Situation and Participant Characteristics,

Prison Strain and Collusion in

Prison Hostage Taking

by

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Table of Contents

Table of Contents

Table of Tables

Table of Figures

Abstract

Hostage taking in prisons in England and Wales presents risks to both staff and prisoners and understanding such incidents is important to inform the development of appropriate management tactics and strategies. There has been no published data on this topic in over 30 years, moreover current explanations for prison hostage taking inadequately account for the behaviour observed by prison staff. This thesis aims to fill the gap by addressing three main areas, i) exploring the situational and participant characteristics of prison hostage incidents, ii) considering prison hostage incidents as a type of prison indiscipline influenced by prison strain and iii) examining the phenomenon of collaboration (collusion) between participants, framing it as a form of co-offending. Using secondary data from Her Majesty's Prison and Probation Service* (HMPPS) incident recording system, all hostage incidents in prisons in England and Wales were analysed, using descriptive and inferential statistics. The results revealed strong parallels between community and prison incidents and systematic differences between perpetrators, hostages and those who collude. Furthermore, there are associations between variables linked to prison strain and the incidence of hostage takings. The study concludes that prison hostage takings and collusion can be thought of as a response to prison strain, providing an explanation consistent with the instrumental/expressive continuum used to explain community incidents. Implications for professional practice are discussed and recommendations for further research are made.[1]

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[1] Her Majesty's Prison and Probation Service represents all prisons in England and Wales.

<center>**Chapter 1**</center>

Introduction

This chapter starts by making the case that prison hostage taking is a serious form of prison violence that has been under-researched, but which needs to be better understood. It then outlines theories that explain hostage incidents in the wider community, particularly highlighting the role of emotional crisis as a motivating factor. It goes on to describe theories explaining misconduct in prison, framing hostage taking in the context of Agnew's General Strain Theory (2001) (GST) before moving on to consider collusion from the perspective of co-offending. The chapter presents the main research question and aims that this thesis addresses and concludes with an outline of the rest of the thesis.

Background

Violence in prisons in England and Wales rose year-on-year to a high in 2018 of 34,208 assaults, before seeing a decrease in 2019 to 32,669 (HMPPS Statistics, 2020), still representing the second highest level ever recorded. All types of assault have risen, and in 2019 there were 2,921 serious assaults on prisoners and almost 10,000 minor and serious assaults on staff. Her Majesty's Prison and Probation Service (HMPPS) recognises the high personal and financial cost of prison violence and tackling violence is a priority for both HMPPS and the Ministry of Justice (MoJ) (HMPPS, 2019).

In order to address prison violence a clear understanding of its nature and causes is required. A recent rapid evidence assessment identified 97 studies published since 2000 exploring factors related to prison violence (McGuire, 2018) but none of this research involved examination of the violent act of prison hostage taking. These types of incident have also increased in frequency and although they remain relatively rare occurrences, representing fewer than 5% of "protest behaviours" annually (HMPPS, 2019), they can

be amongst the most dangerous and difficult-to-manage situations that prison staff must face, posing risks of violence, injury and even death for those who are taken hostage (Cooke, Baldwin, & Howison, 1990). An added complication in managing prison hostage incidents is the possibility that the alleged hostage is in fact a willing participant in the event, and the incident is a simulation of a genuine hostage taking. This co-operation, termed "collusion" by prison staff, has the potential to disrupt management and negotiation strategies, increasing uncertainty and changing the dynamics of the fundamental relationship between negotiator and hostage taker.

The practices and negotiation strategies used by HMPPS to manage hostage incidents are based on the approach developed in the early 1990s by US police and subsequently adopted worldwide. This "negotiate first" (Bolz, 1979) approach used by police crisis negotiators has been periodically refined in the light of research findings and it has been argued that understanding situation and perpetrator characteristics is a crucial first step in developing appropriate negotiation strategies and tactics (Grubb, 2010). However, there is a recognition that the overall field of law-enforcement negotiation broadly lacks scientifically based research and has frequently been influenced by practitioner experience reports rather than scientific research (Mullins, 2020). Notwithstanding the limitations, research has continued to shape police negotiation tactics (e.g. Grubb, Brown, Hall, & Bowen, 2020 in the UK; Young, 2016 in the US) but has been virtually absent in influencing change in the negotiation strategies used in prisons in England and Wales. There is no up-to-date analysis of incidents, describing situation and participant characteristics, no clear theory to explain prison hostage taking (PHT) and the phenomenon of collusion remains completely unexplored.

This study aims to fill this gap, addressing the overall research question "what are the factors related to the occurrence of and collusion in hostage incidents in HMPPS

prisons?" by providing a picture of hostage incidents in prisons in England and Wales. There are three interlinked aims to address the above question; to describe the situational and individual characteristics of perpetrators, hostages and colluders, to examine PHTs from the perspective that they are a form of prison indiscipline influenced by prison strain, and to examine collusion in PHTs from the perspective that it is a form of co-offending. Findings from these three areas are intended to inform the HMPPS' negotiation and incident management strategies.

Context

Hostage Negotiation to Crisis Intervention

The current, internationally adopted method of resolving hostage and other police crisis incidents arose following a series of high-profile incidents where the tactical assault undertaken by the authorities to resolve the situation resulted in the deaths of hostages and perpetrators (Call, 2003). One of the most widely reported occurred at the Munich Olympic games in 1972, where 11 athletes, 10 hostage takers and 1 police officer were killed in the attempt to rescue them. A similar outcome happened during the 1971 prison riot at Attica prison in America, where 39 prisoners and staff hostages were killed during the tactical assault to recover control of the prison, (McMains and Mullins, 2014) illustrating the parallel need for effective resolution of incidents inside prison.

The Munich incident is cited as being critical in the development of hostage negotiation (Call, 2003) as it highlighted that the cost of resolving hostage incidents by tactical assault was too high in terms of loss of life. An alternative approach had to be found and the New York police department responded by developing a systematic, negotiated approach to dealing with hostage takings. This "negotiate first" (Bolz, 1979) policy has become an

accepted part of how most authorities worldwide now respond to hostage and other crisis situations (Grubb, Brown, Hall, & Bowen, 2020).

Initially the approach was to engage the perpetrator in dialogue with an intent purely to "buy time" to facilitate the planning of tactical assaults (Lanceley, 1999). However, the approach taken, by what were originally called hostage negotiation teams, proved to be highly effective in dealing with a far wider range of situations than first intended. These included attending emotionally driven "crisis" incidents, (e.g. where suicidal people were threatening to harm themselves), domestic barricades and sieges, (e.g. where a partner was threatening to harm family members), negotiating with criminals who were caught in the commission of a crime, and other types of incident far removed from the initial instrumental terrorist-led hijackings and hostage takings that prompted the development of the approach (Call, 2003).

In 2003, a review of the FBI's Hostage and Barricade database (HOBAS) found that almost 90% of the deployments of the hostage negotiator teams were in fact to crisis or barricade incidents (Flood, 2003, cited in Call 2003) and that a formal change of approach and name was needed. The FBI replaced the term hostage negotiation with "crisis negotiation" and the emphasis of the strategy moved from bargaining and problem-solving to crisis intervention, reflecting the nature of most of the deployments of police negotiators in the US and England (Grubb, Brown, Hall, & Bowen 2019).

A thorough examination of crisis communication techniques is beyond the scope of this thesis, (see Grubb, 2010 for a review) but the overall aim of almost all hostage and crisis negotiations is to reach a safe resolution with no harm to any persons involved (Call, 2003). Most crisis negotiations follow the same principles, of building relationships, understanding the situation from the perpetrator's perspective and matching the negotiators' communication style to the contingencies of the situation (McMains &

Mullins, 2014). Core listening skills are key to achieving the aim. The many models of communication within crisis situations share these fundamental principles (Grubb, 2010).

HMPPS adopted a negotiated approach to managing hostage and other serious incidents in the late 1980s, informed by the burgeoning research. It is now standard operating policy to deploy a team of trained negotiators to all hostage and other serious incidents that happen in prisons in England and Wales (for a brief description of the procedures see Appendix A). Despite the HMPPS' strategy originally being research-informed, the evidence base for prison hostage takings has not kept pace with community research, highlighting a gap in professional practice.

Classifying and Categorising Hostage and Crisis Incidents.

As noted, the resolution of hostage and crisis incidents relies upon dialogue between the involved parties to reach a mutually agreed and acceptable solution to the situation, commonly known as negotiation. In order to accomplish this the negotiators must understand the motivations and drivers for the incident and use them to identify opportunities for dialogue and bargaining (Lanceley, 1999). To assist in developing negotiation strategies many attempts have been made to classify and categorise hostage incidents.

Early classifications relied primarily on identifying the role of the hostage in the negotiation (Noesner, 1999). For a situation to be classed as a hostage incident the perpetrator must both make substantive demands (meaning things that the incident may have been committed to achieve, e.g. release of third party, (Lanceley, 1999) and threaten harm to the hostage to attempt to force the negotiating authority to fulfil the demands (Borowsky, 2011). Situations where the demands are non-substantive (i.e. do not relate to why the incident has happened in the first place or refer to circumstances within the

management of the incident itself, e.g. demands for cigarettes or for personnel to move away from a door) are called variously non-hostage (Noesner, 1999), victim with barricade (Vecchi, van Hasselt, & Romano, 2005), captive takings (Mailloux & Serin, 2003) or crisis barricade (Call, 2003) incidents.

In addition to the role of the captive, an important second dimension is the emotional state of the perpetrator and how this contributes as a motivating and maintaining factor (Vecchi, Van Hasselt, & Romano, 2005) in the incident. In the model proposed by Vecchi et al. (2005) the motivation for an incident can be thought of as being along a continuum from instrumental through to expressive. Instrumental motivations are aimed at achieving concrete substantive goals and at the other end of the spectrum expressive motivations are driven by emotional arousal with no obvious goal. Instrumental incidents are said to be characterised by conflict, where the perpetrator's needs and wishes brings them into conflict with another party (including the negotiating authority). The perpetrator is considered to be rational and driven solely by the need to achieve the instrumental, rational goal.

Expressive incidents on the other hand, are precipitated by some form of emotional crisis or trigger event that the perpetrator does not have the personal or emotional capacity to cope with. The demands are considered irrational and the behaviour of the perpetrator is characterised as unpredictable, emotionally charged and lacking clear purpose. There is no obvious way in which the hostage taker can stand to gain anything (Van Hasselt, Flood, Romano, Vecchi, de Fabrique, & Dalfonso, 2005).

Significantly, this work was influential in highlighting that some incidents are mediated by crisis rather than instrumental goals, referencing the motivation for an event as its defining characteristic, rather than its location or the presence of, and threat towards, a captive. Crisis situations for example include suicide attempts and threats but can also

include incidents where a captive is held but where the primary motivation for the perpetrator is a variation of what Noesner terms "*displeasure at his (sic) circumstances*" (Noesner, 1999, pp.07). This means that two incidents may resemble each other in terms of physical appearance (for example one person holding another tied-up, using a weapon and threatening to harm them) but they may have very different precursors, the issues of concern differ and the negotiated paths to resolution are different.

One limitation of much of this early work is that it was not based on empirical evidence but drew on the experiences and "expert opinion" of practitioners (see for example Miller, 2005). Furthermore, classifying incidents as being either instrumental or expressive oversimplifies the complexity and fluid nature of hostage and crisis incidents (Crighton, 2015; Hempenstall & Hammond, 2018).

A more systematic approach has used data to create typologies of perpetrators and incidents (for example Call, 2003; Feldmann, 2001) but frequently this resulted in classification systems that were mainly descriptive, often mixing perpetrator and location characteristics. For example, Call (2003) identifies one perpetrator sub-type as "prison inmate", with the sub-category, "possible antisocial personality disorder". This simply describes where the incident takes place (prison) and provides no further examination of motivation beyond attributing it to a personality type, omitting the possibility of an expressive element. There were multiple typologies created, (e.g. Bolz, Dudonis, & Schultz, 2016; Fuselier, 1988; Hassel, 1975) but a drawback with all of them is that in order to accommodate the complexity of the incidents, the descriptive categories became increasingly detailed, with subdivisions of personal details of perpetrators, settings and incidents. This created complex, hierarchical descriptions but did not result in an overarching theoretical explanation, which could be applied predictively as well as retrospectively.

Call's typology is nevertheless useful in that it combines the nature of demands with the types of interactions between participants (Call, 2003) and neatly draws a distinction between hostage and barricade incidents. In this classification incidents may resemble each other but may serve different functions for the perpetrator, resembling Noesner's (1999) assertion that incidents with similar appearances can serve different functions. (See Table 1 for a summary).

Table 1 - Typologies of incidents (Call, 2003)

Type	Interaction between	Description
Hostage situation	Perpetrator-Hostage-Third person	Hostage taker makes substantive demands (usually instrumental some may be expressive) of a third-party threatening harm to hostages if the demands are not met.
Barricade victim	Perpetrator-Victim	Perpetrator does not make substantive demands of third-party. Any demands made are typically non-substantive in nature.
Barricade no victim	Perpetrator	Perpetrator may or may not make demands and may or may not be willing to bargain.

More recently, Yakoto, (Yakoto, 2013 cited in Hempenstall & Hammond, 2018) applied criminological theory (action systems framework), to develop a theoretical model using two dimensions, to produce a four factor model that both describes the incident (by referring to the "target") and attempts to explain the causes of it (by referring to the "source"). There are four main combinations;

i)   external source, external target (adaptive),

ii)   internal source, external target (expressive),

iii)   internal source, internal target (integrative) and

iv)   external source, internal target (conservative).

She described these as four modes of behaviour; *adaptive*, where the individual mainly responds to the external environment and the target is instrumental gain (e.g. hostages taken during a failed crime), *expressive,* where an internal psychological aspect of the offender's experience interacts with an external subject, often a person of significance to the perpetrator (e.g. a "desperate lover"), *integrative*, where the perpetrator needs to alter their own internal state, where for example an individual may act in an emotionally disturbed way that does not have an observable external effect (e.g. perpetrators with mental health or substance misuse problems), and *conservative*, where the perpetrator seeks to correct an aversive internal state, that has been triggered by the external actions of another person (e.g. planned incidents with clear demands). (See Table 2 for a summary).

Table 2 - Summary of Yakoto's Action Systems Classification

	Internal Target	**External Target**
Internal Source	Integrative	Expressive
External Source	Conservative	Adaptive

Yakoto's classification is more theoretical than Call's (in that it attempts to provide a comprehensive model rather than a historical descriptive structure) but Hempenstall and Hammond (2018) were unable to replicate the findings and found many incidents did not fit the classification. They attributed this to the different cultural aspects of the test and replication incidents (Japan vs US) but also, crucially, to the complexity of serious incidents.

Another approach has been to devise categories from analysis of the incidents that crisis intervention teams attended. Grubb et al.'s (2019) analysis of the incidents English police crisis negotiators responded to found that, in keeping with other countries, the majority of deployments were to crisis incidents such as suicidal people threatening to harm

themselves, domestic siege (involving victims) and mental-health precipitated crisis incidents. They identified twelve categories of incident where English police negotiators were deployed, branching from crisis or hostage as the first major subdivision and including situational elements (e.g. dwelling based barricade without victim). Whilst this classification system reflects the categories to which police negotiators are deployed, it does not provide a theoretical explanation for why incidents might occur, nor does it cover incidents that may be dealt with by non-police negotiators, e.g. in prison settings.

All these classification systems rely on fitting each incident into a category, defined using combinations of both emotional state and the relationship towards the captive. Vecchi et al. (2005) drew on a primary distinction between crisis and conflict situations, incorporating demands within these, Call (2003) combined the nature of demands with assessment of the emotional content of the communication and Yakoto (2013) used combinations of the source (trigger) and target (relationship with victim). Grubb et al's (2019) primary classification was between whether the perpetrator is driven by emotional needs or instrumental purposes, indicted by the presence of a hostage.

However, it appears that matching incidents to classification categories is not easily achievable, (Hempenstall & Hammond, 2018) due to the inherent problems of trying to reduce the vast complexity of crisis and hostage incidents to just a small number of factors, (Crighton, 2015), a difficulty relevant for all such systems. Ireland (2017b) argues that rather than seeking to classify incidents, a more useful approach to managing them is provided by understanding the specific motivations for the individual concerned. Using an adaptation of a functional analysis approach, she stresses the value of responding and adapting strategies to each individual situation. She states that understanding the purpose and context of the incident from the individual's point of view is a more useful approach in managing individual incidents.

Notwithstanding the difficulties, each of the above systems has been developed with the aim of understanding hostage and crisis situations to inform the development of effective negotiation strategies. To date researchers and commentators have not yet developed a single, agreed upon classification system (Grubb, 2010) and it has been contended that this may not be an achievable outcome (Hempenstall & Hammond, 2017). Arguably this is because there is still insufficient data about the full range of events that may be called hostage or crisis incidents, claimed to be a necessary step in refining models of hostage taking (Grubb, 2010). One of these gaps is having a clear picture of the nature of PHTs, an area notably under-researched.

Explanations for Hostage Taking in Prison

The very limited research into hostage taking is attributed to the inaccessibility of prison data (De Lisi, Trulson, Marquart, Drury, & Kosloski, 2011; Hughes, Ireland, & Ireland, 2018), the relative infrequency of such events (Mailloux & Serin, 2003; Völlm, Bickle, & Gibbon, 2013) and the unwillingness of authorities to permit such research (Crighton, 2015). Notwithstanding these barriers, there is a case for a better understanding of prison-based hostage takings to assist in their effective management, reduce the risk of harm and expedite the return to normal prison functioning.

The models that explain hostage taking more broadly in the community have not been applied to hostage taking in prison. Historically the main explanations have been that PHTs are motivated by instrumental factors such as escape (McMains & Mullins, 2014), sexual assault (Mailloux & Serin, 2003), as part of a strategy to improve prison conditions (Goldaber, 1979) or occur as a by-product of a prison riot (Hassel, 1975). Similar to the early work on community-based incidents, these descriptions are often based on practitioner views, rarely using empirical means to derive the explanations. One exception, which nevertheless drew similar conclusions, was Mailloux and Serin's (2003)

14

review of 33 reports into forcible confinements in the Canadian prison system, finding instrumental motivations in almost three quarters of them, either where the captive was used as leverage to obtain something else or the incident was specifically to enable a sexual assault to occur.

Call (2003), as noted above, included prisoners as one of his perpetrator typologies but appeared to base this on a reductionist argument that prisoners commit hostage takings, therefore prisoners were identified as a category of hostage taker, and no further consideration was given to motives other than the perpetrators were prisoners. In a more sophisticated qualitative analysis, Taylor and Flight (2003) identify that women prisoners were more likely than male prisoners to take hostages in a group and to have an expressive, emotional component than male prisoners. However, the study was limited to a very small sample size and the authors note the findings are specifically about how women prison hostage takers operate.

More recently, there has been some recognition that the benefits of hostage taking in prison may be less tangible than earlier commentators noted. Revenge, the desire to inflict pain, alleviate boredom, gain positive emotion or to remove negative emotions (Hughes, Ireland, & Ireland, 2018) or to gain a transfer out of a prison to avoid assault (Sanderson & Ludlow, 2016) have all been identified. Ireland, Halpin and Sullivan, (2014) in reviewing hostage, barricade and rooftop demonstrations in a secure psychiatric hospital (a setting with many similarities to prison) found similar motivating factors, such as seeking isolation, gaining control, getting needs met, not being listened to and positive peer approval, were listed as being causes and benefits of engaging in hostage taking behaviour.

However, these qualitative studies have been limited by small sample sizes (Sanderson & Ludlow, 2016), lack of access to the original source data (Hughes et al., 2018) or are

exploratory (Ireland et al., 2014) and have not been empirically tested. Furthermore, they replicate the issues with community studies, whereby they tend to provide long lists of descriptions of situations rather than providing a wider exploration of the mechanisms behind critical incidents.

In the only study that mentions cooperation between hostage-taker and hostage, Völlm, Bickle and Gibbon (2013) describe the four hostage incidents that took place in a secure hospital over a 25-year period. In two of the four cases a patient initially agreed to be a hostage as part of a plan to achieve a specific outcome but in both cases the patients withdrew their cooperation and were subsequently held against their will. In the more serious of the two "cooperative" incidents the hostage-taker later explained that the simulated hostage incident was part of a deliberate strategy intended to manipulate a transfer out of the hospital and back to prison, where he had initially been located following sentence. The second "cooperative" incident involved three prisoners, each of whom following the incident claimed to have been the coerced person. No clear motivation was established, and it was unclear what the specific objective was. The authors provide no further theoretical model to explain the incidents.

At present there is an extremely limited body of literature that explores prison hostage taking (see Chapter 2 for a more detailed examination). Most studies are descriptive in nature and do not make any link between the theoretical explanations for community-based incidents and the behaviour noted in prisons, particularly overlooking the important expressive, or crisis-driven motivation frequently noted in community-based incidents.

General Strain Theory, Crisis Explanations and the Relationship with Prison Misconduct

Whilst specific research into hostage taking in prisons has been very limited, there is a substantial body of work examining serious prison misconduct (e.g. Drury & De Lisi, 2011; Gaes, Wallace, Gilman, Klein-Saffran, & Suppa, 2002) that has included prison hostage taking as a category of prison indiscipline. A case may be made that the causes and correlates of prison misconduct may equally apply to PHT as a sub-set of violent prison misbehaviour. Therefore, this section includes a review of the explanations for prison misconduct that may have relevance for understanding PHTs.

Deprivation explanations of prison misconduct attribute it to the hardships experienced by prisoners as a result of their incarceration. The "pains of imprisonment", (Sykes, 1958) including deprivation of autonomy, physical goods and services, and emotional relationships, are theorised to cause prisoners to misbehave in an attempt to obtain the goods of which they are deprived. This was one of the earliest explanations for prisoner misbehaviour but continues to inform research. For example, it has been found that higher levels of deprivation correlate with higher levels of prison misconduct (Rocheleau, 2013), including a relationship between longer sentence length and prison violence (Toman, Cochran, Cochran, & Bales, 2015).

Rocheleau concludes that the conditions of imprisonment are more likely to actually "*exacerbate and prolong some prisoners' criminality*" (Rocheleau, 2013, pp.369). Deprivation may also include the lack of access to meaningful goals and achievements and the frustration relating to this can result in criminality and misconduct (Ireland, Ireland, Jones, Chu, & Lewis, 2019). The explanations for prison hostage taking which see it arising as a complaint against conditions (Goldaber, 1979) or within wider riots

against the prison authorities (Hassel, 1975) appear to be based on the assumptions within deprivation theories, focusing on the apparent instrumental goals of these events.

A second influential perspective explaining prisoner misconduct is the "importation" theory (Irwin & Cressey, 1962). In contrast to the deprivation model, which explains prisoner misconduct as a response to the deprivation of material and emotional goods, the importation theory argues that prisoners bring with them into custody pre-existing criminal attitudes, values and culture (Irwin & Cressey, 1962) which, in interaction with prison staff's beliefs and attitudes, have a negative effect on behaviour within the prison (Bottoms, 1999; Camp, Gaes, Langan, & Saylor, 2003; Ireland et al., 2019; Morris & Worrall, 2014). Factors which have consistently been shown to be associated with violent prison misconduct include younger age, (Medrano, Ozkan, & Morris, 2017), single marital status (Drury & DeLisi, 2011), previous violence and gang-membership (Worrall & Morris, 2012) and criminal history (Walters & Crawford, 2013).

This explanation is relevant to theories of prison hostage taking that explain it as a natural consequence of the personal characteristics, criminal attitudes and behaviours that prisoners bring with them into prison, i.e. PHTs happen because the perpetrators are criminals (Call, 2003; Camp et al., 2003). There is some evidence to support this, for example Mailloux and Serin, (2003) reported that most of the perpetrators in their study had an anti-social personality disorder and history of prior violence, and Coid (2002) reported that borderline personality disorder was more likely to be found amongst a sample of English prisoners who were transferred to close-supervision centres (small, high security prison units for particularly disruptive or dangerous prisoners) for reasons including hostage taking.

Finally, some researchers have focused on the organisational and situational characteristics of prisons to explain prison misconduct (Steiner, Butler, & Ellison, 2014)

noting that crowding (Wooldredge, Griffin, & Pratt, 2001), larger facility size (Wooldredge & Steiner, 2009) and higher security levels (Steiner et al., 2014) all correlate with increased levels of violent prisoner misconduct. However, the importation, deprivation and organisational theories fail to take account of different prisoners' responses to similar deprivations, similar imported factors and similarities in environment. It has been argued that the traditional focus on the three competing explanations has grown stale (Wooldredge, 2020) and that no single one of these explanations is sufficient to explain prison misconduct.

In an attempt to provide a more comprehensive explanation some researchers have applied Agnew's (2001) General Strain Theory (GST) to indiscipline in prison, drawing together the importation, deprivation and organisational theories into a single unified explanation (Blevins, Listwan, Cullen, & Johnson, 2010; Morris, Carriaga, Diamond, Piquero, & Piquero, 2012). Agnew (2001) stated that there are three main types of strain; i) the failure to achieve positively valued goals, ii) the removal of positively valued stimuli and iii) the presence of negative stimuli. These can be summarised as not obtaining what is desired, losing what is possessed or receiving something unpleasant and unwanted. These three types of strain occur not just in custodial settings and do not generally create criminal forms of coping but there are some situations which make criminal coping more likely.

For criminal coping to occur (Agnew, 2013), three elements must combine, individuals must have a set of characteristics which interact to increase the likelihood of criminal coping (*cf.* imported factors). Secondly, criminogenic strains must occur that are perceived as unjust and high in significance (*cf.* deprivation factors) and finally the individual must be in a situation conducive to criminal coping (*cf.* organisational factors). Agnew (2013) went on to say that strains, which can be objective or subjective, create

negative emotions which in turn create a pressure to act to remove or alleviate the negative emotional state. Particularly motivating negative emotions which an individual will seek to reduce or remove include anger, jealousy and frustration.

In applying GST to prison environments Blevins et al. (2010) identified that prison presents all three types of strain. It deprives prisoners of achieving positively valued goals, for example, a lack of access to education or programmes that makes achieving parole less likely. Furthermore, it removes positive stimuli, for example, autonomy, family relationships, sexual relationships, (in a parallel with the deprivation theory) and finally, it presents noxious, unpleasant stimuli, such as over-crowding, presence of threat and noise. These things in combination create persistent and accumulated strains, which have been shown to negatively impact prison behaviour (Worrall & Morris, 2012), causing increases in violence (Gendreau, Goggin, & Law, 1997).

Agnew (2013) argues that when individuals are presented with persistent strain, they will respond to the negative emotions it arouses in one of four ways. They can accept (cope with) it, reduce or alleviate it, seek "revenge" (or retaliation) against those perceived as responsible for it or they can remove themselves from it. Any of these strategies may become criminal coping when the three elements converge; individuals must possess a set of characteristics that combine to create a strong propensity for criminal coping, they must experience criminogenic strains that are perceived as unjust and high in magnitude and they must be in circumstances that are likely to encourage criminal coping.

Agnew further explains that criminal coping happens when individuals commit crimes in response to strains (Agnew, 2013). They may change their goals and aspirations to those achievable by crime, may seek by criminal means the positive stimuli denied them by their circumstances (e.g. steal to obtain goods), use "revenge" or retaliation to strike back at the cause of the strain or commit crimes to remove themselves from the source of a

strain. GST posits that individuals vary in their ability to use positive coping skills to cope with strains and that the less able an individual is to use positive coping skills, the more likely they are to seek criminal means of coping with strain. This element of GST parallels the importation theory of prison misconduct and reflects general coping models (e.g. Zamble & Porporino, 2013). One study of Canadian hostage incidents found that the majority of perpetrators in their sample were experiencing stress, either as a result of conflict with prisoners, staff or family, or the source of stress was described as "*institutionally mediated*" (Mailloux & Serin, 2003, pp.165) (*cf.* organisational strain).

Higher levels of strain have been correlated with higher levels of male prisoner violent misconduct (Morris, Carriaga, Diamond, Piquero, & Piquero, 2012) and studies of prison strain have concluded that prison conditions exacerbate the criminal coping methods for some prisoners (Leban, Cardwell, Copes, & Brezina, 2016). Wulff-Ludden (2016) explored a similar hypothesis in a women's prison and found some support for the argument, although she found women's coping was strongly influenced by previous victimisation and impulsivity. Further research into female prisoners' misconduct suggests that there are differences between male and female prisoners in terms of what predicts misconduct (Lahm, 2016). For example, women with a previous violent history are less likely to commit prison misconduct, a finding that contradicts research findings for male prisoners (Schenk & Fremouw, 2012).

The reported link between security level and the prisoner's level of misconduct (Camp, Gaes, Langan, & Saylor, 2003) would appear obvious; prisoners with a higher risk profile are more likely to be placed in higher security prisons. However, Jiang and Fisher-Giorlando (2002) controlled for this effect and still found that higher security prisons correlated with a greater number of infractions, attributing this to the strain of being subject to greater restrictions and the inherent organisational coercion.

The research linking prison strains with prison indiscipline is more limited than the extensive studies into the individual importation, deprivation or organisational factors. Despite this, researchers have highlighted that it provides a promising approach to understanding and progressing research into prison indiscipline (Wooldredge, 2020). No studies have examined hostage taking in prison (or crisis/barricade behaviour in prison) from the perspective that it may be a form of prison misconduct arising as a response to prison strain.

A final element within GST is that different prisoners react differently to similar strains. The third part of this thesis explores collusion, placing it in the context of co-offending and from the perspective that it represents a differential form of response to prison strain.

Collusion – the case for research

HMPPS staff involved in the management of serious incidents report that collusion occurs in some apparent hostage incidents where prisoners appear to be holding other prisoner(s) hostage. Within normal English usage collusion means a "*secret agreement or understanding for purposes of trickery or fraud; underhand scheming or working with another; deceit, fraud, trickery*". (Oxford English Dictionary, 2020) which accurately describes the main elements of collusion. However, this term does not appear to have previously been applied to collaboration between participants in a hostage incident. Co-operation between hostage incident participants has been reported (Völlm, Bickle, & Gibbon, 2013) but there is no literature exploring the nature or incidence of the phenomenon. However, this feature of prison hostage incidents is of significance. For example, staff managing serious incidents in HMPPS prisons indicate that collusion may reduce the effectiveness of negotiation approaches, causing negotiators and managers to devise strategies based on incorrect assumptions about the relationship between hostage and perpetrator. Being able to accurately identify collusive incidents may help negotiators

better match their tactics to the contingencies of the incident (Grubb, 2020; McMains &

Mullins, 2014).

