

Development of a model to predict security incidents in high secure psychiatric care

An investigation into ward culture and physical environment

By

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It has been suggested that environmental factors and the organisational culture of a forensic service hold the key to predicting and preventing incidents. However, little empirical research addresses this. This thesis aimed to develop a model that explains which factors of culture and environment impact security incidents in secure care. This can then be used in practice to aid the prediction and management of security incidents. The thesis includes four studies. A systematic literature review of 41 studies and 5 inquiries found that staff characteristics, patient interactions, the physical environment and meaningful recreation were linked to security incidents. It also highlighted a focus on aggressive incidents and a lack of research in high secure psychiatric settings. The second study of the thesis aimed to address these issues. Interviews were conducted with six security staff in high secure psychiatric services to gather detailed information about security incidents in this setting. It was found that aspects of ward culture, such as patient relationships, application of rules, engagement in activity and injustice were perceived to be associated with incidents. However, these factors were not linked to actual incident data in this study. Therefore, the third study aimed to do this. It used questionnaires to assess the perceptions of ward culture of 73 patients and 157 staff members. Record based data was used to assess if these perceptions were associated with the number of incidents on a ward. The study found that lower levels of support from staff and other patients was related to greater numbers of threat and substance incidents. In addition, levels of inappropriate behaviours were higher on wards where patients felt less involved in the service. Finally, this thesis explored the theory that the interpersonal style of staff and perceived fairness may explain why staff-patient relationships and involvement in the service were associated with incidents. Engagement in meaningful activity and the physical environment were also investigated in the final study. Using the same methodology as study three, the final study assessed

the perceptions of 151 staff members and 62 patients. It found that higher levels of aggressive and non-aggressive incidents were associated with controlling interpersonal style of staff, lower perceived fairness, and fewer patients involved in off-ward activities. The perception of fair treatment and the number of patients involved in off-ward activities mediated the link between staff interpersonal style and security incidents. Based on these results, the McKenna model of security incident prediction was created. This highlights the features of wards, which increase the likelihood of security incidents. It is proposed that the model can be used to highlight wards in high secure services that are at risk of having high levels of security incidents.

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Chapter 1: Security incidents in high secure psychiatric care.

The term ‘security incident’ covers a wide range of behaviours within secure hospitals, including harm to others, escape incidents and rule breaking (Department of Health, 2007). The Department of Health (2007) states that security incidents can be grouped into four categories. Category A includes major incidents such as serious sexual assault and hostage taking. Category B incidents include serious incidents, such as serious physical assaults using weapons. Category C incidents include assaults without weapons and attempted escape. Finally, all other incidents, such as minor assaults and verbal abuse are classed as Category D incidents. In this thesis, the term security incident is used to refer to all categories of incident.

Security incidents are a problem within high secure psychiatric services. These services detain individuals under the Mental Health Act (2007) who satisfy the criteria for people who “require treatment under conditions of high security on account of their dangerous, violent or criminal propensities” (Department of Health, 2006). Research at one high secure hospital indicates that over 5000 incidents can occur in a single year (Uppal & McMurrin, 2009). Due to this, public inquiries such as the Blom-Cooper (Blom-Cooper, Brown, Dolan & Murphy, 1992) and Fallon reports (Fallon, Bluglass, Edwards & Daniels, 1999), have sought to understand the reasons behind them.

The Blom-Cooper (1992) and Fallon (1999) inquiries were fundamental in examining the association between security incidents and factors contributing to them. Each inquiry criticised different aspects of high security psychiatric services. However, they both emphasised that culture and environment were important factors in the prevalence of security incidents. Whereas Blom-Cooper et al (1992) stated that staff focused too heavily on maintaining security at the expense of creating a therapeutic environment,

Fallon et al (1999) criticised the service for not maintaining adequate security. They suggested that staff members were allowing patients to cross boundaries and break rules in an attempt to maintain the therapeutic environment (Fallon et al, 1999). Other researchers have also argued that members of staff find it difficult to maintain the balance between therapy and security. Whilst discussing methods practitioners can use to motivate behaviour change in offenders, Hodge and Renwick (2002) argued that security and rehabilitation are rarely described as complimentary. They stated that practitioners tend to believe that a therapeutic environment is only achieved by relaxing security procedures. In turn, tightening security is perceived to be at the cost of a therapeutic environment. However, it can be argued that improving relational security would allow for a therapeutic environment that is also safe and secure.

Security is considered to have three domains: physical, procedural and relational security (Collins & Davies, 2005). The physical and procedural security domains include aspects of security such as fences, locking mechanisms, searching patients and restriction of items. Relational security refers to the level of knowledge staff have about patients and how to manage their behaviour. In discussions about creating secure environments, physical and procedural security is usually the focus (Tilt, Perry & Martin, 2000). Relational security is often ignored (Exworthy & Gunn, 2003; Tighe & Gudjonson, 2012). However, some argue that a high level of knowledge about patients allows staff to assess patterns of behaviour and changes in mental state linked to offending behaviour (Collins & Davies, 2005). In turn, security incidents are reduced. This form of security seems to compliment values of a therapeutic environment. For example, one main aspect of relational security is ensuring a positive, supportive relationship between patients and staff (Department of Health, 2010). Hodge and Renwick (2002) also state that this is an important part of creating a therapeutic

environment. Therefore, it is likely that increasing relational security would create a safer environment that also maintains the goals of therapy and rehabilitation.

In addition to a focus on staff-patient relationships, relational security also suggests that staff should strive towards creating an appropriate ward culture with a focus on recovery, boundaries, and the physical environment (Chester & Morgan, 2012; DoH, 2010; Tighe & Gudjonsson, 2012). However, a literature review found there was little research that addressed relational security (Chester & Morgan, 2012). Chester and Morgan (2012) also found that papers that discussed relational security tended to be opinion pieces rather than empirical evidence. However, they argued that research investigating specific aspects of relational security would aid understanding about this domain of security. In turn, it is likely that this would reduce the number of incidents. The national institute for mental health in England (NIMHE, 2004) and NICE (2005) agree with this. They emphasised the need to consider environmental factors when investigating the cause and management of incidents. Further, researchers have stated that the environment and relational issues are just as important as patient variables, as they seem to influence behaviour to a similar extent (Jansen et al, 2006). Therefore, the impact of these factors needs to be researched thoroughly.

Environmental causes for incidents have started to be researched with prison and psychiatric hospital populations. For example, research has shown that supportive relationships between residents and staff are associated with fewer incidents (Chaplin, McGeorge & Lelliott, 2006; Gadon, Johnstone & Cooke, 2006; van der Helm et al, 2012). In addition, the unfair treatment of prisoners has been linked with higher levels of prisoner engagement in incidents (Reisig & Mesko, 2009). Further, a lack of engagement in therapeutic and occupational activities (Chaplin et al, 2006) and high levels of crowding (Wooldredge, Griffin & Pratt, 2001) have been associated with

higher numbers of incidents. This indicates that aspects of relational security are important in reducing security incidents. However, issues in the current research need to be addressed in order to explore how these factors impact security incidents.

Firstly, the research available focuses on aggressive acts such as physical assault. Some studies also include aggression towards objects and verbal aggression. However, incidents such as hostage taking, protests, threatening behaviour and general rule breaking have not been investigated in any detail. In the research discussed, which suggested that over 5000 incidents can occur in a single year in one hospital (Uppal & McMurrin, 2009), physical assaults and verbal abuse made up less than 30% of incidents. The rest of the incidents in this study included security breaches, attempts to escape, thefts, property damage, inappropriate behaviour and harassment. Yet, there are no attempts to understand how environmental and relational factors influence these incidents. If the environmental predictors of these incidents are understood, it is likely that negative behaviours can be managed in a more effective manner. In turn, a safer environment can be created. This is important, as patients are more likely to engage with the service when they feel safe (Department of Health, 2010).

Further, there is a lack of research that investigates environmental influences of incidents in high secure settings. To date, only four published studies can be found which address this. These studies highlighted that more positive relationships with staff (Meehan, McIntosh & Bergen, 2006; Pulsford et al, 2013), availability of space (Meehan et al, 2006), high support between patients (Tonkin et al, 2012), involvement of patients in decision-making (Urheim et al, 2011) and the physical environment (Pulsford et al, 2013) were associated with fewer incidents. Although this suggests that there is an impact of relational security factors on incidents in high secure care, there is not enough data to form concrete conclusions. There is also a variety of issues with the

research that has been conducted in these environments. As with studies in other settings, the researchers focus on aggression at the expense of other types of incidents. Further, only Tonkin et al (2012) tried to link these factors with incident data. Meehan et al (2006) and Pulsford et al (2013) used focus groups and questionnaires to assess participants' *perceptions* of causes of aggression. In addition, Urheim et al (2011) noted that over the same time period that incidents decreased, patients were given more power to make decisions about their care. Therefore, although these studies suggest that environmental factors may be linked with aggression in high secure services, they have not provided evidence that it *is*. Further, some of the factors within the studies are not defined adequately. For example, Pulsford et al (2013) and Meehan et al (2006) both found that the physical environment was perceived to be a contributing factor to incidents. However, they fail to define which aspects of the physical environment they included in their research. Therefore, it is difficult to understand which specific factors are associated with security incidents. In turn, this means that the environment cannot be changed to reduce the risk of incidents.

Finally, the research available in this area is yet to provide a model that can be used to explain the impact of the environment on the prevalence of incidents. In order to change the ward environment to reduce incidents, practitioners and policy makers need to fully understand contributing factors. It needs to be understood which parts of the environment contribute the most to incidents and how these may be linked to each other. For example, it may be that improving relationships between staff and patients is the best way to reduce incidents in care. However, it could be that the provision of meaningful activity is more important. If policies are to be put in place to reduce incidents, this needs to be addressed.

It is clear that there is not adequate research that addresses the impact of the physical and relational environment on security incidents in high secure care. Although public inquiries (Blom-Cooper et al, 1992; Fallon et al, 1999) and the Department of Health (2010) have suggested that relational security influences patient behaviour, the academic community has failed to examine this. The research included in this thesis aims to do so.

1.1 Research aims and methodology

This research aims to address problems in the current literature by investigating environmental causes of security incidents in a high security hospital. It also aims to examine the similarities and differences between environmental factors involved in aggressive and non-aggressive incidents. A number of methodologies will be used to address this. Specifically, a systematic literature review will highlight which environmental factors have been studied previously. Next, interviews will be conducted to investigate staff members' perceptions of causes of security incidents in high secure care. This aims to address whether the research findings from the systematic review are applicable to a high secure population. The final studies aim to explore the associations between these perceived causes of incidents and actual incident data. The studies will use questionnaire data and measurements of the physical environment to assess which aspects of ward culture and physical environment have an impact on the number of incidents in high secure services.

1.2 Thesis structure

The thesis will begin with a chapter outlining the literature and theoretical base for this research. This chapter will discuss research that links the environment with incidents in prisons and psychiatric hospitals and how this can inform research in high secure services. It will use General Strain Theory (Agnew, 2009) and the Good Lives Model

(Fortune, Ward & Polaschek, 2014) to argue that strainful experiences prevent individuals from being able to achieve primary needs, which results in negative behaviours and incidents. The self-determination theory (Markland, Ryan, Tobin & Rollnick, 2005) will also be used to explain why environmental factors may influence behaviour. In addition, the chapter will discuss how legitimacy of authority, procedural justice, and interpersonal style can affect the relationship between patients and staff, which in turn influences behaviour. Further, the chapter will discuss how Crime Prevention Through Environmental Design principles (Wilson & Wileman, 2005) can inform us about the impact of the physical environment on security incidents. The end of this chapter will detail a preliminary model of environmental causes of security incidents. The assumptions of this model are then examined by the studies described in chapters 3, 4, 5 and 6.

The first study of the thesis is a systematic literature review, which is described in chapter 3. This study analyses the findings from research studies and public inquiries that have investigated the impact of environmental factors on numbers of security incidents. One main finding from this review is that there is a lack of research with high secure populations and non-aggressive incidents. Therefore, the study in chapter 4 assesses staff perceptions of the causes of security incidents in high secure care. However, this study did not try to link these perceptions with incident data. Chapter 5 includes a study that aims to do this by assessing staff and patient perceptions of ward environment and the number of aggressive and non-aggressive incidents on wards. This study failed to find a link between perceptions of the environment and security incidents, and chapter 5 discusses why this may be. The final study of the thesis is detailed in chapter 6. This study builds on chapter 5 by investigating the impact of staff interpersonal style, perceived fairness in interactions, meaningfulness of activities and

the physical environment. It argues that specific factors within the ward environment rather than the ward environment as a whole influences numbers of security incidents. Finally, Chapter 7 discusses the results of the PhD as a whole and presents a revised model that explains the contribution of ward environment to security incidents. The impact of the thesis research on future research and policy is also discussed in the final chapter.

Chapter 2: The contribution of environmental factors to security incidents: Previous research and theoretical perspectives

Security incidents are a problem in high secure care in the UK (Uppal & McMurrin, 2009). Inquiries, governing bodies and researchers have all recognised the role of the environment in security incidents (Blom-Cooper et al, 1992; Department of Health, 2010; Fallon et al, 1999; Pulsford et al, 2013; Tonkin et al, 2012). This chapter will discuss research from both the prison service and psychiatric hospitals. It will outline a body of research, which indicates that the environment contributes to patient involvement in security incidents. However, it will also highlight a number of issues with the current research. For example, aggressive incidents are usually the only type of incident investigated. Uppal and McMurrin (2009) found that these types of incidents accounted for less than 30% of the overall incidents in the service they assessed. Therefore, it would appear that the contribution of the environment to almost three quarters of security incidents has not been considered. If a safe environment is to be created, predictors of all types of security incident need to be assessed. In addition, although research has shown environmental factors that contribute to security incidents in prisons and other psychiatric settings, these results cannot be generalised to high secure populations. Therefore, this chapter will highlight the need for research that assesses all types of incidents in high secure services.

Although this chapter highlights the problems with current research, it also notes that prison and psychiatric hospital literature can be used as a basis for future research in high secure services. The current research can be used as a foundation for research with

this population. Using previous research in this area and psychological theory, this chapter will propose a preliminary model, which outlines aspects of the environment that may contribute to incidents in high secure care. This is then tested in later chapters, and the McKenna Model of Security Incident Prediction is presented at the end of this thesis.

2.1 Previous research

This section will outline previous research that has investigated the impact of the environment on security incidents. It will first discuss research with prison populations and then from psychiatric populations. A full systematic literature review of this research is included in chapter 3.

Research investigating incidents in prison usually use the term ‘prison misconduct’. Misconduct is defined as the failure to follow explicit rules (Camp, Gaes, Langan & Saylor, 2003), and so prison misconduct is the failure to follow prison rules. It includes behaviours such as assault, making threats, property damage, contraband and theft (Griffin & Hepburn, 2012). As such, they cover the same behaviours as when using the term ‘security incident’. Yet, ‘prison misconduct’ is used here when discussing past prison research.

Prison misconduct has been widely researched within psychological and criminological literature due to its perceived consequences. For example, some argue that involvement in serious prison misconduct indicates that the prisoner did not cease offending when they entered the prison environment (DeLisi, 2003; Maruna & Toch, 2005; Trulson, DeLisi & Marquart, 2011). This suggests that this behaviour will continue on release (DeLisi, 2003; Maruna & Toch, 2005; Trulson et al, 2011). Indeed, research suggests that prison misconduct is associated with higher rates of offender recidivism (Gendreau,

Goggin & Law, 1997). For example, Cochran, Mears, Bales and Stewart (2012) found that offenders who engaged in greater levels of misconduct were more likely to recidivate. This effect existed even when offenders were matched for person characteristics related to recidivism such as age, sex, race and prior record. In addition, a meta-analysis showed that interventions that aimed to reduce prison misconduct also reduced reoffending rates (French & Gendreau, 2006). Therefore, researchers have made an effort to assess which factors contribute to misconduct.

Most research in this area has focused on the effect of prisoner characteristics on prison misconduct. Consistently, age, prior criminal history, prior history of prison misconduct and a history of mental health problems have been found to be associated with misconduct (Camp et al, 2003; Cunningham & Sorensen, 2007; Wooldredge, Griffin & Pratt, 2001). For example, Wooldredge et al (2001) found that younger prisoners and prisoners with shorter prison sentences were involved in more misconduct. This effect was found over three different samples with a total of 1,828 male prisoners. The study included all types of misconduct such as assaults, threats, theft, and property damage. However, they collapsed all of the misconduct categories into one variable. This is a problem, as it assumes that all misconduct is equal. In other words, it assumes that the characteristics that are associated with violent misconduct will also be associated with non-violent misconduct. Other researchers such as Cunningham and Sorensen (2007) have addressed this.

Cunningham and Sorensen (2007) conducted a study with 24, 514 male prisoners in Florida. Like Wooldredge et al (2001), they also found that younger prisoners and prisoners serving shorter sentences were more likely to engage in misconduct. In addition, prior prison violence and gang affiliation made misconduct more likely. However, these person factors were not associated with incidences of assault. They

were only associated with threats, escapes, possession of a weapon and fights. Similarly, in a study that investigated both person and contextual factors associated with misconduct, Camp et al (2003) found that only age and prior misconduct predicted all types of misconduct. In the sample of 120,000 prisoners, those who were younger and had a history of prison misconduct were more likely to engage in all types of misconduct. However, a prison having a greater proportion of high security prisoners was only associated with violent and drug misconduct. It was not associated with misconduct involving property offences, escapes, or interfering with security. This shows the importance of studying different types of misconduct, rather than investigating misconduct as a whole. Nonetheless, the research indicates that prisoner characteristics can influence the likelihood of individuals engaging in prison misconduct. However, it has been argued that the environment of the prison has more of an influence on misconduct than prisoner characteristics (Bottoms, 1999).

The prison environment includes the physical environment and relational factors in the environment, and encompasses the context in which misconduct takes place (Bottoms, 1999). The contribution of the prison environment has not been investigated in as much detail as the influence of prisoner characteristics. However, the association between the staff-prisoner relationship and misconduct has received some attention. In a study of 207 juvenile offenders, van der Laan and Eichelsheim (2013) found that those who had more contact and support from staff were less likely to be involved in aggressive misconduct. Further, aggressive misconduct was reduced in prisoners who perceived their interactions with staff members to be fair. Therefore, relational factors seem important in managing aggressive misconduct. Other research has also suggested this.

Reisig and Mesko (2009) used official data and interviews with 103 prisoners, and found similar results to van der Laan and Eichelsheim (2013). They found that prisoners

who perceived interactions with staff as fair were less likely to be involved in misconduct. This association was evident with both self-reported and official records of violence, threats, stealing, property damage, refusing orders, and possession of contraband. However, the link between perceived fairness in interactions and misconduct was weak. There were also issues with the scales used to measure fairness. For example, some items of the scale asked participants whether they would accept guard decisions and follow orders despite believing that these decisions were unfair and wrong. It can be argued that these items do not accurately assess perceptions of fairness. Prisoners may accept decisions and follow orders as not doing so could result in being sanctioned for disobedience (Reisig & Mesko, 2009). Therefore, the scale used might not have assessed the perception of fairness adequately. This could have accounted for the weakness of the association. Further, the study does not indicate that a perception of unfairness in interactions *causes* misconduct. It may be that prisoners who follow the rules and obey orders from guards are more likely to receive favourable treatment. Therefore, they may perceive interactions to be fairer than those who engage in misconduct. Further research would be needed to investigate this link. However, these studies suggest that the staff-prisoner relationship can contribute to prison misconduct. Other research has shown that the physical environment may influence engagement in misconduct.

The architecture of prisons has been found to be associated with misconduct. Morris and Worrall (2014) categorised the architecture of the prisons into two groups; campus-style units and telephone-pole-style units. Prisons with a telephone-pole design tended to have several rows of multi-storey buildings connected by one or two main corridors. They are termed telephone-pole-style units as they look like a telephone pole when viewed from the air. Campus-style prisons are usually in the shape of a rectangle and

are surrounded by large amounts of open space. They consist of several small buildings rather than the large multi-storey buildings that characterise telephone-pole designs. In their study of 30 prison units, Morris and Worrall (2014) found that individuals on campus-style units were more likely to engage in security related misconduct (e.g. threats, possession of a weapon, violation of security rules) and property related misconduct (e.g. stealing and trading). They explained that campus-style units allow more freedom of movement and interactions with other prisoners. In turn, there may be more opportunities for prisoners to engage in these types of misconduct. However, the categorisation of the prisons in this study can be criticised for being too simplistic and not taking into account differences between prisons that may be of the same architectural type. For example, prisons may be of the same architectural type but may have different ward layouts. Some prisons may have less private space for prisoners which may affect feelings of crowding. This is important because other research has found that crowding influences engagement in security incidents.

Prison crowding is an aspect of the physical environment that has received attention in the literature. Martin, Lichtenstein, Jenkot and Forde (2012) interviewed 66 correctional officers in three different prisons and found that all of them believed that crowding was associated with more misconduct. In the qualitative section of the study, officers stated this was due to lack of visibility. Greater numbers of prisoners on wings made it more difficult for prison officers to observe interactions. In turn, it was likely that they would miss interactions that may be indicative of future misconduct. For example, they could miss a conflict between prisoners that may result in a future assault. The finding that all officers in this study agreed that crowding was associated with incidents indicates that this is a problem within prisons. However, there were some issues with this study. For example, only one question asked about the link between crowding and misconduct.

Other questions asked about how crowding effected officer mental health and enjoyment of their work. In addition, this question was answered with a 'yes' or 'no' and did not ask about the extent to which they believed it to effect misconduct. Further, the officers who were involved in this study reported a number of other issues they believed were associated with misconduct. For example, officers complained about low numbers of staff and working extra shifts. They talked about this in relation to crowding. However, it can be argued that this is a different factor. It may be that the ratio of prisoners to staff or staff fatigue to working more shifts is the issue in these prisons. However, the researchers argued these factors were related to crowding. Further, there was no attempt to link the perceptions of the prison officers to record data about misconduct and crowding. Therefore, these conclusions may not be accurate. However, the perception of these correctional officers has been supported by research using record based data (e.g. Steiner & Wooldredge, 2009).

For instance, Steiner and Wooldredge (2009) found that in 40 prison facilities, housing more than 2,200 women, crowding was linked to greater numbers of assaults and non-violent misconduct. However, the research investigating the effect of crowding on prison misconduct is inconsistent. One meta-analysis of 16 studies of crowding and misconduct concluded that although there was a link between these factors, crowding was only a weak predictor (Franklin, Franklin & Pratt, 2006). Further, a larger meta-analysis of 48 studies showed that there was no relationship between crowding and violent misconduct (assault, sexual assault and verbal abuse). Other research has found that although crowding does not predict all misconduct, it is related to higher rates of violating orders of staff and disrespect (Camp et al, 2003). Finally, Tartaro (2002) found that in the 646 prisons they investigated, crowding was associated with lower assault rates. Therefore, it can be seen that the research into crowding and misconduct is

contradictory. However, although the link between these factors is not well understood, it does suggest that the prison environment contributes to the way prisoners behave.

The chapter so far has highlighted that the prison environment can contribute to misconduct to a similar extent as prisoner characteristics. However, this thesis focuses on high secure psychiatric services. Therefore, it is important that the research undertaken in psychiatric hospitals is also discussed, as this may help to explain factors that may contribute to incidents in high secure care. Although there seems to be overlap between ideas about predictors of security incidents, little research available uses both prison and psychiatric hospital samples. This may be due to the focus on aggression in research using psychiatric hospital samples. In prison research, broader ranges of incidents have been investigated. Therefore, the goals of each area of research seem to differ.

Much like prison research, there has been a previous tendency to focus on person characteristics. This has shown that history of violence, history of drug use, a diagnosis of psychosis, marital status, gender, and age are consistently linked with aggression in hospitals (Dack et al, 2013; Godelieve de Vries et al, 2016; Stewart & Bowers, 2012; Stone et al, 2011; Williamson et al, 2013). For example, in a systematic review and meta-analysis of comparison studies of characteristics associated with aggressive and non-aggressive incidents, Dack et al (2013) found that incidents were likely to increase with younger, male, single patients who had a history of violence and substance use and a diagnosis of schizophrenia. Similarly, Iozzino et al (2015) found that being male and having a diagnosis of schizophrenia were risk factors for aggressing in their meta-analysis of 35 studies. This was also found in research conducted by Stewart and Bowers (2012) and Nourse, Reade, Stoltzfus and Mittal (2014). Nourse et al (2014) found that in their sample of 36 adults, younger males with a history of violence and

substance abuse and positive psychotic symptoms were more likely to engage in aggression. Stewart and Bowers (2012) conducted a larger scale study, which included 522 adult inpatients from 84 wards. However, they still found a link between previous drug use, a history of violence and aggression. Therefore, it can be seen that similar person factors seem to influence security incidents in prison and psychiatric services. Further, there is also a tendency to focus on person characteristics with this population. However, some literature that investigates the impact of the environment has been conducted.

Elements of ward culture and the environment have been linked to aggressive incidents. Issues such as staff attitudes and relationships with patients have been investigated by some. For example, in a National Audit of violence, Chaplin, McGeorge and Leliott (2006) found that patients cited staff factors to be associated with violence. The patients suggested that the negative attitudes of staff could trigger violence. This finding is supported by the work of Duxbury and Whittington (2005) who found that the 82 patients included in their study frequently cited a lack of communication with staff as a precursor to aggression. They stated that this lack of communication affected their relationships with staff members, which in turn made aggression more likely. An earlier study by Duxbury (2002) also found that the 80 patients included cited poor communication and relationship with staff to be linked to aggression. However, staff tended to blame person characteristics such as mental illness for aggressive incidents. Similarly, Finnema, Dassen and Halfens (1994) found that staff cited patient related factors as causes for aggression. However, the 24 nurses interviewed also stated that these types of incidents could be reduced by having strong relationships with their patients that were characterised by communication. This communication involved talking to patients informally, asking patients about activities they may want to be

involved in, comforting the patient and listening to the patients without interrupting. Further evidence for the role of patient-staff relationships in security incidents comes from a systematic review of 48 studies by Gadon, Johnstone and Cooke (2006). This found that the relationship between patients and staff was crucial in managing aggressive incidents. Therefore, research in this area seems to agree that the patient relationships are an important contributor to security incidents. However, most of these studies do not provide a great deal of detail about what parts of this relationship are most important, or how the patient-staff relationship affects incidents. Some, such as Duxbury and Whittington (2005), suggest that this is due to a higher level of communication. Yet, it is not clear what form this communication should take. It may be that formal and informal communication with patients do not have the same effect on incidents. The studies presented here also highlight other cultural issues that have an impact on incidents.

In their research, Chaplin et al (2006) also highlighted that a patient's lack of access to activities was linked to a higher numbers of incidents. Further, Duxbury (2002), Finnema et al (1994) and Gadon et al (2006) suggested that rules and regulations were associated with incidents. However, more rules and regulations were associated with greater numbers of incidents in these studies. Further, these studies found that where rules and regulations were perceived to be too restrictive by patients, aggression was more likely to occur. In addition, when patients believed that rules were not applied consistently, incidents were more likely. Other research using psychiatric samples has found the physical environment is related to aggression. For example, in a review of 37 studies, Hallet, Huber and Dickens (2014) concluded that available space, temperature and noise were associated with incidents. In the studies included where there was a lack of space, high levels of noise and high temperatures there was a greater number of

aggressive incidents. Similarly, Soares, Lawoko and Nolan (2000) gave questionnaires to 1051 staff, including nurses and psychiatrists. They found that those who had been victims of aggression from patients were more likely to work on wards where there was poor ventilation and light and high levels of noise. However, the assessments of poor ventilation and light and high levels of noise were conducted via a self-report questionnaire. When participants were asked questions about their experiences of victimisation, they were also asked about their work environment. They were asked to rate to what extent there was insufficient light, poor ventilation and noise on the wards. The researchers did not take any physical measurements from the wards about levels of light, noise and ventilation.

Despite criticisms, the evidence suggests that cultural and environmental factors can have an impact on security incidents in psychiatric settings. Similar conclusions have also been drawn from research using high secure populations. For example, Meehan, McIntosh, and Bergen (2006) found that patients in a high secure hospital believed a wide range of factors to be antecedents to aggression. These included a lack of personal space, negative interactions with members of staff and problems with patients getting the right medication. Patients also believed that a lack of meaningful activities could lead to boredom and frustration. In turn, this would cause aggression. It was stated by the patients that a greater provision of meaningful activities and improved staff understanding and empathy would help to prevent aggressive incidents. Participants from Pulsford et al's (2013) study generally agreed with this. They perceived that patient illness and poor relationships with staff were causes of aggression. The physical environment was also cited as an issue. However, although both of these studies cite the physical environment as a contributing factor, they do not define this variable well. For example, Pulsford et al (2013) had a number of items in their questionnaire that

addressed physical environment. However, these were vague about what the physical environment included. One of these items was “if the physical environment was different, patients would be less aggressive”, but does not state what is included in their definition of the physical environment. In other research, aspects of the physical environment such as crowding, noise levels, and space availability are cited as contributors to aggression (Hallet et al, 2014; Soares et al, 2000; Virtanen et al, 2011). Therefore, there is a range of factors that this term can cover. By not defining this term, Meehan et al (2006) and Pulsford et al (2013) make it difficult to understand which specific variables they found to be linked to aggression. In addition, these studies used focus groups and questionnaires to assess participants’ perceptions of what they thought may cause aggression. Although they show that factors such as patient relationship with staff are *thought* to be linked with aggression in high secure services, they have not provided evidence that it *is*. However, some research using high secure samples has attempted to do this, and which is detailed below.

Research conducted by Tonkin et al (2012) included several high secure services in their test of the construct validity of the EssenCES questionnaire. They attempted to link the questionnaire data with record based data about incidents and concluded that a high level of support between patients was associated with higher levels of ward aggression. Although this seems to be the only research using high secure samples that tries to make a direct link between incidents and ward culture, it only uses a very specific measure of this. The main aim of their research was to assess the reliability of the EssenCES questionnaire. This questionnaire only assesses the relationships between patients and their peers and members of staff and experienced safety. Therefore, it makes no attempt to investigate other aspects of ward culture, such as the effect of activity engagement, on security incidents.

It is clear that many similarities exist between the factors that cause incidents in prisons and psychiatric services. Aspects of ward culture such as interactions with others seem to be linked with aggression in all settings. Similarly, physical environmental factors are also cited as an issue in both populations. However, it is also clear that this research tends to focus on aggressive incidents. This is problematic, as research has shown that physical assaults and verbal abuse make up less than 30% of incidents that occur in high secure care (Uppal & McMurrin, 2009). This means that the research has so far omitted to investigate contributors to incidents such as security breaches, attempts to escape, theft, property damage, harassment and other inappropriate behaviours. If the environmental predictors of these incidents are better understood, it is likely that negative behaviours can be managed in a more effective manner. In turn, a safer environment can be created. This is important, as patients are more likely to engage with the service when they feel safe (Department of Health, 2010). However, the research discussed does suggest that research needs to move from investigating the role of person characteristics in incidents and toward the role of culture and environment. Psychological and criminological theory also supports the claim that environmental issues are important to consider when understanding security incidents, and which is summarised next.

2.2 Psychological and criminological theory

Within prison misconduct literature importation (Thomas & Foster, 1973) and deprivation theory (Irwin & Cressey, 1962) have been used to explain causes of incidents. These theories are seminal pieces within this literature with most research using these as a basis to explain their results. These theories are orientated towards prison environments. However, as the research discussed has already shown, there are similarities between factors found to cause security incidents in prison and psychiatric

settings. Therefore, these theories can be used to explain why incidents may occur in both.

Importation theory states that problems with discipline in prisons are due to prisoner characteristics. More specifically, the attitudes and beliefs of the prisoners are the main reason that they engage in prison misconduct (Thomas & Foster, 1973; Poole & Regoli, 1983). Although this thesis focuses on environmental factors, this theory should be briefly explained to offer context. It aids understanding for why person characteristics are investigated so thoroughly in the research. It will also aid discussion of the General Strain Theory (Agnew, 2009) later in this thesis. The general idea is that the reasons for offending in the community are the same reasons for engaging in incidents in prison. This includes person characteristics such as age and marital status and previous prison sentences and offending (Damboeanu & Nieuwbeerta, 2016). This theory has been supported by research conducted in prisons.

As discussed, research has shown that factors such as age, sex, family background and the number of convictions are related to higher levels of misconduct (DeLisi et al, 2011; Gover, Perez & Jennings, 2008; Tewksbury, Connor & Denney, 2014). In addition, Walters and Crawford (2013) found that importation factors predicted misconduct of high and high-moderate severity. However, these factors did not predict moderate severity infractions. This suggests that, although importation factors do have an effect on prison misconduct, they are not the only reason. Further, Kuanliang, Sorensen and Cunningham (2008) found that the relationship between age and aggression weakened the less serious the misconduct was. Similarly, Cao, Zhao and Van Dine (1997) found that five out of twelve importation variables predicted serious misconduct and two out of twelve variables predicted less serious misconduct. Age, gender, marriage, race and education level predicted serious misconduct, whereas only age and marital status

predicted less serious misconduct. However, other importation factors such as mental illness, previous misconduct and previous prison sentences did not predict misconduct. This suggests importation factors may not influence all types of prison misconduct equally. In addition, it may be that not all person characteristics, which are associated with offending in the community, are related to misconduct. Therefore, it may be that the suggestions of the importation theory are not accurate. This is the argument the deprivation theory makes.

Deprivation theory states that the prison environment is the main reason for misconduct (Irwin & Cressey, 1962). It argues that life in prison is so oppressive and degrading that prisoners act out in response. For example, Wortley (2002) suggests that there are many opportunities for stress in a prison environment such as crowding and a lack of activities that can motivate prisoners to engage in misconduct. These deprivation factors are often known as the “pains of imprisonment” and can include lack of freedom, autonomy, goods, services, and intimate relationships (Sykes, 1958). Similar to importation theory, deprivation theory has found a lot of support in the literature. For example, van der Laan and Eichelsheim (2013) found that deprivation factors had an effect on prisoner behaviour even when importation factors were controlled for. Positive social interactions between prisoners were associated with greater safety (less theft of property and more personal security) and well-being, and better interactions with staff were associated with an absence of stress and tension. Further, perceiving justice in these interactions increased feelings of safety. Finally, higher levels of daily activities were associated with greater feelings of autonomy and well-being and with lower number of aggressive incidents. Rocheleau (2013) had similar results, finding difficulty in dealing with boredom due to lack of activities and feeling unsafe were related to higher levels of misconduct. Further, negative interactions with staff led to increases in non-violent

misconduct. This suggests that deprivation factors can have a major impact on prison misconduct, and which could then relate to forensic psychiatric care.

As such, although these theories relate to prison life, it is reasonable to apply them to incidents in a forensic hospital as well. Importation theory may explain why individual characteristics such as history of violence, history of drug use, a diagnosis of psychosis, marital status, gender, and age are associated with incidents in hospitals (Dack et al, 2013; Godelieve de Vries et al, 2016; Stewart & Bowers, 2012; Stone et al, 2011; Williamson et al, 2013). Similarly, the relationship between environmental factors and forensic hospital incidents can be explained by deprivation theory. Many of the stressful experiences and 'pains of imprisonment' are also present in these settings. For example, forensic hospitals restrict freedom, autonomy and availability of goods. Crowding, lack of activities and negative interactions with other patients and staff are also issues that occur in these environments. Research has also shown that these are linked to incident occurrence (Chaplin et al, 2006; Hallet et al, 2014; Meehan et al, 2006; Pulsford et al, 2013; Soares et al, 2000; Virtanen et al, 2011). Therefore, it makes sense that similar processes are occurring in all three settings.

It is likely that both importation and deprivation factors work together to impact behaviour. For example, person characteristics may make individuals more likely to engage in security incidents. However, these incidents only occur when environmental factors are also present. In other words, individuals may be more likely to engage in security incidents if they are younger males who have a history of previous misconduct and substance use. However, if the environment of the ward or wing is characterised by supportive relationships, access to activities and options to make decisions about their own care, the likelihood of incidents could be reduced. This is the idea behind general strain theory (Agnew, 2009).

More recently, researchers have used General Strain Theory (GST; Agnew, 2009) to explain prison misconduct rather than importation and deprivation models. This theory integrates both importation and deprivation ideas. In line with the deprivation model, it states that aspects of the environment cause misconduct. However, it also recognises that importation factors such as antisocial values may increase the likelihood of misconduct when these environmental factors are present (Blevins, Listwan, Cullen & Johnson, 2010). General Strain Theory states that individuals use delinquency as a way to cope with negative relationships with others and negative experiences (Morris et al, 2012). As entering prison or a forensic psychiatric hospital itself can be argued to be a strainful experience, this theory is very applicable to these settings (Blevins et al, 2010; Morris et al, 2012). Different types of strain can include; the presentation of negative stimuli (such as high noise levels, crowding and forced interaction with other prisoners), the removal of positive stimuli (such as a lack of autonomy and privacy and restricted interactions with family and friends), and the failure to achieve positive goals (such as privileges, canteen items, personal safety and prison status) (Agnew, 1992). These different types of strain can cause feelings of disappointment, fear, anger and frustration (Agnew, 2001). Indeed, Blevins et al (2010) suggest that chronic strain as a result of prison life can affect an individual's ability to cope with strain, which in turn influences the way that they respond. For example, Ellis and Savage (2009) stated that chronic strain could lead to extreme stress, which in turn would make an individual feel less safe and as if they do not have the ability to escape the strainful experiences. In turn, they may ultimately respond to strain by engaging in misconduct as a way to remain safe (Ellis & Savage, 2009). Further, Agnew (2009) suggests that high levels of strain may make an individual more willing to engage in misconduct as it contributes to a

reduction in social control, fosters beliefs that are favourable to crime and increases the individuals association with delinquent peers.

Prison misconduct research supports General Strain Theory. For example, prison units that are characterised by higher levels of strain tend to have higher levels of misconduct such as assault and rule breaking (Morris et al, 2012). In addition, specific types of strain have been associated with prison misconduct. A perception of higher levels of restriction due to greater surveillance by staff has been associated with increased misconduct (Huebner, 2003; Steiner & Wooldredge, 2008). Further, levels of autonomy (Wright, 1991, 1993; Goodstein & Wright, 1989), and loss of access to outside social support due to strict visitation policy (Carlson & Cervera, 1992; Jiang, Fisher-Giorlando & Mo, 2005; Pollock, 2002) have also been found to be related to misconduct. As outlined above, many factors that could be considered types of strain have been found to be related to incidents in hospital settings. Higher levels of restriction (Duxbury, 2002; Finnema et al, 1994; Gadon et al, 2006), overcrowding (Chaplin et al, 2006) and reductions in autonomy (Finnema et al, 1994; Urheim et al, 2011) have all been associated with increases in incident numbers. Therefore, General Strain Theory provides further support for the idea that the environment of a prison has a great impact on resident behaviour.

The reason why types of strain may increase the risk of incidents occurring can be explained by the Good Lives Model (Ward & Gannon, 2006). The good lives model states that individuals have needs and aspirations and that offending can result from using ineffective methods to realise these needs (Fortune, Ward & Polaschek, 2014). It is argued that there are eleven primary goods that individuals strive to achieve (Ward & Gannon, 2006). These include; life (including healthy living), knowledge, excellence in work, play, excellence in agency, inner peace, relatedness (intimate, romantic, family

and other relationships), community, spirituality, pleasure and creativity. The model states that the presence of all of these goods is necessary, but that individuals may weight these based on their sense of identity or meaning in life (Ward & Maruna, 2007). For example, some individuals may believe relatedness to be the most important primary good, whereas others may value creativity to a greater extent.

The similarities are clear between the primary goods of the Good Lives Model and different types of strain. For example, the removal of positive stimuli such as unrestricted interaction with friends and family relates to the primary goal of relatedness. The primary good of excellence in agency seems to relate to a lack of autonomy and privacy. Therefore, it can be argued that the 'pains of imprisonment' reflect the inability to achieve primary goods, or the inability to achieve them to the level an individual desires. Therefore, types of strain in the environment affect levels of incidents due to individuals trying to achieve primary goods in an ineffective way. The importance of the need of relatedness is examined in theories that suggest that relationships affect an individual's behaviour.

2.2.1 The role of relationships

Research discussed so far surrounding the importance of need fulfilment and reduction of strainful experiences in managing negative behaviours has cited relationships with others as a main factor. It has been suggested that a primary goal of hospital and prison staff should be to develop relationships and provide care to residents as this can help them to manage their period of incarceration (Tait, 2008). Indeed, a great deal of research has suggested a link between staff-patient relationships and security incidents. For example, researchers such as Chaplin et al (2006), Duxbury and Whittington (2005) and Finnema et al (1994) found that communication between staff and patients was crucial in preventing security incidents. Similarly, van der Lan and Eichelsheim (2013)

found that prisoners who felt that they had more support from staff were less likely to be involved in aggressive incidents. Further, prisoners who perceived that they were being treated fairly in their interactions with staff were less likely to engage in misconduct (Reisig & Mesko, 2009). The theories discussed so far, such as the deprivation theory, general strain theory and the good lives model seem to support these findings.

Deprivation factors such as interactions with staff characterised by injustice and a lack of support have been theorised to be a cause of incidents (Wortley, 2002). In addition, General Strain theory states that negative relationships with others are a major cause of strain (Agnew, 1992) and therefore linked to incidents. Further, the Good Lives Model cites relatedness as a primary human good, and therefore difficulty in achieving this may lead to incidents happening. There are several reasons that relationships may be associated with incident numbers such as the legitimacy of authority and procedural justice, interpersonal style and theories of behaviour change.

Legitimacy of authority is the belief of members of the public and offenders that prisons and the legal system are authorities entitled to make decisions (Tyler, 2006). It is the idea that authority is used correctly and that power is exercised in line with rules (Bottoms & Tankebe, 2012). In terms of the prison system, legitimacy includes prisoners accepting prison authority and letting prison officers tell them what behaviour is appropriate. Legitimacy of authority can occur whether the prisoners agree with the behavioural restrictions or not (Jackson et al, 2010). When prison officers are deemed to have a legitimate right to authority, prisoners are more likely to obey the rules and trust will develop between both parties (Liebling et al, 2005; Sparks & Bottoms, 2008). However, if prisoners do not see the regime or prison officers as being legitimate, a higher level of force would be needed to keep control. This in turn would be likely to

result in more rule breaking (Jackson et al, 2010). Research with the police force has found that legitimacy explains variation in compliance with the law (Jackson et al, 2012; Sunshine & Tyler, 2003; Tyler, 2006; Tyler & Fagan, 2009). Within prisons, the relationship inmates have with staff is central to their perceptions of legitimacy (Brunton-Smith & McCarthy, 2016; Franke et al, 2010). Although the research in this area is confined to prison populations, it can relate to forensic hospitals also. These hospitals house individuals detained under the mental health act who “require treatment under conditions of high security on account of their dangerous, violent or criminal propensities” (Department of Health, 2006). As a result of this, there are a variety of strict rules and procedures in place with expectations for patient behaviour (Tilt, 2000). Therefore, the legitimacy of authority of staff applying these rules is likely to be as important in forensic hospitals as it is in prisons. If ward staff’s authority is not seen to be legitimate, it is unlikely that patients will follow the rules. However, this association has not been investigated in the research.

A large part of legitimacy is the perception of fairness or procedural justice. Procedural justice is the idea that rules and processes to resolve disputes are fair and just (Tyler, 2006). Jackson, Tyler, Bradford, Taylor and Shiner (2010) stated that there are four key issues relating to whether a situation is deemed as being fair; voice, neutrality, treatment with respect and dignity, and trust in authorities. Voice reflects the need to provide opportunities for prisoners to participate in decision making. Neutrality reflects the need to make decisions based on the consistent application of rules and proper procedure instead of personal opinions. Treatment with respect and dignity suggests that acknowledging people’s rights and treating with them respect leads them to feeling fairly treated. Finally, trust in authorities indicates that if prisoners feel like authority is not concerned with their well-being, then they will react negatively. If individuals do

not believe that rules are fair, they are less likely to view authority as legitimate and so are less likely to follow the rules (Tyler, 2006). Based on Jackson et al's (2010) description of the four issues relating to procedural fairness, it can be argued that this relates to rules and authority in forensic hospitals. Patients in these hospitals are unlikely to perceive procedures as being fair if they do not have the opportunity to be involved in decisions about their care, if they perceive rules and procedures to be inconsistent, if they believe they are not being treated with respect and that staff members are not concerned with their well-being. In turn, they are likely to believe that staff authority is not legitimate and so rules will not be followed. Although this has not been investigated in forensic hospitals, research has linked procedural justice and legitimacy of authority in prison settings. For example, Brunton-Smith and McCarthy (2016) found that prisoners perceived legitimacy to be higher in prisons where operations were more fair and consistent and where there were better procedures in place for dealing with disputes. It has also been found that police officers can increase their legitimacy even when delivering negative outcomes if they deliver them through fair procedures (Tyler & Fagan, 2008). Further, some of the factors, which Jackson et al (2010) argue determine whether fairness is perceived, have been investigated individually in psychiatric settings.

Jackson et al (2010) explain that for procedural justice to be perceived, individuals must believe that rules and procedures are being implemented consistently. Duxbury (2002), Finnema et al (1994) and Gadon et al (2006) suggested that rules and regulations were associated with incidents. These studies found that where rules and regulations were perceived to be too restrictive by patients, aggression was more likely to occur. In addition, when these rules were not applied consistently, incidents were more likely. It could be hypothesised that the inconsistent and overly restrictive application of rules

results in patients' perceiving injustice. In turn, this may result in patients perceiving the authority of staff members to not be legitimate and so rules would not be followed. Similarly, research has found that treating patients without respect can lead to increases in incidents in care. For example, increases in incidents have been linked to staff adopting superior attitudes so that they can enforce the hierarchy of the wards (Meehan et al, 2006), and staff responding in insensitive ways to patients (Muir-Cochrane et al, 2015). It has also been linked to the failure of staff to keep appointments with patients, take patients seriously and a lack of staff professionalism (Bowers, Brennan, Flood, Lipang & Oladapo, 2006; Finnema et al, 1994). It could be argued that a link has been found between these interactions with staff members due to patients perceiving a lack of fairness and legitimacy of authority. Therefore, although procedural justice has not been investigated in care, it may be the reason why some aspects of ward culture have an effect on incidents.

Legitimacy and procedural justice have been found to be associated with behaviour in prisons (Bottoms, 1999; Sparks, Bottoms, & Hay, 1996). For example, Sparks, Bottoms and Hay (1996) suggested that experiencing justice in prisons increases the perception of legitimacy of authorities. In turn, prisoner behaviour improved. More recently, Reisig and Mesko (2009) found that prisoners who believed prison officer's use of authority as procedurally fair were less likely to report engaging in misconduct and were charged with violating fewer institutional rules. They identified that as perceived legitimacy increased, prison misconduct decreased. Beijersbergern et al (2015) found similar results. Prisoners who felt they were treated fairly were less likely to engage in misconduct in the future. Further research has shown that prisons with lower scores on fairness had higher levels of aggression and rule breaking (Liebling, 2004) and that

prisoners endorsed justifications for violence when they were reminded of times they had been disrespected by an authority figure (Butler & Maruna, 2009).

Much of the research looking at legitimacy and procedural justice has focused on police services and the courts. Research has just started to expand to include prisons. This means that there is no evidence that these theories relate to psychiatric hospital settings. However, forensic hospitals have a set of rules and restrictions in place on their wards, and if these are not implemented fairly, it is justifiable that this would have the same effect on legitimacy of authority and level of incidents as it does in prison settings. Indeed, the research discussed suggests this is the case (Duxbury, 2002; Finnema et al, 1994; Gadon et al, 2006). This could help explain why negative interactions with staff members are associated with higher numbers of incidents; residents may not feel that they are being treated justly, reducing the perception of legitimacy and therefore increasing incidents. Theories that suggest that interpersonal style can have an effect on behaviour provide further evidence for this claim.

The interpersonal style of patients and staff may be a reason that relationships have such an important role in incidents. Kiesler (1987) states that interpersonal style has two dimensions: control and affiliation. On the power dimension, an individual's interpersonal style can range from dominance to submission. On the affiliation dimension, this style can range from hostility to friendliness. It is argued that interpersonal behaviours are designed to induce reactions in others (Daffern, Day & Cookson, 2012). This is termed *complimentarity* (Lillie, 2007). According to complimentarity, behaviours on the affiliation dimension are likely to evoke a corresponding response. Therefore, hostile behaviours would cause a hostile response. However, behaviours on the control dimension are likely to evoke a reciprocal response. For example, dominant behaviours would cause a submissive response.

However, there are individual differences within this, as individuals tend to establish responses that compliment their own interpersonal style (Kiesler & Auerbach, 2003). Usually a hostile-dominant style would result in a hostile-submissive response, but a hostile-dominant response may occur instead. Daffern, Day and Cookon (2012) explained this using the example of a violent offender robbing a young man in a dark alley. They stated that this would usually elicit a hostile-submissive response. The victim would be hostile towards his attacker, but would give the offender his phone and money. However, two young men arguing and fighting in a night club was provided as an example of a hostile-dominant response to hostile-dominant interpersonal behaviour. Both men would feel hostile towards each other, but fighting would occur as neither one of them would be prepared to back down and be submissive.

In hospital and prison settings, these types of corresponding response styles can be seen when staff members are approached by residents who are attempting to secure dominance, i.e. show power and influence over the member of staff (Daffern et al, 2012). These patients may be displaying hostile-dominant behaviours, and the staff member tends to respond in a hostile-dominant way in order to maintain control and security. For example, a patient may try to push boundaries with the staff member to try to gain control over the situation. Staff members can maintain their dominance by maintaining these boundaries. However, this may be viewed by the patient as a threat, resulting in the patient acting in an aggressive way to restore dominance (Lillie, 2007). This tends to result in an escalating cycle of attempts to secure dominance and an escalation in aggressive behaviour (Daffern et al, 2012).

Research investigating the link between interpersonal style and incidents has focused on patient interpersonal style. It has been shown that resident interpersonal style characterised by dominance, hostility and coercion is linked with a greater number of

violent and aggressive incidents (Cookson, Daffern & Foley, 2012; Daffern et al, 2008; Daffern et al, 2010; Dolan & Blackburn, 2006; Doyle & Dolan, 2006; Harris, Oakley & Picchioni, 2014). However, it has not been linked to other types of incidents. The link between incidents and staff interpersonal style has also not been investigated. This is even though researchers such as Hamilton (2010) have suggested that staff interpersonal style is important in understanding incidents. Hamilton (2010) used the Boundary Seesaw Model to explain how the interpersonal style of staff can directly affect the way that patients behave as a response.

The Boundary Seesaw Model (Hamilton, 2010) is a model that can be used to explain the range of interpersonal styles that are presented by staff. It argues that staff interpersonal style ranges on a scale from '*Security Guard*' to '*Pacifier*'. The 'security guard' type of interpersonal style is characterised by extreme control. There is specific emphasis on rules and regulations. In addition, bonding with patients may be seen negatively, as it is perceived to undermine security. However, the 'pacifier' type of interpersonal style was characterised by emotional closeness and an overly accepting attitude. Although individuals with this type of style focused on resident needs, they were placating and self-sacrificing. Both ends of this scale were argued to result in incidents. The 'security guard' style of interaction would result in boundary pushing and then the tightening of boundaries by staff, much like the interaction described by Daffern et al (2012) above. The 'pacifier' style of interaction was argued to lead to boundaries becoming confused and overly flexible resulting in incidents. Hamilton (2010) argued that the '*Negotiator*' was somewhere on the middle of this scale. This style was characterised by relational boundary management, which involved aspects of *both* care and control. This type of style would result in patients feeling safe and contained whilst having flexible boundaries so that residents could assert independence

and autonomy. As seen within the procedural justice literature this is important in making sure that patients perceive fairness in interactions and so are more likely to follow rules (Jackson et al, 2012) Therefore, it seems likely that staff interpersonal style is an important reason why relationships may play such a role in incidents, such as aggression.

As stated above, there is no research at the present time that examines whether there is a link between staff interpersonal style and resident behaviour. However, research conducted with students and teachers suggests that there may be a link. Student perceptions of interpersonal style have been cited as a reason for problems with order in classrooms (Creton, Wubbels & Hooymayers, 1989). For example, Reeve (2009) stated that, based on 44 research papers, students benefited from supportive interpersonal styles, but suffered when it was characterised by control. This indicates that behaviour may be linked to the way that others interact with you. Examples of how the way that staff interact with residents can be seen by looking at theories of behaviour change.

Theories of behaviour change highlight how relationships with staff members may influence engagement in incidents. The Self-Determination Theory of Behaviour Change supports states that behaviour change is most likely to be stable and enduring when it is self-regulated rather than externally-regulated (Markland, Ryan, Tobin, & Rollnick, 2005). Thus, it is beneficial if a client autonomously decides to engage in positive behaviours rather than feeling pressured to do so by outside sources. In order for this to happen, self-determination theory states that the social environment of the resident is crucial. A provision of choice, avoiding controlling language, fostering personally relevant goals and acknowledging conflict all promote autonomous motivation to change (Hagger et al, 2007; Hagger & Chatzisarantis, 2009). A ward culture that encourages competence, autonomy and relatedness is likely to help a

resident develop the resources that they need in order to engage in autonomous regulation of behaviour (Deci & Ryan, 2000). However, when an environment is controlling and rejecting of a resident's needs the resident is more likely to display defensive behaviours and psychological withdrawal (Ryan, Deci & Grolnick, 1995). Therefore, a resident who has a supportive relationship with members of staff who encourage them to reach their goals and allow them to make decisions about their care are likely to engage in behaviours that are more positive. As a result, they are less likely to engage in incidents. However, if their relationship with staff is characterised by control and a lack of the encouragement needed, incidents may be more likely to happen.

