steiner and Wooldredge 2014; Braga et al. 2019; Bosma et al. 2020). For example, people may not report misconduct due to prison social norms, while varying staff perceptions and use of discretion may result in differential recording and enforcement practices (Poole and Regoli 1980; Bottoms 1999). Official measures generally assess the extent to which individuals are found guilty of breaking prison rules through the prison disciplinary process (Steiner and Wooldredge 2014; Ministry of Justice 2020). In contrast, self-report measures examine recollections of rule-breaking behaviours (Bosma et al. 2020). Research indicates that disorder-related misconduct may be underestimated when using official measures, while drug-related misconduct may be underestimated when using self-report measures (Bosma et al. 2020). Nevertheless, in investigating the differences between official and self-report measures, Steiner and Wooldredge (2014) conclude that findings from either data source are valid as results are similar in direction and magnitude.

Numerous theories are used to understand misconduct. Deprivation theory emphasizes the role that prison conditions play in explaining misconduct (Sykes 1958), with these conditions influencing reoffending through their ability to promote feelings of procedural justice and legitimacy (Auty and Liebling 2020). Involvement in misconduct is attributed to differences in prison regime, staffing levels, establishment characteristics, as well as the availability of work and rehabilitative programmes (Lahm 2009; Steiner and Wooldredge 2009; Drury and DeLisi 2011; Steiner et al. 2014; Bosma et al. 2020; Glazener and Nakamura 2020). Research supports this perspective with variations in regime, security status, staffing levels, climate and rehabilitative/work programme availability influencing misconduct (Lahm 2009; Steiner and Wooldredge 2009; Drury and DeLisi 2011; Steiner et al. 2014; Bosma et al. 2020; Glazener and Nakamura 2020; Wooldredge 2020). Likewise, managerialist theories focus on prison conditions but stress the role of management and staff (Dilulio 1987). For instance, staff-prisoner relationships may influence when staff use their discretion to officially charge someone with misconduct (Poole and Regoli 1980; Bottoms 1999; Butler and Maruna 2012). This has led to concerns that some groups (especially minorities) may be more likely to be reported for, and found guilty of, misconduct than others (Poole and Regoli 1980; Ministry of Justice 2008). Supporting managerialist theories, studies have found the submission of prison complaints,

staff–prisoner relationships, use of inconsistent/unclear rules, coercive disciplinary practices and perceptions of procedural justice are associated with misconduct (Bierie 2013; Steiner et al. 2014; Beijersbergen et al. 2015; Day et al. 2015; Bosma et al. 2020).

Importation theory, in contrast, attributes involvement in misconduct to the characteristics, experiences and propensities that individuals bring into prison (Irwin and Cressey 1962). Those who import individual characteristics associated with a higher risk of criminality are thought to be more likely to engage in misconduct and continue offending upon release (Irwin and Cressey 1962; Poole and Regoli 1983; Trulson et al. 2010; DeLisi et al. 2011). Studies support this view with age, offending history, gang membership, previous imprisonment, past involvement in misconduct, substance misuse/addiction and mental health issues identified as possible risk factors for misconduct (Gaes et al. 2002; Cunningham and Sorensen 2007; Kuanliang et al. 2008; Steiner and Wooldredge 2009; Drury and DeLisi 2011; Steiner et al. 2014). Additionally, some studies suggest that impairments, behavioural disorders and brain/head injuries increase the risk of misconduct (Delisi et al. 2019; Matheson et al. 2020; Butler et al. 2021).

General strain theory focuses on the role both individual and environmental factors play in explaining offending (Blevins et al. 2010; Morris et al. 2012). It is argued that people are usually compliant but engage in offending in response to strain (Agnew 2001; Blevins et al. 2010; Morris et al. 2012). Situational factors influence strain, with individual characteristics shaping responses to strain and the coping strategies employed (Agnew 2001; Blevins et al. 2010; Morris et al. 2012). Some coping strategies may involve rule-breaking behaviours. For instance, coping strategies involving illicit substance use or violence can contravene prison rules (NIPS 2010), while research suggestions that individuals who self-harm are also more likely to engage in misconduct (Slade 2018). Other coping mechanisms, such as seeking support from others through prison visitation, may lessen misconduct, although this relationship can vary (Cochran 2012; Siennick et al. 2013).

Life-course developmental theories similarly focus on individual and environmental factors but also consider the cumulative effect of events over time (DeLisi et al. 2011; Reidy et al. 2012). Pre-prison differences in offending are attributed to individual and environmental factors, with these differences used to explain variations in misconduct and reoffending upon release (Reidy et al. 2012). However, prior involvement in offending may influence the processes that shape a person's future offending trajectory (DeLisi et al. 2011; Reidy et al. 2012; Silver and Nedelec 2018). For example, Silver and Nedelec (2018) argue that punishments imposed in response to misconduct can entrap people into reoffending by limiting access to prosocial opportunities and increasing exposure to negative life events. Prison authorities often remove privileges as a punishment for misconduct, potentially limiting movement and access to visitation, employment opportunities and rehabilitative programmes and services (Marquart and Trulson 2016; HMPPS 2018). Indeed, concern has been expressed that the official mechanisms used to respond to misconduct may miss opportunities to promote change and rehabilitation among those most likely to reoffend (Fitzalan Howard 2017; Silver and Nedelec 2018; Butler et al. 2021).