Secondly, there are potential differences in the strategic approach adopted to resolve

collusive situations. It has been identified that the fundamental play-for-time strategy can

create an "action imperative" amongst many incident commanders in police incidents,

creating a desire to intervene when no operational need exists (Dalfonso 2002, cited in

Vecchi et al., 2005; McMains & Mullins, 2014). It may be that in (supposed) collusive

incidents there is less tolerance of the inherent inconveniences and operational disruption

caused by the situation and the "action imperative" creates even greater impetus to end

the incident swiftly.

For the reasons outlined above it is important to explore the incidence of collusion in

English and Welsh PHTs. This will address the gap in the literature and provide specific

information to assist in managing hostage incidents in HMPPS prisons.

Background to Collusion

Within HMPPS rules there is no formal definition of collusion and prison hostage taking

is not necessarily an offence against the law, (although on occasion the Crown

Prosecution Service does prosecute, depending on the severity of injury, who was the

victim etc.), however, it is against Prison Rules and represents a violation of legally

enforceable regulations (see Appendix B for a summary of the relevant law and prison

rules). Prison adjudicators (who process rule violations) are invited to consider if

collusion existed in an alleged hostage incident (HMPPS Prison Discipline Procedures,

2017) and if they believe it did, then a different charge may be brought against all

participants. In considering whether collusion was present the adjudicator is asked to take

account of any injuries sustained by the hostage, any intimidation and any evidence of

the hostage and perpetrator's relationship prior to the incident. If the adjudicator decides that all parties were colluding, then a minimum alternative, and lesser, charge of "denies access to any part of the prison" may be used (HMPPS Prison Discipline Procedures, 2017).

Hence, although collusion is not a crime (i.e. against the law), prisoners who participate in collusive hostage incidents are jointly breaking formal rules which have the status of statutory instruments. It is therefore contended that theories that explain why offenders may together violate laws may be useful in understanding collusion in prison hostage taking.

Theories of co-offending

One of the earliest researchers to explore co-offending was Reiss (1988), who defined it as offences committed by, or in the presence of, more than one offender, whilst Carrington, Brennan, Matarazzo and Radulescu (2011) further differentiate co-offending into crimes committed in pairs and in groups of three or more.

The reasons why people commit offences together include "social selection", whereby individuals with similar characteristics find each other in similar situations (Roxell, 2011). The choice to co-offend in these circumstances is not planned and arises spontaneously when the opportunity occurs. In social selection, co-offending is a consequence of proximity and chance, where individuals, "socially selected" by their circumstances and personality characteristics, find themselves with like-minded individuals willing to commit offences (Hirschi, 1969), (echoing the situational and organisational explanations for prison misbehaviour). This also may have parallels with GST theory (Agnew, 2013), where criminally minded individuals (i.e. imported criminal

characteristics) coincidentally meet and respond criminally when the chance arises (i.e. when strain occurs, in an environment that makes criminal coping more likely).

A second theoretical explanation for co-offending places the cause within peer or group influence and suggests that because young people are more likely to offend than adults, and because they tend to socialise together, then they are more likely to also offend together (Warr, 1996). This explanation accounts for the greater number of youth offences that are committed in pairs or groups but does not explain why at least 20% of adult offences are committed with others (Andresen & Felson, 2012; Reiss & Farrington, 1991).

The third major explanation for co-offending is an instrumental one where offenders are thought to take into account benefits, such as increased financial payoff, or less tangible gains, such as social status and social capital (van Mastricht & Carrington, 2018; Weerman, 2003), the exchange of knowledge about how to commit offences (Felson, 2003), the ability to allocate roles in the offence depending on offender's abilities (McCarthy, Hagan, & Cohen, 1998) or where the offence cannot be committed alone (Tremblay, 1993).

It is contended that the benefits are weighed against the risk of defection, (McCarthy et. al., 1998) or the risk of being informed on (Weerman, 2003). This cost-benefit analysis implies a rational choice is made by the offender, weighing up the costs and benefits of co-offending, however it does not take into account the well-established link between impulsivity and offending which recognises that much offending is not planned nor rationally mediated (Andrews, Bonta, & Wormwith, 2006). The instrumental perspective provides a useful explanation for offences that are committed with one or two co-offenders, (Weerman, 2003) but is a less valid explanation for offences committed in

large groups, where the risk of defection is increased and the benefits of financial gain are decreased.

Weerman further developed the instrumental perspective and put forward the view that co-offending is a form of "social exchange" (Weerman, 2014), where the benefits are not necessarily tangible, nor symmetrical (i.e. different participants can benefit in different ways from the same offence). There are three key elements to the theory, which attempts to synthesise previous work; i) the offender must be willing to co-offend, ii) one or more co-offenders must be available and accessible, and iii) the offender must be able to convince potential collaborators that he or she is a valuable and viable co-offender. The asymmetric-benefit element of Weerman's theory explains why many aspects of co-offending may occur, accounting for why offenders vary in their preference to co-offend, why different offences may be more likely to be committed by co-offenders, why older offenders may incite younger offenders to co-offend, why co-offending is more likely to occur in smaller groups, why co-offenders are likely to share similar characteristics and why offenders tend to seek different co-offenders for each offence.

Characteristics of co-offending

The proportion of offences committed by co-offenders appears to be stable at approximately 10% of recorded offences in a given time period (Carrington et al*., 2013; van Mastrigt & Farrington, 2009) with pairs occurring more frequently (76%) than groups of three or more (17% and 7% respectively) (Carrington, 2002).

There is variation in the offence types committed by co-offenders, with drug use and vandalism most frequently carried out together, and burglary and robbery also frequently committed by more than one offender at a time (Weerman, 2003). Findings on violent crimes suggest that whilst most violent crimes tend to be committed alone, (Carrington et

al., 2013) the presence of other offenders makes violence more likely (Conway & McCord, 2002; Tillyer & Tillyer, 2019), and more extreme (Lantz, 2018). For example, although 67% of stranger kidnap cases are committed alone, kidnaps committed in groups are more likely to involve violence and are more likely to have other violent crimes committed at the same time (Cunningham & Vandiver, 2018). Lantz (2018) also found that violence and weapon use is more severe when a kidnap offence is committed in a group and against a stranger, attributing this to the anonymity of the victim and the diffusion of responsibility in the group.

One explanation for the difference in the rates of co-offending for various offence types is the complexity of the offence; shoplifting is not a complex operation and can easily be committed alone, whereas burglary often requires a division of labour between several offenders. Weerman (2003) explains this difference as the offence being either "*a simple or complex operation*" (Weerman, 2003, pp.400), differing in the degree of sophistication needed to carry it out and whether a division of labour is required for the crime to succeed.

The majority of offenders have criminal careers that include solo and co-offending, with fewer offenders being wholly co-offenders and the fewest offenders being exclusively solo offenders (Reiss, 1988), although offenders do appear to have a preference which they select if possible (Reiss & Farrington, 1991). This means that offenders who have co-offended before are more likely to do so again.

Co-offending is most often committed by youth offenders (Reiss & Farrington, 1991) and decreases with age, although approximately 20% of adult offenders committed their offence with a co-offender (Carrington et al., 2013). Reiss and Farrington (1991) analysed the offending of 32-year olds and found that across their offending careers, 51% of their convicted offences had been committed with at least one other offender.

The similarities of those who co-offend has also been noted. Offenders are more likely to co-offend with others who resemble them in age (Reiss & Farrington, 1991), sex (Warr, 1996) or ethnicity (Reiss, 1988).

Although no research exists into hostage taking and co-offending, a study into kidnap may have some relevance. Cunningham and Vandiver (2018) studied co-offending in stranger kidnap offences, using a US sample of over 4000 cases. They compared solo offenders with group offenders (although they do not specify the size of the group) on offence characteristics and found that 67% of the kidnap offences were committed alone, solo offenders were older (mean age of 34 years compared to 27 years for co-offenders) and that injury was more likely in the group offences (35% of cases involved injury compared to 24% for the solo offenders). They also found that co-offenders were more likely to commit additional violent offences at the time of the kidnap (23%) compared to solo offenders (12%). This study however was of co-offenders against a third-party victim rather than of co-offenders simulating an offence.

Collusion has not been explored in the context of it being a form of co-offending. This thesis will explore the gap in the literature, drawing on factors that have been found to be associated with co-offending, to see if an association also exists with collusion.

Scope of the Thesis

This study examined those incidents recorded in the HMPPS' incidents database as "hostage incidents". These incidents are described as hostage incidents or prison hostage takings (PHTs) throughout this thesis, defined for these purposes as where a prisoner or prisoners hold another person(s) against their will, within the confines of a prison or whilst under the jurisdiction of prison staff. The research outlined above highlights that distinguishing hostage incidents from barricade with victim incidents relies upon

assessing the motivation for the incident and the role of the captive. These distinctions are rarely made during the course of a PHT and thus the incidents recorded on the HMPPS database are all classified as a "hostage incident". Therefore, all such incidents are included in the analysis. Terrorist-related hostage takings and kidnapping for ransom are outside the scope of this study as they have differing motivations and negotiation strategies (Dolnik, 2003; Wilson, 2000).

Throughout this thesis, the term "perpetrators" has been used to describe those prisoners who have held others against their will during an incident, "hostages" used to describe those captives held against their will and the term "colluders" was used to describe those prisoners who were recorded as co-operating to simulate a hostage incident. "Collusion" or "collusive" was used to describe a situation where staff have recorded that the incident was a co-operative situation and incidents where the captive was held unwillingly were termed "coercive". This terminology is used and recognized by the staff who work within HMPPS prison settings. Hostage, barricade incidents and other crisis incidents attended by police negotiators in settings other than prisons (e.g. Alexander, 2012; Grubb, 2020) have been collectively referred to as "community incidents" in this thesis.

Research Aims, Questions and Hypotheses

The negotiation strategies used by police crisis negotiators have been shaped and developed in the light of ongoing research (e.g. Grubb et al., 2019; Vecchi et al., 2005), however, research about PHTs has been far more restricted (Crighton, 2015). It is this lack of empirical research that informs this study's overall research question which is, what are the factors related to the occurrence of and collusion in hostage incidents in HMPPS prisons?

This is specifically addressed within three main aims;

i) **To describe the situational and participant characteristics of HMPPS PHTs**. Whilst HMPPS' strategy has been informed by the research from community-based studies, there is an absence of empirical data to demonstrate that it is appropriate to adopt similar tactics and strategies in custodial settings. Should PHTs have characteristics similar to those that happen in the community then this would legitimise the use of similar tactics, whereas differences between characteristics may imply alternative strategies are needed, specific to the prison setting.

ii) **To examine PHTs from the perspective that they are a form of prison indiscipline influenced by prison strain**. Current theories explaining community hostage incidents stress the importance of understanding the perpetrator's emotional state, considering the incident as a potential response to crisis or conflict. The limited explanations for prison hostage incidents focus on instrumental gain (or conflict) rather than emotional motivation with no consideration that they may be a response to factors other than instrumental ones. This study explores variables associated with prison strain, (based on Agnew's (2003) General Strain Theory (GST)) and examines their association with PHTs and collusion (see iii below).

iii) **To examine collusion in PHTs including from the perspective that it is a form of co-offending**. Prison staff dealing with hostage incidents report that collusion (that is apparent co-operation between the alleged perpetrator and hostage) happens in PHTs. To understand this phenomenon, it is intended to explore potential differences in the management of collusive and coercive incidents and in the participant and situational characteristics of the two types of incident.

These aims were addressed by the following objectives:

i) Conduct a literature review to identify the situational and perpetrator characteristics reported in prison hostage and community hostage and crisis incidents.

ii) Analyse secondary data from the HMPPS incident reporting system about all PHTs between 1988 and 2017 using inferential and descriptive statistics.

Specific Hypotheses

Hypothesis 1 – Collusive hostage incidents will significantly differ in duration from coercive incidents.

Hypothesis 2 – Collusive hostage incidents will significantly differ from coercive incidents in whether there is the use of a tactical response to end the situation.

Hypothesis 3 – Collusive hostage incidents will significantly differ from coercive incidents in whether negotiators are deployed.

Hypothesis 4 – Collusive hostage incidents will significantly differ from coercive incidents in whether a command suite is opened or not.

Hypothesis 5 - Prisons of higher security category will be associated with a significantly greater number of hostage incidents.

Hypothesis 6 – Larger prisons will be associated with a significantly greater number of hostage incidents.

Hypothesis 7 - Perpetrators and colluders will be significantly more likely to be serving indeterminate sentences than hostages.

Hypothesis 8 - Perpetrators and colluders will be significantly more likely to be serving longer sentences than hostages.

Hypothesis 9 - Perpetrators and colluders will be significantly more likely to be involved in incidents later in their prison sentence than hostages.

Hypothesis 10 - Perpetrators and colluders will be significantly more likely to have a longer time to serve after the incident than hostages.

Hypothesis 11 - Perpetrators and colluders will be significantly more likely to be on an Incentives and Earned Privileges[2] (IEP) level that has fewer privileges than hostages.

Structure of Thesis

To address the above research areas, this thesis begins by presenting a review of the literature relating to quantitative studies that have been conducted, exploring the characteristics and features of prison and community hostage and crisis incidents and identifying the consistencies and differences between them. Chapter 3 then describes the steps taken to obtain and transform data to allow exploration of the features of HMPPS prison hostage incidents since 1988. The results from the descriptive and inferential statistical analyses are presented in Chapter 4. Chapter 5 is a discussion of the findings in relation to previous research about hostage incidents, the utility of General Strain Theory as an explanation for prison hostage takings and the extent to which co-offending serves

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[2] IEP schemes were introduced in 1995 and mean that a prisoner's behavior can be rewarded or punished via the use of an incentives and earned privilege scheme, operated in each prison. There are four levels within the scheme; basic, where a prisoner receives only the statutory minimum of entitlements to visits, association time, has no television etc., standard, which most prisoners should expect to be on, enhanced where additional privileges are awarded, such as extra visits, material benefits such as a quilt not blankets, access to games consoles or extra phone calls and entry level, when a prisoner first transfers to a prison and is placed on the entry level whilst his/her behavior is assessed, the privileges on entry level being slightly more restricted than standard level. Movement up and down the levels is based on regular assessments of behavior and placement on each level is independent of the adjudication system.

as a useful explanation for collusion in prison hostage takings. Chapter 6 ends the thesis with an overall conclusion, consideration of the implications for professional practice, an exploration of the strengths and limitations of the research and suggestions for further study.

Chapter 2 The Characteristics of Hostage Incidents

In this chapter quantitative studies of prison and community serious incidents, including hostage takings, are reviewed. There are two main purposes i) to identify the key features of prison and community hostage (and other crisis) incidents and ii) to compare prison and community incidents to see if parallels exist. To address these intentions, a systematic search of available literature was undertaken. However, the dearth of methodical, high-quality studies precluded the use of a systematic-review approach to present the findings. Instead, this chapter reviews the shared variables reported in the studies.

Rationale for Literature Review

As discussed in the introduction, most published work discussing PHTs is focused on how to practically manage the situation (e.g. McMains & Mullins, 2014), rather than reporting statistical analysis. This may be due to inaccessibility of data (Crighton, 2015), or a lack of suitable raw data, a situation that also impacts community-based research (Grubb, 2019). Furthermore, the formal databases that do exist have been described as subject to substantial bias, meaning the findings must be treated with caution (Lipetsker, 2004).

Notwithstanding these limitations, exploring the characteristics of serious incidents is an essential step in better managing them (Grubb, 2010) both for community and prison hostage incidents. Additionally, the current management of prison hostage incidents broadly mirrors the management of community-based hostage (and other serious) incidents (Vecchi et al., 2005), but no direct comparison of prison and community incidents has been undertaken to provide a stronger rationale for this practice.

The literature review was designed to meet the first research aim (describe the situational and participant characteristics of PHTs) and had two main elements, in line with research

objective 1; to examine the situational and participant characteristics of PHTs and to explore whether similarities exist between prison and community-based incidents.

The limited literature on PHTs is drawn from different countries with different prison systems, and this impacts on generalisability. However, given the general paucity of available high-quality empirical research it appears advisable to explore what is available whilst understanding its limitations. There is also extremely limited published quantitative data about community hostage incidents. Much of the research includes analysis of hostage takings as part of the wider range of police crisis negotiator deployments (e.g. Alexander, 2012; Grubb, 2020). Therefore, the review has included studies reporting data gathered about the critical incidents to which police crisis negotiators are deployed, in the absence of specific studies of hostage incidents.

Search Strategy

The online databases JSTOR, Medline (Ovid), ProQuest Central, PsycINFO, Medline, SAGE and SCOPUS were searched using terms hostage and prison or jail or corrections and data and situational characteristics and descriptive analysis. Very few studies were returned so in order to maximise the number of valid results additional search strategies were used; reviewing reference and citation lists of relevant articles and the use of grey literature, including use of online sources Google Scholar, ResearchGate, Mendeley and The Canadian Correctional Services website. In addition, authors of recently published work were contacted to seek further information about data referred to in their work. The administrator of the HOBAS database was contacted, who provided unpublished raw data up to 11 November 2019. Given the applied nature of the current study practitioners from the field were contacted directly to request any relevant data which might be available. This included a cohort of English police negotiators and researchers (approximately 25), accessed via an English police negotiator training course and a larger cohort of American

negotiators and researchers, accessed via a specialist negotiator conference in California (approximately 120). With the exception of HOBAS data and Grubb (2020), no additional data or papers were obtained.

All papers identified were reviewed for relevance using the inclusion criteria and rationale, shown in Table 3. As a first step the abstract was read, providing overall initial guidance on the topic and content of the article. Inclusion was made based on the inclusion/exclusion criteria shown.

Table 3 - Inclusion and exclusion criteria for reviewed studies

Inclusion Criteria	Rationale for criterion
Included if paper involves quantitative analysis/description of crisis/hostage incidents which happened in custodial settings (including synonyms for hostage)	This is the primary research interest
Quantitative analysis of crisis/hostage incidents responded to by police / in the community	There are potential similarities between custodial and community incidents
Incidents analysed were drawn from the UK, US or Europe	The general management and strategic approach are similar
Included data that were not derived from primary sources but reported enough information about earlier data to allow comparison	Increased the very limited number of published studies
In English	
Exclusion criteria;	
Papers reporting qualitative analysis/descriptions of incidents including case-study design/anecdotal reporting	Unlikely to be representative of larger number of incidents
Studies of terrorist incidents	The management of and motivation for these differ significantly from prison hostage takings
Studies of kidnapping for ransom	The management of and motivation for these differ significantly from prison hostage takings

Quality Assessment and Excluded Papers

The published papers that described prison hostage incidents were reviewed in detail and assessed for relevance. The extremely limited number of relevant papers meant that a broadly inclusive position was adopted, excluding only papers that examined

characteristics of imprisoned hostage takers but whose hostage taking offence occurred in the community (Herve, Mitchell, Cooper, Spidel, & Hare, 2004), or that reanalysed previously published data (Furr, 1994; Harvey-Craig, Fisher, & Simpson, 1997; Nouwens 1995; Williams, 1995). This was because this review aimed to establish key trends in the figures and duplicate results were deemed likely to distort the picture. One British prison study drawing on anecdotally based impressions has been included as it describes the authors' impressions of trends (Cooke, Baldwin, & Howison, 1990).

Data Sources

In the literature the two main approaches to obtaining data are either to create a bespoke database, using incident reports and official records and populating variables created and coded by the researcher, (Booth et al., 2010; Feldman, 2001; Head, 1990; Magaletta, Vanyur & Digre, 2005; Mailloux & Serin, 2003; Michaud, St-Yves, & Guay, 2008; Smith & Conlin, 1987) or to access a previously created database where the variables are predetermined (Alexander, 2012; Mohandie & Melloy, 2010; Grubb, 2020) and the data are entered by database administrators.

Both have drawbacks and advantages, with bespoke coding protocols often providing a very limited range of incidents for analysis (Mailloux & Serin, 2003; Magaletta et al., 2005), but providing a rich source of data which can be coded to reflect the data. On the other hand specific databases can restrict access (Crighton, 2015) or have systematic biases, such as reporting officers choosing which records to upload (see Lipetsker, 2004 for a full review) but often provide a larger dataset (e.g. HOBAS now contains over 8,500 records of separate incidents) which can be mined for individual sub-types of incident (for example, Booth et al., 2010 analysed 56 domestic hostage incidents drawn from HOBAS). Prison-based studies have drawn on both types of data source.

Samples and Sample Sizes

The sample size for prison studies ranged from 14 (Magaletta et al., 2005) to 62 incidents (Smith & Conlin, 1987). Although community studies provided far larger datasets of hostage incidents, (e.g. 3330 cases, Head 1990), more recent studies have included hostage incidents as part of the wider reporting of police crisis negotiator team deployments, with small overall sample sizes (e.g. 315 cases, Alexander, 2012; 166 cases Grubb, 2020) and, where reported, low rates of hostage incidents (e.g. 6% of incidents attended were hostage incidents, Grubb, 2020). The data about hostage incidents cannot be disaggregated from the reported figures in these studies.

Reporting Protocols Used

There is no systematic reporting of variables across studies and even where the same variable is discussed, there is no standard format to allow a robust comparison of findings. Despite this, there are some commonalities across both prison and community studies that enable comparisons to be made. These similarities are most often about incident features and some perpetrator characteristics, with very few studies examining hostage details. The following section examines the most commonly reported variables and the studies are summarised in Table 4 and Table 5.

Table 4 - Prison based studies

Variable	Smith and Conlin 1987	Cooke, Baldwin and Howison 1990	Mailloux and Serin 2003	Magaletta, Vanyur and Digre 2005
Study	Smith and Conlin 1987	Cooke, Baldwin and Howison 1990	Mailloux and Serin 2003	Magaletta, Vanyur and Digre 2005
Sample	62 HMPPS prison hostage incidents 1972 -1985 74 prisoners	HMPPS prison incidents, no data provided – generalisations used	Canadian prisons 33 incidents between 1989-2000	14 Staff hostage incidents in US Federal prisons 1891 - 2004
Age	Mean 27.8 for adult sample, Mean 18.5 for young offender sample* 3 over 35 years	Under 25	Below 30 years	Not reported
Sex	Male	Male	90% male	Not reported
Known characteristics	Violent offences, 10 serving life (14%)	History of violence, Serving > 5 years	95% violent offence, 25% current kidnap or similar offence, <10-year sentence	Not reported
Number of participants	87% single perpetrator	Not reported	85% acted alone	Not reported
Location	Cell, 40% high secure or dispersal prison	Cell	High and medium security prisons	High and mixed security prisons
Weapon & Injury	Weapon not reported.16% incidents involved injury	Weapons used – knives, razors. Injuries 'rare'	89% had weapon. 50% no injuries	Not reported
Duration	Mean 13.0 adults, Mean 4.9 young offenders	Under 5 hours	Not reported	Half under 45 minutes 3 over 3 days
Victim characteristics	Not reported	Not reported	39% victims admin staff, 18% victims corrections staff	Staff members
Negotiation used	74% incidents resolved by negotiation	Not reported	Not reported	11 recorded incidents – 1 suicide, 2 tactical, 4 negotiated and 4 negotiated and tactical

Table 5- Community based studies

Study	Head 1990 (cited in Grubb 2010)	Feldman 2001 (cited in Grubb 2010)	Michaud, St-Yves, & Guay 2008	Mohandie & Meloy 2010	Booth, Vecchi, Angleman, Finney, Marker, Romano, & Van Hasselt 2010	Alexander 2012	HOBAS 2019	Grubb 2020
Sample	3330 US domestic hostage takings 1972-82	120 hostage and barricade US police incidents pre 1988	543 Canadian police hostage and barricade incidents 1990-2004	84 hostage and barricade US police incidents (38 hostage) from officer involved shootings dataset 1998 - 2006	56 US domestic hostage and barricade incidents from HOBAs – dates unspecified	315 Scottish police crisis team callouts between 2005-08 (19 hostage)	8586 critical incidents in US responded to by police crisis negotiators 63% hostage/barricade	166 English HCN deployments (8 hostage 3 victim) 2015 - 2016
Age	25% < 30	29.7 years mean 76% < 30	61% 26-45 years	Mean 36, range 18-69	33 to 44 years	72% between 21-44 years	68% between 18 and 45 yrs.	37% males between 20 and 29
Race	61% white	57% white, 33% African American	83% white	31% Hispanic, 31% white	63% white	Not reported	59% white, 20% black,10% Hispanic	Not reported
Sex	80% male	98% male	95% male	94% male	98% male	83% male	91% males	72% males

100% captive takers male |
Number of participants	47% single perpetrator single hostage	88% acted alone	95% acted alone	Not reported	Not reported	Not reported	Not reported	Not reported
Location	20% home 35% transport	42% private residence	77% domestic residence	42% own residence 31% other domestic residence	95% domestic residence	62% residential location	78% domestic setting	55% domestic dwelling
Weapon & injury	31% firearm present Injury not reported	75% firearms present. Injury not reported	88% armed 72% with firearm. Injury not reported.	92% armed, 64% with firearm. 89% injured.	83%armed, 49% firearm 17.1% injured	57% weapon present. Injury not reported	68% armed, 56% firearm. 18% injured.	54% armed, 30% bladed, 13% firearm. 10.2% injured.
Duration	53% under 24 hours	Not reported	63% under 6 hours 17% under 2 hours	Mean 8 hours, range 3 mins – 216 hours	Not reported	Mean 131 minutes, Median 71 minutes	27% < 2 hrs, 35% 2-4 hrs, 19% 4-6hrs, 19% >6 hrs	Mean 4.1 hours, range 0-80 hours, mode 1 hour
Negotiation used	64% negotiated	40% successfully negotiated, SWAT 38%	60% successfully negotiated	Used in 1% of <1hr and 56% of >1hr – negotiation made no difference to outcome	46% negotiated release, 25% SWAT	Resolved through negotiation – all cases involved negotiation	All cases involve negotiation, 53.82% successfully negotiated	51% successfully negotiated, 28% non-neg surrender, 11% tactical resolution

Age

Direct comparison of ages is complicated by the fact that some studies report specific means (Mailloux & Serin, 2003; Smith & Conlin, 1987) and others report a range (Alexander, 2012; Booth et al*.,* 2010; Michaud et al., 2008), however, there is a broadly consistent finding that younger males were the perpetrators of hostage and crisis incidents with between 25% (Head, 1990) and 76% (Feldman, 2001) of perpetrators below 30 years of age. Whilst age ranges make it more difficult to know the exact proportion below 30 years of age, studies report between 61% (Michaud et al*.,* 2008) and 72%, (Alexander, 2012) of the sample were between 18 and 45 years of age. The HOBAS dataset uses age groups, with 28.43% aged 18 to 30 years and 39.25% aged between 30 and 45 years of age. In Grubb (2020) 36.8% of male subjects were aged between 20-29 years of age. It is not possible to determine whether the perpetrators of prison incidents differ significantly from community perpetrators.

However, younger age parallels the strong predictors both of general violence (Harris, Rice, Quinsey, & Cormier, 2015) and prison indiscipline (Schenk & Fremouw, 2012). The only study reporting a higher average age is Mohandie and Meloy (2010), with a mean of 36 years and a range of 18-69. It is possible that this is because the sample used in Mohandie and Meloy represents a specific subset of incident perpetrators, i.e. those where a police firearm was discharged and as such this is not representative of hostage/barricade incidents in general.

Sex

In three of the prison studies the sex of the subjects was reported and up to 90% of perpetrators were male, (Mailloux & Serin (2003). All the community studies reported that the majority of incidents were perpetrated by males, ranging from 80% (Head,

1990) to 98% male (Feldman, 2001). Where a higher proportion of the sample was female, this may be due to the database including all community deployments of police negotiators, however, all incidents with a captive in that study (Grubb, 2020) were perpetrated by male subjects.

Perpetrator and Victim Characteristics

There was an inconsistent picture available about other characteristics of participants. In prison studies perpetrators were more likely to be serving sentences for violent offences, (Cooke, Baldwin, & Howison, 1990; Mailloux & Serin, 2003; Smith & Conlin, 1987), including sexual offences (Mailloux & Serin, 2003) and were more likely to be serving sentences of over five years. This pattern of violent history is similar for community incidents, where 50% of perpetrators were found to have had a previous violent offence (Booth et al*.,* 2005). This again reflects the research into predictors of violent offending, where those with a violent offending history are significantly more likely to be violent in the future (Webster & Hucker, 2007). Some studies report high rates of mental illness amongst perpetrators (Grubb, 2020), however no prison studies mention this as a feature for participants. No studies systematically report information about hostages and although wider prison victimisation has been studied (Steiner, Ellison, Butler, & Cain, 2017) this has not examined prisoner hostages.

Number of Participants

Two of the prison studies reported that most incidents involved only one perpetrator, (Mailloux & Serin, 2003; Smith & Conlin, 1987), reporting 85% and 87% respectively, and three community studies reported only one perpetrator, with 47% (Head, 1990), 87.5% (Feldman, 2001) and 95% (Michaud et al*.,* 2008) being single-perpetrator incidents.

In both the prison and community-based studies perpetrators were more likely to act alone. Given that domestic barricade or hostage taking is considered an extension of interpersonal violence in the context of intimate relationships (Van Hasselt et al., 2005) it would appear consistent that such incidents have a single perpetrator and one victim or victims from the perpetrator's immediate family. It has also been argued that single hostages present an easier control option for single perpetrators (Wilson, 2000) and this may be the reason for this consistent finding.

Location

In prison studies most incidents are reported to take place in a cell and occurred in either high security or medium security prisons (Cooke et al., 1990; Magaletta et al., 2005; Mailloux & Serin, 2003; Smith & Conlin, 1987). In the community the location of the incidents is generally in a private residence, with frequencies ranging from 20%, (Head, 1990), through 54.8%, (Grubb, 2020), 62% (Alexander, 2012) to 92% (Booth et al., 2010). Some studies specify whether the incident is in the perpetrator's own home, (42%) or another domestic residence (31%) (Mohandie & Meloy 2010). HOBAS data records a wide range of locations including 22 (.26%) occurring in a prison or jail, but no further disaggregation is provided. The 78% of incidents based in residential settings in the HOBAS dataset are not identified as being the subject's or another person's dwelling.

There are similarities between a dwelling in the community and a prison cell; both are easily accessible locations for a perpetrator but also both represent a relatively safe and predictable environment for the perpetrator to control (Noesner, 1999; Flood & Dalfonso, 2005 quoted in Michaud et al., 2008).

The relationship between security classification and prison misconduct has been reported (Camp, Gaes, Langan, & Saylor, 2003) and prisoners with a higher propensity for violent offending are more likely to be held in a prison of higher security category. This may be related to the findings that incidents are more likely to occur in higher security prisons (Magaletta, Vanyur, & Digre, 2005; Mailloux & Serin, 2003; Smith & Conlin, 1987).

