METACOGNITION IN FORENSIC PATIENTS WITH SCHIZOPHRENIA AND A HISTORY OF INTERPERSONAL VIOLENCE: AN EXPLORATORY STUDY

AND CLINICAL RESEARCH PORTFOLIO

VOLUME I

(VOLUME II BOUND SEPARATELY)

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BSc (Hons)

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Chapter 1

Systematic Literature Review

Positive Psychotic Symptoms and Violence Amongst People with Schizophrenia: A Systematic Review

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Written according to guidelines for submission to Psychosis: Psychological, Social and Integrative Approaches
(See Appendix 1.1)

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Abstract

Although violence perpetrated by people with a mental disorder is rare, it is nevertheless problematic. There is therefore a need to develop a better understanding of the underlying risk factors for violence in psychiatric populations. This systematic review aimed at exploring and synthesising the recent evidence for the association between one such factor (positive psychotic symptoms) and violence in people with schizophrenia. Research published between 2000-2010 which reported on the association between positive symptoms and violence in people with schizophrenia was searched and selected on the basis of pre-defined inclusion/exclusion criteria. This produced eleven studies which were deemed suitable for inclusion in the review. These studies suggested overall that there is an association between the presence of positive symptoms and violence in people with schizophrenia. However, when odds ratios (ORs) were reported, they were often small and likely of little clinical significance. Furthermore, there were limitations on the interpretation of the findings based on the variation in design, methodology, definition and measurement of variables, statistical analysis and overall methodological quality. This highlights the need for further and more rigorous research in this area before any firm conclusions can be drawn.

Introduction

Violence and Mental Illness

The issue of violence amongst people with a mental illness is highly contentious and has invited much attention over the years from health professionals. Despite unhelpful portrayals of mental illness and violence in the media, which can reinforce a common public misperception that people with mental health problems are dangerous and unpredictable (Allen & Nairn, 1997), the reality is quite different. In their review of the evidence for violence in people with schizophrenia, Walsh, Buchanan and Fahy (2002) reported that although this diagnosis was associated with a marginally increased risk of violence compared to a member of the general public, the proportion of violence in society apportionable to this group was in fact very small.

A recent study acknowledged that while the (small) level of association between these two variables is widely reported, less is actually known about why this might be the case in people with a mental illness (Fazel, Långström, Hjern, Grann, & Lichtenstein, 2009). Speculation on independent risk variables for future violence has been a common theme in the literature in this area. Elbogen and Johnson (2009) state that having a severe mental illness is not in itself enough to predict, or cause, violence. They reported that the incidence of violence amongst people with a severe mental illness was only greater when there was co-morbid substance abuse/dependence. Furthermore, historical, clinical, dispositional and contextual factors rather than having a mental illness per se have reportedly been predictive of violence (e.g., Chow & Ng, 2007).

Violence and the Role of Positive Symptoms

Recently research has begun to look in more detail at the clinical correlates of mental illness – particularly psychotic illnesses – to discover what these can tell us about future violence risk. It would appear that 'positive symptoms' may be linked to violence in this clinical population, although the evidence is somewhat mixed. Positive symptoms describe those

which occur in addition to what is considered typical in 'normal' functioning. These include hallucinations, delusions and thought disorder.

Research has looked at whether hallucinations – in particular command hallucinations – can explain the observed link between mental illness and violence. Much of the evidence reported is conflicting, and there is a wide variation of methodology used to investigate this issue. In one such example, after asking psychiatric patients to complete questionnaires, logistic regression analyses on the data suggested command hallucinations to harm others led to a two-fold increase in violence, even after controlling for potential confounding variables including substance misuse (McNiel, Eisner, & Binder, 2000). Conversely, Rogers, Watt, Gray, MacCulloch and Gournay (2002) found evidence to suggest that command hallucinations with a violent content were not related to violence within a medium secure inpatient unit. Notably there were distinct differences in methodology between these two studies, including the methods used to measure the variables of interest and participant characteristics. In a review on this subject, it was noted that there is disparity in opinion amongst researchers as to whether or not command hallucinations influence dangerous behaviour, perhaps reflective of the wide variation in methodological rigour and definition of outcomes. However, what has emerged is that command hallucinations are neither necessary nor sufficient for violent action, and many variables are thought to mediate this relationship (Braham, Trower, & Birchwood, 2004).

Following on from these observations, in an attempt to better understand the relationship between command hallucinations and violence, factors of compliance and harmful command hallucinations have been investigated. In a review on this issue, the authors concluded that much was still to be learned about what might mediate the relationship between command hallucinations and violence towards others. However, they highlighted the importance of investigating both the content of, and beliefs about, the hallucinations when assessing risk for future violence (Barrowcliff & Haddock, 2006).

Another positive symptom discussed in the literature is delusions. As has been the case for studies reporting a link between violence and hallucinations, the literature on delusions has yielded mixed findings. Some evidence has been reported which suggests there is a

relationship between delusions (particularly persecutory delusions) and violent behaviour, with their presence helping to predict an increased risk of violence (e.g., Chow & Ng, 2007). Yet others still have drawn the conclusion that delusions are not associated with an increased risk of violent behaviour. For example, using data from the McArthur Violence Risk Assessment Study, Appelbaum and colleagues (2000) argued delusions generally did not increase the risk for violence overall, although they acknowledged that they may play a role on a case-by-case basis. They postulated that the disparity in the literature could be attributed to methodological limitations that cause other variables that increase the risk for violence being misclassified as delusions (Appelbaum, Robbins, & Monahan, 2000).