Despite a growing interest in the links between different categories of misconduct and reoffending/compliance upon release (e.g. Mooney and Daffern 2015; DeLisi et al. 2020), few studies have investigated the factors associated with different types of misconduct (e.g. Gaes et al. 2002; Jiang 2005; Kuanliang and Sorensen 2008; Kuanliang et al. 2008; DeLisi et al. 2011; Day et al. 2015). Among those studies, people who are younger and gang members are more likely to engage in all types of misconduct (Gaes et al. 2002; Kuanliang et al. 2008). Factors associated with an increased involvement in violent misconduct include being male, race/ethnicity, substance misuse, mental health issues, coercive prison environment, reduced perceptions of staff effectiveness, time served, neighbourhood deprivation, poor family support, history of

domestic violence and out-of-care placements (Kuanliang and Sorensen 2008; DeLisi et al. 2011; Mears et al. 2013; Day et al. 2015). For drug-related misconduct, previous substance misuse, race/ethnicity, mental health issues, previous incarceration, criminal history, time served and experience of physical abuse emerged as risk factors (Jiang 2005; Kuanliang and Sorensen 2008; DeLisi et al. 2011). For disorder, associated risk factors included being male, race/ethnicity, drug use, mental health issues, previous incarceration, property offences, coercive prison environment and reduced perceptions of staff effectiveness (Kuanliang and Sorensen 2008; Day et al. 2015). Unfortunately, while these studies offer useful insights, cross-sectional or retrospective research designs limit their usefulness due to problems identifying the temporal relationships involved and drawing causal conclusions (e.g. Gaes et al. 2002; Kuanliang and Sorensen 2008; Kuanliang et al. 2008; DeLisi et al. 2011; Day et al. 2015). This limits determining how well existing theories of misconduct explain different types of misconduct and if specialist interventions would reduce misconduct.

The present study

The current research addresses this limitation by utilizing a prospective longitudinal research design investigating the factors associated with different categories of misconduct in Northern Ireland (NI). By international comparisons, the Northern Ireland Prison Service (NIPS) is small, consisting of four prisons (two adult males, one female and an establishment for young males), a small prison population and a low rate of imprisonment (NIPS 2019; ICPR 2020). As in other jurisdictions, the prison population is overwhelmingly adult males, although a slightly higher percentage are foreign nationals and on pre-trial detention/remand (ICPR 2020). Moreover, the regime, management and conditions experienced are comparable to other Western, democratic prison systems (Butler 2016). Nonetheless, one distinction is the lasting imprint of conflict in NI, where nationality and religion have played a prominent role in shaping experiences of identity, diversity and equality (O'Dowd et al. 1980; Harvey 2012; Butler 2020).

In NIPS, when staff become aware of rule-breaking behaviour, they are expected to charge a person with misconduct (NIPS 2007). An investigation and adjudication hearing follows in which all parties present evidence whereupon a determination of guilt is made (NIPS 2007). If found guilty, NIPS guidelines are used to determine the appropriate punishment, which includes: a caution; stoppage of earnings or any or all privileges; exclusion from work; cellular confinement; or a combination of the above (NIPS 2007). As in other jurisdictions, concerns have been expressed about the potential for staff discretion to influence who is charged with misconduct and the potential for some groups to experience disparate outcomes (Butler and Maruna 2012). This paper seeks to answer two research questions: What factors influence future involvement in prison misconduct in NI and does this vary by misconduct type?

METHODOLOGY

Data

The study uses prospective longitudinal administrative data drawn from the NIPS Prison Records Information Management System (PRISM). While measures on the changing nature of prison conditions, staffing levels and the attitudes and experiences of those imprisoned, was outside the scope of these records, these data include official measures of misconduct, offence history, prison drug use, etc. that may otherwise risk social desirability or recall bias. Furthermore, administrative data are frequently used to investigate misconduct internationally and has proven a valid, rich data source (Cunningham and Sorensen 2007; Kuanliang et al. 2008; Steiner et al. 2014; Steiner and Wooldredge 2014; Bosma et al. 2020).

The sample comprised 429 adult males detained in Maghaberry Prison on 22 November 2017 (time 1) that remained imprisoned on 22 November 2018 (time 2). Information was collected on all adult males detained in Maghaberry Prison at time 1, with these individuals being followed up at time 2. NIPS contains two adult male prisons: Maghaberry and Magilligan. Maghaberry Prison is substantially larger, detaining all NI's remand, high security and separated prisoners (NIPS 2019). 'Separated prisoners' are members of paramilitary groups who claim their offences are politically motivated and demand to be held separately (Butler 2020). Magilligan Prison holds lower security sentenced males with under 6 years remaining on their sentence (NIPS 2019). Only men imprisoned in Maghaberry were sampled at time 1; however, those transferred to Magilligan prison by time 2 were tracked and remained in the sample. The data collected at time 1 were used to predict involvement in misconduct during the 1-year follow-up period. A minority of men ($n = 98$, 23 per cent) were not imprisoned for the entirety of the 1-year follow-up but were released and re-imprisoned by time 2. As all adult males in NI are initially detained in Maghaberry Prison before possibly being transferred to Magilligan Prison, the sample provided a comparatively representative view of imprisoned adult males during this time. According to official statistics, the sample of 429 adult males represented approximately 33 per cent of the daily average number of adult men imprisoned in NI during 2017/2018 (NISRA 2018).

Measures

Dependent

The dataset contained the frequency and type of misconduct that men had been found guilty of committing through the prison disciplinary system during the 1-year follow-up period. In consultation with NIPS staff, misconduct charges were grouped into three mutually exclusive categories: violent misconduct; drug-related misconduct; and disorder-related misconduct. This information was used to inform the following dependent variables.

All misconduct: The total number of times the men were found guilty of committing any misconduct through the prison disciplinary system.

Violent misconduct: The number of misconduct charges categorized as violent. Misconduct was deemed violent if it involved assaulting another person or engaging in behaviours that endangered others, such as fighting/wrestling or piercing someone with a needle or other implement.