Weapon

Only two prison studies mention the presence of weapons (Cooke, Baldwin, & Howison, 1990; Mailloux & Serin, 2003) noting that weapons are present in the majority of incidents and consisting of mainly knives or razors. All community studies reported the presence of weapons, with US studies reporting either only the percentage involving firearms (31%, Head, 1990; 75% Feldman, 2001) or figures for both firearms and other weapons, e.g. 92% armed with 64% having a firearm (Mohadie & Meloy, 2010). In the HOBAS data 31.62% of cases are recorded as unknown whether a weapon was present, 57% are recorded as having a firearm present and 12.24% had a knife present.

Compared to US studies, British community studies report fewer incidents having either weapons or firearms present, with between 53.6% (Grubb, 2020) and 57% (Alexander, 2012) of incidents with a weapon present. In Grubb (2020) 29.5% of incidents involved a bladed weapon and 13.3% involved a firearm, but this distinction was not reported in Alexander (2012).

The nature of the weapons differs between community and prison as well as between countries, with firearms frequently present in US community-based incidents and razors and knives most commonly used in prison and British community incidents. These

findings are in line with other studies of confiscated weapons in prison, which identify that

weapons in US prison assaults on both staff and inmates (Lincoln, Chen, Mair, Biermann, & Baker, 2006) and represented 83% of seized weapons. The lack of firearms in custodial incidents is doubtless a reflection of the lack of access to such weapons. However, the use of weapons to threaten, coerce and control victims is consistent in both settings, and Wilson (2000) identifies that the presence of weapons during a hostage taking enables the hostage-taker to more easily and believably exert control over the victims.

Injuries

Several of the studies reported the rate of injures for victims of the incidents. Most of the community studies reported rates of between 10.2% (Grubb, 2020) and 18% (HOBAS, 2019). These figures are similar to the 16% rate reported in the prison sample for Smith and Conlin (1987) but contrast sharply with the 50% injury rate reported in Mailloux and Serin (2003). Smith and Conlin (1987) report all prison hostage incidents whereas Mailloux and Serin (2003) report figures for incidents involving sexual assaults which may account for the difference. The much higher figure of 89% reported in Mohandie and Meloy (2010), is attributable to the focus of the study being officer-involved shootings.

Duration

A variety of approaches was taken to reporting the duration of an incident including use of the mean and range (Smith & Conlin, 1987; Mohandie & Meloy, 2010; Alexander, 2012; Grubb, 2020) or time bands (HOBAS, 2019; Michaud et al., 2008) making direct comparison difficult. However, both prison and community studies report a wide range in duration with some incidents lasting days (9 days in the community, Mohandie &

Meloy, 2010, and 3 days in prison, Magaletta et al., 2005) compared to a matter of minutes in the community (Mohadie & Meloy, 2010) and prison (Magaletta et al., 2005).

However, many studies report that most incidents last shorter durations, for example Magaletta et al. (2005) state that 6 of 11 incidents lasted under 45 minutes, 2 lasted under 20 hours and 3 lasted over three days and Michaud et al. (2008) reported that 17% of the incidents lasted under 2 hours and 63% lasted under 6 hours. HOBAS records duration in 2-hour blocks, with the largest single group being 34.95% of incidents lasting between 2 and 4 hours and 27% lasting under 2 hours. Head (1990) reports that 53% of domestic hostage takings lasted under 24 hours, significantly longer than the mean of 131 minutes reported in Alexander (2012). Grubb (2020) identifies a range of 0 to 80 hours with a mean of 4.1 hours and a mode of 1 hour, suggesting most incidents are resolved within one hour.

The only study to report duration by age (Smith & Conlin, 1987) reveals that incidents involving adult perpetrators that were resolved by negotiation lasted almost three times longer (mean of 12.96 hours) compared to those involving young offenders (negotiated resolution taking 4.51 hours for young offenders). They found multi-perpetrator incidents to last much longer than single perpetrator incidents, with a mean of 26 hours.

In another prison-based study Magaletta et al. (2005) found that most incidents resolved in under 45 minutes and although dialogue was established with the perpetrator, this was not via formal trained negotiators. The pattern of duration for both community and prison incidents is similar, with the majority of incidents ending swiftly.

Negotiation and Management

Only two of the prison-based studies report negotiation or resolution data, (Magaletta et al., 2005; Smith & Conlin, 1987) as opposed to all community-based studies. However,

it is not appropriate to directly compare rates of negotiator deployment as some studies (Feldman, 2001; Head, 1990; HOBAS; Michaud et al., 2008; Mohandie & Meloy, 2010) describe data about every incident reported to police regardless of negotiation, whereas others draw on databases about negotiator deployment (Alexander, 2012; Grubb, 2020) which may skew the figures.

Resolution type is more consistently reported, and this may be achieved by negotiation, by tactical response (referred to as SWAT in some studies, Booth et al., 2010; Feldman, 1990), by a combination of both or by the perpetrator "surrendering" before negotiation commences. Reported rates of successful negotiation vary between community rates of 40% (Feldman, 2001), through just over 50% (51.2%, Grubb, 2020; 53.8% HOBAS) to 65% (Head, 1990) and 74% in prison-based studies (Smith & Conlin, 1987).

Threats

None of the studies reported the rate of threats, however, threats function as a use of power, (either on the part of the hostage taker or the negotiator) to attempt to force the other party to comply, without actually needing to follow through with the threatened action (Borowsky, 2011) and are therefore critical to the dynamics within the situation. The hostage-taker would rapidly exhaust his or her options if the hostage were injured each time the hostage-taker demanded action and so the hostage-taker uses the threat of injury to attempt to force compliance (Borowsky, 2011). The lack of reporting of threats may be because they are perceived as an inherent part of hostage taking (McMains & Mullins, 2014) therefore, they do not need to be reported.

Summary

The literature review had two goals; to examine the situational and participant characteristics of PHTs and to explore whether similarities exist between prison and community-based incidents.

The first goal was difficult to achieve; the review has highlighted a substantial gap in the literature examining prison hostage takings, and the situation regarding community-based incidents is not much better. The most recent HMPPS prison data are over 30 years old and studies from other jurisdictions are focused on small sub-sets of prison hostage takings, meaning no up-to-date picture exists describing the features of HMPPS (or international) PHTs. No study discussed collusion between participants, suggesting this is an under-acknowledged and under-researched aspect of prison hostage taking.

To achieve the second goal prison-based and community-based studies were reviewed simultaneously. The ten papers and one dataset reviewed had differing aims and methodologies, making direct comparison difficult but clear similarities were found to exist between prison based and community-based hostage/barricade incidents; perpetrated by younger males acting alone, in (pseudo)domestic settings, mainly with a weapon present, which is not always used despite the perpetrator often having a history of prior violent offending. Most incidents have negotiators deployed and are more likely to be resolved by negotiation.

The similarities between prison and community hostage takings suggest that they are more similar than has previously been presented. This suggests that the variables used to analyse and describe incidents in the community can usefully be adopted to analyse and understand PHTs.

Chapter 3 Method

This chapter begins with a basic description of the databases accessed to provide the quantitative data, outlines the steps taken to obtain the data and reports the procedures adopted to ensure ethical standards were met. It moves on to a more detailed description of the databases, and states the procedure used to merge the datasets and to create appropriate key variables. It concludes with an acknowledgement of the limitations and potential biases introduced by adopting this approach.

Study Design

The study adopts a group-difference design (Coolican, 2014) to the analysis of HMPPS' secondary data to compare collusive prison hostage incidents to coercive hostage incidents and to compare collusive prisoners to coercive perpetrators and coerced hostages.

A single dataset was created by combining secondary data from three HMPPS data sources, to allow analysis of all prison hostage incidents from 1988 to 2017. Two "parent" HMPPS databases were accessed; NOMIS, (National Offender Management Information System), (which also contains the National Incident Database (NID), a subset of NOMIS) and OASys (the Offender Assessment System).

All available data about hostage incidents and the prisoners involved in them were extracted and a single dataset was created. The data were structured at the incident and prisoner level, allowing analysis of incidents and the prisoners involved in them.

Two dependent variables were created:

* *Collusion* which had two values; collusion or coercion (this was used to compare the features of collusive or coercive incidents).

* *Role,* which had three values; hostage (0), perpetrator (1) and colluder (2), and which was used to compare prisoner characteristics.

A range of categorical and continuous variables were created (see below) including, for the multi-nomial logistic regression the following predictor (independent) variables;

* *Number of days (time) from admission to the incident occurring* – continuous, ratio-level data
* *Number of days (time) from the incident occurring to potential release date* – continuous, ratio-level data
* *Number of court appearances under 18 years of age* – continuous ratio-level data
* *Violent offence* – categorical data (0, non-violent offence, 1, violent offence)
* *Nature of demands made* – categorical data (0, protest or other, 1, transfer or relocate)
* *Other offenders involved in the index offence* – categorical data (0, no others involved, 1, others involved)
* *IEP Deprivation level* - categorical data - (0, low IEP deprivation level, 1 high IEP deprivation level)
* *Previous involvement in hostage incident in prison* – categorical data (0, no previous involvement, 1, previous involvement).

The dependent (outcome) variable for the multinomial regression was the categorical variable *role in incident*, which had three levels; Hostage (0), Perpetrator (1) and Colluder (2).

50

Sample

The study used secondary data from 3 sources, each of which is described below, to create a list of every hostage incident (incident level) and information about the prisoners involved in it (prisoner level).

Incident Dataset

The incident dataset was drawn from the National Incident Database (NID) and created the "master list" which provided the details of every hostage incident in HMPPS prisons, since 1988, including the names and identification numbers of the prisoners involved. This was then used to retrieve information about the prisoners involved in the incidents from two databases, NOMIS and OASys.

The incident dataset yielded 2604 records in an Excel spreadsheet, detailing 1177 incidents (multiple records were created for each incident, a line for each perpetrator or perpetrators and hostage or hostages) occurring between June 1988 and August 2017. A further short extract of incidents between August 2017 and 31 December 2017 was obtained, yielding a further 80 records, bringing the total to 2684.

There were no missing values in the NID dataset as this was the initial dataset which identified the cases to be retrieved from NOMIS and OASys. No information was available about those members of staff who had been taken hostage.

Nomis Dataset

The NOMIS database holds information about the demographics and custodial behaviour of all prisoners currently detained in custody. NOMIS was created in 2009, therefore no details of prisoners are available prior to this date. When serving prisoners

are released from custody much data is removed from the database (for reasons of storage capacity) therefore full data is available for only a sub-set of prisoners.

A full list of all the variables requested from the database can be found at Appendix C.

The NOMIS dataset yielded 4183 records, relating to 1300 prisoners, 74 of whom were involved in more than one incident.

OASys Dataset

The OASys database uses data from OASys, an offender assessment process, undertaken by probation staff, which informs the sentence management of convicted individuals. This system was introduced in 1999. Electronic records are created containing detailed information about the offence and factors which relate to the risk of offending.

Not every prisoner is required to have a completed OASys assessment (due to sentencing criteria, requiring only more serious offenders to be assessed) therefore prisoners in the extracted OASys dataset are a subset of those prisoners who have been involved in hostage taking incidents in prison.

Missing cases have occurred due to systematic non-completion of OASys assessments, resulting from staffing-level and organisational changes. In the current dataset, exploratory analysis showed that the proportion of missing cases has increased yearly, from 1.4% in 2011, through approximately 10% in 2013, 21% in 2016 to 24.6% in 2017. Initial analysis of the current data showed that hostages are more likely to have an incomplete OASys (20.6% incomplete), compared to perpetrators (12% incomplete) or colluders (13.5% incomplete).

The initial OASys data set contained 1384 records for 1283 prisoners (77 prisoners had more than one incident). There were 200 records where the assessment was incomplete.

The OASys dataset contained only one row per prisoner (except where a prisoner had been involved in multiple incidents). Data cleansing was carried out on the records of prisoners who were recorded as having a completed OASys assessment. Where values were omitted this was coded as missing. The full list of variables requested from the OASys database is at Appendix D.

A summary of the number of all records retrieved from each of the three sources can be found in Table 6.

Table 6 - Raw data extracted from the three data sources

Database	Total number of records retrieved	Number of individual incidents retrieved	Number of prisoners' records retrieved	Number of prisoners with more than one incident
NID Incident Database	2604	1177	2429	264
NOMIS prisoner information	4183	635	1300	74
OASys prisoner information	1384	634	1283	77

Materials

The NID, NOMIS and OASys databases each hold different information about the prisoners and incidents. Table 7 summarises the main information about each dataset and the variables requested from the IT team. The transformation of the variables is described in the procedure section.

Table 7 - Summary of data sources and variables requested

Data source name	National Incident Database	National Offender Management Information System (NOMIS)	Offender Assessment System (OASys)
Main type of information held	Incident data	Prison behaviour	Index-offence information
Records available from	1988	2009	2009
Common variables	Prisoner number	Prisoner number	Prisoner number
Information retrieved	Every prisoner involved in every incident was identified Incident description and location	Personal details, prison behaviour, and sentence information relevant for the date of the incident for every prisoner involved	Personal details and index offence information for every prisoner involved in each incident
Missing values	No missing values	Missing values for some demographic details e.g. number of children	Missing values for cases where no assessment completed and where assessment incomplete
Key variables	Prisoner number Unique incident serial number Incident date Names of involved Incident description Prison where the incident occurred Time of incident Duration of the incident.	Prisoner number Birth date Reception date Release date Sentence length First name Surname Gender Imprisonment status Incident sentence end date Incident sentence start date Incident date Incident id number Incident IEP* level Main offence Nationality Security category Sentence type	Prisoner number Ethnic group code Persistent offender Prolific offender Number offences < 18yr Number offences > 18yr Carry/use weapon Violence threat Excessive violence Arson Property damage Sexual element Direct victim Racial hate Response to victim Violence to partner Repeat victimisation Victim stranger Number of other offenders involved Peer group influence Addiction Emotional motivation Evidence other Financial motivation Motivation other Racial hate Sexual motivation Thrill seeking Alcohol Drugs Emotional problems Escalation seriousness **OGRS3 - 2 year ***OVP – 2 year

* Incentives and Earned Privileges scheme – see footnote 2
**OGRS3 – Offender Group Reconviction Scale, a risk assessment tool used by probation staff to assess risk of general recidivism at 12 months and 2 years (Howard, Francis, Soothill, & Humphreys, 2009).
*** OVP – OASys Violence Predictor – a subscale of OASys used to predict risk of violent recidivism at 12 months and 2 years (Howard & Dixon, 2013).

Procedure

Database Access Procedures and Ethical Considerations

Appropriate permissions were obtained from HMPPS for this study to be conducted, including from the HMPPS' National Research Committee, the national HMPPS' lead manager for Security Group and from the Information Asset owners for all data used. No consent was required from the prisoners whose details were analysed in this study as the information is held on a management information database. Ethical approval was granted by HMPPS and Cardiff Metropolitan University for this study to be carried out. All data has been stored in accordance with HMPPS' data handling policies.

Direct data retrieval is not possible for HMPPS staff who are not IT specialists, therefore, an approach was made to the Information Asset Owners for the NOMIS and OASys databases, to obtain permission for access to the data and to specify which fields were required. A formal request was then submitted to the relevant HMPPS' authorities for the data retrieval to be undertaken. All raw data were provided in Excel spreadsheets and initial data cleansing was carried out in Excel.

The data requests for the NID, NOMIS and OASys specified that the full range of variables be retrieved, relating to every available hostage incident. This was to remove the need to request future data downloads (due to cost implications) and because the quality of the data field completion was unknown, it was therefore prudent to request the maximum available range of variables.

Data Transformations

Key Variables Created from the NOMIS Dataset

The continuous variables, *start-date-of-current-sentence, potential-release-date-of-current-sentence* and *start-of-incident-sentence*, allowed the calculation of the continuous variables, *time-from-admission-(to prison)-to-the-incident* and the *time-from-incident-to-expected-sentence-end-date*. For prisoners serving indeterminate sentences no *time-to-expected-sentence-end* variable was calculated and this value was left blank.

The date of birth information was used to calculate the continuous variable *age at time of incident*.

The IEP level for each prisoner on the day of the incident was recoded as a dichotomous variable with values 0 for low deprivation level (i.e. standard or enhanced level) and 1 for high IEP deprivation level.

Key Variables Created from the Incident Dataset

The text description of the incident, drawn from the NID, in its raw form was labelled "incident text" and was then copied into lower case to standardise searching. A series of text searches, using Excel "find" function was carried out to create variables based on the content of the incident text. For dichotomous variables the search result created either a positive (i.e. presence, coded 1) or negative (i.e. absence, coded 0) variable for the target item. For categorical variables (victim role and resolution) the values were coded 0 (hostage), 1 (perpetrator) or colluder (2) and 0 (intervention), 1 (negotiated) or 2 (other).

The key variables created are shown in Table 8.

Table 8 - Key incident level variables created in incident dataset using Excel "find" function

Variable Name	Description	Variable Name	Description
Threat	Threats made during the incident by perpetrator (s) (0 no threats, 1 threats made)	**Injuries**	Injuries sustained by either hostage or perpetrator (0 no injuries, 1 injuries sustained)
Weapon	Weapon was present in the incident (0 no weapon, 1 weapon reported)	**Barricade**	A barricade was erected (0 no barricade, 1 barricade present)
Escape	Escape/attempted escape made by perpetrators (0 no escape, 1 escape made/attempted)	**Collusion**	Incident involved apparent collusion or not (0 no collusion i.e. coercive, 1 collusion reported)
Cell-mate victim	Victim was cell mate of the perpetrator (0 victim not cell mate, 1 cell-mate reported as victim)	**Tied-up**	Hostage was tied up (0 not tied up, 1 tied up)
Victim role	Victim was a prisoner/staff member/other (0 prisoner, 1 staff member, 2 other)	**Resolution**	Type of resolution, (0 intervention, 1 negotiated, 2 other)

A full list of the search terms and variables created in the incident dataset can be found at Appendix E.

Synonyms were searched for, as were common spelling errors. Synonyms were identified by reading the incident text field.

Where the text search failed to find the presence of the target word then an absence value was recorded, the assumption being that the absence of a report of a weapon, threats etc. implied the actual absence of that feature in the incident. For each variable, all records that were identified as a "positive" were checked to ensure that the assumption made using the "find" function was correctly identifying records. Where a "false positive" was returned (e.g. the search indicated presence of a weapon but the data check revealed that the text entry was specifying absence of a weapon) the incident text field was amended to ensure that the search did not return that variable as a positive (e.g. spelling of weapon was amended to "wepon").

The dependent variable, collusion was coded (1, present, 0, absent) by using "find" to identify records where the term collusion or synonyms were used in the description text ("collu*", "colusion") and terms including "working together" and "planned" were used. Other terms searched for were "laughing", "whispering" and "joking", as these may be considered by staff to be indicators of collusion.

All records where a "positive" find was highlighted were selected and read and where a "false positive" was returned then the record was corrected.

A ratio variable to allow sequential counting of the number of incidents per individual prisoner was created which allowed identification of prisoners involved in more than one incident.

A ratio variable to count the total number of records per incident was created giving the number of prisoners per incident. A manual check was made of the data for all cases where the total number of prisoners involved was greater than two. Manual corrections were made to the data where the number of hostages or perpetrators was greater than one.

The role each prisoner played in the incidents was provided in the incident dataset. This was used to create the categorical variable *role*. To make analysis easier the multiple categories (assailant, perpetrator, involved, victim) were collapsed into three values, hostage, (coded 0), perpetrator (coded 1) or colluder (coded 2) (where prisoners may choose to collude the role of perpetrator or hostage was adjudged to be somewhat arbitrarily assigned). Where the role played by the prisoner was unclear (e.g. involved) the main incident text was read, and the role value (0,1,2) assigned based on that information.

The duration of the incident was inconsistently coded in the incident dataset. In order to standardise the data each record was checked and where possible the start and end times were completed to allow calculation of duration. The accuracy of the duration is somewhat questionable, most incidents were recorded as lasting in multiples of five minutes up to approximately 30 minutes and then multiples of either 15 minutes or 30 minutes thereafter. Duration was a continuous variable.

General Strain Theory (Agnew, 2001) highlights prison size (Jiang & Fisher-Giorlando, 2002) and security category (Morris & Worrall, 2014) as sources of strain and these both correlate with prison indiscipline. Two continuous variables were created to reflect this information; as far as possible the prison capacity at the time of the incident was included, using historical information (HMPPS population, 2020), as was the national annual average English and Welsh prison population for the year the incident occurred (HMPPS population, 2020). Capacity was subsequently recoded into a categorical variable, prison size, with five values (1-5) categorising the prison into small, medium, large, very large or escort (where the incident happened outside the perimeter of the prison).

A search was undertaken for the words *demand* or *wanted,* as an indicator of the motivation for the incident. The reasons given for the hostage taking were grouped into eight main categories; *relocate within prison, transfer to another prison, protest against conditions/decision/current situation or immediate demand for item, speak with manager, telephone call or speak with family member or similar, unclear reasons given, escape, specific victim chosen*. These were coded into a dichotomous variable coded either *transfer (*demands being relocate or transfer) or *protest* about treatment, (including demands for access to facilities including medication, food or cigarettes,

wanting to speak with other people either within or outside the prison). Unclear reasons, escape and specific victim were coded as missing.

The text string recording the incident description varied in length and some incident descriptions were brief. These incidents had negative values for most of the descriptive variables, this is likely to have created an under-reporting of the characteristics of incidents.

Key Variables Created from the OASys Dataset

Most of the variables downloaded from OASys were coded as dichotomous, presence or absence variables, therefore no recoding or data transformation was required beyond ensuring missing values were coded appropriately. No new variables were created.

Main Data Cleansing and Preparation for Analysis

The incident dataset, the NOMIS dataset and the OASys dataset each hold the incident reference number and the unique prisoner number. A variable was created in each dataset, concatenating the prisoner number and the incident number. This unique identifier allowed cross-indexing of the records across all three datasets.

Following data cleansing all three datasets were sorted by the unique identifier number and after careful checking, the datasets for NOMIS and OASys were copied and appended to the incident dataset.

This created a final combined dataset of the incident data, NOMIS data and OASys data on a single dataset. There were 1377 records where NID, NOMIS and OASys information was available. This dataset was then imported to SPSS v24 for analysis.

Method of Analysis

A combination of descriptive and inferential statistics was used to analyse the data.

Missing Data, Bias and Source Bias

There are likely to be several systematic biases in the data downloaded, including; a bias towards more information about perpetrators (see page 58), biases introduced by the use of open text fields for respondents to complete rather than the use of fixed value fields, bias introduced over time, where the reporting format has evolved and earlier records do not conform to later database architecture, bias introduced by merging databases where records are missing from previous years, a bias arising from the assumption that where an item is not recorded then it was not present during the incident, and a bias that assumes that all collusive incidents have been captured in the dataset and recorded as collusive hostage incidents rather than barricades or other types of indiscipline.

Despite these wide-ranging limitations, the data available are the complete data set for all HMPPS prison hostage takings. The biases in the present study do mirror previously reported problems with using official data for research (Lipetsker, 2004), however, no additional data are available, and the dataset represents the broadest possible quantitative data available. Steiner and Wooldredge, (2014) report that official statistics well-represent actual incidents of misconduct and therefore, despite the limitations it was considered viable to proceed with the study.

Chapter 4 – Results

Chapter Overview

The chapter begins with a general description of the methods of analysis used. The rest of the chapter is then organised around the three main aims outlined in the introduction. To address the first aim, (to describe the situational and participant characteristics of HMPPS PHTs) it presents an analysis of situational and participant characteristics of incidents, including descriptions of the annual rate of hostage incidents and analyses of prison-level data.

It then explores data relating to the second research aim, (to examine PHTs from the perspective that they are a form of prison indiscipline influenced by prison strain), considering variables associated at the prison and the prisoner level.

The third section examines the results relating to the third research aim, examine collusion in PHTs including from the perspective that it is a form of co-offending. This section includes analyses exploring the management of collusive and coercive incidents and draws on variables identified in previous research as being associated with co-offending (e.g. Reiss & Farrington, 1991; Weerman, 2003) to explore differences between collusive and coercive incidents.

The chapter concludes with a regression analysis exploring whether it is possible to predict a prisoner's role in an incident, drawing on variables suggested by the preceding analyses and relevant literature. For ease of reference a summary table listing all significant findings is presented at the end of this chapter, (see Table 44, page 119).

There were 29 incidents reported where female prisoners were involved (2.5%), involving 69 different women. There were only two incidents where collusion was

suspected and no incidents where female prisoners and male prisoners were simultaneously involved, (HMPPS prisons are single-sex sites). It is not possible to determine the sex of staff hostages or other non-prisoner hostages.

Research suggests that women prisoners differ from male prisoners in the factors that influence prison indiscipline (Lahm, 2016) and in their motivations and behaviour in prison hostage taking (Taylor & Flight, 2003). In the light of this and given the low number of female prisoners, the analysis uses only male prisoners' data.

There were 1147 separate incidents included in the analysis. Each incident had multiple data lines, one for every prisoner involved in the incident (except in the case where a single prisoner took only staff hostage(s)). For each incident the values for the prisoner-related variables varied for each prisoner (e.g. different dates of birth), but the values for the incident features (e.g. duration) did not alter for that incident. Therefore, for variables describing the features of the incident only the first record for each incident was selected for analysis to avoid duplicating results, this gave details of the 1147 incidents. However, for variables describing prisoners, each prisoner line was selected for the prisoner-level analysis. This meant that each incident usually had at least two prisoner records associated with it, giving multiple lines for each incident. There were 2429 prisoner-records.

Method of Analysis

The analyses of dichotomous variables have been carried out using Pearson's Chi-square test or, where Chi-square assumptions are violated, Fisher's exact test. To avoid repetition, descriptive analysis of incident and participant characteristics was combined with tests of association with the dependent variable, collusion. In the resulting contingency tables adjusted residuals of +2 are noted in bold to highlight which

63

associations are responsible for significant associations and to avoid multiple post-hoc 2x2 contingency tests (IBM, 2020).

In the prisoner-level analyses the association examined was between each variable and the prisoner's role in the incident; hostage, colluder or perpetrator. Where a different test has been used this is described in the text.

Transformations to achieve normality for continuous variables were not effective. Furthermore, tests of normality, (Shapiro-Wilkes), indicated that the data were not normally distributed, therefore Kruskal Wallis and Mann Whitney U non-parametric tests were used for continuous variables.

Research Aim 1 – Describe Situation and Participant Characteristics

Prison Information

This section analyses data relating to the overall frequency of incidents and variables about the prisons where incidents occurred.

Number of Incidents

The number of prison hostage incidents has increased substantially since formal records were computerised. The number of incidents annually can be seen in Table 9, which also shows the number and proportion of incidents that were recorded as collusive. The proportion of collusive to cooperative incidents has varied from no recorded collusive incidents (1992, 1995, 1997, 2000, 2008) to highs in 2009 and 2014 of almost 21% of incidents recorded as collusive.

Table 9 – Number of incidents by year by incident type

Year		Coercion	Collusion	Total
1988	Observed	4	1	5
	% within Year	80.0%	20.0%	100.0%
1989	Observed	10	2	12
	% within Year	83.3%	16.7%	100.0%
1990	Observed	10	1	11
	% within Year	90.9%	9.1%	100.0%
1991	Observed	20	3	23
	% within Year	87.0%	13.0%	100.0%
1992	Observed	9	0	9
	% within Year	100.0%	0.0%	100.0%
1993	Observed	9	2	11
	% within Year	81.8%	18.2%	100.0%
1994	Observed	12	1	13
	% within Year	92.3%	7.7%	100.0%
1995	Observed	10	0	10
	% within Year	100.0%	0.0%	100.0%
1996	Observed	8	1	9
	% within Year	88.9%	11.1%	100.0%
1997	Observed	15	0	15
	% within Year	100.0%	0.0%	100.0%
1998	Observed	20	2	22
	% within Year	90.9%	9.1%	100.0%
1999	Observed	27	1	28
	% within Year	96.4%	3.6%	100.0%
2000	Observed	37	0	37
	% within Year	100.0%	0.0%	100.0%
2001	Observed	33	2	35
	% within Year	94.3%	5.7%	100.0%
2002	Observed	47	9	56
	% within Year	83.9%	16.1%	100.0%
2003	Observed	28	2	30
	% within Year	93.3%	6.7%	100.0%
2004	Observed	23	4	27
	% within Year	85.2%	14.8%	100.0%
2005	Observed	32	1	33
	% within Year	97.0%	3.0%	100.0%
2006	Observed	19	2	21
	% within Year	90.5%	9.5%	100.0%
2007	Observed	30	2	32
	% within Year	93.8%	6.3%	100.0%
2008	Observed	22	0	22
	% within Year	100.0%	0.0%	100.0%
2009	Observed	18	5	23
	% within Year	78.3%	21.7%	100.0%
2010	Observed	15	1	16
	% within Year	93.8%	6.3%	100.0%
2011	Observed	30	7	37
	% within Year	81.1%	18.9%	100.0%
2012	Observed	48	4	52
	% within Year	92.3%	7.7%	100.0%
2013	Observed	76	3	79
	% within Year	96.2%	3.8%	100.0%
2014	Observed	80	21	101
	% within Year	79.2%	20.8%	100.0%
2015	Observed	114	18	132
	% within Year	86.4%	13.6%	100.0%
2016	Observed	105	18	123
	% within Year	85.4%	14.6%	100.0%
2017	Observed	107	16	123
	% within Year	87.0%	13.0%	100.0%
Total	Count	1018	129	1147
	% within Year	88.8%	11.2%	100.0%

Figure 1 shows the pattern of incidents by year. This also shows the incidents per 10,000 prisoners, to account for the increase in population during this period.