2.2.2 Psychologically Informed Planned Environments and Enabling Environments

The concept of *Enabling Environments* (National Offender Management Service [NOMS] and DoH, 2012) uses similar principles as the self-determination theory. It also builds on the Good Lives Model (Ward & Gannon, 2006), and contains principles which allow for the construction of supportive relationships with high levels of legitimacy and fairness. It aims to create an environment where residents feel safe and have all of their needs met. Enabling Environments promote resident wellbeing by targeting aspects of hospital culture such as staff-resident relationships. Residents in an enabling environment develop a sense of belonging and learn new ways of relating to others (National Offender Management Service [NOMS] and DoH, 2012). Staff members also encourage positive engagement in therapy and creative activities and recognise that negative behaviours have a reason behind them that needs to be understood (Haigh et al, 2012). The table below, Table 2.1., explains the ten core values of Enabling Environments (Johnson & Haigh, 2011). It also indicates which of the theories discussed so far relate to these core values.

Table 2.1: The ten core values of Enabling Environments and how they relate to theory

Core value	Explanation	Relate theories
Belonging	The nature and quality of relationships are important	Good Lives Model, General Strain Theory, procedural justice, interpersonal style
Boundaries	There are expectations that patients will follow rules and there are processes to maintain and review these rules	Procedural justice and legitimacy of authority
Communication	All resident behaviour is viewed as a form of communication	Self-determination theory
Development	There are opportunities for residents and staff to be spontaneous and try new things	Good Lives Model
Involvement	Both residents and staff share responsibility for the environment	
Containment	Support is available for residents and staff	Good Lives Model, General Strain Theory, Self-determination theory
Structure	Engagement and purposeful activity is actively encouraged	Good Lives Model, General Strain Theory
Empowerment	Power and authority are open to discussion	Procedural justice and legitimacy of authority
Leadership	Leadership takes responsibility for maintaining the enabling nature of the environment	
Openness	External relationships are sought and valued	Good Lives Model, General Strain Theory

Psychologically Informed Planned Environments (PIPES) are an example of an enabling environment. In these environments, there is a large emphasis on training staff to have an increased psychological understanding of the offending population. It is argued that this enables staff to provide a safe and supportive environment for residents that allows them to retain the benefits gained from treatment and help them to progress through the system (Joseph & Benefield, 2012). In addition, staff members are able to respond on a more empathic level due to an increased understanding of resident behaviour. This means that when incidents do occur, there is the opportunity for residents to talk through it and recognise possible triggers (Brown, 2014). PIPES also place an emphasis on pro-social activities, and have groups where residents can learn a new hobby or skill (Brown, 2014).

Research has shown a number of benefits to the Psychologically Informed Planned Environments. A key outcome was improved relationship skills for the resident (Bond & Gemmell, 2014; Brown, 2014; Castledine, 2015; Turley et al 2013). This tended to be attributed to increased group activities and creative sessions, and to an increased amount of informal interactions between staff and residents (Turley et al, 2013). Further, resident behaviour was shown to improve (Bond & Gemmell, 2014; Brown, 2014; Castledine, 2015; Turley et al 2013), with fewer incidents and a decreased amount of bullying (Turley et al, 2013). The research tends to draw a link between this increase in activities and informal interactions and the improvements in resident behaviour. It suggests that the breaking down of traditional barriers between residents and staff aided the safe management of residents and incidents (Bond & Gemmell, 2014). Residents increased ability to address conflict and talk about their feelings with staff enabled them to more appropriately seek help (Brown, 2014). Similarly, it was suggested by Turley et al (2013) that the positive relationships with staff provided a model for residents

about how to interact and resulted in them taking more responsibility for their actions and behaviours and ultimately led to fewer incidents. Further, residents in these schemes felt that they had better strategies to deal with more challenging interactions (Brown, 2014; Turley et al, 2013). Environments like this focus on the fulfilment of primary goods and, as we have already discussed, these seem to be directly related to types of strain. Goods such as relatedness, community and pleasure and creativity are increased, resulting in strainful experiences such as lack of support network and trouble achieving goals being reduced. Therefore, it makes sense that these environments show reduced numbers of incidents.

However, Psychologically Informed Planned Environments are a fairly new concept and so there are not a lot of studies that evaluate them thoroughly. The research described above was conducted when these environments were new in the service and so further data needs to be collected when the schemes are fully established. This would allow a more detailed picture about how aspects of environment affects resident behaviour. The small amount of research conducted did highlight that there were problems in implementation. Opposing views about prison security and rehabilitation seemed to cause conflict and resulted in poor support and understanding from the wider prison (Bond & Gemmell, 2014). In addition, closer relationships between staff and residents have been found to result in higher levels of stress (Shefer, 2010), fatigue and burnout (McManus, 2010) in therapeutic communities. Therefore, this must be taken into account when creating Psychologically Informed Planned Environments, which are characterised by close relationships. Further, these environments require substantial financial investment and training of staff so that the measures can be provided on a consistent basis (Talyor, 2012). Therefore, Psychologically Informed Planned Environments may be burdened by the financial constraints of the criminal justice

system no matter how innovative and positive they may be. However, it does add to the growing research that suggests that reducing strain and improving the ability to fulfil primary goods such as relatedness may reduce levels of incidents. The physical environment may also have an effect of levels of strain and the ability for patients to fulfil their needs.

2.2.3 Role of the Physical Environment

Earlier in this chapter it was highlighted that parts of the environment such as crowding (Chaplin et al, 2006; Gaes & McGuire, 1985; Megargee, 1977; Wooldredge et al, 2001, Virtanen et al, 2011), poor lighting and noise levels (Soares et al, 2000) and other architectural factors (Hallet, Huber & Dickens, 2014; Morris & Worrall, 2014) have an influence on incidents. According to General Strain Theory, these factors contribute to strainful experiences. Residents are unable to cope with these experiences in a positive way, and so engage in negative behaviours such as engaging in incidents (Agnew, 2009). This seems to be the main theory cited to explain how the physical environment contributes to behaviour in institutions. As such, this section will expand on reasons why the physical environment may contribute to security incidents by looking at literature that suggests the design of the environment can help with crime prevention. It will also look at how research into the effect of physical environment on mental health and well-being may help us to understand its contribution to incidents. Crime Prevention Through Environmental Design is one of the main bodies of research that will be discussed.

Crime Prevention Through Environmental Design (CPTED) was originally described by Jeffery (1977). Jeffery suggested that the physical environment was crucial in understanding crime and that professionals should be able to design the environment so that opportunities for crime were reduced (Jeffery & Zahm, 1993). This approach

involves designing physical space so that the needs of the users are enhanced which is thought to lead to a reduction in crime (Wilson & Wileman, 2005). Interventions include improving natural surveillance and visibility, improving image and aesthetics and the involvement of symbolic thresholds to indicate private space (Landman, 2009). CPTED strategies draw on theories such as the Broken Window perspective (Wilson & Kelling, 1982). This uses a broken window as a metaphor for factors such as abandoned buildings, disrepair, graffiti and high levels of litter in community areas. It states that factors such as these imply that social control is weak in the area, and that offenders are more likely to commit crimes if they believe there is no control. Indeed, it has been argued that working in partnership with residents of a community to target aspects of the environment such as graffiti removal can be effective in reducing crime (Braga, Welsh & Snell, 2015; Smith & Clarke, 2012; Welsh, Braga & Bruinsma, 2015). Research has also found that homeowners whose properties had less litter, graffiti, broken windows and poor lawns experienced fewer crimes (Brown, 2001). This supports the idea that the physical environment can have an effect on crime rates and offender behaviour. Although there is discussion about whether CPTED strategies truly prevent crime (Taylor, 2002), most researchers tend to agree that they have some role in the reduction of crime in communities (Wilson & Wileman, 2005). For example, Samuels (2005) stated that although CPTED cannot prevent crime by itself, it is important in facilitating the link between crime and other factors. It may be that the environment helps to facilitate opportunities that enable crimes to happen (Crowe, 2000).

An association has been found between areas with high levels of CPTED principles and reduced crime rates (Wilson & Wileman, 2005) and low victimisation (Minnery & Lim, 2005). These types of crime prevention strategies have also helped to reduce violence in residential areas (Newman, 1996) and on university campuses (Atlas & Young, 2001).

They have also been shown to reduce robberies (Bellamy, 1996; Clark, 1997) and jail suicides (Tataro, 1999). In a systematic review, Casteel and Peek-Asa (2000) found that robberies were decreased between 30-84% in places where CPTED programs were in place.

Although this research is focused on crime prevention in community settings, it highlights how the physical environment can influence delinquent behaviour. If situational variables are important in facilitating negative behaviours in the outside world, it makes sense that similar factors will have similar contributions in institutional settings. Indeed, many prisons and secure services have traditionally been designed around concepts that fall under the CPTED framework (Moffat, 1983). For example, Morris and Worrall (2014) suggested that CPTED programs relate to telephone pole style prison units in that these units limit what facilities prisoners can access. Similarly, campus style prisons are able to have higher levels of surveillance due to less privacy, which is also an important aspect of the CPTED framework. Therefore, although CPTED principles have been focussed on residential and commercial environments, there is some evidence to suggest they may be applicable to prisons and secure units.

Research surrounding healing environments is important to look at when considering how the physical environment may influence behaviour. Healing environments are an environment within healthcare settings which speed up the recovery time of patients or how long it takes for them to adapt to certain conditions (Schweitzer et al, 2004; Sloan, Devlin and Arneill, 2003; Stichler, 2001). It is based on the idea that aspects of the environment promote recovery based on the way that they affect psychological processes (Dijkstra, Pieterse & Pruyn, 2006). For example, the presence of plants on a ward may make the place feel more homely, which reduces anxiety and then in turn promotes faster recovery (Dijkstra et al, 2006).

Other research has found a link between the physical environment and mental health. For example, crowding, noise, indoor air quality and light have direct effects on mental health (Evans, 2003). It is thought that crowding may have an effect on mental health by interfering with the development of socially supportive relationships, which in turn increases psychological distress (Evans, 2003). Less depression and disorientation has also been found when steps were taken to actively reduce noise and introduce more homelike features to wards (Day & Calkins, 2002). In addition, there seems to be a consensus that the quality of housing can affect levels of psychological distress (Evans, Wells & Moch, 2003). Therefore, it seems that the physical environments of wards can affect the mental health of residents.

Some of the features of wards that effect mental health also seem to affect numbers of incidents. For example, crowding has been linked to greater numbers of incidents (Chaplin et al, 2006; Gaes & Mcguire, 1985; Megargee, 1977; Wooldredge et al, 2001, Virtanen et al, 2011), as have poor lighting and high noise levels (Soares et al, 2000). It may be that the physical environment influences the way that residents behave via the effect it has on mental health. This idea seems to be supported by the General Strain Theory. It states that strain from the environment can bring about feelings of depression, fear and anger which can sometimes mediate the link between strain and negative behaviours (Agnew, 2001).

2.3 A preliminary model to predict security incidents

Based on the research and theories described in this chapter, a preliminary model can be created to explain factors that may influence numbers of security incidents. This is presented in Figure 2.1., below. This model has been created to provide a foundation for the research in this thesis. The theories included in this model will be tested in the next four chapters. In turn, the McKenna Model of Security Incident Prediction will be

created and presented in chapter 7. This will combine the theory in the preliminary model below and the findings of this thesis to provide a tool that can be used in secure psychiatric services to predict incidents.

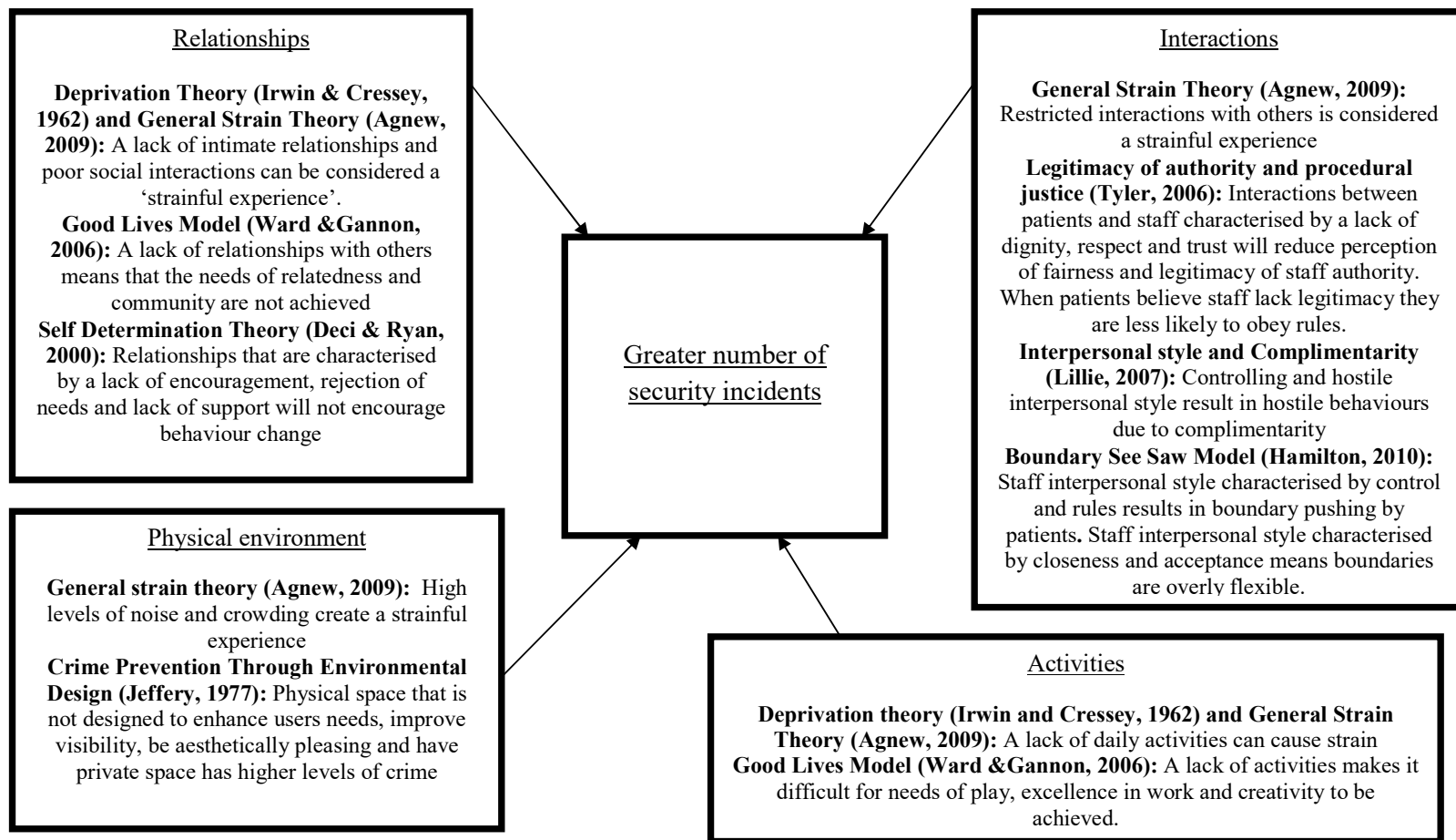


Figure 2.1. A preliminary model to predict security incidents in high secure care

Figure 2.1 provides a preliminary model of security incident prediction in secure care. It details theoretical suggestions for ward culture factors that may be associated with security incidents. The model is comprised of four main categories: relationships, interactions, activities and the physical environment. Poor relationships are argued to be a main contributor to security incidents on secure wards. This is due to the arguments of the Deprivation Theory (Irwin & Cressey, 1962) and General Strain Theory (Agnew, 2009). These theories suggest that a lack of intimate relationships and poor social interactions are considered strainful experiences. According to General Strain Theory these strainful experiences can increase numbers of incidents due to an increase in levels of stress, anger and frustration (Agnew, 2009). Further, a lack of relationships with others means that the needs of relatedness and community explained by the Good Lives Model (Ward & Gannon, 2006) are not achieved. This can result in patients using maladaptive means to achieve these needs. For example, they may engage in aggressive behaviour to get attention from staff, which would in turn help achieve the need of relatedness. Similarly, the Self Determination Theory (Deci & Ryan, 2000) suggests that staff-patient relationships that reject the needs of the patient and lack support are unlikely to be associated with positive behaviours.

The second category described by this model is interactions. Similar to the category of relationships, this part of the model suggests that restricted interactions with others can cause strain in patients which in turn can result in incidents (General Strain Theory; Agnew, 2009). In addition, if these interactions are characterised by a lack of dignity, respect and trust this can reduce how legitimate patients believe staff authority to be (Tyler, 2006). This can be due to reduced levels of perceived fairness and can result in patients disobeying rules and engaging in more security incidents (Tyler, 2006). Figure 2.1 also argues that the interpersonal style of staff in these interactions can influence

security incidents. It uses complementarity (Lillie, 2007) to explain this. Complementarity (Lillie, 2007) suggests that when a member of staff has a controlling and hostile interpersonal style, patients are more likely to respond in a hostile way and engage in a form of security incident. This is supported by the Boundary See Saw Model (Hamilton, 2010), which suggests that staff interpersonal style characterised by control and rules results in more boundary pushing and engagement in security incidents by the patient. However, an interpersonal style characterised by closeness and acceptance results in overly flexible boundaries and greater security incidents. Therefore, staff members need to find a balance between these two types of interpersonal style in order to manage patient behaviour and reduce incidents (Hamilton, 2010).

The final two categories of this model both utilise deprivation theory (Irwin & Cressey 1962), and general strain theory (Agnew, 2009) to explain how patient involvement in activity and the physical environment can help predict the number of security incidents on secure wards. A lack of daily activities can be considered to be a type of strain. Similarly, high levels of noise and crowding in the environment can create a strainful experience. These strainful experiences then cause numbers of security incidents to increase due to their effect on patient stress, anger and frustration. These two categories then use different theories to explain how they are associated with security incidents. According to the Good Lives Model (Ward & Gannon, 2006) a lack of activities would make it difficult for a patient to achieve the needs of play, excellence in work and creativity. In turn, they may engage in security incidents as a way of achieving these needs. Further, figure 2.1 details how Crime Prevention through Environmental Design principles (Jeffery, 1977) informs us of the link between physical environment and security incidents. These principles state that when a physical space is not designed in a

way that enhances patient needs, improves visibility and includes private space for patients, there is likely to be greater levels of negative behaviour such as crime and security incidents.

2.4 Conclusion

Research has shown that aspects of culture and physical environment can increase numbers of incidents in prisons, psychiatric hospitals and high secure services. Theory suggests that this effect is due to strainful experiences in these institutions. The presentation of negative stimuli, the removal of positive stimuli and the failure to achieve positive goals as a result of entering prison or a psychiatric hospital can result in residents engaging in negative behaviours as a way to cope. These strainful experiences may increase numbers of incidents as they can make it difficult for residents to fulfil their primary needs. Research surrounding the Good Lives Model and Enabling Environments prove how need fulfilment can affect behaviour. Relationships with others appear to be a main part of culture that influences behaviour in institutional settings. This may be due to hostile interpersonal styles or perceptions of fairness and legitimacy. Whilst General Strain Theory appears to be the theory most relied upon to explain why the physical environment contributes to incidents, other research relating to crime rates and mental health can be used to help understand this. Crime Prevention Through Environmental Design strategies show how architecture and aesthetics can influence offender behaviour, whilst literature surrounding healing environments suggest that it has an influence over behaviour due to its effect on mental health.

Chapter 3: The effect of ward culture and physical environment on levels of security incidents: A systematic review

This chapter summarises a systematic review of the literature that examines the association between the ward culture, physical environment and security incidents. The term ‘security incident’ covers a range of behaviours within secure hospitals, including harm to others, escape incidents and rule breaking (Department of Health, 2007). The Department of Health (2007) states that security incidents can be grouped into four categories; Category A (e.g. serious sexual assault and hostage taking), Category B (e.g. physical assaults using weapons), Category C (e.g. assaults without weapons and attempted absconding), and Category D (e.g. minor assaults and verbal abuse). This review covers all categories of incidents.

Firstly, the chapter will explain the rationale for the review. Theories that suggest that ward culture and physical environment contribute to security incidents will be discussed. The lack of relevant systematic reviews in this area will also be highlighted. Relevant research will then be identified from literature databases and themes within this will be discussed. Finally, the chapter will highlight limitations of the research included in the systematic review and how further chapters will build upon this.

This systematic review will investigate the link between ward culture and physical environment and security incidents. Culture is a term often used in organisational settings to explain the work environment. Organisational culture is the underlying assumptions in an environment that govern how individuals should act according to a specific context (Korte & Chermack, 2007). Martins and Terblanche (2003) developed a model that explains the different dimensions of organisational culture. The model contains eight dimensions; *mission and vision* (the vision, mission and values of the

organisation), *external environment* (effectiveness of community involvement), *means to achieve objectives* (the way organisational structure contributes to the effectiveness of the organisation), *image of the organisation* (the image of the organisation to the outside world), *management processes* (decision making, formulating goals, control processes and communication of management), *employee needs and objectives* (the integration of employees' needs and objectives with those of the organisation), *interpersonal relationships* (relationship between managers and employees on the management of conflict) and *leadership* (employees perception of areas that strengthen leadership). They argued that issues such as a lack of creativity and innovation in organisations could be explained by organisational culture (Martins & Terblanche, 2003). For example, poor decision making by management, a lack of consideration of employees' needs or poor relationships between managers and employees may influence the productivity of the organisation. This has also been highlighted by other researchers. For example, some have argued that the culture of the organisation defines how members should think and behave (Brown, 1998; Davies, 1984; and Schein, 1985). Others have stated that studying the culture of an organisation makes it possible to understand how employees tend to act and think (Williams, Dobson & Walters, 1994). Although this concept relates to organisations and their staff, it can also relate to residents within secure forensic services.

Wards within secure forensic hospitals can be argued to have cultures of their own and so the aspects of organisational culture included in Martins and Terblanche's (2003) model are applicable to ward culture. For example, the dimension of *interpersonal relationships* could relate to the relationships between patients and staff rather than employees and managers. Similarly, *management processes* could include the ways in which staff members make decisions about care plans and communicate changes to

patients. Further, the dimension of *employee needs and objectives* could instead relate to the integration of patient needs in the organisation. Therefore, it is likely that the ward culture affects the way that patients think and behave in the same way that organisational culture affects employee behaviour. A lack of consideration of patient needs and poor relationships between staff and patients could be argued to influence the effectiveness of treatment on the ward. Indeed, theories such as the Self-Determination Theory of behaviour change support this claim.

The Self-Determination Theory states that behaviour change is most likely to be stable and enduring when it is self-regulated rather than externally-regulated (Markland, Ryan, Tobin, & Rollnick, 2005). Thus, it is beneficial if a patient autonomously decides to engage in positive behaviours rather than feeling pressured to do so by outside sources. In order for this to happen, self-determination theory states that the social environment of the patient is crucial. A ward culture that encourages competence, autonomy and relatedness is likely to help a patient develop the resources that they need in order to engage in autonomous regulation of behaviour (Deci & Ryan, 2000). However, when an environment is controlling and rejecting of a patient's needs the patient is more likely to display defensive behaviours and psychological withdrawal (Ryan, Deci & Grolnick, 1995). In other words, when the needs and objectives, interpersonal relationships, and leadership dimensions of Martins and Treblanche's (2003) model are fulfilled, behaviour change is more likely to occur. When these dimensions are not accomplished, patients are likely to further engage in negative behaviours. Therefore, ward culture seems important in managing patient behaviour. Some research has investigated this link.

Previous research of the ward culture of psychiatric settings has administered questionnaires such as the Ward Atmosphere Scale (Moos, 1989). This scale measures

aspects of ward culture, such as relationships between staff and residents, relationships between residents, the feeling of being safe and secure, the ability for residents to make their own decisions and the encouragement of open expression of feelings. Therefore, it encompasses many dimensions of the organisational culture model outlined by Martins and Treblanche (2003). Research using this scale has found a link between ward culture and patient behaviour. For example, Gebhardt and Steinert (1999) assessed 265 staff and 183 patients from 4 psychiatric wards and found that when ward atmosphere improved, there was a reduction in aggressive behaviour. Similarly, Bowers, Brennan, Flood, Lipang and Oladapo (2006) found that ward atmosphere improvement on two acute psychiatric wards was associated with decreased aggression and absconding. This suggests that ward culture in psychiatric hospitals is linked to security incidents. However, there has been criticism of the scales used in these studies.

Although the Ward Atmosphere Scale is one of the most popular ways for assessing the culture of psychiatric wards, it has been criticised due to its statistical properties (Schalast et al, 2008). For example, Schalast et al (2008) point out that factor analysis was not used to develop the instrument's subscales, and to date the 10 subscale structure of the Ward Atmosphere Scale has not been confirmed. It can also be argued that items included in this scale are outdated. For example, one of the phrases used on this scale is "One may interrupt a doctor". This is likely because the Ward Atmosphere Scale was first written in the 1960s and psychiatric services are much different today. Finally, the scale has 100 items. It can be argued that this is too long for such a questionnaire. Middleboe, Schjodt, Byrting, and Gjerris (2001) have stated that long questionnaires can cause drop-out and missing data and so use of such measures should not be encouraged. Therefore, although the evidence using this scale suggests that patient

behaviour can be influenced by ward culture, it may not be an accurate representation of ward culture factors.

Due to the criticisms of the Ward Atmosphere Scale (Moos, 1989), the Essen Climate Evaluation Schema (EssenCES; Schalast et al, 2008) has been more frequently used. This scale measures aspects of ward culture such as staff-patient relationships, the support patients give each other and experienced safety. Much like the Ward Atmosphere Scale, EssenCES has been linked to patient behaviour. For example, in a study of 11 secure forensic services in the UK, Tonkin et al (2012) found that scores that indicated lower levels of support and cohesion between patients and lower experienced safety were associated with higher levels of aggression. Similarly, in a study of a female psychiatric hospital with two medium security and two low security wards, Long et al (2011) found that ratings indicative of a positive culture were associated with fewer behavioural disturbances. In other words, those wards characterised by greater support, cohesion between patients and greater experienced safety had fewer violent incidents recorded by staff. The scale has also been used to link ward culture and levels of treatment engagement. In the study discussed, Long et al (2011) also found that a positive culture was related to higher levels of motivation and engagement in treatment. In addition, Day, Casey, Vess, and Huisy (2011) found a positive association between EssenCES scores and engagement in a rehabilitation program in 144 Australian prisoners. Therefore, this research suggests that negative cultures are associated with security incidents and positive cultures are associated with engagement and motivation. This indicates that culture is important to consider when trying managing patient behaviour.

Research using the Ward Atmosphere Scale (Moos, 1989) and EssenCES (Schalast et al., 2008) has shown that ward culture has an impact on resident behaviour. Theories

from prison misconduct literature such as Deprivation Theory (Irwin & Cressey, 1962) and General Strain Theory (Morris et al, 2012) may help to explain why this is the case. Deprivation theory (Irwin & Cressey, 1962) and General Strain Theory (GST; Morris et al, 2012) suggest that the culture and environment of institutions effect the way that residents behave. They state that residents are unable to cope properly with the ‘pains of imprisonment’ or strainful experiences. These can include a lack of autonomy and privacy, negative interactions with other inmates and restricted interaction with family and friends (Agnew, 2001). As a result of these experiences, individuals engage in negative behaviours such as violence and rule breaking. The strainful experiences described by this theory can be considered to be part of the ward culture. For example, the strain of lack of autonomy can relate to the dimension of management processes from the Martins and Treblanche (2003) model of organisational culture. This dimension includes the way in which management make decisions. Therefore, if staff members do not involve patients in these decisions, this could contribute to a poor ward culture. Further, Martins and Treblanche (2003) state the importance of interpersonal relationships in creating a positive culture, and this is also considered to be a main cause of strain (Morris et al, 2012). The physical environment is also considered to be a type of strain (Morris et al, 2012) and an aspect of culture (Martins & Treblanche, 2003). Therefore, it can be argued that security incidents occur when patients are unable to cope with negative aspects of ward culture. The Good Lives Model also supports this idea.

It may be that the ‘pains of imprisonment’ prevent residents from being able to fulfil primary needs that the Good Lives Model (Fortune, Ward & Polaschek, 2014) suggests are crucial in order to prevent offending. The Good Lives Model suggests that offending is caused by individuals being unable to achieve primary goods in an acceptable way.

These include; life (including healthy living), knowledge, excellence in work, play, excellence in agency, inner peace, relatedness (intimate, romantic, family and other relationships), community, spirituality, pleasure and creativity. Patients have to deal with a number of restrictions when living in forensic institutions. These may include restrictions of contact with social support on the outside, a lack of privacy, and decreased feelings of autonomy. In turn, this would make it more difficult to achieve primary goods such as relatedness and excellence in agency. According to the Good Lives Model, this would result in offending behaviour as a way of individuals trying to get these needs met. For example, an individual may engage in violent behaviours in order to gain attention and support from staff members and meet the primary good of relatedness. In addition, they may engage in security incidents in order to be put into seclusion, which would enable them to have more privacy. Therefore, it can be seen how a ward culture characterised by strain can affect resident behaviour via the ability to achieve primary goods.

The General Strain Theory (Morris et al, 2012) and organisational culture models (Martins & Treblanche, 2003) include the dimension of the physical environment. The idea that this can affect behaviour is supported by theories surrounding the environment's contribution to crime in the community. For example, Crime Prevention Through Environmental Design strategies suggests that the physical environment can be designed in a way that enables crime rates to be reduced (Wilson & Wileman, 2005). Improving the image and the natural surveillance and visibility of an area are ways in which this has been shown to work (Landman, 2009). Theories such as the Broken Window perspective (Wilson & Kelling, 1982) have similar ideas and have shown that the way in which environments look impact offending behaviour (Brown, 2001). Research has also shown that similar factors can affect behaviour in prisons (Morris &

Worrall, 2014). Within healthcare settings, focus has tended to be on how the physical environment can promote recovery and lessen psychological distress (Dijkstra et al, 2006; Evans, 2003). Nonetheless, it seems that there is evidence that suggests that physical environment can affect behaviour and feelings of individuals.

3.1.1 Rationale for the study

The overall aim of this PhD research is to investigate security incidents within a high secure population. To date, there is a lack of research addressing this issue with this population. This means that the literature using prisons and psychiatric hospitals has to be understood as a basis for future research using high secure populations. There are no such reviews currently available.

Previous systematic reviews have been undertaken which address certain aspects of the research question but do not investigate it as a whole. For example, Gadon, Johnstone and Cooke (2014) conducted a systematic review of contributors to incidents including research from both prisons and psychiatric hospitals. However, they focused on violent incidents such as assault and did not include research that looked at other types of incidents such as rule breaking, protests or contraband. Similarly, Hallet, Huber and Dickens (2014) looked only at violence in their review of research in psychiatric inpatient settings. It is important that other types of security incidents are researched. Uppal and McMurrin (2009) found that aggressive incidents accounted for less than 30% of the overall incidents in the service they assessed. This means that at least 70% included incidents such as property damage, threats, theft and rule breaking. Therefore, these systematic reviews do not address the majority of security incidents happening in care. In order for a safe environment to be created, the environmental contributors to these types of incidents also need to be investigated.

Some reviews, include research that investigated all types of security incidents. For example, Goncalves et al (2014) reviewed studies which investigated predictors of assaults, escapes, riots, contraband, theft and substance use. Steiner, Butler and Ellison (2014) also reviewed studies which investigated both violent (e.g. assaults) and non-violent (e.g. drug violations) incidents. However, these focused on prison samples and did not use research that looked at psychiatric settings. In addition, Goncalves et al (2014) only looked at physical environment contributions without factoring in ward culture variables.

Additional reviews of research focused on specific factors within the variables of ward culture and physical environment. For example, Franklin, Franklin and Pratt (2000) only addressed the impact of prison crowding on security incidents in their meta-analysis. Although this meta-analysis provides detailed information about whether prison crowding is linked to security incidents, it does answer the present research question. Therefore, there does not appear to be a published systematic review that includes all types of security incidents, environmental factors and uses research in prison and psychiatric settings.

Finally, this review wanted to include inquiries and reports undertaken at high secure services due to the lack of research literature available with this population in this area. These inquiries include detailed investigations about the causes of serious adverse incidents. Therefore, they can provide crucial information about how the ward culture and environment can affect security incidents. No systematic reviews currently available have undertaken this. Therefore, it can be seen that the research to date lacks a comprehensive review of all research in this area. This is needed in order to understand what factors may affect incidents in high secure care.

3.1.3 Review aims

The aim of this review was to systematically review studies that examine how ward environment can influence security incidents. It aims to understand whether there are similarities and differences between research conducted in prisons and psychiatric settings, as well as investigating themes in the available literature that can be used to inform future research in this area.

3.2. Method

A systematic literature review was conducted and reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines (PRISMA; Moher et al, 2009).

3.2.1. Search strategy

The search terms were developed to answer the hypotheses above using key words from the TILT tool used in secure psychiatric care to record security incidents. This tool includes information such as whether the resident has a history of behaviours such as assault, rule breaking, substance use and protests. It details the effect of such behaviours on the ward, and is useful when determining a resident's risk level. The TILT contains a wide range of security incidents that occur within secure care, such as hostage taking, weapon use, assault, pornography and drugs. Therefore, it provides a good base to develop search terms. Basing it on this tool ensures all relevant types of security incidents are included in the review. Terms relating to ward/wing culture and security (such as culture, atmosphere and environment) were also included in the review.

A range of databases was used within this review to ensure all literature relating to this area was obtained. Research was identified via PsychINFO, PsychArticles, Web of Science and Scopus databases. Each included study's reference list was screened to

identify further studies. Relevant unpublished research was searched for using CLOk and EThoS systems. Inquiries were selected from the Clinical Security Framework (resource database for staff use) used at high secure psychiatric hospitals based on the subject of the report. The table below (Table 3.1.) shows the search strategy used to identify relevant research from PsychINFO, PsychArticles, and Web of Science and Scopus databases.

Table 3.1. *Example of electronic search strategy – PsychINFO*

Search Terms	Hits
1) Culture	184,486
2) Atmosphere	6,770
3) Environment	299,911
4) Security	28,147
5) 1 OR 2 OR 3 OR 4 ¹	491,881
6) Incident	20,187
7) Misconduct	2,611
8) Assault	11,549
9) Aggress*	84,858
10) Substance	151,345
11) Boundar*	32,507
12) Hostage	543
13) Protest	3,330

(Continued on next page)

Search Terms	Hits
14) Rules	50,816
15) 6 OR 7 OR 8 OR 9 OR 10 OR 11 OR 12 OR 13 OR 14 ²	342,327
16) Inpatient	65,746
17) Psychiatric	310,910
18) Ward	21,129
19) Hospital	325,896
20) Prison	18,326
21) Wing	6,302
22) 18 OR 19 ³	337,594
23) 20 OR 21 ⁴	24,549
24) 16 OR 17 OR 22 OR 23 ⁵	589,504
25) 5 AND 15 AND 24 ⁶	6,609

Note: 1. Culture OR Atmosphere OR Environment OR Security. 2. Incident OR Misconduct OR Assault OR Aggress OR Substance OR Boundar* OR Hostage OR Protest OR Rules. 3. Ward OR Hospital. 4. Prison OR Wing. 5. Inpatient OR Psychiatric OR (Ward OR Hospital) OR (Prison OR Wing). 6. (Culture OR Atmosphere OR Environment OR Security) AND (Incident OR Misconduct OR Assault OR Aggress* OR Substance OR Boundar* OR Hostage OR Protest OR Rules) AND (Inpatient OR Psychiatric OR (Ward OR Hospital) OR (Prison OR Wing)).*

3.2.2. Study selection criteria.

Studies were deemed relevant and full text articles retrieved if they satisfied the following inclusion criteria:

- 1) assessed the impact of cultural, environmental or security factors on one or more security incidents;
- 2) used in-patient psychiatric, forensic psychiatric or prison populations; and
- 3) were deemed to have an appropriate level of quality (see section 3.2.3).

Literature reviews (if not systematic) were excluded from the study as they were considered not to be primary research. Papers were not excluded because of year published or language, although no papers were found in a foreign language. Potentially relevant papers were screened by the title, abstracts and then full text based on the selection criteria outlined above. Publically available inquiries were included if they fulfilled the following criteria:

- 1) investigated a security incident at a high secure hospital or prison;
- 2) provided an examination of security factors in secure services.

3.2.3. Study quality assessment

The National Heart, Lung, and Blood Institute quality assessment tools were used. These tools provide specific checklists for different types of study methods, and so were suitable for use with systematic reviews and studies using record based or self report data. The checklists allowed the reviewer to assess the quality of the studies in regards to the characteristics of the study sample, the definition of variables, and the measures and methods used. For systematic reviews, the methods for collection, inclusion and quality appraisal of included studies were assessed. After completing the checklist

questions, assessors are asked to rate each study as being of good, fair or poor quality. No studies assessed were deemed to be of poor quality, and so all that reached this stage were included. Inquiries were not assessed for quality.

3.2.4. Synthesis of study results

Key information such as methods used, participant characteristics, population assessed, measures, results, author conclusions, bias concerns and funding information was extracted from the articles and entered into a spreadsheet in Microsoft Excel. For the inquiries included in the review, key information about the background and terms of reference for the inquiry, the main conclusions of the authors and the recommendations put forward was extracted. Literature included in the review included both inquiries and research papers with differing methods and measures. Therefore, meta-analysis was not used.

3.3. Results

3.3.1. Search results

A total of 7,062 article hits were returned. Removal of duplicates resulted in 6,902 articles. These were then screened for relevance based on titles and abstracts. Based on the study selection criteria, 43 papers were initially deemed as relevant. On inspection of the full text articles, six more of these were excluded. Four were identified as not assessing the impact of relevant factors on security incidents and two were literature review articles without a systematic method. When searching reference lists, four further studies were identified as potentially relevant. These were screened for eligibility and included in the final sample. This resulted in a total of 41 studies in the review. Six reports were originally thought to be appropriate for this review. On further examination, one report found on the database was excluded from further evaluation. This report was revealed to be a description of events rather than an inquiry.

Figure 3.1, below, illustrates a flow diagram which shows the number of papers included and excluded at each stage of the search process.

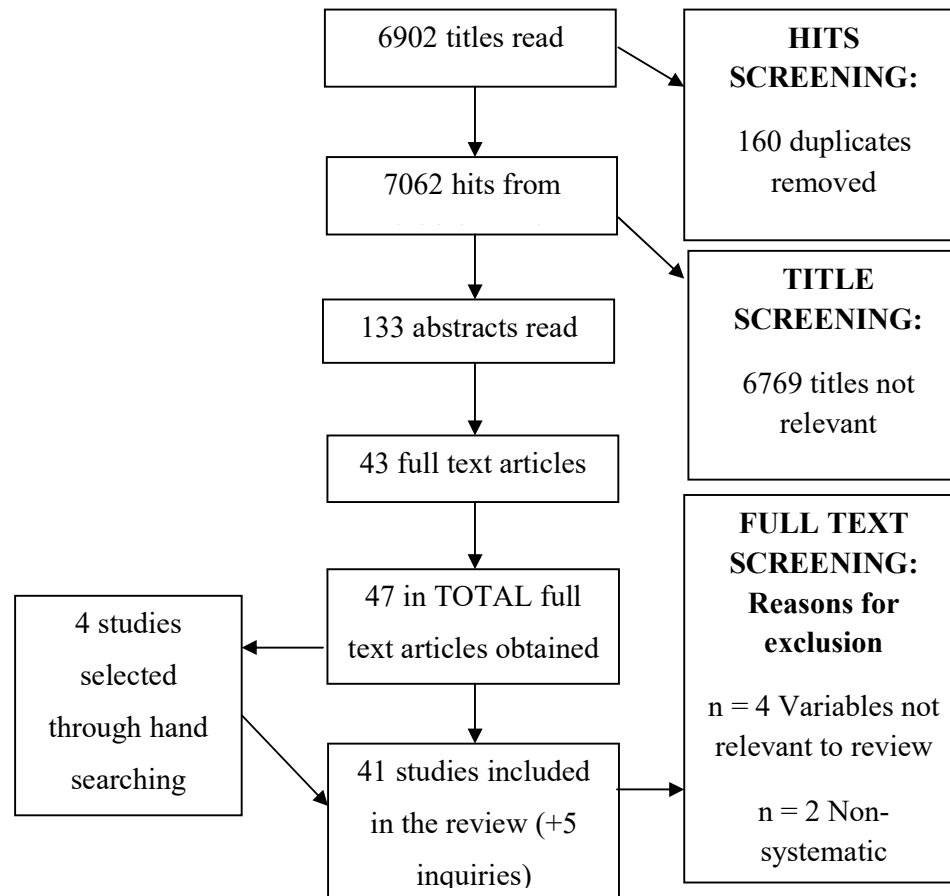


Figure 3.1. *Literature search process*

3.3.2. *Study characteristics*

All inquiry reports included in the review were undertaken in high secure psychiatric services. No reports were found relating to prisons. Two of these were conducted at Ashworth Hospital, one related to all three high secure hospitals, and two were relevant to Broadmoor hospital. One of the Broadmoor reports also included non-forensic inpatient and community mental health services. One report focused on security and another focused entirely on cultural factors. The other three included in the review address both. The inquiries were set up to investigate serious incidents at the hospital including fatal assaults, drug availability and child visitation.

Reviewed studies were based in in-patient psychiatric facilities (n = 24) and prisons (n = 15). Two studies used both psychiatric and prison samples. All studies apart from three were based in adult facilities. Most of the studies looked at the impact of culture on number of incidents (n = 14), but the physical environment (n = 7) and security factors (n = 4) were also investigated. Sixteen papers studied a combination of these factors (culture and security = 4, culture and environment = 10, environment and security = 1, all three factors = 1). A variety of different methods were used to collect data including questionnaires (n = 7), interviews (n = 4), and record based data (n = 12). Some studies used a combination of these (record based data and questionnaires = seven, questionnaires and interviews = two, interviews and record based data = one, all three methods = 2). Two studies reviewed were systematic review papers, and three used meta-analysis.

A range of incidents was investigated. Assault was the incident most widely covered (n = 27). Verbal abuse (n = 12), threats (n = 4), aggression towards objects (or property

damage, n = 10), sexual assault (n = 6), theft (n = 3), weapons (n = 6), substances (n = 3) and riots (n = 2) were also included. Thirteen papers stated they were looking at instances of aggression or violence but did not give definitions for what types of behaviour were included in these. In general, studies conducted with prison populations investigated a wider range of incidents.

Table 3.2, below, shows the main study characteristics of each of the reviewed studies.

The official inquiries and reports are not included in this table.

Table 3.2 Methods and main findings of reviewed studies

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Allen & Cummings (2011)	Culture	Assaults	Adult in-patient psychiatric facility	Record based data used to compare levels of assaults before and after implementation of the Staying Safe Program	Number of assaults and staff injuries related to assaults decreased
Allison & Ireland (2010)	Culture and security	Bullying	Adult male prison	Questionnaires used to look at the link between environmental factors and self-reported bullying	Emphasis on rules, regulations and security factors were predictive of perpetration of bullying
Bidna (1975)	Security	Assaults on staff and weapons	12 adult male prisons	Record based data used to examine the effects of tightened security policies on prevalence of violent incidents	Stabbings and use of weapons were reduced by tightened security but assaults on staff didn't change

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Bonnell, Alatishe & Hofner (2014)	Culture	Verbal abuse and assault	Child and adolescent in-patient psychiatric facility	Record based data used to compare number of incidents before and after restructuring took place	No significant differences in the number of incidents before and after restructuring
Bowers et al (2006)	Culture	Verbal abuse, assault, rule breaking, substance misuse	Two adult in-patient psychiatric wards	Questionnaires used to assess the effects of a model designed to change practice on levels of incidents	Levels of verbal abuse and physical violence were reduced. With rule breaking, refusal to get out of bed decreased but refusal to attend to personal hygiene increased
Bierie (2012)	Environment	Homicide, assault, sexual assault	Adult prison	Record based data and questionnaires used to investigate if differences in prison characteristics are related to differences in violence	As the quality of physical conditions (privacy, noise and cleanliness) improved, levels of violence declined. Security level was controlled.

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Camp & Gaes (2005)	Security	Violent and non-violent	Adult male prisons	Used record based data to look at differences in misconduct levels between inmates randomly assigned to prisons with higher or lower levels of security	No differences in levels of violent or non-violent were found
Chaplin, McGeorge & Lelliott (2006)	Culture and environment	Violence	Adult in-patient psychiatric facilities, forensic psychiatric	Questionnaires and record based data used to audit	Boredom, activities, staff attitudes and overcrowding
Daffern, Mayer & Martin (2004)	Culture and environment	Assault, verbal abuse and property damage	Two forensic psychiatric hospitals	Compared record based data about number of incidents in two facilities with different environments	An increase in personal space and access to recreational and educational activities did not reduce the rate of aggression

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Duxbury (2002)	Culture	Verbal abuse, threats and assault	Adult in-patient psychiatric facility	Questionnaires, interviews and record based data used to assess staff and patient views of the triggers for aggression	Problematic interventions, restrictive environments and regimens, and staff interaction perceived to contribute to aggression
Duxbury & Whittington (2005)	Culture	Aggression	Adult in-patient psychiatric facility	Questionnaires and interviews used to determine what factors patients and staff believe to contribute to aggression	Culture and design of the ward, poor communication between patients and staff, and the situation were seen to contribute to aggressive behaviour
Finnema, Dassen & Halfens (1994)	Culture	Aggression	Adult in-patient psychiatric facility	Interviews used to investigate staff views about antecedents to aggression	Lack of privacy, forced conforming to ward rules, absence of clear policies, inadequate staff attitude, lack of patient influence on care plans and freedom of action were seen as causes of aggression

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Franklin, Franklin & Pratt (2006)	Environment	Violent (assaults and homicides) and non-violent (basic rule violations)	Adult prisons	Meta-analysis of 16 studies to see if crowding was related to higher levels of incidents	Crowding did not have a substantial impact on incident levels in prison
Hallet, Huber & Dickens, (2014)	Culture and environment	Aggression	Adult in-patient psychiatric facilities, forensic psychiatric services	Systematic review to determine which factors were thought to prevent aggressive incidents from occurring	Communication, knowledge of staff, experience of staff, limit setting, staff mix, staff training, organised activity, physical environment and policy and rules seen to be factors in preventing aggressive incidents
Jenkins, Dye & Foy (2015)	Environment	Assault, verbal abuse, property damage	In-patient psychiatric facility	Used questionnaires and record based data to compare two wards with different environments	The new ward had lower levels of incidents. This was said to be due to increased privacy, space and visibility

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Johnson et al (1997)	Culture and environment	Aggression	Adult in-patient psychiatric facility	Interviews used to establish patient's views about the causes of aggression	Aggression was seen to be strongly influenced by environmental factors such as lack of freedom, lack of space policies that restricted freedom and took away privileges and interactions with staff and other patients
Kupchik & Snyder (2009)	Culture and environment	Fighting, assault, theft and sexual assault	Juvenile prisons	Used record based data (prison records, climate surveys) to see whether characteristics of the prison were associated with levels of victimization	Inmates having a better understanding of the rules and viewing staff as more helpful were linked to less victimization

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Long et al (2011)	Culture and security	Aggression	Adult forensic psychiatric facility	Questionnaires to look at the effects of ward culture on aggression and the relationship between culture and security	More positive perceptions of ward culture were associated with lower levels of risk behaviours and seclusion. Wards with lower levels of security were perceived to have more positive environments
Marcum, Hilinski-Rosick & Freiburger (2014)	Security	Serious (assault, property damage) and less serious (refusing staff requests)	Male and female adult prisons	Used record based data to investigate whether differences in facility type were associated with differences in levels of incidents	Facilities with higher levels of security had more serious rule violations (assault, property damage)
Morris & Worrall (2014)	Environment	Violence, property crimes, drugs, possession of contraband, security related incidents (threats, disturbances and weapons)	30 adult male prisons	Used record based data to see if the architecture of a prison had an effect on incidents when controlling for inmate characteristics	Telephone-style units had less property and security related incidents than campus-style units.

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Muir-Cochrane, Baird & McCann (2015)	Culture and environment	Aggression	In-patient psychiatric facility	Used interviews with staff to find out what factors they believed to be associated with aggression	Staff believed high levels of noise and crowdedness were associated with the initiation of violence. Staff factors such as experience and interpersonal style also related
Olver et al (2009)	Environment	Aggression	In-patient psychiatric facility	Compared two wards with different environments using record based data	There was a reduction in aggression in the new facility. The new facility had more privacy, more indoor and outdoor space, larger windows and more light availability

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Powell, Caan & Crowe (1994)	Culture	Assault	Three adult in-patient psychiatric facilities	Record based data used to assess antecedents to aggressive incidents	Antecedents included restrictions, medication, physical restraint, interactions with staff and other patients and hospital regime
Pulsford et al (2013)	Culture	Aggression	Adult high secure forensic psychiatric facility	Questionnaires used to investigate which factors staff and patients believed led to aggression	Staff and patients agreed that restrictive environments, poor communication and ward situations lead to patient aggression
Ros et al (2013)	Culture	Assaults, threats, verbal abuse, sexual intimidation, arson and property damage	Adult forensic psychiatric facility	Questionnaires and record based data used to look at the relationship between culture and incidents	When a culture was more structured, therapeutic and supportive with opportunities for growth there were fewer incidents

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Shepherd & Lavender (1999)	Culture	Assault, sexual assault, verbal abuse, property damage	Adult in-patient psychiatric facility	Interviews and record based data to identify antecedents in specific aggressive incidents	Antecedents included refused requests, insistence on activities, patient-patient interactions, organisational limitations and unoccupied/passive activity
Steiner, Butler, & Ellison (2014)	Culture, environment and security	Violence, drugs and other non-violent incidents	Adult male prisons	Systematic review of 98 studies of inmate misconduct	A larger population of inmates was associated with more incidents, but there was no significant association with crowding. Higher levels of security were linked to more incidents. Participation in work assignments was related to lower levels of misconduct in half of the models.

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Steiner & Wooldredge (2009)	Culture and environment	Assault and non-violent incidents	Adult female prisons	Used record based data in two different years to investigate whether environmental factors were associated with incidents in female prisons	Crowding associated with more assaults and non-violent incidents. Participation in work assignments was related to higher levels of non-violent incidents
Tonkin et al (2012)	Culture and security	Aggression	11 adult forensic services including psychiatric facilities and prisons	Questionnaires to look at the link between ward culture and prevalence of aggression	Wards/wings more negative perceptions of ward culture had higher levels of aggression. Residents in more secure hospitals had more negative perceptions of ward culture and those in more secure prisons rated their unit as less safe

Reference information	Variable(s) examined	Type of incident	Setting	Study methods	Study findings
Urheim et al (2011)	Culture	Aggression and escapes	Adult high secure forensic psychiatric ward	Questionnaires, interviews, record based data and observations used to look how changes in the culture of the hospital over 18 years have effected rates of violence	Patient autonomy increased, control over patients decreased and rates of violence decreased
van der Helm et al (2012)	Culture	Assault, verbal abuse and indirect aggression (anger and hostility)	Child and adolescent prison	Questionnaires used to assess how the prison's culture contributed to aggression	Cultures characterised by support, opportunities for growth and rehabilitation protected against incidents via its effects on neuroticism
Virtanen et al (2011)	Environment	Assault, weapons, property damage	Adult in-patient psychiatric facility	Questionnaires and record based data used to investigate overcrowding and incidents	Overcrowding was associated with a higher perceived risk of assault

3.3.3. *Thematic analysis*

This stage of analysis aimed to organise and present the data extracted from the reviewed studies in a way that allows common outcomes to be identified. This was done using a method of thematic analysis outlined by Thomas and Harden (2008). They adapted thematic analysis typically used in the analysis of interview transcripts for use in systematic literature reviews. Within this the main results of each paper is line coded and then these codes are organised into related themes. Meetings were conducted with two other researchers to ensure that the themes identified were the best fit for the data. These researchers were blind to the aims of the study. In the meetings, the themes were discussed in terms of how they were identified and the supporting evidence. Labelling of themes was also discussed to make sure that they represented the content explicitly. Based on these meetings, none of the content of the themes was changed. However, some theme names were changed so that they described the content more explicitly.

A table that illustrates the methods and main findings of each of the reviewed studies is provided in Table 3.2. In some studies, other variables were investigated alongside those that are of interest (e.g. person characteristics). In these cases, only the information that is relevant to this review will be discussed.

Five main themes were identified using this process of analysis. These themes highlighted which factors the research believed to be related to an increase in security incidents. The themes were; *negative staff characteristics*, *negative interactions with others*, *inadequate physical environment*, *overly restrictive environment* and *lack of consistent and meaningful recreation*. The first theme to be discussed is *negative staff characteristics*.