Drug-related misconduct: The number of misconduct charges categorized as drug-related. Misconduct was considered drug-related if it consisted of buying, selling, possession, use or manufacture of illegal and/or intoxicating items.

Disorder-related misconduct: The number of misconduct charges categorized as disorder-related. These charges involved behaviours such as disobeying a lawful order, failing to comply, attempting to escape, being disrespectful or insulting, committing an indecent or obscene act, intentionally obstructing an officer in the execution of their duty, and/or attempting to incite or assist another prisoner in any of these behaviours.

Independent

All independent measures were captured at time 1 and were identified as possible risk factors for misconduct in previous studies or considered important because of the history of conflict in NI. *Age:* Age was recorded in years. An age-squared variable was included in the violence misconduct regression to account for the curvilinear relationship between age and misconduct, exclusively observed for violent misconduct in preliminary analysis.

Race: Participants' self-reported race/ethnicity was coded as 'white' and 'non-white', with all 'non-white' being collapsed into one group due to small numbers. In the Race Relations (Northern Ireland) Order 1997, Travellers are acknowledged as a distinct racial group and, for this reason, were coded as 'non-white'.

Nationality: The NI history of conflict has meant that nationality is a key marker of identity that can influence attitudes towards state officials. For instance, those identifying as 'Irish' can hold more negative attitudes towards criminal justice professionals and be less likely to work in these organizations compared to those identifying as 'British' or 'Northern Irish' (O'Dowd et al. 1980; Ellison and Smyth 2000; Deloitte 2016). Participants' self-reported nationality was coded as one of the following four categories: 'Northern Irish', 'Irish', 'British' or 'Other nationality'.

Religion: Religion is another key marker of identity due to the NI history of conflict, with treatment historically differing based on religion (Harvey 2012). As such, religion is used to reflect identity rather than religiosity and based on self-declared religion was grouped into one of three categories: 'Catholic', 'Protestant' or 'Other religion'.

Neighbourhood deprivation: To obtain a measure of neighbourhood deprivation the postcode prior to incarceration was matched to publicly available NI Multiple Deprivation Measures 2017 (NISRA 2017). Deprivation measures divide NI into 890 small areas and rank these areas from 1 to 890 on the level of deprivation experienced (NISRA 2017). In this study, deprivation rankings were reverse coded for ease of interpretation, with higher values indicating higher levels of deprivation. Of the 429 participants, 354 had a NI postcode, while 75 did not as they had resided in a different jurisdiction ($n = 13$, 3 per cent), reported being of no fixed abode ($n = 45$, 10 per cent) or their address was unknown ($n = 17$, 4 per cent). Observations for these cases were imputed from the average deprivation rank, as these cases were not random. A separate dummy variable is included in the analysis to flag these cases as missing. Analysis undertaken to check the robustness of the model found no notable differences between excluding and including these cases.

Medical history: Participants' self-reported medical history was included as past studies had identified mental health, substance misuse, impairments, self-harm, head injuries and behavioural disorders as possible risk factors for misconduct (e.g. Steiner et al. 2014; Slade 2018; Delisi et al. 2019; Matheson et al. 2020; Butler et al. 2021). Medical history was recoded into six measures on history of: mental health issues; head injury/epilepsy; behavioural issues; impairments (including hearing, vision, speech or communication); addiction; and self-harm. Each measure used a dummy variable to indicate whether participants reported a history of experiencing that issue on committal.

Offence history: Offence history was collapsed into four separate categorical measures of the following types: violence, property, drugs or other offences. These measures were not mutually exclusive and dummy variables were used to indicate whether participants had a history of committing each type of offence.

Regime status: The Progressive Regimes and Earned Privileges Scheme (PREPS) is an incentivized scheme used to encourage compliance by awarding extra privileges to those who comply with prison rules whilst withdrawing privileges from those who do not (NIPS 2011). When individuals are first imprisoned they are placed on the 'Standard' level of PREPS but can progress to the 'Enhanced' level if compliant and avail of additional perks, such as receiving extra prison visitation (NIPS 2011). If individuals fail to comply, they may be placed on the 'Basic' level of PREPS and their access to prison visits, gymnasium, etc. reduced (NIPS 2011). Additionally, 'Separated prisoners' have their own regime, identifying them separately from those on the 'Basic', 'Standard' and 'Enhanced' levels of PREPS (NIPS 2011; Butler 2020). Regime status was included to account for the extent to which participants were complying with prison rules and identify separated prisoners. Unlike other jurisdictions, the main 'gangs' operating in and outside NI prisons are paramilitary-related and often demarcated on religious and political lines (Butler et al. 2018; Butler 2020). To account for previous studies demonstrating a link between

gang membership and misconduct, 'Separated' status was included in the analysis. Participants' regime status was coded as being either 'Basic', 'Standard', 'Enhanced' or 'Separated'.

Prison complaints: The number of complaints participants had submitted to NIPS was included as a continuous variable, as previous research identified this as a risk factor for misconduct (Bierie 2013). An interaction term was also incorporated to investigate if the relationship between complaints and misconduct varied depending on regime status. This interaction was included as past studies indicate separated prisoners are more likely to use the complaints process as a means of resisting prison authorities (McEvoy 2001; Prisoner Ombudsman for Northern Ireland 2019). It is also possible that those on the lower levels of PREPS may be more likely to complain if they feel their regime status was reduced unfairly.

Prison visitation: Information on visitation was included as previous research identified visitation as a possible factor influencing misconduct (Cochran 2012; Siennick et al. 2013; Steiner et al. 2014). To account for variations in the time spent imprisoned, the total number of visits received was divided by the total days spent imprisoned as of time 1.