There was a small peak in 2002 when the number of incidents rose to 56 but this was followed by a reduction to a twelve-year low in 2010. There then followed a year-on-year increase between 2011 and 2015, when the highest number of incidents (132) was recorded. There was a small reduction in 2016, sustained in 2017, the first reductions since 2010.
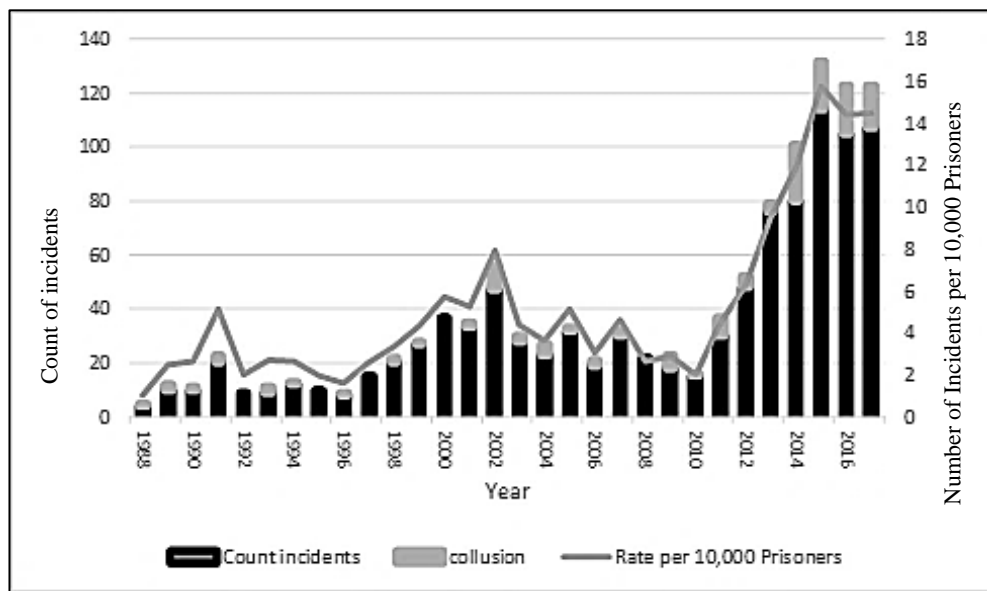
Figure 1 - Hostage incidents by year, type of incident and rate per 10,000 prisoners

For ease of comparison, the number of collusive and coercive incidents per 10,000 prisoners is shown in Figure 2.
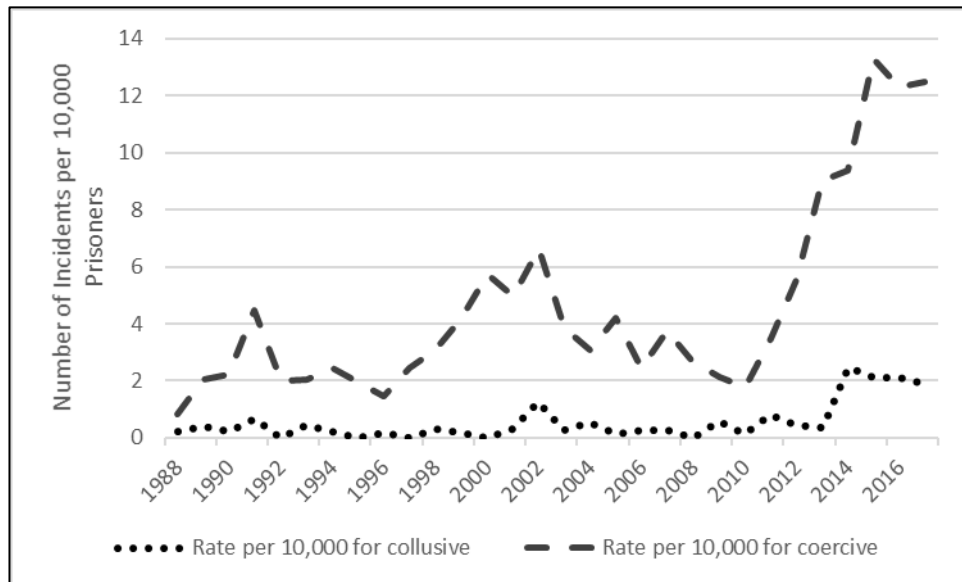
Figure 2 - Annual rate per 10,000 prisoners for incident type

Management of Incident Level

These analyses relate to variables about the management of the incident by prison authorities and test the association with the type of incident; collusive or coercive.

Duration

The majority of incidents lasted a relatively short period of time but there was a wide range in duration. The medians for both types of incidents were similar although there were more outliers in the coercive group.

The median for all incidents was 120.0 minutes, with a range of 1 minute to 2580 minutes (43 hours), with 29.7% lasting under 30 minutes. Collusive incidents had a median of 125 minutes and coercive incidents had a lower median of 117.5 minutes, however there were more outliers for coercive incidents.

The data were positively skewed, (W (992) = .673, $p < .001$).

There was no significant difference between the duration for coercive and collusive incidents, (U=47468.500, $N_1 = 871$, $N_2 = 121$, $p > .05$, two-tailed), both types of incident lasted about the same length of time. This finding is not consistent with hypothesis 1 (collusive incidents will differ significantly from coercive incidents in duration).

67

The box plot showing the data is given in Figure 3. (*N.B.* the largest outlier, 2580 minutes in the coercion group has been removed to increase legibility).
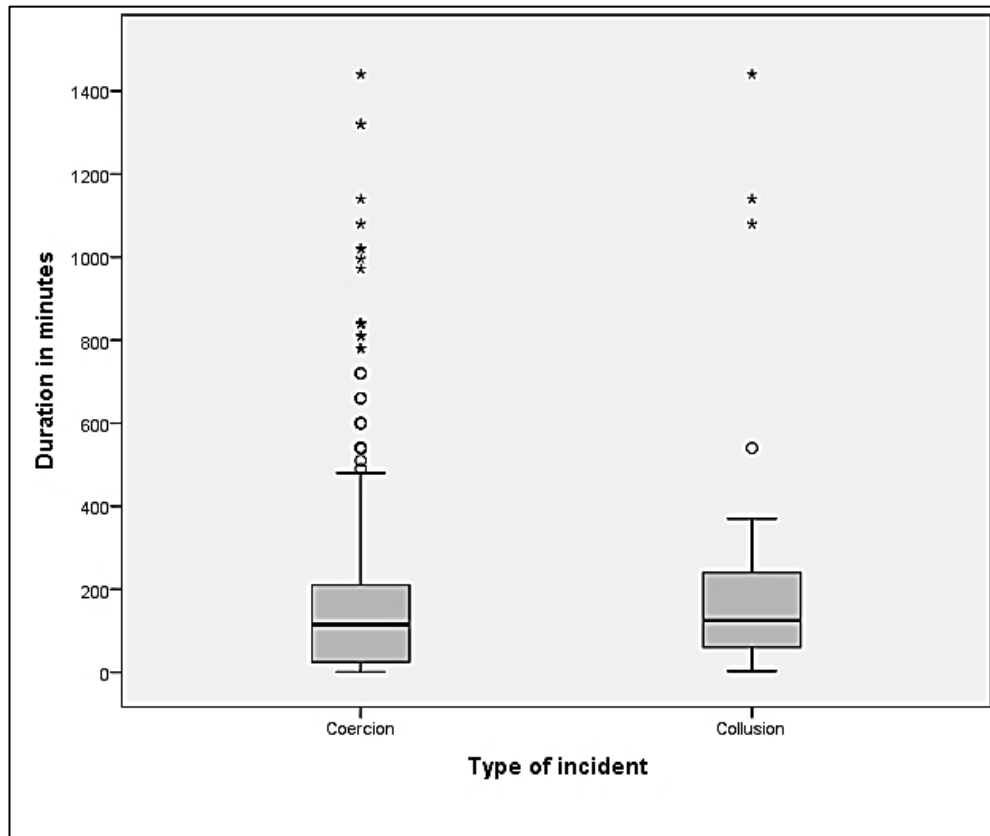
Figure 3 - Median duration of incident by incident type

Resolution

The type of resolution that ended the incident was compared for collusive and coercive incidents. Most incidents ended with peaceful, mainly negotiated resolutions (55.8%), and, for each group, approximately 20% ended either by staff intervention or by other, (unplanned or spontaneous) means. (See Table 10).

Table 10 - Observed and expected frequencies of resolution types by incident type

		Coercion	Collusion	Total
Intervention	Observed	214	32	246
	Expected	217.0	29.0	246.0
	% within Resolution	87.0%	13.0%	100%
	% within Incident type	21.1%	23.7%	21.4%
	% of Total	18.7%	2.8%	21.4%
Other	Observed	235	26	261
	Expected	230.3	30.7	261
	% within Resolution	90.0%	10.0%	100%
	% within Incident type	23.2%	19.3%	22.8%
	% of Total	20.5%	2.3%	22.8%
Negotiated surrender	Observed	563	77	640
	Expected	564.7	75.3	640.0
	% within Resolution	88.0%	12.0%	55.8%
	% within Incident type	55.6%	57.0%	55.8%
	% of Total	49.1%	6.7%	55.8%
Total	Observed	1012	135	1147
	Expected	1012	135	1147
		88.2%	11.8%	100%

A negotiated surrender was not more likely to happen in a collusive incident than a coercive one, all resolution methods were equally likely to occur for both incident types, (X^2 (2) = 1.227, p > .05). This finding is inconsistent with hypothesis 2 (collusive incidents will differ significantly from coercive incidents in the use of a tactical resolution to end the incident).

Negotiator Deployment

Most incidents did not involve the use of negotiators (58.8%). Table 11 shows the observed and expected frequencies for incidents where negotiators were used by incident type.

Table 11– Observed and expected frequencies of negotiator deployment by incident type

		Coercion	Collusion	Total
Negotiation	Observed	413	59	472
	Expected	418.9	53.1	472.0
	% within Negotiation	87.5%	12.5%	100%
	% within Incident Type	40.6%	45.7%	41.2%
	% of Total	36.0%	5.1%	41.2%
No negotiation	Observed	605	70	675
	Expected	599.1	75.9	675.0
	% within Negotiation	89.6%	10.4%	100%
	% within Incident Type	59.4%	54.3%	58.8%
	% of Total	52.7%	6.1%	58.8%
Total	Observed	1018	129	1147

Negotiation was not more likely to happen in a collusive incident than a coercive one, $(X^2 (1) = .938$, $p > .05)$. This finding is not consistent with hypothesis 3 (collusive incidents will differ significantly from coercive incidents in whether or not negotiators are deployed).

Command Suite

A command suite (either national and/or local) was opened in just over half of incidents. The number of incidents where a command suite was opened, and incident type is shown in Table 12.

Table 12 - Observed and expected frequencies of incidents where command suite was opened by incident type

		Coercion	Collusion	Total
Not opened	Observed	667	78	745
	Expected	661.2	83.8	745.0
	% within Command Suite	89.5%	10.5%	100%
	% within Incident type	65.5%	60.5%	65.0%
	% of Total	58.2%	6.8%	65%
Suite opened	Observed	351	51	402
	Expected	356.8	45.2	402.0
	% within Command Suite	87.3%	12.7%	100%
	% within Incident Type	34.5%	39.5%	35.0%
	% of Total	30.6%	4.4%	35%
Total	Observed	1018	129	1147

A command suite being opened was not more likely to happen in collusive incidents than coercive ones, ($X^2(1) = 1.285$, $p > .05$). This finding is inconsistent with hypothesis 4 (collusive incidents will differ significantly in whether or not a command suite is opened).

Details of Incidents

The following analyses present incident characteristics, (i.e. visible features and prisoner behaviour) and examines their association with incident type.

Basic descriptive information about the characteristics of the incidents is shown in Table 13.

Table 13 - Descriptive data for variables relating to characteristics of incidents

Variable	Number of incidents where characteristics reported present	Percentage of incidents where characteristics reported present	Number of incidents where not present	Percentage of incidents where not reported present	Total number incidents
Threats made	234	20.4%	913	79.6%	1147
Escaped	9	0.8%	1138	99.2%	1147
Location cell	942	82.1%	205	17.9%	1147
Cell mate victim	380	33.1%	767	66.9%	1147
Prisoner victim	1042	90.8%	105	9.2%	1147
Injuries sustained	168	14.6%	979	85.4%	1147
Barricade	274	23.9%	873	76.1%	1147
Victim tied up	198	17.3%	949	82.7%	1147
Weapon	507	44.2%	640	55.8%	1147
Demands/reasons given	256	22.3%	891	72.7%	1147
Collusion	129	11.2%	1018	88.8%	1147

Most incidents (regardless of collusion or not) involved a prisoner victim (90.8%) and over 80% of incidents occurred in a cell, however only 33% of incident reports stated that the victim was the cellmate of the perpetrator. A reason or demand was recorded in 22.31% of reports. Over 20% of incidents had threats recorded. Although a weapon was reported as present in 44.2% of incidents, only 14.6% of incidents were reported as resulting in injury. Of the 507 incidents involving a weapon, 364 included a knife, razor

or home-made bladed article and 143 incidents involved a blunt weapon such as a table-leg or other improvised bludgeoning device.

Two incidents are reported as resulting in the death of the hostage, both were prisoners.

Location

The majority of incidents (82.1%) took place in a cell. Other locations included landings, offices and association areas. For ease of reference these locations were combined as a single category, "other". Table 14 shows the observed and expected frequencies of the location of the incident by coercion or collusion.

Table 14 - Observed and expected frequencies of location of incident by incident type

		Coercion	Collusion	Total
Cell	**Observed**	831	111	942
	Expected	836.1	105.9	942.0
	% within Location	88.2%	11.8%	100%
	% within Incident Type	81.6%	86.0%	82.1%
	% of Total	72.4%	9.7%	82.1%
Other	**Observed**	187	18	205
	Expected	181.9	23.1	205.0
	% within Location	91.2%	8.8%	100%
	% within Incident Type	18.4%	14.0%	17.9%
	% of Total	16.3%	1.6%	17.9%
Total	**Observed**	1018	129	1147

There was no association between location and incident type; collusive incidents were just as likely to happen in a cell as another location, $(X^2(1) = 1.521, p > .05)$.

Victim

Most incidents involved prisoner hostages (90.8%), but of the small number of incidents involving staff hostages, the majority happened in locations other than a prisoner cell. The observed numbers can be seen in Table 15.

Table 15 - Number of incidents involving staff as hostages and the location of the incident

	Number of Incidents	Percentage of all staff incidents	Percentage of all incidents
Staff in cell	45	42.9%	4.1%
Staff elsewhere	60	57.1%	5.1%
Total	105	100%	9.2%

Most of the incidents involving prisoner hostages took place in cells. The number of incidents with prisoner-only participants by location and incident type are shown in Table 16.

Table 16 - Observed and expected frequencies of prisoner-only incidents by location and incident type

		Coercion	Collusion	Total
Prisoner in cell	Observed	785	111	896
	Expected	785.1	110.9	896.0
	% within Location	87.6%	12.4%	100%
	% within Incident Type	86.0%	86.0%	86.0%
	% of Total	75.3%	10.7%	86.0%
Prisoner elsewhere	Observed	128	18	146
	Expected	127.9	18.1	146.0
	% within	87.7%	12.3%	100%
	% within Location	14.0%	14.0%	14.0%
	% of Total	12.3%	1.7%	14.0%
Total	Observed	913	129	1042

Collusive incidents were no more likely to happen in a cell than coercive incidents, (X^2 (1) = .000, $p > .05$).

Threats

Threats were not recorded in the majority of incidents (79.6%). The number of collusive and coercive incidents with threats can be seen in Table 17.

Table 17 - Observed and expected frequencies of threats by incident type

		Coercion	Collusion	Total
No threats	Observed	811	102	913
	Expected	810.3	102.7	913.0
	% within Threats	88.8%	11.2%	100%
	% within Incident Type	79.7%	79.1%	79.6%
	% of Total	70.7%	8.9%	79.6%
Threats	Observed	207	27	234
	Expected	207.7	26.3	234.0
	% within Threats	88.5%	11.5%	100%
	% within Incident Type	20.3%	20.9%	20.4%
	% of Total	18.0%	2.4%	20.4%
Total	Observed	1018	129	1147

Threats were no more likely to occur in collusive incidents than in coercive ones, $(X^2 (1) = .025, p > .05)$.

Weapon

A weapon was present in under half of the incidents (44.2%). Observed and expected frequencies can be seen in Table 18.

Table 18 - Observed and expected frequencies for presence of weapon by incident type

		Coercion	Collusion	Total
No weapon	**Observed**	570	70	640
	Expected	568	72	640
	% within Weapon	89.1%	10.9%	100%
	% within Incident Type	56.0%	54.3%	55.8%
	% of Total	49.7%	6.15	55.8%
Weapon	**Observed**	448	59	507
	Expected	450	57	507
	% within Weapon	88.4%	11.6%	100%
	% within Incident Type	44.0%	40.7%	44.2%
	% of Total	39.1%	5.1%	44.2%
Total	**Observed**	**1018**	129	1147

A weapon was no more likely to be associated with a collusive than a coercive incident, $(X^2 (1) = .139, p > .05)$.

Injury

The majority of incidents did not involve injuries to anyone involved in the incident. Those incidents that did involve injury may include injuries inflicted by perpetrators upon victims or those sustained by victims and/or perpetrators during the course of an intervention to end the incident. The severity of injuries was not recorded. Table 19 shows the number of incidents involving injury by the type of incident.

Table 19 - Observed and expected frequencies of injuries by incident type

		Coercion	Collusion	Total
Injuries	Observed	151	17	168
	Expected	149.1	18.9	168.0
	% within Injuries	89.9%	10.1%	100%
	% within Incident Type	14.8%	13.2%	14.6%
	% of Total	13.2%	1.5%	14.6%
No injuries	Observed	867	112	979
	Expected	868.9	110.1	979.0
	% within Injuries	88.6%	11.4%	100%
	% within Incident Type	85.2%	86.8%	85.4%
	% of Total	70.6%	9.8%	85.4%
Total	Observed	1018	129	1147

Collusive incidents were no more likely to involve injury than coercive ones, ($X^2(1) = .251, p > .05$).

Injury and Threat by Incident Type

There was a high number of incidents that had neither threats nor injuries. There were some incidents where threats were made with no injury, but of note is that there was also a substantial minority of incidents where injury was recorded in the absence of threats. The smallest number of incidents had both threats and injuries present.

Incidents with neither threats nor injury accounted for 69% of the total, threats with no injuries represented 15.5% of incidents and 9.7% of incidents involved injuries where

no threats were recorded. (See Table 20). Only 4.85% of incidents had both injuries and threats recorded.

The proportion of incidents where injuries occurred with no threats being made was higher for coercive incidents than for collusive incidents.

Approximately one third of coercive incidents where injuries occurred also had threats made, that is two thirds of coercive incidents with injuries involved no threats. However, approximately one half of collusive incidents that involved injury involved threats and one half of collusive incidents involving injuries had no threats.

Table 20 - Observed and expected frequencies of threats and injuries by incident type

			No threats	Threats	
Coercion	Injuries	Observed	103	48	151
		Expected	120.3	30.7	151.0
		% within injuries	68.2%	31.8%	100.0%
		% within threat	12.7%	23.2%	14.8%
		% of Total	10.1%	4.7%	14.8%
		Adjusted Residual	-3.8	**3.8**	
	No injuries	Observed	708	159	867
		Expected Count	690.7	176.3	867.0
		% within injuries	81.7%	18.3%	100.0%
		% within threat	87.3%	76.8%	85.2%
		% of Total	69.5%	15.6%	85.2%
		Adjusted Residual	**3.8**	-3.8	
	Total	Observed	811	207	1018
		Expected	811.0	207.0	1018.0
		% within injuries	79.7%	20.3%	100.0%
		% within threat	100.0%	100.0%	100.0%
		% of Total	79.7%	20.3%	100.0%
Collusion	Injuries	Observed	9	8	17
		Expected	13.4	3.6	17.0
		% within injuries	52.9%	47.1%	100.0%
		% within threat	8.8%	29.6%	13.2%
		% of Total	7.0%	6.2%	13.2%
		Adjusted Residual	-2.8	**2.8**	
	No injuries	Observed	93	19	112
		Expected	88.6	23.4	112.0
		% within injuries	83.0%	17.0%	100.0%
		% within threat	91.2%	70.4%	86.8%
		% of Total	72.1%	14.7%	86.8%
		Adjusted Residual	**2.8**	-2.8	
	Total	Observed	102	27	129
		Expected	102.0	27.0	129.0
		% within injuries	79.1%	20.9%	100.0%
		% within threat	100.0%	100.0%	100.0%
		% of Total	79.1%	20.9%	100.0%
Total	Injuries	Observed	112	56	168
		Expected	133.7	34.3	168.0
		% within injuries	66.7%	33.3%	100.0%
		% within threat	12.3%	23.9%	14.6%
		% of Total	9.8%	4.9%	14.6%
		Adjusted Residual	-4.5	**4.5**	
	No injuries	Observed	801	178	979
		Expected	779.3	199.7	979.0
		% within injuries	81.8%	18.2%	100.0%
		% within threat	87.7%	76.1%	85.4%
		% of Total	69.8%	15.5%	85.4%
		Adjusted Residual	**4.5**	-4.5	
	Total	Observed	913	234	1147
		Expected	913.0	234.0	1147.0
		% within injuries	79.6%	20.4%	100.0%
		% within threat	100.0%	100.0%	100.0%
		% of Total	79.6%	20.4%	100.0%

Injuries were more likely following threats (and less likely in incidents without threats) in collusive ($X^2(1) = 8.0$, $p <. 01$) and coercive ($X^2(1) = 14.4$, $p < .001$) incidents.

Barricade

The presence of a barricade was reported in a minority of incidents. There was a higher proportion of barricades in collusive incidents rather than coercive incidents. The frequencies can be seen in Table 21.

Table 21 - Observed and expected frequencies for barricade incidents by incident type

		Coercion	Collusion	Total
Barricade	Observed	238	36	274
	Expected	243.2	30.8	274.0
	% within Barricade	86.9%	13.1%	100%
	% within Incident Type	23.4%	27.9%	23.9%
	% of Total	20.9%	3.1%	23.9%
No barricade	Observed	780	93	873
	Expected	774.8	98.2	873.0
	% within Barricade	89.3%	10.7%	100%
	% within Incident Type	76.6%	72.1%	76.1%
	% of Total	68.0%	8.1%	76.1%
Total	Observed	1018	129	1147

Collusive incidents were not more likely to involve a barricade than coercive incidents, ($X^2 (1) = 1.291$, $p > .05$).

Tied-Up

The majority of incidents did not report that the victim was tied-up. For both types of incident, the victim was tied-up in approximately 17% of cases. For the figures see Table 22.

Table 22 - Observed and expected frequencies for victim tied-up by incident type

		Coercion	Collusion	Total
Not tied up	Observed	842	107	949
	Expected	842.3	106.7	949.0
	% within Tied-up	88.7%	11.3%	100%
	% within Incident Type	82.75	82.9%	82.7%
	% of Total	73.4%	9.3%	82.7%
Tied-up	Observed	176	22	198
	Expected	175.7	22.3	198.0
	% within Tied-Up	88.9%	11.1%	100%
	% within Incident Type	17.3%	17.1%	17.3%
	% of Total	15.3%	1.9%	17.3%
Total	Observed	1018	129	1147

There was no association between type of incident and whether the victim was tied up, ($X^2(1) = .004$, $p > .05$).

Summary of Incident Level Results

There was a significant association between the presence of threats and the occurrence of an injury. This significant association was present for both types of incident. No other tests were significant.

Details of Prisoners

The following series of analyses will examine variables relating to the characteristics of prisoners involved in hostage incidents. As mentioned, prisoners were grouped as hostages, perpetrators or colluders for the purposes of these analyses, reflecting the fact that colluders cannot meaningfully be identified as either a collusive perpetrator or collusive hostage.

Age

There were 1372 prisoners with a date of birth recorded which allowed the calculation of the prisoner's age at the time of the incident. The youngest prisoner was 15 years 4 months at the time of the incident and the oldest was 77 years and 3 months. Table 23 shows the breakdown into age groups for all prisoners.

The majority of prisoners were aged between 20 and 29 years of age (58.1%), with very few prisoners aged over 50 (1.4%). There are 860 prisoners identified as colluders of perpetrators. Of these, 658 are below 30 years of age (76.5%).

Table 23 – Age breakdown for full sample

Age	Number of Hostages	Percent	Number of Perpetrators	Percent	Number of Colluders	Percent	Total number of prisoners	Total Percentage
15 to < 20 years	86	6.2%	116	8.5%	25	1.8%	227	16.3%
20 to < 30 years	278	20.3%	401	29.3%	116	8.5%	795	58.1%
30 to < 40 years	90	6.6%	116	8.5%	42	3.0%	248	18.1%
40 to < 50 years	45	3.3%	35	2.6%	8	.6%	88	6.1%
> 50 years	13	1%	1	.5%	0	0%	14	1.4%
Total	512	37.4%	669	49.4%	191	13.9%	1372	100%

Young Offenders (YOs) were analysed separately from adult offenders because Young Offenders are held in separate establishments and the majority are only transferred to the adult estate upon attaining 21 years and 10 months. A small number may be transferred to adult premises before this date depending upon personal circumstances. These cases have been dealt with as YOs for this analysis.

Age at the time of the incident was calculated for each incident, therefore prisoners with multiple incidents were treated as independent cases, with a different age for each incident.

Young Offenders

There were 393 Young Offenders in the sample (i.e. those with a date of birth recorded). There was little variation in the age for different roles in the incident for YOs. Colluders tended to have less dispersion in their ages, with a slightly older minimum age and a smaller range in ages. A box plot showing the data is given at Figure 4.

The data were positively skewed, (W (423) = .961, $p < .001$), so non-parametric tests were used.

A Kruksall-Wallis Analysis of Variance test revealed no significant difference between the ages of YO hostages, perpetrators or colluders, $(X^2(2) = .304, p > .05)$.
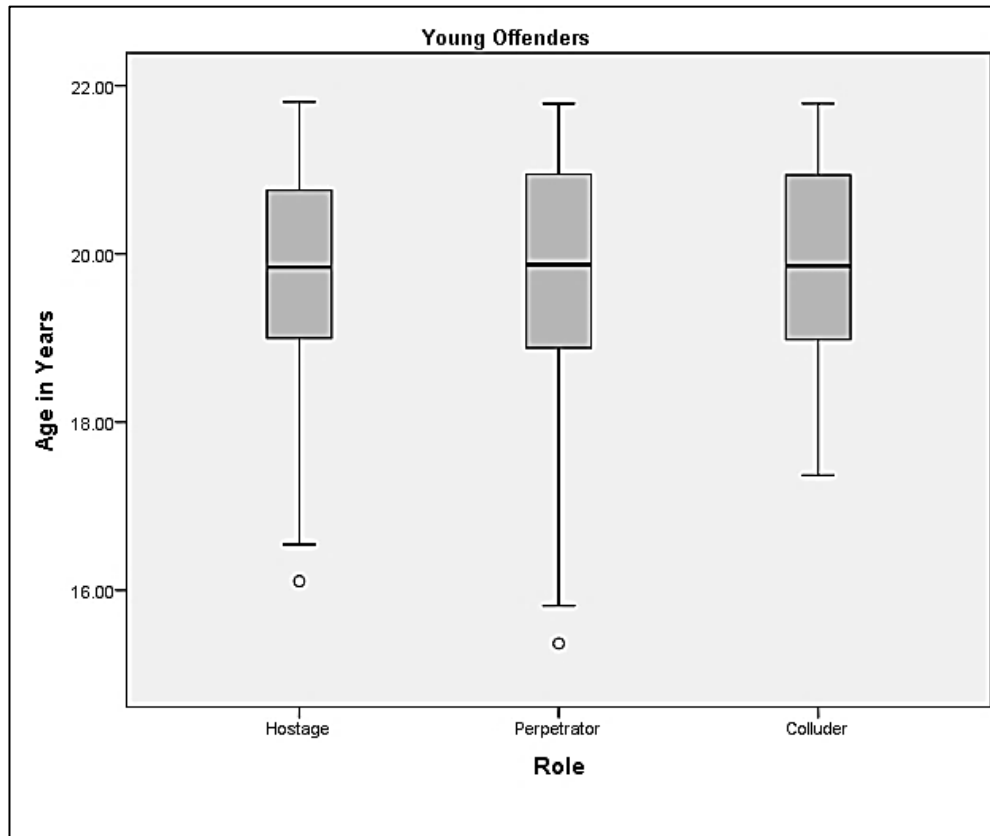
Figure 4 - Median age for Young Offenders by role in incident

Adults

There were 884 adults with a date of birth recorded. Adults had a far greater variation in age than YOs. The oldest participant was a hostage, aged 77, although this was an obvious outlier. Adult hostages showed the greatest dispersion in ages, and colluders the least.

The median age for adult hostages was 28.68 years, for perpetrators 27.39 years and for colluders 27.34 years. The boxplot is shown at Figure 5.
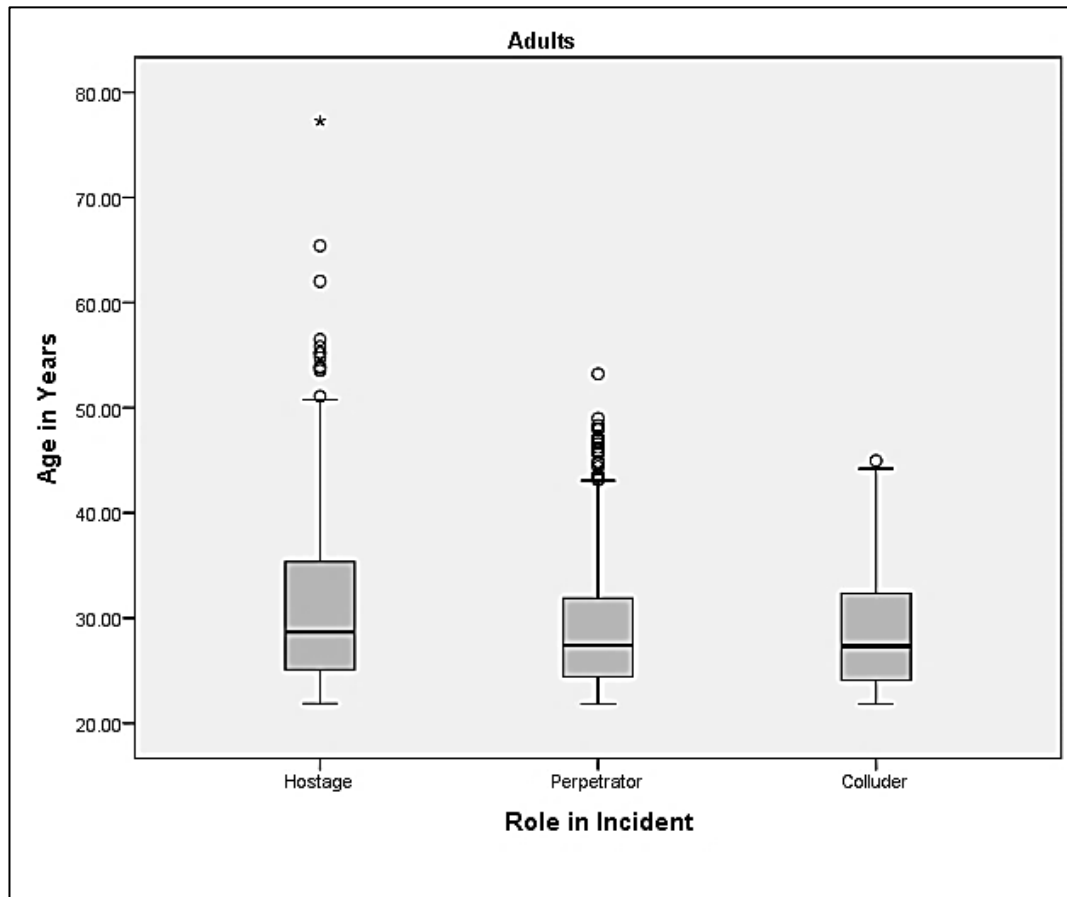
Figure 5 - Median age for adults by role in incident

The data were not normally distributed, (W (949) = .862, $p < .001$).