Link and Stueve (1994) have proposed that a particular set of positive symptoms experienced in people with psychotic disorders – so called "threat/control-override" (TCO) symptoms – can help to explain the increased risk of violence in this population. These explain a group of symptoms that lead an individual with mental illness to feel threatened or interfere in such a way that they override the individual's resistance to violence. They argue that other psychotic symptoms can only be linked to violence in so much as they are associated with TCO symptoms. Although some support has been found for this theory (e.g., Swanson, Borum, Swartz, & Monahan, 1996), others have suggested that TCO symptoms do not predict a higher risk of violence (Appelbaum et al., 2000).

Violence in Schizophrenia

Clearly there is much debate in the literature about whether positive symptoms in mental illness are linked to violence, and why this might be the case. Although there are many methodological issues that may offer some explanations for these disparities, one emergent suggestion is that the link between positive psychotic symptoms and violence may differ between diagnostic groups (Hodgins, Hiscoke, & Freese, 2003). Consequently, some researchers have recruited participants with the same primary diagnosis to control for this, and people with schizophrenia are the most commonly used in this research. This diagnostic group has attracted the attention of researchers for several reasons, but perhaps importantly because this diagnosis is often linked to pessimistic outcomes in the literature, and the diagnostic criteria emphasise the chronicity of the condition (World Health

Organisation, 2007). Furthermore, in certain settings this diagnostic group has proven to be particularly pertinent. For example, amongst the forensic population, often the most common diagnostic group is schizophrenia (e.g., Taylor et al., 1998).

Looking at violence in people with schizophrenia, there is still paucity in agreement in the research about the role of positive symptoms. Although some reviews in this area have begun to look into this, it is still a surprisingly neglected area. Walsh et al. (2002) have completed a review of the epidemiological evidence for the relationship between violence and schizophrenia, which included some consideration of the likely risk factors that may mediate this association. However, they were selective in the range of literature that they included. Furthermore, Bjørkly (2002a; 2002b) has reviewed the evidence on the association between delusions and hallucinations and violence, although this included diagnostic groups other than schizophrenia, which may limit the generalisability of the findings. Therefore, given the reasons for brining the focus of research to people with schizophrenia and violence, a review in this area would be helpful to consolidate what we know and where there are gaps in the literature, so as to direct future research. This was the purpose of this systematic review. Although a systematic review of this nature has not been done to the author's knowledge, given the previous reviews described above have covered the literature up until the turn of the century, the current review has looked at the literature from 2000 to 2010.

Aims

The aims of this systematic review were as follows:

- To explore the evidence for an association between the presence of positive symptoms and violence in people with schizophrenia.
- To synthesise and discuss the key research findings in this area from 2000 to 2010 and consider what this might this tell us about their relationship/underlying mechanisms.
- To consider the quality of research published between 2000-2010 in which the association between positive symptoms and violence risk in people with schizophrenia has been reported.

Methodology

Search Strategy

A systematic search was conducted of electronic databases. Some were accessed via OVID online (Medline, Embase, PsychInfo and EMB Review databases). In addition, searches were carried out using CINAHL and Web of Science databases. The following terms were entered as text words during the search, and combined with 'OR':

- Schizophreni*; psychotic disorder; psychos*; severe mental illness*; severe mental disorder*
- Violence; violent behavio*; dangerous behavio*
- Positive symptom*; hallucination*; delusion*; thought disorder*; threat control override

Where possible, relevant search terms were used for Medline, Embase, PsychInfo and EMB Review databases. These searches were then combined with the AND tool, in order to produce a final output of studies, which would capture those looking at the role of positive symptoms in violence perpetrated by people with a schizophrenia diagnosis. Searches were limited to English language, human subjects, and to studies published between January 2000 – December 2010. Finally, duplicate studies were removed.

Hand searches were conducted of two leading journals in the area of interest (Schizophrenia Bulletin and the Journal of Forensic Psychology & Psychiatry). Hand searches were also carried out on reference lists of selected papers, and on review papers on related topics.

Inclusion and Exclusion Criteria

The abstract and/or title of each paper identified from the search were screened for suitability according to the inclusion and exclusion criteria. The full paper was obtained for situations when suitability could not be determined by review of the title and abstract alone. The inclusion criteria were as follows:

- Studies that report on the relationship between violence and positive symptoms (collectively or individually) of schizophrenia.
- Studies that have recruited subjects with a primary diagnosis of schizophrenia.
- Participants aged 18-64.

The exclusion criteria were as follows:

- Full text not published in English.
- Papers published before January 2000.
- Case studies, reviews, conference abstracts or book chapters.
- Unpublished dissertations.
- Studies that did not report on data for people with a diagnosis of schizophrenia spectrum disorder separate from other psychotic disorders.

Search Results

The electronic database search produced 460 studies, once duplicate papers were removed. These were examined according to the inclusion and exclusion criteria until 11 were deemed suitable for inclusion in the systematic review. Hand searches of the reference lists, other reviews of relevance, and the two journals, did not produce any further studies. Figure 1 shows a flow-chart representing the search process described.

INSERT FIGURE 1 HERE

Assessment of Methodological Quality

A scoring system was adapted specifically for this review to assess the methodological quality of the selected studies (Appendix 1.2). It was modified from a scoring system

developed for another systematic review which looked at cohort studies (White, 2007). The scoring system was based on the Scottish Intercollegiate Guidelines Network (SIGN, 2008) guidelines for assessing the quality of cohort studies, and also the Clinical Trial Assessment Measure (CTAM; Tarrier & Wykes, 2004). The scoring system comprised four sections which assessed different areas of importance to consider when ascertaining methodological quality. Each section was scored out of 25, which could be summed to produce a total score out of 100 for determining overall quality of the study. An independent rater also scored a sample of 6 papers for methodological quality using the same framework. Agreement rate was 89.2%, although this reached 100% once disagreements were discussed.