Proportion of prison drug tests passed: Information on the proportion of prison drug tests passed was included in the dataset, ranging from 0 (none) to 1 (all). Some participants ($n = 18$, 4 per cent) had not yet taken a drugs test and they were coded as 1 (passed all drug tests) as they had not failed a drug test and 1 was the highest mode response by a notable degree (43 per cent). A separate measure (described below) was created to flag these cases and analysis excluding them showed no notable changes.

No drug test: Participants may not have taken a drug test due to a refusal or because tests are not administered during the first 30 consecutive days of an individual's imprisonment. Refusal to take a test cannot be assumed to indicate failure as separated prisoners often refuse such tests as a form of protest. To identify those who had not taken a drugs test, a dummy variable was used with 'Yes' and 'No' indicating those with no drug tests.

Supporting prisoners at risk (SPAR) referrals: Individuals are referred under the SPAR policy if they engage in serious self-harm while imprisoned, attempt to take their own life or staff express concerns that serious self-harm is likely (Sudgen 2016). The total number of referrals under the SPAR policy was divided by the total days spent imprisoned at time 1 to account for variations in the time spent imprisoned.

Periods of incarceration: Information on the number of times the men had been imprisoned was captured in the dataset and included in the analysis as periods of incarceration has been identified as a risk factor for misconduct (Cunningham and Sorensen 2007; Steiner et al. 2014).

Past involvement in misconduct: Previous involvement in misconduct can be a risk factor for future involvement in misconduct (Steiner et al. 2014). For this reason, information on past involvement in misconduct was included in the analysis. The number of times participants were found guilty of misconduct at time 1 was divided by the total days they had spent imprisoned.

Control

Days spent imprisoned during the follow-up period: While some men remained imprisoned for the duration of the 1-year follow-up, others had been released and re-imprisoned. To account for variations in the time spent imprisoned during the follow-up period, the total number of days spent imprisoned between time 1 and time 2 was included using the Stata command `exposure`. This adjusts the model output for time at risk but does not produce a coefficient.

Procedure

The NIPS and Queen's University Belfast (QUB) provided ethical approval to conduct the research. Discussions were held between NIPS and QUB to identify variables that might be relevant to the research and an anonymized dataset was provided to the QUB researchers for

analysis. A NIPS staff member worked with the QUB researchers to collate the necessary information and ensure only NIPS staff accessed PRISM and the unanonymized data. The dataset captured a 'snapshot' of all those imprisoned in Maghaberry prison at time 1, with these individuals followed up 1 year later at time 2. If participants remained imprisoned, the NIPS staff member collated information on the total number of and type of misconduct the men had been involved in during the 1-year follow-up period. The anonymized dataset was imported into Stata version 15 and queries were resolved through discussions with the NIPS staff member or NIPS management.

Analytic strategy

To identify which type of count regression best fit the model, the Stata `countfit` command was used in diagnostic tests, which supported a negative binomial regression. Negative binomial regression is for count data when the dependent variable occurs infrequently. Less than half of the men engaged in misconduct during the 1-year follow-up period ($n = 179$, 42 per cent), with prevalence varying across the different categories of misconduct between 14 per cent ($n = 58$) for violent misconduct and 31 per cent ($n = 132$) for drug-related misconduct. The analysis excluded one outlier case due to frequency of misconduct. Outliers can create unreliable estimates in maximum likelihood equations (Agresti 2018). The analysis adjusted for the days spent imprisoned during the follow-up period using the Stata command `exposure`.

RESULTS

Table 1 presents the sample characteristics. The 429 men were on average found guilty of 1.64 misconduct charges during the 1-year follow-up period. The averages were 0.28 for violent misconduct, 0.71 for drug-related misconduct and 0.64 for disorder-related misconduct. On average the men were 36 years old, 95 per cent were white, two-thirds identified as 'Northern Irish' (compared to 10 per cent 'Irish' and 15 per cent 'British'), half identified as 'Catholic' (compared to 36 per cent 'Protestant'), and the average neighbourhood deprivation level was 613, indicating many were coming from more deprived areas. In total, 40 per cent reported a history of mental health issues, 15 per cent head injury/epilepsy, 5 per cent behavioural issues, 10 per cent impairments, 52 per cent a history of addiction and 57 per cent a history of self-harm.

Of the sample, 91 per cent had committed a violent offence, 55 per cent a property offence, 28 per cent a drug offence and 35 per cent other offences. About 6 per cent were on the 'Basic' level of PREPS, 47 per cent were on the 'Standard' level, and 42 per cent were on the 'Enhanced' level, while 5 per cent were 'Separated'. To account for varying times spent imprisoned the incidence of an occurrence per day in prison was calculated for some prison-related characteristics. The average per day incident was 0.02 for complaints, 0.07 for visitations, 0.01 for SPAR referrals and 0.01 for previous involvement in misconduct. On average the men passed 78 per cent of prison drug tests and only 4 per cent had not taken a drug test. Lastly, the average number of times the men were incarcerated was approximately 6.