There was a significant difference in age of adult participants by role in incident, (X^2 (2) =15.786, $p < .001$).

A series of Mann Whitney post-hoc tests (with Bonferroni-adjusted alpha level (i.e. p/3), Coolican, 2014) showed that hostages tended to be older than perpetrators, (U = 68621.000, N_1 = 355, N_2 = 457, p <.001) and colluders, (U = 20580.500, N_1 = 355, N_2 = 137, $p < .05$). Perpetrators and colluders did not differ in respect of age, (U = 31274.000, N_1 = 457, N_2 =137, $p > .05$).

Index Offence

Offences were grouped into main offence types. The category "other" included non-violent offences such as non-payment of fines, driving offences and fraud.

Approximately, one third of all participants had a violent offence and almost one fifth had an offence of robbery. The next largest group was those convicted of burglary offences. There were roughly equal sized groups of sex offenders, drugs offenders and those with theft offences. A small number of participants had convictions for false imprisonment (including kidnap). The number of prisoners by offence type can be seen in Table 24.

Table 24 - Frequencies of offenders in each main offence category

Offence Category	Number of Offenders	Percent
Burglary	228	17.9%
Violence	408	32%
False imprisonment	19	1.5%
Drugs	58	4.6%
Robbery	245	19.2%
Sex	63	4.9%
Theft	68	5.3%
Other	185	14.5%
Total	1274	100%

Index Offence by Role in Incident

There were differences in the main offence type for the three groups of participants. Perpetrators and colluders had broadly similar rankings for offence categories, which was different to that for hostages.

The largest offence group for perpetrators and colluders was violence followed by robbery and burglary. For hostages the third largest category was "other". False imprisonment was the smallest category for all groups.

Figure 6 shows the rank of each offence group by the role in the incident. (*N.B.* ranking 1 indicates this is the most frequently occurring category and ranking 8 is the least frequently occurring category).
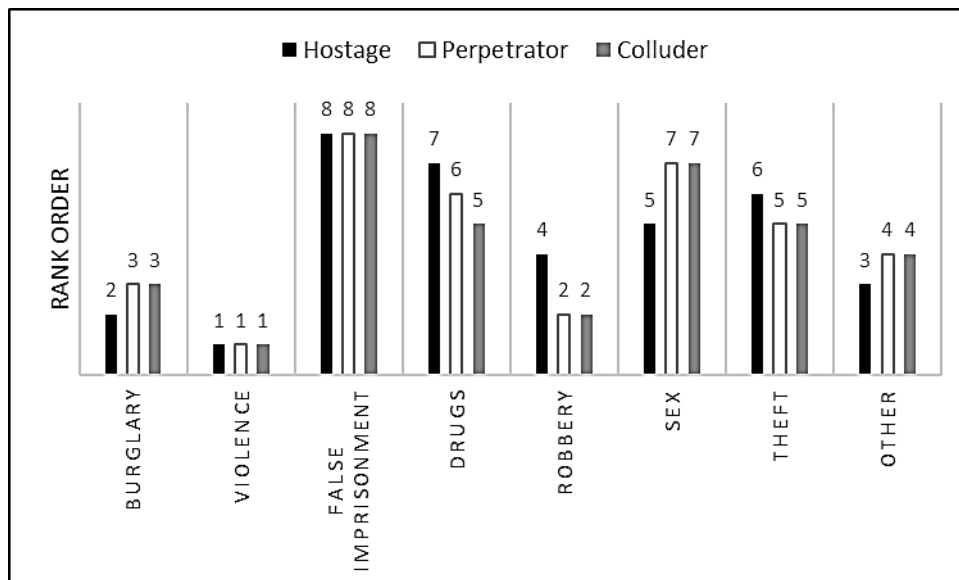
Figure 6 - Rank of offence type by role in offence group

The number of offenders in each group by main offence category can be seen in Table 25.

Table 25 - Observed and expected frequencies of main offence categories by role in incident

		Hostage	Perpetrator	Colluder	Total
Burglary	Observed	85	112	31	228
	Expected	90.4	107.9	29.7	228.0
	% Within Main Offence	37.3%	49.1%	13.6%	100.0%
	% Within Role	16.8%	18.6%	18.7%	17.9%
	% Of Total	6.7%	8.8%	2.4%	17.9%
	Adjusted Residual	-.8	.6	.3	
Violence	Observed	154	202	52	408
	Expected	161.7	193.1	53.2	408.0
	% Within Main Offence	37.7%	49.5%	12.7%	100.0%
	% Within Role	30.5%	33.5%	31.3%	32.0%
	% Of Total	12.1%	15.9%	4.1%	32.0%
	Adjusted Residual	-.9	1.1	-.2	
False Imprisonment	Observed	1	16	2	19
	Expected	7.5	9.0	2.5	19.0
	% Within Main Offence	5.3%	84.2%	10.5%	100.0%
	% Within Role	0.2%	2.7%	1.2%	1.5%
	% Of Total	0.1%	1.3%	0.2%	1.5%
	Adjusted Residual	-3.1	**3.2**	-.3	
Drugs	Observed	29	20	9	58
	Expected	23.0	27.5	7.6	58.0
	% Within Main Offence	50.0%	34.5%	15.5%	100.0%
	% Within Role	5.7%	3.3%	5.4%	4.6%
	% Of Total	2.3%	1.6%	0.7%	4.6%
	Adjusted Residual	1.7	-2.0	.6	
Robbery	Observed	79	130	36	245
	Expected	97.1	116.0	31.9	245.0
	% Within Main Offence	32.2%	53.1%	14.7%	100.0%
	% Within Role	15.6%	21.6%	21.7%	19.2%
	% Of Total	6.2%	10.2%	2.8%	19.2%
	Adjusted Residual	-2.6	**2.0**	.9	
Sex	Observed	38	18	7	63
	Expected	25.0	29.8	8.2	63.0
	% Within Main Offence	60.3%	28.6%	11.1%	100.0%
	% Within Role	7.5%	3.0%	4.2%	4.9%
	% Of Total	3.0%	1.4%	0.5%	4.9%
	Adjusted Residual	**3.4**	-3.1	-.5	
Theft	Observed	35	24	9	68
	Expected	27.0	32.2	8.9	68.0
	% Within Main Offence	51.5%	35.3%	13.2%	100.0%
	% Within Role	6.9%	4.0%	5.4%	5.3%
	% Of Total	2.7%	1.9%	0.7%	5.3%
	Adjusted Residual	**2.1**	-2.0	.1	
Other	Observed	84	81	20	185
	Expected	73.3	87.6	24.1	185.0
	% Within Main Offence	45.4%	43.8%	10.8%	100.0%
	% Within Role	16.6%	13.4%	12.0%	14.5%
	% Of Total	6.6%	6.4%	1.6%	14.5%
	Adjusted Residual	1.7	-1.0	-1.0	
Total	Observed	505	603	166	1274
	Expected	505.0	603.0	166.0	1274.0
	% Within Main Offence	39.6%	47.3%	13.0%	100.0%
	% Within Role	100.0%	100.0%	100.0%	100.0%
	% Of Total	39.6%	47.3%	13.0%	100.0%

The index offence was significantly associated with role in the incident, perpetrators were more likely to have robbery, burglary, violent or false imprisonment offences, colluders were more likely to have robbery offences and hostages were more likely to have sexual or other offences, $(X^2 (14) = 40.905, p < .001)$.

Number of Court Appearances Under 18 Years of Age

The number of court appearances under 18 years of age was used as an indicator of general criminality and as a predictor of prison misconduct (Gendreau, Goggin, & Law, 1997), rather than OGRs 3, which is a composite score (Howard, Francis, Soothill, & Humphreys, 2009). OGRs 3 incorporates some of the variables tested previously, therefore the number of court appearances was used to ensure independence of measures.

For hostages there was less dispersion in the number of court appearances under 18 years of age than for perpetrators or colluders, although there were more outliers and more extremes for the hostage group. The figures are shown in Figure 7.
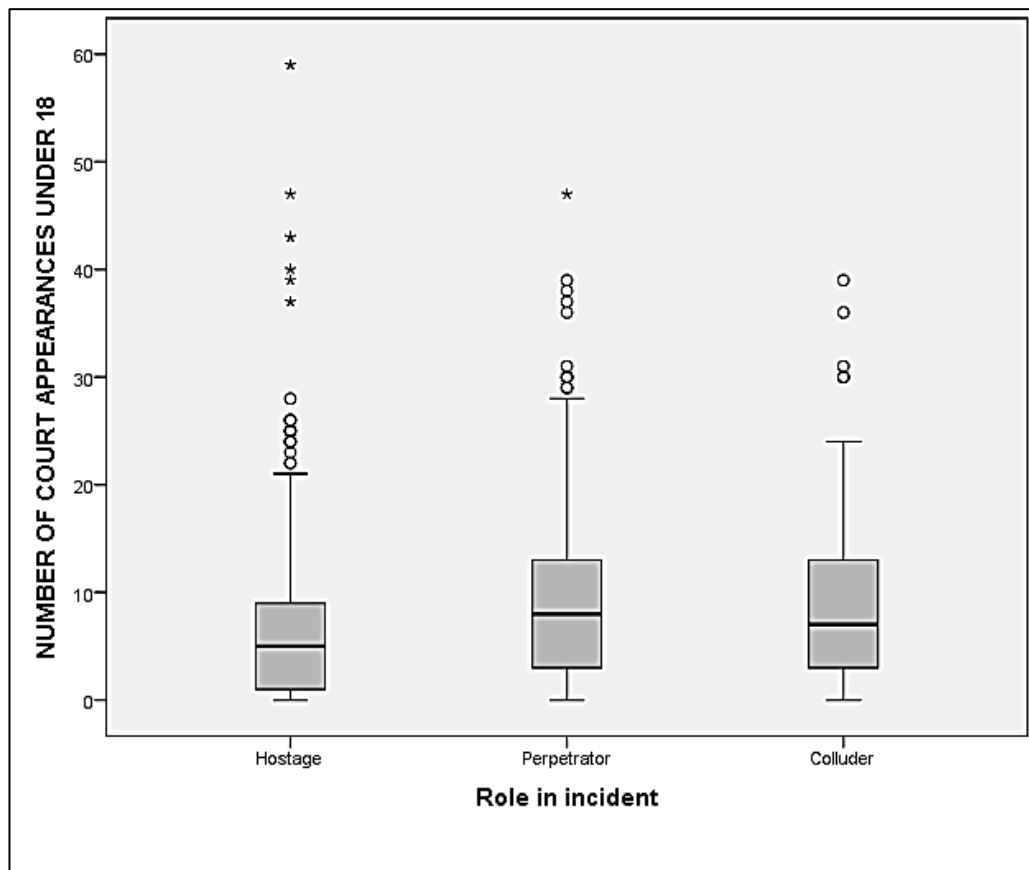
Figure 7 - Median number of court appearances under 18 years of age by role in incident

The data were not normally distributed, (W (1066) = .867, $p > .001$).

There was a significant difference between the number of court appearances under 18 years of age for hostages, perpetrators and colluders, (X^2 (2) = 49.845, $p > .001$).

A series of Mann Whitney post-hoc tests (with Bonferroni-adjusted alpha level (i.e. p/3), (Coolican, 2014)) showed that hostages tended to have fewer court appearances under 18 years of age than perpetrators, (U=76298.000 $N_1 = 396$, $N_2 = 527$, $p <$ .001) or colluders (U=22894.500 $N_1 = 396$, $N_2 = 143$ $p < .001$). Perpetrators and colluders did not differ in respect of the number of court appearances under 18 years of age (U=34635.00, $N_1 = 527$, $N_2 = 143$, $p > .05$).

Research Aim 2 – Examine PHTs Association with General Strain Variables

iv)   This section reports results of analyses relating to research aim 2, (examine PHTs from the perspective that they are a form of prison indiscipline influenced by prison strain). It draws on variables predictive of prison strain (e.g. in Blevins et al., 2010; Camp et al., 2003), (that is potentially the cause of "overwhelming crisis" (Vecchi et al., 2005) and examines their association with role (i.e. hostage, perpetrating or colluding) in a prison hostage incident.

Security Category

The security classification system in HMPPS uses letters to denote security classification, from category A, the highest level of security, through C (medium security conditions) to D (open conditions). Most incidents happened in category B prisons, followed by category C training prisons. Young Offenders and mixed category B/C sites each had roughly similar numbers and finally category A, the highest security category, had the fewest incidents.

To test hypothesis 5, that PHTs are more likely to occur in prisons of higher security classification, a Chi-squared goodness of fit test was performed. The expected frequencies were calculated by counting the number of prisons of each different type (e.g. there are eight different Category A prisons where incidents have taken place and twelve category D prisons), giving 132 different prisons or sites where incidents have occurred. These were grouped into seven prison types/locations, as shown in the column labelled "number of prisons in group", in Table 26. The data were independent observations, as incidents were used rather than individuals involved.

Table 26 also summarises the observed and expected frequencies for each category.

Table 26 - Observed and expected frequencies of incidents by security category

Security Category	Number of prisons in group	Number of observed incidents	Number of expected incidents	Residual
A	8	81	70.6	10.4
B	35	438	309.0	129.0
B, C	9	118	79.5	24.5
C	48	320	423.8	-104.8
D	12	39	106.0	-67.0
HMYOI	14	144	123.6	20.4
*Escort/Immigration Removal Centre	3	14	26.5	-12.5
Total	132	1139		

∗ Escort/Immigration Removal Centre refers to prisoners either being escorted by prison staff outside the prison perimeter e.g. to hospital or those held in Immigration Removal Centres.

The distribution of hostage incidents across prison types was significantly different from the distribution expected by chance (shown as number of expected incidents in Table 26), $(X^2 (6) = 140.4, p < .001)$. Hypothesis 5 (prisons with higher security classifications will be associated with a greater number of incidents) is supported.

The higher security categories (A, B, B/C) and young offender institutions were over-represented in the data and the lower security categories and Escort or Immigration Remand Centre (IRC) sites were under-represented.

The security category of the prison and the type of incident is shown in Table 27.

Table 27 - Observed and expected frequencies of security category by incident type

		Coercion	Collusion	Total
A	Observed	78	3	81
	Expected	71.9	9.1	81.0
	% Within Security Category	96.3%	3.7%	100.0%
	% Within Incident Type	7.7%	2.3%	7.1%
	% Of Total	6.8%	0.3%	7.1%
B	Observed	382	56	438
	Expected	388.8	49.2	438.0
	% Within Security Category	87.2%	12.8%	100.0%
	% Within Incident Type	37.8%	43.8%	38.5%
	% Of Total	33.5%	4.9%	38.5%
B/C	Observed	91	13	104
	Expected	92.3	11.7	104.0
	% Within Security Category	87.5%	12.5%	100.0%
	% Within Incident Type	9.0%	10.2%	9.1%
	% Of Total	8.0%	1.1%	9.1%
C	Observed	283	36	319
	Expected	283.2	35.8	319.0
	% Within Security Category	88.7%	11.3%	100.0%
	% Within Incident Type	28.0%	28.1%	28.0%
	% Of Total	24.8%	3.2%	28.0%
D	Observed	32	7	39
	Expected	34.6	4.4	39.0
	% Within Security Category	82.1%	17.9%	100.0%
	% Within Incident Type	3.2%	5.5%	3.4%
	% Of Total	2.8%	0.6%	3.4%
HMYOI	Observed	131	13	144
	Expected	127.8	16.2	144.0
	% Within Security Category	91.0%	9.0%	100.0%
	% Within Collusion	13.0%	10.2%	12.6%
	% Of Total	11.5%	1.1%	12.6%
Escort/IRC	Observed	14	0	14
	Expected	12.4	1.6	14.0
	% Within Security Category	100.0%	0.0%	100.0%
	% Within Collusion	1.4%	0.0%	1.2%
	% Of Total	1.2%	0.0%	1.2%
Total	Count	1011	128	1139
	Expected Count	1011.0	128.0	1139.0
	% Within Security Category	88.8%	11.2%	100.0%
	% Within Collusion	100.0%	100.0%	100.0%
	% Of Total	88.8%	11.2%	100.0%

Collusion was not associated with the security category of the prison where the incident occurred, (X^2 (6) = 10.066, $p > .05$), collusion was not more likely in certain types of prison.

Prison Size

To allow for testing of hypothesis 6 (larger prisons are significantly more likely to have a higher number of incidents), prisons were grouped according to their size. Those prisons with fewer than 499 were classified as small, 500 to 850 were labelled medium, 851 to 1449 were labelled large and over 1450 prisoners were labelled as very large.

The prison estate has mostly medium-sized prisons (500-850 prisoners), followed by large prisons (851-1449 prisoners). There are few very large prisons.

The highest number of incidents occurred in medium sized prisons and large prisons.

Table 28 shows the number of prisons in each prison-size group and the number of incidents that occurred within each prison-size group.

Table 28 - Number of prisons in each size group and number of observed and expected incidents in each size group

Group label	Number of prisons in size group	Number of observed incidents	Number of expected incidents	Residual
Small	31	138	321.0	-183.0
Medium	44	519	455.6	63.4
Large	30	426	310.6	115.4
Very large	4	46	41.4	4.6
Escort	1	10	10.4	-0.4
Total		1139		

The distribution of all hostage incidents across prison size was significantly different from the distribution expected by chance (shown as number of expected incidents in Table 28), (X^2 (4) = 156.505, $p < .001$). There were more incidents in medium and large sized prisons than expected and fewer than expected incidents in smaller prisons. There were about as many as expected in very large prisons and on escort. The results show support for hypothesis 6 (larger prisons will have a significantly higher number of PHTs).

The association between prison size and collusion or coercion was examined. The data are shown in Table 29.

Table 29 - Observed and expected frequencies of coercive and collusive incidents by prison-size group

			Coercion	Collusion	Total
Prison Size	**Small**	Observed	121	17	138
		Expected	122.5	15.5	138.0
		% Within Size	87.7%	12.3%	100.0%
		% Within Incident Type	12.0%	13.3%	12.1%
		% Of Total	10.6%	1.5%	12.1%
	Medium	Observed	461	58	519
		Expected	460.7	58.3	519.0
		% Within Size	88.8%	11.2%	100.0%
		% Within Incident Type	45.6%	45.3%	45.6%
		% Of Total	40.5%	5.1%	45.6%
	Large	Observed	377	49	426
		Expected	378.1	47.9	426.0
		% Within Size	88.5%	11.5%	100.0%
		% Within Incident Type	37.3%	38.3%	37.4%
		% Of Total	33.1%	4.3%	37.4%
	Very Large	Observed	42	4	46
		Expected	40.8	5.2	46.0
		% Within Size	91.3%	8.7%	100.0%
		% Within Incident Type	4.2%	3.1%	4.0%
		% Of Total	3.7%	0.4%	4.0%
	Escort	Observed	10	0	10
		Expected	8.9	1.1	10.0
		% Within Size	100.0%	0.0%	100.0%
		% Within Incident Type	1.0%	0.0%	0.9%
		% Of Total	0.9%	0.0%	0.9%
Total		Observed	1011	128	1139
		Expected	1011.0	128.0	1139.0
		% Within Size-Group	88.8%	11.2%	100.0%
		% Within Collusion	100.0%	100.0%	100.0%
		% Of Total	88.8%	11.2%	100.0%

There was no association between prison-size group and collusion. A Fisher's exact test was not significant ($p > .05$).

Sentence Type

The majority of prisoners in the sample were serving determinate sentences (*i.e.* with a specific date for release) as opposed to indeterminate sentences (*i.e.* release date depends upon assessment that risk has reduced sufficiently for release). Perpetrators

were over-represented in the indeterminate sentence group (including mandatory life sentences, indeterminate sentences for public protection and discretionary life sentences), and colluders and hostages were over-represented in the determinate sentence group. The full data can be seen at Table 30.

Table 30 - Observed and expected frequencies for main sentence type and role in incident

		Hostage	Perpetrator	Colluder	Total
Determinate	Observed	408	427	132	967
	Expected	383.9	457.4	125.7	967.0
	% Within Sentence Type	42.2%	44.2%	13.7%	100.0%
	% Within Role	80.5%	70.7%	79.5%	75.7%
	% Of Total	31.9%	33.4%	10.3%	75.7%
	Adjusted Residual	**3.2**	-4.0	1.2	
Indeterminate	Observed	53	117	22	192
	Expected	76.2	90.8	25.0	192.0
	% Within Sentence Type	27.6%	60.9%	11.5%	100.0%
	% Within Role	10.5%	19.4%	13.3%	15.0%
	% Of Total	4.2%	9.2%	1.7%	15.0%
	Adjusted Residual	-3.7	**4.1**	-.7	
*Other	Observed	46	60	12	118
	Expected	46.8	55.8	15.3	118.0
	% Within Sentence Type	39.0%	50.8%	10.2%	100.0%
	% Within Role	9.1%	9.9%	7.2%	9.2%
	% Of Total	3.6%	4.7%	0.9%	9.2%
	Adjusted Residual	-.2	.8	-1.0	
Total	Observed	507	604	166	1277
	Expected	507.0	604.0	166.0	1277.0
	% Within Sentence Type	39.7%	47.3%	13.0%	100.0%
	% Within Role	100.0%	100.0%	100.0%	100.0%
	% Of Total	39.7%	47.3%	13.0%	100.0%

∗ Other includes remand prisoners and those awaiting sentence

Hostages were more likely to be serving determinate sentences and perpetrators were more likely to be serving indeterminate sentences. Colluders were slightly more likely to be serving indeterminate sentences, although this was not a strong association (X^2 (2) = 8.269, $p < .05$). This finding is consistent with hypothesis 7 (perpetrators and colluders are significantly more likely than hostages to be serving indeterminate sentences).

Sentence Length

The sentence lengths for prisoners serving determinate sentences were generally shorter for hostages than for perpetrators or colluders, although there were several outliers.

The data were not normally distributed, (W (1001), = .918, $p < .001$).

The median sentence length for hostages was 32 months, whereas for perpetrators and colluders it was 48 months. See Figure 8 for box plot.
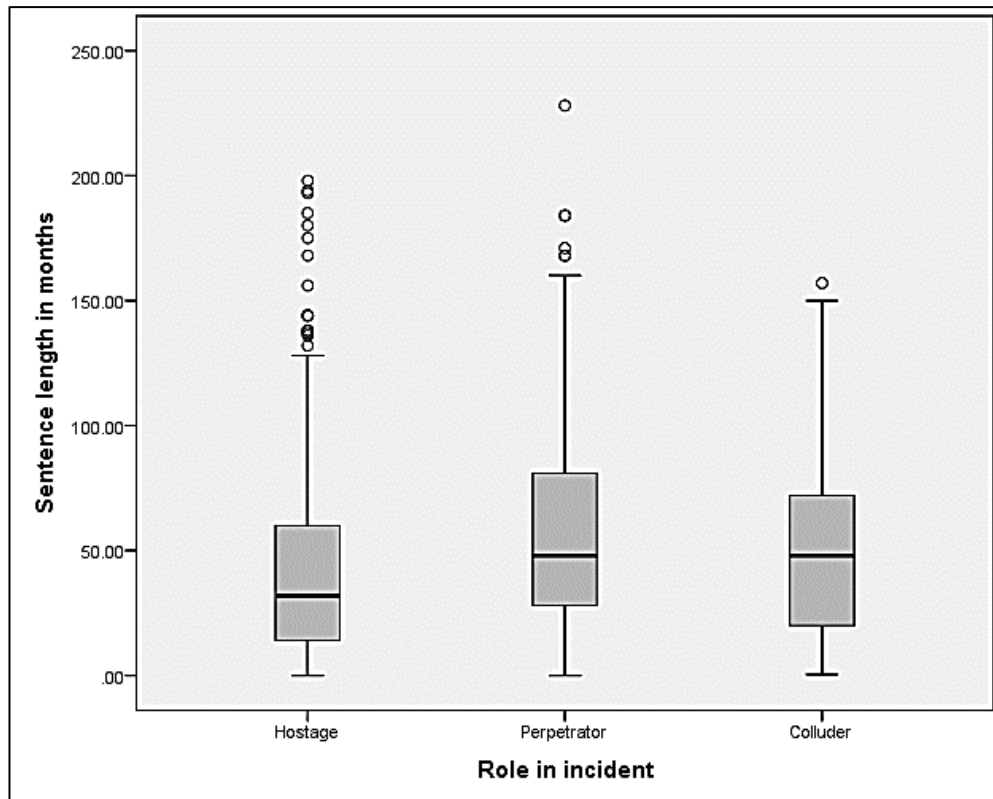
Figure 8- Median sentence length in months for determinate sentenced prisoners by role in incident

There was a significant difference in sentence length for the three groups, X^2 (2) = 35.062, $p < .001$.

A series of Mann Whitney post-hoc tests (with Bonferroni-adjusted alpha level (i.e. p/3), (Coolican, 2014)) showed that hostages tended to have shorter sentences than perpetrators, (U = 71799.500, $N_1 = 414$, $N_2 = 451$, $p < .001$) or colluders, (U = 23530.000, $N_1 = 414$, $N_2 = 136$, $p < .05$). Perpetrators and colluders did not differ in respect of sentence length, (U = 28789.000, $N_1 = 136$, $N_2 = 451$, $p > .05$.

94

Hostages had significantly shorter sentences than colluders or perpetrators, a finding that is consistent with hypothesis 8 (perpetrators and colluders are significantly more likely to be serving longer sentences than hostages).

Time from Start of Custody to Incident

The time from the start of custody to the incident was calculated in days, (this calculation included prisoners sentenced to indeterminate periods in custody) for each role in an incident. For all three groups there was a substantial spread, with several outliers. Perpetrators had the largest spread but also the longest time in custody before the incident. Hostages had the shortest time to incident but had a large number of outliers. The data were not normally distributed, (W (1274) = .791, $p < .001$).

The data are summarised in Figure 9.
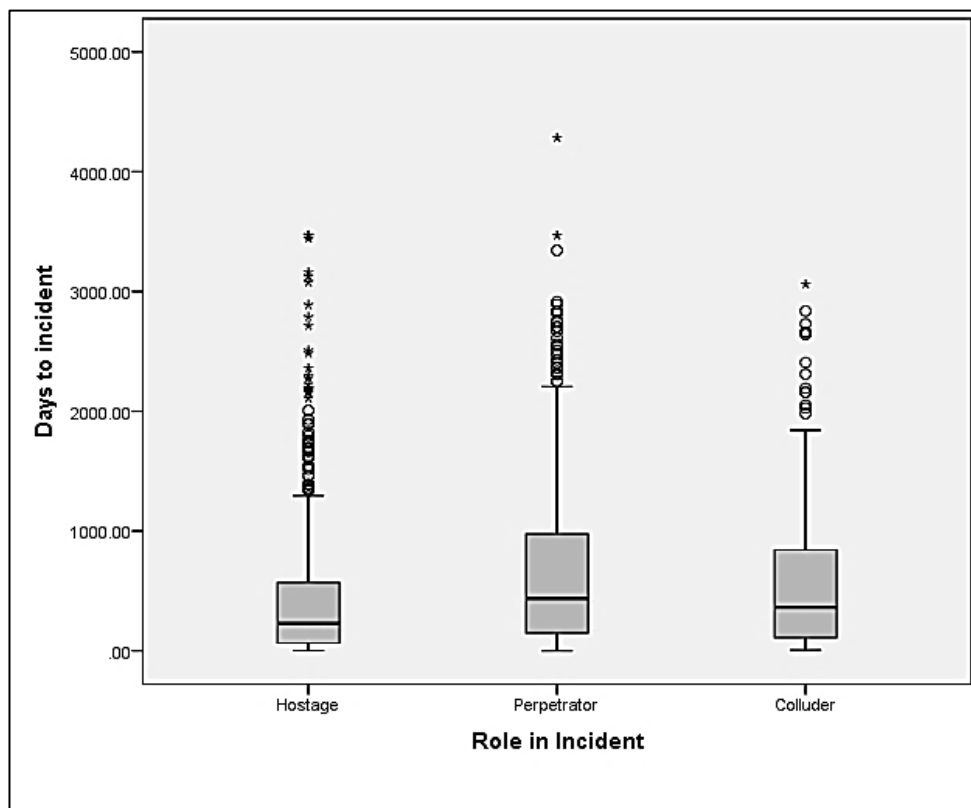
Figure 9 - Median days to incident from sentence start by role in incident

There was a significant difference in time to incident for the three groups, (X^2 (2) = 65.876, $p < .001$).

A series of Mann Whitney post-hoc tests (with Bonferroni-adjusted alpha level (i.e. p/3), Coolican, 2014)) showed that hostages tended to be involved in an incident earlier in their sentence than perpetrators, ($U = 69468$, $N_1 = 412$, $N_2 = 451$, $p < .001$) or colluders, ($U = 23508.500$, $N_1 = 412$, $N_2 = 139$, $p < .01$). Perpetrators and colluders did not differ in respect of time to incident, ($U = 29137.500$, $N_1 = 451$, $N_2 = 139$, $p > .05$).

Hostages were significantly more likely to be involved in an incident earlier in their sentence. This finding is consistent with hypothesis 9 (perpetrators and colluders are significantly more likely to be involved in a hostage incident later in their sentence than hostages).

Time Left to Serve after Incident

The number of days left to serve on the sentence after the incident happened was calculated. To control for missing dates for prisoners with indeterminate sentences only prisoners serving determinate sentences were included in the analysis.

There was greater dispersion in the figures for hostages than for perpetrators or colluders. Hostages had the two highest outliers, perpetrators and colluders had similar duration left to serve although there were more outliers for perpetrators. The box plot is shown at Figure 10.