Results

Description of Studies

Eleven studies were included in this review that reported on the association between positive symptoms and violence for individuals with a diagnosis of schizophrenia (see Table 1 for a summary of these studies). A total of 2623 participants were recruited across the studies (Median = 125; IQR: 156), of which 2131 (81.2%) were male and 492 (18.8%) were female. The mean age of participants was 35.2 years (SD = 5.0). Only three studies reported the ethnicity of the sample recruited (Joyal, Putkonen, Paavola, & Tiihonen, 2004; Swanson et al., 2006; Teixeira & Dalgalarrondo, 2009). These samples together comprised participants from White (62.3%); African American (32.1%); other/not otherwise specified (5.6%) backgrounds.

INSERT TABLE 1 HERE

Five studies recruited their samples from inpatient populations, whereas four recruited from community outpatient populations. Two studies (Foley et al., 2007; Fresán et al., 2005) included a mixture of inpatient and outpatient participants in their sample (89% and 21% inpatients respectively). The majority of the single-country studies were based in America (2 United States of America; 1 Canada; 1 Brazil; 1 Mexico), while the others were based in Western Europe (2 Finland; 1 Austria; 1 Ireland). Two studies recruited their sample from more than one country (both recruited from Canada, Germany, Finland and Sweden).

There was large variation in prevalence rates of violence identified between studies (Table 2). Prospective studies reported violence amongst 7.0% - 56.1% of participants, with follow-up periods ranging from 14 weeks – 24 months. In the retrospective studies, violence prevalence rates ranged from 19.1% - 63.9% and where stated, retrospective data were collected from a period beginning 2 weeks – 12 months previously. Retrospective case control studies were excluded from this specific analysis since acts of violence were an inclusion criterion for entry to the study (Joyal et al., 2004; Stompe, Ortwein-Swoboda, & Schanda, 2004; Teixeira & Dalgalarrondo, 2009).

INSERT TABLE 2 HERE

Evidence for an Association between Positive Symptoms in Schizophrenia and Violence

The findings of the eleven studies were conflicting. Eight of the 11 studies reported a positive relationship between positive symptoms and violence (Chan, 2008; Foley et al., 2007; Fresán et al., 2005; Hodgins et al., 2003; Joyal et al., 2004; Lincoln & Hodgins, 2008; Nolan et al., 2005; Swanson et al., 2006), implying the presence of positive symptoms increased the risk for violence in this population, compared to three studies that did not find evidence to support this hypothesis (of which one study looked at the relationship between positive symptoms and 'excessive violence' in convicted murderers with schizophrenia). Of

note, there were wide variations in methodology employed amongst the studies, for example, in their design; the population samples were recruited from; definition and measurement of 'violence'; measurement of positive symptoms; and statistical methods employed to assess the relationship between the variables of interest (Table 1 and Table 2).

Retrospective studies

Eight studies utilised a retrospective design. Swanson et al. (2006) found that both minor and severe violence risk was significantly increased by the presence of positive symptoms (measured by above median positive PANSS (Kay, Fiszbein, & Opler, 1987) scores recorded up to six months after a violent incident occurred). Adjusted odds ratios (ORs) for their final logistic regression model were 1.66 and 2.71 respectively. However, negative symptoms were predictive of severe violence when entered into their model (specifically scores above median for the PANSS negative scale reduced the risk of severe violence, thus moderating the effect of positive symptoms). This would be an expected outcome given that the presence of negative symptoms implies the participant would likely be withdrawn and have low mood, therefore reducing the opportunity and motivation for violence. In addition, their findings also highlighted that risk of violence was significantly increased by other non-clinical variables that were entered into their logistic regression model, including younger age and having a recent history of contact with police.

Foley et al. (2007) investigated the relationship between duration of untreated psychosis with violence in first episode schizophrenia. Using violence as an outcome (measured from participant file information over a two-week period), 12 potential predictor variables were entered into a binary logistic regression model (including duration of untreated psychosis; drug and alcohol misuse; insight). Only positive symptom scores and involuntary admission status (both recorded within one week of a violent incident occurring) were significantly related to violence (no ORs were reported). The findings are limited by the selective predictor variables entered into the model. Furthermore, there are problems with causality in the study in that the relationship between involuntary admission status and violence is complex. For example, given that severity of positive symptoms is a probable determinant

for an involuntary hospital 'section', it is likely that these variables are inter-related and the impact of this relationship cannot be fully examined within a logistic regression.

Another study investigated the relationship between clinical symptoms and violence in outpatients and inpatients with schizophrenia (Fresán et al., 2005). Having split their participants into a 'violent' or 'non-violent' group based on an assigned cut-off point on a measure of violence, they reported significantly higher severity ratings for the 'violent' group on some indices of positive symptoms, including 'delusions' and 'hallucinatory behaviour'. They reported that their findings suggested the severity of these symptoms play an important role in violence amongst this population. They also found a significant positive correlation between positive symptom and global violence ratings.

Conversely, Teixeira and Dalgalarrondo (2009) reported there were no significant differences in positive symptom ratings between their 'violent' group (men who had committed a violent crime related to delusional symptoms) and their 'non-violent' control group (men with delusional symptoms who had no history of violent behaviour). Perhaps this would be expected given both groups were selected on the basis of the presence of experiencing a particular positive symptom. Further investigation into the dimensions of the delusions reported using the MacArthur-Maudsley Delusion Assessment Schedule (MMDAS; Appelbaum, Robbins, & Roth, 1999), by a researcher not blind to group allocation, revealed that scores for 'refraining from acting because of the belief' and 'negative affect' were significantly higher in the 'non-violent' group and scores for 'acting on the belief' were significantly higher in the 'violent' group. Univariate logistic regression analysis revealed that these factors were significant when assessing the presence or absence of violence (OR = 0.64; 0.50; 4.09 respectively), relative to the other three dimensions of delusions measured. The authors suggested that for delusional patients with schizophrenia who inhibit their behaviour based on a delusional belief, it is protective against violent behaviour if this is consistent with the actual delusions (e.g., the delusion causes them to avoid people/situations which might otherwise lead to violence).