Table 2 presents the negative binomial regression for misconduct by type. The findings reveal similarities and differences in factors related to misconduct by type. In terms of demographic characteristics, age was negatively associated with drug-related misconduct and an age-squared term indicated a nonlinear relationship between age and violent misconduct. Younger people were more likely to be involved in drug-related misconduct, while risk of violent misconduct initially increased with age but declined at older ages. Nationality was only significant for violent misconduct, with people identifying as 'Irish' being more likely to amass violent misconduct compared to those identifying as 'Northern Irish'. Turning to religion, compared to 'Catholics', those categorized as 'Other religion' were less likely to accumulate both drug-related

Table 1 Descriptive statistics ($N = 429$)

	Mean	SD	Min	Max	%
Dependent variables					
All misconduct	1.64	3.33	0.00	30.00	
Violent misconduct	0.28	0.87	0.00	6.00	
Drug-related misconduct	0.71	1.56	0.00	17.00	
Disorder-related misconduct	0.65	1.56	0.00	17.00	
Individual characteristics					
Age	35.50	10.63	21.00	89.00	
Non-White					5.13
Nationality					
Northern Irish					68.07
Irish					10.26
British					14.45
Other					7.23
Religion					
Catholic					51.05
Protestant					35.90
Other religion					13.05
Neighbourhood deprivation	613.01	224.71	7.00	888.00	
Deprivation missing					17.48
Medical history					
Mental health					40.33
Head injury or epilepsy					15.38
Behavioural issues					4.66
Impairments					9.56
Addiction					51.98
Self-harm					57.11
Incarceration characteristics					
Offence history					
Violence					90.91
Property					54.55
Drugs					28.21
Other					34.50
PREPS status					
Basic					5.59
Standard					47.32
Enhanced					41.72
Separated status					5.36
Prison complaints	0.02	0.07	0.00	0.68	
Prison visitation	0.07	0.10	0.00	1.52	
Proportion of prison drug tests passed [†]	0.78	0.25	0.00	1.00	
No drug test					3.73

Table 1. Continued

	Mean	SD	Min	Max	%
Number of SPAR referrals	0.01	0.03	0.00	0.67	
Periods of incarceration	5.59	5.59	1.00	44.00	
Past involvement in misconduct	0.01	0.01	0.00	0.12	
Days spent imprisoned during follow-up	338.19	64.77	35.00	365.00	

*This is the sample average of each participant's percentage of drug tests passed.
SD, standard deviation.

and disorder-related misconduct. Additionally, 'Protestants' were less likely than 'Catholics' to commit disorder-related misconduct. Deprivation only emerged as significant for violent misconduct, with those coming from more deprived areas being less likely to be involved in violent misconduct. Furthermore, those without a NI postcode were also less likely to be involved in violent misconduct than those with a NI postcode.

Examining the findings by medical conditions revealed that those with a history of mental health issues were less likely to amass disorder-related misconduct. In contrast, those with a history of self-harm were more likely to accumulate disorder-related misconduct. Participants with a history of addiction were less likely to be involved in violent misconduct. Interestingly, while a history of impairment was not significant when explaining misconduct by type, a history of impairment was significant for all misconduct, suggesting it may not reach significance within the specific types of misconduct due to small sample sizes but is behaving similarly across the different subtypes. Those with a history of impairment were involved in more misconduct than those without a history of impairment. Similarly, while offence history did not predict violent, drug or disorder-related misconduct, a history of property offences was significant for all misconduct, indicating those with a history of property offences had a higher risk of misconduct compared to those without a history of property offences. As with a history of impairment, examining the coefficients for property offences across the different types of misconduct reveals a similar positive relationship, suggesting its significance in all misconduct is related to the larger combined sample size.

With regard to regime status, those on the 'Enhanced' level of PREPS had a lower risk of committing drug-related misconduct compared to those on the 'Standard' level, whereas those on the 'Basic' level were more likely to be involved in disorder-related misconduct compared to those on the 'Standard' level. A positive relationship was also witnessed between complaints and disorder-related misconduct, with those reporting more complaints being more likely to be involved in disorder-related misconduct. Reviewing the interaction terms between regime status and complaints found no significant differences for violent and drug-related misconduct. However, significant interactions were observed for disorder-related misconduct. Compared to those on the 'Standard' level, those on 'Basic' had a lower risk of disorder-related misconduct with increased complaints. Likewise, those on the 'Separated' regime had a lower risk of disorder-related misconduct with increased complaints compared to those on the 'Standard' level.

Prison visitation was significant for disorder-related misconduct only, with greater visitation associated with a reduced risk of disorder-related misconduct. Not having a prison drugs test was also significant for disorder-related misconduct, with those who had not taken a drugs test being more likely to commit disorder-related misconduct. The proportion of prison drug tests passed was significant but only for drug-related misconduct, with the higher proportion of drug tests passed being related to a lower risk of drug-related misconduct. More periods of incarceration was also associated with involvement in violent and drug-related misconduct, while past

Table 2 Negative binomial regression for prison misconduct by type (n = 429)