The data were not normally distributed, ($W (998) = .736$, $p < .001$).
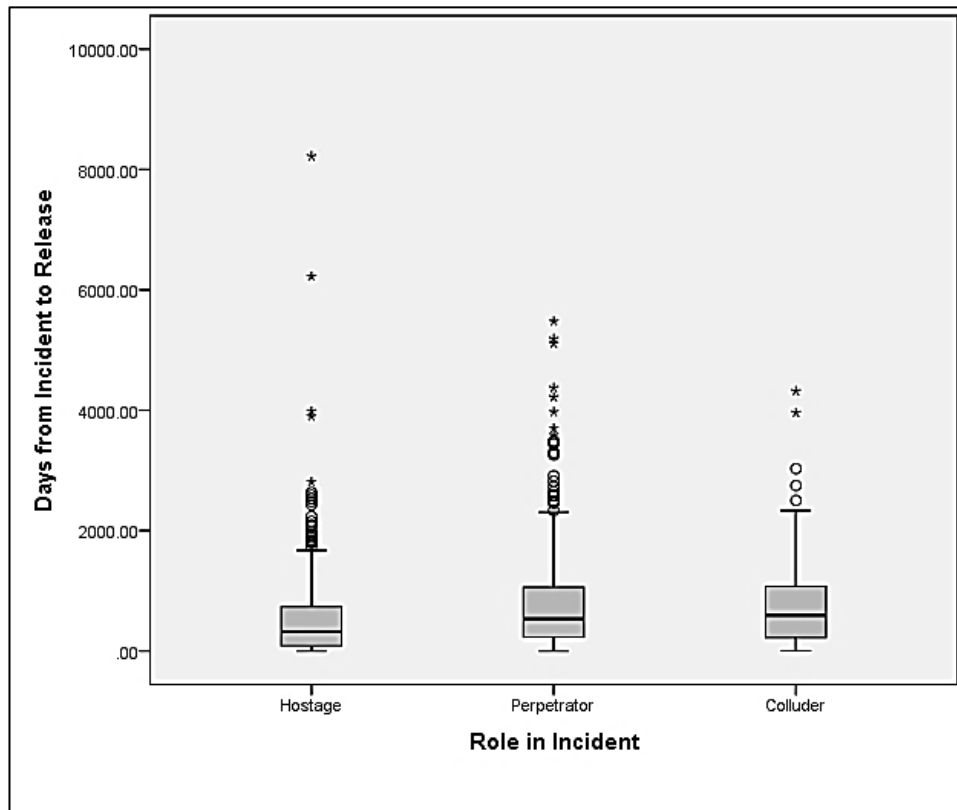
Figure 10 - Median days left to serve after incident by role in incident

There was a significant difference in the time left to serve after an incident for the three groups, ($X^2(2) = 3.847$ $p < .001$).

A series of Mann Whitney post-hoc tests (with Bonferroni-adjusted alpha level (i.e. p/3), (Coolican, 2014)) showed that hostages tended to have less time left to serve than perpetrators, (U = 70917.000, N_1 = 412, N_2 = 447, $p < .001$) or colluders, (U = 22221.500, N_1 = 412, N_2 = 139, $p < .001$). Perpetrators and colluders did not differ in respect of time left to serve after the incident, (U = 30922.000, N_1 = 139, N_2 = 447, $p > .05$).

Hostages were due to be released sooner after the incident than either colluders or perpetrators. This finding is consistent with hypothesis 10 (perpetrators and colluders are significantly more likely to have longer to serve after the hostage incident than hostages).

Incentive and Earned Privilege Deprivation Level

The Incentives and Earned Privileges levels (IEP) at the time of the incident were grouped into either high deprivation (basic or entry level on IEP) or low deprivation (standard or enhanced). Overall, there were more prisoners on low IEP deprivation levels.

There were more perpetrators and colluders on high IEP deprivation levels than hostages and hostages were over-represented on the low IEP deprivation levels.

Table 31 shows the observed and expected frequencies for IEP deprivation level by role in incident.

Table 31 - Observed and expected frequencies for IEP deprivation level by role in incident

			Hostage	Perpetrator	Colluder	Total
IEP Deprivation	**High**	Observed	126	231	78	435
		Expected	172.8	205.4	56.8	435.0
		% within IEP Deprivation	29.0%	53.1%	17.9%	100.0%
		% within Role	25.0%	38.5%	47.0%	34.2%
		% of Total	9.9%	18.2%	6.1%	34.2%
		Adjusted Residual	-5.7	**3.0**	**3.7**	
	Low	Observed	379	369	88	836
		Expected	332.2	394.6	109.2	836.0
		% within IEP Deprivation	45.3%	44.1%	10.5%	100.0%
		% within Role	75.0%	61.5%	53.0%	65.8%
		% of Total	29.8%	29.0%	6.9%	65.8%
		Adjusted Residual	**5.7**	-3.0	-3.7	
Total		Observed	505	600	166	1271
		Expected	505.0	600.0	166.0	1271.0
		% within IEP Deprivation	39.7%	47.2%	13.1%	100.0%
		% within Role	100.0%	100.0%	100.0%	100.0%
		% of Total	39.7%	47.2%	13.1%	100.0%

There was an association between the deprivation level as indicated by the level on the Incentive and Earned Privilege (IEP) scheme and a prisoner's role in an incident. Hostages were over-represented on the low IEP deprivation level, perpetrators and colluders were over-represented on a high deprivation level, ($X^2 (2) = 36.179$, $p < .001$). This finding is consistent with hypothesis 11 (perpetrators and colluders are significantly more likely to be on a high IEP deprivation level than colluders).

Demands

The majority of incident reports did not record the presence of any demands. Demands fell into five main categories; a *transfer* out of the prison, *protests* against conditions or a demand for a specific item, e.g. shower, property, a *relocation* within the prison to another wing or unit, a demand *to speak* to a governor, to make a telephone call to a family member or solicitor, or a demand to *escape* custody. The presence of demands with *no specific content* was also recorded.

One third of demands were made for a transfer, approximately one fifth for a specific item, a similar proportion for a relocation within the prison and less than 10% for either a telephone call or to speak to a Governor or similar. Two incidents were recorded as being for access to a specific victim and fourteen were recorded as being to facilitate an escape.

The figures are shown in Table 32.

Table 32 - Frequencies of type of demands

Nature of Demand	Frequency	Percent
Transfer out of prison	76	29.7%
Relocate within prison	51	19.9%
Protest against conditions or demand for item	53	20.7%
Speak with governor	18	7.0%
Telephone call to family or other	16	6.3%
Unclear	26	10.2%
Escape or specific victim (2)	16	6.3%
Total	256	100%

The nature of demands was recoded into two categories for ease of analysis of association with incident type. Approximately half of all demands were for transfer or relocation and half were for protest or other reasons.

The proportion of transfer demands for collusive incidents was 76.5% compared to 45.4% for coercive incidents. The figures can be seen in Table 33.

Table 33 - Observed and expected frequencies for type of demands by incident type

		Hostage	Perpetrator	Colluder	Total
Protest or other	Observed	82	39	8	129
	Expected	82.6	29.2	17.1	129.0
	% within Demand Type	63.6%	30.2%	6.2%	100.0%
	% within Role	50.0%	67.2%	23.5%	50.4%
	% of Total	32.0%	15.2%	3.1%	50.4%
	Adjusted Residual	-.2	**2.9**	-3.4	
Transfer/relocate	Observed	82	19	26	127
	Expected	81.4	28.8	16.9	127.0
	% within Demand Type	64.6%	15.0%	20.5%	100.0%
	% within Role	50.0%	32.8%	76.5%	49.6%
	% of Total	32.0%	7.4%	10.2%	49.6%
	Adjusted Residual	.2	-2.9	**3.4**	
Total	Observed	164	58	34	256
	Expected	164.0	58.0	34.0	256.0
	% within Demand Type	64.1%	22.7%	13.3%	100.0%
	% within Role	100.0%	100.0%	100.0%	100.0%
	% of Total	64.1%	22.7%	13.3%	100.0%

Collusive incidents were more likely to involve demands to transfer or relocate and coercive incidents were more likely to involve protest demands ($X^2 (1) = 11.316$, $p < .001$).

Research Aim 3 - Co-Offending Variables Analyses

Research aim 3 was to examine collusion in PHTs, including from the perspective that it is a form of co-offending. The following section analyses differences between collusive and coercive incidents in the way they are managed and explores differences between collusive prisoners, coercive perpetrators and hostages drawing on

To address this aim, the management, situational and participant characteristics of collusive and coercive incidents were examined.

Descriptive Analysis of Collusive Incidents

Number of Collusive Incidents

The number of incidents that involved collusion was 129 (11.2%).

This was broken down into adult and Young Offender groups and is shown in Table 34.

For clarity, this table also includes those cases where age is missing, (almost half of the

sample) and presents the total for all cases combined. (*N.B*. This analysis is of incidents

not individuals).

Table 34 - Frequencies of collusive and coercive incidents by age groups (including cases with missing age)

		Frequency	**Percent**
Age Missing	Coercion	490	91.1%
	Collusion	48	8.9%
	Total	*538*	*100.0%*
YOI	Coercion	155	86.6%
	Collusion	24	13.4%
	Total	*179*	*100.0%*
Adult	Coercion	373	86.7%
	Collusion	57	13.3%
	Total	*430*	*100.0%*
Grand Total	Coercion	1018	88.8%
	Collusion	129	11.2%
	Total	*1147*	*100%*

The proportion of reported incidents that involve collusion was 11.2% (129), compared

to 88.8% that involved coercion (1018).

When broken down by age (either adult or young offender, i.e. 21 years and 10 months)

13.4% of incidents involving young offenders were identified as collusive and 13.3% of

incidents involving adults were labelled as collusion.

Number of Participants and Dyads

The number of perpetrators involved in incidents and the number of hostages for each incident are shown in Table 35. Most incidents involved one perpetrator, with a smaller proportion having two perpetrators. Very few incidents had five or more perpetrators.

Table 35 - Number of perpetrators and number of incidents

Number of perpetrators	Number of incidents	Percentage of incidents
1	933	81.3%
2	154	13.4%
3	40	3.5%
4	14	1.2%
5	3	.3%
7	1	.1%
8	2	.2%

The number of hostages held in each incident is shown in Table 36. The majority of incidents involved one hostage, very few incidents involved two or more hostages.

Table 36 - Number of hostages and number of incidents

Number of Hostages	Number of incidents	Percentage of incidents
1	1074	93.6%
2	57	5.0%
3	7	.6%
4	5	.4%
5	2	.2%
6	1	.1%
7	1	.1%

Most incidents involved only one hostage and one collusive perpetrator (68.4%). The next largest group involved a single hostage and multiple coercive perpetrators (14.2%). Few incidents had multiple hostages and a single coercive perpetrator (4.7%), and incidents with multiple hostages and perpetrators were the least frequent (1.2%) (see Table 37).

A similar pattern emerged for incidents involving collusion, with 8.9% involving two participants and 2.5% involving multiple participants.

Table 37 - Number of coercive incidents with single and multiple hostages and number of participants in collusive incidents

Coercive incidents	One hostage	Percentage	Many hostages	Percentage
One perpetrator	778	68.4%	54	4.7%
Many perpetrators	162	14.2%	14	1.2%
Collusive Incidents				
Two participants	101	8.9%		
Many participants	28	2.5%		

The number of participants in the incident were grouped into either two or more than two, regardless of role for analysis. The figures are shown in Table 38.

Table 38 - Observed and expected frequencies of number of participants by incident type

Number of participants		Coercion	Collusion	Total
2	Observed	778	101	879
	Expected	780.1	98.9	879.0
>2	Observed	240	28	268
	Expected	237.9	30.1	268.0
Total	Count	1018	129	1147

Collusive incidents were no more likely to involve only two participants than coercive incidents, $(X^2(1) = .224, p > .05)$.

Analysis of Variables Associated with Co-Offending

Other Offenders Involved in Committing the Index Offence

Almost half of the offenders in the sample committed their index offence with at least one other offender (co-offender).

Hostages were under-represented in the co-offender group and over-represented in the solo-offender group. Perpetrators were neither under nor over-represented in the co-offender group. Colluders were strongly over-represented in the co-offender group. Table 39 shows the observed and expected frequencies.

Table 39 - Observed and expected frequencies for other offenders involved in index offence by role in incident

		Hostage	Perpetrator	Colluder	
Solo Offenders	Observed	235	279	58	572
	Expected	212.9	282.3	76.8	572.0
	% within Others Involved	41.1%	48.8%	10.1%	100.0%
	% within Role	58.9%	52.7%	40.3%	53.4%
	% of Total	21.9%	26.0%	5.4%	53.4%
	Adjusted Residual	**2.8**	-.4	-3.4	
Co-offenders	Observed	164	250	86	500
	Expected	186.1	246.7	67.2	500.0
	% within Others Involved	32.8%	50.0%	17.2%	100.0%
	% within Role	41.1%	47.3%	59.7%	46.6%
	% of Total	15.3%	23.3%	8.0%	46.6%
	Adjusted Residual	-2.8	.4	**3.4**	
Total	Observed	399	529	144	1072
	Expected	399.0	529.0	144.0	1072.0
	% within Others Involved	37.2%	49.3%	13.4%	100.0%
	% within Role	100.0%	100.0%	100.0%	100.0%
	% of Total	37.2%	49.3%	13.4%	100.0%

Colluders were significantly associated with being co-offenders, (X^2 (2) = 14.900, $p < .001$).

Prisoners with more than one Hostage Incident

There were 129 prisoners involved in more than one incident. Almost no prisoners were involved in three or more incidents. The figures can be seen in Table 40.

Table 40 - Frequencies of number of incidents each prisoner involved in.

Number of incidents involved in	Number of Prisoners	Percentage of Prisoners
1	2239	94.6%
2	103	4.3%
3	19	.8%
4	5	.2%
5	1	.0%
6	1	.0%
Total	2369	100%

The association between collusion and previous incidents was examined. Most prisoners were involved in only one, coercive incident. However, of the small number who had more than one incident, a higher than expected number had been involved in at least one collusive incident. The figures can be seen in Table 41.

Table 41 - Observed and expected frequencies of presence of previous incidents by ever previously colluded.

		Not Colluded	Have Colluded	Total
One Incident	Observed	1990	245	2235
	Expected	1981.9	253.1	2235.0
	% within Multi Incidents	89.0%	11.0%	100.0%
	% within Ever Colluded	94.8%	91.4%	94.4%
	% of Total	84.1%	10.4%	94.4%
	Adjusted Residual	**2.3**	-2.3	
Multiple Incidents	Observed	109	23	132
	Expected	117.1	14.9	132.0
	% within Multi Incidents	82.6%	17.4%	100.0%
	% within Ever Colluded	5.2%	8.6%	5.6%
	% of Total	4.6%	1.0%	5.6%
	Adjusted Residual	-2.3	**2.3**	
Total	Count	2099	268	2367
	Expected Count	2099.0	268.0	2367.0
	% within Multi Incidents	88.7%	11.3%	100.0%
	% within Ever Colluded	100.0%	100.0%	100.0%
	% of Total	88.7%	11.3%	100.0%

There was an association between having multiple incidents and collusion in at least one incident, $(X^2(1) = 5.184, p < .05)$.

Age-Difference Between Participants

The age difference between individuals involved in each incident was calculated using the difference between the age of the oldest and youngest participant in each incident. (Where YOs were held in an adult establishment, (due to personal circumstances) they were treated as adults for the purposes of this analysis).

The analysis was at the incident level meaning that there was only one age difference score per incident, between the youngest and the oldest participant.

Young Offender Prisoners

The median age difference for YO coercive incidents was 1.23 years with a range of 5.84 years. For collusive incidents the median age difference was 1.08 years with a range of 5.56 years.

There were more outliers in the coercive group. The data are illustrated in Figure 11. The data were not normally distributed, (W (.828) = 141, $p < .001$).

The age difference between YOs involved in coercive incidents was not significantly different to the age difference between YOs involved in collusive incidents, (U = 837.000, $N_1 = 126$, $N_2 = 15$, $p > .05$).
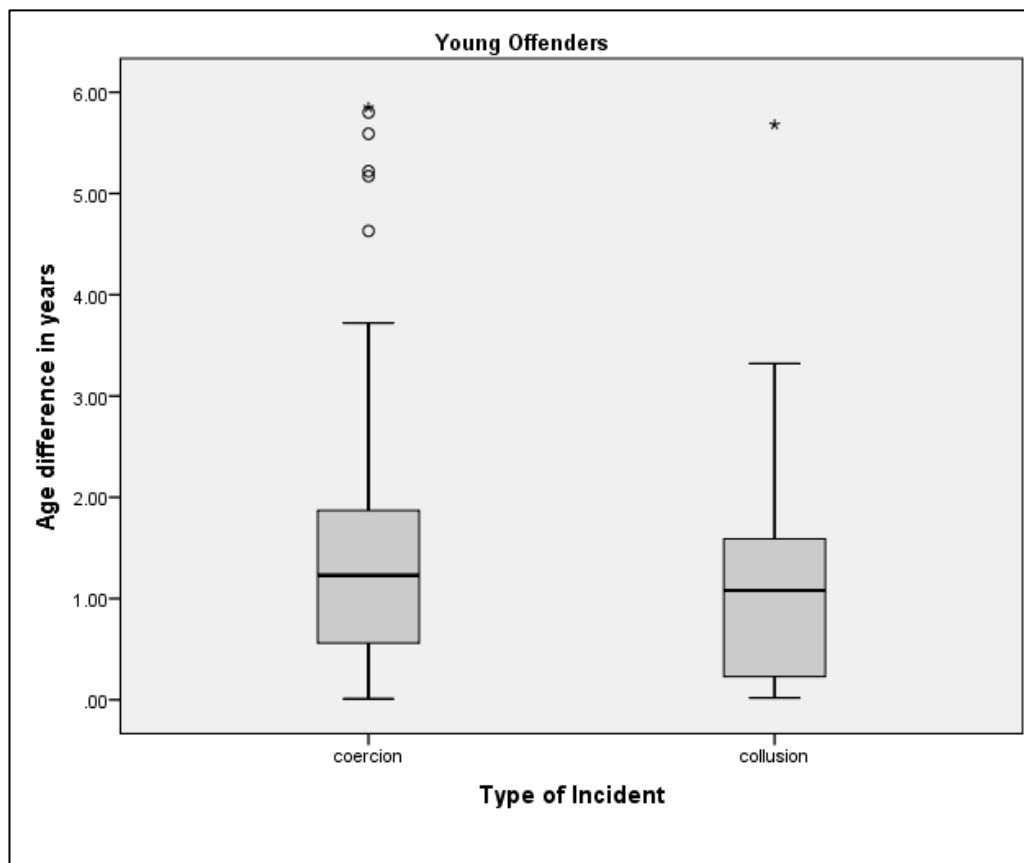
Figure 11 - Median difference in age in years for YOs by type of incident

Adult Prisoners

The median age difference for adult prisoners involved in coercive incidents was 6.00 years with a range of 53.95 years. For adult colluders the median age difference was 3.78 years with a range of 21.37 years. There was a greater number of outliers in the coercive group indicating greater dispersion in the age difference between coercive participants.

The data are illustrated in Figure 12.
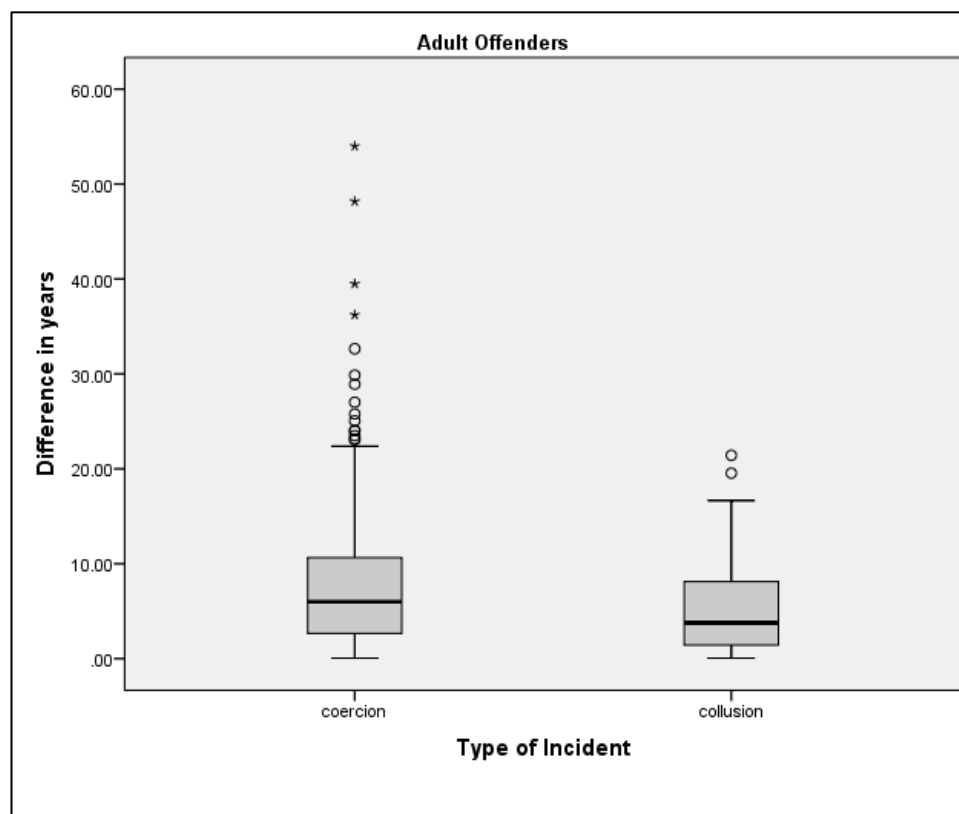
Figure 12 - Median difference in age in years for adult prisoners by type of incident

The data were not normally distributed (W (391) = .810, $p < .001$).

The difference in age between the oldest and youngest participant in coercive incidents was significantly different to the difference in age for collusive participants, indicating that adult colluders were closer in age than adult participants in coercive incidents (U = 7629.500, $N_1 = 335$, $N_2 = 56$, $p < .01$).

Combined Effects of Incident Level and Prisoner Level Factors

GST suggests that prisoners who experience greater strain are more likely to commit prison indiscipline (Morris et al., 2012; Blevins et al., 2010), potentially including prison hostage takings. Variables that were suggested in previous research to be related to strain (Blevins et al., 2010; Camp et al., 2003; Steiner et al., 2014) and that had significant differences between the three groups were selected; *time from admission to incident* assuming the longer the time the greater the strain, *the time from the incident to release date*, suggesting greater strain as the prisoner was aware of the time left to serve and thus knew there was a longer time exposed to the strain and *IEP deprivation*, the higher the level of IEP deprivation, the greater the strain and finally the *nature of demands,* where the demand was "escape" from a strainful situation compared to demands related to trying to obtain a desired item by illicit means.

Other variables reflected the importation theory of prison misconduct (De Lisi et al., 2011); *number of court appearances under 18 years of age,* (Schenk & Fremouw, 2012) and *violent offence* (De Lisi et al., 2011). The number of previous court appearances under 18 was used as a proxy measure of general criminality. A count of the number of court appearances under 18 rather than over 18 was used to control for perpetrators potentially having fewer but longer sentences over 18.

The last variables were selected because co-offending theories suggest they may be relevant and the preceding analyses had identified differences between the three groups of interest; *previous involvement in a hostage incident in prison* was selected because prior involvement in prison misconduct predicts future violent misconduct (Cunningham, Sorenson, Vigen, & Woods, 2011). Secondly *other offenders involved in the index offence* was used as offenders may be more willing to co-offend if they have successfully co-offended before (Ouellet, Boivin, Leclerc, & Morselli, 2013).

A Multinomial Logistic Regression was used to analyse predictors for unordered group classification with role in the incident, hostage, perpetrator or colluder, as the dependent variable, using a backwards stepwise method, to avoid over-fitting of the model. Backwards stepwise was selected because the number of variables was smaller than the number of cases, and thus is the preferred method (Coolican, 2014). The reference category for the outcome variable was colluder; the other two categories were compared to this reference group.

The focus of the analysis was the relationship between role in the incident and eight potential predictor variables. Predictor variables were time from admission to the incident occurring, time from incident to potential release date, number of court appearances under 18 years of age, violent offence, the nature of demands, whether other offenders were involved in the index offence, high or low IEP deprivation group and previous involvement in hostage incident in prison.

There were five dichotomous, independent (predictor) variables used and three continuous variables, ensuring the regression had sufficient power (N=965 > (8 variables x 8) +50=114) Tabachnick & Fidell, 2014).

The assumptions for multinomial regression are 1) that the dependent variable is at nominal level, 2) that there are one or more independent variables at continuous, nominal or ordinal level, 3) that observations are independent, 4) there is no multicollinearity and 5) that there should be no outliers or highly influential points.

The variables were tested for multicollinearity and no variables violated the assumption. However, the assumption of no extreme outliers was violated. Each continuous variable was examined for normality of distribution and extremes. The values that were identified as outliers were deemed to be valid values and they were not removed from the analysis. This has the effect that the model is likely to be unreliable for use as a predictor tool but may provide useful exploratory information (Coolican, 2014).

The classification results for the model fit are shown in Table 42. The model was a reasonable fit, pseudo R-Square predicting between 22.7% (Cox & Snell) and 26.1% (Nagelkerke) of the variance. The Likelihood Ratio Chi Square test (an alternative test of goodness of fit (Starkweather & Moske, 2011) was significant (chi square 44.255, df = 10, $p < .001$) suggesting a good fit.

The Pearson test (chi square, 435.014, df = 390, $p > .05$) was not significant at the .05 level and the Deviance test (chi square 365.022, df = 390, $p > .05$) was not significant at the .05 level. Both these tests should be non-significant to indicate a good fit.

The model has an overall accuracy of 57.1%, with 72.4% of perpetrators correctly classified 43.8% of hostages correctly classified and 41.5% of colluders correctly classified; 41.5% were incorrectly classified as perpetrators and 17% were incorrectly classified as hostages. Half of the hostages were incorrectly classified as perpetrators (50.7%). See Table 42.

Table 42 - Classification table for multinomial regression predicting role in incident

Observed	Predicted			
	Colluder	Hostage	Perpetrator	Percent Correct
Colluder	17	7	17	41.5%
Hostage	4	32	37	43.8%
Perpetrator	9	20	76	72.4%
Overall Percentage	13.7%	26.9%	72.4%	57.1%

Main Regression Results

The coefficients and odds ratios can be found at Table 43.

The first main row in Table 43 has the outcome of hostage compared to colluder (colluder is the reference category).

The results suggest that the presence of co-offenders in the index offence made being a hostage less likely than being a colluder. Being involved in a previous PHT made being a hostage less likely than being a colluder. Having a violent index offence made being

110

a hostage less likely than being a colluder and being on a high IEP deprivation level made being a hostage less likely than being a colluder.

The second main row in Table 43 reports the outcome for perpetrators compared to colluders. Having co-offenders in the index offence made being a perpetrator less likely than being a colluder. Being on a high IEP deprivation level made being a perpetrator less likely than being a colluder. Having more court appearances made being a perpetrator more likely than being a colluder and an incident occurring earlier in a sentence made being a perpetrator less likely than being a colluder.

Table 43 - Coefficients for predictors in regression exploring role in incident with co-offending variables

		B	Std. Error	Wald	Df.	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower bound	Upper bound
Hostage									
	Intercept	2.351	.618	14.482	1	.000			
	Days to incident	.001	.000	3.359	1	.067	1.001	1.000	1.002
	Days to release post incident	.007	.110	.004	1	.947	1.007	.812	1.249
	Number court appearances <18	-.005	.038	.016	1	.900	.995	.923	1.073
	Co-offender	-1.233	.474	6.776	1	.009**	.291	.115	.737
	Solo offender	0ᵇ	.	.	0	.	.	.	.
	Previous prison hostage incident	-1.840	.657	7.842	1	.005**	.159	.044	.576
	No previous hostage incident	0ᵇ	.	.	0	.	.	.	.
	Demands transfer /relocate	-.015	.451	.001	1	.974	.985	.407	2.385
	Demands not transfer /relocate	0ᵇ	.	.	0	.	.	.	.
	Violent offence	-.910	.457	3.965	1	.046*	.402	.164	.986
	Non-violent offence	0ᵇ	.	.	0	.	.	.	.
	High IEP deprivation	-1.522	.444	11.757	1	.001**	.218	.091	.521
	Low IEP deprivation	0ᵇ	.	.	0	.	.	.	.
Perpetra-tor	Intercept	1.524	.599	6.468	1	.011			
	Days to incident	.001	.000	6.331	1	.012*	1.001	1.000	1.002
	Days to release post incident	.088	.099	.786	1	.375	1.092	.899	1.325
	Number court appearances <18	.088	.034	6.728	1	.009**	1.092	1.022	1.168
	Co-offender	-1.241	.452	7.536	1	.006**	.289	.119	.701
	Solo offender	0ᵇ	.	.	0	.	.	.	.
	Previous prison hostage incident	-.814	.500	2.652	1	.103	.443	.167	1.180
	No previous hostage incident	0ᵇ	.	.	0	.	.	.	.
	Demands transfer /relocate	-.410	.425	.933	1	.334	.664	.289	1.525
	Demands not transfer /relocate	0ᵇ	.	.	0	.	.	.	.
	Violent offence	-.569	.433	1.726	1	.189	.566	.242	1.323
	Non-violent offence	0ᵇ	.	.	0	.	.	.	.
	High IEP deprivation	-1.065	.415	6.594	1	.010**	.345	.153	.777
	Low IEP deprivation	0ᵇ	.	.	0	.	.	.	.

The reference category is: Colluder.

b. This parameter is set to zero because it is redundant.

Significance level * $p<.05$ ** $p<.01$ *** $p<.001$

The results are summarised in Table 44, highlighting the variables where significant differences were found between each of the three groups. In this table the terms shorter and longer, fewer or more and yes and no are used as relative signifiers to allow easy comparison between groups.

Table 44 - Similarities and differences between groups

	Time to incident	Court appearances <18 years	Violent offence	Previous hostage incident	Other offenders involved	High IEP Deprivation
Colluders	Shorter	Fewer	Yes	Yes	Yes	Yes
Perpetrators	Longer	More	Yes	Yes	No	No
Hostages	Shorter	Fewer	No	No	No	No

In summary, colluders differed from both perpetrators and hostages as they were more likely to have co-offenders in their index offence and they were more likely to be on a high IEP deprivation level, whereas colluders were similar to perpetrators in being more likely to have a violent offence and being involved in a previous PHT. Conversely, colluders resembled hostages in having a shorter duration before the hostage incident and having fewer court appearances under 18 years of age.

Overall Results Summary

The significant results from all analyses can be found summarised in Table 45.