3.3.4. *Theme 1: Negative staff characteristics*

The way that staff behaved in front of patients or inmates was seen as a trigger for incidents. This theme was split into two subthemes; *lack of knowledge and experience in staff*, and *staff failure to value patients and show respect*.

The first sub-theme was *lack of knowledge and experience in staff*. Staff factors such as knowledge and experience were highlighted as important in many studies (Long et al, 2011; Tonkin et al, 2012). Knowledge about the theory behind the care being given, about individual patients and about mental illness was cited as a way of reducing security incidents (Bowers et al, 2006; Hallet et al, 2014). Indeed, staff not having an understanding of risk and ways to manage it was identified as a critical factor in one major incident report (Francis et al, 2009). Muir-Cochrane, Baird and McCann (2015) stated that this lack of knowledge meant that staff were not able to sufficiently meet patient needs. This led to an increase in incidents. In addition, experience of working with the population was important in reducing levels of security incidents (Chaplin et al, 2006; Hallet et al, 2014). Having an adequate number of staff was important, but they needed to be well educated and experienced for this to have a major impact on incident levels (Gadon, Johnstone & Cooke, 2006; Muir-Cochrane et al, 2015). Soares, Lawoko and Nolan (2000) suggested that those with less than ten years of experience were more likely to be involved in aggressive incidents. In addition, the introduction of more specialised staff that were able to bring experience from other areas such as psychology and occupational health was seen as beneficial (Bonnell et al, 2014). Within this, staff attending training appeared key, especially when this related to aggression and risk (Hallet et al, 2014).

The next sub-theme of negative staff characteristics was *staff failure to value patients and show respect*. The failure of staff to value patients and show them respect appeared

to be linked to increases in security incidents such as aggression. Residents believed that staff members' negative attitudes were a major factor in the lead up to violence (Bowers et al, 2006; Hallet et al, 2014). These included instances where it was perceived that staff were purposefully winding patients up (Chaplin et al, 2006) or adopting superior attitudes as a way of enforcing the hierarchy of authority on the wards (Meehan, McIntosh & Bergen, 2006). Some of the research cited that staff members could respond to patients in an inappropriate or insensitive way, and that this could instigate incidents (Muir-Cochrane et al, 2015). The failure to keep appointments with residents, not taking residents seriously, interrupting residents, aggressive behaviour and a lack of staff professionalism were all cited as being linked to security incidents (Bowers et al, 2006; Finnema et al, 1994). The general attitude of staff at high secure psychiatric services seemed to be a primary cause for complaint amongst residents. This included the perception that staff were not treating others with respect, mistreatment of residents, and harsh and degrading punishments (Blom-Cooper et al, 1992; McGlynn et al, 2009). A similar theme is discussed next; *negative interactions with others*.

3.3.5. Theme 2: *Negative interactions with others*

Negative social interactions with others were cited in the research as a reason that incidents occurred. This theme is separate to theme 1 as it includes interactions with staff and other residents. There are two sub-themes; *lack of quality support from others*, and *perceived provocation from others*.

Firstly, *lack of quality support from others* focused on the idea that a lack of quality support from staff and other residents increases levels of security incidents. The availability of such support appeared a major factor in this. For example, care staff taking time to interact with patients informally (e.g. making time to have a cup of tea

with the patient) was identified as a preventative measure to aggressive incidents (Francis et al, 2009; Hallet et al, 2014). Further, interactions of a longer length were associated with fewer incidents (Gadon et al, 2006). However, there was acknowledgement that the quality of this support was more important. More than staff being present, they should be engaged with the patients and show understanding of their issues (Bowers et al, 2006; Cooke, 1989; Duxbury & Whittington, 2005). Kupchick and Snyder (2009) found that inmates who saw staff members as more helpful were less likely to be involved in incidents. Relating to this, Francis et al (2009) concluded that the lack of quality support given to a resident by their primary nurse was a major antecedent to a serious incident occurring. This type of quality support between residents was seen to be important (Bowers et al, 2006; Long et al, 2011; Tonkin et al, 2012). Some literature within this theme identified that an 'open climate' protected against security incidents in prisons (Ros et al, 2013; Van der Helm et al, 2012). An open climate is characterised by supportive interactions between residents and others. This included engagement with others and showing empathy in communication.

The second sub-theme of negative interactions with others was *perceived provocation from others*. This sub-theme includes research reviewed that suggests perceived provocation from others is an antecedent to security incidents. This provocation can come from other residents, staff or visitors (Johnson et al, 1997; Powell, Caan & Crowe, 1994; Pulsford et al, 2013). Although interactions between residents and others may not be intentionally provocative, the resident may perceive that they are and so may act aggressively. Shepherd and Lavender (1999) stated that lack of communication about changes in care to patients could be seen as provocative by patients and so aggression may be retaliation to this. The physical environment was also seen to provoke patients

to engage in security incidents. This is discussed below in theme 3: *inadequate physical environment*.

3.3.6. Theme 3: *Inadequate physical environment*

The physical environment was seen to have an impact on the numbers of incidents. *Crowding, lack of privacy and personal space* and *sub-optimal architecture* are included in this theme.

The first sub-theme, *crowding*, includes research that generally suggests that crowding has an effect on incident numbers. Higher levels of crowding was associated with violent and non-violent incidents (Steiner & Wooldredge, 2009; Virtanen, 2011). Staff in prisons and psychiatric facilities perceived crowding to be a trigger for violence (Chaplin et al, 2006; Martin et al, 2012; Muir-Cochrane, Baird & McCann, 2015). However, some studies reviewed had contradictory findings and did not find that crowding influenced incident numbers (Franklin, Franklin & Pratt, 2006; Gadon, Johnstone & Cooke, 2006; Steiner, Butler & Ellison, 2014). One study found that although crowding was not a significant factor, an overall higher number of inmates was related to incidents (Gonclaves et al, 2014).

Lack of privacy and personal space was another aspect of the physical environment that affected incidents. This sub-theme includes research that suggests incident numbers are related to the amount of space and privacy residents have. This is distinct from the sub-theme *crowding*, as it related to the actual amount of space a person has, rather than the amount of prisoners on a wing. A lack of personal space in facilities was perceived by patients to be an antecedent to incidents (Hallet et al, 2014; Johnson et al, 1997; Meehan et al, 2006). It was also noted that in prisons where staff perceived there to be a greater amount of privacy, there were fewer violent incidents (Bierie, 2012). Further, in studies

that investigated the difference between old and new purpose built facilities, privacy was argued to be an important contributing factor (Jenkins, Dye & Foy, 2015; Olver et al, 2009). However, some of the evidence reviewed stated that an increase in personal space and privacy was not a significant influence on the number of incidents (Daffern et al, 2004). This is likely to relate to the methods used in these studies to come to their conclusions. For example, Jenkins et al (2015) investigated perceptions of crowding, whereas Daffern et al (2004) actually tried to link the number of prisoners to the number of incidents using record based data. This suggests that although it is perceived that crowding is a significant influence on the number of incidents, this association is not found in the data. Instead, it may be that high levels of crowding result in prison officers and nurses feeling overwhelmed and unable to control the numbers of incidents occurring in the environment.

The final sub-theme of an inadequate physical environment was *sub-optimal architecture*. The overall architecture of the facility was suggested to be an important contributor to incidents. Reductions in violent incidents were found when residents were moved to facilities characterised as having large outdoors, large windows and a greater amount of light (Olver et al, 2009). Similarly, staff perceived that insufficient lighting and poor ventilation contributed to aggressive incidents (Soares, Lawoko & Nolan, 2000). ‘Telephone-style’ units were found to have less property and security related incidents than ‘campus-style’ units, although there was no difference with violent, drug or contraband incidents (Morris & Worrall, 2014). Prisons with a telephone-pole design tended to have several rows of multi-storey buildings connected by one or two main corridors. They are termed telephone-pole-style units as they look like a telephone pole when viewed from the air. Campus-style prisons are usually in the shape of a rectangle and are surrounded by large amounts of open space. They consist of

several small buildings rather than the large multi-storey buildings that characterise telephone-pole designs. Morris and Worrall (2014) argued that campus-style units allow more freedom of movement and interactions with other prisoners, and this was why more incidents occurred in these types of prisons. A similar suggestion is discussed in the theme 4: *overly restrictive environment*.

3.3.7. Theme 4: Overly restrictive environment

There was widespread agreement that an overly restrictive environment led to an increase in security incidents. Policies and procedures that were deemed to be overly restrictive were seen as antecedents to aggression (Bidna, 1975; Duxbury, 2002; Johnson et al, 1997; Powell, Caan & Crowe, 1994). As levels of restriction and control decreased, so did incidents of violence (Urheim et al, 2011). Indeed, reviewed research showed that higher levels of security in prison was related to greater numbers of incidents (Camp & Gaes, 2005; Gonclaves et al, 2014; Griffin & Hepburn, 2013; Marcum et al, 2014; Steiner, Butler & Ellison, 2014).

In addition, the inconsistent and inflexible application of the rules on the wards was an important factor in increasing security incidents (Finnema, Dassen & Halfens, 1994; Hallet, Huber & Dickens, 2014). For example, when a model was implemented across several wards that emphasised the need for a clear set of rules and staff consistency in implementing these rules, security incidents decreased (Bowers et al, 2006). Related to this, inmates who understood the rules well were less likely to be engaged in incidents than those who did not understand the rules (Kupchick & Snyder, 2009).

Within this theme, patient autonomy was found to be especially important. Lack of patient influence of their care plans was identified as an antecedent to aggressive incidents (Finnema, Dassen & Halfens, 1994; Urheim et al, 2011). When residents were

given higher levels of control over decisions affecting them there were lower levels of serious security incidents (Cooke, 1989). Patient involvement in activities was also linked to security incidents. This is discussed in the final theme: *lack of consistent and meaningful recreation*.

3.3.8. Theme 5: Lack of consistent and meaningful recreation

The lack of consistent and meaningful recreation was seen to increase security incidents. This was related to off ward activities such as exercise and hobbies. The lack of meaningful activities such as these was identified as a source of frustration with patients, and this frustration was thought to lead to aggressive incidents (Francis et al, 2009; Meehan, McIntosh & Bergen, 2006). Similarly, some studies believed that activities would distract from boredom and therefore could be used as a violence prevention tactic (Chaplin, McGeorge & Lelliot, 2006; Hallet, Huber & Dickens, 2014). Dissatisfaction with the quality of activities was cited as a trigger to violence (Chaplin, McGeorge & Lelliot, 2006).

The importance of the activities being regularly and routinely available was highlighted in the literature. The cancellation of recreation time due to lack of staff or disturbed behaviour on wards was seen as being directly related to increased security incidents (McGlynn et al, 2009; Meehan, McIntosh & Bergen, 2009). Relating to this, there was some concern that patients were not being encouraged to attend activities (McGlynn et al, 2009).

3.4 Discussion

Analysis of the literature in this systematic review identified five themes; negative staff characteristics, negative interactions with others, inadequate physical environment, overly restrictive environment and lack of consistent and meaningful recreation. The

overall results of this review provide support for the effect of strain experiences on the numbers of incidents. This supports the core component of General Strain Theory (Morris et al, 2012) that argues that residents engage in negative behaviours as they are unable to cope with the 'pains of imprisonment'. This review has shown that research has linked a lack of supportive networks, crowding, a lack of personal space and lack of meaningful recreation to numbers of incidents. All of these factors are argued to be included as strainful factors. These factors also relate to primary goods outlined by the Good Lives Model. This model states that relatedness, community, pleasure and creativity, and play are all primary needs that residents need to fulfil. If they are unable to fulfil these needs, incidents will be likely to occur. The reviewed research shows that these needs are linked to incidents. Negative interactions with others, lack of support, and lack of respect are argued to relate to the primary good of relatedness and community. In addition, the primary goods of creativity and play seem to relate to lack of consistent and meaningful recreation. Further, the theme of overly restrictive environment can be argued to make the primary good of excellence in agency difficult to fulfil due to the effect on patient autonomy. Therefore, it seems that strainful experiences and a lack of need fulfilment may contribute to security incidents due to their effect on ward culture factors.

Within the literature reviewed, several themes relating to the role of relationships in incidents were identified. This suggests that the theories surrounding interpersonal style, legitimacy and procedural justice explained in chapter 2 are supported by the literature. Firstly, poor availability of support was suggested by this study to be an important antecedent to security incidents. It was discussed above how this could be seen as a strainful experience and as a primary need that needs to be fulfilled in order to prevent negative behaviour. Theories surrounding behaviour change also support this theme in

the research. For example, the Self-Determination Theory (Deci & Ryan, 2000) emphasises the importance of supportive relationships in changing behaviour for the better. Therefore, it makes sense that a lack of these relationships would prevent behaviour change and may even reduce motivation to behave in a positive way.

Research themes including lack of support and negative interactions between individuals also support the idea that interpersonal style is important in understanding why incidents happen. As discussed in chapter 2, within the theoretical literature discussing interpersonal style is a principle named complementarity. This suggests that certain types of interactional behaviours produce corresponding responses in the other person. For example, friendly behaviour from one person would evoke a friendly response from the person they are interacting with. Therefore, the link between negative interactions and incidents could be due to this. A resident may experience a negative interaction with a member of staff, and in turn would react in a similar way.

This link between relationship factors and incidents also supports ideas surrounding legitimacy and procedural justice. The finding that supportive, respectful relationships with staff influence security incidents supports Jackson et al's (2010) argument that a lack of dignity and respect from those in authority will increase negative behaviour and rule breaking. No studies in this review investigated the link between the relationships patients have with staff and their perception of fairness. However, it may be that this is the reason for the increase in security incidents. Indeed, the research reviewed suggested that a perception of provocation was an antecedent to incidents. Within this theme, it was discussed how a patient's belief that a refusal of a request was unfair was likely to lead to aggressive behaviour. This supports Jackson et al's (2010) argument that perception of fairness is linked to behaviour. It could then be argued that the link between patient relationships and security incidents found in this review is explained by

patient perception of fairness. A patient may believe that the lack of support and respect they receive from staff is unfair. In turn, this negative relationship with staff could be perceived as provocation, which may then increase the risk of security incidents. Other themes found in this review seem to support the theory that procedural justice can influence behaviour.

The theme of overly restrictive environment also supports the idea that procedural justice is associated with incidents. The research in this theme found that a lack of consistent application of rules and fewer opportunities for patients to make decisions on wards were linked to increases in incidents. It can be argued that these factors reduce patient perceptions of fairness. When perceptions of fairness are lower, perceptions of legitimacy are also reduced, which has been argued to result in more rule breaking (Jackson et al, 2010; Liebling et al, 2005; Sparks & Bottoms, 2008). Therefore, it could be argued that incidents occur due to these themes because they have an effect on patient perception of fairness.

The results of this systematic review generally supports the theory that strainful experiences and a lack of need fulfilment can lead to negative behaviours such as rule breaking and aggression. It also suggests that patient perception of fairness may be involved in this process. However, there are a number of limitations of this review.

3.4.1 Limitations of the research included

This study used a large number of search terms to make sure that all types of incidents were included in the research. Despite this, only 41 studies were deemed relevant to review. Considering the range of incidents searched for and the inclusion of environmental, cultural and security factors, this seems small. Therefore, it may present as an area that has not been addressed fully. This is especially evident when the types of

incidents covered are considered. Most research looked at incidents of aggression. Some studies stated that they were looking at aggression in general and did not specify which types of incidents these include. Where researchers were specific, all types of aggressive incidents were then grouped together in analyses. Research would define an aggressive incident as aggression towards others, aggression towards objects and threats. However, it could be argued that different factors influence the number of threats compared to the number of assaults. Similarly, it may be that factors such as crowding influence the number of assaults to a greater extent than the number of threats. Research addressing prison misconduct tended to include a wider range of incidents than studies conducted in psychiatric settings. However, these were also grouped together under the term 'misconduct'. This assumes that all incidents are affected by the same factors and researchers have argued that different types of incidents should be examined separately (Camp et al, 2003; Lahm, 2009). There are also limitations in the methods used to collect the data about incidents.

Much of the research reviewed looked at resident and staff perceptions about which factors were associated with incidents. In most of these, this data was not linked with actual incident data. Therefore, conclusions cannot be made about whether these factors actually do increase or decrease incident numbers. This problem is especially evident in the research looking at crowding. The research reviewed in this area tended to be contradictory, with some research suggesting a link and others stating there was no association between crowding and number of incidents. The research that uses record based data about crowding and incidents generally found no link. However, it seems that residents and staff believe that there is a link between crowding and incidents. This is also evident in some research reviewed that cites staff characteristics and interpersonal style as contributors to incidents. Although participants believed that staff

characteristics were involved in security incidents, the research that used record based data did not always reflect this. Therefore, there are issues in the methods used by the researchers in this review that affect the conclusions that can be drawn. Further, there are some problems with the method used by the researcher in this systematic review.

This systematic review was conducted individually by the researcher. This was mainly due to time constraints and lack of availability of other researchers. However, bias was kept to a minimum as two researchers were consulted in the early stages of theme construction. This also ensured that the themes were clear representations of the literature base. Further, the researcher had little knowledge of this area of literature before starting the review, and so had no expectations about what themes would be identified. Therefore, the themes identified are likely to be an accurate representation of the research literature.

Based on this review, staff characteristics, interactions with others, the physical environment, restrictive procedures and lack of recreational activities are associated with security incidents. However, the review also highlights contradictions in which aspects of the physical environment increase incident numbers. It also indicates that there is a lack of research for non-violent incidents and an over-emphasis on aggression. Further, when research does include non-violent incidents these are often analysed in the same group as aggressive variables instead of separately. Finally, there is a lack of research that uses high-secure populations and combines research ideas from both psychiatric and prison literature. The later studies in this thesis aim to address these issues.

The next chapter outlines a qualitative study at a high secure psychiatric service. As discussed, there is a lack of previous literature in high secure settings. Therefore, the

themes identified in this systematic review may not generalise to this type of population. Conducting interviews with staff in a secure psychiatric service will allow the researcher to identify whether similar factors are linked in this setting. In turn, this will inform the planning of further research, which will directly assess whether these factors are linked with incidents using record based data. A qualitative method will also allow other criticisms of research in this review to be addressed. For example, it will allow for the detail exploration of factors that are perceived to be linked to non-aggressive incidents. In turn, it can be assessed whether similar factors are responsible for more aggressive and non-aggressive incidents.

Chapter 4: Understanding causes of security incidents in high secure services: A qualitative study

This chapter presents a qualitative study of staff perceptions of antecedents to security incidents. It details an interview study undertaken with security staff at a high secure hospital. Themes were identified via a grounded theory method and the implications of these are addressed. Recommendations for further research and how these rationalise subsequent chapters are discussed.

4.1.1 Previous research

A previous systematic literature review conducted by the author and outlined in chapter 3 identified major themes in the research surrounding incidents and the environment. The review found that negative staff characteristics, negative interactions with others, an inadequate physical environment, an overly restrictive environment and a lack of consistent and meaningful recreation were associated with a greater number of aggressive incidents in prisons and psychiatric facilities. It was argued that this supported General Strain Theory and the Good Lives Model. Research themes suggested that types of strain and difficulty in fulfilling primary needs contributed to more negative behaviours in institutions. Within this, the role of relationships seemed especially evident. It was argued that incidents were more likely to happen in negative interactions due to issues with the interpersonal style of staff and how this affected a resident's perception of fairness. Behaviour change theories, such as the Self-Determination Theory, were used to explain why support seemed to be an important

issue in incident occurrence. If supportive relationships were important in motivating positive behaviour, a lack of these relationships would have an effect on motivating different types of behaviour.

Some of the research found in the review used interview methods to assess staff and patient perceptions of antecedents to aggression. Most of these were undertaken in psychiatric hospitals. These studies found that a lack of privacy, lack of freedom, staff attitudes and interactions between patients and staff were linked to incidents (Duxbury, 2002; Finnema, Dassen & Halfens, 1994; Johnson et al, 1997; Shepherd & Lavender, 1999). However, some studies using this population had vague conclusions, with one study simply stating that ward culture and the general situation were antecedents to aggressive incidents (Duxbury & Whittington, 2005). Similarly, Muir-Cochrane, Baird and McCann (2015) found that staff believed high levels of noise, crowding and the interpersonal style of prison officers were associated with incidents. Recently, similar research has taken place in prison settings. For example, Martin et al (2012) found that staff believed crowding to be related to the number of incidents. Only one study to date, to the author's knowledge, has investigated perceptions of antecedents to incidents in high secure care. This found that patients perceived a lack of space, boredom, staff interactions and staff attitude as incident antecedents (Meehan, McIntosh & Bergen, 2006).

Therefore, very few studies assess perceptions of antecedents to incidents with staff in high secure services. There are also some issues with the research already conducted, such as vague conclusions and a lack of focus on cultural antecedents to incidents. In turn, this means they cannot be relied upon to inform future research in this area. Firstly, most research conducted uses general psychiatric populations; only one study used a prison sample, and one study used a high secure sample. It cannot be assumed

that perceptions of those in psychiatric hospitals and high secure services are similar due to differences in policies and patient populations. In addition, most of the studies that are conducted in these hospitals were carried out in the 1990s and early 2000s. This makes them dated, and so further suggests that these cannot be used to inform research in high secure services today. It could be that a small amount of recent research using these methods can be found as most recent research has focused on assessing perceptions via the use of questionnaires and trying to directly link these perceptions to record based data. However, perceptions of antecedents to incidents have not been thoroughly investigated in a high secure setting. Therefore, this needs to be done before attempts are made to look at links between perceptions and record based data.

One further issue with the research carried out in hospital settings is the heavy focus on aggressive incidents. None of the research assesses perceptions of antecedents to other types of incidents. It has not been confirmed that incidents such as protests or substance use have the same antecedents as assaults, and so it cannot be assumed to be the case. For example, Martin et al's (2012) study focused on violent incidents in prisons. Further, this study only looked at the perception of whether crowding was associated with incidents, and the interviews only took up a small part of their research.

The one study that was conducted within a high secure service (Meehan et al, 2006) is also not without fault. Similar to the other research discussed, this study only focused on verbal abuse and physical assaults. The conclusions of the researchers were also not very specific. For example, they stated that the environment was a main theme in discussions in the focus groups. However, no specifics of what this meant were noted. It seemed that this may have been related to a lack of space for patients, though this is uncertain. The study also used focus groups rather than one-to-one interviews with patients. Inherently this may not be a problem, but the researchers stated that they

thought that the aggressive tone and language used by some of the patients had made others in the group less likely to contribute. This may have resulted in a less balanced discourse and less detailed themes. Therefore, it is clear that research that is more thorough needs to be conducted in this area.

4.1.2 Rationale for this study

As discussed above, very few studies were found that used qualitative methods to assess perceptions of incidents. However, these methods can be useful to gather detailed information about incidents in secure care. None of the papers discussed assessed the research questions of this thesis due to an over-focus on aggressive incidents, and a lack of research conducted with high secure populations. It is clear that the perceptions of those within secure services in relation to incidents need to be considered more thoroughly. This would allow researchers to investigate whether similar factors contribute to other types of incident as well as assault. It would also allow similarities between perceptions in high secure hospitals and other institutions to be determined.

4.1.3 Research Aims

This study aims to understand what ward factors staff members perceive to be associated with security incidents. It aims to investigate whether staff in high secure services have similar views to those in previous research using prison and other psychiatric facility populations.

4.2. Method

This research used grounded theory methodology to create an account of the factors involved in security incidents within a high secure hospital. This approach was in line with the technique outlined by Corbin and Strauss (2015). Grounded theory was chosen due to its emphasis on taking a systematic approach to research and its focus on theory

development. This method involves constant comparison of data and engagement in simultaneous data collection and analysis, and was chosen due to its focus on creating theory (Bryant & Charmaz, 2007). Using grounded theory in this study will allow the creation of an explanatory framework, which will help to explain what factors contribute to security incidents in secure care. This is important for this thesis due the main aim of creating an model that can be used to help predict security incidents. The explanatory framework completed as part of this study, will also provide a framework for the factors which should be considered in the further studies of this thesis.

4.2.1. Participants

Participants were recruited from the security department at a high secure NHS service, based on their eligibility for this research. They were deemed eligible if they had significant knowledge of security incidents happening in the hospital and of the wards on which these occurred. For this reason, participation was restricted to the security intelligence team, clinical liaison nurses, ward managers and the head of these departments.

Sixteen people were identified as being eligible to take part in the research. Out of these, seven people were interviewed on a one-to-one basis. However, one participant later asked to be removed from the study. This left a response rate of 37%. The final sample included four males and two females. All participants were White British.

4.2.2. Materials

An interview protocol was drafted to provide some structure to the interviews. Questions were based on the SORC framework (Lee-Evans, 1994). This framework is used for conducting functional assessments of behaviour. It is a tool used across secure settings and is helpful in trying to understand the functions and factors promoting

behaviours. It was chosen for use in this research because the main aim is to understand why these incidents are taking place.

The protocol included open-ended questions about antecedent stimuli (what happened prior to the incidents), organism variables (past issues on the ward), responses (what happened) and consequences (positive or negative reinforcement following the behaviour that may maintain it). These categories are from the SORC framework. Prompt questions in this booklet were adapted throughout the data collection process as a result of themes emerging from previous interviews. Semi-structured interviews were chosen so as to gain as much detail as possible from participants whilst still providing structure. It was noted that the closed questions of a structured interview would not result in enough details about the incidents. Similarly, an open interview would have lacked focus. An example of the prompt questions used by researchers is given Appendix 1.

4.2.3. Procedure

Ethics was obtained for this study from the Health Research Authority and the University of Central Lancashire. Potential participants were given information packs (Appendix 2) which described the aims and procedure involved in this research. After a week, these participants were approached again and asked if they would like to take part. No incentive was given for participation in the research.

Once participants had registered their interest in this research, consent was obtained and interviews were arranged. These were arranged at times to cause as little disruption to the participant's working day. The researcher also allowed time to answer any questions the participants might have had about the process.

The participants were briefed before the beginning of the interview regarding the type of questions that would be asked. It was stated that confidentiality would be maintained. They were given the opportunity to read the transcript of their interview to ensure all identifiable information had been removed. However, no participants accepted this offer. Participants were debriefed after the interviews and given a debrief sheet (Appendix 3). This included contact information for the research team, and a reminder that they could withdraw from the research up until two weeks from the interview date. All interviews were recorded and transcribed by the main researcher. Participant names were deleted and replaced with a number. Within the transcripts, information such as names of patients and staff members were removed and notated in brackets (e.g. [name of patient]).

4.2.4. Data analysis

Analysis occurred throughout the data collection process. Following an interview, memos were written which noted any features of the interview that stood out to the researcher. Interviews were immediately transcribed and further memos written. This helped to identify which factors may become apparent in future interviews, and allowed adaptation of the interview prompts to reflect this. This is a main suggestion of grounded theory analysis.

In line with the process of grounded theory analysis, the transcripts were analysed via open, axial and selective coding (Corbin & Strauss, 2015). This involved line-by-line microanalysis where codes were developed for each line of text (Strauss & Corbin, 1998). Similar codes were then combined and given labels. Relationships between these categories were explored by placing codes at the centre of a theory and examining how it was related to each of the other categories. This was then integrated into a grounded theory model, which is described below.

4.3. Results

Grounded theory analysis of the data gathered yielded a core theme of *negative ward culture*. Within this core category five sub-themes were identified; *Lack of positive, quality relationships between staff and patients, staff lack of understanding and application of ward rules, patient boredom due to lack of engagement in activities provided, negative interactions within groups of patients and perceived injustice*. These are highlighted in figure 4.1 and will be discussed below.

4.3.1. Core theme: Negative ward culture

At the core of the discussions was the idea that a negative ward culture was the main cause of security incidents. A large majority of the data included the evaluation of aspects in the environment that contributed to the incident. When asked by the researcher why incidents happened, it was likely that environmental aspects would be cited. When patient factors were mentioned, the participants tended to focus on the interactions the patients were having with others, instead of specific characteristics of the patient. *Lack of positive, quality relationships between staff and patients, staff lack of understanding and application of ward rules, boredom due to lack of engagement in activities provided, negative interactions within groups of patients and perceived injustice* were themes identified in the data. These themes were deemed to be aspects of ward culture. Therefore, it was concluded that ward culture was perceived to be a core antecedent to incidents. Specifically, a culture characterised by lack of positive relationships, negative interactions with others, poor staff experience and patient boredom was perceived to cause security incidents.

4.3.2. Sub-theme 1: Lack of positive, quality relationships between staff and patients

Participants expressed that a positive relationship between patients and staff was important in making sure that security incidents were reduced. It was the view of one

participant that this should happen as soon as staff members make contact with a patient:

“So we went to see him on a couple of occasions to assess him for suitability and just to try and harbour relationships with him because we knew how difficult he was going to be”. (Participant 3)

For these relationships to protect against security incidents they had to be of quality. It was felt that the relationships between them should be characterised by high levels of trust. This would then enable patients to talk freely with the staff, making them comfortable enough to talk to them about how they are feeling. One individual cited this as an important factor in deciding who should observe a patient prior to an incident occurring:

“A member of staff who knows them you know, who’s got a bit of a relationship, a bit of rapport with them...who knows the patient to talk to them.” (Participant 6)

Indeed, communication within these relationships was seen as a particularly important way to prevent incidents occurring. If a patient had a positive relationship with a member of staff, smaller issues in their life were more likely to be dealt with before a security incident took place. This was highlighted by one participant, who stated that more communication with the patient beforehand may have prevented the incident they described:

“In hindsight, I suppose, you’d sit down with him, question how he’s feeling and why there had been some change in his mood. Has there been any event that has gone in the day? Has he had negative interactions with people?” (Participant 3)

The effect that a lack of positive, quality relationships between staff and patients can have on security incidents was highlighted in two accounts. One participant stated how a lack of a quality relationship with a patient resulted in an inability for staff to notice behavioural cues:

“When they go off ward, to off ward areas, potentially the people in the other areas don’t know the patient as well, so if the patient acts differently or suspiciously that wouldn’t be evident.” (Participant 2)

Another participant discussed how not realising that the patient had a negative relationship with a member of staff may have resulted in an incident occurring:

“He was saying....you put [staff name] on my obs, you know I don’t like [staff name]. And I said to be honest I didn’t know you didn’t like [staff name].”
(Participant 1)

These experiences highlight how important the relationship between staff members and patients can be. Sub-theme 2 builds on this by describing how a lack of understanding and application of ward rules by staff can influence incidents.

4.3.3. Sub-theme 2: Staff lack of understanding and application of ward rules

Participants also talked about how the application of ward rules had an effect on security incidents. It was discussed how when staff did not comply with rules, it meant that patients had more opportunities to create situations that could lead to incidents. For example, one individual talked about how this had attributed to the incident they described:

“But the ward staff were not following the ward policy, and they were allowing the patients to do that. So the patients have spotted a weakness in staff

observation and compliance with ward policy and exposed that weakness by initiating this action.” (Participant 5)

This problem with the application of ward rules did not seem to be due to staff complacency. Instead, it seemed linked to a lack of awareness or a lack of understanding by staff. This is highlighted by participants who talked about how staff adapting to new rules may have been an issue in the build up to a security incident. It was discussed how the introduction of new rules left a period of adjustment for staff:

“Staff are trying to find their feet with that you know, trying to obviously raise the game in terms of what security is required...so we were operating to the best we could, in the bounds of the rules that we thought were applicable.”
(Participant 6)

It was the view of the participants that this uncertainty in staff surrounding ward rules had a negative effect on patient behaviour. It was emphasised that patients like having rules as they allow them to understand what behaviour is acceptable and what is not. However, if staff are uncertain about which rules are applicable, it is unlikely that direction in this area will be given. One participant stated how they thought this was a possible precursor to a security incident:

“If them rules weren’t as firmly established as they might have been, I think that’s what might have given the patients a bit more leeway as such.”
(Participant 5)

The third sub-theme details the role of activities in engagement in incidents.

4.3.4. Sub-theme 3: Boredom due to lack of engagement in activities provided

When discussing the build up to the security incidents they described, participants often cited how the patient/s had not engaged with the activities available to them:

“(Staff said) you can go the Exchange, or you can go in the garden, or you can go the workshops. But they didn’t want to do any of those things.” (Participant 1)

This seemed to result in patient boredom. It is not clear whether this non-engagement was due to the activities lacking quality or patients generally being disinterested in what was on offer. It appeared that it was the lack of engagement that was the important factor in inciting boredom. One participant talked about the reasons the patient gave for the security incident:

“And the activities that were programmed for that day he didn’t want to be involved in, so he’s had, he was a little upset about that. He was bored.”
(Participant 3)

It was discussed how the security incidents had happened due to patients trying to release their boredom. Assaults that occurred were linked to patients trying to get an adrenaline kick. One participant viewed this as a “15 minute buzz” (Participant 3). With other incidents it was suggested that the purpose was to create a fun environment, and that this was linked to patient boredom. One individual stated how the security incident had acted as a way to do this:

“In the short term though, there was quite a lot of joviality and joking and immaturity about the incident.” (Participant 1)

This seems to suggest that non-engagement in activities provided for patients can have a negative effect on their mood. It can result in boredom, and the occurrence of security

incidents seems to act as one way to remove this. The next sub-theme highlights how interactions within groups of patients may play a role.

4.3.5. Sub-theme 4: Negative interactions within groups of patients

The way that patients interacted with each other prior to the security incident was a theme among discussions. This was discussed by most of the participants. It was discussed how being able to notice these interactions between patients would be one of the ways to prevent incidents from occurring:

“It’s very difficult for staff to observe all the time. Do you know what I mean? What goes on in the interactions so, but I suppose if it was spotted...it could have been prevented, yeah.” (Participant 6)

Although patient relationships in general seemed to be important, it was the negative interactions that were problematic. Interactions were categorised as negative if they involved discussions surrounding harmful behaviours:

“There had been some discussions taking place amongst patients, that staff were aware of, about taking a hostage...indicators of patients talking about taking someone hostage.” (Participant 5)

Behaviours that were seen as negative or had a negative impact on the environment of the ward were also covered here. For example, one participant discussed how before the incident patients seemed to be associating in a negative way:

“There were a group of patients that seemed to be associating in a very immature manner...behaviour like, you know, slapping each other and that kind of thing.” (Participant 1)

Within this, the way that patients were interacting with those who were more vulnerable was a major cause for concern. It was discussed how vulnerable patients would be open to negative influences from others, which could put them at risk of being victims during security incidents. Some stated how patients on the ward might be influenced to take part in security incidents. This was definitely a worry for the participants:

“There were more vulnerable patients on the ward that might have been...not bullied...but influenced by other patients. So there were a lot of the patient dynamics that the care team and the staff were concerned about.” (Participant 1)

Gang culture seemed to be a big issue in the lead up to one of the incidents discussed. Negative interactions including bullying behaviours seemed to have occurred between two patients in rival gangs within the hospital. The resulting security incident was related to this:

“Potentially the perpetrator assaulted the victim because of this, what he would suggest, was bullying.” (Participant 2)

Although there seemed to be a wide range of negative interactions discussed during the interviews, participants seemed to be in agreement that these were precursors to security incidents. The final sub-theme explains how perceiving unfairness was believed to impact on security incidents.

4.3.6. Sub-theme 5: Perceived injustice

It was emphasised in interviews that security incidents were related to the patient believing that an injustice had occurred. If a patient perceived that there was injustice in a decision, this seemed to be a precursor to the incident. In most cases, this injustice came from decisions made by staff members about care. For example, one participant

stated how the patient involved in the security incident believed that being put on observations was unfair:

“He wasn’t happy being put on obs, because he hadn’t done anything wrong at that point.” (Participant 2)

This was cited by the patient as a main reason for his involvement in the incident. Other participants also described how the patient had cited injustice as a reason for the incident:

“He was disgruntled at that decision, because he felt he’d done the right thing and ultimately he was paying the cost for it.” (Participant 5)

Patients also seemed to perceive injustice when requests were refused. In these incidents, it appeared that patients had acted out the security incident in order to show their dissatisfaction or as a way to get their requests met. One participant described this process during a protest involving a group of patients:

“They weren’t abusive it was just they were not moving. ‘We want the rooms opened, till you get the rooms open we’re not getting up’.” (Participant 1)

Although most of this seemed to be directed towards staff members, some patients were involved in incidents due to perceived injustice in interactions with other patients. This was seen in incidents where retaliatory assaults were carried out as a result of bullying of vulnerable patients. It was also evident in incidents where trading items had not had the result a patient was looking for:

“Saying that he owed him something...and that was the flare point, cause he was saying no I didn’t...you know, that’s my property, you owe me, do you know what I mean?” (Participant 4)

The sub-themes described here and the core theme of *negative ward culture* were used to create a grounded theory model. This is explained below.

4.3.7 A grounded theory model of staff perceptions of causes of security incidents

Figure 4.1., below, details a model that can be used to explain staff perceptions of security incidents in high secure care. It illustrates which aspects of ward culture are perceived to increase the risk of incidents.

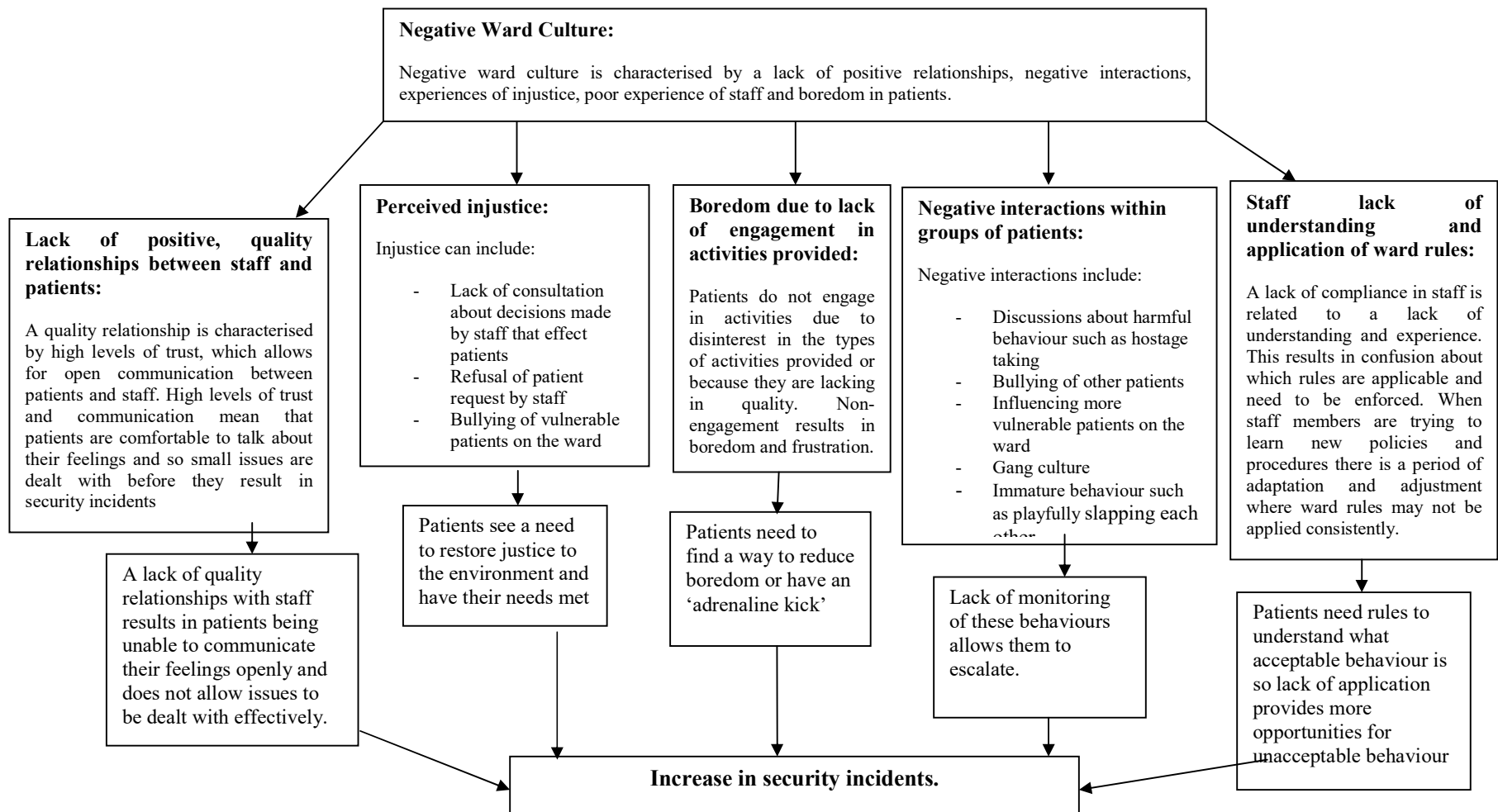


Figure 4.1. A grounded theory model of staff perceptions of causes of security incidents in high secure care.

4.4. Discussion

The aim of this research was to increase understanding of what factors can cause security incidents within high secure services. Analysis of interviews revealed a core theme of negative ward environment. Within this the factors *lack of positive, quality relationships between staff and patients, staff lack of understanding and application of ward rules, boredom due to lack of engagement in activities provided, negative interactions within groups of patients* and *perceived injustice* were identified as potential causes of security incidents.

One of the aims of this study was to investigate whether staff at a high secure service perceived similar factors to be associated with incidents as those in prisons and other psychiatric facilities. This was based on a previous systematic literature review that found that there was a lack of research with this population (see Chapter 3). The themes identified in this study do have similarities with those found in Chapter 3. For instance, there was an emphasis on relationships between patients and staff members in both studies. Where this study found that a lack of positive relationships and negative interactions with patients were associated with incidents, the systematic review indicated that a lack of support from other people and a lack of respect given to patients were related. In addition, both studies highlighted that perceived provocation or injustice could lead to incidents occurring. Both studies suggested that engagement in activities could be protective against incidents. However, this study expanded previous research by suggesting that this is because a lack of activities creates boredom and that incidents happen in order to release this boredom. Further, the systematic review indicated that an environment that was overly restrictive would have more incidents, and this study seems to suggest that the application of ward rules may be a trigger for

incidents. Therefore, it can be argued that similar factors are associated with incidents in high secure services, prisons and other psychiatric facilities.

However, it must be noted that participants in this study did not mention aspects of the physical environment when discussing causes of incidents. This is unexpected as the previous review highlighted this as an important issue. It may be that the participants in this study did not believe this to be linked to incidents, or that they did not believe it to be as important as the issues they did discuss. It may be that the environments across all wards at the hospital are so similar that they are not perceived to influence patient behaviour. However, it may just be that they did not realise the physical environment of the hospital could have an effect on behaviour.

In terms of previous research using qualitative methods, this study agreed with most of their conclusions. For instance, the finding that relationships with staff were an important contributor to incidents supports the findings from other studies with high secure samples (e.g. Meehan et al, 2012) and other psychiatric services (e.g. Duxbury, 2002; Finnema et al, 1994; Johnson et al, 1997; Muir-Cochrane et al, 2015; Shepherd & Lavender, 1999). Similar to Meehan et al (2012), this study found that patient boredom was perceived to be related to incidents. This suggests that staff at high secure services have similar perceptions of incidents as those in other settings.

However, and as stated above, participants in this study did not mention any aspect of the physical environment in their accounts. This is unlike similar research, which found that noise levels, crowding and a lack of space were perceived to be related to incidents (Martin et al, 2012; Meehan et al, 2006; Muir-Cochrane et al, 2015). This may be because staff were not asked specifically about the physical environment, or because they believed cultural issues to be more important. They may have also been unaware

that this is a concept. Further, this study found that a lack of understanding on the part of staff about ward rules, perceived injustice and negative interactions between groups of patients were believed to contribute to incidents. These issues were not discussed in previous research that used similar methods. Therefore, this study expands the research literature as it suggests that high secure service staff have different perceptions of issues relating to security incidents than those in other settings.

The results of this study seem to support the idea that strainful experiences and a reduced ability to meet primary needs results in security incidents. The themes of a lack of positive relationships between staff and patients, negative interactions within groups of patients and boredom due to lack of engagement, relate to the primary goods of relatedness, community and pleasure and creativity described by the Good Lives Model (Ward & Maruna, 2007). This model suggests that a lack of ability to fulfil these needs results in offending behaviour (Fortune, Ward & Polaschek, 2014), and so it suggests that staff perceive these to be related to incidents.

In addition, many of the themes identified in this study seem to suggest that perceptions of procedural justice and legitimacy are important contributors to incidents. The themes of perceived injustice, negative interactions with others and staff lack of understanding and application of ward rules all seem to relate to these theories. For example, Jackson et al (2010) stated that, in order for individuals to feel that processes are fair, they need to feel respected, have decisions made based on the consistent application of rules instead of personal opinion, and have opportunities for contributing to this decision making. The themes in accounts of staff at this service suggest that there are issues regarding these factors. This means that patient perceptions of fairness or justice are likely to be low. In turn, this may mean that legitimacy of authority is perceived to be low and so incidents are more likely to occur. In addition, staff having a lack of

understanding of ward rules and inconsistently applying these may directly affect perceptions of legitimacy. Legitimacy of authority can occur whether the prisoners agree with the behavioural restrictions or not (Jackson et al, 2010), but the inability for staff members to apply these consistently may mean that patients do not see authority as being exercised correctly. In turn, this is said to result in more rule breaking (Liebling et al, 2005; Sparks & Bottoms, 2008).

Relationships with staff and others were again perceived as a major contribution to incidents. This is supported by theories of behaviour change, which state how crucial relationships with staff can be in promoting positive behaviour. For example, Control Theory suggests individuals frequently seek out feedback whilst working towards a goal. This comes from members of staff who can evaluate their behaviour (Greller & Herold, 1975). Within this, staff supportiveness and social influences have been cited as important (Hollenbeck & Klein, 1987). Working on the assumption that the goal of patients is to behave more positively, it can be seen how these factors may influence behaviour. A lack of support from staff or positive social influences may cause patients to perceive the goal of maintaining positive behaviour as less important. When a goal is perceived to be of little importance it is less likely that continued effort will be made regarding it (Klein, 1989). Therefore, it seems that the staff-patient relationship can have a direct effect on the behaviour of the patient. If little effort is made to maintain positive behaviour, it is more likely a security incident will occur.

4.4.1 Research limitations

Firstly, the participants were recruited from the security department only. This was based on the notion that these members of staff would have a good knowledge of incidents in the hospital as they would have been a part of the team that investigated them. They would also have a good amount of knowledge of the wards. However, this

may have potentially narrowed the sample. Widening the eligible sample to nurses working on wards at the high secure hospital may have been beneficial; these individuals have a high level of knowledge about the patients they interact with and about the wards that they work on. This would have also increased the number of available participants. It may also be that nurses would have different perceptions to staff members who work off ward. For example, ward nurses may have a closer relationship with the patients on the ward and have a greater knowledge of the patients' history and risk. Therefore, it is likely that they would understand the patient's motivations for engaging in the incident better than security staff. Further, ward nurses are more likely to have been on the wards when the incident occurred, so are more likely to have detailed knowledge of the incident and any antecedents.

In addition, four out of six participants included in this study decided to talk about assault. They will have been likely to investigate assaults in more detail than other incidents and so may have remembered more information about these events. This means that the themes identified apply more directly to assaults rather than security incidents as a whole. The participants were told that they could pick any incident they could remember well. However, it may have been useful for the researcher to discuss one violent, and one non-violent incident with each participant. This way, themes would reflect a variety of incidents, and it could be seen whether different factors were involved for different incidents.

Finally, the transcription and analysis was conducted by a researcher who had recently conducted a systematic review in the same area. Effort was taken to reduce bias as much as possible, yet it may be that the researcher was influenced by the systematic review findings. However, an analytic diary and memos were kept through every stage of the analysis to ensure that the emergence of themes can be seen clearly. Further, the themes

were discussed with the research team and agreed upon, suggesting that they do adequately represent the data in this study.

4.4.2 Practical implications

The findings of this study indicate features of the environment that could be changed in order to manage incidents more effectively. For example, one major finding was that a lack of engagement in activities resulted in patient boredom. In turn, this led to security incidents. Although there was no evidence to suggest what quality these activities should be and what they should include, engagement in them may protect against the prevalence of incidents. Therefore, in practice an effort should be made to actively encourage patients to take part in these. Patients perceiving injustice about decisions made by staff about their care was also found to be related to incidents. Therefore, it is especially important that staff explain why decisions such as refusing requests and taking away privileges have been made. It could be argued that staff perhaps need to be more observant of interactions between patients and take action before it escalates to an incident.

4.4.2 Future research

This study has not attempted to link these themes to incident data. Therefore, we cannot be sure that these factors are actually related to ward incidents. We can only conclude that staff members perceive them to be. As discussed in this chapter, previous research investigating the link between crowding and incidents was contradictory due to this. Research investigating staff and resident perceptions indicated that crowding was associated with incidents (Chaplin et al, 2006; Martin et al, 2012; Muir-Cochrane, Baird & McCann, 2015). However, when incident data was investigated, there appeared to be no significant association (Franklin, Franklin & Pratt, 2006; Gadon, Johnstone &

Cooke, 2006; Steiner, Butler & Ellison, 2014). Therefore, Chapter 5 and 6 of this thesis seek to address this.

As discussed above, this study only recruited from the security department of the hospital and most of the incidents discussed related to assault. Therefore, the next studies in the thesis include nursing staff as they have more one-to-one contact with patients, and may have further views of what takes place on the hospital wards. It expands the literature by including incidents other than aggression and assault.

Chapter 5: The association between ward culture and incidents in high secure psychiatric services

This chapter includes details of a quantitative study designed to test the assumption that ward culture is associated with security incidents in high secure services. Questionnaire data from patients and staff was used to assess perceptions of ward culture. Record based data was then collected in an attempt to find out if these perceptions were associated with security incidents. Previous chapters had suggested that aspects of ward culture such as staff-patient relationships, level of support from staff and engagement in activities were associated with levels of security incidents. However, this study failed to identify this. This chapter will discuss reasons why these factors were not found to be linked to security incidents. It will also consider how the further chapters of this thesis will build on this finding.

5.1.1. Overview of Chapter 3 and 4

The first two studies of this thesis (outlined in chapters 3 and 4) aimed to understand how previous research suggests ward culture and the physical environment are related to security incidents. A systematic review revealed that there was a lack of research in high secure settings. Therefore, a qualitative study (chapter 4) assessed perceptions of staff in a high secure hospital to ascertain whether similar factors were associated with incidents in this setting.

The studies in chapters 3 and 4 revealed a number of similar themes. For example, both the systematic review and the interviews with staff highlighted that recreation has an

impact on security incidents. Chapter 3 found that a *lack of consistent and meaningful recreation* was associated with a higher numbers of incidents. Chapter 4 found that *boredom due to lack of engagement in activities provided* was perceived to be a cause of incidents. Both of the studies identified that this can lead to frustration, which in turn can be related to security incident prevalence. However, there were some differences in the factors highlighted as important in these studies. For instance, interviewed staff in chapter 4 believed that the non-engagement in these activities was enough to cause boredom and frustration. However, in the systematic review (chapter 3), the literature tended to focus on the quality and regularity of the activities available. It may be that the lack of meaningful recreation is the reason why patients do not engage in such activities, but this is unclear from the research so far. It also does not explain what is needed from these activities in order for them to be protective against security incidents.

Themes from chapter 3 and chapter 4 also indicate that the relationship between patients and staff members is an important factor in understanding why incidents occur. The studies highlighted that *lack of quality support from others, staff failure to value patients and show respect, and lack of positive relationships between staff and patients* increased the likelihood of a security incident. A major theme was that the trust and support of staff was crucial in determining whether a security incident would happen. It was found that improved communication as a result of this would allow issues to be dealt with before it escalated into an incident. Other similarities include the idea that a perception of unfairness can be a cause of a security incident. Both studies identified that if a patient believes that somebody has deliberately provoked them or acted unfairly towards him or her then a security incident is more likely to occur. On these occasions, an incident could be considered to be a retaliatory act.

However, there was disagreement between the first two studies about the effect that security factors have on incidents. Whereas chapter 3 suggested that an *overly restrictive environment* was linked to a higher number of incidents, the interviews in chapter 4 suggested that it was *staff understanding and application of ward rules* that was important. Study 2 suggested that rather than the security policies themselves, it was whether staff complied with them that was most important. This may link in with the idea of an overly restrictive environment. There was some evidence within the literature that inconsistent and inflexible application of ward rules helped to create this. It could be said that this was captured during interviews. Further, although some papers that were reviewed mentioned that aspects of the physical environment were associated with incidents, no such themes were found in interviewees accounts.

The study in this chapter aims to build on the findings of these earlier studies, by investigating how closely the culture of wards predicts incidents at a high secure hospital. It looks to expand on past literature to include types of incidents other than aggression. Further, it attempts to use the principles of an Enabling Environment to do this.