Two studies investigated the relationship between violence and positive symptoms by retrospectively examining the role of delusions and hallucinations in the crimes of homicide

offenders with schizophrenia. Joyal et al. (2004) gathered information from multiple sources to ascertain whether or not the homicide(s) committed by participants with schizophrenia or a schizophrenia and anti-social personality disorder (APD) dual-diagnosis, were influenced by hallucinations or delusions (inter-rater alpha coefficient of intraclass correlation = 0.90). They reported that these symptoms were the trigger to the homicidal act for 83% of participants in their schizophrenia group. This was significantly different from the 46% of homicides committed as a consequence of experiencing hallucinations or delusions in their schizophrenia and APD group. The latter group had a significantly higher proportion of homicidal acts triggered by having a fight/argument relative to the schizophrenia group. The authors argued this study highlights the influence co-morbidity may have on the role positive psychotic symptoms may play in violence. However, the conclusions appear tautological, as receiving an APD diagnosis would require the presence of a history of violent behaviour characterised by fighting or assaults, beginning in late adolescence/early adulthood.

Laajasalo and Häkkänen (2006) investigated whether hallucinations and delusions were related to use of 'excessive violence' during homicidal acts perpetrated by people with a diagnosis of schizophrenia. Similar to Joyal and colleagues (2004), the actions that led to homicide for two thirds of their participants were deemed to be motivated by delusions and/or hallucinations, although again these symptoms could be recognised as being present but not thought to have motivated the crime (Cohen's kappa values were not explicitly stated but reportedly indicated 'significant inter-rater reliability'). The study also reported evidence to suggest that delusions and hallucinations are not related to the use of excessive violence in homicides committed by participants. Their logistic regression analysis model to predict use of 'excessive violence' found presence of hallucinations and delusions (OR = 1.93; $p = 0.13$) and psychotic motivation for the homicide (OR = 0.53; $p = 0.17$) were not significant predictor variables.

Stompe et al. (2004) investigated the link between violence and TCO symptoms in males with schizophrenia. They compared a 'violent' group (comprising those who had committed a violent offence which had led to detainment in a high security institution) with a 'non-violent' matched control group from psychiatric clinics. Using stepwise forward logistic

regression, they reported that the addition of 'TCO symptoms' failed to improve the statistical significance of the model chi-square after 'social origin' and 'substance-related disorders' had first been entered into the model. The authors argued their results did not support the basis for there being a relationship between TCO symptoms and violence generally. However, their findings did suggest that TCO symptoms were associated with the severity of a violent offence. The researchers attributed this specifically to the perceived 'threat' component of the symptoms because there appeared to be no association between severity and the 'control/override' aspect of symptoms.

Chan (2008) found that carer-rated intensity of TCO symptoms was the only significant factor that contributed towards physical assault of a relative with schizophrenia towards a caregiver when entered into their stepwise regression model. Furthermore, this factor and 'critical comments' were the only two found to significantly contribute towards the incidence of physical aggression against caregivers when entered into their model.

Prospective studies

A smaller number of studies utilised a prospective design. Unlike the retrospective studies whereby researchers used violent acts already committed as an outcome, these studies instead looked at the presence/absence of violence during a specified future period. In their study which aimed at investigating whether lack of insight was predictive of future violent behaviour, Lincoln and Hodgins (2008) followed up 216 'at risk of violence' participants newly discharged from forensic and psychiatric hospitals over two years. In total 27 (15.9%) participants were violent. After entering measures of psychopathy, followed by positive symptoms and then insight into their stepwise logistic regression model, only positive symptoms (and to a lesser extent psychopathy) were predictive of whether or not a participant behaved violently. Furthermore, by the final six months of their two-year follow-up period, only positive symptom scores were predictive of violence. Again this study is limited by the small number of predictor variables entered into their model and ORs were not reported.

Another study (Nolan et al., 2005) looked at the relationship between positive symptoms and violence in 157 'treatment-resistant' inpatients with schizophrenia followed up over 14 weeks. During this period 88 (56.1%) participants were recorded as having had one or more violent incident. After classifying participants as 'aggressive' (minimum of one violent incident during the study) vs. 'non-aggressive' (no incidents recorded), the researchers reported that severity of positive symptoms at baseline was significantly higher in the 'aggressive' group, and there was some evidence to suggest that positive symptom measure scores became elevated in the days preceding the incident. Effect sizes were not reported for these findings.

The final prospective study (Hodgins et al., 2003) investigated symptoms that may precede violent behaviour in 128 male patients with schizophrenia discharged from psychiatric and forensic hospitals followed up over 12 months. During the first six-month period nine out of 128 (7.0%) participants behaved violently, followed by 11 out of 112 (10.2%) participants in the latter six-month period. The authors reported from their logistic regression model that even after controlling for personality disorder, psychopathy and drug/alcohol misuse, the presence of any severe positive symptom increased the risk of violence during the first 6 month period (OR = 5.15; 95% CI = 1.25 – 21.23), and during the second 6 month period (OR = 11.19; 95% CI = 2.72 – 46.00). Furthermore, in the latter 6 month period having at least one TCO symptom (OR = 7.69; 95% CI = 1.90 – 31.19), and an increase in these symptoms between the two periods (OR = 10.03; 95% CI = 2.61 – 38.52), was also predictive of violence in their community sample after controlling for the same three variables. Of note, the large confidence intervals for these entire findings highlight the uncertainty of the ORs reported, which can be attributed to the small number of participants who were violent during the two 6-month periods that were studied. Therefore, these ORs need to be interpreted with caution.

Methodological Quality of Studies

The eleven studies selected for review were scored and ranked for methodological quality (see Table 1) using the tool developed for this purpose (Appendix 1.2). Some notable issues regarding methodological quality are worthy of further discussion.