Table 45 - Summary of all significant associations and analyses

Variable	Description of finding	*P* value <
Age difference*	Age difference between colluders significantly lower (i.e. closer in age) than between hostages and perpetrators	.05
Age of hostages	Adult hostages are older than perpetrators or colluders	.001
Command suite opened	Command suite opened for longer incidents	.001
IEP deprivation level	Association between being on high IEP deprivation and collusion	.001
ISP*	Perpetrators more likely to be ISPs	.05
Nature of demands	Collusion associated with escape/avoid demands Coercion associated with protest demands	.001
Number court appearance < 18 years	Hostages have fewer appearances under 18 years than either colluders or perpetrators.	.001
Other offenders involved	Association between other offenders involved and collusion	.001
Prison security category	Higher security category associated with more incidents	.001
Repeat hostage incidents	Association between having more than one hostage incident and collusion	.05
Repeated incidents*	Association between more than one PHT and collusion	.05
Sentence length	Perpetrators serving longer determinate sentences	.001
Size of prison	Larger prisons associated with more incidents	.001
Specific offence type*	Colluders more likely to have burglary offence	.001
Threats and injury – collusion	Collusive incidents – threats and injuries associated	.01
Threats and injury- coercion	Coercive incidents – threats and injuries associated	.001
Time to incident	Hostages have incident closer to admission date, perpetrators longest time to admission	.001
Time to release	Hostages have shortest time left to serve, colluders next, then perpetrators	.001
Violent offence	Perpetrators more likely to have violent offence, hostages less likely to have violent offence, colluders neither	.001
Year on year	Incidents have increased year on year	

*These results must be treated with caution - repeated tests make *p*<.05 more likely by chance.

Chapter 5 Discussion

This chapter will start with detailed examination of the results relevant to each research aim, before presenting a summary of the main themes from the findings. This study has addressed three main aims relating to hostage taking in HMPPS prisons, providing the first detailed analysis for 30 years. It is also the first study to explore PHTs as a response to prison strain and finally it is the first study to examine collusion between participants. All three research aims have been met and have revealed interesting findings.

Research Aim 1 – To describe the situational and participant characteristics of HMPPS PHTs

Research aim one was to describe the situational and participant characteristics of prison hostage takings, to explore potential similarities between prison and community incidents. This section will examine the results of the descriptive and inferential tests related to this aim.

The current findings about age, sex, number of participants, location of the incident, presence of weapons, duration and use of negotiation are consistent with the characteristics of serious incidents previously reported in prison and community studies. Earlier research has identified that the majority of perpetrators are younger males, and the current findings showed a similar pattern, (Alexander, 2012: Booth et al., 2010; Feldman, 2001; Grubb, 2020; HOBAS, 2019; Michaud et al., 2008; Mohandie & Meloy, 2010). Patterns of weapon possession during a PHT incident were similar to prison and community studies (Cooke et al., 1990; Feldman, 2001; Head, 1990; Mailloux & Serin, 2003; Mohandie & Meloy, 2010). There were also parallels between the domestic-dwelling location of the majority of community incidents (Alexander, 2012; Booth et al., 2010) and the use of cells as the most common location in the current study. Previous prison studies (Cooke et al., 1990; Smith & Conlin, 1987) also noted cells as the most frequent location. Earlier studies have reported that most perpetrators act alone

(Feldman, 2001; Head, 1990; Mailloux & Serin, 2003; Michaud et al., 2008; Smith and Conlin, 1987) and again this was reflected in the current findings.

Age

Over three quarters of the perpetrators and colluders in the current study were under 30 years of age (76.4%) and 94.9% were under 40 years of age. This mirrors the trends published on other studies of both prison and community samples which report that perpetrators of hostage or crisis/barricade incidents tend to be younger. However, there is a much higher proportion of perpetrators under 30 years of age in the current study (76.4%) than in most other published work, for example, Head (1990) reports 25% of perpetrators were under 30 years of age, Michaud et al. (2008) report 61% of perpetrators were between 26 and 45 years, Alexander (2012) reports 72% between 21 and 44 years and Grubb (2020) reports 37% of subjects were males between 20 and 29. The higher proportion of younger males in the present study may be a bias introduced by the fact that this is a prison-based sample, with an over-representation of young males compared to the general population.

Sex

The very low number of incidents that involved women participants is in line with both prison and community-based studies. These report that the vast majority of hostage and crisis incidents involve male perpetrators, with proportions ranging from 80% (Head, 1990) to 98% (Feldman, 2001) in the community and 85% to 87% in prison studies (Mailloux & Serin, 2003; Smith & Conlin, 1987). It has long been established in criminology that males are more likely to be involved in offending, particularly violent offending (Bennett, Farrington, & Huesmann, 2005) and this pattern is replicated in the current study with only 29 incidents involving women prisoners. There were only two incidents involving women as colluders.

Number of Participants and Location of Incident

Most of the coercive incidents (68.4%) in the current study involved one perpetrator and one hostage, which replicates both prison and community studies (Feldman, 2001; Smith & Conlin, 1987; Mailloux & Serin, 2003). The preponderance of one on one incidents may be because, as Wilson (2000) identified, it is more difficult for a single perpetrator to control multiple hostages.

A second factor increasing the likelihood of one-on-one situations is that most commonly prisons now have two-person cells, which is likely to increase the number of two-person incidents, with the victim being the cellmate of the perpetrator. This suggests that many prison hostage incidents may be spontaneous; the cellmate is the most easily accessible person to take hostage, rather than incidents being planned or targeting a specific victim.

Prison cells represent the personal residence for most prisoners and the factors that make community incidents more likely in a domestic dwelling may also influence the use of cells as the location for prison hostage takings. For example, a perpetrator who has planned an incident may be able to hide a weapon or provisions in preparation and in a spontaneous incident the familiarity of a home-like environment may increase a sense of control and security (Michaud et al., 2008).

Prisoners are far more likely to be the victims of prison hostage takings than staff members, only 105 incidents involved staff hostages. This is in line with other published studies (Magaletta et al., 2005; Mailloux & Serin, 2003), which have reported very few incidents involving staff hostages. This is likely to be due to staff security procedures, possibly the threat of longer prison sentences for taking staff hostage and the easier access to other prisoners as hostages.

Presence of Weapon

The current findings show that a weapon was present in under half all incidents, a lower rate than that reported in US community incidents (83% in Booth et al., 2010; 75% firearm, Feldman 2001), but similar to British community findings (57% in Alexander, 2012; 54% armed in Grubb 2020). The lower figure in the current study may be due to less accessibility of weapons in prison or possibly poor reporting of the presence of a weapon. Hempenstall and Hammond (2018) emphasise the cultural context of hostage and crisis incidents and it may be that different rates of weapon-use reflect differences in attitudes or access to weapons. Mailloux and Serin's (2003) finding, that 89% of Canadian prison incidents involved a weapon, may be accounted for by the different country of study with greater prison access to weapons or because they were specifically studying captive-taking for sexual assault, which would increase the perpetrator's necessity to use a weapon. Additionally, the current study includes all HMPPS prison incidents identified as hostage taking, regardless of the motivation, and so is more inclusive than the Canadian study.

Notwithstanding the differences, it is notable that prisoners appear to use the most potentially dangerous type of weapon available to them, either contraband knives or improvised bladed articles. This is likely similar in function to community incidents e.g. in the US perpetrators often use firearms (e.g. Feldman, 2001; HOBAS, 2019; Mohandie & Meloy, 2010) potentially the most serious weapons available to them. Wilson (2000) hypothesises that the presence of a weapon increases the perpetrator's sense of control. It may also serve to increase the perception of seriousness on the part of the perpetrator. It is likely that the realism of a collusive incident is increased by the presence of a weapon, which in a coercive incident is used to heighten the sense of threat (Wilson, 2000).

Injury

Despite the presence of weapons, only 14.6% of incidents in the current study report injury to either the hostage or perpetrator. This is very similar to the 16% figure reported in Smith and Conlin (1987) as well as broadly mirroring the 18% community rate reported in HOBAS (2019) and the 17.1% reported in Vecchi et al. (2010) describing domestic hostage and barricade incidents.

The current figure is slightly higher than the 10% UK community figure reported in Grubb (2020), although Grubb's sample is of all police negotiator deployments and includes a broad range of incidents including self-injury attempts.

The relatively low rate of injury may be further evidence of the desire on the part of the perpetrator to appear threatening rather than having a genuine intent to harm (Lanceley, 1999).

Duration

The duration of incidents ranged from under one minute to 43 hours, in line with incidents reported in the community, (Grubb, 2020; HOBAS, 2019) and in prison (Magaletta et al., 2005; Smith & Conlin, 1987) and most lasted a relatively short period of time, with almost a third lasting under 30 minutes. This means that many incidents are resolved without the opportunity for formal negotiations, as was found in Magaletta et al. (2005). The motivations for these incidents are therefore unlikely to be recorded, including whether they are collusive or coercive. It may be that shorter incidents are more spontaneous and are reactions to immediate triggers (Ireland, 2017b), and may be more easily resolved, whereas longer incidents may be more planned and require more sophisticated negotiation. The current study did not allow exploration of this possibility.

Negotiation and Incident Management

The current study reported 41% of incidents used negotiation. This is lower than in Smith and Conlin (1987) who report a rate of 74% for negotiation (For a full summary

comparing Smith and Conlin's 1987 data to the current study, see Appendix F). The discrepancy with Smith and Conlin (1987) may be due to coding changes made in the intervening period, which have influenced the way negotiation is recorded. Alternatively, it may be that some incidents are now recorded, which previously were not included, for example, shorter incidents are less likely to involve negotiation (because of the time taken to set up the negotiation arrangements, (Magaletta et al., 2005; Mohandie & Meloy, 2010)). This would have the effect of increasing the proportion of shorter incidents (seen in the current data), where negotiation is not used.

Threats and Injury

The presence of threats was reported in only a fifth of all incidents and this low number of incidents in the present study may be due to under-reporting. The presence of threats appears to be a fundamental aspect of a hostage situation (McMains & Mullins, 2014) and hence it seems likely that the low number of incidents where threats are recorded is inaccurate. Threats function as a form of power (Borowsky, 2003) and are a "necessary" part of a hostage situation, therefore the low reported rate may be because staff do not feel they need to record their presence.

Use of Barricade and Victim Tied-Up

A barricade was reported to be present in 24.9% of all incidents, both collusive and coercive. However, there was no association between the use of a barricade and collusion. The use of a barricade may help to increase the hostage taker's sense of security, making intervention by prison staff less likely. This has parallels with the sense of safety assumed to accompany taking a hostage in a domestic dwelling (Michaud et al., 2008). No association was found between incident type and the victim being tied-up, collusive incidents were just as likely to involve tying the victim. It is likely that this aspect increases the verisimilitude of an incident and the presence or absence of ligatures cannot be used to inform the type of incident.

Discrepancies

One discrepancy between PHT and community-based incidents was the far higher number of hostage incidents in prison than in the community. Although the present study focussed on PHT as a subset of serious prison incidents, (thus representing only a proportion of the incidents prison negotiators attend, (Booth, 2018)), the number of prison hostage incidents was far higher, (e.g. 137 in 2017), than the number of hostage incidents attended by police negotiators. For example, Grubb (2020) reports that only 11 (6.6%) of incidents over a two-year period involved a hostage or victim. This is likely to be attributable in part to the prison population and is consistent with Call's (2003) explanation for prison hostage takings, that prisoners take hostages because of their imported characteristics. However, this is also consistent with an explanation that the strains of being in prison increase the likelihood that prisoners will act violently.

The first research aim was to describe the situational and participant characteristics of HMPPS PHTs. Overall, the characteristics of PHTs closely match those of community incidents and the broader range of incidents to which police negotiators are deployed. This detailed examination of English and Welsh prison hostage takings revealed that PHTs have many features in common with the broad range of community incidents, including hostage incidents, barricade-with-captive incidents and domestic crises; the overall trend for the age and sex of perpetrators, number of participants, location, duration, use of a weapon, relationship between threat and injury and the use of negotiators. There are a few differences, the perpetrators of prison incidents tend to be much younger and there are threats reported in fewer incidents, differences potentially arising due to the specific prison location. In addition, the high rates of mental illness amongst community subjects could not be tested in the current sample, as the data were not reliably recorded on the database. Despite the differences, the marked similarities suggest that prison hostage takings, apart from their prison setting, may not be a unique

or distinct class of incident as has previously been presented (Call, 2003; McMains & Mullins, 2014).

Research Aim 2 – Prison Strain

The second main research aim was to examine PHTs from the perspective that they are a form of prison indiscipline influenced by prison strain. This aim was addressed by examining the association between PHTs and collusion or coercion in PHTs and variables previously associated with prison strain, (that is potentially the cause of "overwhelming crisis" (Vecchi et al., 2005)). The literature identifies that a range of prison level and prisoner level variables link prison indiscipline to the strain of imprisonment (Blevins et al., 2010; Listwan, Sullivan, Agnew, Cullen, & Colvin, 2013; Monteiro, 2015; Wooldredge, 2020) and this section explores the associations between variables linked to prison strain and hostage incidents (as a form of prison indiscipline). The results from prison-level variables showed that greater numbers of incidents were associated with an increased population, higher prison security classification and larger prisons. Prisoner level variables showed prisoners with characteristics associated with a greater likelihood of responding violently to prison strain and those experiencing greater strain by being on a high IEP deprivation level were associated with committing PHTs.

Prison Level Variables

Number of Incidents

The annual rate of hostage incidents has increased substantially, disproportionate to the overall population increase, and this matches the reported rise in other HMPPS prison indiscipline (McGuire, 2018; Sanderson & Ludlow, 2016). Concurrent with the rise in the prison population there has been a reduction in staff numbers (due to reductions in budget), lowering the ratio of supervising staff to prisoners. This has the effect of decreasing prisoners' sense of safety (Sanderson & Ludlow, 2016) and increasing strain.

Furthermore, increased numbers lead to a sense of crowding, in turn leading to increased prison strain (Day, Bauer, & Butler, 2015; Wooldredge, Griffin, & Pratt, 2001), and an associated increase in prison violence. The significant rise in the number of PHTs is consistent with an argument that they are a response to prison strain.

Security Classification and Prison Size

As predicted in hypothesis 5, higher security category was associated with a greater number of recorded incidents, with more incidents occurring in higher security prisons. This mirrors previous research, that prisons with higher security levels are associated with higher levels of infraction (Jiang & Fisher-Giorlando, 2002; Monteiro, 2015; Steiner et al., 2014). The researchers explain that this is because greater strains are created by increased organisational coercion in turn precipitating a violent response from prisoners.

Prison Size

Prison size is positively associated with increased numbers of infractions (Morris & Worrall, 2010; Wooldredge & Steiner, 2009) irrespective of crowding. The size of the prison is considered to be aversive due to increased noise levels, crowding and exposure to higher numbers of other prisoners (Blevins et al., 2010). In line with hypothesis 6 larger prisons were associated with increased incidents in the current study, although the largest prisons did not show this pattern. Only four prisons fell into the very large size group, (i.e. over 1500 prisoners) which may have skewed the results. In addition, these prisons were opened relatively recently which has restricted the time period when incidents might have occurred.

The current findings indicate that HMPPS PHTs were more likely to occur with increases in population size, in larger prisons and those of a higher security

classification. This is consistent with an argument that PHT may be a response to prison strain.

Prisoner Level Variables

This section describes the findings in relation to prisoner level variables including those shown in previous research to be associated with increased likelihood of using criminal means to cope with strain. The variables in the current study associated with an increased propensity for criminal coping include younger age, having a violent index offence, serving an indeterminate sentence, having previous convictions and longer sentence length. Variables directly associated with the presence of strain included time spent in custody before and after the hostage incident and IEP deprivation level.

Propensity for Criminal Coping

The current results showed that perpetrators and colluders had features consistent with those who are more likely to commit prison misconduct. They were younger, (Schenk & Fremouw, 2012), were more likely to have a violent offence (Steiner et al., 2014), and had more convictions under the age of 18, (Gendreau, Goggins, & Law, 1997). Based on research by Steiner et al. (2014) hypothesis 7 predicted that perpetrators and colluders were more likely to be serving indeterminate sentences and the findings in the current study lend support to this hypothesis. A further hypothesis (5), predicted that perpetrators and colluders were more likely to be serving longer sentences and the results provide support for this prediction. These factors have previously been related to higher rates of prison violence and an increased propensity for using criminal coping strategies in response to strains in prison (Agnew, 2013; Blevins et al., 2010). As predicted in hypothesis 9, perpetrators and colluders were more likely than hostages to be involved in a hostage incident later in sentence, and the findings also lend support to hypothesis 10 which predicted that perpetrators and colluders would have longer to

serve after the incident. This no doubt reflects the shorter sentences that hostages have, but is also consistent with previous findings that longer sentences correlate with violent prison misconduct (Morris et al., 2012; Steiner et al., 2014) as strain is thought to accumulate over time in the absence of appropriate, adaptive coping strategies (Agnew, 2013).

IEP Level

IEP level in the current study is a direct measure of prison deprivation, (the higher the IEP deprivation level the fewer privileges and greater number of restrictions). Hypothesis 11 predicted that perpetrators and colluders were significantly more likely to experience high levels of IEP deprivation and the finding that IEP deprivation was associated with being a perpetrator and strongly associated with being a colluder lends support to this hypothesis.

One potential explanation for this association is provided by GST (Agnew, 2001). High IEP deprivation levels fulfil at least two of Agnew's (2001) three conditions that make criminal coping more likely; the use of IEP is seen as unjust and has a high impact for prisoners (Liebling, 2008), an essential element identified by Agnew (2001). Secondly, high IEP deprivation levels, by design, deprive prisoners of positively valued stimuli (such as association, certain physical goods *etc*.), a source of strain previously shown to lead to prison misconduct (Blevins et al., 2010). Agnew's third factor, (that individuals must possess characteristics that in combination create a strong propensity for criminal coping) was described earlier in this chapter. Therefore, being on a high IEP deprivation level is likely to increase criminal coping, in this case choosing to perpetrate a hostage incident or collude to simulate one.

These are the first findings specifically about PHTs and showing an association with prison strain. The variables discussed are consistent with an explanation that prison

hostage incidents happen in response to prison strain, i.e. a prisoner with a general propensity towards criminal coping experiences additional prison strains and responds by carrying out a hostage taking. This is a tentative finding and caution applies to interpretation of the present results, as they are of associations and causality cannot be inferred. However, it is interesting to note the parallel between explanations of community-based incidents, which relate them to emotional crises (Alexander, 2012; Grubb, 2020; Van Hasselt et al., 2005) and the emotional response that Agnew proposes happens in response to accumulated prison strain, particularly the strongly motivating emotions of anger and frustration (Agnew, 2013).

Research Aim 3 - To examine collusion in PHTs, including from the perspective that it is a form of co-offending

The third aim was to examine collusion in PHTs including from the perspective that it is a form of co-offending. This was analysed in two main sections, firstly by exploration of the variables associated with the management of the incident and then by consideration of whether the participant and situational characteristics differed between coercive and collusive incidents.

Management of Incidents

This section explores the incident duration, the deployment of negotiators, resolution type and use of command suite and discusses the lack of association found between these measures and the type of incident. No support was found for hypothesis 1, that collusive and coercive incidents would differ in duration. The results showed that collusive incidents lasted approximately the same duration as coercive ones. Hypothesis 3 predicted that collusive and coercive incidents would differ in the use of negotiators, but the results show that collusive incidents were no more likely to involve negotiation than coercive ones. The finding that a command suite was just as likely to be opened for

a collusive or a coercive incident is contradictory to the prediction made in hypothesis 4. Finally, hypothesis 2 predicted a difference between incident types in the type of resolution likely to end the incident but this was not supported by the finding that collusive incidents were just as likely to end in intervention or negotiated resolution as coercive ones.

Short incident duration was a major factor in whether a command suite was opened. Shorter incidents are unlikely to present the opportunity to open the command suite prior to their resolution, but where one was opened there was no difference between collusive and coercive incidents, suggesting that prison staff do not make a decision to manage the two types of incident differently by opening a command suite or not.

The resolution of the incident was not associated with the incident type, despite the potentially higher "action imperative", which a perception of collusion may provoke, (i.e. the pressure to intervene and end an incident in the absence of operational need) (Dalfonso 2002, cited in Vecchi et al., 2005; McMains & Mullins, 2014). The current results indicated no differences in how collusive and coercive incidents were managed or resolved, suggesting that the decision to intervene was independent of the assessment that an incident was collusive or coercive. This is the opposite of the expressed views of staff.

Collusion as an aspect of hostage taking in HMPPS prisons was not associated with any systematic difference in the overall management of the situation. The current data do not allow further exploration of what point an incident is identified as collusive or coercive, but the findings do show that regardless of when the attribution was made, there was no systematic difference in how the incident is managed by HMPPS' staff. This is consistent with HMPPS' operating practice and provides reassurance to managers that correct procedures are being adopted.

General Features of Collusive Incidents

The current study found that 11% of the incidents were reported to involve collusion. This mirrors the rate of general co-offending which is estimated to be approximately 10% of all crimes committed (van Mastrigt & Farrington, 2009; Carrington et al., 2011). This finding raises the interesting possibility that collusion is a form of co-offending although the results of the current study must be treated with caution. There is no agreed definition of collusion to guide staff meaning appraisals of which incidents involve collusion are likely to be biased.

There is wide variation in the proportion of incidents reported to be collusive (ranging from 0% in 2008 to over 20% in 2009 and 2014). It is not clear why this large variation exists. However, none of the analyses suggested an association between prison-level factors and collusion; collusive incidents are equally likely, regardless of population size, prison size or security classification, suggesting that collusion is independent of these factors.

Coercive incidents are more likely to happen in prisons of higher security and with larger populations. The link between prison indiscipline and prison security category is established (Morris & Worrall, 2010), and is at least partly based on the obvious necessity to locate more serious offenders in higher security to safely detain them and prevent escape, thus those who are more likely to commit PHTs are located in the place where they happen. Therefore, it seems reasonable to expect more hostage incidents in higher security prisons, assuming PHTs are committed by more serious offenders.

Significantly however, collusive incidents occurred at the same rate despite size and security categorisation and this raises the possibility that collusive incidents are different to coercive incidents; either being committed by prisoners who are less serious offenders or triggered by different issues (i.e. different imported factors, different deprivation factors or different interactions of the two).

There was no association between the presence of injury and collusion; collusive incidents were just as likely to involve injury to the hostage and so the absence or presence of injury alone did not distinguish a genuine from a collusive hostage incident. This may be due to misclassification of collusive incidents as coercive. It may also reflect the dynamic shift within any given incident from collusion to coercion (Völlm et al., 2013) and suggests a possible inability to control rising emotion on the part of the collusive "perpetrator", due to poor arousal control (Vecchi et al., 2015).

The presence of threats was not associated with collusion and "empty threats" were no more likely in collusive than coercive incidents. It is possible that collusive incidents are distinguished by a higher number of threats made per incident, to increase apparent authenticity, but the present study did not provide data to explore this suggestion.

Prisoner Level Analysis

The results of the analyses exploring differences between the participants in hostage incidents showed differences between perpetrators, colluders and hostages. There were significant differences between hostages and perpetrators on most measures and colluders shared features with both perpetrators and hostages. This means that hostages and perpetrators appear to be two distinct groups and colluders share some features with both.

Perpetrators mainly had characteristics associated with prison violence and misconduct (violent offence, younger age, longer sentence length, more offences under 18 years of age, (see section, Propensity for Criminal Coping page 130, for details)), whereas hostages were less likely to have the characteristics associated with prison misconduct.

Number of Participants

In the present study most of the incidents involved two people, either as one hostage and one perpetrator or two colluders. There was no association between collusion and

the number of participants; collusive and coercive incidents are equally likely to involve only two people and incidents with multiple participants were just as likely to involve collusion. Research shows the majority of co-offending is committed by two offenders (Carrington et al., 2011) but the same holds true for the majority of prison and community incidents (Michaud et al., 2008; Smith & Conlin, 1987; Mailloux & Serin, 2003) and therefore no conclusion can be drawn that collusion is more likely to happen in incidents with only two participants.

Age

The sample was analysed separately for adult and young offenders to avoid "masking" any age effect, as these age groups are held in separate institutions. Adult hostages are significantly older than perpetrators or colluders, but this pattern is not duplicated for young offenders. This may be because in young offender prisons the prisoners are between 16 years and 21 years and 10 months of age, which compresses the potential difference in age between hostages and perpetrators. There are higher rates of general co-offending amongst offenders under 21 years of age (van Mastrigt & Farrington, 2009) which may also mean that there are more collusive incidents amongst young offenders, but this is not accurately detected and reported by staff. This would have the effect of misclassifying incidents, making the dependent measure (collusion) unreliable and thus would result in mis-categorisation into role.

The finding that adult hostages are older than perpetrators or colluders does not reflect other findings about the relationship between age and prison victimisation (Steiner, Ellison, Butler, & Cain, 2017). Prison hostage taking differs from other forms of prison violence, requiring the ability to sustain control over another person for a potentially protracted period, which may account for the difference. Steiner et al., (2017) also highlighted that much violent prison victimisation is specifically directed at an intended

victim (for revenge, status or other instrumental purposes, more resembling the sexual assault victims described in Mailloux and Serin's (2003) captive-taking study), however, the current study did not highlight this type of motivation. The explanation for older hostages may be that they are perceived as more vulnerable, for example with health conditions that make them more easily controlled and victimized.

The proportion of collusive and coercive incidents for adults and young offenders in the current study was expected to demonstrate more collusive incidents amongst Young Offenders, based on the research that co-offending is more common amongst young people (van Mastrigt & Farrington, 2009) than amongst adults. However, this was not the case, and the rates for both groups were similar at just over 13%. An alternative explanation may be that, as Weerman argues (2003), situational factors have a stronger influence over decisions to co-offend (or in this case, collude) than individual or social selection factors, (such as the effect of age alone). In Weerman's (2003) social exchange model the situational benefits of co-offending for each partner are theorised to be weighed against the costs. If co-offending is to occur the benefits must outweigh the costs. The current study does not explore specifically what these costs may be, but later discussion of the demands made during the incident may have a bearing on this point.

The current study found that adult colluders were more likely to be similar in age than coercive perpetrators and hostages. Research has found that co-offenders are likely to resemble each other in age (Reiss & Farrington, 1991). This finding suggests that prisoners may actively select with whom they collude, consistent with a rational choice, co-offending explanation for collusion. Prisoners may be more comfortable with a colluder closer in age; alternatively, the closeness in age may reflect the tendency for co-offending to be associated with younger offenders (Reiss & Farrington, 1991). A third possibility is that the over-riding driver is availability and proximity (Weerman, 2003) and prisoners collude with the person most accessible to them.

Offence and Sentence Length

The results from the current study showed that violence was the single most common offence type for perpetrators. Hostages had more non-violent offences and colluders had an equal distribution of violent and non-violent offences. Perpetrators were also more likely to have an index offence of robbery, often classified as a violent offence, and unlawful detention or kidnapping. (There were too few cases for this to be used in further analysis, but it is interesting to note and is discussed further in the implications for research section). Overall, perpetrators reflected a profile indicative of greater criminality, consistent with the correlates of prison misconduct (Schenk & Fremouw, 2012). Colluders on the other hand had fewer correlates of prison misconduct, suggesting that they are a different group of offenders.

The finding that hostages were involved in incidents earlier into their sentence than either colluders or perpetrators again suggests that they are a distinct group, who may be more vulnerable to victimisation. Prisoners convicted of a sexual offence are over-represented in the hostage group and it is possible that these prisoners are targeted due to the nature of their offence (Steiner et al., 2017).

Court Appearances Under 18 Years of Age

Colluders and perpetrators had approximately the same number of court appearances under 18 and hostages had fewer appearances, although there was a wide range for hostages. The link between early delinquency and future violence is well established (Moffitt, 2006) and both perpetrators and colluders reflect this relationship, consistent with the research on importation factors having a high influence on prison misconduct (Schenk & Fremouw, 2012).

Motivation and Nature of Demands

There was a significant difference between the nature of demands made in collusive incidents and those made in coercive ones. Coercive incidents appeared to be characterised by specific instrumental goals (e.g. speak with an individual, have a shower etc.) with the intent to obtain something. These types of demands are consistent with a conflict motivation, (as described by Vecchi et al., (2005)), whereas collusive incidents were more likely to have motivations to be removed from a difficult situation (such as being in debt or experiencing bullying) by demanding a transfer or relocation. These demands suggest a different motivation. Relatively few incidents recorded the nature of demands and so these findings must be treated with caution.

Index Offence Committed with Other Offenders

Almost half of the prisoners had committed their index offence with another prisoner, however this was not uniformly distributed across the role played in the incident. It is, however, significantly higher than the 20% rate identified for adult offenders by Carrington et al., (2011). This may be due to the sample being specifically prisoners involved in hostage incidents, who may not be representative of prisoners as a whole. Hostages were significantly more likely to have committed their offence alone, perpetrators were equally likely to have offended alone or with others, however, colluders were significantly more likely to have committed their index offence with at least one other offender.

The finding that prisoners who collude in hostage incidents are more likely to have committed their index offence with other offenders is of significance. Collusion in a hostage incident and co-offending may be argued to be similar behaviours. The finding is consistent with Weerman's (2003) research on co-offending identifying that co-offenders learn that co-offending can be a successful approach and consequently are

more willing to co-offend in the future. A second important element of Weerman's social exchange theory is that co-offending may be essential for the commission of certain offences (Weerman, 2003), and this situation is relevant for collusion in hostage taking. Without a willing partner a prisoner risks being charged with the significantly more serious offence of hostage taking, whereas with a partner they can simulate hostage taking and when charged they are likely to face lesser penalties, reducing the risks of the activity whilst creating benefit for both parties.

Additional weight to the argument that collusion is a form of co-offending is the consistency between the current finding that colluders (and perpetrators) are likely to have committed a PHT before and McGloin and Nguyen's (2012) assertion that co-offenders are more likely to co-offend when committing offence types they have committed before, (and in which they feel they have competence).

Combined Effects of Strain and Co-Offending Factors

The following section discusses the results of the multinomial regression analysis that explored which variables may predict classification of prisoners involved in hostage incidents into one of three groups; perpetrators, hostages or colluders. The differences between hostages and perpetrators, each compared to colluders were explored.

The variables selected for inclusion in the regression analysis were chosen because; they had significant differences identified during descriptive analysis (*violent offence; number of court appearances under 18 years of age*), were suggested by literature about GST (*time from start of sentence to incident; time from incident to release; IEP deprivation level; nature of demands*), or were highlighted in previous research about co-offenders (*other offenders involved; previous hostage taking incident*). The assumptions about normality were violated and so the findings of the regression should be treated as exploratory rather than being used to build a predictive model. The effect

size (pseudo R square) was modest, (accounting for between 22.7% and 26.1% of the variance) suggesting that the results may be of limited practical value (Coe, 2002).

However, given that this is the first study of the phenomenon of collusion it is of value to consider the results from a theoretical perspective to inform future research.

The regression analysis found that colluders had some similarities with hostages and some with perpetrators (See Table 43, page 118 for summary).