5.1.2 Enabling Environments

Earlier chapters have explained that General Strain Theory (GST) and the Good Lives Model (GLM) may explain why culture has an influence on incidents. General Strain Theory states that negative behaviour occurs due to the inability to cope with ‘strainful’ experiences or the ‘pains of imprisonment’ (Morris et al, 2012). The presentation of negative stimuli, the removal of positive stimuli and the failure to achieve positive goals as a result of incarceration are said to cause feelings of disappointment, fear, anger and frustration which in turn leads to misconduct (Agnew, 1992). These types of strain can include the removal of supportive networks, restrictions of freedom and a lack of goods

and activities (Agnew, 2001); all factors which have been found to be associated with incidents in the previous studies of the thesis. It was previously argued that these strainful experiences may have this effect on incidents due to an inability for residents to fulfil their needs. Parallels can be drawn between types of strain and primary goods outlined by the Good Lives Model (Ward & Gannon, 2006). For example, negative interactions with staff members are considered a type of strain (Morris et al, 2012). This strain could be in the primary goods of relatedness and community being more difficult to fulfil. It is argued that negative behaviours occur as a result of trying to realise these needs in an ineffective way (Fortune et al, 2014). Therefore, when it is made more difficult for these needs to be met, patients may engage in negative behaviours in order to realise them. For example, they may verbally abuse or threaten members of staff in order to get attention from the staff members. Similarly, they may assault another patient so that they can be placed in seclusion. This would result in them achieving the privacy they needed.

Enabling Environments can be considered as a type of environment that reduces strainful experiences and emphasises the importance of meeting patient needs. They are defined as places where positive relationships promote resident well-being (Haigh et al, 2012). Residents in an enabling environment develop a sense of belonging and learn new ways of relating to others (National Offender Management Service [NOMS] and DoH, 2012). Staff in an enabling environment encourage positive engagement and creative activities and recognise that negative behaviours have a reason behind them that needs to be understood (Haigh et al, 2012). The aim of enabling environments is to create a supportive atmosphere that emphasises the importance of resident-staff interactions, support networks, and the availability of informal activities (Turley et al, 2013). Therefore, they seem to encompass most of the variables that they first two

studies of this thesis deemed to be linked to security incidents. They also seem to provide a good example of a positive ward culture, and ward culture measures in this study will be based on enabling environments. In addition, relational security principles will be used. It is argued that these also incorporate features that the previous studies of the thesis deemed to contribute to security incidents.

5.1.3 Relational Security

Reports such as that of Tilt, Perry and Martin (2000) emphasise the importance of strict security procedures and practices in managing these incidents. However, it can be argued that the over-emphasis on restrictions creates a more oppressive environment. Indeed, the previous two studies of this thesis concluded that an overly restrictive environment was associated with increased security incidents. In addition, Blom-Cooper et al. (1992) and Fallon et al. (1999) reports highlighted the importance of having an environment within high secure psychiatric hospitals that presents a balance between the restrictive security procedures and the therapeutic environment. The conflicting views about the importance of restrictive security measures in managing security incidents has resulted in confusion about the best way to control problem behaviours. However, recently there has been more of a focus on providing relational security in high secure settings.

It may be that relational security is essential in maintaining the balance needed between security and an enabling environment. This type of security emphasises the importance of staff having a detailed knowledge of residents and the risk they may present to themselves and others. It also includes the significance of translating knowledge about patients into appropriate responses and care (Department of Health [DoH], 2010). Within this, factors such as the importance of boundaries, the need to give residents hope in their recovery and the importance of trust between staff and residents are seen

as important. In short, it covers many of the issues that are thought to be needed to create a positive environment. Although this type of security is rarely mentioned in Tilt et al's (2000) report, it fits in with models discussed about how to manage negative behaviours and reduce security incidents. Therefore, the culture of a ward becomes essential in maintaining the safety of residents, managing security incidents and encouraging patients to engage in positive behaviours.

5.1.4. Rationale for this study

A systematic review of the research and interviews with members of staff were conducted in study one and two. These showed a link between ward culture and incidents. However, these factors need to now be linked with record based data to confirm whether these factors are actually associated with greater numbers of incidents. The review of the research also highlighted how types of incidents other than aggression are generally overlooked. However, according to theory it is likely that similar processes are involved in these incidents. Therefore, research needs to be conducted in order to confirm this.

5.1.5 Aims

The aim of this study is to examine the association between ward culture factors and incidents in a high secure service. It is hypothesised that:

1. Wards at the hospital will have differences in perceptions of ward culture;
2. Wards with more positive cultures (measured as having a more enabling environment and higher levels of relational security) will have fewer numbers of aggressive and non-aggressive incidents

5.2. Method

5.2.1. Participants

Ethics was obtained for this study from the Health Research Authority and the University of Central Lancashire. Participants were recruited from wards at a high secure NHS service. This study involved staff and patients. Staff members were deemed eligible if they worked on one of the wards and had a good knowledge of its environment. This meant that staff participation was mainly restricted to ward nurses. Patients were deemed eligible if their responsible clinician had provided confirmation that they were able to consent to research. Patients had to be able to understand the research procedure. As all measures were written in English, it was essential that patients were able to speak English. However, if a patient had trouble reading measures a member of the research team was available to read these to them. This happened on twenty four occasions.

Four hundred and twenty seven staff were identified as being eligible to take part. Of these, 157 completed questionnaires. One hundred and ninety six patients were identified as potential participants. Seventy three patients agreed to take part. This left an overall response rate of 37%. All patient participants were male. Seventy two (46%) staff participants were male and 85 (54%) were female. Most of the sample described themselves as White British (86%). 20 (13%) identified as Black Caribbean and two (1%) identified as White Irish. The sample ranged from 21 to 60 years of age.

5.2.2. Measures

All participants completed questionnaire booklets. Booklets for patients and staff included the same questionnaires, but the wording was adapted for each sample. An example of the patient booklet is given in Appendix 4. The staff questionnaire booklet is given in Appendix 5.

The first questionnaire participants were asked to complete was Essen Climate Evaluation Schema (EssenCES; Schalast et al, 2008). This is a 15-item scale that measures three aspects of ward environment: *Therapeutic Hold* (the extent to which the environment is supportive of a patient's needs); *Experienced Safety* (the extent to which there is tension and a threat of aggression or violence on the ward); and *Patients' Cohesion and Mutual Support* (the extent to which patients support each other). Example questions include "staff know patients and their personal histories very well", "there is good support among patients", and "some patients are afraid of other patients". Statements were rated on a 5-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. Higher scores suggest a more positive social environment. In a systematic review of social climate measures, Tonkin (2015) found that the scale had good internal consistency with mean alpha values of .82 (Patient Cohesion), .77 (Experienced Safety), and .81 (Therapeutic Hold). The questionnaire has been validated across prisons (Tonkin et al, 2012), medium-security forensic hospitals (Milsom et al, 2014) and high-security forensic hospitals (Howells et al, 2009).

Secondly, participants were asked to complete the *See, Think, Act Scale* (Tighe & Gudjonsson, 2012). This is a 28-item questionnaire based on the See, Think, Act guidelines (STA; DoH, 2010). These are practice guidelines given by the Department of Health. It covers the team's ability to maintain boundaries, patient mix and dynamics, the inside world of the unit and connections to the outside world and impact of visitors. It is based on the idea that improving aspects of relational security would decrease risk of adverse incidents (DoH, 2010). Tighe and Gudjonsson's (2012) scale was created in order to measure the content of the STA guidelines in a reliable and valid way. It includes questions about the therapeutic management of risk, pro-social team culture, boundaries and patient focus. Example questions from the staff questionnaire include

“we understand why maintaining a clear boundary with patients is important” and “we can engage with this patient group and maintain control”. Patients were given the same questionnaire as staff, but adapted to be from the patient’s point of view. For example, patients were asked “staff can engage with the patient group and maintain control”. Statements were rated on a 5-point Likert scale ranging from ‘strongly agree’ to ‘strongly disagree’. High scores indicate a greater level of relational security. Tighe and Gudjonsson (2012) found the scale to have high internal consistency ($\alpha = .97$) with a medium-secure forensic population. The scale has not been used in any further published research.

The final questionnaire was adapted from an online questionnaire used to assess facilities for the Enabling Environments award. This is a quality mark given by the Royal College of Psychiatrists to Enabling Environments. These are defined as environments where people experience belonging, there are supportive relationships, people are involved in their own growth and the growth of others, and where people can learn new ways of relating (DoH, 2010). The questionnaire included 25-items relating to the areas of relationships, behaviour, activities and support on the ward. Example questions include “I feel supported by those in authority”, “I feel that I am open to evaluation and learning” and “there are clear expectations of behaviour for patients”. Items are rated on a 5-point Likert scale ranging from ‘strongly agree’ to ‘strongly disagree’. High scores reflect a more enabling environment. No internal consistency analysis has been conducted for this questionnaire so far.

5.2.3. Procedure

Ward environment data was collected from 13 wards at a high secure hospital. Wards included high dependency and low dependency wards. Patients on wards were diagnosed with personality disorder, psychosis or mood disorders, and while these

tended to be grouped together on wards, this was not always the case. The sample included both admissions and long stay wards. Staff members were approached during their shift, given an information sheet (Appendix 6) and introduced to the research. They were given a week to think about whether they would like to take part in the research. If staff decided they would like to take part they were given a consent form to sign. They were then given questionnaire booklets to complete. This took no more than 40 minutes and was completed during their shift.

Potential patient participants were only approached once consent had been obtained from their Responsible Clinician. This ensured that patients were well enough to take part in the research and were able to give informed consent. Researchers approached patients to introduce the study and hand them an information sheet (Appendix 7). Once the information sheet had been read and any questions from the patient answered, patients were asked to take part. If they agreed, a consent form was signed. The researcher would then sit with the patient in a separate room whilst the patient completed the questionnaire. This ensured that the researcher was available if the patient needed to ask questions. In 24 instances, the researcher read the questions to the patient. Questionnaires took between 20 and 60 minutes to complete.

During this data collection period, incident data was being collected from the Patient Administration and Clinical Information System (PACIS) database. This database is used in high secure services to collate information about patients such as their history, clinical information and incident involvement. Incidents were collected for six months using a data collection sheet designed by the researcher (Appendix 8). Information was collected about the month, time of day, ward location, type of incident, incident details and number of patients and staff involved in the incidents. Only incidents taking place

on the ward were collected. No identifying information about staff or patients who were involved in the incidents were collected.

5.3. Results

5.3.1. Data Screening

Data was first screened for missing data. Missing data was not above .5% for any variables. Little's MCAR test indicated that this data was missing completely at random ($X^2 (1859) = 1744.72, p = 0.97$). Expectation Maximisation was used to estimate missing data. No multivariate outliers were found. Only univariate outliers were changed. They were replaced by the next extreme score plus one; ten outliers were changed. Relational security and service involvement variables were found to be positively skewed. However, this was solved using square root transformations.

5.3.2. Factor Analysis

Principal components analysis was used to extract factors from the Enabling Environments Questionnaire and the See Think Act Scale (Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.82; Bartlett's Test of Sphericity, $p < 0.001$). Items from these questionnaires were analysed together. This is due to some overlap in factors measured. For example, both questionnaires have items relating to staff-patient relationships and engagement in activity. Therefore, these items may map onto the same factor. Three factors were extracted from this. However, one of these was removed from further analysis due to very low loadings of the items and a lack of an overlying construct. The items on this factor seemed to relate to different variables. For example, one item related to supportive relationships where as another related to rules and regulations. This left two factors (factor loadings are given in Table 5.1).

Table 5.1. *Factor loadings of Relational Security and Service Involvement scales*

Item	Relational Security	Service Involvement
We are vigilant about how visits affect the patient before their visit	0.63	0.08
We know which boundaries are non-negotiable and which we can make individual and team judgements about	0.6	0.09
We are vigilant about how visits affect the patient after their visit	0.59	0.04
We adjust patient care plans according to risk	0.58	0.1
We understand what maintaining clear boundaries with patients means	0.56	0.15
We have a ward purpose we all understand	0.52	0.04
We deal robustly with discrimination	0.50	0.03
We deal robustly with bullying	0.50	0.12
I am involved in planning my own professional development	0.13	0.57
I feel supported by those in authority	0.09	0.56
I have the opportunity to be consulted or involved by the management of the service	0.05	0.52
When expectations are reviewed, this is done in consultation with the people concerned	0.17	0.52
I am able to ask questions and challenge decisions that affect me	0.07	0.51

Note: Factor loadings in bold indicate the items included in that factor.
Staff wording of the items is used in this table.

The first factor extracted from the analysis was named *Relational Security* ($\alpha = .88$). The items in this scale covered risk, boundaries and understanding which factors of the environment may have an impact on patient wellbeing. The second factor extracted from the analysis was named *Service Involvement* ($\alpha = .77$). This included items that detailed being included in decision making and the planning of personal development.

EssenCES has been shown to have a reliable factor structure (Alderman & Groucott, 2012; Howells et al, 2009; Milsom et al, 2014; Tonkin et al, 2012) and so factor analysis was not undertaken. This is the only questionnaire in this study that has been used in a wide variety of research, and so it was kept separate from the others at this stage of analysis. Cronbach's alpha was undertaken. The alpha for *Patient Cohesion* was poor ($\alpha = 0.59$). Howells et al (2009) suggested the removal of the item "most patients don't care about their fellow patients problems" in order to improve reliability for this scale. This did improve reliability in the current study ($\alpha = 0.63$). The *Therapeutic Hold* scale also poor in terms of reliability ($\alpha = 0.59$). Even though the Cronbach's alpha for this scale does not reach the levels of reliability considered good, it was deemed acceptable and left in the analysis (Field, 2014). Finally, the *Experienced Safety* scale was dropped from analysis. As well as a poor alpha score ($\alpha = .42$), three out of the five items correlated extremely poorly with the scale (CITC < 0.20).

5.3.3. *Perceptions of relational security, service involvement, patient cohesion and therapeutic hold*

Table 5.2., below, details the mean scores and standard deviations of relational security, service involvement, patient cohesion and therapeutic hold scores for each ward.

Table 5.2. Mean scores (and standard deviations) for relational security, service involvement, patient cohesion, and therapeutic hold scales.

	Ward 1 (S.D)	Ward 2 (S.D)	Ward 3 (S.D)	Ward 4 (S.D)	Ward 5 (S.D)	Ward 6 (S.D)	Ward 7 (S.D)	Ward 8 (S.D)	Ward 9 (S.D)	Ward 10 (S.D)	Ward 11 (S.D)	Ward 12 (S.D)	Ward 13 (S.D)	Total (S.D)
Relational security	13.71 (1.90)	14.26 (3.21)	14.32 (4.36)	13.88 (3.93)	13.32 (2.11)	13.32 (1.67)	14.67 (1.97)	11.67 (3.50)	14.17 (2.07)	14.07 (3.77)	15.37 (3.92)	14.96 (2.49)	14.78 (3.99)	14.16 (3.07)
Service involvement	10.71 (1.95)	11.84 (2.95)	12.18 (3.19)	10.18 (2.17)	10.58 (1.87)	10.68 (1.49)	11.19 (1.75)	10.50 (2.35)	10.61 (2.03)	12.06 (3.51)	11.94 (3.36)	9.33 (2.25)	12.00 (3.50)	11.01 (2.65)
Patient cohesion	13.62 (2.18)	12.69 (2.72)	14.36 (2.75)	14.97 (2.28)	14.21 (1.13)	14.79 (1.72)	14.50 (2.24)	14.33 (1.75)	14.59 (2.06)	12.87 (2.67)	12.95 (2.99)	14.93 (2.51)	12.22 (2.82)	13.96 (2.47)
Therapeutic hold	21.52 (1.47)	20.30 (2.22)	19.87 (2.38)	21.69 (1.20)	20.68 (1.45)	21.05 (1.65)	20.38 (1.30)	22.17 (2.93)	20.00 (1.88)	20.20 (3.21)	19.21 (2.07)	15.52 (1.99)	19.11 (3.59)	19.88 (2.70)

5.3.4. Differences in scores based on type of participant and dependency of ward

The means and standard deviations for patients and staff for each scale are presented in Table 5.3., below.

Table 5.3. Means (and standard deviations) for patients and staff on relational security, service involvement, patient cohesion and therapeutic hold scales.

	Patient (S.D)	Staff (S.D)	Total (S.D)
Relational security	16.26 (2.82)	13.20 (2.68)	14.16 (3.07)
Service involvement	10.24 (2.19)	11.36 (2.77)	11.01 (2.65)
Patient cohesion	14.54 (2.44)	13.70 (2.45)	13.96 (2.47)
Therapeutic hold	19.35 (2.24)	20.12 (2.86)	19.88 (2.70)

To investigate whether the differences in scores seen in Table 5.3 were significant, a series of one way ANOVAs were conducted. This revealed that patients perceived higher levels of relational security on wards than staff ($F(1, 224) = 61.64, p < 0.001$). Patients also had higher scores than staff for patient cohesion ($F(1, 224) = 5.68, p = 0.02$). This indicates that patients believed their relationships with other patients to be more supportive than staff perceived them to be. However, staff perceived themselves to have higher levels of involvement in the service than patients ($F(1, 224) = 9.10, p = 0.003$). Further, staff perceived higher levels of therapeutic hold ($F(1, 170) = 4.77, p = 0.05$), indicating that they believed their relationships with patients to be more positive than patients did.

The same process was conducted to investigate differences in scores according to ward dependency. The means and standard deviations for each scale are presented in Table 5.4.

Table 5.4. *Means (and standard deviations) for relational security, service involvement, patient cohesion and therapeutic hold scales on high and low dependency wards*

	High dependency (S.D)	Low dependency (S.D)	Total (S.D)
Relational security	14.05 (2.72)	14.23 (3.29)	14.16 (3.07)
Service involvement	11.17 (2.45)	10.91 (2.78)	11.01 (2.65)
Patient cohesion	13.56 (2.44)	14.22 (2.46)	13.96 (2.47)
Therapeutic hold	20.55 (2.23)	19.45 (2.90)	19.88 (2.70)

A one way ANOVA indicated that patients and staff on higher dependency wards perceived less patient cohesion ($F(1, 224) = 3.93, p = 0.05$) and more therapeutic hold than those on lower dependency wards ($F(1, 217.50) = 10.30, p = 0.003$). This suggests that patient relationships on higher dependency wards are perceived to be less supportive. However, the staff-patient relationships on these wards were perceived to be more positive than on low dependency wards. No significant differences were found between wards for relational security ($F(1, 224) = 0.20, p = 0.66$) or service involvement ($F(1, 224) = 0.49, p = 0.48$).

5.3.5. *The association between ward culture and incidents*

Correlations were conducted to investigate whether there was a relationship between the amount of ward incidents and scores on Relational Security, Service Involvement,

Therapeutic Hold and Patient Cohesion scales. No significant correlations were found between questionnaire data and the number of aggressive and non-aggressive incidents.

The details of these correlations are presented in Table 5.5. and 5.6., below.

Table 5.5. *Correlations between relational security, service involvement, patient cohesion, therapeutic hold and the number of aggressive incidents*

	Aggressive incidents	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Aggressive incidents					
Relational security	-.09				
Service involvement	.12	.31			
Patient cohesion	-.45	-.53	-.59*		
Therapeutic hold	.06	-.50	.14	.04	

*p < 0.05

Table 5.6. *Correlations between relational security, service involvement, patient cohesion, therapeutic hold and the number of non-aggressive incidents.*

	Non-aggressive incidents	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Non-aggressive incidents					
Relational security	-.27				
Service involvement	-.03	.31			
Patient cohesion	-.24	-.53	-.59*		
Therapeutic hold	.42	-.50	.14	.04	

*p < 0.05

The tables above show that none of the scales in this study were correlated with aggressive or non-aggressive incidents. It was expected that there would be a relationship between ward environment measures and the number of incidents, so this was investigated further. Correlation analysis was conducted between questionnaire data and smaller groups of incidents. These included threats, assault, verbal abuse, inappropriate behaviour, property damage, stealing, trading and substance. Tables 5.7 to 5.14 are given below and provide details of this analysis. Significant correlations will be discussed after these.

Table 5.7. *Correlations between relational security, service involvement, patient cohesion, therapeutic hold and the number of threats.*

	Threat incidents	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Threat incidents					
Relational security	.04				
Service involvement	.01	.31			
Patient cohesion	-.56*	-.53	-.59*		
Therapeutic hold	.01	-.50	.14	.04	

*p < 0.05

Table 5.8. *Correlations between relational security, service involvement, patient cohesion, therapeutic hold and the number of assaults.*

	Assault incidents	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Assault incidents					
Relational security	.20				
Service involvement	-.01	.31			
Patient cohesion	-.18	-.53	-.59*		
Therapeutic hold	.04	-.50	.14	.04	

*p < 0.05

Table 5.9. Correlations between relational security, service involvement, patient cohesion, therapeutic hold and verbal abuse.

	Verbal abuse incidents	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Verbal abuse incidents					
Relational security	-.12				
Service involvement	-.10	.31			
Patient cohesion	-.36	-.53	-.59*		
Therapeutic hold	.14	-.50	.14	.04	

*p < 0.05

Table 5.10. *Correlations between relational security, service involvement, patient cohesion, therapeutic hold and inappropriate behaviour.*

	Inappropriate behaviour	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Inappropriate behaviour					
Relational security	-.33				
Service involvement	-.30	.31			
Patient cohesion	-.06	-.53	-.59*		
Therapeutic hold	.47	-.50	.14	.04	

* $p < 0.05$; Note: Inappropriate behaviour included behaviours such as sexual disinhibition, boundary testing and refusal of staff requests

Table 5.11. *Correlations between relational security, service involvement, patient cohesion, therapeutic hold and property damage.*

	Property damage incidents	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Property damage incidents					
Relational security	-.09				
Service involvement	-.14	.31			
Patient cohesion	-.33	-.53	-.59*		
Therapeutic hold	.29	-.50	.14	.04	

*p < 0.05

Table 5.12. *Correlations between relational security, service involvement, patient cohesion, therapeutic hold and stealing.*

	Stealing incidents	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Stealing incidents					
Relational security	.05				
Service involvement	-.04	.31			
Patient cohesion	-.37	-.53	-.59*		
Therapeutic hold	.07	-.50	.14	.04	

*p < 0.05

Table 5.13. *Correlations between relational security, service involvement, patient cohesion, therapeutic hold and trading.*

	Trading incidents	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Trading incidents					
Relational security	.18				
Service involvement	.67*	.31			
Patient cohesion	-.23	-.53	-.59*		
Therapeutic hold	.05	-.50	.14	.04	

*p < 0.05

Table 5.14. *Correlations between relational security, service involvement, patient cohesion, therapeutic hold and substances.*

	Substance incidents	Relational security	Service involvement	Patient cohesion	Therapeutic hold
Substance incidents					
Relational security	.28				
Service involvement	.39	.31			
Patient cohesion	-.63*	-.53	-.59*		
Therapeutic hold	.11	-.50	.14	.04	

*p < 0.05

Correlations were also conducted for patient and staff scores separately, these are shown in tables 5.15 to 5.30.

Table 5.15. *Correlations between patient scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and assault incidents.*

	Assault incidents	Relational security (Patient score)	Service involvement (Patient score)	Patient cohesion (Patient score)	Therapeutic hold (Patient score)
Assault incidents					
Relational security (Patient score)	-.12				
Service involvement (Patient score)	-.47	.66*			
Patient cohesion (Patient score)	.24	-.43	-.42		
Therapeutic hold (Patient score)	-.17	-.49	-.08	.72**	

*p < 0.05, **p < 0.01

Table 5.16. *Correlations between patient scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and threat incidents.*

	Threat incidents	Relational security (Patient score)	Service involvement (Patient score)	Patient cohesion (Patient score)	Therapeutic hold (Patient score)
Threat incidents					
Relational security (Patient score)	.14				
Service involvement (Patient score)	-.21	.66*			
Patient cohesion (Patient score)	-.30	-.43	-.42		
Therapeutic hold (Patient score)	-.61*	-.49	-.08	.72**	

*p < 0.05, **p < 0.01

Table 5.17. *Correlations between patient scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and verbal abuse incidents.*

	Verbal abuse incidents	Relational security (Patient score)	Service involvement (Patient score)	Patient cohesion (Patient score)	Therapeutic hold (Patient score)
Verbal abuse incidents					
Relational security (Patient score)	-.07				
Service involvement (Patient score)	-.40	.66*			
Patient cohesion (Patient score)	-.23	-.43	-.42		
Therapeutic hold (Patient score)	-.50	-.49	-.08	.72**	

Table 5.18. *Correlations between patient scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and inappropriate behaviour.*

	Inappropriate behaviour	Relational security (Patient score)	Service involvement (Patient score)	Patient cohesion (Patient score)	Therapeutic hold (Patient score)
Inappropriate behaviour					
Relational security (Patient score)	-.29				
Service involvement (Patient score)	-.58*	.66*			
Patient cohesion (Patient score)	.11	-.43	-.42		
Therapeutic hold (Patient score)	-.06	-.49	-.08	.72**	

Table 5.19. *Correlations between patient scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and property damage.*

	Property damage	Relational security (Patient score)	Service involvement (Patient score)	Patient cohesion (Patient score)	Therapeutic hold (Patient score)
Property damage					
Relational security (Patient score)	-.22				
Service involvement (Patient score)	-.21	.66*			
Patient cohesion (Patient score)	.07	-.43	-.42		
Therapeutic hold (Patient score)	.03	-.49	-.08	.72**	

*p < 0.05, **p < 0.01

Table 5.20. *Correlations between patient scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and stealing incidents.*

	Stealing incidents	Relational security (Patient score)	Service involvement (Patient score)	Patient cohesion (Patient score)	Therapeutic hold (Patient score)
Stealing incidents					
Relational security (Patient score)	.35				
Service involvement (Patient score)	-.02	.66*			
Patient cohesion (Patient score)	-.26	-.43	-.42		
Therapeutic hold (Patient score)	-.34	-.49	-.08	.72**	

Table 5.21. *Correlations between patient scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and trading incidents.*

	Trading incidents	Relational security (Patient score)	Service involvement (Patient score)	Patient cohesion (Patient score)	Therapeutic hold (Patient score)
Trading incidents					
Relational security (Patient score)	-.06				
Service involvement (Patient score)	.23	.66*			
Patient cohesion (Patient score)	-.04	-.43	-.42		
Therapeutic hold (Patient score)	.28	-.49	-.08	.72**	

*p < 0.05, **p < 0.01

Table 5.22. Correlations between patient scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and substance incidents.

	Substance incidents	Relational security (Patient score)	Service involvement (Patient score)	Patient cohesion (Patient score)	Therapeutic hold (Patient score)
Substance incidents					
Relational security (Patient score)	-.04				
Service involvement (Patient score)	.39	.66*			
Patient cohesion (Patient score)	.02	-.43	-.42		
Therapeutic hold (Patient score)	.32	-.49	-.08	.72**	

*p < 0.05, **p < 0.01

Table 5.23. *Correlations between staff scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and assault incidents.*

	Assault incidents	Relational security (Staff score)	Service involvement (Staff score)	Patient cohesion (Staff score)	Therapeutic hold (Staff score)
Assault incidents					
Relational security (Staff score)	.39				
Service involvement (Staff score)	.06	.30			
Patient cohesion (Staff score)	-.33	-.51	-.70**		
Therapeutic hold (Staff score)	.12	-.25	.22	-.26	

*p < 0.05, **p < 0.01

Table 5.24. *Correlations between staff scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and threat incidents.*

	Threat incidents	Relational security (Staff score)	Service involvement (Staff score)	Patient cohesion (Staff score)	Therapeutic hold (Staff score)
Threat incidents					
Relational security (Staff score)	.09				
Service involvement (Staff score)	.01	.30			
Patient cohesion (Staff score)	-.42	-.51	-.70**		
Therapeutic hold (Staff score)	.25	-.25	.22	-.26	

*p < 0.05, **p < 0.01

Table 5.25. *Correlations between staff scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and verbal abuse incidents.*

	Verbal abuse incidents	Relational security (Staff score)	Service involvement (Staff score)	Patient cohesion (Staff score)	Therapeutic hold (Staff score)
Verbal abuse incidents					
Relational security (Staff score)	.07				
Service involvement (Staff score)	-.06	.30			
Patient cohesion (Staff score)	-.30	-.51	-.70**		
Therapeutic hold (Staff score)	.32	-.25	.22	-.26	

Table 5.26. *Correlations between staff scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and inappropriate behaviour.*

	Inappropriate behaviour	Relational security (Staff score)	Service involvement (Staff score)	Patient cohesion (Staff score)	Therapeutic hold (Staff score)
Inappropriate behaviour					
Relational security (Staff score)	-.05				
Service involvement (Staff score)	-.20	.30			
Patient cohesion (Staff score)	-.20	-.51	-.70**		
Therapeutic hold (Staff score)	.55*	-.25	.22	-.26	

*p < 0.05, **p < 0.01

Table 5.27. *Correlations between staff scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and property damage.*

	Property damage	Relational security (Staff score)	Service involvement (Staff score)	Patient cohesion (Staff score)	Therapeutic hold (Staff score)
Property damage					
Relational security (Staff score)	.27				
Service involvement (Staff score)	-.12	.30			
Patient cohesion (Staff score)	-.44	-.51	-.70**		
Therapeutic hold (Staff score)	.30	-.25	.22	-.26	

*p < 0.05, **p < 0.01

Table 5.28. *Correlations between staff scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and stealing incidents.*

	Stealing incidents	Relational security (Staff score)	Service involvement (Staff score)	Patient cohesion (Staff score)	Therapeutic hold (Staff score)
Stealing incidents					
Relational security (Staff score)	-.34				
Service involvement (Staff score)	-.02	.30			
Patient cohesion (Staff score)	-.21	-.51	-.70**		
Therapeutic hold (Staff score)	.30	-.25	.22	-.26	

*p < 0.05, **p < 0.01

Table 5.29. Correlations between staff scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and trading incidents.

	Trading incidents	Relational security (Staff score)	Service involvement (Staff score)	Patient cohesion (Staff score)	Therapeutic hold (Staff score)
Trading incidents					
Relational security (Staff score)	.26				
Service involvement (Staff score)	.66*	.30			
Patient cohesion (Staff score)	-.27	-.51	-.70**		
Therapeutic hold (Staff score)	-.09	-.25	.22	-.26	

*p < 0.05, **p < 0.01

Table 5.30. *Correlations between staff scores on relational security, service involvement, patient cohesion and therapeutic hold subscales and substance incidents.*

	Substance incidents	Relational security (Staff score)	Service involvement (Staff score)	Patient cohesion (Staff score)	Therapeutic hold (Staff score)
Substance incidents					
Relational security (Staff score)	.34				
Service involvement (Staff score)	.30	.30			
Patient cohesion (Staff score)	.64*	-.51	-.70**		
Therapeutic hold (Staff score)	.03	-.25	.22	-.26	
*p	<	0.05,	**p	<	0.01

The tables above show that there was a moderate negative correlation between the number of threats and patient cohesion ($r = -0.56$, $p = 0.05$). This indicates that lower levels of patient cohesion were linked to increased threats. A strong negative correlation was also found between the number of threats and patient perceptions of therapeutic hold ($r = -0.61$, $p = 0.03$), suggesting that lower levels of therapeutic hold were linked to increased threats.

A moderate negative correlation was found between inappropriate behaviour and patient perception of service involvement ($r = -0.58$, $p = 0.04$). This suggests that there are fewer incidents of inappropriate behaviour when patients feel more involved in the service. This category of incident included behaviours such as sexual disinhibition, boundary testing and refusal of staff requests. Staff perceptions of therapeutic hold were found to be moderately positively correlated with inappropriate behaviour ($r = 0.55$, $p = 0.05$). This indicates that wards with higher numbers of incidents classified as inappropriate behaviour, have staff that view therapeutic hold more positively and have patients that feel less involved in the service.

Strong negative correlations were found between substance incidents and staff perception of patient cohesion ($r = -0.64$, $p = 0.02$), indicating that a high number of incidents involving substances are related to less cohesion between patients (as viewed by staff). Further, a strong positive correlation was found between the number of incidents of trading and perception of service involvement by staff ($r = 0.66$, $p = 0.02$), and in general ($r = 0.67$, $p = 0.05$), indicating that a high number of trading incidents occur on wards where the staff feel more involved in the service.

5.3.6. *The contribution of ward culture factors to threat and inappropriate behaviour incidents*

The correlations above showed that a variety of factors were associated with different types of security incident. For threat incidents, overall perception of patient cohesion and patient perception of therapeutic hold were found to be correlated. In addition, for inappropriate behaviour incidents, patient perception of service involvement and staff perception of therapeutic hold were found to be correlated. Therefore, multiple regression analyses were conducted to explore how these factors contributed to threat and inappropriate behaviour incidents in more detail. This type of analysis was not conducted for substance and trading incidents as these were only correlated with one variable each. Table 5.31, below, shows the model statistics for the multiple regression analysis of threat incidents.

Table 5.31. *Multiple regression with threat incidents as the criterion and patient cohesion and therapeutic hold (patient) as the predictors*

	B	SE B	Beta	P
Constant	458.02	192.37		0.04
Patient Cohesion	-16.98	11.34	-0.40	0.17
Therapeutic Hold (Patient)	-10.07	5.72	-0.47	0.09
R ² =0.52				

The model was shown to significantly improve the ability to predict threats ($F(2, 10) = 5.40, p = 0.03$). However, coefficients were found to be not significant (PC ($p = 0.17$);

TH ($p = 0.09$)). This suggests that neither patient cohesion or therapeutic hold significantly contributed to the model. However, this was not due to multicollinearity ($VIF = 1.12$, $Tolerance = 0.89$). This indicates that perceptions of patient cohesion and patient perception of their relationship with staff can be used to predict threat incidents.

Multiple regression analysis also showed that patient perception of service involvement and staff perception of therapeutic hold significantly improved the ability to predict inappropriate behaviours ($F(2, 10) = 5.25$, $p = 0.03$). Patient perception of service involvement was shown to be a significant predictor ($p = 0.05$), whereas staff perception of therapeutic hold was not ($p = 0.07$). VIF and $Tolerance$ values confirmed there were no issues with multicollinearity ($VIF = 1.06$, $Tolerance = .95$). This indicates that patient perception of service involvement is a stronger predictor of inappropriate behaviour than staff perception of therapeutic hold. However, they can be used together to predict this type of incident. The table below, Table 5.32, shows the model statistics for the multiple regression with inappropriate behaviour.

Table 5.32. *Multiple regression with inappropriate behaviour incidents as the criterion and service involvement (patient) and therapeutic hold (staff) as predictors*

	B	SE B	Beta	P
Constant	53.82	98.52		0.31
Service Involvement (Patient)	-4.59	3.23	-0.47	0.05
Therapeutic Hold (Staff)	2.86	2.39	0.44	0.07
R ² =0.51				

5.3.7 Summary of main findings

Findings suggest that threats, inappropriate behaviour, substance and trading incidents are associated with aspects of ward environment. Substance and threat incidents were related to more negative perceptions of ward environment. Incidents involving substances were more likely to occur on wards where staff perceived there to be less patient cohesion. A greater number of threats were made on wards that were characterised by lower levels of patient cohesion and where patients perceived lower levels of therapeutic hold.

Higher numbers of inappropriate behaviours were reported on wards where patients felt less involved in the service. However, on these wards, staff perceived greater levels of therapeutic hold. This goes against the prediction that wards with a greater number of incidents would have more negative views of ward environment. Similarly, higher numbers of trading incidents seemed to occur on wards where staff felt more involved

in the service. The overall number of incidents and the number of aggressive incidents was not found to be related to the ward environment.

Patients and members of staff were found to have differing perceptions of the ward environment. Patients viewed there to be higher levels of patient cohesion and higher levels of relational security on wards. However, staff thought there were higher levels of therapeutic hold on wards. They also had greater perceptions of service involvement.

5.4. Discussion

This study found that staff and patient perception of relational security, service involvement, patient cohesion and therapeutic hold were not associated with the number of aggressive and non-aggressive incidents. However, when incidents were grouped into smaller categories, it was found that a perception of greater patient cohesion was associated with fewer incidents of substance use. Perceptions of patient cohesion and therapeutic hold were found to predict numbers of threat incidents. Higher numbers of this type of incident were related to poor patient cohesion and therapeutic hold. Further, perceptions of service involvement and therapeutic hold were found to predict inappropriate behaviours. Where patients felt less involved in the service, inappropriate behaviours were more likely. However, on wards where staff perceived there to be high levels of therapeutic hold, there were also high levels of inappropriate behaviour.

Unlike much of the research in this area (e.g. Chaplin, McGeorge & Lelliott, 2006; Duxbury, 2002; Duxbury & Whittington, 2005; Finnema, Dassen & Halfens, 1994; Gadon, Johnstone & Cooke, 2006; Van der Helm et al, 2012), no significant relationship was found between ward culture measures and general incidents. Similarly, no significant relationship was found when the incidents were split into two categories; aggressive and non-aggressive incidents. This is in contrast to research that indicates

that aggressive incidents are linked to the ward environment. Theory also suggests that this should be the case. For example, it does not support General Strain Theory's argument that cultural factors are types of strain, and that individuals engage in negative behaviours as they are unable to cope with this strain (Agnew, 1992; Blevins et al, 2010; Morris et al, 2012). Similarly, the Good Lives Model suggestion that negative behaviours occur when people are unable to achieve their primary goods (Fortune et al, 2014) is not supported by this study. It has been argued in previous chapters that types of strain in the environment prevent primary needs from being fulfilled, which in turn increases incidents. Therefore, a negative ward culture should increase the amount of incidents on the ward due to increasing strain and an inability to fulfil their needs due to these strainful experiences. However, this study did not support this argument. It may be that there is not a big enough difference between the cultures of the wards in this study for this to have a significant effect on aggressive incidents.

All wards in the study were from the same hospital, and so are expected to follow the same policies and procedures. This means that the ward culture and standard of care may be very similar across wards. Therefore, differences in scores on the measures used would only be small. It could be argued that the inability to find a link between ward culture and security incidents in this study is due to this similarity across wards. However, a link may be found if this study was replicated across other services, as cultures are likely to differ from hospital to hospital. Further, it may be that the measures used did not assess the aspects of culture that they were originally designed to. The measures were chosen as they were thought to fully encompass the principles of relational security and enabling environments; and so reflect aspects of positive ward cultures. However, only two scales were extracted from these measures during factor analysis. This meant a number of ward culture variables were lost at that stage. For

example, the original measures were thought to address patient engagement in activities. However, this variable was lost at factor analysis stage. Therefore, although the variables included in this study were not found to be associated with aggressive incidents, other aspects of ward culture may be related.

Due to the lack of association between ward culture and incidents and the recommendations from previous research that incidents should be investigated individually (Camp et al, 2003; Lahm, 2009), incident data was split into smaller groups. This indicated that some types of incidents could be predicted by the ward culture variables. For example, greater numbers of threat incidents were predicted by low levels of patient cohesion and therapeutic hold. In addition, patient perception of a lack of involvement in the service and staff perception of high therapeutic hold predicted high levels of inappropriate behaviour on wards. Therefore, this study has shown the importance of looking at different types of incidents individually.

As stated, high numbers of threat incidents were associated with lower scores on patient cohesion and therapeutic hold scales. This suggests that wards categorised by a lack of supportive and respectful relationships have a higher number of threat incidents. Previous research also suggests that relationships with others are important in managing the risk of incidents (Chaplin, McGeorge & Lelliott, 2006; Duxbury, 2002; Duxbury & Whittington, 2005; Finnema, Dassen & Halfens, 1994; Gadon, Johnstone & Cooke, 2006; Van der Helm et al, 2012). Theory also suggests that relationships are an important part in managing behaviour. For example, theories of behaviour change such as Self-Determination (Markland, Ryan, Tobin & Rollnick, 2005) state the importance of supportive relationships in motivating offenders to engage in more positive behaviours. Others also suggest that these supportive and respectful relationships will increase the perception of fairness individuals have in interactions, and that this results

in better behaviour and following of rules (Jackson et al, 2010). Previous research has not investigated threat incidents, unless these types of incidents are included in their definitions of aggression (e.g. Chaplin et al, 2006). Therefore, this study is the first to find an association between threats and ward culture.

A further main finding was that patients perceived themselves to be less involved in the service on wards with higher levels of inappropriate behaviour. Inappropriate behaviour included incidents such as sexual disinhibition, boundary testing and refusing requests from staff. This lower score may reflect patients believing that they cannot challenge decisions that affect them and that they do not agree with the expectations of behaviour. One of the main causes of strain has been cited to be a lack of autonomy (Agnew, 1992), and a lack of involvement in the service could be related to this. Further, this seems to relate to ideas surrounding legitimacy of authority. This is the belief that authorities are entitled to make decisions (Tyler, 2006) and is directly related to perceptions of fairness (Brunton-Smith & McCarthy, 2016). Part of perceiving fairness in decision making is that there are opportunities for the individual to take part in decision making (Jackson et al, 2010). Therefore, if patients are unable to take part in decisions that affect them, they are likely to perceive less fairness and so less legitimacy of authority. When authority is not perceived as legitimate, incidents of rule breaking are likely to be greater (Liebling et al, 2005; Sparks & Bottoms, 2008). This shows that aspects of ward culture can be associated with non-aggressive incidents as well as aggressive incidents.

Inappropriate behaviour incidents were also linked to staff perception of low levels of therapeutic hold. Low scores on this subscale reflect a more negative relationship between staff and patients. This supports previous research that states that patient and staff relationships contribute to incidents (Chaplin, McGeorge & Lelliott, 2006;

Duxbury, 2002; Duxbury & Whittington, 2005; Finnema, Dassen & Halfens, 1994; Gadon, Johnstone & Cooke, 2006; Van der Helm et al, 2012) and furthers the research by extending this to non-aggressive incidents. The investigation of other types of incident such as trading and substance use also further previous research.

Substance use incidents were found to be associated with low levels of patient cohesion. This may be due to the lack of peer support on wards. It may be that substance misuse acts as a coping mechanism. However, when wards are characterised as having high levels of patient cohesion, patients may be more likely to find support from their peers. In turn, this acts as a more positive way of coping, and substances are not needed. However, it must be noted that there are very low levels of substance misuse in the sample, and so this finding may not be very reliable. Further, this study found that trading was associated with higher scores on service involvement for staff. This may be because staff who feel more involved are more invested in the service. In turn, this could result in greater vigilance and higher levels of reporting of this kind of incident. This would then be reflected in the number of these incidents collected in this study. However, like with substance misuse, there are few trading incidents in the sample for this study. Therefore, this finding may not be reliable.

This study also examined whether there were differences in staff and patient scores. Staff and patients were found to hold different beliefs about the culture of the ward. Patients scored higher on the patient cohesion scale than staff. This is in line with other research using EssenCES (Day et al, 2011; Tonkin et al, 2012). Also in agreement with previous research, staff scored higher on the therapeutic hold scale (Ching et al, 2010; Day et al, 2011; Long et al, 2011; Milson et al, 2014; Schlaster et al, 2008). This suggests that patients perceived there to be less support from staff members and more support from other patients than staff did. Further, higher scores were found for staff on the

Service Involvement scale. This may be due to that fact that staff are likely to consult more with management due to the nature of their job. It may reflect that patients have fewer opportunities to voice their opinions about their care and so feel less involved in the service. Finally, staff members also had lower scores for the relational security questionnaire. This could be because they are reminded about the importance of relational security regularly. They may be more critical of this on their wards as they may hold higher standards for this than patients.

There were also significant differences between wards. Patient cohesion scores were lower for high dependency wards than low dependency wards. This may be due to the number of patients on wards. High dependency wards tend to have fewer patients than low dependency wards and these patients tend to be unwell. It may be that fewer patients on the ward can result in a limited amount of interaction between patients. Further, it could be that the health of patients is a limiting factor for the type of relationship they are able to form with their peers.

5.4.1. Limitations

Although this study shows a link between aspects of ward culture and some types of incidents, there are some limitations that need to be discussed. Firstly, this study had some issues with the EssenCES questionnaire. EssenCES has been found to be a valid and reliable way to measure social climate in a variety of settings (Alderman & Groucott, 2012; Howells et al, 2009; Milsom et al, 2014; Tonkin et al, 2012). However, this study achieved low cronbach alpha scores for the scales. Although research has found the Experienced Safety scale to have lower alpha scores than the other two subscales (Milsom et al, 2014; Tonkin, 2015), the scale was removed from the study due to a lack of reliability. This questionnaire has been validated for use in high secure services (Howells et al, 2009) so it is hard to understand why this is the case.

Secondly, there were issues surrounding the quality of the See Think Act scale. Although, Tighe and Gujonsson (2012) stated that this scale included four subscales (therapeutic risk management, pro-social team culture, boundaries, and patient focus) the factor analysis did not reveal this. Instead, only one factor that seems to reflect relational security as a whole was identified. Although this scale was found to be highly reliable, this significantly reduced the range of factors that were able to be investigated in this study. The relational security scale did cover both risk management and boundaries, but not in as much detail as the study was expected to do. For example, the scale only had two items that related to boundaries. This meant that study could not investigate the range of cultural factors it had aimed to do. It may be that the involvement of scales for therapeutic risk management, pro-social team culture, boundaries, and patient focus would have given different results in terms of predicting security incidents. Instead, the relational security scale was not related to any incidents. However, it cannot be concluded that relational security is not associated with security incidents. This result may be because of the problems stated above. It may also be that high staff awareness of relational security effected results. The Department of Health has emphasised the need for relational security within the service, and it is likely that all staff are aware of the See, Think, Act guidelines. Indeed, a majority of questionnaires answered 'agree' to every item on this scale. It is possible that this affected the results. If the majority of items had similar scores, there is unlikely to be much variance between wards. Therefore, an association between relational security and incidents is less likely to be found.

Further issues with measures were found with the Enabling Environments questionnaire. This study adopted an online questionnaire about enabling environments from the Royal College of Psychiatry. As far as the researcher is aware, this is the only

study to have used such a measure. The questionnaire was included due to its coverage of many different aspects of ward culture. However, the factor analysis only indicated there to be one scale. Although service involvement is an important area of ward culture to investigate, this meant that many of the areas the research hoped to cover in this research were left out. For example, the original questionnaire asked about activities that were available in the service. Previous research has found that activity involvement is important in reducing the risk of incidents (Chaplin et al, 2006). Indeed, the general strain theory states that a lack of engagement in activities can lead to boredom, which ultimately results in misbehaviour (Wortley, 2002). Therefore, it seems important that this aspect of the environment is investigated. However, it was not covered in this study. In the final study of the thesis, this variable will be considered in detail.

There were also some issues with the methods used to collect data in this study. For example, the study relied on self-report measures to collect information about ward culture. Therefore, only participant perceptions of ward culture were assessed and it is likely that some biases exist in the data. It may be that patients who have had requests refused by staff more recently are more likely to perceive the staff-patient relationship to be poor and unsupportive. However, this relationship may have been assessed differently if the measures had been completed at a different time. One way to lessen this effect would be to observe the relationship between patients and staff on wards. However, this was perceived to be too time consuming for this study. In addition, it was believed that the participant perception of the culture and environment was more likely to be linked to incidents than objective measures of culture. In other words, if a patient believes that the environment is characterised by a lack of relational security and perceive that they are not involved in the service they are more likely to be involved in security incidents.

Further, this study did not control for the effect of patient characteristics on security incidents. Research discussed earlier suggested that younger individuals with a history of engaging in incidents previously would be more likely to be involved in security incidents (Cunningham & Sorensen, 2007; Wooldredge et al, 2001). Therefore, it is likely that wards in this study with a greater proportion of younger patients with a history of security incident involvement, would have a greater number of security incidents. Similarly, a diagnosis of schizophrenia or a history of psychotic symptoms has been associated with security incidents (Dack et al, 2013; Iozzino et al, 2015; Nourse et al, 2014). Therefore, it would be likely that wards with a greater proportion of patients with a diagnosis of schizophrenia would have a greater number of security incidents. However, this was not controlled for in this study, and so it may be that some of the results discussed above are attributable to patient characteristics rather than ward characteristics.

Finally, this study also did not control for the effect of therapeutic and management interventions. These interventions may mean that patient behaviour is addressed before it escalates into a serious incident such as assault. For example, a patient may be moved to a seclusion room due to negative behaviours, such as verbal aggression, before they are able to assault a member of staff or other patient. This was not included in this study, and so it may be that these interventions influence behaviour on wards in this study. Some wards may have more interventions in place than others, and these could influence behaviour and patient relationships with staff. Therefore, future research should look to include this.

5.4.2. Future direction

The staff-patient relationship and the patient-patient relationship seem to be particularly important in this study. Although it is clear that support and trust play an important part

in decreasing the risk of incidents, the scales used in this research are fairly small and do not take into account a number of other parts of these relationships. For example, it may be that interpersonal style plays an important part within these relationships. Related to this, research in chapters 3 and 4 suggest the perception of being treated fairly may be important. The final study of the thesis investigates this. Further, factors such as the availability of activities were not included in the analysis of this study. However, as detailed in previous chapters, this factor seems to be related to the number of incidents. Therefore, chapter 6 examines this in more detail.

The study discussed in chapter 6 will also address the impact of the physical environment on security incidents. The focus of the present study was the association between ward culture and security incidents. Only four types of incidents seemed to be associated with ward culture, and unlike previous literature, overall aggression was not. It may be that differences in the physical environment of the ward can help to explain these findings. In addition, theories such as general strain suggest that aspects of the physical environment are associated with incidents. It may be that the physical environment mediates the relationship between ward culture and security incidents. Therefore, further research should include physical environment factors, and the study outlined in chapter 6 undertakes this.

This study indicates that threats, inappropriate behaviour, substance misuse and trading are associated with aspects of ward culture. It highlights that the relationship between ward culture and incidents is more complicated than previously considered. Researchers should not rely on the categorisation of 'all incidents', 'aggressive incidents' and 'non-aggressive incidents' as it is evident that one size does not fit all. Different types of incidents seem to have different processes. This study highlights the need for much

more thorough research in this area if we are to understand what can be done to prevent security incidents.

Chapter 6: The relationship between interpersonal style, engagement in meaningful activity, perceived fairness, physical environment and security incidents

The previous study used overall measures of ward culture and found that only some types of incidents, such as trading and threats, were associated with a negative ward culture. In addition, not all aspects of ward culture seemed to be associated with incidents. Therefore, this study investigated the relationship between security incidents and specific parts of ward culture; staff interpersonal style, perceived fairness and engagement in meaningful activity. It also investigated whether the physical environment of wards influenced security incidents. The chapter discusses the types of incidents that are predicted by these environmental factors. It also assesses whether fairness mediates the relationship between staff interpersonal style and security incidents.

6.1.1 Rationale for this study

The previous study aimed to investigate whether ward culture was associated with the number of aggressive and non-aggressive incidents. It used measures that aimed to assess the extent to which the environment was an enabling environment, something that was argued to be an example of a positive and supportive culture. Although many aspects of ward culture were not found to be associated with incidents, supportive relationships between patients and staff were found to be related to threatening and inappropriate behaviours. In addition, patient perceptions of low involvement in decisions in the service were associated with inappropriate behaviours. It was suggested that these findings may be linked to perceptions of fairness. As a result of these

findings, this study assessed the contribution of perceptions of staff interpersonal style and fairness to security incidents.

The measures used in the previous study included questions about activities on the wards. This was deemed to be an important part of ward culture as previous studies in this thesis had highlighted this as a contributor to aggressive incidents. Unfortunately, these questions were removed from analysis at the factor analysis stage due to poor factors scores and poor reliability. As the relationship between activity and security incidents has not been fully examined in high secure settings before, this variable was included in this study.

Finally, physical environment factors were not included in the previous study. Despite the systematic literature review, (chapter 3) revealing that the physical environment may contribute to incidents, interviewed staff members in the second study did not make reference to this. It was also thought that aspects of the physical environment would not have as much variability as ward culture in study 3, as all wards were at the same hospital. However, the impact of ward culture was not as great as expected in the previous study. Therefore, it was theorised that it may work together with physical environment factors to effect incidents, and so it was included in this study.

6.1.2. The role of relationships in predicting security incidents

Previous research has suggested a link between the staff-patient relationship and security incidents (Chaplin, McGeorge & Lelliott, 2006; Duxbury, 2002; Duxbury & Whittington, 2005; Finnema, Dassen & Halfens, 1994; Gadon, Johnstone & Cooke, 2006; Meehan, McIntosh & Bergen, 2006; Pulsford et al, 2013; Reisig & Mesko, 2009; van der Laan & Eichelsheim, 2013; Van der Helm et al, 2012). Some of this research suggested that this link was related to the negative attitudes of staff (Chaplin et al, 2006;

Finnema et al, 1994; Meehan et al, 2006). Others stated that it was interactions with staff in general that were the cause (Duxbury, 2002; Duxbury & Whittington, 2005; Gadon et al, 2006; Powell et al, 1994). A few have noted that the interpersonal style of staff was the issue that contributed to incidents (Muir-Cochrane, Baird & McCann, 2015). However, this study failed to address what types of interpersonal style were problematic, and just suggested that interpersonal style in general was an issue. Other research has focused on the interpersonal style of patients, and has found that dominant, hostile styles were linked with violence and aggression (Cookson, Daffern & Foley, 2012; Daffern et al, 2008; Daffern et al, 2010; Dolan & Blackburn, 2006; Doyle & Dolan, 2006; Harris, Oakley & Picchioni, 2014).