Of the 11 studies included for review, only three employed a prospective design. This design is more desirable for cohort studies. Furthermore, given that violent behaviour is often variable in terms of both frequency and severity, and the variables that may predict this behaviour (including positive symptoms) are also dynamic, a prospective design would allow for greater opportunity to observe change over time.

Indeed, the proximity of assessment of positive symptoms to violent behaviour was variable across the retrospective (and prospective) studies. For some studies there was an indeterminate amount of time between assessment of positive symptoms and recorded violent behaviour(s) (Foley et al., 2007; Stompe et al., 2004; Teixeira & Dalgalarrondo, 2009) or a potential gap of 6-12 months between the time the two variables under investigation were measured (Chan, 2008; Hodgins et al., 2003; Lincoln & Hodgins, 2008; Swanson et al., 2006). Two studies assessed positive symptoms in close proximity to their measures of violence. Fresán et al. (2005) measured violent behaviour in the week preceding the clinical assessment when they measured positive symptoms. Nolan et al. (2005) performed secondary analyses of data for when they had positive symptom measure scores that were recorded within three days of violent behaviour taking place.

Not only does the proximity of the positive symptom and violence assessments vary across the studies reviewed, but also how these factors are assessed and defined. The definition of violence as an outcome was varied, ranging from verbal aggression, which was considered as one part of a broader definition (e.g., Hodgins et al., 2003) to homicide only (Joyal et al., 2004; Laajasalo & Häkkänen, 2006). As one would expect from such diversity in definition, a wide range of violence outcome measures were used. These included validated measures such as the Overt Aggression Scale (OAS; Yudofsky, Silver, Jackson, Endicott, & Williams, 1986) to recording whether or not the participant had committed a homicidal offence or a 'violent crime'. Further to the variation in measurement of violence, positive symptom measurement was also disparate. Although positive symptoms were most commonly assessed by the PANSS, some studies used the total score for the PANSS Positive Symptoms subscale, whereas others looked at the individual factors that make up this subscale (e.g., Swanson et al., 2006). More varied still, some studies looked for the presence of 'hallucinations' or 'delusions' recorded in case notes (Joyal et al., 2004; Laajasalo &

Häkkänen, 2006). Studies looking at TCO symptoms were equally varied. Two studies used information from interview schedules to draw conclusions about symptoms: Hodgins et al. (2003) used the Psychiatric Epidemiology Instrument (Link & Stueve, 1994) whereas Stompe et al. (2004) used the SADS: Lifetime Version (SADS-L; Spitzer & Endicott, 1977) and Fragebogen zur Erfassung Psychotischer Symptome (FPS; Stompe & Ortwein-Swoboda, 1999). Chan (2008) used a self-report measure completed by carers (i.e., TCO symptoms scale; Bjørkly & Havik (2003)). Such variation in definition and measurement of constructs is likely to have implications for the consistency and generalisability of findings, which may explain the differences in the literature. This is further confounded by the apparent population selection biases evident in the above studies.

Perhaps also related to this point, the difference in statistical analysis methods used across studies could also contribute towards the disparity of findings. For example, some studies used statistical tests of difference to look for differences between a 'violent' and 'non-violent' group of participants, of which group membership was defined by criteria specific to the study. Therefore, these tests could end up essentially measuring different things, as group allocation was inconsistent across studies. Thus to say there was a difference in positive symptoms between the groups in one study does not permit one to conclude that there should be differences between others, despite utilising similar statistical analysis methods.

It is also worth mentioning some of the difficulties inherent to using logistic regression analysis to report whether or not there is evidence to suggest an association between violence and positive symptoms in schizophrenia, as many of the studies chose this approach to analysis. The significant predictors of violence are only significant within the context of the specific model the researchers have developed, which is dependent upon the other variables entered into the model which are non-significant. Whereas some studies appeared to have entered many other variables derived from those the literature would suggest may be associated with violence (e.g., Swanson et al., 2006), others seemed to have relatively small models for which there did not appear to be many competing variables entered into the model (e.g., Stompe et al., 2004). This of course means that any significant results should be interpreted with caution, as other omitted variables may have explained a

significant proportion of the variance in violent behaviour. Importantly, several studies did not report on history of violence, which could have shown to be an important variable, were it entered into a logistical regression model.

Perhaps another limitation of the use of logistic regression analysis relevant to its use in prospective studies is the issue that this design sets a limited follow-up period. Therefore, the set time period actually becomes a confounding variable in the analysis. For this reason, Cox regression may be more appropriate as it allows for missing (or censored) data, i.e., events that have not occurred within the observation period but may yet occur. In this way the variable 'time to event' can be fully incorporated into analyses.

The above studies all suffered from inconsistent and insufficient reporting of their results. For example, the studies using logistical regression analysis often failed to report ORs (and confidence intervals), and none reported relative risk ratios. Furthermore, when significant findings were reported, their clinical significance was often over-inflated, given the actual small OR values. On the theme of over-inflating findings, the majority of the studies above suffered from drawing tautological conclusions which could often be inferred from a logical consideration of what was being measured. For example, it is common sense for one to infer that someone with an APD diagnosis who has committed a murder likely did so as the result of getting into a fight or argument (Joyal et al., 2004), and delusional participants who are violent are more likely to have acted on their delusional belief than delusional participants who were not violent (Teixeira & Dalgalarrondo, 2009).

Discussion

Main Findings

This review aimed at exploring the evidence for an association between the presence of positive symptoms and violence in people with schizophrenia from the past decade, and at considering what this can tell us about the relationship or underlying mechanisms between

these two variables. Therefore, this review sought to update the findings of previous reviews (e.g., Bjørkly, 2002a; 2002b; Braham, et al., 2004; Walsh et al., 2002).