	Violence			Drugs-related			Disorder-related			All misconduct		
	Coef.	SE	IRR	Coef.	SE	IRR	Coef.	SE	IRR	Coef.	SE	IRR
Age	0.277*	0.11	1.320	-0.034**	0.01	0.966	-0.019	0.01	0.981	-0.029**	0.01	0.972
Age-squared	-0.004*	0.00	0.996									
Non-White (ref = White)	-0.232	0.69	0.793	-0.537	0.48	0.584	0.062	0.43	1.064	-0.412	0.40	0.662
Nationality (ref = Northern Irish)												
Irish	1.093**	0.37	2.983	0.304	0.27	1.355	0.109	0.30	1.115	0.445	0.24	1.560
British	0.534	0.41	1.705	-0.509	0.31	0.601	-0.256	0.33	0.774	-0.343	0.25	0.710
Other	-12.456	487.57	3.90E-06	-1.478	1.04	0.228	0.362	0.48	1.436	-0.146	0.44	0.864
Religion (ref = Catholic)												
Protestant	-0.214	0.38	0.808	0.086	0.22	1.090	-0.542*	0.25	0.581	-0.200	0.19	0.819
Other religion	-1.091	0.64	0.336	-0.842*	0.38	0.431	-0.795*	0.36	0.452	-0.760**	0.29	0.468
Neighbourhood deprivation	-0.001*	0.00	0.999	0.000	0.00	1.000	0.000	0.00	1.000	0.000	0.00	1.000
Deprivation missing (ref = Has NI Postcode)	-1.125**	0.40	0.325	-0.318	0.24	0.728	-0.293	0.26	0.746	-0.402	0.21	0.669
Medical history (ref = No) ^a												
Mental health	0.189	0.30	1.208	-0.175	0.18	0.840	-0.450*	0.21	0.638	-0.271	0.17	0.763
Head injury or epilepsy	0.402	0.26	1.495	-0.058	0.20	0.943	-0.306	0.25	0.737	-0.060	0.19	0.942
Behavioural issues	-0.999	0.55	0.368	-0.110	0.34	0.896	0.249	0.36	1.283	-0.070	0.30	0.932
Impairments	0.580	0.35	1.786	0.404	0.26	1.498	0.366	0.28	1.443	0.557*	0.23	1.745
Addiction	-1.414***	0.33	0.243	0.021	0.21	1.022	-0.171	0.23	0.843	-0.190	0.18	0.827
Self-harm	0.164	0.36	1.178	0.147	0.21	1.158	0.555*	0.24	1.742	0.395*	0.18	1.485
Offence history (ref = No) ^b												
Violence	-0.143	0.52	0.867	0.349	0.31	1.418	0.545	0.37	1.724	0.396	0.28	1.485
Property	0.653	0.39	1.921	0.353	0.22	1.423	0.420	0.23	1.522	0.497**	0.18	1.644
Drugs	-0.071	0.29	0.932	0.330	0.17	1.391	0.212	0.20	1.236	0.220	0.16	1.246
Other	-0.301	0.28	0.740	0.303	0.17	1.354	0.190	0.19	1.210	0.162	0.15	1.175

Table 2 Continued

	Violence			Drugs-related			Disorder-related			All misconduct		
	Coef.	SE	IRR	Coef.	SE	IRR	Coef.	SE	IRR	Coef.	SE	IRR
PREPS status (ref = Standard)												
Basic	-0.034	0.41	0.967	0.502	0.30	1.652	1.292***	0.35	3.639	0.818**	0.31	2.266
Enhanced	-0.505	0.42	0.603	-0.554*	0.24	0.574	-0.403	0.27	0.668	-0.459*	0.20	0.632
Separated status	-8.116	9.25	2.99E-04	-0.169	0.54	0.845	0.822	0.53	2.276	0.282	0.44	1.326
Prison complaints	9.637	8.81	1.53E+04	-2.380	7.88	9.25E-02	26.250***	6.38	2.51E+11	18.710**	6.04	1.34E+08
Basic × Complaints	-50.430	33.58	1.25E-22	-16.283	24.25	8.48E-08	-85.391**	30.53	8.22E-38	-60.389*	25.65	5.93E-27
Enhanced × Complaints	0.564	13.29	1.758	5.376	11.02	216.180	-14.696	8.36	4.14E-07	-9.497	8.08	7.51E-05
Separated status × Complaints	6.710	17.45	820.253	1.195	8.27	3.304	-25.883***	6.51	5.74E-12	-17.991**	6.15	1.54E-08
Prison visitation	-2.419	3.29	0.089	-0.646	1.02	0.524	-4.963*	1.94	0.007	-2.816*	1.27	0.060
Proportion of prison drug tests passed	-0.822	0.62	0.439	-1.426***	0.39	0.240	-0.760	0.43	0.468	-1.102**	0.36	0.332
No drug test (ref = No)	0.081	1.77	1.085	-0.709	1.12	0.492	1.346*	0.56	3.841	0.823	0.54	2.277
Number of SPAR referrals	3.860	4.56	47.452	-11.165	12.77	1.42E-05	2.121	2.00	8.337	1.119	1.98	3.061
Periods of incarceration	0.137***	0.02	1.147	0.033*	0.02	1.034	0.036	0.02	1.036	0.046**	0.02	1.047
Past involvement in misconduct	69.225***	9.74	1.16E+30	24.041***	6.58	2.76E+10	29.499***	8.06	6.48E+12	30.802***	6.78	2.38E+13
Constant	-11.888***	2.28	0.000	-5.274***	0.69	0.005	-6.226***	0.78	0.002	-4.838***	0.63	0.008
LR χ^2 (df)	164.94(33)			205.43(32)		172.79(32)				245.25(32)		
Log-likelihood	-171.88616			-369.99597		-356.78887				-566.02904		

*Not mutually exclusive—individuals can have multiple medical conditions or multiple types of offenses.
 * $d < .05$; ** $d < .01$; *** $d < .001$.

involvement in misconduct was the only factor significant across all three types of misconduct, with past involvement in misconduct increasing the risk of future involvement in misconduct.

DISCUSSION

The findings indicate several factors influence future involvement in misconduct, with these factors varying by type. Only past involvement in misconduct was significant across all misconduct types, aligning with previous research (Steiner et al. 2014). Some factors showed similar patterns across the different categories but did not reach statistical significance across all groups, suggesting smaller samples sizes in the subgroups or varying effect sizes may explain their non-significance. The results, therefore, indicate that while there were some similarities in the factors influencing misconduct, there were distinct differences driving the different types of misconduct which can enhance our theoretical understanding of this behaviour and inform rehabilitative work.