There are currently no studies that investigate whether interpersonal style in staff is related to incidents. This is despite researchers such as Hamilton (2010) suggesting that if staff members' interpersonal style is characterised by too much control or too much placidity, incidents are likely to increase. The Boundary See Saw Model (Hamilton, 2010) suggests that too much control results in boundary pushing. This would result in the tightening of boundaries by staff and in turn a cycle of each member trying to regain control. On the other side of the scale, a 'pacifier' style of interaction would lead to boundaries becoming confused and overly flexible which in turn would lead to incidents. Hamilton (2010) argued that the desired staff interpersonal style was somewhere between the two.

The argument that staff interpersonal style may be important in patient behaviour is supported by the work of Kiesler (1987). Kiesler stated that interpersonal style has two dimensions: control and affiliation. On the control dimension, an individual's interpersonal style can range from dominance to submission. On the affiliation dimension, this style can range from hostility to friendliness. Behaviours on the

affiliation dimension are likely to evoke a corresponding response and behaviours on the control dimension are likely to evoke a reciprocal response. Therefore, an interpersonal style characterised as hostile and dominant is likely to evoke a hostile, submissive response. This is termed complementarity (Lillie, 2007). Therefore, if a member of staff has a hostile interpersonal style; this is likely to be greeted with hostility from patients. However, this is yet to be investigated with staff and patients.

6.1.3. The contribution of justice and fairness

One of the main themes in the research reviewed in chapter 3 was that provocation from other residents and staff was an antecedent to incidents (Johnson et al, 1997; Powell, Caan & Crowe, 1994; Pulsford et al, 2013). This could present in many forms such as the lack of communication about changes in care to patients (Shepherd & Lavender, 1999). The qualitative study outlined in chapter 4 supported this idea, finding that security incidents were associated with perceived injustice in decision making. It is argued that this association is due to patients perceiving low levels of procedural justice.

Procedural justice is the notion that rules and processes are fair and just (Tyler, 2006). In order for situations to be deemed as fair, individuals need to have the opportunity to participate in decision making (Jackson et al, 2010). If people view situations as unfair, it is unlikely that they will view authority as legitimate (Brunton-Smith & McCarthy, 2016). If they perceive unfairness they are unlikely to believe that staff members are entitled to make decisions (Tyler, 2006). In turn, this would mean that people are unlikely to follow rules and behave appropriately (Liebling et al, 2005; Jackson et al, 2010; Sparks & Bottoms, 2008). This explains why perceptions of injustice may be associated with greater numbers of security incidents. If patients perceive unfairness due to their inability to be involved in decision making, they are likely to behave

inappropriately. Therefore, it is an important factor to consider in investigating contributing factors of security incidents.

One of the other main factors involved in deciding whether a situation is deemed as fair is if the individual is treated with respect and dignity. Therefore, acknowledging people's rights and treating them with respect leads them to feeling fairly treated (Jackson et al, 2010). This links to the research showing that relationships between staff and patients are associated with incidents (e.g. Chaplin, McGeorge & Lelliott, 2006; Duxbury, 2002; Duxbury & Whittington, 2005; Finnema, Dassen & Halfens, 1994; Gadon, Johnstone & Cooke, 2006; Meehan, McIntosh & Bergen, 2006; Pulsford et al, 2013; Reisig & Mesko, 2009; van der Laan & Eichelsheim, 2013; van der Helm et al, 2012). Therefore, it can be argued that the interpersonal style of staff influences a patient's perception of fairness. A hostile interpersonal style would reduce a patient's perception of fairness. In turn, this reduces their perception of staff legitimacy and can cause negative behaviour such as involvement in security incidents.

6.1.4. The physical environment and security incidents

The importance of the physical environment in healthcare is widely recognised, but the nature of this relationship is not well understood and the precise features linked with incidents are not clearly established. Mental health services have shown awareness of the importance of the physical environment. For example, the Mental Health Act Commission (2008) reported that mental health units in the UK are potentially dangerous due to environmental factors. MIND (2004) have also found that a third of patients believe that the physical environment of wards hinders their health and recovery. Further, NICE (2005) guidance on imminent violence makes 26 recommendations on the environment. However, none of these seem to have any research basis, and seem to be based on expert opinion and formal consensus.

This may be due to the lack of consistent research in this area. In fact, most research in this area is conducted when patients are moved to new purpose built facilities. This allows for an opportunistic comparison between the new and old building environment and incident numbers. For example, Dijkstra et al (2006) reviewed studies that employed this design. In this study, positive effects were found for sunlight, size of windows and odour on mental health. There were inconsistent effects for sound, spatial layout and closeness to nature. However, the relationship between these factors and incidents was not investigated. Further, this type of study has notable limitations. As these studies occur when wards are being remodelled or patients are moving to different wards, there are usually a number of independent variables that are manipulated at the same time. This means that the impact of various factors cannot be looked at independently. Therefore, research is needed in order to investigate this, which is addressed by this study.

6.1.5. Research aims

This study aims to examine the association between staff interpersonal style, perception of fairness, engagement in meaningful activity, physical environment and security incidents. It suggests that:

1. Staff interpersonal style characterised by hostility and dominance will be associated with greater numbers of incidents;
2. A poorer perception of fairness will be associated with greater numbers of incidents;
3. Perceptions of fairness will mediate the effect of interpersonal style on incident number;

4. Wards where patients are involved in a greater number of activities and where patients associate more meaningfulness with these activities will have fewer incidents;
5. The physical environment will have an effect on numbers of incidents.

6.2. Method

6.2.1. Participants

Ethics was obtained for this study from the Health Research Authority and the University of Central Lancashire. Participants were recruited from wards at a high secure NHS service. The research involved staff and patients. Staff members were deemed eligible if they worked on one of the wards and had good knowledge of its environment. This meant that staff participation was mainly restricted to ward nurses. Patients were deemed eligible if their responsible clinician had provided confirmation that they were able to consent to research. Patients had to be able to understand the research procedure. As all measures were written in English, it was essential that patients were able to speak English. However, if a patient had trouble reading measures, then a member of the research team was available to read these to them. This occurred with fourteen patients. Four hundred and twenty five members of staff were identified as being eligible to take part. Of these, 151 completed questionnaires. One hundred and ninety one male patients were identified as potential participants. Sixty two patients agreed to take part. This left an overall response rate of 35%.

All patient participants were male. Ninety two (61%) staff participants were male and 59 (39%) were female. Most of the sample described themselves as White British (91%). The sample ranged from 23 to 59 years of age. Patient participants were recruited from wards at a high security hospital. These wards included both admission and long stay wards, and high and low dependency wards. Wards were usually split

between personality disorder and psychiatric disorder. However, due to the co morbidity of these disorders and lack of space, this was not always the case.

6.2.2. Measures

All participants completed questionnaire booklets. Staff and patients completed the *Impact Message Inventory – Circumplex (Brief Version)*, the *Staff-Client Interactive Behaviour Inventory*, and the *Perceptions of Fair Interpersonal Treatment Scale*. Patients' questionnaire booklets also included the *Engagement in Meaningful Activities Survey* and the *Direct and Indirect Patient Behaviour Checklist*. An example of this booklet is given in Appendix 9.

The first questionnaire participants were asked to complete was the *Impact Message Inventory – Circumplex (Brief Version)* (Kiesler & Schmidt, 2006). This is a 28-item scale that measures feelings relating to interpersonal behaviour. It measures four types of interpersonal style; *dominant, submissive, friendly and hostile*. In the patient version, questions are asked about how they feel when interacting with members of staff. For example, “When I am with members of staff they typically make me feel that I could lean on them for support”. In the staff version, questions are asked about how they think patients feel when interacting with them. For example, questions include “When patients are with me I typically make them feel that they could lean on me for support”. Statements were rated on a 4-point Likert scale ranging from ‘not at all’ to ‘very much so’.

A higher score indicates a greater presentation of that style. The authors also suggest that scores are mapped onto two axes; the control axis and the affiliation axis. The control axis score is calculated by subtracting the submissive score from the dominant score and indicates the level to which there is a controlling interpersonal style. The

affiliation axis score indicates the level to which the interpersonal style is characterised by affiliation. It is calculated by subtracting the hostile score from the friendly score. The internal consistency of the scales is good, with average alpha scores ranging from .72 (dominant) to .87 (friendly) (Kiesler & Schmidt, 2006).

Secondly, all participants were asked to complete the Staff-Client Interactive Behaviour Inventory (SCIBI; Willems et al, 2010). This questionnaire identifies ways that staff interact with patients based on their interpersonal style. The 18-item questionnaire includes four subscales; *assertive control*, *hostility*, *friendliness* and *support seeking*. Items include “I handle rules in a strict manner” and “I can handle everything better when patients support me”. Patient questionnaires were adapted by exchanging “I” to “staff”. Statements were rated on a 5-point Likert scale ranging from ‘completely inapplicable’ to ‘completely applicable’. High scores on subscales indicate higher levels of that type of interpersonal behaviour. The authors found the scales to have good levels of internal consistency with alpha values of .84 (assertive control), .72 (hostility), .82 (friendliness), .68 (support seeking) (Willems et al, 2010, Willems et al, 2012). Other research has also found the scales to have sufficient reliability with alpha values ranging from .61 (hostility) to .84 (friendliness) (Zijlmans et al, 2012).

Participants were then asked to complete the Perceptions of Fair Interpersonal Treatment Scale (Donovan, Drasgow & Munson, 1998). This is an 18-item questionnaire developed from the literature surrounding organisational justice. It has originally been used to examine employee’s perceptions of fair treatment from their supervisors and colleagues, but has been adapted for this research. Answers are given on a 3-point scale which includes ‘yes’, ‘no’ and ‘?’. During analysis, ‘yes’ is given a score of 3, ‘no’ is given a score of 1, and ‘?’ is given a score of 2. A higher score indicates greater levels of fairness. Research has found the supervisor subscale and co-

worker subscale to have good levels of internal consistency with alpha levels of .91 and .76 respectively (Donovan et al, 1998).

The Engagement in Meaningful Activities Survey (EMAS; Goldberg, Britnell & Goldberg, 2002) was completed by patients only. This is a 12-item questionnaire that examines the extent to which patients find meaningfulness in their day to day activities. This research uses the revised formatting suggested by Eakman (2012). Example items include “The activities I do help me take care of myself” and “The activities I do give me pleasure”. Responses are given on a 4-point Likert scale ranging from ‘rarely’ to ‘always’. Participants can be classified as perceiving the meaningfulness of their activities as low, moderate or high. Good levels of internal consistency have been found in the research, with alpha levels ranging from .88 to .90 (Eakman, 2011, Eakman, 2014, Eakman, 2015, Eakman, Carlson & Clark, 2010). Space was given after this questionnaire for participants to state how many times a week they took part in activities and what activities they took part in.

The final questionnaire patients were asked to complete was the Direct and Indirect Patient Behaviour Checklist – Hospital version revised (DIPC-HR; Ireland & Rowley, 2007). This is a behavioural checklist that includes two sections; self-reported intra-group aggression and self-reported victimisation. Examples of items include “I have stolen property from another patient”, “I have deliberately pushed another patient” and “I was hit or kicked by another patient”. Participants are asked to indicate which behaviours they have engaged in and which behaviours have happened to them within the past month. The prison version of this checklist has been shown to be reliable in a variety of prison settings (Ireland, 2002). Hospital versions have been used previously with high secure forensic patients (Ireland, 2005; Ireland, 2006; Ireland & Rowley, 2007).

Data collection sheets designed by the researcher were used to collect physical environment and ward incident data. Physical environment sheets collected data about the number of patients on the ward, its dependency level, light availability and noise levels. Data such as the number of patients on the ward and ward dependency level was collected from online records. Light availability and noise levels were measured using a Lux meter and a sound level meter. An example of the physical environment data collection sheet is provided in Appendix 10. Ward incident sheets collected data about the date, time, location, and type of incident. An example of this is given in Appendix 11.

6.2.3. Procedure

Data was collected from 13 wards at a high secure hospital. Wards included high dependency and low dependency wards. Patients on wards were diagnosed with personality disorder, psychosis or mood disorders, and while these tended to be grouped together on wards, this was not always the case. The sample included both admissions and long stay wards. Staff members were approached during their shift, given an information sheet (Appendix 12) and introduced to the research. They were given a week to think about whether they would like to take part in the research. If staff agreed to take part, they were given a consent form to sign. They were then given questionnaire booklets to complete. This took no more than 40 minutes and was completed during their shift.

Potential patient participants were only approached once consent had been obtained from their Responsible Clinician. This ensured that patients were well enough to take part in the research and were able to give informed consent. Researchers approached patients to introduce the study and hand them an information sheet (Appendix 13). Once the information sheet had been read and any questions from the patient answered,

patients were asked to take part. If they decided they agreed, a consent form was signed. The researcher would then sit with the patient in a separate room whilst the patient filled in the questionnaire. This ensured that the researcher was available if the patient needed to ask questions. In ten instances, the researcher read the questions to the patient. Questionnaires took between 30 and 60 minutes to complete.

During data collection, incident data was being collected from the Patient Administration and Clinical Information System (PACIS) database. This database is used in high secure services to collate information about patients such as their history, clinical information and incident involvement. Incidents were collected from the months of questionnaire data collection using a data collection sheet designed by the researcher (Appendix 11). Information was collected about the month, time of day, ward location, type of incident, incident details and number of patients and staff involved in the incidents. Only incidents taking place on the ward were collected. No identifying information about staff or patients who were involved in the incidents was collected.

The researcher also collected data about the ward physical environment. This included the dependency level of the ward, the number of patients on the ward, the staff-patient ratio, light availability and amount of noise. Measurements of light and noise were taken three times during the day and the average of these was used in further analysis. Light availability was measured with a Lux meter. Noise levels were assessed using a sound level meter. The number of patients involved in off-ward activities was also recorded.

6.3. Results

6.3.1. Data Screening

Data was first screened for missing data. For questionnaires that all participants completed (IMI-C, SCIBI and Perceptions of Fair Interpersonal Treatment), missing data was not above .5% for any variables. Little's MCAR test indicated that this data was not missing completely at random ($X^2(567) = 644.678, p = 0.01$). However, analysis of the missing patterns table showed no pattern and so missing data was assumed to be missing at random. For the EMAS, missing data was not above 1.6% for any variables. Little's MCAR test indicated that this was missing completely at random ($X^2(11) = 17.28, p = 0.10$). Expectation Maximisation was used to estimate missing data. No multivariate outliers were found. Only univariate outliers were changed. They were replaced by the next extreme score plus one; only five outliers were changed. Submissive, hostile, openness and fair treatment variables were found to be positively skewed. These were solved using a square root transformation. The DIPC-HR was not included in this stage of analysis as it is a checklist of behaviour.

6.3.2 Incident analysis

From the PACIS database, data about 1941 incidents was collected. Table 6.1 shows the number of different types of incidents on each ward.

Table 6.1. *The number of each type of incident on wards*

Type of incident	Number of incidents (% of total ward incidents)													Total (% of overall incidents)
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	
Verbal abuse of staff	44 (14.1)	74 (28.5)	3 (11.1)	20 (19.4)	-	7 (19.4)	44 (22)	35 (15.8)	40 (14.9)	1 (3.4)	8 (28.6)	3 (11.5)	102 (23.6)	381 (19.6)
Threats to staff	47 (15)	36 (13.8)	5 (18.5)	6 (5.8)	-	4 (11.1)	30 (15)	54 (24.4)	60 (22.4)	1 (3.4)	3 (10.7)	6 (23.1)	84 (19.4)	336 (17.3)
Assault of staff	11 (3.5)	15 (5.8)	1 (3.7)	2 (1.9)	-	1 (2.8)	15 (7.5)	20 (9)	15 (5.6)	1 (3.4)	3 (10.7)	-	44 (10.2)	128 (6.6)
Behaviour – other	17 (5.4)	11 (4.2)	1 (3.7)	8 (7.8)	-	3 (8.3)	8 (4)	12 (5.4)	42 (15.7)	3 (10.3)	1 (3.6)	2 (7.7)	15 (3.5)	123 (6.3)
Verbal abuse of patients	9 (2.9)	19 (7.3)	2 (7.4)	10 (9.7)	-	-	13 (6.5)	7 (3.2)	18 (6.7)	3 (10.3)	-	1 (3.8)	28 (6.5)	110 (5.7)
Sexual disinhibition	13 (4.2)	13 (5)	-	22 (21.4)	-	4 (11.1)	15 (7.5)	1 (0.5)	3 (1.1)	-	1 (3.6)	-	13 (3)	85 (4.4)

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Type of incident	Number of incidents (% of total ward incidents)													Total (% of overall incidents)
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	
Blocked observations	47 (15)	3 (1.2)	-	1 (1)	-	-	6 (3)	1 (0.5)	11 (4.1)	1 (3.4)	-	3 (11.5)	11 (2.5)	84 (4.3)
Threats to patients	12 (3.85)	5 (1.9)	2 (7.4)	8 (7.8)	-	-	5 (2.5)	11 (5)	18 (6.7)	3 (10.3)	-	-	19 (4.4)	83 (4.2)
Aggressive and hostile interaction	3 (1)	22 (8.5)	2 (7.4)	3 (2.9)	-	2 (5.6)	3 (1.5)	14 (6.3)	12 (4.5)	3 (10.3)	5 (17.9)	-	14 (3.2)	83 (4.2)
Property damage	14 (4.5)	12 (4.6)	2 (7.4)	1 (1)	-	2 (5.6)	7 (3.5)	3 (1.4)	11 (4.1)	2 (6.9)	3 (10.7)	6 (23.1)	17 (3.9)	80 (4.1)
Aggression towards objects	34 (10.9)	4 (1.5)	1 (3.7)	1 (1)	-	-	12 (6)	12 (5.4)	2 (0.7)	-	-	-	11 (2.5)	77 (3.9)
Attempted assault of staff	4 (1.3)	12 (4.6)	-	-	-	-	14 (7)	5 (2.3)	12 (4.5)	-	-	-	29 (6.7)	76 (3.9)
Dirty protest	22 (7)	8 (3.1)	-	-	-	-	5 (2.5)	1 (0.5)	8 (3)	-	-	-	3 (0.7)	47 (2.4)

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Type of incident	Number of incidents (% of total ward incidents)													Total (% of overall incidents)
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	
Refusal of staff request	4 (1.3)	2 (0.8)	6 (22.2)	2 (1.9)	-	2 (5.6)	2 (1)	13 (5.9)	4 (1.5)	1 (3.4)	1 (3.6)	1 (3.8)	5 (1.2)	43 (2.2)
Security breach	8 (2.6)	3 (1.2)	-	-	-	3 (8.3)	-	12 (5.4)	-	2 (6.8)	1 (3.6)	1 (3.8)	2 (0.5)	32 (1.6)
Boundary pushing	3 (1)	3 (1.2)	-	4 (3.9)	-	3 (8.3)	2 (1)	4 (1.8)	1 (0.4)	-	1 (3.6)	-	2 (0.5)	23 (1.2)
Throwing objects	6 (1.9)	3 (1.2)	-	-	-	-	2 (1)	1 (0.5)	3 (1.1)	-	-	-	5 (1.2)	20 (1)
Refused medication	1 (0.3)	10 (3.8)	-	-	-	2 (5.6)	2 (1)	1 (0.5)	3 (1.1)	-	-	-	2 (0.5)	21 (1.1)
Racist comments	1 (0.3)	1 (0.4)	-	6 (5.8)	-	-	-	-	2 (0.7)	-	-	-	7 (1.6)	17 (0.9)

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Type of incident	Number of incidents (% of total ward incidents)													Total (% of overall incidents)
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	
Assault of patient	-	-	-	1 (1)	-	3 (8.3)	5 (2.5)	-	-	2 (6.9)	-	-	3 (0.7)	14 (0.7)
Bullying	4 (1.3)	-	-	2 (1.9)	-	-	1 (0.5)	3 (1.4)	-	-	1 (3.6)	-	2 (0.5)	13 (0.7)
Trading	4 (1.3)	-	-	-	-	-	-	4 (1.8)	-	3 (10.3)	-	-	1 (0.2)	12 (0.6)
Inciting other patients	1 (0.3)	4 (1.5)	-	2 (1.9)	-	-	1 (0.5)	1 (0.5)	-	1 (3.4)	-	-	-	10 (0.5)
Threats to staff and patients	-	-	-	1 (1)	-	-	2 (1)	2 (0.9)	1 (0.4)	-	-	2 (7.7)	2 (0.5)	10 (0.5)
Sexual assault	-	-	-	-	-	-	3 (1.5)	-	-	-	-	-	3 (0.7)	6 (0.3)

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Type of incident	Number of incidents (% of total ward incidents)													Total (% of overall incidents)
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	
Weapon making	1 (0.3)	-	-	-	-	-	-	-	-	-	-	1 (3.8)	3 (0.7)	5 (0.3)
Substance misuse	1 (0.3)	-	-	-	-	-	2 (1)	2 (1)	-	1 (3.4)	-	-	-	6 (0.3)
Attempted assault of patient	-	-	-	1 (1)	-	-	-	-	1 (0.4)	-	-	-	2 (0.5)	4 (0.2)
Sexual harassment	-	-	-	1 (1)	-	-	1 (0.5)	-	-	-	-	-	2 (0.5)	4 (0.2)
Rule breaking	-	-	1 (3.7)	-	-	-	-	-	1 (0.4)	-	-	-	-	2 (0.1)
Theft	-	-	1 (3.7)	1 (1)	-	-	-	-	-	-	-	-	-	2 (0.1)
Horseplay	-	-	-	-	-	-	-	-	-	1 (3.4)	-	-	1 (0.2)	2 (0.1)
Total	311	260	27	103	-	36	200	221	268	29	28	26	432	1941

Note: "Behaviour - other" refers to incidents involving negative behaviours that did not fit into other categories (e.g. a negative interaction which was not seen as abusive or threatening) or behaviours which were out of the ordinary for that patient. "Dirty protest" refers to incidents where the patient urinates or defecates in seclusion or a bedroom instead of using the correct facilities.

In further analysis, the incidents in Table 6.1 were grouped into larger categories; total incidents, aggressive incidents and non-aggressive incidents. Aggressive incidents included assault, sexual assault, attempted assault, aggression towards objects, verbal abuse, aggressive interactions, threats and aggression towards objects. Non-aggressive incidents included all other incidents. The table (Table 6.1) shows how many incidents occurred on each ward. In addition, data was gathered about the locations of incidents within wards. Table 6.2 details this. It shows that although incidents occurred in a wide range of locations, 55% of incidents were in seclusion rooms.

Table 6.2. *The number of incidents in each ward location*

Ward location	Number of incidents (% of total ward incidents)													Total (% of overall incidents)
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	
Seclusion	211 (67.4)	150 (57.7)	-	1 (1)	-	1 (2.8)	104 (52)	94 (42.5)	214 (79.9)	2 (6.9)	-	4 (15.4)	288 (66.7)	1069 (55)
Bedroom	40 (12.8)	28 (10.8)	7 (25.9)	16 (15.5)	-	7 (19.4)	34 (17)	29 (13.1)	17 (6.3)	8 (27.6)	2 (7.1)	9 (34.6)	41 (9.5)	238 (12.3)
Corridor	33 (10.5)	26 (10)	3 (11.1)	3 (2.9)	-	9 (25)	11 (5.5)	18 (8.1)	7 (2.6)	1 (3.4)	6 (21.4)	5 (19.2)	18 (4.2)	140 (7.2)
Day area	10 (3.2)	22 (8.5)	7 (25.9)	44 (42.7)	-	12 (33.3)	24 (12)	47 (21.3)	10 (3.7)	9 (31)	7 (25)	2 (7.7)	34 (7.9)	228 (11.7)
Dining room	4 (1.3)	4 (1.5)	-	7 (6.8)	-	1 (2.8)	6 (3)	3 (1.4)	-	5 (17.2)	2 (7.1)	2 (7.7)	3 (0.7)	37 (1.9)
Night station	10 (3.2)	19 (7.3)	5 (18.5)	8 (7.8)	-	1 (2.8)	13 (6.5)	14 (6.3)	12 (4.5)	-	3 (10.7)	2 (7.7)	35 (8.1)	122 (6.3)

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Ward location	Number of incidents (% of total ward incidents)													Total (% of overall incidents)
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	
Bathroom	-	3 (1.2)	-	-	-	1 (2.8)	-	-	-	-	-	-	2 (0.5)	6 (0.3)
Kitchen	-	-	1 (3.7)	2 (1.9)	-	-	-	-	1 (0.4)	-	1 (3.6)	-	-	5 (0.2)
Interview room	3 (1)	2 (0.8)	-	3 (2.9)	-	-	1 (0.5)	2 (0.9)	1 (0.4)	-	1 (3.6)	-	2 (0.5)	15 (0.8)
Office	-	1 (0.4)	2 (7.4)	5 (4.9)	-	2 (5.6)	2 (1)	10 (4.5)	1 (0.4)	1 (3.4)	3 (10.7)	1 (3.8)	1 (0.2)	29 (1.5)
TV lounge	-	1 (0.4)	-	5 (4.9)	-	1 (2.8)	-	-	-	-	-	-	3 (0.7)	10 (0.5)
Garden	-	1 (0.4)	-	2 (1.9)	-	1 (2.8)	-	-	1 (0.4)	-	-	-	-	5 (0.2)
Dispensary	-	-	-	1 (1)	-	-	-	1 (0.5)	1 (0.4)	2 (6.9)	1 (3.6)	-	-	6 (0.3)
Other	-	3 (1.2)	2 (7.4)	6 (5.8)	-	-	5 (2.5)	3 (1.4)	3 (1.1)	1 (3.4)	2 (7.1)	1 (3.8)	5 (1.2)	31 (1.5)
Total	311	260	27	103	-	36	200	221	268	29	28	26	432	1941

Most recorded incidents involved one patient (91.3%). Two patients were involved in 8% of incidents, with twelve incidents (0.7%) including three or more patients. The greatest number of patients involved in an incident was 5. Most incidents involved one (34%), two (30.8%) or three (18.8%) members of staff. 16.5% of incidents involved four or more members of staff. The most staff involved in an incident was 11. This study also collected self-reported incident data using the DIPC-HR. One hundred and eleven incidents of intra-group aggression were reported. There were 115 incidents where patients reported being victimised. The number of self-reported incidents on each ward is displayed in Table 6.3.

Table 6.3. *Self-reported intra-group aggression and victimisation on wards.*

	<u>Number of incidents (% of total ward incidents)</u>													Total (% of overall incidents)
	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	
Intra-group aggression	25 (67.5)	32 (86.4)	0 (0)	3 (60)	0	2 (13.4)	6 (75)	12 (23)	13 (54.2)	0	4 (36.4)	2 (100)	12 (35.3)	111 (49.2)
Incidents of victimisation	12 (32.5)	5 (13.6)	1 (100)	2 (40)	0	13 (86.6)	2 (25)	40 (77)	11 (45.8)	0	7 (63.6)	0 (0)	22 (64.7)	115 (50.8)
Total	37	37	1	5	0	15	8	52	24	0	11	2	34	226

6.3.3. Physical environment factors

Data about the physical environment was collected using a physical environment checklist. This detailed the number of patients on a ward, how many of these were involved in off-ward activities, light availability, noise levels and the dependency level of the ward. Table 6.4., provides the details of this. Several measurements of noise and light were taken, and so the table reflects the means. The table also provides information about the average number of activities that patients took part in on each ward.

Table 6.4. *Physical environment data collected from wards.*

	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13
Number of patients	14	15	20	18	19	19	13	11	12	17	15	13	9
Dependency level	High	High	Low	Low	Low	Low	High	High	High	Low	Low	Low	High
Patients in off-ward activities	7	7	13	18	17	14	6	3	7	12	12	11	3
Mean number of activities	2.33	4.60	3.14	5	3	4	6	3.75	2.33	4.75	7.67	4.83	3.67
Mean light availability (lx)	205	220	215	210	250	225	230	202	226	223	204	217	209
Mean noise level (dB)	36	31	35	40	41	39	36	35	37	40	34	33	35

Patients were also asked about the types of activities that they took part in. These included; gym, walking, playing cards, football, snooker, art, pottery, drama, swimming, gardening, making cards, painting, reading, catering, chess, and learning German.

6.3.4 The relationship between physical environmental factors and the number of incidents

Correlations were conducted to assess the relationship between light availability, noise levels, the number of patients involved in off-ward activities and the number of security incidents. There was no significant association between light availability and the number of self-reported incidents, total incidents, aggressive incidents or non-aggressive incidents. There was also no relationship between noise levels and self-reported victimisation, total incidents, aggressive incidents or non-aggressive incidents. However, noise level was moderately negatively correlated with self-reported intra-group aggression. This indicates that as noise levels increased, intra-group aggression decreased. Strong negative correlations were found between the number of patients involved in off-ward activities and the number of total incidents, aggressive incidents, non-aggressive incidents, self-reported intra-group aggression and self-reported victimisation. This indicated that there are fewer incidents on wards where more patients are involved in off-ward activities. Table 6.5 provides the details of these correlations.

Table 6.5. Correlations between light availability, noise levels, patients involved in off-ward activities and the number of security incidents.

	Light availability	Noise level	Patients involved in off-ward activities	Aggressive incidents	Non-aggressive incidents	Self-reported aggression	Self-reported victimisation
Light availability							
Noise level	.48						
Patients involved in off-ward activities	.38	.59*					
Aggressive incidents	-.31	-.38	-.83**				
Non-aggressive incidents	-.39	-.24	-.64*	.79**			
Self-reported aggression	-.29	-.56*	-.61*	.67*	.80**		
Self-reported victimisation	-.50	-.19	-.65*	.56*	.41	.31	

*p < 0.05, **p < 0.001

To test the relationship between ward dependency level and security incidents, a series of one way ANOVAs were conducted. These revealed that patients on high dependency wards reported more intra-group aggression than those on low dependency wards ($F(1, 21) = 12.47, p = 0.002$). Patients on high dependency wards also reported more incidents of victimisation than low dependency ($F(1, 22) = 7.73, p = 0.011$). In addition, there was a greater number of total incidents on high dependency than low dependency wards ($F(1, 11) = 44.63, p < 0.001$). Within this, there were a greater number of aggressive incidents on high dependency than low dependency ($F(1, 11) = 41.18, p < 0.001$). Finally, more non-aggressive incidents were found on high dependency wards than low dependency wards ($F(1, 11) = 23.31, p = 0.001$). The table below (Table 6.6.) provides the means and standard deviations for these variables.

Table 6.6. *The mean number (and standard deviation) of incidents on high and low dependency wards.*

	High dependency	Low dependency	Total
Total incidents (S.D)	282.33 (83.17)	46.43 (40.26)	155.31 (136.66)
Aggressive incidents (S.D)	201.17 (73.34)	19.00 (17.05)	103.08 (106.40)
Non-aggressive incidents (S.D)	81.17 (31.61)	16.57 (15.09)	46.38 (40.66)
Self-reported aggression (S.D)	4.55 (5.65)	0.28 (0.60)	1.79 (3.93)
Self-reported victimisation (S.D)	4.18 (6.01)	0.58 (1.34)	1.85 (4.07)

6.3.5. Factor Analysis

The EMAS or IMI-C scale are widely used and have been found to have a robust factor structure (Eakman, 2011, Eakman, 2014, Eakman, 2015, Eakman, Carlson & Clark, 2010, Kiesler & Schmidt, 2006). Therefore, factor analysis was not performed for these. However, reliability analyses were still conducted. Reliability analysis of the IMI-C revealed the hostile and friendly subscales to have Cronbach's alpha scores of .86 and .89 respectively. This indicated good reliability on these subscales. The subscales on the control axis were more problematic. The dominant subscale had an alpha score of .53, indicating poor reliability on this scale. When the items 'when I am with members of staff they typically make me feel taken charge of' and 'when I am with members of staff it typically appears to me that they think they're always in control of things' were removed, this improved to .78. Similarly, the submissive subscale showed poor reliability ($\alpha = .56$). When the items 'when I am with members of staff they typically make me feel that I want them to disagree with me sometimes' and 'when I am with members of staff they typically make me feel that I want to point out their good qualities to them' were removed, this improved to .69. The EMAS achieved good reliability in this study, with a Cronbach's alpha score of .80.

Principal components analysis was used to extract factors from the SCIBI (Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.82; Bartlett's Test of Sphericity, $p < 0.001$). This was deemed necessary due to lack of research using this measure with high secure psychiatric samples. Therefore, although the threat to validity is recognised, the measure reliability and factor structure with this sample needed to be assessed. This would ensure that the SCIBI measured the facets of behaviour that were wanted. However, findings using this measure should be interpreted cautiously due to the effect this may have on validity.

The four factor structure suggested by Willems et al (2010) was not supported. Instead, four different factors were originally extracted. One factor had a low reliability ($\alpha = .53$) which could only be improved slightly by the removal of one item. As this scale consisted of only three factors to begin with and the increase in reliability was slight, the whole scale was removed from further analysis. This left three factors. These factors and their factor loadings are detailed in Table 6.7.

Table 6.7. Factor loadings for the Staff-Client Interactive Behaviour Inventory (SCIBI)

Item	Openness	Hostile Control	Assertive Control
Staff like doing something with patients	0.86	0.18	0.04
Staff like to communicate with patients	0.83	0.07	0.04
Staff can work well with patients	0.76	0.23	0.09
Staff value patients	0.73	0.24	0.06
Staff protest with patients when they do not agree with them	0.10	0.82	0.05
Staff grumble at patients	0.27	0.76	0.18
Staff act correctively towards patients	0.25	0.69	0.05
Staff go their own way despite critique from patients	0.42	0.64	0.01
Staff let patients see their anger	0.28	0.62	0.08
Staff act prohibitively towards patients	0.04	0.23	0.82
Staff impose strict demands upon patients	0.08	0.38	0.76
Staff take the lead when they are with patients	0.26	0.10	0.51

Note: Figures in bold show items included in each factor

The first factor was named *Openness* ($\alpha = .87$). This was in agreement with the ‘Friendliness’ subscale proposed by Willems et al (2010). However, it was termed openness in order to differentiate this scale from the ‘Friendly’ subscale on the IMI-C. It measured the extent to which staff liked to interact with patients and how much they valued patients. Two items were removed from this scale due to low item-total correlations and a lower alpha score.

The second factor extracted was named *Hostile Control* ($\alpha = .85$). It included items addressing staff anger and inability to be flexible. These items were mapped onto hostility and control subscales by Willems et al (2010). One question was removed from this scale to improve reliability.

The final factor extracted from the SCIBI was named *Assertive Control* ($\alpha = .67$). It included items relating to the strictness of staff rules. All of these items were included in the original assertive control subscale proposed by Willems et al (2010), and so the name was kept the same. The reliability of this scale could have been improved by removing one item. However, the scale only includes three items and the improvement was only slight. So, the item was retained.

Principal components analysis was also used to extract factors from the Perceptions of Fair Interpersonal Treatment scale (Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.94; Bartlett’s Test of Sphericity, $p < 0.001$). Similar to the SCIBI, this was done due to a lack of research using this measure in high secure psychiatric samples. Three factors were originally extracted. However, one of these factors only consisted of one item so it was removed from further analysis. Factor loadings for this analysis are given in Table 6.8.

Table 6.8. *Factor loadings for the Perceptions of Fair Interpersonal Treatment scale*

Item	Fair Treatment	Staff Professionalism
Patient complaints are dealt with effectively	0.87	0.16
Patients are praised for hard work	0.86	0.15
Patients put each other down	0.82	0.26
Patient suggestions are ignored	0.81	0.16
Patients' questions and problems are responded to quickly	0.80	0.14
Patients are treated like children	0.80	0.33
Patients' hard work is appreciated	0.78	0.24
Patients are treated with respect	0.77	0.24
Patients are trusted	0.76	0.20
Patients are lied to	0.73	0.45
Patients are treated fairly	0.65	0.22
Staff members threaten patients	0.59	0.24
Staff members yell at patients	0.19	0.85
Staff members play favourites	0.22	0.81
Staff members swear at patients	0.47	0.48

Note: Figures in bold show items included in each factor

The first factor was named *Fair Treatment* ($\alpha = .95$). Items detailed treating patients with respect, appreciation of their hard work and the dealing of complaints in a fair manner. The second factor had items relating to staff swearing and shouting at patients. This factor was named *Staff Professionalism* ($\alpha = .71$).

6.3.6. Perceptions of interpersonal style, fair treatment and engagement in meaningful activities.

Table 6.9 to Table 6.11 are presented. These detail the mean scores from each ward for interpersonal style, fair treatment and engagement in meaningful activities subscales. Table 6.9 provides the means and standard deviations for the interpersonal style subscales of *Dominant, Submissive, Control Axis, Friendly, Hostile, Affiliation Axis, Openness, Hostile Control* and *Assertive Control*. Table 6.10 provides the means and standard deviations for the fair treatment subscales of *Fair Treatment* and *Staff Professionalism*. Finally, Table 6.11 shows the mean score for the Engagement in Meaningful Activities questionnaire.

Table 6.9. Mean scores (and standard deviations) for the interpersonal style subscales for each ward.

	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	Total
Dominant (S.D)	5.34 (0.48)	7.21 (3.26)	6.25 (1.45)	5.79 (1.18)	5.58 (0.90)	6.27 (2.22)	6.13 (2.07)	7.67 (4.09)	7.14 (3.53)	5.53 (0.64)	5.84 (1.07)	5.95 (1.16)	6.67 (3.55)	6.23 (2.21)
Submissive (S.D)	5.43 (0.85)	6.21 (1.55)	5.90 (1.62)	6.05 (1.35)	5.67 (1.78)	6.67 (2.74)	6.47 (2.61)	6.83 (3.69)	5.93 (1.27)	5.67 (1.40)	5.92 (1.38)	5.86 (1.20)	5.88 (1.46)	6.03 (1.81)
Control axis (S.D)	-0.09 (0.90)	1.00 (2.16)	0.35 (1.31)	-0.26 (1.05)	-0.08 (1.38)	-0.40 (1.35)	-0.33 (1.35)	0.85 (2.90)	1.21 (2.91)	-0.13 (1.36)	-0.08 (1.41)	0.09 (1.09)	0.79 (2.94)	0.20 (1.78)
Friendly (S.D)	24.57 (2.06)	22.37 (5.52)	24.35 (2.78)	24.58 (2.69)	25.41 (1.68)	23.40 (5.14)	25.27 (2.43)	21.25 (7.37)	23.79 (4.26)	23.87 (4.70)	24.04 (3.46)	24.09 (3.33)	23.58 (6.02)	23.91 (4.14)
Hostile (S.D)	7.79 (1.42)	9.84 (4.50)	8.15 (1.57)	8.47 (2.34)	7.83 (1.19)	8.13 (1.60)	8.00 (1.25)	11.08 (5.26)	9.21 (4.17)	7.67 (1.35)	8.52 (1.76)	8.33 (1.35)	9.58 (4.54)	8.62 (2.81)
Affiliation axis (S.D)	16.79 (3.21)	12.53 (9.83)	16.20 (4.14)	16.11 (4.51)	17.57 (2.74)	15.27 (6.08)	17.27 (2.91)	10.17 (12.13)	14.57 (8.36)	16.20 (5.00)	15.52 (4.83)	15.76 (4.38)	13.75 (11.14)	15.28 (6.58)

(continued on next page)

	Ward	Ward	Ward	Ward	Ward	Ward	Ward	Ward	Ward	Ward	Ward	Ward	Ward	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
Openness (S.D)	19.21 (2.12)	18.89 (1.37)	18.90 (1.33)	19.11 (1.20)	18.92 (1.44)	18.20 (3.28)	19.53 (0.92)	16.75 (4.29)	19.36 (1.01)	18.93 (1.58)	19.00 (2.42)	19.38 (0.74)	18.17 (3.64)	18.86 (2.14)
Hostile control (S.D)	10.14 (1.61)	13.10 (5.20)	11.55 (4.24)	11.53 (4.39)	9.83 (4.13)	12.00 (4.52)	11.67 (3.56)	13.25 (5.14)	12.57 (5.35)	9.93 (2.43)	11.64 (4.52)	11.24 (4.31)	13.08 (4.76)	11.65 (4.31)
Assertive control (S.D)	11.71 (3.62)	13.26 (0.93)	10.90 (2.05)	11.42 (2.14)	11.50 (1.98)	11.07 (2.66)	12.53 (1.85)	13.17 (1.11)	13.29 (0.83)	11.08 (2.09)	10.84 (2.37)	10.95 (2.38)	13.42 (0.90)	11.81 (2.26)

Note: Dominant; highest score is 20, lowest score is 5, Submissive; highest score is 20, lowest score is 5, Control Axis; highest score is 15, lowest score is 15, Friendly; highest score is 28, lowest score is 7, Hostile; highest score is 28, lowest score is 7, Affiliation Axis; highest score is 21, lowest score is -21, Openness; highest score is 20, lowest score is 4, Hostile Control; highest score is 25, lowest score is 5, Assertive Control; highest score is 15, lowest score is 3. A high score indicates a higher level of that style.

Table 6.10. Mean scores (and standard deviations) for the Fair Treatment and Staff Professionalism scales for each ward

	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	Total
Fair treatment (S.D)	23.21 (3.96)	19.05 (9.54)	24.20 (0.95)	23.95 (0.97)	24.41 (0.67)	23.20 (3.03)	22.87 (5.59)	17.33 (10.65)	20.60 (7.76)	24.00 (0.93)	23.20 (2.14)	23.43 (1.63)	21.17 (7.52)	22.50 (5.37)
Staff Professionalism (S.D)	8.86 (0.36)	8.21 (1.51)	8.10 (1.45)	8.53 (0.84)	8.83 (0.39)	8.13 (1.36)	8.40 (1.30)	7.25 (2.63)	8.43 (1.45)	8.67 (0.82)	8.40 (1.04)	8.38 (1.28)	8.42 (1.73)	8.36 (1.33)

Note: Fair Treatment; high score is 36, low score is 12; Staff Professionalism; high score is 9, low score is 3. A high score indicates a high level of fair treatment or staff professionalism.

Table 6.11. Mean scores (and standard deviations) for the Engagement in Meaningful Activities questionnaire for each ward.

	Ward 1	Ward 2	Ward 3	Ward 4	Ward 5	Ward 6	Ward 7	Ward 8	Ward 9	Ward 10	Ward 11	Ward 12	Ward 13	Total
EMAS mean (S.D)	37.30 (8.38)	33.80 (0.45)	21.42 (7.04)	34.67 (5.24)	29.00 (0.00)	30.67 (10.91)	43.50 (1.91)	36.25 (11.73)	34.00 (2.65)	34.25 (8.99)	34.11 (7.27)	31.50 (0.46)	34.00 (14.00)	33.98 (7.46)

Note: Scores range from 12 to 28. A higher score indicates a perception of more meaningfulness.

MANOVAs were used to investigate differences in staff interpersonal style, fair treatment and meaningfulness of activity between individual wards and between wards based on dependency. Firstly, a MANOVA using Pillai's trace found a significant effect of individual ward on perceptions of interpersonal style ($V = .71$, $F(96, 1600) = 1.63$, $p < 0.001$). Univariate ANOVAs found that there was a significant difference between wards on perceptions of hostility ($F(12,200) = 1.82$, $p = 0.05$) and assertive control ($F(12,200) = 3.93$, $p < 0.001$). Bonferroni post hoc tests for assertive control found that ward 2 perceived an interpersonal style characterised by greater assertive control than ward 3 ($p = 0.04$), ward 11 ($p = 0.02$) and ward 12 ($p = 0.05$). Ward 9 also perceived staff to have an interpersonal style characterised by greater assertive control than ward 11 ($p = 0.05$). Ward 13 was perceived to have an interpersonal style characterised by greater assertive control than ward 11 ($p = 0.05$). Bonferroni post hoc tests for hostility found no significant differences between wards. Using Pillai's trace, there was a significant effect of ward on perceptions of fairness ($V = 0.21$, $F(24,400) = 1.90$, $p = 0.007$). Separate univariate ANOVAs found a significant effect of ward on fair treatment ($F(12,200) = 2.66$, $p = 0.003$) but not on staff professionalism ($F(12,200) = 1.21$, $p = 0.28$). Bonferroni post hoc tests revealed that perceptions of fair treatment were lower on ward 8 than ward 3 ($p = 0.03$) and ward 4 ($p = 0.05$). Finally, ANOVAs revealed that there was no significant difference between wards on the perception of meaningfulness of activities ($F(12, 49) = 0.91$, $p = 0.55$).

One way ANOVAs were then used to investigate whether perceptions of interpersonal style, fairness and meaningfulness differed depending on the dependency of the ward. The means and standard deviations for these are given in Table 6.12.

Table 6.12. Mean scores (and standard deviations) for interpersonal style, fairness and meaningfulness of activity for high and low dependency wards

	High dependency (S.D)	Low dependency (S.D)	Total (S.D)
Dominant	6.70 (3.04)	5.91 (1.29)	6.23 (2.21)
Submissive	6.12 (2.05)	5.96 (1.63)	6.03 (1.81)
Control axis	0.57 (2.29)	-0.06 (1.27)	0.20 (1.78)
Friendly	23.48 (4.93)	24.21 (3.48)	23.91 (4.14)
Hostile	9.22 (3.87)	8.21 (1.65)	8.62 (2.81)
Affiliation axis	14.22 (8.66)	16.00 (4.57)	15.28 (6.58)
Openness	18.73 (2.51)	18.95 (1.85)	18.86 (2.14)
Hostile control	12.30 (4.49)	11.21 (4.15)	11.65 (4.31)
Assertive control	12.90 (1.87)	11.07 (2.22)	11.81 (2.26)
Fair treatment	20.70 (7.88)	23.72 (1.71)	22.50 (5.37)
Staff professionalism	8.28 (1.61)	8.41 (1.11)	8.36 (1.33)
Engagement in meaningful activity	36.54 (7.81)	32.58 (6.96)	33.98 (7.46)

ANOVAs revealed that high dependency wards perceived staff interpersonal style to be more dominant ($F(1,106) = 5.18, p = 0.03$), hostile ($F(1,106) = 5.20, p = 0.03$), characterised by more control on the control axis ($F(1,120) = 5.37, p = 0.02$) and assertive control subscale ($F(1,201) = 41.91, p < 0.001$) than low dependency wards. It was also revealed that low dependency wards perceived a greater level of fairness than high dependency wards ($F(1, 90) = 12.19, p = 0.001$). Further, patients on high dependency wards derived more meaningfulness from activities than lower dependency wards ($F(1, 60) = 4.23, p = 0.04$). Overall, this indicates that high dependency wards are characterised by controlling and hostile interpersonal styles and a perception of less fair treatment. However, patients on these wards are also more likely to believe that activities they take part in are meaningful.

The mean scores and standard deviations for the interpersonal style and fair treatment scales for staff and patient groups are given in Table 6.13.

Table 6.13. Mean scores (and standard deviations) for interpersonal style and fair treatment scales for staff and patient groups.

	Staff (S.D)	Patient (S.D)	Total (S.D)
Dominant	5.33 (0.54)	8.40 (3.07)	6.23 (2.21)
Submissive	5.26 (0.52)	7.90 (2.39)	6.03 (1.81)
Control axis	0.07 (0.75)	0.50 (3.08)	0.20 (1.78)
Friendly	25.98 (0.81)	18.89 (4.65)	23.91 (4.14)
Hostile	7.42 (0.67)	11.55 (3.74)	8.62 (2.81)
Affiliation axis	18.56 (0.99)	7.29 (7.50)	15.28 (6.58)
Openness	19.63 (0.69)	17.00 (3.12)	18.86 (2.14)
Hostile control	9.34 (1.29)	17.29 (3.87)	11.65 (4.31)
Assertive control	12.74 (0.92)	9.53 (2.88)	11.81 (2.26)
Fair treatment	24.44 (0.65)	17.77 (8.20)	22.50 (5.37)
Staff professionalism	8.90 (0.30)	7.03 (1.86)	8.36 (1.33)

A MANOVA was conducted to investigate whether patients and staff had significantly different views about interpersonal style. Using Pillai's trace, there was a significant effect of type of participant on perceptions of interpersonal style ($V = 0.92$, $F(8,204) = 277.77$, $p < 0.001$). This shows that staff members view their interpersonal style differently than patients. In order to investigate how these perceptions were different,

further analysis was undertaken. This revealed that patients perceived staff members to have a more dominant ($F(1,211) = 141.24, p < 0.001$) and hostile interpersonal style ($F(1,211) = 172.40, p < 0.001$). Further, patients believed staff interpersonal style to be characterised by hostile control to a greater extent than staff ($F(1,211) = 504.52, p < 0.001$). However, patients also perceived staff members to have a more submissive personal style ($F(1, 11) = 166.01, p < 0.001$). Staff believed their interpersonal style to be more friendly ($F(1,211) = 329.57, p < 0.001$) and open ($F(1,211) = 96.37, p < 0.001$). In addition, staff perceived themselves to have an interpersonal style more characterised by affiliation ($F(1,211) = 328.94, p < 0.001$). However, staff also perceived their interpersonal style to be characterised by higher levels of assertive control ($F(1,211) = 150.77, p < 0.001$). This indicates that, whilst patients view staff members as controlling and hostile, staff members believe that their interpersonal style is friendly and open.

Patients and staff also had different views about fairness. A one way ANOVA revealed that Staff perceived patients to be treated more fairly than patients did ($F(1, 61) = 40.89, p < 0.001$). Staff also perceived themselves to have a higher level of professionalism than patients ($F(1, 62) = 62.22, p < 0.001$).

6.3.7. The association between staff interpersonal style, perceptions of fairness, engagement in meaningful activity and number of incidents

Correlation analysis was conducted to examine the relationship between staff interpersonal style and security incidents. Table 6.14 to Table 6.17 present these correlations.

Table 6.14. *Correlations between interpersonal style scores and the number of aggressive incidents*

	Aggressive incidents	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Aggressive incidents										
Dominant	.53									
Submissive	.09	.64*								
Control axis	.63*	.83**	.10							
Friendly	-.34	-.79**	-.56*	-.62*						
Hostile	.58*	.91*	.54	.78**	-.85**					
Affiliation axis	-.49	-.88**	-.57*	-.73**	.96**	-.96**				
Openness	-.25	-.57*	-.59*	-.32	.77**	-.70**	.77**			
Hostile control	.61*	.90**	.65*	.69**	-.71**	.85**	-.81**	-.49		
Assertive control	.88**	.77**	.31	.77**	-.48	.74**	-.64*	-.32	.70**	

*p < 0.05, **p < 0.01

Table 6.15. *Correlations between interpersonal style scores and the number of non- aggressive incidents*

	Non-aggressive incidents	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Non-aggressive incidents										
Dominant	.23									
Submissive	.13	.64*								
Control axis	.40	.83**	.10							
Friendly	-.17	-.79**	-.56*	-.62*						
Hostile	.30	.91*	.54	.78**	-.85**					
Affiliation axis	-.25	-.88**	-.57*	-.73**	.96**	-.96**				
Openness	-.01	-.57*	-.59*	-.32	.77**	-.70**	.77**			
Hostile control	.26	.90**	.65*	.69**	-.71**	.85**	-.81**	-.49		
Assertive control	.62*	.77**	.31	.77**	-.48	.74**	-.64*	-.32	.70**	

*p < 0.05, **p < 0.01

Table 6.16. *Correlations between interpersonal style scores and self-reported intra-group aggression*

	Self-reported aggression	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Self-reported aggression										
Dominant	.42									
Submissive	-.01	.64*								
Control axis	.55	.83**	.10							
Friendly	-.43	-.79**	-.56*	-.62*						
Hostile	.46	.91*	.54	.78**	-.85**					
Affiliation axis	-.46	-.88**	-.57*	-.73**	.96**	-.96**				
Openness	-.06	-.57*	-.59*	-.32	.77**	-.70**	.77**			
Hostile control	.39	.90**	.65*	.69**	-.71**	.85**	-.81**	-.49		
Assertive control	.65*	.77**	.31	.77**	-.48	.74**	-.64*	-.32	.70**	

*p < 0.05, **p < 0.01

Table 6.17. *Correlations between interpersonal style scores and self-reported victimisation*

	Self-reported victimisation	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Self-reported victimisation										
Dominant	.66*									
Submissive	.51	.64*								
Control axis	.48	.83**	.10							
Friendly	-.74**	-.79**	-.56*	-.62*						
Hostile	.79**	.91*	.54	.78**	-.85**					
Affiliation axis	-.80**	-.88**	-.57*	-.73**	.96**	-.96**				
Openness	-.87**	-.57*	-.59*	-.32	.77**	-.70**	.77**			
Hostile control	.61*	.90**	.65*	.69**	-.71**	.85**	-.81**	-.49		
Assertive control	.57*	.77**	.31	.77**	-.48	.74**	-.64*	-.32	.70**	

*p < 0.05, **p < 0.01

These correlations revealed strong, positive correlations between self-reported intra-group aggression and assertive control. There were strong, positive correlations between dominant and hostile interpersonal style, hostile control, assertive control and self-reported victimisation. In addition, there were strong negative correlations between openness, friendliness, the affiliation axis and self-reported victimisation. There were strong, positive correlations between the number of aggressive incidents collected from PACIS and assertive control, hostile control, hostile interpersonal style and the control axis. This suggests that more a controlling and hostile interpersonal style is associated with greater numbers of aggressive incidents. Similarly, strong positive correlations were revealed between assertive control and non-aggressive incidents. These results indicate that higher levels of non-aggressive incidents can be found on wards where staff are perceived to have controlling interpersonal styles. Patients are also less likely to report incidents of victimisation on wards where staff are perceived to have friendly and open interpersonal styles.