Of the 11 studies reviewed, where possible to calculate, prevalence rates of violence amongst participants with schizophrenia ranged from 7%-63.9%, assessed over a timeframe spanning 2 weeks – 2 years. In total, eight (73%) of the studies concluded that there was a positive association between the presence of positive symptoms and violence in people with schizophrenia. Since seven of the studies reported on positive symptoms generally, it is difficult to be more specific about the nuances of positive symptoms that might underpin this relationship, or draw comparisons with reviews that have focused on a specific positive symptom, such as delusions (e.g., Bjørkly, 2002a) or hallucinations (Bjørkly, 2002b; Braham, et al., 2004). This is further complicated by the definitions of the dependent variable, 'violence', ranging from 'verbal aggression' to 'homicide'. However, taken together, the pattern of findings reported here echo those of other reviews, with the evidence suggesting that there is an association between these factors. For example, Bjørkly (2002a) concluded that the literature advocated for the role of persecutory delusions in increased risk for violence amongst psychiatric patients. Also to a lesser extent there was some emerging evidence that suggested command hallucinations (which were violent in content) may be associated with a greater risk of violence by way of the fact that they may increase compliance, which would cause a violent outcome. Of the two studies reviewed here which made specific reference to delusions and hallucinations, one (Joyal, et al, 2004) reported a significant association for the role of these symptoms in homicide, whereas another (Laajasalo & Häkkänen, 2006) reported these variables were not related to the use of 'excessive violence' amongst homicide offenders with schizophrenia, although clearly these two studies were measuring different things.

Three of the studies looked at the relationship between TCO symptoms and violence with two advocating for a positive association (Chan, 2008; Hodgins, et al., 2003) and one not (Stompe, et al., 2004). This disparity of findings was also reflected in a previous review which looked at eight studies and reported that seven found that acute psychotic symptoms (such as TCO symptoms) were associated with increased risk of violence amongst people

with a psychotic illness (including schizophrenia), and one study that did not find evidence for this association (Walsh et al., 2002).

There are limitations in interpreting the findings of the studies reviewed due to the broad variation in design; methodology; participants; definition and measurement of variables; statistical analysis; and overall methodological quality, thus only tentative conclusions can be drawn about what these studies can collectively tell us about the role positive symptoms may play in the increased risk of violence amongst this diagnostic group and the underlying mechanisms. For example, various definitions of the two variables measured were employed across the studies. While the definition of 'violence' ranged from verbal aggression to homicide, the definition of what constituted 'positive symptoms' was equally disparate. Specifically this ranged from a dichotomous classification system (positive symptoms absent/present) to classifying participants in terms of a specified amount or intensity of positive symptoms experienced (for example, through the use of a pre-determined cut-off score on the PANSS positive symptom scale). This of course has implications for making comparisons across the studies reported in this review. In addition, there was variation in the proximity of symptom measurement to violent events. Thus, it is possible other confounding factors could have contributed towards the violence, which is further exacerbated by the statistical models used being restrictive in the competing variables accounted for. Furthermore, given the dynamic nature of violence and positive symptoms in schizophrenia, a prospective design would have been more desirable in order to achieve greater control, although only three studies utilised this. Thus, all things considered, it appears that little has improved over the past decade in this field of research, as similar observations were made in previous reviews. For example, Walsh et al. (2002) commented on the discrepancy in methodologies employed by the studies reviewed, which made it difficult to draw conclusions with any confidence. Furthermore, they recommended that methodologies could be improved by better controlling for bias in the studies and using more than one measure of violence in a single study, which appears to have not been addressed over the past decade. Similarly, Bjørkly (2002a; 2002b) concluded that comparison of the findings across studies and generalisability was severely limited by the heterogeneity and inadequacies of methodologies.

Limitations of Review

This review has focused on a single diagnostic group, which may be of less relevance to clinicians who are more concerned with the symptoms a psychiatric patient presents with than the diagnostic label per se. However, as highlighted by Hodgins et al. (2003) drawing comparisons across diagnostic groups could confound the findings as the association between the violence and positive psychotic symptoms may differ depending on diagnosis. Furthermore, given that often the most common diagnosis given in secure hospital settings is schizophrenia (e.g., Taylor et al., 1998), and clinicians within these settings often work within a diagnostic framework, ecological validity is assumed.

A further limitation is that the review only considered research from the past 11 years. However, the findings presented here can be seen as updating those presented in earlier reviews (Bjørkly, 2002a; 2002b; Walsh et al., 2002) which include research published prior to 2000. Furthermore, this systematic review does not include a meta-analysis which could improve the applicability of the findings presented. However, the degree of diversity in the definitions of violence and positive symptoms, sampling procedures, measures used and statistical analyses would pose significant difficulties for combining the data, when also given that the quality of the data is already problematic.

Conclusions

Considering the overall findings of this review, there is some evidence to suggest that the presence of positive psychotic symptoms in people with a diagnosis of schizophrenia may increase the risk for violence in this population. However, the variation of the research methodologies does not allow for further speculation on the type of positive symptom or the underlying mechanisms that might explain the relationship. As a caveat, extreme caution must be taken when interpreting these findings as they are constrained by limitations to methodological and statistical rigour, as discussed in this review. Often there is the potential for confounding factors to explain a portion of the variance for increased risk of violence in the studies, which is often not addressed. Furthermore, when significant ORs are reported, the clinical significance of the 'increased risk' for violence remains minor,

particularly given the low base rates of violence to begin with. Thus, it is important to remember when interpreting the findings of these studies that violence amongst people with schizophrenia is extremely rare and therefore although there may be some evidence for there being a positive relationship between positive symptoms and violence amongst this population, given the low base rates of violence, positive symptoms are neither necessary nor sufficient for violent behaviour to occur. This is reflected by the large proportion of people with schizophrenia who experience positive symptoms, but the comparatively low base rate of violence amongst this population. Furthermore, some studies (e.g., Laajasalo & Häkkänen) reported that violence occurred amongst their sample of participants with schizophrenia in the absence of experiencing positive symptoms.