Focussing on violent misconduct, several distinct factors were found to predict this type of misconduct. However, in conceptualizing the results, it is important to note that violence is frequently under-reported in official figures (see Bottoms 1999; Braga et al. 2019). Consequently, the results indicate those factors found to predict who got caught, charged and found guilty of engaging in violent misconduct during the 1-year follow-up period. Nationality, neighbourhood deprivation, not having a NI postcode and a history of addiction were uniquely associated with violent misconduct, along with age, periods of incarceration and past involvement in misconduct, suggesting that imported characteristics played an important role in predicting violent misconduct. Age had a concave relationship with violent misconduct. In other words, instead of younger ages being most at risk of violent misconduct as in past research (e.g. Kuanliang and Sorensen 2008; Steiner et al. 2014), risk peaked in the middle ages before declining. This diverges from prior literature and provides an intriguing line of research to determine if this is specific to NI or witnessed in other jurisdictions.

Similarly, nationality has not emerged as a risk factor for misconduct in previous research but was included in the analysis due to its importance in the NI conflict. As previously stated, those identifying as 'Irish' tend to hold more negative attitudes towards criminal justice professionals and are less inclined to work in these organizations (O'Dowd et al. 1980; Ellison and Smyth 2000; Deloitte 2016). Indeed, research suggests that people who identify as 'Irish' and 'British' tend to hold more polarizing political views than those identifying as 'Northern Irish' (McNicholl 2019). Such views may increase conflict with staff and hinder the formation of staff-prisoner relationships. In this sample, 10 per cent of participants identifying as 'Irish' compared to 68 per cent as 'Northern Irish'. Consequently, those identifying as 'Irish' may be a select group, with their higher risk of violent misconduct linked to the potentially different characteristics, experiences and beliefs they present with, as well as differing experiences and reactions to imprisonment. Previous research has not identified nationality as a risk factor for misconduct or violent misconduct specifically, instead emphasizing race and ethnicity (Gaes et al. 2002; Kuanliang and Sorensen 2008; Steiner et al. 2014; Day et al. 2015).

Individuals coming from less deprived areas were also found to have a higher risk of violent misconduct, while those without a NI postcode were less likely to be involved in violent misconduct. The relationship between deprivation and violent misconduct may seem somewhat counter-intuitive and contradicts past research (e.g. Mears et al. 2013) but this may be due to the nature of their offences. Those imprisoned in NI from less deprived neighbourhoods potentially have a higher proportion convicted of sexual and other offences, with fewer networks in prison. This could lead to being a target for violence, a need to establish themselves within the prison population, and being more likely to be caught as others were less incentivized to

protect them. Past studies have found that men engage in prison violence to portray an image of strength, gain status and deter victimization (Edgar et al. 2003; Butler 2008; Michalski 2017). Those without a NI postcode were less likely to commit violent misconduct, possibly reflecting a tendency for foreign prisoners to be less engaged and experience more isolation (Barnoux and Wood 2013). Moreover, a history of addiction reduced violent misconduct contradicting previous cross-sectional research linking substance misuse to violent misconduct (Kuanliang and Sorensen 2008). This may reflect a tendency to cope with stressful situations through escapism or withdrawal, but more research is required to explore this finding further.

The distinct factors predicting drug-related misconduct include PREPS and the proportion of prison drug tests passed. The general strain theory may help us understand the relationship between these factors and drug-related misconduct. The results suggest that individuals who use illicit substances to cope with the strain of imprisonment are more likely to be involved in drug-related misconduct, while those who can cope well with the strains of imprisonment and progress onto the 'Enhanced' level of PREPS are less likely to be involved in drug-related misconduct. Of course, acquiring 'Enhanced' status involves having a history of good behaviour, which includes (but is not limited to) a sustained period of not being found with or using illicit substances so those who use drugs in prison would find it difficult to acquire 'Enhanced' status. These results also suggest that these individuals are caught in a cycle of continuing drug use, with a need for more targeted supports and intensive interventions to break the cycle occurring between past failure of prison drug tests and continued future involvement in drug-related misconduct. This highlights how those caught using illicit substances in prison could specifically benefit from targeted support and intensive interventions to break this cycle of drug use.

Other factors found to predict drug-related misconduct included age, religion, periods of incarceration and past involvement in misconduct. Like previous studies, age was found to be a significant factor, with younger age associated with drug-related misconduct (Jiang 2005; Kuanliang and Sorensen 2008). Additionally, those classified as 'Other religion' were less likely to be involved in drug-related misconduct. One possible explanation for this finding is that in the NI context, those classified as 'Other religion' may include foreigners, non-white groups, and those distancing themselves from the Catholic-Protestant divide. Prior research has found 'outsiders' may strategically avoid confrontations, be less engaged in prison life, and have fewer contacts to enable prison drugs use (Cope 2000; Crewe 2012; Barnoux and Wood 2013). It is worth noting that this type of misconduct had the fewest risk factors identified, potentially underscoring how key it could be to focus policy on breaking this cycle of continuing drug use, as it would be more difficult to identify those at risk of first failing a prison drug test.

Examining disorder-related misconduct, several distinct factors predicted this type of misconduct, including a history of mental health issues, self-harm, being on the 'Basic' level of PREPS, prison complaints, visitation and no prison drug tests. Religion and past involvement in misconduct were also predictive of this category of misconduct. These results suggest that managerialist theories and general strain theory may be especially useful for understanding this behaviour. It is worth noting that the behaviours labelled disorder-related misconduct often relate to interactions between staff and those imprisoned and may involve more discretion than violent or drug-related misconduct, explaining why managerialist theories may be especially important for understanding this type of misconduct.