Correlations were also conducted for these incidents with both staff and patient perceptions separately. These are given in tables 6.18 to 6.25.

Table 6.18: *Correlations between patient interpersonal style scores and the number of aggressive incidents*

	Aggressive incidents	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Aggressive incidents										
Dominant	.65*									
Submissive	.06	.45								
Control axis	.70**	.91**	.04							
Friendly	-.50	-.77**	-.21	-.76**						
Hostile	.72**	.94**	.26	.93**	-.84**					
Affiliation axis	-.65*	-.89**	-.24	-.88**	.96**	-.96**				
Openness	-.39	-.48	-.34	-.37	.69**	-.56*	.66*			
Hostile control	.27	.80**	.41	.71**	-.55	.76**	-.68*	-.27		
Assertive control	.70**	.95**	.45	.85**	-.79**	.92**	-.90**	-.51	.78**	

*p < 0.05, **p < 0.01

Table 6.19: Correlations between patient interpersonal style scores and the number of non-aggressive incidents

	Non-aggressive incidents	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Non-aggressive incidents										
Dominant	.35									
Submissive	-.25	.45								
Control axis	.50	.91**	.04							
Friendly	-.28	-.77**	-.21	-.76**						
Hostile	.44	.94**	.26	.93**	-.84**					
Affiliation axis	-.38	-.89**	-.24	-.88**	.96**	-.96**				
Openness	-.15	-.48	-.34	-.37	.69**	-.56*	.66*			
Hostile control	-.14	.80**	.41	.71**	-.55	.76**	-.68*	-.27		
Assertive control	.30	.95**	.45	.85**	-.79**	.92**	-.90**	-.51	.78**	

*p < 0.05, **p < 0.01

Table 6.20: Correlations between patient interpersonal style scores and self-reported intra-group aggression

	Self-reported aggression	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Self-reported aggression										
Dominant	.47									
Submissive	-.11	.45								
Control axis	.58	.91**	.04							
Friendly	-.50	-.77**	-.21	-.76**						
Hostile	.58*	.94**	.26	.93**	-.84**					
Affiliation axis	-.56*	-.89**	-.24	-.88**	.96**	-.96**				
Openness	-.15	-.48	-.34	-.37	.69**	-.56*	.66*			
Hostile control	.10	.80**	.41	.71**	-.55	.76**	-.68*	-.27		
Assertive control	.43	.95**	.45	.85**	-.79**	.92**	-.90**	-.51	.78**	

*p < 0.05, **p < 0.01

Table 6.21: Correlations between patient interpersonal style scores and self-reported victimisation

	Self-reported victimisation	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Self-reported victimisation										
Dominant	.59*									
Submissive	.29	.45								
Control axis	.52	.91**	.04							
Friendly	-.70**	-.77**	-.21	-.76**						
Hostile	.64*	.94**	.26	.93**	-.84**					
Affiliation axis	-.70	-.89**	-.24	-.88**	.96**	-.96**				
Openness	-.92**	-.48	-.34	-.37	.69**	-.56*	.66*			
Hostile control	.24	.80**	.41	.71**	-.55	.76**	-.68*	-.27		
Assertive control	.56*	.95**	.45	.85**	-.79**	.92**	-.90**	-.51	.78**	

*p < 0.05, **p < 0.01

Table 6.22: *Correlations between staff interpersonal style scores and the number of aggressive incidents*

	Aggressive incidents	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Aggressive incidents										
Dominant	-.32									
Submissive	.37	.45								
Control axis	-.35	.91**	.04							
Friendly	-.34	-.77**	-.21	-.76**						
Hostile	-.02	.94**	.26	.93**	-.84**					
Affiliation axis	-.26	-.89**	-.24	-.88**	.96**	-.96**				
Openness	-.23	-.48	-.34	-.37	.69**	-.56*	.66*			
Hostile control	.95**	.80**	.41	.71**	-.55	.76**	-.68*	-.27		
Assertive control	.86**	.95**	.45	.85**	-.79**	.92**	-.90**	-.51	.78**	

*p < 0.05, **p < 0.01

Table 6.23: Correlations between staff interpersonal style scores and the number of non-aggressive incidents

	Non-aggressive incidents	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Non-aggressive incidents										
Dominant	-.23									
Submissive	.40	.45								
Control axis	-.42	.91**	.04							
Friendly	-.59*	-.77**	-.21	-.76**						
Hostile	-.12	.94**	.26	.93**	-.84**					
Affiliation axis	-.39	-.89**	-.24	-.88**	.96**	-.96**				
Openness	.03	-.48	-.34	-.37	.69**	-.56*	.66*			
Hostile control	.85**	.80**	.41	.71**	-.55	.76**	-.68*	-.27		
Assertive control	.85**	.95**	.45	.85**	-.79**	.92**	-.90**	-.51	.78**	

*p < 0.05, **p < 0.01

Table 6.24: *Correlations between staff interpersonal style scores and self-reported intra-group aggression*

	Self-reported aggression	Dominant	Submissive	Control axis	Friendly	Hostile	Affiliation axis	Openness	Hostile control	Assertive control
Self-reported aggression										
Dominant	.07									
Submissive	.44	.45								
Control axis	-.21	.91**	.04							
Friendly	-.74**	-.77**	-.21	-.76**						
Hostile	-.09	.94**	.26	.93**	-.84**					
Affiliation axis	-.54	-.89**	-.24	-.88**	.96**	-.96**				
Openness	-.10	-.48	-.34	-.37	.69**	-.56*	.66*			
Hostile control	.73**	.80**	.41	.71**	-.55	.76**	-.68*	-.27		
Assertive control	.69**	.95**	.45	.85**	-.79**	.92**	-.90**	-.51	.78**	

*p < 0.05, **p < 0.01

The association between the perception of fairness and meaningfulness of activities and the number of security incidents was also assessed. Table 6.26, presents the correlations for this. The table shows strong, negative correlations between self-reported intra-group aggression and scores on the fair treatment scale. Strong, negative correlations were also revealed between fair treatment scores and self-reported victimisation and aggressive incidents. This indicates that wards characterised by greater fairness have fewer incidents. The table also suggests that patients are less likely to report incidences of victimisation on wards characterised by high levels of staff professionalism. Correlations did not reveal an association between patient perception of meaningfulness of activity and any type of security incident. These correlations were also conducted for patient and staff scores separately and can be found in Table 6.27 and Table 6.28.

Table 6.26. *Correlations between fair treatment, staff professionalism and EMAS scores and security incidents*

	Aggressive incidents	Non-aggressive incidents	Self-reported aggression	Self-reported victimisation	Fair treatment	Staff professionalism	EMAS
Aggressive incidents							
Non-aggressive incidents	.79**						
Self-reported aggression	.67*	.80**					
Self-reported victimisation	.59*	.41	.31				
Fair treatment	-.64*	-.44	-.63*	-.76**			
Staff professionalism	-.14	.09	-.06	-.70**	.70**		
EMAS	.43	.49	.30	.17	-.23	-.07	

Note: EMAS – Engagement in Meaningful Activity Survey

*p < 0.05, **p < 0.01

Table 6.27. *Correlations between patient perception of fair treatment, staff professionalism and security incidents*

	Aggressive incidents	Non-aggressive incidents	Self-reported aggression	Self-reported victimisation	Fair treatment	Staff professionalism
Aggressive incidents						
Non-aggressive incidents	.79**					
Self-reported aggression	.67*	.80**				
Self-reported victimisation	.59*	.41	.31			
Fair treatment	-.73**	-.54	-.71**	-.67*		
Staff professionalism	-.29	.01	-.19	-.64	.74**	

*p < 0.05, **p < 0.01

Table 6.28. *Correlations between staff perception of fair treatment, staff professionalism and security incidents*

	Aggressive incidents	Non-aggressive incidents	Self-reported aggression	Self-reported victimisation	Fair treatment	Staff professionalism
Aggressive incidents						
Non-aggressive incidents	.79**					
Self-reported aggression	.67*	.80**				
Self-reported victimisation	.59*	.41	.31			
Fair treatment	.32	.16	.20	-.20		
Staff professionalism	.04	-.08	.17	.20	.74**	

*p < 0.05, **p < 0.01

6.3.8. The contribution of staff interpersonal style, the perception of fair treatment and the number of patients involved in off ward activity to number of incidents

The analyses discussed above show that staff interpersonal style, the perception of fair treatment and the number of patients involved in off-ward activities are associated with aggressive, non-aggressive and self-reported incidents. Overall perceptions of hostile control, assertive control, the control axis, hostile interpersonal style, fair treatment and the number of patients involved in off ward activities were correlated with aggressive incidents. For non-aggressive incidents, overall perceptions of assertive control, hostile control, friendliness, fair treatment and the number of patients involved in off ward activities were correlated. Further, self-reported intra-group aggression was found to be correlated with patient perceptions of hostile interpersonal style, affiliation and fair treatment. Finally, self-reported victimisation was found to be correlated with patient perception of dominant interpersonal style, friendly interpersonal style, hostile interpersonal style, openness, assertive control, fair treatment and number of patients in off ward activities.

To examine how these factors contributed to security incidents in more detail, regression analyses was conducted. The results of these are shown in Tables 6.29 to 6.32.

Table 6.29. *Multiple regression with aggressive incidents as the criterion and overall perceptions of hostile control, assertive control, the control axis, hostile interpersonal style, fair treatment and number of patients involved in off ward activities as predictors*

	B	SE B	Beta	P
Constant	-2438.73	1012.46		
Hostile control	6.77	22.06	0.07	0.77
Assertive control	90.69	26.88	0.88	0.02
Control axis	-11.80	42.49	-0.06	0.79
Hostile interpersonal style	50.70	51.94	0.48	0.37
Fair treatment	47.78	24.58	0.98	0.10
Patients in activities	-12.40	4.73	-0.57	0.04
$R^2 = 0.91$				

Table 6.30. *Multiple regression with non-aggressive incidents as the criterion and overall perceptions of assertive control, hostile control, friendliness, fair treatment and number of patients involved in off-ward activities as predictors*

	B	SE B	Beta	P
Constant	580.27	706.07		
Assertive Control	29.32	36.38	0.35	0.45
Hostile Control	31.27	27.72	0.68	0.30
Friendliness	-48.48	24.46	-0.31	0.09
Fair treatment	1.65	4.04	0.09	0.70
Patients in activities	2.08	3.10	0.25	0.52
$R^2 = 0.86$				

Table 6.31. *Multiple regression with self-reported intra-group aggression as the criterion and patient perceptions of hostile interpersonal style, affiliation and fair treatment as predictors*

	B	SE B	Beta	p
Constant	42.72	42.38		
Hostile interpersonal style	-0.70	2.53	-0.24	0.79
Affiliation	0.86	1.24	0.58	0.50
Fair Treatment	-1.88	0.82	-1.47	0.05
$R^2 = 0.58$				

Table 6.32. *Multiple regression with self-reported victimisation as the criterion and patient perception of dominant interpersonal style, friendly interpersonal style, hostile interpersonal style, openness, assertive control, fair treatment and number of patients in off ward activities as predictors*

	B	SE B	Beta	P
Constant	93.31	28.40		
Dominant interpersonal style	1.05	2.10	0.25	0.64
Friendly interpersonal style	0.63	0.93	0.19	0.53
Hostile interpersonal style	0.53	1.44	0.16	0.73
Openness	-4.97	0.94	-0.84	0.003
Assertive control	-1.77	1.62	-0.43	0.32
Fair treatment	-0.26	0.83	-0.18	0.77
Patients in activities	-0.62	0.49	-0.27	0.26
$R^2 = 0.94$				

The multiple regression analysis showed perception of hostile control, assertive control, the control axis, hostile interpersonal style, fair treatment and the number of patients involved in activities improved prediction of aggressive incidents ($F(6,6) = 10.08$, $p = 0.006$). Similarly, staff perception of assertive control and hostile control, friendliness, fair treatment and the number of patients involved in off-ward activities improved the

ability to predict non-aggressive incidents ($F(5,7) = 8.54, p = 0.007$). Self-reported intra-group aggression was predicted by patient perception of hostile interpersonal style, affiliation and fair treatment ($F(3, 9) = 4.19, p = 0.04$). Further, patient perception of assertive control, hostile interpersonal style, dominant interpersonal style, friendly interpersonal style, openness, perception of fair treatment and the number of patients involved in off ward activities predicted victimisation incidents ($F(5,7) = 11.69, p = 0.008$).

6.3.9. The mediating effect of fairness between staff interpersonal style and incidents

In order to investigate the relationship between staff interpersonal style, fairness and incidents further, mediation analysis was undertaken. This revealed that the perception of fair treatment mediated a number of relationships between staff interpersonal style and incidents.

Patient perception of fair treatment was found to mediate the effect of patient perception of hostile interpersonal style and patient perception of affiliation on self-reported intra-group aggression. This can be seen in Figure 6.1.

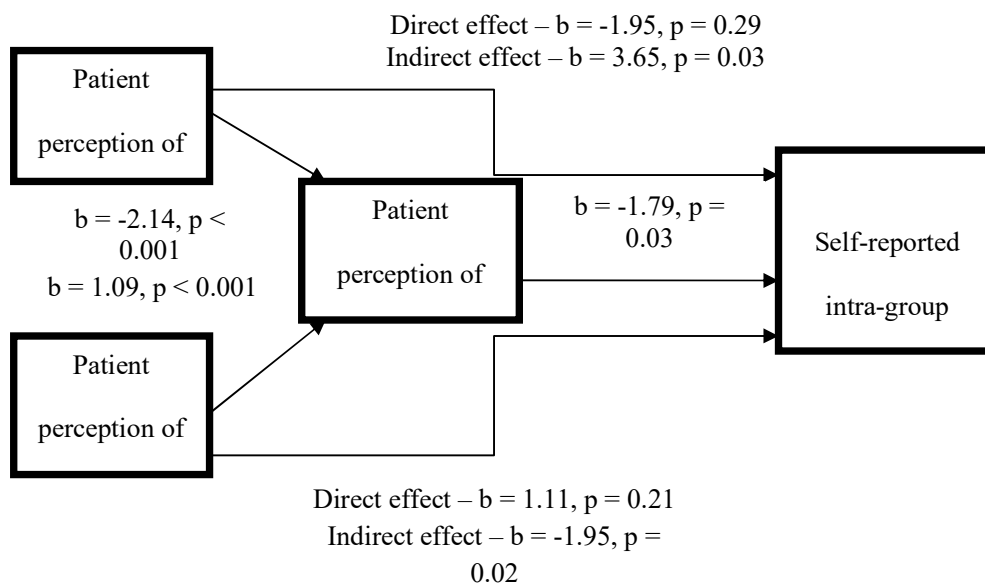


Figure 6.1 *Fair treatment as a mediating link between hostile interpersonal style, affiliation and intra-group aggression*

Analysis found a significant indirect effect of patient perception of affiliation on intra-group aggression through patient perception of fair treatment ($b = -1.95, z = -2.39, p = 0.02$). This suggests that an interpersonal style characterised by affiliation is linked to less intra-group aggression because of its effect on increasing patients' perception of fairness. In other words, a greater affiliative staff interpersonal style is linked to reduced intra-group aggression on wards. However, it appears that this is, in part, due to the effect this type of interpersonal style has on patient perception of fairness. Affiliative interpersonal style increases the patient's perception of fairness, which in turn decreases the likelihood of aggression on wards. This effect was fairly small ($K^2 = 0.041$).

A significant indirect effect of patient perception of hostility on intra-group aggression through patient perception of fair treatment was also found ($b = 3.65, z = 2.16, p = 0.03$). This indicates that an interpersonal style characterised by a higher level of

hostility is linked to more aggression due to a reduction in patients' perception of fairness. In other words, a greater perception of staff hostility is linked to more intra-group aggression. However, this seems to be explained some by the effect that hostile staff interpersonal style has on patient perception of fairness. A hostile staff interpersonal style reduces the fairness in interactions seen by patients, and in turn this contributes to higher levels of aggression. This effect size was moderate ($K^2 = 0.10$).

Overall perception of fair treatment was found to mediate the effect of patient perception of dominant interpersonal style, hostile interpersonal style and assertive control on victimisation incidents. This can be seen in Figure 6.2.

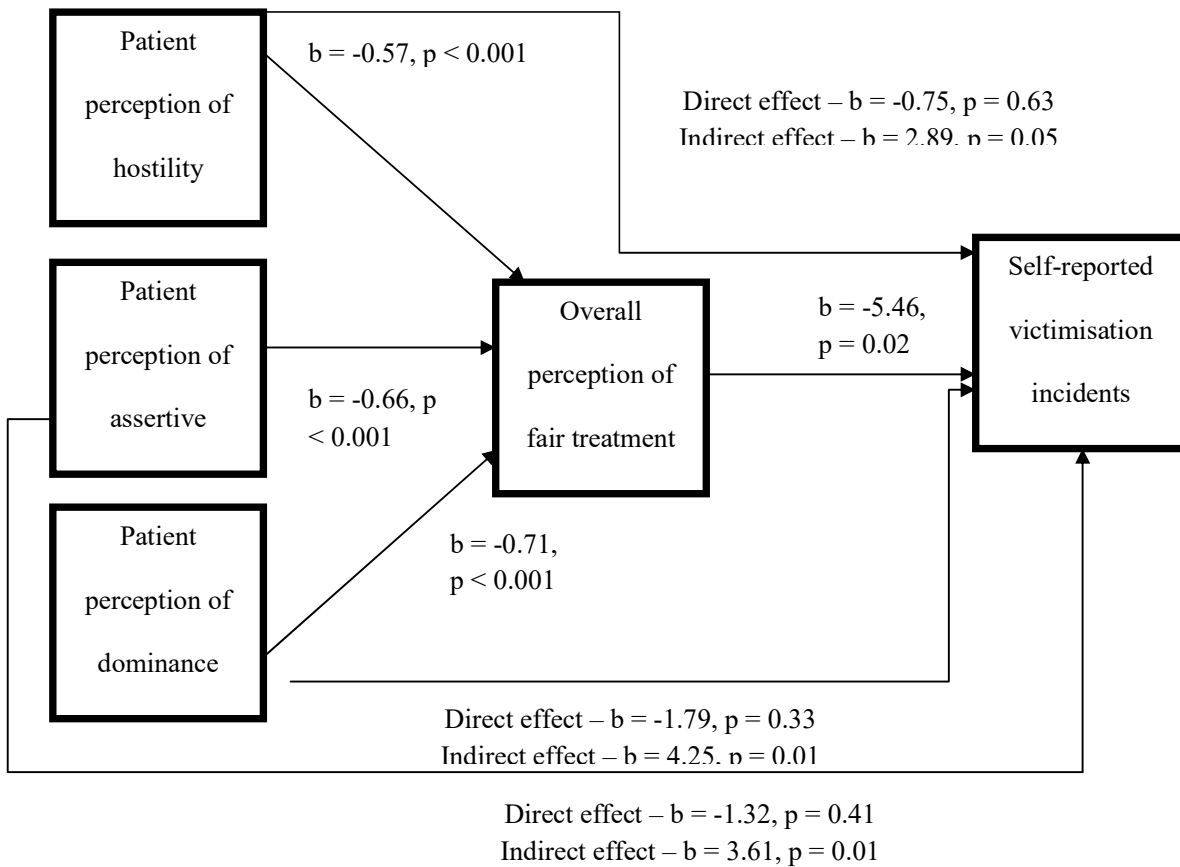


Figure 6.2 *Fair treatment as a mediating link between dominant interpersonal style, hostile interpersonal style, assertive control and victimisation incidents*

Analysis found a significant indirect effect of patient perception of dominant interpersonal style on victimisation incidents through overall perception of fairness ($b = 4.25, z = 2.48, p = 0.01$). This suggests that an interpersonal style characterised by dominance is linked to a greater number of victimisation incidents via its effect on reduced perception of fairness. Therefore, the link between dominant interpersonal style and greater number of victimisation incidents seems to be partly explained by the way that it effects patient perception of fairness. Staff interpersonal style characterised by dominance seems to reduce the amount of fairness patients perceive in interactions,

which in turn influences the amount of victimisation on the ward. However, this effect size was small ($K^2 = 0.062$).

A significant indirect effect of patient perception of hostile interpersonal style on victimisation incidents through overall perception of fairness ($b = 2.89$, $z = 1.99$, $p = 0.05$). This indicates that a hostile interpersonal style is linked to a greater number of victimisation incidents due to its effect on reducing the perception of fair treatment. Similar to above, staff interpersonal style characterised by hostility seems to reduce the amount of fairness patients perceive in interactions, which in turn influences the amount of victimisation on the ward. This effect size was also fairly small ($K^2 = 0.072$).

Further, there was a significant indirect effect of patient perception of assertive control on victimisation incidents through overall perception of fairness ($b = 3.61$, $z = 2.44$, $p = 0.01$). Therefore, it seems that assertive control is linked to a greater number of victimisation incidents via its effect on reduced perception of fairness. When staff interpersonal style is perceived to be characterised by assertive control, patients on the ward perceive less fairness in interactions. In turn, this increases the amount of victimisation incidents on the ward. The effect of assertive control was moderate ($K^2 = 0.15$).

Patient perception of fair treatment was also found to mediate the link between interpersonal style and aggressive incidents. A significant indirect effect of overall perception of hostile interpersonal style on aggressive incidents through patient perception of fair treatment was found ($b = 93.36$, $z = 2.06$, $p = 0.04$). This effect suggests that an interpersonal style characterised by hostility is linked to greater numbers of aggressive incidents via the reduction of perception of fairness. On wards where there is perceived to be greater hostility in staff interpersonal style, there is a

reduction in the perception of fairness. This results in greater numbers of aggressive incidents. However, this effect was small ($K^2 = 0.034$). This is illustrated in Figure 6.3.

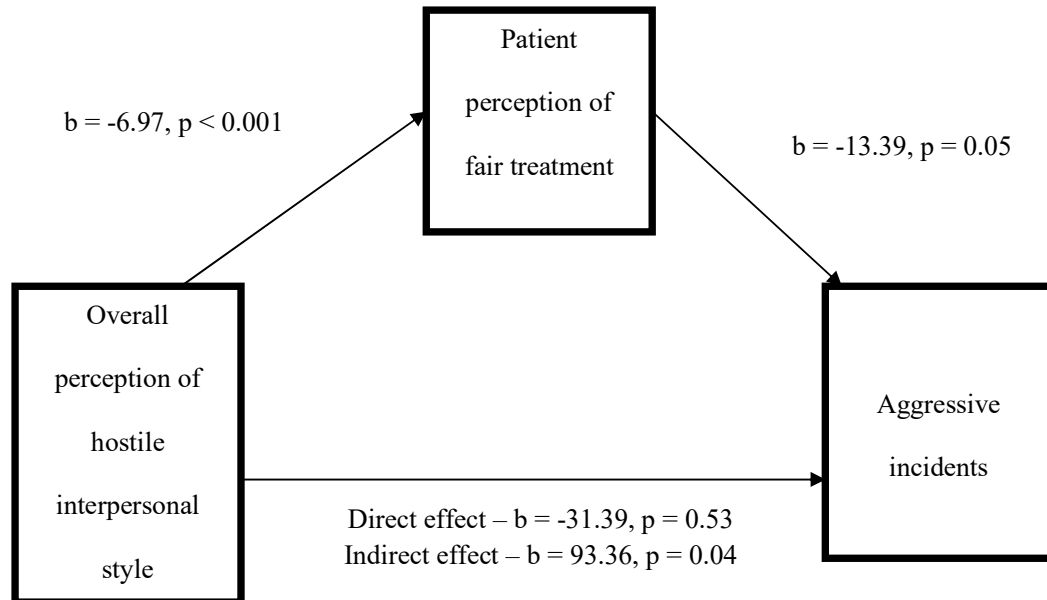


Figure 6.3 *Fair treatment as a mediating link between hostile interpersonal style and aggressive incidents*

6.3.10. *The mediating effect of number of patients involved in off-ward activities between staff interpersonal style and incidents*

The relationship between the number of patients involved in off ward activities, interpersonal style and incidents were analysed in more detail via mediation analysis. A significant indirect effect of the number of patients involved in activities on aggressive incidents through staff perception of hostile control ($b = -18.41, z = -3.65, p < 0.001$) and staff perception of assertive control ($b = -9.25, z = -2.16, p = 0.03$) was found. This effect indicated that the number of patients involved in off ward activities is related to

reductions in staff perceptions of hostile and assertive control, which in turn are related to fewer numbers of aggressive incidents. This suggests that having higher numbers of patients involved in off-ward activities is linked to a lessening in hostile and assertive interpersonal style on the wards. In turn, this less hostile and assertive style is linked to fewer numbers of aggressive incidents.

Similarly, a significant indirect effect of the number of patients involved in activities on non-aggressive incidents through staff perception of hostile control ($b = -9.23$, $z = -3.32$, $p < 0.001$) and staff perception of assertive control ($b = -5.54$, $z = -2.53$, $p = 0.01$) was found. This effect indicated that the number of patients involved in off ward activities is related to reductions in staff perceptions of hostile and assertive control, which in turn are related to fewer numbers of non-aggressive incidents. These mediation effects are illustrated in Figure 6.4 and 6.5.

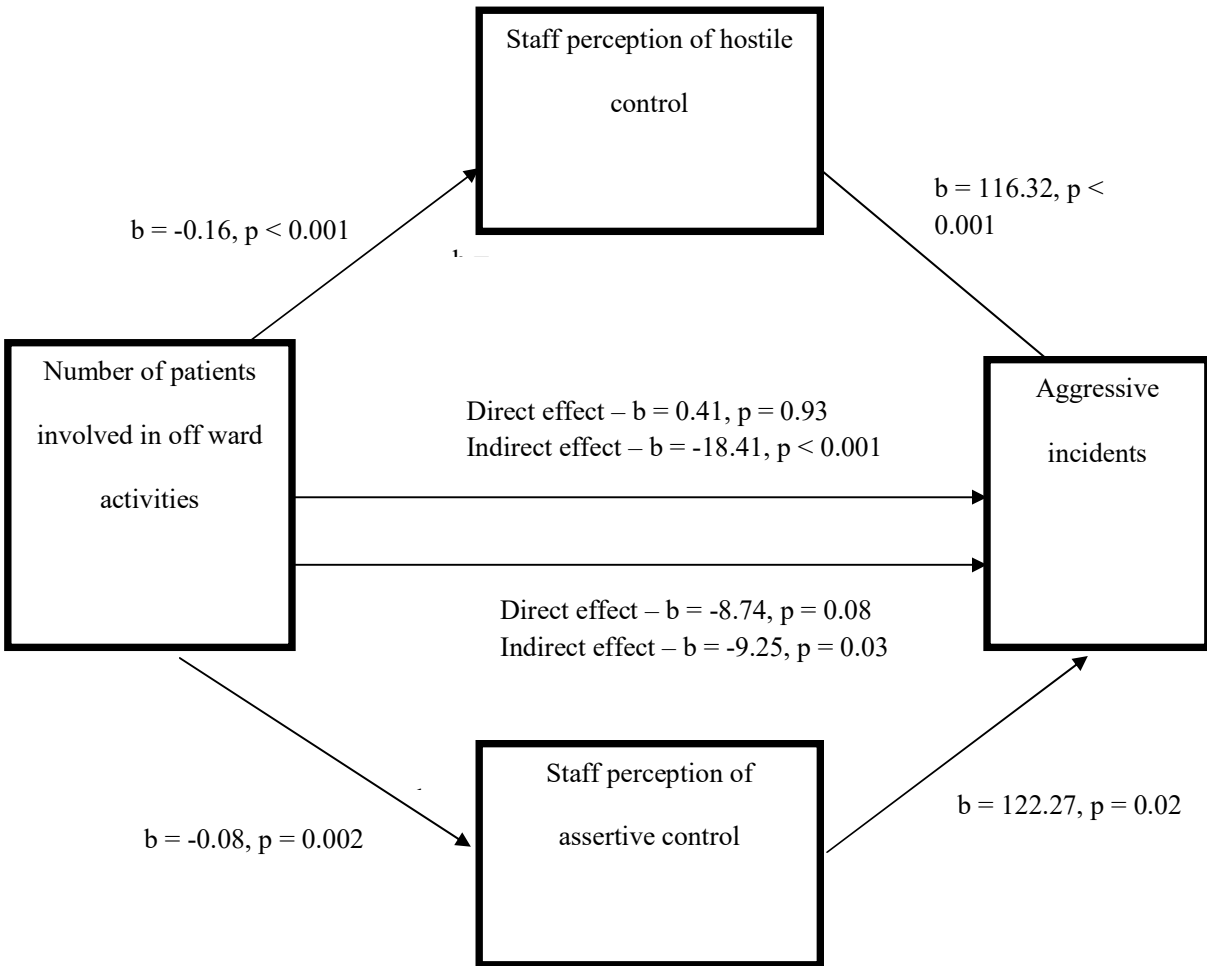


Figure 6.4 *Staff perception of hostile control and assertive control as mediating links between the number of patients involved in activities and aggressive incidents*

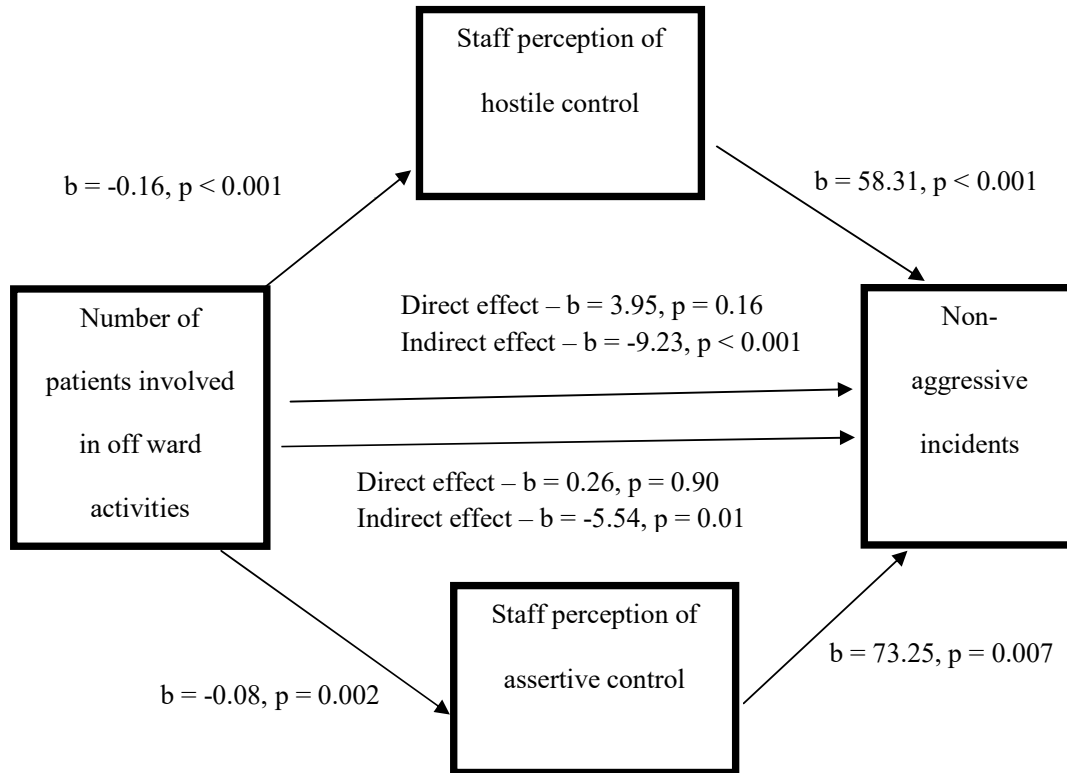


Figure 6.5 *Staff perception of hostile control and assertive control as mediating links between the number of patients involved in activities and non-aggressive incidents*

6.3.16. Summary of main findings

As expected, the study found that patients and staff viewed the interpersonal style of staff differently. Patients tended to perceive this as more hostile and controlling than staff. Staff believed their interpersonal style to be more open and characterised by affiliation. Further, staff perceived higher levels of fair treatment of patients than the patients' perception.

High numbers of all types of incidents were found to be associated with higher levels of controlling, hostile interpersonal style and lower levels of affiliation and openness. A perception of greater fairness appeared to be associated with fewer incidents. The

meaningfulness attributed to incidents or the number of activities participants participated in was not associated with incidents. However, those wards that had lower numbers of patients involved in off-ward activities were shown to have higher numbers of incidents.

In terms of other environmental factors, wards categorised as high dependency had a greater number of incidents. The availability of light on wards was not associated with number of incidents. The staff-patient ratio also was not associated with number of incidents. Similarly, levels of noise did not appear to be associated with most incidents. Noise did seem to be related with bullying incidents, although this was not in the expected direction. Analysis revealed that high levels of noise were related to low levels of self-reported bullying.

Differences in the environment were also related to differences in interpersonal style and perception of fairness. Participants from high dependency wards viewed the interpersonal style of staff to be more hostile and controlling than those on low dependency. However, low dependency participants perceived there to be a greater level of fairness. Further, wards where higher numbers of patients were involved in off-ward activities were characterised by greater fairness and less hostility and control.

Regression analyses indicated that aspects of interpersonal style, fair treatment and the number of patients involved in activities could help to explain the number of incidents on wards.

It was revealed that fair treatment mediated the link between interpersonal style and incidents of self-reported bullying, victimisation and aggression. It was suggested that hostile and controlling interpersonal style increased numbers of these types of incidents because it reduced the perception of fair treatment. Similarly, an interpersonal style

characterised by affiliation decreased numbers of incidents as it increased the perception of fair treatment.

The number of patients involved in off-ward activities was also shown to mediate the link between interpersonal style and incidents. The number of patients who had off-ward activities was associated with lowered staff perception of hostile and assertive control. In turn, this decreased the number of aggressive and non-aggressive incidents.

6.4. Discussion

This study showed that greater numbers of aggressive and non-aggressive incidents were associated with controlling and hostile staff interpersonal style. Similarly, staff interpersonal style characterised by affiliation and openness was associated with fewer incidents. This supports the idea that staff interpersonal style significantly contributes to incidents. Until now, the contribution of interpersonal style to incidents has mainly focused on patients. This has found that dominant hostile styles were linked with violence and aggression (Cookson, Daffern & Foley, 2012; Daffern et al, 2008; Daffern et al, 2010; Dolan & Blackburn, 2006; Doyle & Dolan, 2006; Harris, Oakley & Picchioni, 2014). This may be explained by the principle of complementarity (Lillie, 2007). The affiliation dimension of interpersonal style ranges from hostility to friendliness, and behaviours on this dimension are likely to evoke corresponding responses (Kiesler, 1987). Therefore, the hostile interpersonal style of staff is likely to cause a hostile response from patients. In turn, this would lead to incidents. This study has also expanded the literature as it has found that the relationship between interpersonal style and incidents also relates to non-aggressive incidents. This is important as it suggests that the way that staff interact with patients not only effects the

numbers of assaults and abuse, but also incidents such as boundary pushing, dirty protests and general rule breaking.

This study also found that staff and patient perceptions of staff interpersonal style were different. Patients perceived that staff members were more hostile and controlling than staff believed. Further, staff believed their interpersonal style to be more open than patients did. This suggests that staff may not be being as open and friendly as they think they are. This is important when the findings discussed above are taken into account. If the staff hostility is linked to both aggressive and non-aggressive incidents, it is essential that staff try to reduce this type of interpersonal behaviour. There are obviously aspects of their interactional style which patients interpret as hostile which staff may not be identifying. This needs to be looked at in more detail in order to reduce this type of style and its effects on incidents.

Previous research also suggested that lack of fairness of injustice is a significant contributor to incidents (Johnson et al, 1997; Powell et al, 1994; Pulsford et al, 2013; Shepherd & Lavender, 1999). Similarly, the qualitative study outlined in chapter 4 of this thesis suggests that patient perception of injustice is an antecedent to security incidents. The current study found that wards with greater perceptions of fairness had fewer incidents, and so supports earlier findings. This is also supported by procedural justice and legitimacy literature. When individuals view situations to have low levels of fairness, it is unlikely that they will view authority as legitimate (Brunton-Smith & McCarthy, 2016). Low levels of legitimacy result in negative behaviours and rule breaking (Liebling et al, 2005; Jackson et al, 2010; Sparks & Bottoms, 2008). Therefore, it is likely that those wards with poorer perceptions of fairness have greater numbers of incidents due to a perceived lack of legitimacy of authority.

It was theorised that the effect of interpersonal style on incidents would be mediated by the perception of fairness. This was because, in order for a situation to be perceived as fair, individuals need to be treated with respect and dignity (Jackson et al, 2010). This study found that fair treatment mediated the link between interpersonal style, aggressive incidents, and self reported intra-group aggression and victimisation. However, it did *not* mediate the link between interpersonal style and non-aggressive incidents. This indicates that different processes may be involved in the contribution of interpersonal style to aggressive and non-aggressive incidents. Therefore, previous ideas are partially supported. It could be argued that hostile interpersonal styles lead to patients believing that they are not being treated fairly, which in turn leads to them not recognising authority as legitimate. In turn, they are more likely to engage in aggressive behaviours.

It was proposed that the number of activities patients were engaging in and the meaningfulness they attributed to these activities would be associated with incidents. This was not the case. This goes against previous research that suggests that engagement in activities was an important contributor to whether aggressive incidents occurred (Chaplin et al, 2006; Francis et al, 2009; Hallet et al, 2014; McGlynn et al, 2009; Meehan et al, 2006). However, the number of patients involved in off-ward activities per ward was associated with aggressive and non-aggressive incidents. This suggests that there may be some impact of engagement in activities on incidents. This also appeared to mediate the relationship between interpersonal style and incidents. On wards where there were higher numbers of patients involved in off-ward activities, there appeared to be lower levels of control and lower levels of aggressive and non-aggressive incidents. It may be that on these wards staff do not feel that they need to use a more controlling interpersonal style and so incidents are reduced.

Despite research stating that the physical environment could account for variation in incidents, only noise levels appeared to have a link to security incidents. Noise levels were negatively correlated with self-reported intra-group aggression, suggesting that as noise levels increased on wards there was a decrease in incidents. This goes against theories such as General Strain, which suggests that an increase in noise would increase aggression levels. It may be that other factors, such as intervention by staff, could have affected this finding. No other physical environment factors appeared to be related to security incidents. It may be that the environments of the wards are too similar to have an effect on numbers of incidents, as they all belonged to the same hospital.

6.4.1. Limitations

This study used similar techniques to previous studies in terms of measuring aspects of physical environment. Actual measurements were taken of light availability and noise levels. However, this study failed to find a significant effect of most physical environment factors on incidents, despite theoretical literature suggesting this should be the case. It may be that patient *perceptions* of the physical environment were the more important factor. In addition, there was a negative association found between noise and self-reported intra-group aggression, which was not in the expected direction. It would be expected that higher levels of noise would result in greater numbers of incidents. This may also be due to the way in which the environment was measured; actual measurements vs patient perception. For example, even on wards where noise levels were higher than average, this might not be an issue unless patients perceive it to be a problem. If noise on a ward reaches levels where patients feel it is uncomfortable, that is when it becomes a problem and when it is likely to affect incidents. Therefore, the method of measuring environmental factors may not have been the best for this study, and perhaps is the same in other studies outside of this thesis.

Similarly, the method of measuring meaningfulness may not have been appropriate for testing this association. This study attempted to link ward perceptions of meaningfulness to the number of ward incidents. Instead, it may be more useful to measure this on an individual level. Individual perceptions of meaningfulness could be measured and then linked to individual involvement in incidents. This seems important when the differences in perceptions of meaningfulness are considered. The scores on this scale seemed to differ quite significantly, even with patients on the same ward. This suggests that the meaningfulness that patients derive from activities may not be linked to their ward. Therefore, using this scale at ward level may not appropriately assess this variable's contribution to incidents.

Further, ward dependency level was not controlled for in this study, meaning that some results may instead be linked to dependency level. For example, lower dependency wards generally had more patients involved in off ward activities. Therefore, it may be that the effect of this variable on incidents can actually be attributed to lower ward dependency. This could have been controlled for with hierarchical multiple regression, and so further research should look to do so. This study also did not control for the effect of patient characteristics on security incidents. Research discussed earlier suggested that younger individuals with a history of engaging in incidents previously would be more likely to be involved in security incidents (Cunningham & Sorensen, 2007; Wooldredge et al, 2001). Therefore, it is likely that wards in this study with a greater proportion of younger patients with a history of security incident involvement, would have a greater number of security incidents. Similarly, a diagnosis of schizophrenia or a history of psychotic symptoms has been associated with security incidents (Dack et al, 2013; Iozzino et al, 2015; Nourse et al, 2014). Therefore, it would be likely that wards with a greater proportion of patients with a diagnosis of

schizophrenia would have a greater number of security incidents. However, this was not controlled for in this study, and so it may be that some of the results discussed above are attributable to patient characteristics rather than ward characteristics.

There were other issues with the methods used to collect data in this study. For example, the study relied on self-report measures to collect information about interpersonal style. Therefore, only participant perceptions of staff interpersonal style were assessed and it is likely that some biases exist in the data. Although, variables in the study such as patient perception of fairness are best collected using self-report data, it is likely that staff interpersonal style perceptions are affected by incidents on the ward. For example, if patients have been refused requests recently by staff members or have recently argued with a staff member, they may be more likely to believe that staff have a hostile, controlling interpersonal style. However, at other times, they may believe the opposite. Therefore, an observation method, such as the use of CIRCLE (Blackburn, 1996), may have been more useful here. However, this method would involve the observation of interactions between many members of staff and patients, and would be too time consuming for this study. Further research with more time and resources should aim to include such an observation method. This would build on the results of this study, and provide a much more detailed picture of interactions on the wards.

Finally, this study also did not control for the effect of therapeutic and management interventions. These interventions may mean that patient behaviour is addressed before it escalates into a serious incident such as assault. For example, a patient may be moved to a seclusion room due to negative behaviours, such as verbal aggression, before they are able to assault a member of staff or other patient. This was not included in this study, and so it may be that these interventions influence behaviour on wards in this

study. Some wards may have more interventions in place than others, and these could influence behaviour and patient relationships with staff. Therefore, future research should look to include this.

6.4.2. Future research

Although this study found that the perception of fairness mediated the relationship between interpersonal style and aggressive incidents, the same was not found for non-aggressive incidents. This suggests that different processes may be involved in the contribution of interpersonal style to non-aggressive incidents. Further research should address this so that a fuller understanding of the antecedents to all types of incidents can be achieved.

As stated above, the method of measuring physical environment may not have been the most effective. Further research should aim to investigate whether patient perception of these factors of the physical environment is associated to incidents. This is especially important due to the focus of policy makers on improving these areas in order to manage incidents more effectively. If no effect is found, it is likely that this effort could be placed into developing other areas.

Although the current research did not support the idea that engagement in meaningful activity was associated with incidents, this should be investigated in more detail. The higher the number of patients involved in activities, the fewer incidents there were on wards, which suggests there is some link between activities and incidents. Due to the relatively large amount of studies that cite lack of involvement in activities as antecedent to aggression, this should be investigated further. It may be that activity involvement does not have the same impact on incidents in high secure care as in other

settings. Alternatively, it may not yet have been revealed which part of these activities is important.

This study indicates that the interpersonal style of staff, perception of fairness and the number of patients involved in off-ward activities are significant contributors to all types of incidents. Hostile interpersonal style of staff seems to be associated with greater numbers of incidents due to the effect it has on perception of fairness. Wards which have more patients involved in off-ward activities are characterised by lower levels of control and so have fewer incidents. However, variation in non-aggressive incidents does not seem to be fully explained by this study. There also did not seem to be an effect of meaningfulness of activities or physical environment factors on incidents. Further research is needed in order to clarify these findings.

Chapter 7: Discussion

The main aim of this thesis was to increase understanding about what factors of the environment contribute to patient involvement in security incidents. This chapter will discuss the findings of the thesis in relation to theory and previous research. It will outline the McKenna model of security incident prediction and explain how this can be used to inform future practice. Finally, this chapter will discuss future areas of research which would improve understanding of security incidents and aid in their prevention.

The first study of this thesis was a systematic literature review. This was conducted in order to investigate what research was already available, and how this could inform the future studies of the thesis. One main finding of this review was that very little research had been conducted in high secure settings. There was also a large focus on aggression, and little research that investigated other types of incidents. The review revealed a number of common themes through the research, and so a qualitative study was conducted to determine if staff at a high secure service believed similar factors were involved in security incidents.

A number of similar themes were identified between these two studies. For example, the relationship between patients and staff was perceived to contribute to patient engagement in incidents. Within this, a lack of quality support from others and staff failure to value patients and show respect were important. There was the suggestion that improved communication as a result of better relationships would allow issues to be dealt with more effectively. In turn, they would not escalate into an incident. This finding provided support for core components of the General Strain Theory (Agnew, 2009). It suggests that these negative relationships with staff members and other patients are associated with incidents due to its effect on strain. For example, the finding

that improved communication would prevent security incidents may be due to the reduction in strain that results from this. Therefore, this communication will relieve feelings of anger and frustration that could lead to a security incident. In addition, the result that staff failure to value patients and show respect was associated with incidents supports the theory that procedural justice and legitimacy of authority can influence behaviour. Showing patients respect is one of the main issues argued to be important in the decision of fairness (Jackson et al, 2010). Jackson et al (2010) suggest that this reflects that the patients' rights are acknowledged and so leads them to feel treated fairly. Due to the link between greater fairness and greater perceptions of legitimacy of authority (Brunton-Smith & McCarthy, 2016; Jackson et al, 2010; Tyler & Fagan, 2008), this study provides support for the argument that procedural justice influences security incidents. A greater perception of legitimacy results in more compliance from patients (Liebling et al, 2005; Sparks & Bottoms, 2008), which may explain the link between patient treatment by staff and security incidents. This theory was also supported by the study finding that injustice and provocation was associated with security incidents.

The perception of unfairness or injustice was a theme evident in chapter 1 and chapter 2. If a patient believed that somebody had deliberately provoked them or acted unfairly toward them, a security incident was more likely to occur. This supports the theory that procedural justice is associated with patient behaviour. Further, lack of engagement in meaningful activities was revealed to contribute to incidents. In the systematic review, it was shown that these activities had to be consistent and meaningful in order to protect against incidents. In interviews, staff were of the view that a lack of engagement in these activities would lead to boredom, which in turn would lead to incidents. Nonetheless, there was a common theme of activity. This also supports the argument

that fairness is associated with security incidents. If patients do not feel that staff are concerned with their well-being, they are likely to feel that they are being treated unfairly (Jackson et al, 2010). It can be argued that by not providing activities for the patients to engage in, or not providing activities a patient deems as meaningful, may be attributed to a lack of concern about well-being. Therefore, a patient will believe they are being treated unfairly, which in turn would reduce perceptions of legitimacy and increase engagement in security incidents. This finding also supports the contribution of the Good Lives Model (Ward & Gannon, 2006) to engagement in security incidents. A lack of activities may make it difficult to meet patient needs of play, excellence in work and creativity. In turn, patients engage in incidents as a way to get these needs met.

However, there were some differences in the results of these studies. In the systematic review aspects of the physical environment such as crowding, lack of space and privacy, and the general architecture of the ward, were thought to be involved in security incidents. This supported the argument that crowding and lack of privacy were strainful experiences that caused stress and frustration to the patient and resulted in incidents (Agnew, 2009). However, staff at the high secure hospital did not cite the physical environment as a contributor to incidents (chapter 4). This does not support the argument for the involvement of the physical environment in security incidents. However, the participants of this study were not asked about the physical environment, so it may be that these staff members did not realise the physical environment could influence behaviour. There were also other problems with the qualitative study outlined in chapter 4.

The qualitative study in this thesis demonstrated that, although little previous research has been conducted in high secure settings, similar factors to prisons and non-secure psychiatric facilities seem to be involved in incidents. However, this study did not try to

link these ward factors to actual incident data at the hospital. In addition, despite researchers specifying that interviewees could talk about any type of incident they chose, there was still a focus on aggressive incidents. Therefore, a study was designed to address these concerns. The third study of this thesis used questionnaires and record based incident data to assess if ward factors were associated with security incidents.

The third study used questionnaires to measure patient and staff perceptions of ward factors suggested by previous research to be associated with security incidents. These included relationships with others, involvement in activity, and the ability for patients to make decisions about care. Perhaps due to issues with the measures chosen to do this, many aspects of culture did not feature in main analysis. However, this study did find that lower levels of support in patient-patient and patient-staff relationships were associated with greater numbers of threats. In addition, greater incidents involving substances were associated with lower levels of peer support in patient relationships. This supports the arguments of General Strain Theory (Agnew, 2009) that a lack of supportive relationships with others is a strainful experience, and that this strain increases the likelihood of negative behaviour. It also supports the theory that the Good Lives Model (Ward & Gannon, 2006) is involved in patient engagement in incidents. The patients in this study who had lower levels of support from staff and their peers may have found it more difficult to meet the needs of relatedness and community described by the Good Lives Model. Therefore, they may have been involved in threatening behaviour and substances as a way to achieve these needs. Further, the finding supports the argument of the Self Determination Theory (Deci & Ryan, 2000) that when relationships with staff lack encouragement and support, positive behaviour is not likely to occur. This study also linked greater inappropriate behaviour with ward factors.

Wards with greater numbers of inappropriate behaviours such as sexual disinhibition and refusal of staff requests, had patients who felt less involved in the service. This further supports the argument that procedural justice and legitimacy of authority affect patient behaviour. One of the main issues described by Jackson et al (2010) as being important in the perception of fairness is the issue of 'voice'. This reflects the need to provide opportunities for people to participate in decision-making. Therefore, the lack of patient involvement in the service found in this study may reflect a lack of voice. In turn, this would reduce patient perception of fairness, and reduce their perception of legitimacy of authority. This would then increase the likelihood that they would engage in security incidents (Tyler, 2006). Although incidents overall did not appear to be related to ward culture, this study showed that some aspects of culture can effect some incidents. It suggested that the relationship between ward culture and incidents might be more complicated than originally believed. Further, it confirmed that there is a link between relationships and incidents and that perception of fairness was involved in the process of engagement in incidents. This was investigated in more detail in the final study.

The final study of the thesis aimed to build on the findings of all of the previous studies. Although the expected effects of culture on incidents was not found in study three, it confirmed that there was a link between relationships and certain types of incidents. The results from the first two studies also noted this. It was argued that, in fact, the interpersonal style of staff was the main reason that relationships with staff were associated with incidents, and so this was included in the final study. The finding from the third study that showed patient involvement in the service as a contributing factor in behaviour was argued to be due to perceptions of fairness. The first two studies also revealed this to be a factor and so it was included in the final study. Engagement in

activities was found to be an important theme in previous research and in interviews with staff. However, the scales that were supposed to measure this in study 3 were dropped from the main analysis due to poor results at the factor analysis stage. Therefore, this relationship was never fully investigated in study 3. Therefore, it was included in the final study with a better, more robust measure. Physical environment was also not investigated in study 3; interviewed staff had not cited the physical environment as an antecedent to incidents in study 2. In addition, it was considered that there would be more variation in ward culture than physical environment in wards at the same hospital, and so physical environment would not account for much difference in incidents. However, after the lack of expected results in study 3, it was proposed that physical environment may be a mediating factor, and so it was included in the final study.

This final study demonstrated that staff interpersonal style that was characterised as hostile and controlling was associated with aggressive and non-aggressive incidents. This supported the argument that the interpersonal style of staff affects the way that patient behave. It supported the idea of complementarity proposed by Lillie (2007). According to complementarity, the hostile interpersonal style of staff in this study should illicit a hostile response. Aggressive and non-aggressive incidents can be argued to be a hostile response. The fairness that patients perceived in staff decisions and authority was also related to incidents, and was found to mediate the relationship between interpersonal style and aggressive incidents. This supports the idea that perceptions of fairness can directly influence patient behaviour (Jackson et al, 2010; Tyler, 2006). In addition, it supports the argument made above that the reason relationships are so important in understanding security incidents is due to the effect they have on perceptions of fairness. The hostile interpersonal style of staff in this study

can be argued to lead to patients feeling that members of authority are not concerned with their well-being and that they are not being treated with respect and dignity. These issues are key components of the process to perceiving when interactions are fair (Jackson et al, 2010), and so this is the reason that fairness was found to mediate the effect of interpersonal style on security incidents.

However, the number of activities patients engaged in and the meaningfulness they attribute to these was not associated with incidents. The number of patients on a ward that were involved in off-ward activities was related to aggressive and non-aggressive incidents. This provides partial support for the arguments of the General Strain Theory (Agnew, 2009) and the Good Lives Model (Ward & Gannon, 2006) that engagement in activity is needed to prevent incidents. Although the overall number of activities a patient engaged in and the meaningfulness of these activities did not appear to have an influence, it could be argued that the more patients on a ward involved in activities the more relaxed the ward is. If more patients are involved in activities, less patients on the ward will be experiencing strain and the ability to reach their needs. In addition to activity involvement, the physical environment was not shown to make a significant contribution to incidents. This contradicts the argument of the General Strain Theory (Agnew, 2009) that the physical environment can contribute to feelings of strain, which in turn result in engagement in incidents.