It is important not to add further to the stigmatisation of this population, and therefore further research is warranted which addresses some of the concerns described here, before conclusions can be made with confidence about the association between positive psychotic symptoms and violence in schizophrenia, and the possible underlying mechanisms which may control this relationship. Only once more is known about this association will appropriate and effective risk management strategies be able to be implemented.

Implications for Future Research, Clinical Practice and Service Planning

Future research that looks at the relationship between violence and positive psychotic symptoms in schizophrenia should aim at taking a more consistent approach. Researchers should aim for greater consistency in design; population sampling; definition of violence as an outcome; measurement of violence and positive psychotic symptoms; and greater transparency in statistical analysis, including more careful consideration of confounding variables and clearer reporting of ORs and effect sizes. Furthermore, as none of the research in this field over the past eleven years was based in the United Kingdom, this should be addressed to ensure greater generalisability of findings.

However, given that there is some (cautionary) evidence to suggest there is an association between the presence of positive psychotic symptoms and violence in people with schizophrenia, this should be born in mind when assessing and formulating risk of violence

in this client group. Of course base rates of violence are very low, and are far outweighed by the number of people who show signs of positive symptoms, but this issue may be particularly relevant to services who work with people with a history of violence, such as in forensic mental health settings. Changes to service and risk management planning should be made accordingly.

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Figure 1. Flow chart depicting search process.