Factors that made a prisoner more likely to be a hostage (than a colluder) included being earlier in sentence, having a non-violent offence, having fewer court appearances under 18 years of age, not previously being involved in a prison hostage incident, committing the index offence alone and having fewer deprivations as a result of IEP. The finding that hostages are a distinct group is of value, contradicting an anecdotal view amongst prison staff that collusion is a feature of most prison hostage incidents. (A recommendation is made later for further research to better understand staff views about prison hostage taking.) Several of these factors have been shown to be related to victimisation in a prison setting (Steiner et al., 2017).

Factors that made it more likely that the prisoner was a perpetrator were being later in sentence, having a violent offence, having more court appearances under 18 years, having previously taken a hostage and having committed the index offence alone. Perpetrators have more court appearances under 18, which is an indicator of greater criminality, and is one of the strongest importation factors that predict prison indiscipline (Schenk & Fremouw, 2012). It has also been reported that criminal attitudes are associated with angry coping strategies (Agnew, 2001), which in turn is associated with earlier criminality and more violent offending.

These factors are consistent with Agnew's description that some individuals cope with strain by becoming angry and hostile towards others, as a way of exacting revenge on the source of the strain (Agnew, 2001). This latter is more likely amongst those with

antisocial personality traits and those who have greater criminal histories and backgrounds (Blevins et al., 2010). This style of coping is also consistent with the nature of demands made in coercive incidents that is, demands involving protests against conditions or demanding access to unavailable items (although demands were not significant in the regression analysis, possibly due to low numbers recorded, as discussed). These demands may be consistent with an angry response or one which seeks to alleviate strain (by seeking goods via criminal means when legitimate means are unsuccessful or unavailable). Furthermore, perpetrators also have a longer period in custody before the hostage incident than either hostages or colluders. This may suggest strain pattern where the strain accumulates for longer and is dealt with in an angry vengeful way; the longer time before the incident reflecting a greater period of exposure to strain.

In contrast, having a violent offence, having previously taken a hostage, having fewer offences under 18, being earlier in sentence, being on a high IEP deprivation level and committing the index offence with a co-offender all made it more likely the prisoner was a colluder. Colluders may find being on a high IEP deprivation level particularly strainful. Basic or entry level IEP substantially limit prisoners' access to many prison amenities, depriving them of positively valued stimuli (Blevins et al., 2010). When an individual feels this restriction has been imposed unfairly, this compounds the strain. Prisoners on high deprivation IEP level frequently perceive their treatment to be unjust (Liebling, 2008) and this sense of organisational coercion (Day, Brauer, & Butler, 2015; Rai, Valdesolo, & Graham, 2017) can make prisoners respond to reduce the strain.

Colluders may be more likely to adopt a response that is more avoidant. There is an association between demands to be transferred to another prison or relocated within the same prison and collusion, which suggests an "escape" or avoidant strategy, one of the criminal coping responses identified under GST. Colluders are more likely to have

committed their index offence with a co-offender and it is possible that this experience makes them more willing to collude in a hostage situation. This process appears to happen earlier in sentence than for perpetrators, suggesting that colluders respond to the strain of imprisonment differently.

Overall Conclusion

The overall findings draw together three main theories; the first theory that informed the findings was that hostage and other negotiated incidents frequently occur in response to emotional triggers and are not purely driven by tangible, instrumental goals (Vecchi et al., 2005). The second main theory was that prison hostage takings (a form of prison indiscipline) are a response to prison strain (Agnew, 2013; Blevins et al., 2010). The third theory was that offenders choose to co-offend when there are benefits for both (Weerman, 2003) and that collusion is a form of co-offending.

The findings showed that prison hostage incidents strongly resemble community hostage and other negotiated incidents in reported features. It is interesting to note that perpetrator age, sex, incident durations are similar for PHTs and community hostage and crisis incidents (e.g. Grubb, 2020). This is insufficient to assume that the motivations for such incidents may be similar, although it provides a useful starting point. Crisis motivations are the largest motivating factor for community incidents, predominantly self-harm incidents but also domestic barricades, where the perpetrator responds to overwhelming emotional triggers (Alexander, 2012; Grubb, 2020). This has not previously been proposed as a motivation for prison hostage incidents. However, framing prison hostage takings within General Strain Theory (Agnew, 2001) suggests an explanation for the emotional mediation for PHTs, which would fill this gap.

The findings showed that prison hostage incidents were associated with prison level factors reported elsewhere to increase prison strain (Blevins, 2010; Listwan et al., 2013; Wooldredge, 2020). The results also showed that the perpetrators of prison hostage

137

incidents had more features associated with responding to strain in a criminal way than either hostages or colluders. The demands made during PHTs fell into two main groups; escape/avoidance to be removed from the environment and demands for access to goods or facilities. Escape avoidance demands were more strongly associated with collusion whereas demands for access to goods were more likely to be associated with coercive incidents. Agnew (2013) highlights that violent responses to strain are more associated with perceptions of injustice, where the consequences of the injustice are severe, are sustained, are recent or are expected to continue into the future, and importantly, impact on an individual attaining their goals. Agnew (2013) also highlights that anger is one of the strongest motivating factors and is strongly associated with a violent response to these strains, whereas fear is associated with a response to avoid or run away from the source of the strain. This also provides a potential explanation for the finding that IEP levels were associated with PHTs. It does not however provide an explanation for why the association between IEP and collusion exists.

GST (Agnew, 2001) provides an explanation for why being on a high IEP deprivation level may provoke a PHT response. It also provides an explanation for why not every prisoner on high IEP deprivation would respond by committing a hostage taking.

GST (Agnew, 2001) does not explain why some prisoners may decide to collude, but Weerman's (2003) social exchange theory provides a partial explanation for this. Collusion is not an activity that can be undertaken alone, it requires a co-offender to succeed, fulfilling one of Weerman's (2003) criteria. Weerman (2003) also defines that all parties should derive some benefit from co-offending. In the case of collusion, this has the benefit that both parties are usually removed to another location, consistent with the escape/avoidant demands. Features of collusive incidents suggest that some of the characteristics of co-offending were present in collusive incidents; they occurred at a similar rate to co-offending for other offences (Carrington, 2002), colluders were more

likely to have committed their index offence with others, paralleling co-offending data (Conway & McCord, 2002) and colluders were likely to be closer in age, again reflecting co-offending data (Reiss & Farrington, 1991). However, in contrast, collusive incidents were not more common amongst offenders under 21years of age and nor was collusion more likely in two person incidents, both of which are features found in co-offending studies (Reiss & Farrington, 1991; Reiss, 1988).

The current findings do not appear to be consistent with previous definitions of hostage incidents which focus on a combination of the presence of instrumental motivations, and substantive demands (Lanceley, 1999; Yakoto, 2013), accompanied by realistic threats (Borowsky, 2011). The incidents under study appear to have expressive motivations yet also possess the characteristics of substantive demands and credible threats.

Specifically, in the current study the incidents appear to have expressive motivations (i.e. associated with a strain response), which would more accurately categorise them as barricade-with-victim (Vecchi et al., 2005), captive-takings (Mailloux & Serin, 2003), non-hostage (Noesner, 1999) or crisis-barricade situations (Call, 2003). However, they also have what appear to be substantive, rational demands (for transfer or otherwise unobtainable items) with a logical aim that would not be considered irrational or non-substantive (e.g. purely to do with contingencies within the incident or not having a material impact on the circumstances for the perpetrator (McMains & Mullins, 2015)). Furthermore, at least a fifth (20.4%) of incidents were accompanied by credible threats to harm the hostage (and 15% resulted in injury) if the demands were not met.

The apparent expressive motivation is inconsistent with definitions that stress an instrumental motivation combined with substantive demands and threats (Call, 2003; Lanceley, 1999; Vecchi et al., 2005). This may in part account for why PHTs share features with other incidents that happen in the community (Alexander, 2012; Grubb,

2020). However, an alternative interpretation may be that previous explanations have not taken account of what happens within prisons.

It is possible that by combining GST (Agnew, 2001) and Weerman's (2003) social exchange theory a more comprehensive explanation for PHTs may be considered. In essence, GST (Agnew, 2001) identifies that individuals seek to reduce strain by obtaining desired goods or removing unpleasant stimuli. In a similar vein, Weerman's (2003) theory proposes that people co-offend to obtain positive benefits, for example the gain of a positively valued item or the removal of a negative stimuli, producing a positive result for the co-offending. Both theories complement each to other provide a potential explanation for prison hostage taking and collusion that proposes that perpetrators or colluders engage in the behaviour in an attempt to reduce strain and to bring about a perceived beneficial consequence.

Chapter 6

This chapter presents an overall summary of the findings, then addresses the implications for practice, outlines the limitations of the current study and describes areas for further research.

Overall Conclusions

This thesis has analysed hostage-taking data about incidents in prisons in England and Wales. There were three main aims, i) to add to the body of data describing serious incident characteristics, ii) to consider prison hostage taking in the context of General Strain Theory and iii) to explore the apparently prison-specific phenomenon of co-operation, or collusion. These three aims have been met.

Summary

Aim 1 – To add to the body of data describing serious incident characteristics.

The findings in the current study have substantially added to the body of knowledge about PHT, exposing parallels between PHT and community negotiated incidents that have not previously been noted. The findings indicate that rather than being a unique category, as hitherto suggested, (Call, 2003; McMains & Mullins, 2014), in fact PHTs strongly resemble other incidents to which crisis negotiators are deployed (Grubb, 2020), both hostage incidents and those that are described as crisis incidents e.g. suicide attempts and domestic barricade incidents. The current data resemble those reported in Smith and Conlin (1987), which also indicates stability in features of prison hostage incidents, providing a longitudinal view of PHTs not previously available.

Aim 2 – To consider PHTs in the context of General Strain Theory.

There is a substantial gap in the literature explaining why prison hostage incidents occur, with no consideration that prison hostage incidents may be mediated by an expressive component. The current study has demonstrated an association between sources of prison strain and taking a hostage. Prison strain and crises are not exactly equivalent,

but this study provides a promising route for further examination. The potential mechanism is that strain accumulates and reaches the point where the prisoner feels impelled to alleviate the pressure, analogous to dealing with a crisis that the individual is unable to cope with.

Aim 3 – To explore the phenomenon of collusion.

The study has made a significant contribution to the understanding of collusion. The major findings are i) that there are no substantial differences between collusive incidents and coercive incidents in how they are managed, ii) that the nature of demands tends to vary with collusion and coercion and iii) there are differences in the characteristics of prisoners who commit collusive and coercive incidents. The findings are consistent with PHT being a response to prison strain and offer promising evidence to suggest that collusion may be a form of co-offending.

Implications for Professional Practice

There are several practical outcomes that can be actioned.

The similarity of features of prison hostage incidents and community negotiated incidents allows for the expansion of the range of tactics used by prison negotiators to include some previously under-used or untried strategies drawn from community-based negotiations, emphasising similarities in approach, rather than underlining differences (Lewis & Ireland, 2019). These tactics may include the greater use of specific influencing strategies and an increased focus on building empathy to respond to the individual's crisis. It also increases the validity of, and potential for, joint training and cooperation between agencies and the finding should be used to develop an inter-agency training plan.

The study can also help to focus negotiators' attention more specifically towards responding to demands made by participants, whilst not acceding to them. By understanding that protest or escape/avoidant demands are potentially different

142

responses to stresses encountered in the environment, negotiators can adopt an increased empathic response. The training of negotiators and NAs should be adapted to include this information. GST also places all types of demand into the context of them being made in response to strain. Training to understand this response to prison strain and understand the sources of prison strain would be of benefit not only to negotiators but to all staff, in helping them better respond to the needs of all prisoners.

It is essential that prison managers, particularly those in senior operational roles are aware that incidents to date have been managed in accordance with HMPPS' policy and that perception of collusion does not appear to influence command decisions. This information may have relevance, for example, informing official investigations into the most serious incidents.

A particularly important implication from this study is the need for greater training and discussion about collusion in the training of all staff involved in the management of hostage incidents. Research exploring how staff define and understand collusion is an essential step in developing clear training.

The findings can be used to improve negotiation advisors' (NA) approach to the profiling of incident participants. The current practice can be extended to include the variables that have been identified as being more likely to be associated with different roles in the incident.

The findings may also have relevance for how prisoners are managed whilst on basic or entry level IEP level. Given the association between higher deprivation, heightened sense of injustice and increased risk of hostage taking, strategies should be considered to improve the perception of procedurally-just decision-making in relation to IEP levels. This should also include communication to staff about the association between IEP level and potential hostage taking. Prisons should seek to introduce strategies to reduce the opportunity for hostage taking. This should include the increased monitoring of higher

risk prisoners (i.e. those who have been previously involved in a hostage incident) and improvements in staff-prisoner relationships to reduce the perception of unfair treatment.

Limitations of the Current Study

This study has analysed all HMPPS prison hostage incidents since 1988 using data collected by HMPPS for management purposes. Using a complete dataset rather than a sample of incidents provides robust findings about the occurrence of such incidents. However, the quality of the raw data varies widely between and within variables, for example some incident descriptions are extremely short. It is likely that this has introduced biases, particularly in the creation of variables describing incident features, where missing data has been treated as an absence of a feature, rather than as a missing value. Clearer guidelines about what information should be recorded on the database would improve the data quality for future research. Despite this, it is encouraging that the results have robustly paralleled previous research (Grubb, 2020; Head, 1990 cited in Grubb, 2010; Michaud et al., 2008; Magaletta et al., 2005; Smith & Conlin, 1987). However, it is difficult to draw direct parallels between PHTs and community incidents. Studies of UK police negotiator deployment combine information about hostage perpetrators with information about other subjects of police negotiation. The current findings suggest strong similarities but must be treated with caution pending further research.

A further consequence of the use of the existing databases is that this has limited the exploration of variables to those that were available within the database architectures. The results suggested that both GST (Agnew, 2001) and theories of co-offending (Weerman, 2003) may have utility in explaining PHT and collusion, however, some variables suggested within the relevant literature were not available for study, e.g. mental illness (Grubb, 2020). Alternative data sources could be sought and coded using

a scheme informed by the current study to provide a wider base of variables for study. Additionally, the study only draws on data about prisoners involved in hostage incidents and therefore there is no information about the representativeness of these individuals compared to the wider prison population.

A second major limitation is the absence of any clear operational description of what constitutes collusion in an incident. Therefore, staff have used discretion when reporting whether an incident is collusive or not. This is likely to have had a major influence on the study but without further research to understand how staff currently make the attribution that an incident is collusive it is difficult to determine the full extent of this. It is possible that collusive behaviour exists on a continuum, or that there are multiple types of collusive behaviour, but the current study only used a dichotomous presence or absence of collusion as an outcome variable.

A further limitation of the study is a lack of qualitative data about the incidents from the participants' perspective. The potential theoretical explanation for collusion i.e. as a form of co-offending, consistent with Weerman's (2003) social exchange theory, cannot be further examined without additional data which the present study cannot provide.

The final limitation is that results of the logistic regression were modest and as such cannot be used as had been hoped, to inform a model to help decision makers and managers. The limitations in the data discussed above may have contributed to the weak relationship and future research must be cognisant of the tentative nature of the current findings.

Implications for Future Research

This study has highlighted many interesting areas for further investigation. The application of General Strain Theory (Agnew, 2003) to prison indiscipline is an area that is still developing (Wooldredge, 2020) and the current study adds to this body of research. It is of particular interest to explore why, in response to strain, some prisoners

may choose to take a hostage or collude rather than adopt another form of coping. Weerman's social exchange theory (2003) proposes that co-offenders each should derive some benefit from the offence and GST (Agnew 2001) proposes that prisoners cope with strain by adopting behaviour that benefits them by either removing aversive stimuli or obtaining otherwise unobtainable goals (Agnew, 2013). The present study has made some first steps towards combining these theories and further research from the perspective that PHT and collusion are goal-driven behaviours, would be of benefit.

The findings also suggest that prisoners may deliberately select with whom to collude, but further research is needed to explore the process of collusion in more detail.

Adopting a methodology similar to that described by Vecchi et al. (2013) exploring perpetrators' motives and values may prove extremely useful. Interviews with hostages, perpetrators and colluders would provide a far clearer insight into the processes that led to the incident and how its resolution was perceived, which may help with both avoiding and more swiftly resolving incidents in the future.

A complement to this area of study is an exploration of the views of staff about what constitutes collusion. This may have value in helping negotiators to better respond to situations where both or all participants have an anticipated beneficial outcome.

The present study has examined characteristics of colluders, perpetrators and hostages. It would be beneficial to compare whether these three groups differ from the more general prison population. For example, the finding that perpetrators are more likely to have had a kidnap offence suggests that closer examination of the features of each group would be of value.

A further, broader and potentially more influential aspect, which requires further study is the extent to which GST (Agnew, 2001) may help understand hostage taking more widely. It offers to fill the gap about why some individuals become "overwhelmed" by events and subsequently take a hostage. It has the potential to shift the conceptualisation

of hostage incidents from being either instrumentally or emotionally motivated to providing a behavioural explanation, which highlights the benefits for the individual of their chosen course of action. The value of framing hostage incidents in this way would move the focus away from describing the actions of some perpetrators as "irrational" (Vecchi et al., 2005) and may lead to an understanding that the process serves a function for them, consistent with Agnew's (2001) strategies to reduce strain. This is more in accord with Ireland's (2017b) assertion that using a functional analysis approach is the best way to understand why an individual may engage in certain behaviours. It is possible that GST (Agnew, 2001) may take researchers in this area closer to finding a comprehensive explanation for why hostage incidents occur, and thus help create the single, unifying classification system that is still lacking in this field (Grubb, 2020).

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154

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Appendix A - HMPPS Management of Serious Incidents Approach

HMPPS uses a command structure to manage serious incidents. This involves a senior manager acting as the prison-level, Silver, commander. Most often this is the Governing Governor of the prison where the incident is happening. The Silver commander deploys trained negotiators, usually HMPPS prison officer grades who have undertaken specialist training, to attend the scene to negotiate with the prisoners involved in the incident. The negotiators operate in a team of three, with a lead negotiator who speaks directly with the prisoner, a second negotiator who remains at the scene the whole time with the lead negotiator and a third member of the team who liaises directly with the Silver commander. Prison officers volunteer to become a negotiator, the main requirement being to have completed basic officer training. A pre-development one-day course introduces applicants to the basic concepts of negotiation. Subject to passing a basic skills assessment, in the form of a role play, they progress to the three-day basic training course. Refresher training is required every two years. Core listening skills are emphasised in the training.

For all hostage incidents and other more complex incidents a negotiation advisor (NA) may be deployed to assist. NAs must be Registered Psychologists who have undergone a two-module specialist training course, following experience of training negotiators and attendance at live incidents. Their role is to support the negotiators, advise Silver on negotiation strategies and tactics, analyse the progress of the negotiation and to profile prisoners involved in the incident.

In addition to the negotiation team the Silver commander assembles a team to assist in the management of the incident. These staff take on roles to support the operation, such as liaison officer, staff officer and log keeper. Most of these roles do not require formal training, although Silver commanders must pass a command of serious incidents course to take command of an incident.

The most serious incidents, such as hostage takings, concerted indiscipline (riots) and those involving threat to life necessitate the opening of an additional layer of command, known as the Gold command team. Each of the core Silver command team roles are mirrored in the Gold command suite (Commander, Negotiation Advisor, Tactical Advisor, Staff Officer, Press Officer, Police Liaison Officer etc). Gold Command team members are highly experienced operational and specialist staff who have additional training in the Joint Emergency Services Inter-Operational Process model. This team operates from Headquarters and provides an interface between the incident and Ministers and other emergency services. The Gold command team can also deploy additional resources from other prisons if needed.

Appendix B - UK Law And Relevant Prison Rules On Hostage Taking

The Taking of Hostages Act, 1982, states that hostage taking is where;

"(1) A person, whatever his nationality, who, in the United Kingdom or elsewhere,

(a) detains any other person ("the hostage"), and

(b) in order to compel a State, international governmental organisation or person to do or abstain from doing any act, threatens to kill, injure or continue to detain the hostage, commits an offence." (Legislation.Gov.UK).

The Act requires two conditions; that a person is detained *and* that threats of harm are made to the detained person in order to compel a third party to behave in a certain way. In the UK this offence carries with it a maximum penalty of a life sentence.

The Relationship Between UK Law And Prison Rules

The Prison Act 1952, S 47 (1) gives prison Governors the legal authority to "*make Rules for the regulation and management of prisons ... and for the classification, treatment, employment, discipline and control of persons required to be detained therein*." (cited in Loucks, 2000). The Prison Rules 1999 (S.I. 1999, No. 728) are made under the authority of this Act and all HMPPS prisons are required to adhere to the same set of legal Rules. Infractions against prison discipline and Rules are investigated and prisoners may be charged for breaches of the Rules. The police can be called in to investigate the most serious cases which may be prosecuted in outside courts. Where the Crown Prosecution Service (CPS) decides to proceed with a case, the governor may not go ahead with a disciplinary charge.

Prison Rules And Hostage Taking

In contrast, the legal Rules for discipline and good order within prisons do not include or define an offence of hostage taking. (HMPPS Prisoner Discipline Procedures PSI 47-2011 (2011, revised 2017). Instead, in a case of apparent hostage taking an adult

prisoner is charged with an offence against Prison Rule 51(2) (a young offender against Rule 55 (3)) which reads:

> *"2.50   PR 51 (2), YOI R 55 (3) detains any person against his will*
>
> * *Did the accused prisoner detain the victim, using force or the threat of force, or any item, to curtail the victim's freedom of movement?*
>
> * *Was such detention against the victim's will? Or was there collusion between the accused prisoner and the 'victim'? An incident may start with collusion, but later turn into genuine detention if the victim changes his or her mind about continuing. The adjudicator should take account of any injuries sustained by the victim during the incident, or any intimidation by the accused prisoner, and any evidence of their relationship before the incident began (e.g., friendship or enmity)." (HMPPS PSI 42-2011, pp.32)*

Guidance is issued to those issuing disciplinary charges that:

> *"A 'detains' charge is intended to deal with a hostage taker, but where collusion with the 'victim' is suspected, a 'denies access' charge may be appropriate additionally or alternatively, where the incident also involved a refusal to allow staff to enter a cell or other part of the establishment." (ibid pp.13).*

The specific offence against prison discipline of hostage taking does not exist, a charge of "detains a person against their will" is used, although the Rules do specify that this is intended to deal with a hostage-situation. The wording of the Prison Rule is the same as the first clause of the 1982 Act and appears to have the same intention; to assist in defining the criminal behaviour. The second clause of the 1982 Act (dealing with the

intent to compel a third party) is omitted and the reason for this omission is not explained within the Prison Rules.

The omission has the effect that a "detains" charge (rather than a criminal charge of hostage taking) can be brought, removing the need to establish the hostage-taker's intent (or motive) to "compel" another person. It is possible that this omission makes it easier to prove a charge of "detains another person", (which is a behaviour that can be objectively determined), without the need to establish motive, which is more difficult to prove. However, no guidance exists to explain the inconsistency.

Appendix C- Full List Of Variables Provided From NOMIS Database:

Offender id display	In final datasheet
Unique noms and incident number	Imported role
Imported OVP score	Unique prisoner incident count
Unique prisoner incident count	Latest off book id
Booking begin date	Booking end date
Booking sequence	Inc off book id
Incident booking start date	Inc booking end date
Last name	First name
Incident id number	Incident date
Birth date	Gender
Security category	Domestic status
Number of children	Nationality
Dom abuse perpetrator	Height cm
Weight kg	Religion
Listener suitability	Listener recognised
Imprisonment status	Imprisonment status description
Release date	Military history
Effective sentence length	Sentence length in months
Offender charge id code	Case id
Main offence	Sentence calc type
Substance type	Drug 2
Total drugs used	Youngest age first used drugs
Offender health problem type	Disability
Disability type 1	Disability type 3
Disability type 2	Start date
End date	Disability note
Problem status	Latest off book id 1
Current IEP	IEP number of move up to incident
Inc off book id 1	Incident IP level
Number IEPs post incident	Incident cell share risk assessment
Current cell share risk assessment	Contact date
Case note id	Case note text
On NOMIS database flag	

Appendix D - Full List Of Variables Requested From OASys Database

Noms number	Ethnic_group_code
Persistent_offender	Prolific_offender
S1q5_number	S1q6_number
S1q7_number	S1q8_number
S2q2a_carry_use_weapon	S2q2a_weapons_specified
S2q2b_violence_threat	S2q2c_excessive_violence
S2q2d_arson	S2q2e_property_damage
S2q2f_sexual_element	S2q3a_direct_victim
S2q3b_racial_hate_motivation	S2q3c_response_to_victim
S2q3d_violence_to_partner	S2q3e_repeat_victimisation
S2q3f_victim_stranger	S2q7_number_of_offenders
S2q7_other_offenders_involved	S2q7_peer_group_influence
S2q9_addiction	S2q9_emotional
S2q9_evidence_other	S2q9_financial_motivation
S2q9_motivation_other	S2q9_racial_hate
S2q9_sexual_motivation	S2q9_thrill_seeking
S2q10_alcohol	S2q10_drugs
S2q10_emotional	S2q13_escalation_seriousness
Ogrs31_year	Ogrs32_year
Ovp_year_1	Ovp_year_2
Ovp_risk_of_recon	

Appendix E - Full List Of All Excel Recodes Used In Creating Incident Dataset.

Variable name	Function or command
ID	Unique incident reference number
Unique inci noms number	=CONCATENATE(B33,B2)
Incident count	=COUNTIF(B$2:$C$2,B2)
Total number rows for incident	=COUNTIF(2:2,B2)
Number perps	=B5-1
NUMBER HOSTAGES	=B5-B7
AVPOP	=LOOKUP(B11,'pris lookup list'!$I$2:$I$31,'pris lookup list' !$J$2:$J$31)
Incident Date	01/01/1999
Year	=B10
Day of the week	=WEEKDAY(B10)
Incident Text	A text description of the incident appears in this field in upper or lower case.
Lower case text	=LOWER(B13)
Threat	=IF(ISNUMBER(FIND("threat",B14,1))=TRUE,"threats","no threats")
Surrender	=IF(ISNUMBER(FIND("surrender",B14,1))=TRUE,"surrender",IF(ISNUMBER(FIND("talked out",B14,1))=TRUE,"surrender", IF(ISNUMBER(FIND("peaceful",B14,1))=TRUE,"surrender","other")))
Escape	=IF(ISNUMBER(FIND("escape",B14,1))=TRUE,"escape","other")
Victim	=IF(ISNUMBER(FIND("mate",B14,1))=TRUE,"cell mate","other")
Victim role	=IF(ISNUMBER(FIND("offvic",B14,1))=TRUE,"staff member","prisoner")
Injuries	=IF(ISNUMBER(FIND("cut",B14,1))=TRUE,"injuries",IF(ISNUMBER(FIND("wound",B14,1))=TRUE,"injuries","no injuries"))
Barricade	=IF(ISNUMBER(FIND("barricade",B14,1))=TRUE,"barricade",IF(ISNUMBER(FIND("BARRICADE",B14,1))=TRUE,"barricade",IF(ISNUMBER(FIND("barricades",B14,1))=TRUE,"barricade",IF(ISNUMBER(FIND("Barricade",B14,1))=TRUE,"barricade","no barricade"))))
Location	=IF(ISNUMBER(FIND("cell",B14,1))=TRUE,"cell",IF(ISNUMBER(FIND("CELL",B14,1))=TRUE,"cell","elsewhere"))
Collusion	=IF(ISNUMBER(FIND("collusion",M2,1))=TRUE,"collusion",IF(ISNUMBER(FIND("fake",M2,1))=TRUE,"collusion",IF(ISNUMBER(FIND("laughing",M2,1))=TRUE,"collusion",IF(ISNUMBER(FIND("colluded",M2,1))=TRUE,"collusion","coercion"))))
Weapon	=IF(ISNUMBER(FIND("weapon",B14,1))=TRUE,"weapon",IF(ISNUMBER(FIND("blade",B14,1))=TRUE,"weapon",IF(ISNUMBER(FIND("raz",B14,1))=TRUE,"weapon",IF(ISNUMBER(FIND("knife",B14,1))=TRUE,"weapon","no weapon"))))
Laugh	=IF(ISNUMBER(FIND("laugh",B2,1))=TRUE,"laugh",IF(ISNUMBER(FIND("banter",B2,1))=TRUE,"laugh",IF(ISNUMBER(FIND("chatting",B2,1))=TRUE,"laugh",IF(ISNUMBER(FIND("joking",B2,1))=TRUE,"laugh",IF(ISNUMBER(FIND("giggl",B2,1))=TRUE,"laugh","no laugh")))))
Tied up	=IF(ISNUMBER(FIND("tied-up",B14,1))=TRUE,"tied-up",IF(ISNUMBER(FIND("tied",B14,1))=TRUE,"tied-up",IF(ISNUMBER(FIND("bound",B14,1))=TRUE,"tied-up","not tied up")))
Negotiators	=IF(ISNUMBER(FIND("negotiat",B14,1))=TRUE,"negotiation","no negotiation")
Establishment	HMP Name
Security category	=LOOKUP(B29,'pris lookup list'!$A$2:$A$141,'pris lookup list'!$B$2:$B$141)
Capacity	=LOOKUP(B29,'pris lookup list'!$A$2:$A$141,'pris lookup list'!$F$2:$F$141)
Size group	Large
Prisoner Number	Unique number assigned to identify prisoner
Number of times names	=COUNTIF(B$33:$C$33,B33)

comes up code	
Number of times names comes up	=COUNTIF(33:33,B33)
Surname	Mr XXXX
Role	Hostage
Repeated roles	
Repeat offender	
Start time (Hour)	9
Start time (Minute)	0
Start time 24 hr	=CONCATENATE(B40,":",B41)
Duration	
Duration minutes	15

Appendix F - Comparison with Smith and Conlin's Data (1987)

Variable	Smith and Conlin's result	Current Dataset result
Number of incidents and prisoners	62 incidents, 74 perpetrators	1147 incidents 1466 perpetrators 1064 hostages
Mean age adult perpetrators (> 21 years) Hostage (>21 years)	27.75	28.58 30.49
Mean age Young Offenders perpetrators (< 21 years) Hostage (<21years)	18.5	Median 19.24 Median 19.54
Incidents involving multiple perpetrators	13%	18.8%
Incidents resolved by negotiation	74%	34.1%
Location of incident	Cell	82.1% in cell
Incidents involving major injury	16%	14.6%
Mean duration of incidents with single perpetrator		137.21minutes
Mean duration of incidents with multiple perpetrators		236.34 minutes
Most frequent offence type	Violent	Violence 26.9% perpetrators Violence 25.2% hostages
	13.5% lifers	13.7% lifers/ISP
Dispersal or high secure prison	40%	45.6% (A or B)
Incident happened earlier in sentence	Yes	Mean 481 days into sentence for hostage (10% happened by 18 days) Mean 679 days into sentence for perpetrator (10% happened by 56 days)