7.1.1 Overall limitations

There are a number of limitations with this research that need to be discussed. Firstly, there were issues with some of the methods used to collect data in this study, mainly, the decision to use self-report measures. Self-report measures were used to collect data about ward culture, staff interpersonal style, patient perception of fairness and

engagement in meaningful activity. In terms of ward culture and staff interpersonal style, it could be argued that using observational methods would have been more useful due to biases in the use of self report data. For example, day to day interactions with staff members such as the refusal of requests, arguments and the use of seclusion may influence these factors. Patients may be more likely to view the ward culture and interpersonal style of staff as more hostile and controlling when they have had arguments and refused requests, or have been moved to seclusion recently. However, the general ward culture and the patient-staff relationship may be generally positive.

A way to reduce these biases may be to use observational methods. Researchers could observe the general ward culture, and observational methods such as the CIRCLE (Blackburn, 1996) could be used to assess interpersonal style. However, these methods are much more labour intensive than the use of self-report questionnaires. It is argued that this would result in a much more time-consuming data collection and so would not be suitable for this research. Further studies with fewer variables and more time and resources may be able to further the research presented in this thesis by conducting these observation studies.

The research presented here also did not control for a number of factors which may have influenced results. For example, the effect of patient characteristics on security incidents was not controlled for. Research has shown that younger individuals with a history of engaging in security incidents are more likely to be involved in security incidents (Cunningham & Sorensen, 2007; Wooldredge et al, 2001). Similarly, a diagnosis of schizophrenia or a history of psychotic symptoms has been associated with security incidents (Dack et al, 2013; Iozzino et al, 2015; Nourse et al, 2014). Therefore, it is likely that wards characterised by younger patients, with a history of involvement in security incidents and a diagnosis of psychotic symptoms will have greater numbers of

incidents. However, this was not controlled for in this research. This means that there is the possibility that differences in numbers of security incidents attributed to ward factors may be able to be explained by patient characteristics.

Similarly, differences in type of ward was not controlled for throughout this research. For example, whether the ward was low or high dependency was not controlled for. For example, in the final study, lower dependency wards generally had more patients involved in off ward activities. Therefore, it may be that the effect of this variable on incidents can actually be attributed to lower ward dependency. Further, this research also did not control for the effect of therapeutic and management interventions. These interventions may mean that patient behaviour is addressed before it escalates into a serious incident such as assault. For example, a patient may be moved to a seclusion room due to negative behaviours, such as verbal aggression, before they are able to assault a member of staff or other patient. This was not included in this research, and so it may be that these interventions influence behaviour on wards in this study. Some wards may have more interventions in place than others, and these could influence behaviour and patient relationships with staff. Similarly, some staff members may be more experienced in providing these interventions, which could also have an effect. Therefore, in the future, attempts should be made to control for this.

There were also a number of issues with the analysis of the results in this research. Due to the large number of variables used in both of the final studies and the decision to test multiple types of security incidents in chapter 5, a great number of different tests were conducted on the data. This increased the risk of type 1 errors. In other words, it increases the risk that significant results are found due to the sheer amount of tests being conducted, rather than due to a strong significant relationship between variables. The use of factor analysis for some of the measures used in chapter 6 also increased threats to

validity. For example, factor analysis was conducted with measures that had already been validated in past studies. Therefore, conducting factor analysis again increases the risk that the scales are not measuring what they are supposed to be. In future research, significant results from these analyses should be tested further in order to confirm that these relationships exist and are not just a result of type 1 error.

7.1.2 Overall conclusions and The McKenna model of security incident prediction

This thesis has a number of conclusions. Firstly, staff-patient relationships, interpersonal style of staff, patient engagement in activities and patient perception of injustice contribute to security incidents in high secure psychiatric care. Positive patient relationships with staff which are characterised by high levels of support, a friendly and open interpersonal style of staff, increased patient engagement in activity and decreased perception of injustice can all work together to prevent the occurrence of security incidents such as assault and rule breaking. Although there was some evidence in this research that noise levels may contribute to security incidents, the general conclusion of this thesis is that physical environment does not have much of an impact on security incidents as much as ward and interpersonal factors.

As a result of these conclusions and the results of the research in this thesis, the preliminary model presented in chapter 2 was adapted and the McKenna model of security incident prediction was created. This encompasses the findings of the thesis and theoretical perspectives from the preliminary model. This is provided in Figure 7.1., and is explained below.

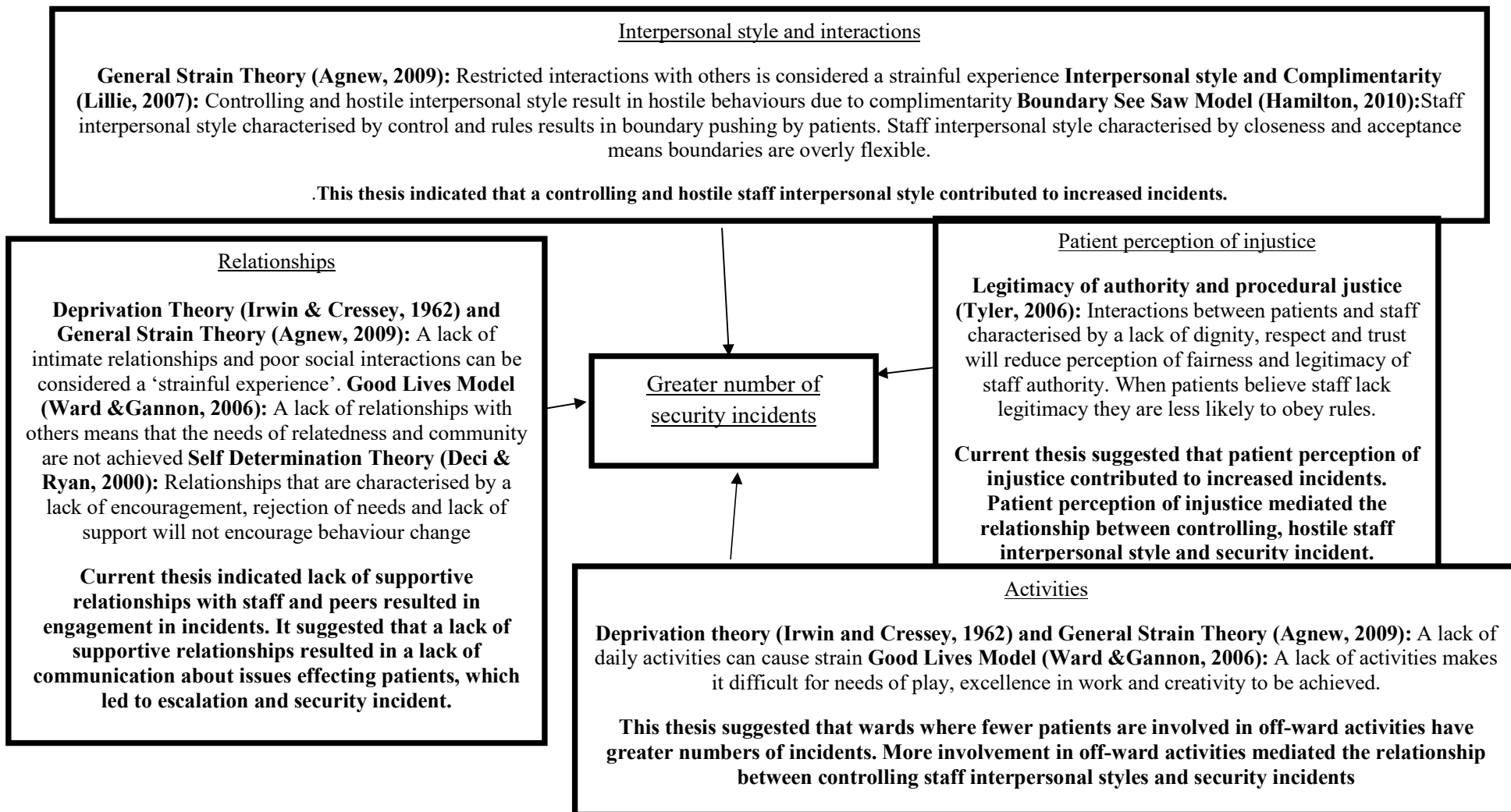


Figure 7.1: The McKenna Model of Security Incident Prediction

The McKenna model in Figure 7.1 explains how patient relationships, interpersonal style of staff, patient engagement in activities and patient perception of injustice contribute to security incidents. The model is comprised of four main categories: relationships, interpersonal style and interactions, patient perception of injustice and activities. The model explains that a lack of quality relationships increase the likelihood of security incidents. This includes relationships which have low levels of support and communication, and encompasses both patient-patient and patient-staff relationships. This is due to the arguments of the Deprivation Theory (Irwin & Cressey, 1962) and General Strain Theory (Agnew, 2009). These theories suggest that a lack of intimate relationships and poor social interactions are considered strainful experiences. According to General Strain Theory these strainful experiences can increase numbers of incidents due to an increase in levels of stress, anger and frustration (Agnew, 2009). Further, a lack of relationships with others means that the needs of relatedness and community explained by the Good Lives Model (Ward & Gannon, 2006) are not achieved. This can result in patients using maladaptive means to achieve these needs. For example, they may engage in aggressive behaviour to get attention from staff, which would in turn help achieve the need of relatedness. Similarly, the Self Determination Theory (Deci & Ryan, 2000) suggests that staff-patient relationships that reject the needs of the patient and lack support are unlikely to be associated with positive behaviours.

It is suggested by this model that the interpersonal style of staff can have an influence on the relationships between patients and staff. A more controlling interpersonal style is linked to greater numbers of incidents. The model uses complementarity (Lillie, 2007) to explain this. Complementarity (Lillie, 2007) suggests that when a member of staff has a controlling and hostile interpersonal style, patients are more likely to respond in a

hostile way and engage in a form of security incident. This is supported by the Boundary See Saw Model (Hamilton, 2010), which suggests that staff interpersonal style characterised by control and rules results in more boundary pushing and engagement in security incidents by the patient. However, an interpersonal style characterised by closeness and acceptance results in overly flexible boundaries and greater security incidents. Therefore, staff members need to find a balance between these two types of interpersonal style in order to manage patient behaviour and reduce incidents (Hamilton, 2010). The model also explains how patient perception of injustice can influence security incidents.

It is detailed that this thesis found patient perception of injustice to increase the number of security incidents on secure wards. It also shows that the link between interpersonal style and involvement in security incidents is mediated by patient perception of fairness. A controlling interpersonal style results in patients believing they are being treated unfairly. In turn, this leads to less compliance with rules and more incidents.

Finally, the number of patients involved in off-ward activities can affect the interpersonal style of staff. The more patients involved in activities, the less controlling staff interpersonal style is perceived to be. In turn, this reduces the likelihood of incidents. This explained by the model in terms of Deprivation theory (Irwin & Cressey, 1962) and the Good Lives Model (Ward & Gannon, 2006). A lack of daily activities can be considered to be a type of strain. These strainful experiences then cause numbers of security incidents to increase due to their effect on patient stress, anger and frustration. Additionally, a lack of activities would make it difficult for a patient to achieve the needs of play, excellence in work and creativity. In turn, they may engage in security incidents as a way of achieving these needs.

This model is similar to the preliminary model outlined in chapter 2. The concept that staff interpersonal style and perceived injustice would affect security incidents was confirmed. However, this was given more detail as it was concluded that the perception of fairness mediated the relationship between interpersonal style and incidents. In addition, engagement in activity remained in the model. The relationship between this variable and security incidents also became more detailed. It was found that patient engagement in activity allowed staff members to have a less controlling interpersonal style, which in turn reduced incidents. This is in contrast with original suggestions that activity engagement influenced incidents due to fulfilling patient needs. Further, the variable of physical environment was dropped from the final model. Although a positive correlation was found between noise levels and security incidents, the direction of this was surprising and it was concluded that further research needed to be done on this link before it could be included in the model. Other physical environment factors included in this thesis seemed to have no effect on security incidents.

7.1.3 Practical implications

This research suggested that relationships between patients and staff contributed to whether patients engaged in security incidents. Within this, staff interpersonal style and the perception of fairness was incredibly important. However, patients and staff tended to view these things differently. In study 3, staff members believed their relationship to be more positive than patients did. In study 4, patients perceived staff to have a more controlling and hostile interpersonal style and thought there were lower levels of fairness. However, staff perceived their own interpersonal style to be more open and friendly and perceived greater levels of fairness on wards. This is important for staff to consider in practice. The difference in how these two groups of participants perceive their interactions may be a main reason why incidents are occurring. When staff believe

they are being open and friendly and perceive that their interactions are fair, patients do not see this to the same extent. As staff interactions have been linked to incidents, they need to be mindful about how patients perceive these interactions to be. Fairness seems to mediate this relationship, so it may be the case that staff members take the time to explain why decisions are being made to patients. This would help to increase fairness and may help to reduce incidents.

This study is the first to show that perceived fairness is a significant contributor to incidents in high secure care. Therefore, it provides staff with a greater understanding of how to reduce incidents. Greater levels of fairness can be achieved by consistency in applying rules, treating them with dignity and respect, and providing them with opportunities to participate in decision making (Jackson et al, 2010). Focusing on this should in turn reduce the likelihood of incidents occurring.

The finding that wards with a higher number of patients involved in off ward activities have fewer incidents has applications to practice. Although this relationship needs to be investigated more thoroughly, it suggests that activities are important in predicting incidents. It could be that involvement in more activities decreases boredom and frustration, which may lead to decreased incidents. On the other hand, it may be that finding meaning in certain activities is the reason why engagement in activities is protective. Whatever the case is, it seems highly important that patients be provided with the opportunities to take part in activities if incidents are to be predicted and managed.

7.1.4 Future research

Although this research has made significant contributions to the literature in this area, there is still much more that needs to be done in order to create a better understanding of what can be done to predict security incidents.

This research did not find the expected association between features of the physical environment and incidents. Only noise levels were associated with higher levels of incidents. However, this result was the opposite to what was expected. Higher levels of noise were associated with fewer incidents. It may be that higher levels of noise resulted in more intervention from staff to control the situation and calm the patients, which in turn could lower incidents. However, more research needs to be done to assess this. No other associations were found with the physical environment. As discussed at the end of the last chapter, this may be due to the methods used to assess this. Future research should look at patient perceptions of the physical environment. Instead of overall differences in the physical environment accounting for variance in incident numbers across wards, it may be the way that patients perceive them. Patients may react to these features in different ways. Whilst some will be able to cope with high levels of noise, others may not be able to and so may engage in negative behaviours in order to cope with this. Alternatively, it may be that differences in the physical environments of the wards included in this study were not incredibly different as they all belong to the same hospital. Therefore, future research could compare the physical environment of this hospital with one of the other high secure services.

This research found a link between the number of patients involved in off ward activities and the amount of incidents happening on that ward. However, one of the main ideas of the final study was not supported. There were no link found between meaningfulness of activity and incidents. As highlighted in that chapter, this may be due to assessing this at ward level. Perceptions of meaningfulness differed quite

significantly between patients, even those who were on the same ward. So, further research could think about linking individual perceptions of meaningfulness with individual engagement in incidents.

Further, although this research provided support for the idea that some aspects of ward culture are associated with both aggressive and non-aggressive incidents, it was not able to investigate all factors. For example, patient relationships with other patients are an important part of ward culture. Study 3 found some support for the notion that this was related to incidents; however, this was not investigated thoroughly. Future research could consider trying to link other parts of ward culture with incidents. This would ensure that a full understanding of contributors to incidents was obtained. In turn, security incidents would be able to be prevented based on those factors.

Overall, the thesis demonstrates that ward culture does make a contribution to patient engagement in aggressive and non-aggressive incidents. Within this, relationships with others and staff interpersonal style seem to be especially important. Patient perception of fairness on wards also seems to significantly contribute to these incidents. This was also evident in the link between lack of involvement in the service and inappropriate behaviour. In the occurrence of aggressive incidents, patient perception of fairness is argued to mediate the relationship between staff interpersonal style and incidents. A hostile interpersonal style seems to reduce the perception of fairness, which in turn increases the likelihood of engagement in aggressive incidents. Wards with more patients involved in off ward activities tended to have fewer numbers of incidents. However, there was no effect of the number of activities each patient took part in, the meaningfulness they attributed to these activities and incidents. Features of the physical environment also did not seem to have an effect on numbers of incidents.

The studies included in this thesis make a contribution to the literature in this area. Previously, only four studies had looked at aspects of ward culture and environment in high secure services (Meehan et al, 2006; Pulsford et al, 2013; Tonkin et al, 2012; Urheim et al, 2011). Of these, only Tonkin et al (2012) attempted to link these factors to recorded incidents. However, the focus on their study was testing the validity of the EssenCES questionnaire and so their research was restricted to a small part of ward culture. Although these factors had been investigated in hospitals and prisons, this was the first to try to link them to incidents in high secure care.

Previous literature was heavily focused on aggressive incidents and little investigation was done with non-aggressive incidents. Some misconduct literature did involve other types of incidents, but these were generally all grouped together under the term 'misconduct'. However, it should not be assumed that factors that contribute to aggression also contribute to other types of aggression. Therefore, this study expanded the literature to look at non-aggressive incidents. Although there were some similarities between factors that contributed to aggressive and non-aggressive incidents, some factors only predicted aggressive incidents.

This research furthered literature to include the interpersonal style of staff on wards. Previous research has highlighted that relationships with staff can contribute to aggressive incidents, but do not assess whether this is due to interpersonal style. Research has been conducted that looked at the contribution of patient interpersonal style to aggressive incidents (Cookson, Daffern & Foley, 2012; Daffern et al, 2008; Daffern et al, 2010; Dolan & Blackburn, 2006; Doyle & Dolan, 2006; Harris, Oakley & Picchioni, 2014), but had not addressed staff interpersonal style. This is despite theory suggesting it may be linked (Kiesler, 1987; Hamilton, 2010; Lillie, 2007). This is the first piece of research that links staff interpersonal style with both aggressive and non-

aggressive incidents. This research is also the first to find that perception of fairness mediates the link between staff interpersonal style and aggressive incidents.



Interview Protocol

INTERVIEWER TO REMIND PARTICIPANT ABOUT

- The main points on the Participant Information Sheet
- The time frame of the discussion (approximately 45 minutes)
- The discussion being confidential

Interviewer should also ask the participant to confirm that they have provided consent and that they are happy that the research has been fully explained to them.

INTERVIEWER TO READ OUT INTRODUCTION TO PARTICIPANT

Introduction:

This interview will explore with you a security incident that you remember happening in the hospital that you have good memory of. This may include aggression and assault towards others, hostage taking and protests, or a rule breaking activity such as the use of drugs or pornography. You will not be asked to identify who was involved, only questions about the incident itself. It is important that you do not give me any identifiable names. You will be asked questions surrounding:

- What happened during the incident
- What happened before the incident
- Past issues on the ward that may have led to the incident
- What happened after the incident
- Why you think the incident happened

The aim of this discussion is to look at why this particular security incident occurred and not just what happened during the incident.

Interview Prompts:

INTERVIEWER TO DISCUSS RESPONSE STIMULI (WHAT HAPPENED DURING THE INCIDENT)

- What type of security incident would you like to discuss?
- What did you see happen? Please talk me through this from the beginning.
- How many people were involved?
- How long did it last for?
- How many times did this happen?
- Where did the incident take place?

INTERVIEWER TO DISCUSS ANTECEDENT STIMULI (WHAT HAPPENED BEFORE THE INCIDENT)

- What happened immediately before this incident?
- What type of “build-up” was there? (e.g. minute, hours, days before)
- What was going on around that area before this happened? (e.g. what was happening - number of people present, size of room, etc.)
- What type of mood was the main perpetrator in? (and what indicated this to you? How did you know?)
- What type of mood were the others involved in? (and what indicated this to you? How did you know?)
- What had the main perpetrator been saying or doing prior to the incident?
- What had others been saying or doing prior to the incident?
- What do you think may have been the main triggers?
- Did the individual say what triggered the incident?

INTERVIEWER TO DISCUSS CONSEQUENCES (WHAT HAPPENED AFTER THE INCIDENT – POSITIVE/NEGATIVE REINFORCEMENT)

- What happened immediately after this incident?
- What happened sometime after this incident?
- How did the patients involved respond immediately after this incident?
- How did the patients involved respond sometime after this incident?
- What effect did this incident have on others?
- What effect did this incident have on the environment or atmosphere?
- What were the good things that came out of this incident for the patients involved? (e.g. moods, behaviours, positive outcome)
- What are the benefits for individuals engaging in this type of incident?
- What do you feel this incident removed or got rid of for patients involved? (e.g moods, behaviours)

INTERVIEWER TO DISCUSS ORGANISM VARIABLES (PAST ISSUES ON THE WARD THAT MAY HAVE LED TO THE INCIDENT)

- What factors made it easier for this incident to take place?
- Are there any patient characteristics that made it easier for this incident to take place?
- Are there any environmental characteristics that made it easier for this incident to take place?

INTERVIEWER TO DISCUSS FUNCTION/S (WHY THIS INCIDENT HAPPENED)

- What do you think were the main reason/s for this incident initially? Did this stay the same, or did it change? (if it changed, why do you think this was?)
- What do you think the perpetrator wanted to achieve?
- What are some other reasons for this incident?
- Are there any factors that you think could have prevented this incident from happening?

INTERVIEWER TO READ OUT ENDING THE INTERVIEW SECTION

Ending the Interview:

Thank you for taking the time to discuss this incident. Is there anything that you would like to add?

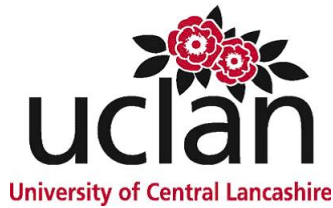
INTERVIEWER TO HAND PARTICIPANT DEBRIEF SHEET

Debrief:

Thank you again for agreeing to take part in this research. This study is part of a larger piece of research which ultimately aims to create a model that can be used to predict security incidents in high secure psychiatric care. It is anticipated that this model will be used to inform policy and procedures relating to the prevention of security incidents.

If you feel like this research has affected you in any way or you have questions relating to the research, please speak with a member of the research team or your line manager.

You are free to withdraw from this research, without giving any reason, up until four weeks from the time you sign the consent form. After this, interviews will have been transcribed and anonymised.



Research Title: Development of a model to predict security incidents in high secure psychiatric care.

INFORMATION SHEET – STAFF

PHASE 1: Exploring staff views about what increases or decreases risk of security incidents on wards.

Background to research

The term ‘security incident’ covers a wide range of behaviours within secure hospitals including harm to others, harm to self, escape incidents and rule breaking. Although theory suggests that the culture of a ward and security procedures have an effect on the prevalence of security incidents little research exists that investigates this link. This phase of the research aims to explore the factors that security staff at the hospital believe increase or decrease the risk of security incidents on wards. This study is part of a larger piece of research which ultimately aims to create a model that can be used to predict security incidents in high secure psychiatric care. It is anticipated that this model will be used to inform policy and procedures relating to the prevention of security incidents.

About the research

This research will be used as part of a PhD by Naomi Jones, who is a postgraduate student at the University of Central Lancashire. She will be working with the Security Department and Ashworth Research Centre (ARC) based at Ashworth High Secure Hospital to research ways in which security incidents can be predicted; namely based on ward culture and security procedures. The Security Department will be funding most of this research.

The research is split into three phases (phase one, phase two and phase three). **You are being asked to take part in Phase 1.** This study involves interviews with security staff where you will be asked to think about certain incidents you remember happening on the ward, and to give your views about what you think the causes of that incident may be. Before you consider taking part in this phase, it is important that you take the time to read the following information.

Who is doing the research?

Naomi Jones, a PhD student from the University of Central Lancashire working with the Security Department at Ashworth Hospital and Ashworth Research Centre (ARC).

Phase 1: What will happen in this part of the research?

Members of security staff will be approached to ask for their beliefs about what factors on wards they think may have increased the risk of security incidents. The following steps will happen in the research:

- You have been given this information sheet by the researcher to read through, and the researcher will be able to discuss any questions members of staff may have about this. This should take no more than 15 minutes.
- You will be given a week to think about whether you would like to take part in the research.
- If you decide you would like to take part in this phase, you will be asked to sign a consent form.
- If more than 15 members of staff are willing to take part, 15 will be selected randomly to participate.
- The researcher will agree a time that is convenient for you to come back and talk to you about your views regarding what may increase or decrease the risk of security incidents occurring on wards. This will be audio taped and should take about 45 minutes.

What you will be asked to talk about?

If you agree to take part you will be asked to discuss with the researcher one security incident that you remember happening on the ward, and which you have good memory of. This may include aggression and assault towards others, hostage taking and protests, or a rule breaking activity such as use of drugs or pornography. The researcher will not ask you to identify who was involved, only questions about the incident itself. The researcher will ask questions surrounding:

- What happened during the incident
- What happened before the incident
- Past issues on the ward that may have led to the incident
- What happened after the incident
- Why the incident happened

The aim of this discussion is to discuss why this particular security incident occurred and not just what happened during the incident.

Consenting to take part

You do not have to take part in this study. If you agree to take part and then change your mind, you can just let us know and you will be taken out of the sample. However, bear in mind that after four weeks of agreeing to take part in this phase of research, data collected from your discussions will have been anonymised and so it will not be possible to remove you from the sample.

You don't have to agree to take part now. The researcher will return to speak to you after a week to discuss whether you would like to take part.

Anonymity

Only the research team will have access to the names of people involved in this phase of the study. When information is collected during the discussion with you, you will be given a

'research number' so that none of the information can be connected to you. After four weeks from the time of providing informed consent, the list of names of participants will be destroyed.

Security of information obtained

All copies of research information will be held by the research team, and will be kept secure in a locked filing cabinet. The information may be checked by NHS Ethics or Mersey Care NHS Trust, but this will only be to check that all participants have given written consent.

Further information

Further information on this phase of the research can be obtained at any time from the following:

Naomi Jones, Dr Carol A. Ireland or Professor Jane L. Ireland, Dr Simon Chu
Ashworth Research Centre (ARC)
Ashworth High Secure Hospital

If you have any concerns about the research that you do not wish to speak with the researcher about directly, you should contact your line manager who can help you.

Thank you for taking the time to read this information.



Staff Debrief Sheet – Phase 1

On behalf of the University of Central Lancashire and Mersey Care NHS Trust, we would like to take this opportunity to thank you for your time in helping us complete this research. As noted in the information sheet, this research aims to explore the factors that security staff at the hospital believe increase or decrease the risk of security incidents on wards. This study is part of a larger piece of research which ultimately aims to create a model that can be used to predict security incidents in high secure psychiatric care. It is anticipated that this model will be used to inform policy and procedures relating to the prevention of security incidents.

If you feel that taking part in this research has affected you in any way and you would like to talk about this, please speak with a member of the research team or your line manager, who will also be able to provide contact details for any additional support you think you might need.

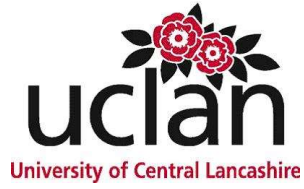
If you have any questions relating to this research, please contact Naomi Jones (Principal Researcher – Naomi.Jones@merseycare.nhs.uk), Dr Carol Ireland (Director of Studies), Professor Jane Ireland or Dr Simon Chu who are all based at Ashworth Research Centre, North Admin, Ashworth Hospital. Alternatively, ask your line manager who will be able to get in contact with a member of the research team.

If you have any complaints about this research, you can talk with a member of the research team or your line manager.

You are free to withdraw from this research, without giving any reason, up until four weeks from the time you sign the consent form. After this, interviews will have been transcribed and anonymised.

Thank you again for taking part in this research.

Appendix 4: *Patient questionnaire booklet including EssenCES, the See, Think, Act scale, and the Enabling Environments Questionnaire*



Patient Questionnaire Pack

EssenCES Questionnaire

Below are some statements relating to the culture of the ward. Please answer these questionnaires as honestly as you can using a tick in the correct box to indicate whether you agree or disagree with this statement.

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Staff know patients and their personal histories very well					
Some patients are afraid of other patients					
There is good peer support among patients					
Even the weakest patient finds support from his fellow patients					
Really threatening situations can occur here					
Most patients don't care about their fellow patients' problems					
Staff members take a lot of time to deal with patients					
When a patients has a genuine concern, he finds support from his fellow patients					
Some patients are so excitable that one deals very cautiously with them					
Often staff seem not to care if patients succeed or fail in treatment					
On this ward, patients can openly talk to staff about all their problems					
At times, members of staff are afraid of some of the patients					
There are some really aggressive patients on this ward					
The patients care for each other					
Staff take a personal interest in the progress of patients					

See, Think, Act Scale

This series of statements includes topics related to the relational security of the ward. Please read each statement carefully and using the scale provided indicate whether you agree or disagree by putting a tick in the corresponding box. Please fill this in in relation to staff on **this ward**.

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Staff engage in reflective practice					
Staff monitor how our patients are feeling day to day					
Staff look out for patients trying to conceal a deterioration in their mental state					
Staff understand the potential for some visitors to undermine the treatment plans and recovery of patients and take the appropriate action to address this					
Staff are respectful of each other					
Staff know how to respond if the patient mix needs addressing					
Staff understand why maintaining a clear boundary with patients is important					
Staff adjust patients care plans according to their risk					
Staff have a ward philosophy that we all understand					
Staff are vigilant about how visits affect the patient after their visit					
Care plans are up to date to reflect how patients are feeling today					
Staff know the histories of their patients					
Staff set a good example and are positive role models					
Staff know which boundaries are non-negotiable and which we can make individual and team judgements about					
There is a discipline and pride on our ward					
Staff are vigilant about how visits affect the patient before their visit					

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Staff talk as a team during the shift and at handover					
Staff have a ward purpose that we all understand					
Staff deal robustly with bullying					
Staff can engage with this patient group and can maintain control					
Staff understand what maintaining clear boundaries with patients means					
Staff have ward core values that we all understand					
Staff understand the risks some visitors might pose to patients					
Staff deal robustly with discrimination					
Staff promote tolerance					
Staff recognise the relapse factors for each of their patients					
Staff deal robustly with harassment					
Staff speak up if they think they can see that a colleague has been put in a difficult situation that could weaken security					

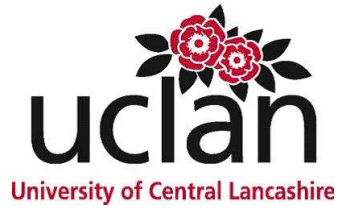
Enabling Environment Questionnaire

Finally, these statements relate to the areas of relationships, behaviour, activities and support on the ward. Please answer these questions as honestly as you can and use the tick boxes to indicate how far you agree or disagree with each statement.

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
I can get support from other patients as well as staff					
I had one person in particular to look after me when I was new.					
I have the opportunity to be consulted or involved by the management of the service					
In general, the people around me are open to evaluation and learning					
I feel supported to evaluate the risks involved with different activities and behaviour					
I am encouraged to try new things					
I feel that I am open to evaluation and learning					
I can see ways in which I have helped other people in their development (giving advice, listening to people, making a good example, building a friendship)					
I am encouraged to give support to other people around me					
Since coming here I have been able to try different things					
People with leadership roles take part in the daily activities of the place					
I feel like this is the right place for me to be					
I feel supported by those in authority					
When I first arrived I was introduced to other people here					
I am asked to talk about the					

reasons for other people's behaviour					
There are sometimes unplanned activities involving both staff and patients					
I get the support that I need when I feel vulnerable					
I have got to know other people within the service					
I feel listened to and understood by the people around me					
There are clear expectations of behaviour for everyone here					
I am involved with planning my own development					
I am consulted on big decisions affecting the service					
I take different roles to help out					
I have been consulted about the expectations for behaviour					
I feel that I am able to ask questions and challenge decisions that affect me					

Appendix 5: *Staff questionnaire booklet including EssenCES, the See, Think, Act scale and the Enabling Environments Questionnaire*



**Staff
Questionnaire
Pack**

EssenCES Questionnaire

Below are some statements relating to the culture of the ward. Please answer these questionnaires as honestly as you can using a tick in the correct box to indicate whether you agree or disagree with this statement.

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
Staff know patients and their personal histories very well					
Some patients are afraid of other patients					
There is good peer support among patients					
Even the weakest patient finds support from his fellow patients					
Really threatening situations can occur here					
Most patients don't care about their fellow patients' problems					
Staff members take a lot of time to deal with patients					
When a patients has a genuine concern, he finds support from his fellow patients					
Some patients are so excitable that one deals very cautiously with them					
Often staff seem not to care if patients succeed or fail in treatment					
On this ward, patients can openly talk to staff about all their problems					
At times, members of staff are afraid of some of the patients					
There are some really aggressive patients on this ward					
The patients care for each other					
Staff take a personal interest in the progress of patients					

See, Think, Act Scale

This series of statements includes topics related to the relational security of the ward. Please read each statement carefully and using the scale provided indicate whether you agree or disagree by putting a tick in the corresponding box. Please fill this in in relation to staff on **this ward**.

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
We engage in reflective practice					
We monitor how our patients are feeling day to day					
We look out for patients trying to conceal a deterioration in their mental state					
We understand the potential for some visitors to undermine the treatment plans and recovery of patients and take the appropriate action to address this					
We are respectful of each other					
We know how to respond if the patient mix needs addressing					
We understand why maintaining a clear boundary with patients is important					
We adjust patients care plans according to their risk					
We have a ward philosophy that we all understand					
We are vigilant about how visits affect the patient after their visit					
Care plans are up to date to reflect how our patients are feeling today					
We know the histories of our patients					
We set a good example and are positive role models					
We know which boundaries are non-negotiable and which we can make individual and team judgements about					
There is a discipline and pride on our ward					
We are vigilant about how visits affect the patient before their visit					

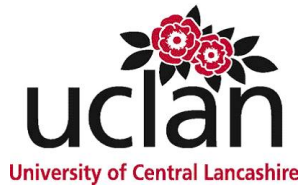
	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
We talk as a team during the shift and at handover					
We have a ward purpose that we all understand					
We deal robustly with bullying					
We can engage with this patient group and can maintain control					
We understand what maintaining clear boundaries with patients means					
We have ward core values that we all understand					
We understand the risks some visitors might pose to patients					
We deal robustly with discrimination					
We promote tolerance					
We recognise the relapse factors for each of our patients					
We deal robustly with harassment					
We speak up if we think we can see that a colleague has been put in a difficult situation that could weaken security					

Enabling Environments Questionnaire

Finally, these statements relate to the areas of relationships, behaviour, activities and support on the ward. Please answer these questions as honestly as you can and use the tick boxes to indicate how far you agree or disagree with each statement.

	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree
There are opportunities for patients to discuss the meaning of their own and others' behaviour within the service					
I feel supported by those in authority					
Patients are encouraged to support each other					
I feel that I am open to evaluation and learning					
Staff and patients take a variety of roles and responsibilities					
In general, the people around me are open to evaluation and learning					
Patients are given support to understand risky behaviour					
I am involved in planning my own professional development					
Since coming here, I have been able to try new things or take on new responsibilities					
I have the opportunity to be consulted or involved by the management of the service					
When I first arrived I was introduced to other people here					
People with leadership roles take part in the daily activities of the place					
I feel this is the right place for me to contribute my skills and develop professionally					
There are clear expectations of behaviour for patients					
I feel listened to and understood by the people around me					
I get support from my peers					
I had a mentor or buddy for my induction period					
I feel I have contributed to the development of other people					

here					
When the expectations (for staff and patients) are reviewed, this is done in consultation with the people concerned					
I am able to access emotional support if I should need it					
I feel that you get to know the people you work with, including both providers and recipients					
I am consulted on big decisions affecting the service					
I feel that management is supportive of recipients and staff being spontaneous and trying new things					
There are sometimes unplanned activities involving both staff and patients					
I am able to ask questions and challenge decisions that affect me					



Research Title: Development of a model to predict security incidents in high secure psychiatric care.

INFORMATION SHEET – STAFF

PHASE 2: Exploring staff views about the culture of their ward.

Background to research

The term ‘security incident’ covers a wide range of behaviours within secure hospitals including harm to others, harm to self, escape incidents and rule breaking. Although theory suggests that the culture of a ward and security procedures have an effect on the prevalence of security incidents little research exists that investigates this link. This phase of the research aims to explore staff views about the culture and atmosphere of their ward and to investigate whether this is related to levels of security incidents in the hospital. This study is part of a larger piece of research which ultimately aims to create a model that can be used to predict security incidents in high secure psychiatric care. It is anticipated that this model will be used to inform policy and procedures relating to the prevention of security incidents.

About the research

This research will be used as part of a PhD by Naomi Jones, who is a postgraduate student at the University of Central Lancashire. She will be working with the Security Department and Ashworth Research Centre (ARC) based at Ashworth High Secure Hospital to research ways in which security incidents can be predicted; namely based on ward culture and security procedures. The Security Department will be funding most of this research.

The research is split into three phases (phase one, phase two and phase three). **You are being asked to take part in Phase 2.** This study involves looking at ward staff’s perceptions about the ward culture and atmosphere. This information will then be looked at in association with group data from incident report forms to investigate whether differences in culture across wards are linked to differences in levels of security incidents. Before you consider taking part in this phase, it is important that you take the time to read the following information.

Who is doing the research?

Naomi Jones, a PhD student from the University of Central Lancashire working with the Security Department at Ashworth Hospital and Ashworth Research Centre (ARC).

Phase 2: What will happen in this part of the research?

Ward staff from wards at the hospital will be asked to take part in this research. This will include staff from high dependency, medium dependency and low dependency wards. It is hoped that 150 members of staff will take part in this phase of the research. Patients from these wards will also be asked to take part in this phase. The following steps will happen:

- You have been given this information sheet by the researcher to read through, and the researcher will be able to discuss any questions members of staff may have about this. This should take no more than 15 minutes.
- You will be given a week to think about whether you would like to take part in the research.
- If you decide you would like to take part in this phase, you will be asked to sign a consent form.
- Staff members who are willing to participate in this research will be given a questionnaire pack at the start of their shift, which will be collected at the end. This should only take thirty minutes in total.

Questionnaires:

You will be asked to complete a questionnaire pack containing three different questionnaires. EssenCES is a 15-item questionnaire that will investigate the culture of the ward where you work, by asking questions about support available to patients from both staff and other patients. The See, Think, Act scale contains 28 items and will look at elements of relational security on the ward where you work such as patient focus and management of risk. Finally, a 39-item questionnaire will be used to measure the extent to which the ward where you work is an enabling environment by investigating the areas of relationships, behaviour, activities and support.

Consenting to take part

You do not have to take part in this study. If you agree to take part and then change your mind, you can just let us know and you will be taken out of the sample. However, bear in mind that after the completed questionnaire has been handed in it will be impossible to remove you from the sample, as we will not be able to identify which is yours.

You don't have to agree to take part now. The researcher will return to speak to you after a week to discuss whether you would like to take part.

Anonymity

Only the research team will have access to the names of people involved in this phase of the study, and this will be destroyed after four weeks of you agreeing to take part. Your questionnaire booklet will not ask you for any information that could be used to identify you.

Security of information obtained

All copies of research information will be held by the research team, and will be kept secure in a locked filing cabinet. The information may be checked by NHS Ethics or Mersey Care NHS Trust, but this will only be to check that all participants have given written consent.

Further information

Further information on this phase of the research can be obtained at any time from the following:

Naomi Jones, Dr Carol A. Ireland or Professor Jane L. Ireland, Dr Simon Chu
Ashworth Research Centre (ARC)
Ashworth High Secure Hospital

If you have any concerns about the research that you do not wish to speak with the researcher about directly, you should contact your line manager who can help you.

Thank you for taking the time to read this information.



Research Title: Development of a model to predict security incidents in high secure psychiatric care.

INFORMATION SHEET – Patients

PHASE 2: Exploring patient views about the culture of their ward.

Background to research

The term ‘security incident’ covers a wide range of behaviours within secure hospitals including harm to others, harm to self, escape incidents and rule breaking. Although theory suggests that the culture of a ward and security procedures have an effect on the prevalence of security incidents little research exists that investigates this link. This phase of the research aims to explore patient views about the culture and atmosphere of their ward and to investigate whether this is related to levels of security incidents in the hospital. This study is part of a larger piece of research which ultimately aims to create a model that can be used to predict security incidents in high secure psychiatric care. It is anticipated that this model will be used to inform policy and procedures relating to the prevention of security incidents.

About the research

This research will be used as part of a PhD by Naomi Jones, who is a postgraduate student at the University of Central Lancashire. She will be working with the Security Department and Ashworth Research Centre (ARC) based at Ashworth High Secure Hospital to research ways in which security incidents can be predicted; namely based on ward culture and security procedures. The Security Department will be funding most of this research.

The research is split into three phases (phase one, phase two and phase three). **You are being asked to take part in Phase 2.** This study involves looking at ward staff’s perceptions about the ward culture and atmosphere. This information will then be looked at in association with group data from incident report forms to investigate whether differences in culture across wards are linked to differences in levels of security incidents.

You do not have to take part, but before you make up your mind it is important that you take the time to read the following information.

Who is doing the research?

Naomi Jones, a PhD student from the University of Central Lancashire working with the Security Department at Ashworth Hospital and Ashworth Research Centre (ARC).

Phase 2: What will happen in this part of the research?

Patients from wards at the hospital will be asked to take part in this research. This will include patients from high dependency, medium dependency and low dependency wards. It is hoped that 80 patients will take part in this phase of the research. Staff from these wards will also be asked to take part in this phase. The following steps will happen:

- You have been given this information sheet by the researcher and will have the study explained to you. This should take no more than 15 minutes.
- You will be given a week to think about whether you would like to take part in the research.
- If you decide you would like to take part in this phase, you will be asked to sign a consent form.
- The researcher will then arrange a time to come and complete some questionnaires with you. This should only take thirty minutes in total.

Questionnaires:

You will be asked to complete a questionnaire pack containing three different questionnaires. EssenCES is a 15-item questionnaire that will investigate the culture of the ward, by asking questions about support available to patients from both staff and other patients. The See, Think, Act scale contains 28 items and will look at factors such as patient focus on the ward. Finally, a 33-item questionnaire will look at the areas of relationships, behaviour, activities and support on the ward.

Consenting to take part

You do not have to take part in this study. If you agree to take part and then change your mind, you can just let us know and you will be taken out of the sample. However, bear in mind that after the completed questionnaire has been handed in it will be impossible to remove you from the sample, as we will not be able to identify which is yours.

You don't have to agree to take part now. The researcher will return to speak to you after a week to discuss whether you would like to take part.

Making sure your information is anonymous

Only the research team will have access to the names of people involved in this phase of the study, and this will be destroyed after six weeks of you agreeing to take part. Your questionnaire booklet will not ask you for any information that could be used to identify you.

When information is not anonymous

If, whilst taking part in this research, you say something which is a threat to other people or if a member of the research team believes you pose a current risk of harm to yourself, this will be passed on to staff. You are not asked to talk about this in the research, so please note that if you did it would be passed onto staff.

None of your information will be talked about with other patients.

Where the information is kept

All copies of research information will be held by the research team, and will be kept secure in a locked filing cabinet. The information may be checked by NHS Ethics or Mersey Care NHS Trust, but this will only be to check that all participants have given written consent.

Further information

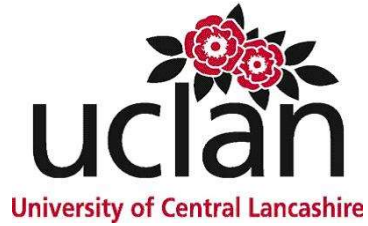
Further information on this phase of the research can be obtained at any time from the following:

Naomi Jones, Dr Carol A. Ireland or Professor Jane L. Ireland, Dr Simon Chu
Ashworth Research Centre (ARC)
Ashworth High Secure Hospital

If you have any concerns about the research that you do not wish to speak with the researcher about directly, you should contact your care co-ordinator or the patient's complaints department who can help you.

Thank you for taking the time to read this information.

Appendix 9: *Patient questionnaire booklet including the Impact Message Inventory-Circumplex (Brief Version), Staff-Client Interactive Behaviour Inventory, Perceptions of Fair Interpersonal Treatment Scale, Engagement in Meaningful Activities Survey, and the Direct and Indirect Patient Behaviour Checklist*



**Patient
Questionnaire
Pack**

Impact Message Inventory – Circumplex (Brief Version)

These questions contain words, phrases and statements which people use to describe how they are impacted when interacting with another person. Indicate how accurately each item describes your reactions to members of staff **on this ward**. Respond to each item in terms of how staff members **on this ward** make you feel, the behaviours you want to direct to them when they are around, and the descriptions of them that come to mind when you are with them.

There are no right or wrong answers since people react differently to the same person.

When I am with members of staff they typically make me feel...

	Not at all	Moderately so	Somewhat	Very much so
...bossed around				
...distant from them				
...like an intruder				
...in charge				
...appreciated by them				
...part of the group				
...forced to shoulder all the responsibility				
...complimented				
...dominant				
...welcome with them				
...as important to them as others in the group				
...taken charge of				

When I am with members of staff they typically make me feel that...

	Not at all	Moderately so	Somewhat	Very much so
...I want to tell them to give someone else a chance to make that decision				
...I want them to disagree with me sometimes				
...I could lean on them for support				
...I'm going to intrude				
...I should tell them to stand up for themselves				
...I can ask them to carry their share of the load				
...I want to point out their good qualities to them				

When I am with members of staff it typically appears to me that...

	Not at all	Moderately so	Somewhat	Very much so
...they want to be the centre of attention				
...they don't want to get involved with me				
...they want to put me on a pedestal				
...they would rather be alone				
...they think they're always in control of things				
...they think I have most of the answers				
...they weigh situations in terms of what they can get out of them				
...they'd rather be left alone				
...they see me as superior				

Staff – Client Interactive Behaviour Inventory (SCIBI)

	Completely inapplicable	Slightly inapplicable	Not sure	Slightly applicable	Completely applicable
I handle my rules in a strict manner					
I value patients					
I like to communicate with patients					
I like doing something with patients					
I protest with patients when I do not agree with them					
I go my own way despite critique from patients					
I can handle everything better when patients support me					
I impose strict demands upon patients					
I impose my will irrespective of what patients may think					
I state my opinion directly to patients					
I need encouragement from patients					
I can work well with patients					
I like to be backed up by patients					

I act correctively towards patients					

	Completely inapplicable	Slightly inapplicable	Not sure	Slightly applicable	Completely applicable
I act prohibitively towards patients					
I let patients see my anger					
I take the lead when I am with patients					
I grumble at patients					

Perceptions of Fair Interpersonal Treatment Scale

What is your ward like most of the time? Circle **Yes** if the item described your ward, **No** if it does not describe your ward, and **?** if you cannot decide.

1. Patients are praised for hard work	Yes	?	No
2. Staff members yell at patients	Yes	?	No
3. Staff members play favourites	Yes	?	No
4. Patients are trusted	Yes	?	No
5. Patient complaints are dealt with effectively	Yes	?	No
6. Patients are treated like children	Yes	?	No
7. Patients are treated with respect	Yes	?	No
8. Patients' questions and problems are responded to quickly	Yes	?	No
9. Patients are lied to	Yes	?	No
10. Patient suggestions are ignored	Yes	?	No
11. Staff members swear at patients	Yes	?	No
12. Patients' hard work is appreciated	Yes	?	No
13. Staff members threaten patients	Yes	?	No
14. Patients are treated fairly	Yes	?	No
15. Patients help each other out	Yes	?	No
16. Patients argue with each other	Yes	?	No
17. Patients put each other down	Yes	?	No
18. Patients treat each other with respect	Yes	?	No

Engagement in Meaningful Activities Survey

Below is a list of statements about your day to day activities – on ward or off ward. Please read each one carefully and choose the answer that best describes to what extent each statement is true for you. Take your time and try to be as accurate as possible.

	Rarely	Sometimes	Usually	Always
The activities I do help me take care of myself				
The activities I do reflect the kind of person I am				
The activities I do express my creativity				
The activities I do help me achieve something which gives me a sense of accomplishment				
The activities I do contribute to my feeling competent				
The activities I do are valued by other people				
The activities I do help other people				
The activities I do give me pleasure				
The activities I do give me a feeling of control				
The activities I do help me express my personal values				
The activities I do give me a sense of satisfaction				
The activities I do have just the right amount of challenge				

How many times a week do you take part in activities?

.....

Which activities do you take part in?

.....

Direct and Indirect Patient Behaviour Checklist (DIPC-HR)

This questionnaire asks you about recent things that have happened to you and recent things you have done. It focuses on behaviours **between patients**.

Put a tick ✓ in the box next to each behaviour that **has happened to you** in the past **month**.

1. I was hit or kicked by another patient
2. I have been deliberately made to look stupid in front of other patients
3. I was called names about my race or colour
4. I was called names about my offence or charge
5. I was called names about my mental illness
6. I was called names about something else
7. I have been gossiped about
8. I have been deliberately pushed
9. I have had my property deliberately damaged
10. Someone has deliberately started a fight with me
11. I have been deliberately spat on by another patient
12. I have seen/heard other patients whispering about me
13. A patient has used my index offence to extort goods off me
14. I have been deliberately ignored
15. I had any property stolen by another patient
16. Another patient has played their music really loud to deliberately upset/annoy me
17. Another patient has been sarcastic towards me
18. Another patient has made fun of my family
19. Another patient has deliberately told me lies about a hospital rule to make me look stupid

20. A patient has forced me to keep something in my room that has been stolen from another patient
21. I have been forced to buy another patient canteen so that they aren't aggressive towards me
22. Another patient told me a lie to try and get me into trouble
23. I have been forced to pass a message on for another patient
24. Another patient has deliberately burnt or scalded me with something
25. Another patient has begged me for goods until I felt I had no choice but to give them to them
26. I have been forced to do other jobs/chores that belong to other patients
27. Another patient has deliberately 'bumped' into me
28. I was deliberately frightened by another patient
29. Another patient has forced me to engage in sexual behaviour with them
30. I have been deliberately humiliated
31. I have been shouted at
32. Another patients has forced me to make them drinks
33. Another patient has deliberately stared at me to make me feel uncomfortable
34. I have been intimidated
35. I have had rumours spread about me
36. I have been deliberately excluded by another patient from an activity
37. A patient verbally abused my family
38. Someone has deliberately lied about me
39. I have been forced to bully another patient for someone
40. Another patient made me put in a complaint against staff
41. Another patient made me put a complaint in against a patient

42. I have been made fun of
43. I have been forced to lie for someone
44. I have been forced by another patient to ask staff for something
45. Someone has tried to turn other patients against me
46. Someone has deliberately insulted me
47. I have had a practical joke played on me
48. I have had a practical joke played on me that I didn't find funny
49. I have been verbally threatened by a patient
50. I have been sexually harassed by another patient
51. Another patient has deliberately turned the TV channel over while I was watching it
52. Another patient has forced me to swap some of my property with them
53. I have borrowed from others and must pay them back with 'interest'
54. I have traded goods with another patient who has deliberately given me less goods back in return
55. Another patient has 'borrowed' goods from me with no intention of giving them back to me
56. I have been told by another patient that I am not allowed to engage in treatment
57. Someone has placed excrement on my property
58. Someone has 'jammed' my locker
59. Another patient has blamed me for something that I did not do
60. I have been forced to give stamps to another patient
61. I have been forced to give my medication to another patient
62. I have been forced to give my coffee to another patient
63. I have been forced by another patient to give them my toiletries
64. I have been forced to give my food away to other patients

- 65. I have been told by another patient that I have to avoid staff
- 66. Another patient has deliberately tried to make me paranoid
- 67. I have been bullied by another patient

Put a tick \checkmark in the box next to each behaviour that **you have done** in the past **month**.