For instance, staff-prisoner relationships and the use of discretion may help to explain the relationship observed between mental health, religion and the 'Basic' level of PREPS. A history of mental health issues was found to reduce disorder-related misconduct, possibly reflecting the tendency for staff to use their discretion in determining whether an incident warrants an adjudication charge if the displayed behaviour is linked to a known mental health condition. Research has found that NIPS staff often consider how mental health issues may affect behaviour when

making decisions and consider the ramifications of their decisions for the wellbeing and mental health of those imprisoned (Muirhead et al. 2020). Moreover, research suggests that staff–prisoner relationships can influence how and when formal disciplinary processes are used (Liebling 2000). Those classified as ‘Protestants’ and ‘Other religion’ were found to be less likely to amass disorder-related misconduct compared to ‘Catholics’. Past research in NI suggests that relationships between some Catholics and staff can be slower to develop due to the legacy of the NI conflict (Butler and Maruna 2012). This could lead to disorder-related misconduct if people hold negative perceptions of each other, resulting in the official disciplinary system being evoked when relationships do not lend themselves to resolving incidents informally or deflecting situations before they escalate. Similarly, being on the ‘Basic’ level of an incentivized scheme can affect perceptions and relationships (Liebling 2008), potentially lessening the ability to use relationships to resolve incidents informally or deflect the need for an adjudication charge.

Managerialist theories can also be used to explain the relationship observed between prison complaints and disorder-related misconduct. The finding that those who feel mistreated and complain are more likely to engage in disorder-related misconduct corresponds to past research demonstrating a link between complaints and misconduct (Bierie 2013). However, this finding enhances our understanding of this relationship by demonstrating how prison complaints was only predictive of disorder-related misconduct. The significant interactions observed between complaints, ‘Basic’ and ‘Separated’ regime status also means that compared to those on the ‘Standard’ level of PREPS, the relationship between complaints and disorder-related misconduct is weaker for ‘Basic’ and separated prisoners, likely due to both being small groups with some people submitting a substantial number of complaints.

Additionally, a history of self-harm, visitation and no prison drug tests predicted disorder-related misconduct. The general strain theory may explain these relationships by highlighting how the strains people experience in prison can be influenced by individual factors shaping their responses to this strain and coping strategies employed. For instance, a history of self-harm was found to increase the risk of disorder-related misconduct. One possible explanation is that as those who self-harm may experience more frequent and negative emotions (including anxiety, depression and aggressiveness) compared to those who do not self-harm (see Fliege et al. 2009), this may influence their ability to regulate behaviours and emotional interactions with others, contributing to them amassing disorder-related misconduct charges. Future research is needed to explore this finding further. Like past studies (e.g. Cochran 2012; Reidy and Sorensen 2020), visitation was found to lessen misconduct, suggesting that external peer support may help people cope with the strains of imprisonment. Yet, this study adds new knowledge by demonstrating a relationship between visitation and misconduct even when the tendency to comply with prison rules is controlled for. Prison incentivized schemes often offer extra visitation as a reward for compliance but as past studies have not controlled for people’s status on such schemes, it was unclear whether this relationship reflected a tendency for those who are compliant to receive extra visits. This study enhances our knowledge by demonstrating that receiving prison visits continues to be associated with a reduced risk of disorder-related misconduct, even when incentivized regime status is controlled for. Finally, not having taken a prison drugs test was found to be a distinct factor for disorder-related misconduct. This may be due to people who are newly imprisoned adjusting to the prison regime and acting out in response to its deprivations. Moreover, many separated prisoners had refused to take a prison drugs test as a form of protest and so the relationship with disorder-related misconduct may reflect a continuation of their protesting behaviour.

Past involvement in misconduct was also a significant predictor of disorder-related misconduct, as well as violent and drug-related misconduct, suggesting that current methods of responding to misconduct were limited in their ability to reduce future offending. While it is

unclear from this research why this may be the case, it does suggest that some people may be caught in a cycle of misconduct and require targeted specialist supports. Identifying the factors associated with different types of misconduct, as well as misconduct more generally, can help inform such specialist provision. For instance, individuals who are consistently amassing drug-related misconduct may require specialist substance misuse and addiction services, as well as developing alternative coping strategies to reduce their misconduct and their likelihood of re-offending upon release. In contrast, disorder-related misconduct appeared to be affected by the interactions, relationships and communications experienced while in prison and the ability of these to produce positive interactions and perceptions of legitimacy and fairness. Efforts to improve in-prison experiences by enhancing feelings of fairness, relationships and visitation may be beneficial in reducing disorder-related misconduct, as well as providing additional supports to assist those on 'Basic' and newly adjusting to imprisonment. Providing such targeted interventions may help prevent future infractions in prison, as well as potentially reduce reoffending on release.

There are, however, limitations associated with this research. As an official measure of misconduct was used, the true prevalence of misconduct may be underestimated and subjected to differential recording practices and staff discretion. The cultural context of NI and sample of adult males may also limit the extent to which the findings are generalizable to other jurisdictions, women and young people. Further, the power of the analysis to detect effects on some measures may have been limited due to a small sample size and the inclusion of additional measures of environmental and coping factors would have been desirable. Nevertheless, key strengths of the research include the use of a prospective longitudinal research, a complete snapshot sample of all adult males imprisoned in the largest, most diverse male prison in NI and the use of administrative data providing detailed information on participants.

To conclude, this research contributes to new knowledge by expanding our theoretical understanding of the distinct factors driving different types of misconduct, as well as providing a clearer investigation of the temporal relationships involved. It highlights how cultural context may matter when attempting to generalize risk factors for misconduct across different jurisdictions and it offers suggestions for how targeted supports and interventions could be used to reduce offending behaviour both in prison and on release given research demonstrating a strong link between misconduct and reoffending on release.

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CONFLICTS OF INTEREST

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