- 1. I have been sarcastic toward another patient
- 2. I have deliberately 'bumped' into another patient
- 3. I have deliberately damaged someone else's property
- 4. I have made another patient buy me canteen so that I don't become aggressive towards them
- 5. I have called someone names about their colour or race
- 6. I have called someone names about their offence or charge
- 7. I have called someone names about their mental illness
- 8. I have called someone any other names
- 9. I have deliberately pushed another patient
- 10. I told another patient a lie to try and get them into trouble
- 11. I have forced someone to lie for me
- 12. I have verbally abused another patient's family
- 13. I have encouraged other patients not to follow hospital rules
- 14. I have deliberately damaged hospital property
- 15. I have whispered with others about a patient, knowing that this patient could see/hear me
- 16. I have deliberately played my music really loud to upset/annoy a patient
- 17. I have begged another patient for goods until they have given them to me
- 18. I have forced another patient to do other jobs/chores that were mine
- 19. I have hit or kicked another patient
- 20. I have deliberately burnt or scalded another patient with something

-
21. I forced another patient to pass a message on for me
22. I have intimidated someone
23. I have forced another patient to bully someone for me
24. I have shouted at someone
25. I have spread rumours about someone
26. I have deliberately spat on another patient
27. I have deliberately ignored someone
28. I have forced another patient to keep something in their room that I have stolen from another patient
29. I have deliberately humiliated someone
30. I have deliberately turned the TV channel over while another patient was watching it
31. I have stolen property from another patient
32. I have told my family that I am being bullied
33. I have deliberately lied about someone
34. I have used a patient's index offence to extort goods off them
35. I have made fun of another patient's family
36. I have deliberately told another patient lies about a hospital rule to make them look stupid
37. I have picked on another patient with my friends
38. I have hit or kicked someone after they have called me names
39. I have forced another patient to engage in sexual behaviour with me
40. I have forced another patient to swap some of their property with me
41. I have tried to frighten another patient
42. I have gossiped about another patient
-

43. I have told a member of staff that I am being bullied
44. I have deliberately made someone look stupid in front of other patients
45. I have verbally threatened another patient
46. I have made fun of another patient
47. I have encouraged others to turn against another patient
48. I have encouraged others to turn against another patient
49. I have deliberately insulted someone
50. I have played a practical joke on someone
51. I have played a practical joke on someone who did not find it funny
52. I have sexually harassed another patient
53. I have told another patient that I am being bullied
54. I have given items to others and asked them to pay me back with 'interest'
55. I have forced another patient to give me their stamps
56. I have forced another patient to give me their coffee
57. I have forced another patient to give me their medication
58. I have forced another patient to give me their toiletries
59. I have forced another patient to give me their food
60. I have traded goods with another patient and deliberately given them less goods back in return
61. I have forced another patient to ask staff for something
62. I have forced another patient to make me drinks
63. I have deliberately stared at another patient to make them feel uncomfortable
64. I have 'borrowed' goods from another patient with no intention of giving them back
65. I have told another patient that they are not allowed to engage in treatment
66. There is a patient that I only speak to when I want something from them

67. I have placed excrement on someone else's property
68. I have 'jammed' someone's locker
69. I have made another patient put a complaint in against staff
70. I have made another patient put a complaint in against a patient
71. I have blamed another patient for something that they did not do
72. I have told another patient that they have to avoid staff
73. I have deliberately tried to make another patient paranoid
74. I have bullied another patient

The month that I have just described represents a typical month for me:
(please circle)

YES

NO

Appendix 10: *Study four physical environment data collection sheet*

Physical environment data capture sheet

Ward:

Dependency level	
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Demographics

No. of patients	
No. of staff	
Staff-Patient ratio	
No. of patients involved in off ward activities	

Light availability

1 st photometer reading (lx)	
2 nd photometer reading (lx)	
3 rd photometer reading (lx)	

Noise levels

1 st decibel reading	
2 nd decibel reading	
3 rd decibel reading	



Research Title: Development of a model to predict security incidents in high secure psychiatric care.

INFORMATION SHEET – STAFF

PHASE 3: Exploring staff views about aspects of ward culture and environment.

Background to research

The term ‘security incident’ covers a wide range of behaviours within secure hospitals including harm to others, harm to self, escape incidents and rule breaking. Previous research in this area has suggested that aspects of ward culture such as patient and staff relationships and the perception of fairness on wards has an effect on these incidents. This phase of the research aims to explore staff views about these parts of ward culture and to investigate whether this is related to levels of security incidents in the hospital. This study is part of a larger piece of research which ultimately aims to create a model that can be used to predict security incidents in high secure psychiatric care. It is anticipated that this model will be used to inform policy and procedures relating to the prevention of security incidents.

About the research

This research will be used as part of a PhD by Naomi Jones, who is a postgraduate student at the University of Central Lancashire. She will be working with the Security Department and Ashworth Research Centre (ARC) based at Ashworth High Secure Hospital to research ways in which security incidents can be predicted; namely based on ward culture and physical environment. The Security Department will be funding most of this research.

The research is split into three phases (phase one, phase two and phase three). **You are being asked to take part in Phase 3.** This study involves looking at ward staff’s perceptions about features of the ward culture such as relationships and the perception of fairness. This information will then be looked at in association with group data from incident report forms and data about the physical environment to investigate whether differences across wards are linked to differences in levels of security incidents. Before

you consider taking part in this phase, it is important that you take the time to read the following information.

Who is doing the research?

Naomi Jones, a PhD student from the University of Central Lancashire working with the Security Department at Ashworth Hospital and Ashworth Research Centre (ARC).

Phase 2: What will happen in this part of the research?

Ward staff from wards at the hospital will be asked to take part in this research. This will include staff from high dependency, medium dependency and low dependency wards. It is hoped that 200 members of staff will take part in this phase of the research. Patients from these wards will also be asked to take part in this phase. The following steps will happen:

- You have been given this information sheet by the researcher to read through, and the researcher will be able to discuss any questions members of staff may have about this. This should take no more than 15 minutes.
- You will be given no more than a week to think about whether you would like to take part in the research.
- If you decide you would like to take part in this phase, you will be asked to sign a consent form.
- Staff members who are willing to participate in this research will be given a questionnaire pack to complete. This should only take thirty minutes in total.

Questionnaires:

You will be asked to complete a questionnaire pack containing three different questionnaires. Firstly, the Impact Message Inventory – Circumplex needs to be completed. This is a 28 item questionnaire which will ask questions about how you believe patient's typically feel when interacting with you. Similarly, the Staff-Client Interactive Behaviour Inventory will ask questions about how you interact with patients on the ward. Finally, the Perceptions of Fair Interpersonal Treatment Scale will ask 18 questions about how staff members typically treat patients on the ward.

Consenting to take part

You do not have to take part in this study. If you agree to take part and then change your mind, you can just let us know and you will be taken out of the sample. However, bear in mind that after the completed questionnaire has been handed in it will be impossible to remove you from the sample, as we will not be able to identify which is yours.

You don't have to agree to take part now. The researcher will return to speak to you after you have had time to look through this information to discuss whether you would like to take part.

Anonymity

Only the research team will have access to the names of people involved in this phase of the study. Your questionnaire booklet will not ask you for any information that could be used to identify you and this will be kept separate from your consent forms.

Security of information obtained

All copies of research information will be held by the research team, and will be kept secure in a locked filing cabinet. The information may be checked by NHS Ethics or Mersey Care NHS Trust, but this will only be to check that all participants have given written consent.

Further information

Further information on this phase of the research can be obtained at any time from the following:

Naomi Jones (Naomi.Jones@merseycare.nhs.uk), Dr Carol A. Ireland or Professor Jane L. Ireland, Dr Simon Chu
Ashworth Research Centre (ARC)
Ashworth High Secure Hospital

If you have any concerns about the research that you do not wish to speak with the researcher about directly, you should contact your line manager who can help you.

If you wish to contact someone independent of the research regarding this study, please contact the University Officer for Ethics: OfficerForEthics@uclan.ac.uk. Please remember this is not an NHS email and so do not forward anything that is confidential.

Thank you for taking the time to read this information.



Research Title: Development of a model to predict security incidents in high secure psychiatric care.

INFORMATION SHEET – Patients

PHASE 3: Exploring patient views about aspects of the culture of their ward.

Background to research

The term ‘security incident’ covers a wide range of behaviours within secure hospitals including harm to others, harm to self, escape incidents and rule breaking. Previous research in this area has suggested that aspects of ward culture such as patient and staff relationships, the perception of fairness on wards and patient engagement in activity has an effect on these incidents. This phase of the research aims to explore patient views about these parts of ward culture and to investigate whether this is related to levels of security incidents in the hospital. This study is part of a larger piece of research which ultimately aims to create a model that can be used to predict security incidents in high secure psychiatric care. It is anticipated that this model will be used to inform policy and procedures relating to the prevention of security incidents.

About the research

This research will be used as part of a PhD by Naomi Jones, who is a postgraduate student at the University of Central Lancashire. She will be working with the Security Department and Ashworth Research Centre (ARC) based at Ashworth High Secure Hospital to research ways in which security incidents can be predicted; namely based on ward culture and security procedures. The Security Department will be funding most of this research.

The research is split into three phases (phase one, phase two and phase three). **You are being asked to take part in Phase 3.** This study involves looking at patient perceptions of fairness, and patient views about their relationships with staff and their engagement in activities. This information will then be looked at in association with group data from

incident report forms and data about the physical environment to investigate whether differences across wards are linked to differences in levels of security incidents.

You do not have to take part, but before you make up your mind it is important that you take the time to read the following information.

Who is doing the research?

Naomi Jones, a PhD student from the University of Central Lancashire working with the Security Department at Ashworth Hospital and Ashworth Research Centre (ARC).

Phase 2: What will happen in this part of the research?

Patients from wards at the hospital will be asked to take part in this research. This will include patients from high dependency, medium dependency and low dependency wards. It is hoped that 100 patients will take part in this phase of the research. Staff from these wards will also be asked to take part in this phase. The following steps will happen:

- You have been given this information sheet by the researcher and will have the study explained to you. This should take no more than 15 minutes.
- You will be given no more than a week to think about whether you would like to take part in the research.
- If you decide you would like to take part in this phase, you will be asked to sign a consent form.
- The researcher will then arrange a time to come and complete some questionnaires with you. This should only take thirty minutes in total.

Questionnaires:

You will be asked to complete a questionnaire pack containing three different questionnaires. Firstly, the Impact Message Inventory – Circumplex needs to be completed. This is a 28 item questionnaire which will ask questions about how you typically feel when interacting with staff members. Similarly, the Staff-Client Interactive Behaviour Inventory will ask questions about how you interact with staff on the ward. The Perceptions of Fair Interpersonal Treatment Scale will ask 18 questions about how staff members typically treat patients on the ward. The next questionnaire (Engagement in Meaningful Activities Survey) will ask questions about activities you take part in. Finally, the Direct and Indirect Patient Behaviour Checklist will ask questions about behaviours that have happened in the past month between you and other patients. This measure will ask you some questions about aggression and security related behaviours; both what you have engaged in and what you have experienced. You may consider the questions sensitive but please remember that they are anonymous so please do not include your name on them or any identifying detail.

Consenting to take part

You do not have to take part in this study. If you agree to take part and then change your mind, you can just let us know and you will be taken out of the sample. However, bear in mind that after the completed questionnaire has been handed in it will be impossible to remove you from the sample, as we will not be able to identify which is yours.

You don't have to agree to take part now. The researcher will return to speak to you after you have had time to think about this information to discuss whether you would like to take part.

Making sure your information is anonymous

Only the research team will have access to the names of people involved in this phase of the study. Your questionnaire booklet will not ask you for any information that could be used to identify you and this will be kept separate from your consent form.

When information is not anonymous

If, whilst taking part in this research, you say something which is a threat to other people or if a member of the research team believes you pose a current risk of harm to yourself, this will be passed on to staff. You are not asked to talk about this in the research, so please note that if you did it would be passed onto staff.

None of your information will be talked about with other patients.

Where the information is kept

All copies of research information will be held by the research team, and will be kept secure in a locked filing cabinet. The information may be checked by NHS Ethics or Mersey Care NHS Trust, but this will only be to check that all participants have given written consent.

Further information

Further information on this phase of the research can be obtained at any time from the following:

Naomi Jones, Dr Carol A. Ireland or Professor Jane L. Ireland, Dr Simon Chu
Ashworth Research Centre (ARC)
Ashworth High Secure Hospital

If you have any concerns about the research that you do not wish to speak with the researcher about directly, you should contact your care co-ordinator or the patient's complaints department who can help you.

Thank you for taking the time to read this information.

References:

(* indicates inclusion in the systematic literature review in chapter 3)

Agnew, R. (1992) Foundation for a general strain theory of crime and delinquency. *Criminology*, 30, 47-87

Agnew, R. (2001) Building on the foundation of general strain theory: Specifying the types of strain most likely to lead to crime and delinquency. *Journal of Research in Crime and Delinquency*, 38, 319-361

Alderman, N., & Groucott, L. (2012) Measurement of social climate within neurobehavioural rehabilitation services using the EssenCES. *Neuropsychological Rehabilitation*, 22 (5), 768-793

*Allen, D. E., de Nesnera, A., Cummings, K., & Darling, F. E. (2011) Transforming the culture of caring: Getting hurt is not part of the job. *Journal of Psychosocial Nursing*, 49 (1), 45-49

*Allison, M. D., & Ireland, J. L. (2010) Staff and prisoner perceptions of physical and social environmental factors thought to be supportive of bullying: The role of bullying and fear of bullying. *International Journal of Law and Psychiatry*, 33, 43-51

Atlas, R., & Young, S. (2001). Barry University security and CPTED case study. Presented at 6th Annual International CPTED Conference, Sept 24-27, Brisbane, Australia

Beijersbergen, K.A., Dirkzwager, A.J.E., Eichelsheim, V.I., Van der Lann, P.H., & Nieuwebeerta, P. (2015) Procedural justice, anger, and prisoners' misconduct: A longitudinal study. *Criminal Justice and Behaviour*, 42 (2), 196-218

Bellamy, L. C. (1996) Situational crime prevention and convenience store robbery. *Security Journal*, 7, 41-52

Belooof, D.E. (2007) Dignity, equality, and public interest for defendants and crime victims in plea bargains: A response to Professor Michael O'Hear. *Marquette Law Review*, 91 (1), 349-355

*Bidna, H. (1975) Effects of increased security on prison violence. *Journal of Criminal Justice*, 3, 36-46

*Bierie, D. M. (2012) Is tougher better? The impact of physical prison conditions on inmate violence. *International Journal of Offender Therapy and Comparative Criminology*, 338-355

Blevins, K.R., Listwan, S.J., Cullen, F.T., & Johson, C.L. (2010) A general strain theory of prison violence and misconduct: An integrated model of inmate behaviour. *Journal of Contemporary Criminal Justice*, 26 (2), 148-166

*Blom-Cooper Sir L., Brown M., Dolan R. and Murphy E. (1992) Report of the Committee of Inquiry into Complaints about Ashworth Hospital, Cmnd 2028, vols 1 and 2. London: HMSO

Bond, N., and Gemmell, L. (2014) Experiences of prison officers on a Lifer Psychologically Informed Planned Environment, *Therapeutic Communities: The International Journal of Therapeutic Communities*, 35 (3), 84 – 94

*Bonnell, W., Alatishe, Y. A., Hofner, A. (2014) The effects of a changing culture on a child and adolescent psychiatric inpatient unit. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 23 (1), 65-69.

Bottoms, A. (1999) Interpersonal violence and social order in prisons. In M. Tonry & J. Petersilia (Eds.) *Crime and Justice: A review of Research* (Vol 26, pp. 205 – 281). Chicago: University of Chicago Press.

Bottoms, A.E., & Tankebe, L. (2012) Beyond procedural justice: A dialogic approach to legitimacy in criminal justice. *The Journal of Criminal Law and Criminology*, 102 (1), 119-170

Bousfield, D. (2007). Beginnings, middles and ends: A biopsy of the dynamics of impolite exchanges. *Journal of Pragmatics*, 39(12), 2185-2216.

*Bowers, L., Brennan, G., Flood, C., Lipang, M., & Oladapo, P. (2006) Preliminary outcomes of a trial to reduce conflict and containment on acute psychiatric wards: City Nurses. *Journal of Psychiatric and Mental Health Nursing*, 13, 165-172

Braga, A. A., Welsh, B. C., & Schnell, C. (2015) Can policing disorder reduce crime? A systematic review and meta-analysis. *Journal of Research in Crime and Delinquency*, 52, 577-608

Brodsky, A.E., O'Campo, P.J., & Aronson, R.E. (1999) PSOC in community context: Multi-level correlates of a measure of psychological sense of community in low-income, urban neighborhoods. *Journal of Community Psychology*, 27 (6), 659-679

Brown, A. (1998) *Organisational Culture*. (2nd Ed.) Pitman Publishing

Brown, B. B. (2001) New homes/old homes: physical environment and resident psychology predicting crime. Presented at 6th Annual International CPTED Conference, Sept 24-27, Brisbane, Australia

Brown, M. (2014). Psychologically Informed Planned Environment (PIPE): a group analytic perspective, *Psychoanalytic Psychotherapy*, 28 (3), 345-354

Brunton-Smith, I., & McCarthy, D.J. (2016) Prison legitimacy and procedural fairness: A multi-level examination of prisoners in England and Wales. *Justice Quarterly*, 33 (6), 1029-1054

Bryant, A., & Charmaz, K. (2007) *The SAGE Handbook of Grounded Theory*. Thousand Oaks, CA: Sage

Butler, M., & Maruna, S. (2009) The impact of disrespect on prisoners' aggression: Outcomes of experimentally inducing violence-supportive cognitions. *Psychology, Crime & Law*, 15, 235-250

*Camp, S. D., & Gaes, G. G. (2005) Criminogenic effects of the prison environment on inmate behaviour: Some experimental evidence. *Crime and Delinquency*, 51 (3), 425-442

Camp, S.D., Gaes, G.G., Langan, N.P., & Saylor, W.G. (2003) The influence of prisons on inmate misconduct: A multilevel investigation. *Justice Quarterly*, 20, 501-533

Campbell, D. J. (1982). Determinants of choice of goal difficulty level: A review of situational and personality influences. *Journal of Occupational Psychology*, 55, 79-95

Cao, L., Zhao, J., & Van Dine, S. (1997) Prison disciplinary tickets: A test of the deprivation and importation models. *Journal of Criminal Justice*, 25, 103-111

Carlson, B.E., & Cervera, N. (1992). *Inmates and their wives: Incarcerations and family life*. Westport, CT: Greenwood

Carver, C. S., & Scheier, M.F. (1982). Control theory: A useful conceptual framework for personality – social, clinical and health psychology. *Psychology Bulletin*, 92, 111-135.

Casteel, C., & Peek-Asa, C. (2000) Effectiveness of crime prevention through environmental design (CPTED) in reducing robberies. *American Journal of Preventive Medicine*, 18 (4), 99-115

Castledine, S. (2015) Psychologically informed and planned environments: A community perspective. *Probation Journal*, 62 (3), 273-280

*Chaplin, R., McGeorge, M., & Lelliott, P. (2006) The National Audit of Violence: In-patient care for adults of working age. *Psychiatric Bulletin*, 30, 444-446

Clark, R.V. (1997) *Situational Crime Prevention: Successful case studies*. Guilderland, NY: Harrow & Heston, 2nd Ed.

Clark, T.A. (2001) The relationship between inmate visitation and behaviour: implications for African American families. *Journal of African American Men*, 6, 43-58

Cochran, J. C., Mears, D. P., Bales, W. D., & Stewart, E. A. (2014) Does inmate behaviour affect post – release offending? Investigating the misconduct – recidivism relationship among youth and adults. *Justice Quarterly*, 31 (6), 1044-1073

*Cooke, D. J. (1989) Containing violent prisoners: An analysis of the Barlinnie Special Unit. *British Journal of Criminology*, 29 (2), 129-143

Cookson, A., Daffern, M., & Foley, F. (2012) Relationship between aggression, interpersonal style, and therapeutic alliance during short-term psychiatric hospitalization. *International Journal of Mental Health Nursing*, 21, 20-29

Corbin, J., & Strauss, A. (2015) *Basics of qualitative research: Techniques and procedures for developing grounded theory* (4th ed.). Thousand Oaks, CA: Sage

Creton, H. A., Wubbles, T., & Hooymayers, H. P. (1989) Escalated disorderly situations in the classroom and the improvement of these situations. *Teaching and Teacher Education*, 3, 205-215

Crowe, T. D. (2004) *Crime prevention through environmental design*, 2nd Edition. London: Butterworths.

Cunningham, M.D., & Sorensen, J.R. (2007) Predictive factors for violent misconduct in close custody. *The Prison Journal*, 87, 241-253

Dack, C., Ross, J., Papadopoulos, C., Stewart, D., Bowers, L. (2013) A review and meta-analysis of the patient factors associate with psychiatric in-patient aggression. *Acta Psychiatrica Scandinavica*, 127, 255-268

Daffern, M., Day, A., & Cookson, A. (2012) Implications for the prevention of aggressive behaviour within psychiatric hospitals drawn from interpersonal communication theory. *International Journal of Offender Therapy and Comparative Criminology*, 56 (3), 401-419

Daffern, M., Duggan, C., Huband, N., & Thomas, S. D. M. (2008) The impact of interpersonal style on aggression and treatment non-completion in patients with personality disorder admitted to a medium secure psychiatric unit. *Psychology, Crime and Law*, 14, 481-492

Daffern, M., Howells, K., Tonkin, M., Krishnan, G., Milton, J., & Ijomah, G. (2010) The impact of interpersonal style and perceived coercion on self-harm and aggression in personality disorder patients of a high secure psychiatric hospital. *Journal of Forensic Psychiatry and Psychology*, 21, 426-445

*Daffern, M., Mayer, M. M., & Martin, T (2004) Environmental contributors to aggression in two forensic psychiatric hospitals. *International Journal of Forensic Mental Health*, 3 (1), 105-114

Davies, S. M. (1984) *Managing Corporate Culture*. Ballinger, Cambridge, MA

Day, K., & Calkins, M. P. (2002) *Design and Dementia*. In Bechtel, R. B., & Churchman, A. (Eds.) *Handbook of Environmental Psychology*. New York: NY: Wiley

Deci, E.L. & Ryan, R.M. (2000). The “what” and the “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 227–268

DeLisi, M. (2003) Special report: criminal careers behaving bars. *Behavioural Sciences & the Law*, 21, 653-669

DeLisi, M., Trulson, C.R., Marquart, J.W., Drury, A.J., & Kosloski, A.E. (2011) Inside the prison black box: Toward a life course importation model of inmate behaviour. *International Journal of Offender Therapy and Comparative Criminology*, 55, 1186-1207

Department of Health (2010). *Your Guide to Relational Security: See, Think, Act*. London: Department of Health Secure Services Policy Team.

*Dickens, G. L., Suesse, M., Snyman, P., & Picchioni, M. (2014) Associations between ward climate and patient characteristics in a secure forensic mental health service. *The Journal of Forensic Psychiatry and Psychology*, 25 (2), 195-211

Dijkstra, K., Pieterse, M., & Pruyn, A. (2006) Physical environmental stimuli that turn healthcare facilities into healing environments through psychologically mediated effects: systematic review. *Journal of Advanced Nursing*, 56 (2), 166-181

Dolan, M., & Blackburn, R. (2006) Interpersonal factors as predictors of disciplinary infractions in incarcerated personality disordered offenders. *Personality and Individual Differences*, 40, 897-907

Donovan, M. A., Drasgow, F., & Munson, L. J. (1998) The Perceptions of Fair Interpersonal Treatment Scale: development and validation of a measure of interpersonal treatment in the workplace. *Journal of Applied Psychology*, 83 (5), 683-692

Doyle, M., & Dolan, M. (2006) Evaluating the validity of anger regulation problems, interpersonal style, and disturbed mental state for predicting inpatient violence. *Behavioural Sciences and the Law*, 24, 783-798

*Duxbury, J. (2002) An evaluation of staff and patient views of and strategies employed to manage inpatients aggression and violence on one mental health unit: a pluralistic design. *Journal of Psychiatric and Mental Health Nursing*, 9, 325-337

*Duxbury, J., & Whittington, R. (2005) Causes and management of patient aggression and violence: staff and patient perspectives. *Journal of Advanced Nursing*, 50 (5), 469-478

Eakman, A. M (2011) Convergent validity of the Engagement in Meaningful Activities Survey in a college sample. *OTJR: Occupation, Participation and Health*, 30, 23-32

Eakman, A.M (2012) Measurement characteristics of the Engagement in Meaningful Activities Survey in an age-diverse sample. *American Journal of Occupational Therapy*, 66, 20-29

Eakman, A. M. (2014) A subjectively based definition of life balance using personal meaning in occupation. *Journal of Occupational Science*. 1 – 20

Eakman, A. M. (2015) *Meaning, sense-making and spirituality*. In C. H. Christiansen, C. M., Baum & J. Bass (Eds.) *Occupational therapy: Performance, participation, and well-being*. Thorofare, N. J.: Slack

Eakman, A. M., Carlson, M.E., & Clark, F. A. (2010) Factor structure, reliability and convergent validity of the Engagement in Meaningful Activities Survey for older adults. *OTJR: Occupation, Participation and Health*, 30, 111-121

Edward, K., Ousey, K., Warelow, P., & Lui, S. (2014) Nursing and aggression in the workplace: a systematic review. *British Journal of Nursing*, 23 (12), 653-659

*Eggert, J. E., Kelly, S. P., Margiotta, D. T., Hegvik, D. K., Vaher, K. A., Kaya, R. T. (2014) Person-environment interaction in a new secure forensic state psychiatric hospital. *Behavioural Sciences and the Law*, 32, 527-538

Ellaway, A., Macintyre, S., & Kearns, A. (2001). Perceptions of place and health in socially contrasting neighborhoods. *Urban Studies*, 38(12), 2219–2316

Evans, G.W. (2003) The built environment and mental health. *Journal of Urban Health*, 80 (4), 536 – 555

Evans, G. W., Wells, N. M., & Moch, A. (2003) Housing and mental health: A review of the evidence and a methodological and conceptual critique. *Journal of Social Issues*, 59, 475 – 500

*Fallon, P., Bluglass, R., Edwards, B., & Daniels, G (1999) Report of the Committee of Inquiry into the Personality Disorder Unit, Ashworth Special Hospital.

Field, A. (2014) *Discovering Statistics Using IBM SPSS Statistics*, 4th Ed. Sage: London.

Fischer, R., Harb, C., Al-Sarraf, S., & Nashabe, O. (2008) Support for resistance among Iraqi students: An exploratory study. *Basic and Applied Social Psychology*, 30, 167-75

*Finnema, E.J., Dassen, T., & Halfens, R. (1994) Aggression in psychiatry: a qualitative study focusing on the characterisation and perception of patient aggression by nurses working on psychiatric wards. *Journal of Advanced Nursing*, 19, 1088-1095

Fortune, C., Ward, T., and Polaschek, D.L.L. (2014). The Good Lives Model and therapeutic environments in forensic settings. *Therapeutic Communities: The International Journal of Therapeutic Communities*, 3, 95-104

Franke, D., Bierie, D., & MacKenzie, D.L. (2010) Legitimacy in corrections: a randomised experiment comparing boot camp with prison. *Criminology and Public Policy*, 9 (1), 89-117

*Franklin, T. W., Franklin, C. A., & Pratt, T. C. (2006) Examining the empirical relationship between prison crowding and inmate misconduct: A meta-analysis of conflicting research results. *Journal of Criminal Justice*, 34, 401-412

*Gadon, L., Johnstone, L., & Cooke (2006) Situational variables and institutional violence: A systematic review of the literature. *Clinical Psychology Review*, 26, 515-534

Gaes, G.G., & McGuire, W.J. (1985) Prison violence: The contribution of crowding versus other determinants of prison assault rates. *Journal of Research in Crime and Delinquency*, 22, 41-65

Gau, J.M., & Brunson, R.K. (2009) Procedural justice and order maintenance policing: A study of inner-city young men's perceptions of police legitimacy. *Justice Quarterly*, 1-25

Gendreau, P., Goggin, C.E., & Law, M.A. (1997). Predicting prison misconducts. *Criminal Justice and Behaviour*, 24, 343-369

Godelieve de Vries, M., Brazil, I.A., Tonkin, M., & Bulten, B. H. (2016) Ward climate within a high secure forensic psychiatric hospital: Perception of patients and nursing staff and the role of patient characteristics. *Archives of Psychiatric Nursing*, 30, 342-349

Goldberg, B., Brintnell, E. S., & Goldberg, J. (2002) The relationship between engagement in meaningful activities and quality of life in persons disabled by mental illness. *Occupational Therapy in Mental Health*, 18 (2), 17-44

*Goncalves, L. C., Goncalves, R. A., Martins, C., & Dikzwager, A. J. E. (2014) Predicting infractions and health care utilisation in prison. *Criminal Justice and Behaviour*, 41 (8), 921-942

Goodstein, L., & Wright, K. (1989). *Inmate adjustment to prison*. In L. Goodstein & D.L. MacKenzie (Eds.), *The American prison: Issues in research and policy* (pp.229-252). New York: Plenum

Gover, A.R., Perez, D., & Jennings, W.G. (2008) Gender differences in factors contributing to institutional misconduct. *Prison Journal*, 88, 378-403

Greller, M. M., & Herold, D. M. (1975). Sources of feedback: A preliminary investigation. *Organizational Behavior and Human Performance*, 13(2), 244-256

*Griffin, M. L., & Hepburn, J. R. (2012) Inmate misconduct and the institutional capacity for control. *Criminal Justice and Behaviour*, 40 (3), 270 -288

Hagger, M. S., & Chatzisarantis, N. L. D. (2009) Assumptions in research in sport and exercise psychology. *Psychology of Sport and Exercise*, 10, 511-519

Hagger, M. S., & Chatzisarantis, N. L. D., Hein, V., Pihu, M., Soos, I., & Karsai, I. (2007) The perceived autonomy support scale for exercise settings (PASSSES): development, validity and cross-cultural invariance in young people. *Psychology of Sport and Exercise*, 8, 632-653

Hagger, M. S., & Hardcastle, S. J. (2014) Interpersonal style should be included in taxonomies of behaviour change techniques. *Frontiers in Psychology: Psychology for Clinical Settings*, 5 (254), 1 – 2

Haigh, R., Harrison, T., Johnson, R., Paget, S., & Williams, S. (2012). Psychologically informed environments and the “Enabling Environments” initiative. *Housing, Care and Support*, 15(1), 34-42

*Hallett, N., Huber, J. W., & Dickens, G. L. (2014) Violence prevention in inpatient psychiatric settings: Systematic review of studies about the perceptions of care staff and patients. *Aggression and Violent Behaviour*, 19, 502-514

Hamilton, L. (2010) *The boundary seesaw model: good fences make good neighbours*. In Tennant, A., & Howells, K. (Eds.) *Using time, not doing time: Practitioner perspectives on personality disorder and risk*. Sussex, UK: John Wiley and Sons

Harris, S.T., Oakley, C., & Picchioni, M. M. (2014) A systematic review of the association between attributional bias/interpersonal style, and violence in schizophrenia/psychosis. *Aggression and Violent Behaviour*, 19, 235-241

Hollenbeck, J. R., & Klein, H. J. (1987). Goal commitment and the goal-setting process: Problems, prospects, and proposals for future research. *Journal of applied psychology*, 72(2), 212

Howells, K., Tonkin, M., Milburn, C., Lewis, J., Draycot, S., Cordwell, J., Price, M., Davies, S., & Schalast, N. (2009) The EssenCES measure of social climate: A preliminary validation and normative data in UK high secure hospital settings. *Criminal Behaviour and Mental Health*, 19, 308-320

Huang, Y., Tan, N.T., & Liu, J. (2016) Support, sense of community, and psychological status in the survivors of the Yaan earthquake. *Journal of Community Psychology*, 44 (7), 919-936

Huebner, B. (2003). Administrative determinants of inmate violence: A multilevel analysis. *Journal of Criminal Justice*, 31, 107-117

Ireland, J. L. (2002) *Bullying among prisoners: evidence, research and intervention strategies*. London: Brunner-Routledge.

Ireland, J. L. (2005) Exploring definitions of bullying among personality disordered patient in a maximum secure hospital. *Aggressive Behaviour*, 31, 359-373

Ireland, J. L. (2006) Bullying among mentally ill patients detained in a high secure hospital: An exploratory study of the perceptions of staff and patients into how bullying is defined. *Aggressive Behaviour*, 32, 451-463

Ireland, J. L. & Rowley, J. (2007) Sectioned offenders presenting with enduring mental illness: A study exploring behaviours indicative of bullying. *Aggressive Behaviour*, 33, 377-388

Irwin, J., & Cressey, D.R. (1962) Thieves, convicts and inmate culture. *Social Problems*, 10, 142 – 155

Iscoe, I. (1974). Community psychology and the competent community. *American Psychologist*, 29(8), 607–613

Jackson, J., Bradford, B., Hough, M., Myhill, A., Quinton, P., & Tyler, T.R. (2012) Why do people comply with the law? Legitimacy and the influence of legal institutions. *British Journal of Criminology*, 52, 1051-1071

Jackson, J., Tyler, T.R., Bradford, B., Taylor, D., & Shiner, M. (2010) Legitimacy and procedural justice in prisons. *Prison Service Journal*, 191, 4-10

Jansen, G.J., Dassen, T.W., Burgerhof, J.G., & Middel, B (2006) Psychiatric nurses' attitudes towards inpatient aggression: preliminary report of the development of attitude towards aggressions scale (ATAS). *Aggressive Behaviour*, 32, 44-53

Jason, L.A., Stevens, E., & Light, J.M. (2016). The relationship of sense of community and trust to hope. *Journal of Community Psychology*, 44 (3), 334-341

Jeffery, C. R., & Zahm, D. (1993) *Crime prevention through environmental design: Opportunity theory and rational choice models*. In Clarke, R. V., & Felson, M. (Eds.) *Routine activity theory and rational choice: Advances in criminological theory*. New Brunswick, NJ: Transaction Publishers.

Jeffery, C. R. (1977) *Crime prevention through environmental design*, 2nd edition. Beverly Hills: Sage.

*Jenkins, O., Dye, S., & Foy, C. (2014) A study of agitation, conflict and containment in association with change in ward physical environment. *Journal of Psychiatric Intensive Care*, 11 (1), 27-35

Jiang, S., & Winfree, T., Jr. (2006) Social support, gender and inmate adjustment to prison life. *The Prison Journal*, 86, 32-55

Jiang, S., Fisher-Giorlando, M., & Mo, L. (2005). Social support and inmate rule violations: A multilevel analysis. *American Journal of Criminal Justice*, 30, 71-86

*Johnson, B., Martin, M. L., Guha, M., & Montgomery, P. (1997) The experience of thought disordered individuals preceding an aggressive incident. *Journal of Psychiatric and Mental Health Nursing*, 4, 213-220

Johnson, R., and Haigh, R. (2011) Social psychiatry and social policy for the twenty-first century – new concepts for new needs: relational health. *Mental Health and Social Inclusion*, 15 (2), 57 – 65

Joseph, N. and Benefield, N. (2012), “A joint offender personality disorder pathway strategy: an outline summary”, *Criminal Behaviour and Mental Health*, Vol. 22 No. 3, pp. 210-17

Kiesler, D. J. (1987) *Manual for the Impact Message Inventory*. Palo Alto, CA: Consulting Psychologists Press, Inc.

Kiesler, D.J., & Auerbach, S. M. (2003) Integrating measurement of control and affiliation in studies of physician-patient interaction: The interpersonal circumplex. *Social Science and Medicine*, 57, 1707-1722

Kiesler, D. J. & Schmidt, J. A. (2006) *The impact message inventory-circumplex (IMI_C) manual*

Korte, R. F., & Chermack, T. J. (2007) Changing organisational culture with scenario planning. *Futures*, 39, 645-656

*Kupchik, A., & Snyder, R. B. (2009) The impact of juvenile inmates' perceptions and facility characteristics on victimisation in juvenile correctional facilities. *The Prison Journal*, 89 (3), 265-285

Lahm, K.F. (2008) Inmate-on-inmate assault: A multilevel examination of prison violence. *Criminal Justice and Behaviour*, 35, 120-137

Lahm, K.F. (2009) Inmate assaults on prison staff: A multilevel examination of an overlooked form of prison violence. *The Prison Journal*, 89 (2), 131-150

Landman, K. (2009) Boundaries, bars, and barricades: Reconsidering two approaches to crime prevention in the built environment. *Journal of Architectural and Planning Research*, 26 (3), 213-227

Lawsky, S.B. (2008) Fairly random: On compensating audited taxpayers. *Connecticut Law Review*, 41 (1), 161-209

Liebling, A., Durie, L., Stiles, A., & Tait, S. (2005) *Revisiting prison suicide: the role of fairness and distress*. In Liebling, A., & Maruna, S. (Eds) *The Effects of Imprisonment*. Cullompton: Willan.

Liebling, A. (2004) *Prisons and their moral performance: A study of values, quality and prison life*. Oxford, UK: Oxford University Press.

Lillie, R. (2007). Getting clients to hear: Applying principles and techniques of Kiesler's interpersonal communication therapy to assessment feedback. *Psychology and Psychotherapy: Theory, Research and Practice*, 80, 151-163

*Long, C. G., Anagnostakis, K., Fox, E., Silaule, P., Somers, J., West, R., & Webster, A. (2011) Social climate along the pathway of care in women's secure mental

health service: Variation with level of security, patient motivation, therapeutic alliance and level of disturbance. *Criminal Behaviour and Mental Health*, 21, 202-214

Long, D. A., & Perkins, D. D. (2007). Community social and place predictors of sense of community: A multilevel and longitudinal analysis. *Journal of Community Psychology*, 35(5), 563-581

Lundahl, B. W., Kunz, C., Brownell, C., Tollefson, D., & Burke, B. L. (2010) A meta-analysis of motivational interviewing: twenty-five years of empirical studies. *Research on Social Work Practice*, 20 (2), 137-160

Mak, W. W., Cheung, R. Y., & Law, L. S. (2009). Sense of community in Hong Kong: Relations with community-level characteristics and residents' well-being. *American Journal of Community Psychology*, 44(1-2), 80–92

Markland, D., Ryan, R. M., Tobin, V. J., & Rollnick, S (2005). Motivational Interviewing and Self-Determination Theory. *Journal Of Social And Clinical Psychology*, 24(6), 811-831

Maruna, S., & Toch, H. (2005) *The impact of imprisonment on the desistance process*. In J.Travis (Ed.) *Prisoner re-entry and crime in America*. New York: Cambridge University Press.

*Marcum, C. D., Hilinski-Rosick, C. M., & Freiburger, T. L. (2014) Examining the correlates of male and female inmate misconduct. *Security Journal*, 27 (3), 284-303

*Martin, J. L., Lichtenstein, B., Jenkot, R. B., Forde, D. R. (2012) “They can take us any time they want”: Correctional officers’ responses to prison crowding. *The Prison Journal*, 92 (1), 88/105

McManus, J. (2010), “*The experience of officers in a therapeutic prison: an interpretative phenomenological analysis*”, in Shuker, R. and Sullivan, E. (Eds),

Grendon and the Emergence of Forensic Therapeutic Communities: Development in Research and Practice, Wiley-Blackwell, Chichester, pp. 217-32

McMillan, D., & Chavis, D. (1986). Sense of community: A definition and theory. *American Journal of Community Psychology*, 14, 6–23

McMurrin, M., & Ward, T. (2010). Treatment readiness, treatment engagement and behaviour change. *Criminal Behaviour And Mental Health*, 20, 75-85

Megargee, E.L. (1977) The association of population density, reduced space, and uncomfortable temperatures with misconduct in a prison community. *American Journal of Community Psychology*, 5, 289-298

*Meehan, T., McIntosh, W., Bergen, H. (2006) Aggressive behaviour in the high-secure forensic setting: the perceptions of patients. *Journal of Psychiatric and Mental Health Nursing*, 13, 19-25

Miller, W. R., & Rollnick, S. (1991) *Motivational interviewing, preparing people to change addictive behaviour*. New York: The Guildford Press

Milsom, S. A., Freestone, M., Duller, R., Bouman, M., & Taylor, C. (2014) Factor structure of the Essen Climate Evaluation Schema measure of social climate in a UK medium-security setting. *Criminal Behaviour and Mental Health*, 24, 86-99

Minnery, J. R., & Lim, B. (2005) Measuring crime prevention through environmental design. *Journal of Architectural and Planning Research*, 22 (4), 330 – 341

Moos, R. (1989) *Ward Atmosphere Scale Manual*, 2nd Ed. Palo Alto, CA: Consulting Psychologists Press.

Morris, R.G., Carriga, M., Diamond, B., Piquero, N.L., & Piquero, A.R. (2012) Does prison strain lead to prison misbehaviour? An application of general strain theory to inmate misconduct. *Journal of Criminal Justice*, 40 (3), 194 – 201

*Morris, R. G. & Worrall, J. L. (2014) Prison architecture and inmate misconduct: A multilevel assessment. *Crime and Delinquency*, 60 (7), 1083-1109

Moscardino, U., Scrimin, S., Capello, F., & Alto`e, G. (2010). Social support, sense of community, collectivistic values, and depressive symptoms in adolescent survivors of the 2004 Beslan terrorist attack. *Social Science & Medicine*, 70(1), 27–34

*Muir-Cochrane, E. C., Baird, J., McMann, T. V. (2015) Nurses' experiences of restraint and seclusion use in short-stay acute old age psychiatry inpatient units: a qualitative study. *Journal of Psychiatric and Mental Health Nursing*, 22, 109-115

Murphy, L., Hinds, L., & Fleming, J. (2008) Encouraging public cooperation and support for police. *Policing and Society: An International Journal of Research and Policy*, 18, 136-155

National Institute for Mental Health in England (NIMHE) (2004) *Mental Health Policy Implementation Guide: Developing Positive Practice to Support the Safe and Therapeutic Management of Aggression and Violence in Mental Health Inpatient Settings*. Department of Health: London

National Institute of Clinical Excellence (2005) *Violence: The short term management of disturbed/violent behaviour in in-patient psychiatric settings and emergency departments*. NICE: London

National Offender Management Service & Department of Health (2012) *A guide to Psychologically Informed Planned Environments*. London: National Offender Management Service and Department of Health.

Needham, I., Abderhalden, C., Halfens, R. J. G., Fischer, J. E., & Dassen, T. (2005) Non-somatic effects of patient aggression on nurses: A systematic review. *Journal of Advanced Nursing*, 49 (3), 283-296

Newman, O. (1996) *Creating Defensible Space*. U.S. Department of Housing and Urban Development; Washington, D.C.

Nowell, B., & Boyd, N. (2010). Viewing community as responsibility as well as resource: deconstructing the theoretical roots of psychological sense of community. *Journal of Community Psychology*, 38 (7), 828-841

Oh, H. J., Ozkaya, E., & LaRose, R. (2014). How does online social networking enhance life satisfaction? The relationships among online supportive interaction, affect, perceived social support, sense of community, and life satisfaction. *Computers in Human Behavior*, 30, 69–78

*Olver, J., Love, M., Daniel, J., Norman, T., & Nicholls, D. (2009) The impact of a changed environment on arousal levels of patients in a secure extended rehabilitation facility. *Australasian Psychiatry*, 17 (3), 207-211

Poole, E.D., & Regoli, R.M. (1983) Violence in juvenile institutions. *Criminology*, 21, 213-232

Pollock, J.M. (2002). *Women, prison and crime*. Belmont, CA: Wadsworth Thomson Learning

Pretty, G.M.H., Andrewes, L., & Collett, C. (1994). Exploring adolescents' sense of community and its relationship to loneliness. *Journal of Community Psychology*, 22, 346–358

Prezza, M., Amici, M., Roberti, T., & Tedeschi, G. (2001). Sense of community referred to the whole town: Its relations with neighboring, loneliness, life satisfaction, and area of residence. *Journal of Community Psychology*, 29(1), 29–52

*Pulsford, D., Crumpton, A., Baker, A., Wilkins, T., Wright, K., & Duxbury, J. (2013) Aggression in a high secure hospital: staff and patient attitudes. *Journal of Psychiatric and Mental Health Nursing*, 20, 296-304

Reeve, J. (2009) Why teachers adopt a controlling motivating style toward students and how they can become more autonomy supportive. *Educational Psychologist*, 44 (3), 159-175

Reisig, M.D., & Mesko, G. (2009) Procedural justice, legitimacy and prisoner misconduct. *Psychology, Crime and Law*, 15, 41-59

Rocheleau, A.M. (2013) An empirical exploration of the “pains of imprisonment” and the level of prison misconduct and violence. *Criminal Justice Review*, 38 (3), 354-374

*Ros, N., Van der Helm, P., Wissink, I., Stams, G., & Schaftenaar, P. (2013) Institutional climate and aggression in a secure psychiatric setting. *The Journal of Forensic Psychiatry and Psychology*, 24 (6), 713-727

Rubak, S., Sandboek, A., Lauritzen, T., & Christensen, B. (2005) Motivational interviewing: a systematic review and meta-analysis. *British Journal of General Practice*, 306-312

Ryan, R.M., Deci, E.L., & Grolnick, W.S. (1995). *Autonomy, relatedness, and the self: Their relation to development and psychopathology*. In D. Cicchetti & D.J. Cohen (Eds.), *Developmental psychopathology, Vol. 1: Theory and methods* (pp. 618–655). Oxford: John Wiley

Samuels, R. (2005) After-dark design, night animation and interpersonal interaction: Toward a community-security paradigm. *Journal of Architectural and Planning Research*, 22 (4), 305-318

Sagy, S., Stern, E., & Krakover, S. (1996). Macro- and micro-level factors related to sense of community: The case of temporary neighborhoods in Israel. *American Journal of Community Psychology*, 24, 657–676

Schalast, N., Redies, M., Collins, M., Stacey, J., & Howells, K (2008). EssenCES, a short questionnaire for assessing the social climate of forensic psychiatric wards. *Criminal Behaviour And Mental Health*, 18, 49-58

Schein, E. H. (1985). *How Culture Forms, Develops and Changes*. San Francisco, California.: Jossey Bass

Schweitzer, M., Gilpin, L., & Frampton, S. (2004) Healing spaces: elements of environmental design that make an impact on health. *The Journal of Alternative and Complimentary Medicine*, 10 (1), 71-83

Shefer, G. (2010), *The quality of life of prisoners and staff at HMP Grendon*, in Shuker, R. and Sullivan, E. (Eds), *Grendon and the Emergence of Forensic Therapeutic Communities: Development in Research and Practice*, Wiley-Blackwell, Chichester, pp. 247-64

*Shepherd, M., & Lavender, T (1999) Putting aggression into context: An investigation into contextual factors influencing the rate of aggressive incidents in a psychiatric hospital. *Journal of Mental Health*, 8 (2), 159-170

Sloan Devlin, A., & Arneill, A. B. (2003) Healthcare environments and patient outcomes. A review of the literature. *Environment and Behaviour*, 35 (5), 665-694

Smith, M. J., & Clarke, R. V. (2012) *Situational Crime Prevention: Classifying techniques using 'Good Enough' theory*. In Welsh, B. C., and Farrington, P. (Eds.) *The Oxford Handbook of Crime Prevention*. New York: Oxford University Press

*Soares, J. J. F., Lawoko, S., Nolan, P. (2000) The nature, extent and determinants of violence against psychiatric personnel. *Work and Stress*, 14 (2), 105-120

Sparks, R., & Bottoms, A.E. (2008) *Legitimacy and imprisonment revisited: Some notes on the problem of order ten years after*. In Byrne, J.M., Hummer, D., & Taxman, F.S. (Eds) *The Culture of Prison Violence*. Boston: Allyn & Bacon, 91-104

Sparks, R., Bottoms, A., & Hay, W. (1996) *Prisons and the Problem of Order*. Oxford, UK: Clarendon

*Steiner, B., & Wooldredge, J. (2009). Inmate versus environmental effects on prison rule violations. *Criminal Justice and Behavior*, 438-456

*Steiner, B., Butler, H. D., & Ellison, J. M (2014) Causes and correlates of prison inmate misconduct: A systematic review of the evidence. *Journal of Criminal Justice*, 42, 462-470

Stewart, D., & Bowers, L. (2013) Inpatient verbal aggression: content, targets and patient characteristics. *Journal of Psychiatric and Mental Health Nursing*, 20, 236-243

Stichler, J. F. (2001) Creating healing environments in critical care units. *Critical Care Nursing Quarterly*, 24 (3), 1-20.

Stone, T., McMillan, M., Hazelton, M., & Clayton, E. H. (2011) Wounding words: swearing and verbal aggression in an inpatient setting. *Perspectives in Psychiatric Care*, 47, 194-203

Sunshine, J., & Tyler, T.R. (2003) The role of procedural justice and legitimacy in shaping public support for policing. *Law and Society Review*, 37, 513-548

Sykes, G.M. (1958) *The society of captives*. Princeton, NJ: Princeton University Press.

Tait, S., 2008. Care and the prison officer: beyond 'turneys' and 'care bears'. *Prison Service Journal*, 180, 3-11

Tataro, C. (1999) Reduction of suicides in jails and lockups through situational crime prevention: addressing the needs of a transient population. *Journal of Correctional Health Care*, 6, 235-263

Taylor, P (2012). Severe personality disorder in the secure estate: continuity and change. *Medicine, Science and the Law*, 52 (3), 125-127

Taylor, R.B. (2002) *Crime Prevention Through Environmental Design (CPTED): Yes, no, maybe, unknowable, and all of the above*. In Bechtel, R.B. (Ed.) *Handbook of environmental psychology*. New York: John Wiley.

Tewksbury, R., Connor, D.P., & Denney, A.S. (2014) Disciplinary infractions behind bars: An exploration of importation and deprivation theories. *Criminal Justice Review*, 39, 201-218

Thomas, C.W., & Foster, S.C. (1973) The importation model perspective on inmate social roles: An empirical test. *The Sociological Quarterly*, 14, 226-234

Thomas, J., & Harden, A. (2008). Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology*, 8(45)

Tighe, J., & Gudjonsson, G. H. (2012) See, Think, Act scale: preliminary development and validation of a measure of relational security in medium and low secure units. *The Journal of Forensic Psychiatry and Psychology*, 23 (2), 184-199

*Tilt, R., Perry, B., & Martin, C (2000). *Report of the Review of Security at the High Security Hospitals*. London: Department of Health

*Tonkin, M., Howells, K., Ferguson, E., Clark, A., Newberry, M., & Schalast, N. (2012) Lost in translation? Psychometric properties and construct validity of the English Essen Climate Evaluation Schema (EssenCES) social climate questionnaire. *Psychological Assessment*, 24 (3), 573-580

Trulson, C.R., DeLisi, M., & Marquart, J.W., (2011) Institutional misconduct, delinquent background, and re-arrest frequency among serious and violent delinquent offenders. *Crime and Delinquency*, 57, 709-731

Turley, C., Payne, C., & Webster, S. (2013) *Enabling features of Psychologically Informed Planned Environments*. National Offender Management Service.

Tyler, T.R. (2006) 'Legitimacy and Legitimation'. *Annual Review of Psychology*, 57, 375-400

Tyler, T.R., & Fagan, J. (2008) Legitimacy and cooperation: Why do people help the police fight crime in their communities? *Ohio State Journal of Criminal Law*, 6, 231-275

Uppal, G., & McMurrin, M (2009) Recorded incidents in a high-secure hospital: A descriptive analysis. *Criminal Behaviour and Mental Health*, 19, 265-276.

*Urheim, R., Rypdal, K., Palmstierna, T., & Mykletun, A. (2011) Patient autonomy versus risk management: A case study of change in a high security forensic psychiatric ward. *International Journal of Forensic Mental Health*, 10 (1), 41-51

*van der Helm, P., Stams, G., van Genabeek, M., & van der Laan, P. (2012) Group climate, personality, and self-reported aggression in incarcerated male youth. *The Journal of Forensic Psychiatry and Psychology*, 23 (1), 23-39

van der Laan., A., & Eichelsheim, V. (2013) Juvenile adaptation to imprisonment: Feelings of safety, autonomy and well-being, and behaviour in prison. *European Journal of Criminology*, 10 (4), 424-443

Vieno, A., Santinello, M., Pastore, M., & Perkins, D. D. (2007). Social support, sense of community in school, and self-efficacy as resources during early adolescence: An integrative model. *American Journal of Community Psychology*, 39(1-2), 177-190

Virtanen, M., Vahtera, J., Batty, G. D., Tuisku, K., Pentti, J., Oksanen, T., Salo, P., Ahola, K., Klvlmaki, M. (2011) Overcrowding in psychiatric wards and physical assaults on staff: data-linked longitudinal study. *The British Journal of Psychiatry*, 198, 149-155

Walters, G.D., & Crawford, G. (2013) In and out of prison: Do importation factors predict all forms of misconduct or just the more serious ones? *Journal of Criminal Justice*, 41, 407-413

Ward, T., Day, A., Howells, K., & Birgden, A. (2004). The multifactor offender readiness model. *Aggression and Violent Behaviour*, 9, 645-673.

Ward, T. and Gannon, T. A. (2006) Rehabilitation, etiology and self-regulation: the comprehensive good lives model of treatment for sexual offenders. *Aggression and Violent Behaviour*, 11 (1), 77-94

Ward, T. and Maruna, S. (2007) *Rehabilitation: Beyond the Risk Assessment Paradigm*, Routledge, London

Welsh, B. C., Braga, A. A., & Bruinsma, G. J. N. (2015) Reimagining broken windows: From theory to policy. *Journal of Research in Crime and Delinquency*, 52 (4), 447-463

Williams, A., Dobson, P., & Walters, M. (1994). *Changing Culture: New Organisational Approaches*. (2nd Ed.) Cromwell Press, Wiltshire

Williamson, R., Lauricella, K., Browning, A., Tierney, E., Chen, J., Joseph, S., Sharrock, J., Trauer, T., & Hamilton, B. (2013) Patient factors associated with incidents of aggression in a general inpatient setting. *Journal of Clinical Nursing*, 1144-1152

Wilson, J. Q., & Kelling, G. L. (1982) Broken windows: the police and neighbourhood safety. *Atlantic Monthly*, 249 (3), 29-38

Wilson, P., & Wileman, B. (2005) Developing a 'safe city' strategy based on CPTED research: An Australian case study. *Journal of Architectural and Planning Research*, 22 (4), 319 – 329

Wooldredge, J., Griffin, T., & Pratt, T. (2001). Considering hierarchical models for research on inmate behaviour: Predicting misconduct with multilevel data. *Justice Quarterly*, 18, 203-231

Wortley, R. (2002). *Situational prison control: Crime prevention in correctional institutions*. Cambridge: Cambridge University Press.

Wright, K.N. (1991). The violent and victimised in the male prison. *Journal of Offender Rehabilitation*, 16 (3/4), 1-25

Wright, K.N. (1993). Prison environment and behavioural outcomes. *Journal of Offender rehabilitation*, 20, 93-113.