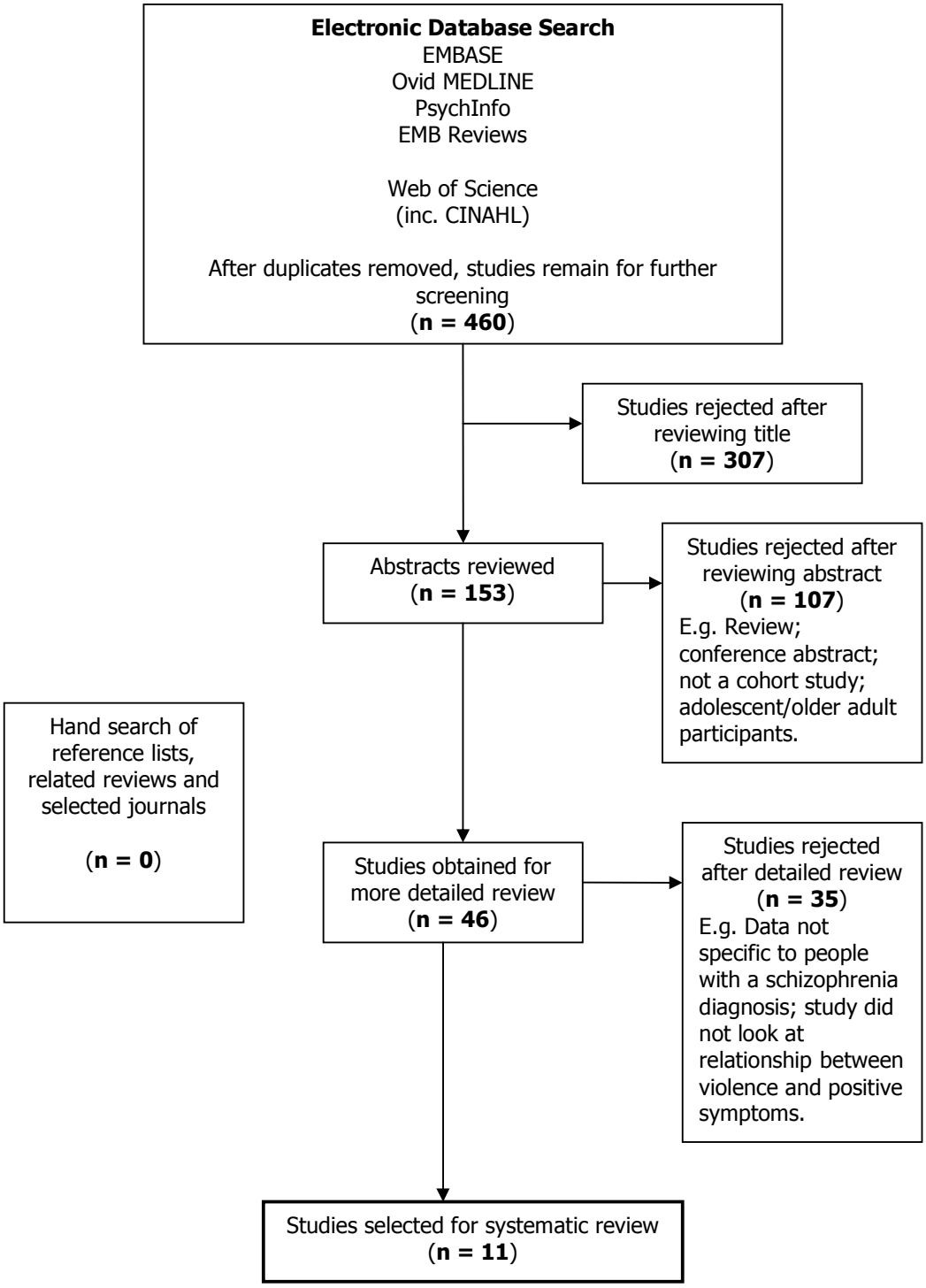

Table 1. Summary of methodology for the 11 studies

Study	Quality criteria rating (Rank)	Design	Participants recruited	Measure of Violence	Measure of Positive Symptoms
Chan (2008)	53.5% (=2)	Retrospective	61 caregivers who provided care for 51 relatives with schizophrenia; (Canada).	Revised Conflict Tactics Scales (CTS2); (Straus, Hamby, Boney-McCoy, & Sugarman, 1996).	TCO symptoms scale.
Foley et al (2007)	48.5% (6)	Retrospective	94 individuals with schizophrenia (first-episode); (59 M, 35 F); (85 inpatient, 9 outpatient); (Ireland).	Modified Overt Aggression Scale (MOAS); (Kay, Wolkenfeld, & Murrill, 1988).	PANSS.
Fresán et al (2005)	41% (9)	Retrospective	100 individuals with schizophrenia; (65 M, 35 F); (21 inpatient; 79 outpatient); (Mexico).	OAS.	PANSS.
Hodgins et al (2003)	61% (1)	Prospective	128 M with schizophrenia (n = 106) or schizoaffective disorder (n = 22) discharged from forensic psychiatric hospital (n = 37) or general psychiatric hospital (n = 91); (Canada; Germany; Finland; Sweden).	Interview protocols developed by the MacArthur Risk Assessment Project.	General 'positive symptoms': PANSS; TCO symptoms: questions from the Psychiatric Epidemiology Instrument.
Joyal et al (2004)	32.5% (=10)	Retrospective	Last 58 M with schizophrenia convicted of murder, attempted murder, manslaughter or attempted manslaughter and committed to treatment before January 1998; (Finland).	Homicidal offence committed.	Independent ratings of presence of 'delusions' and/or 'hallucinations' at time of offence from file information.
Laajasalo & Häkkänen (2006)	32.5% (=10)	Retrospective	125 M homicide offenders (1986-2004) with schizophrenia; (Finland).	Homicidal offence committed (and further classified as 'excessive violence' used or not).	Independent ratings of presence of 'delusions' and/or 'hallucinations' at time of offence from file information.
Lincoln & Hodgins (2008)	52.5% (4)	Prospective	216 individuals with schizophrenia; (209 M, 7 F); discharged from forensic hospitals (n = 127) or general psychiatric hospitals (n = 82); (Canada; Germany; Finland; Sweden).	MacArthur Community Violence Instrument (Steadman et al., 1998).	PANSS.
Nolan et al (2005)	51% (5)	Prospective	157 'treatment-resistant' inpatients with schizophrenia; (133 M, 24 F); (USA).	OAS.	PANSS.
Stompe et al (2004)	43.5% (8)	Retrospective	119 M inpatient 'violent offenders' with schizophrenia vs. 105 M inpatient age-matched 'non-offenders' with schizophrenia; (Austria).	Taylor (1985) classification of violent behaviour.	SADS-L; FPS.
Swanson et al (2006)	53.5% (=2)	Retrospective	1410 individuals with schizophrenia; (1048 M, 362 F); mixed inpatient/outpatient (some both); (USA).	MacArthur Community Violence Interview (Steadman et al, 1998).	PANSS.
Teixeira & Dalgalarrondo (2009)	46% (7)	Retrospective	30 M delusional inpatients (high-security forensic hospital) with schizophrenia who had committed a violent crime related to their delusional behaviour vs. 30 M delusional inpatients (common psychiatric wards) with no history of violent crime; (Brazil).	Committed a 'violent crime'.	PANSS; MMDAS.

Table 2. Summary of results of the 11 studies.

Study	Prevalence rate of violence reported (time period)	Statistical Analysis	Conclusions drawn re: relationship between positive symptoms in schizophrenia and violence
Chan (2008)	63.9% (in the last 12 months).	• Inter-correlations between dependent (inc. TCO symptoms) and independent (physical assault/psychological aggression) variables • Stepwise regression analyses for variables explaining 'physical assault' and then 'psychological aggression' against caregivers	**Positive relationship** • Primary risk factors for 'psychological aggression' against caregivers are level of critical comments given and severity of TCO symptoms. • Primary risk factor for 'physical assault' against caregivers is severity of TCO symptoms.
Foley et al (2007)	N = 30 (32%) of participants (over 2 week period).	• Binary logistic regression to identify possible predictors of violence (10 factors entered into model inc. PANSS positive symptom subscale score).	**Positive relationship** • 'Involuntary admission status' and 'higher PANSS positive symptom scores' were the only 2 significant predictor variables entered into the model.
Fresán et al (2005)	N = 20 (20%) (observation period unknown).	• Statistical tests of difference (Chi square for categorical differences and Mann Whitney U for independent samples differences) between 'violent' (n = 20) and 'non-violent' (n = 80) participants on multiple variables (inc. all subscales of PANSS positive subscales scores). • Correlations of PANSS scores and 'Global Aggressiveness' scores on OAS.	**Positive relationship** • Significant differences between groups on 4 out of 7 PANSS positive subscale dimensions ('violent' group significantly higher). • Significant positive correlation between 'global aggression' and PANSS positive subscale scores (and for 5 out of 7 positive subscale dimensions).
Hodgins et al (2003)	N = 9 (7.0%) of participants (0-6 months); N = 11 (10.2%) of participants (6-12 months).	• Tests of difference for 'violent' vs. 'not violent' for the two 6 month periods (inc. PANSS positive symptom scores and TCO symptom scores). • Logistic regression models to predict violence at both 6 month periods. Measures of positive, negative, and TCO symptoms, anxiety, and depression entered into the models.	**Positive relationship** • During first 6 month period presence of severe positive symptom at beginning predicted violence (even after controlling for APD diagnosis, psychopathy and history of drug/alcohol misuse). • During second 6 month period, presence of severe positive symptom, a TCO symptom, and an increase in TCO symptoms at the start of the period, predicted violence (even after controlling for APD diagnosis, psychopathy and history of drug/alcohol misuse).
Joyal et al (2004)	100% (entrance to study was defined by having committed a homicide offence).	• Tests of difference across several variables (inc. types of delusions and hallucinations deemed to have triggered the homicidal act) between participants with a schizophrenia diagnosis and participants with a schizophrenia-APD dual diagnosis.	**Positive relationship** • Psychotic symptom(s) judged as trigger in N = 35 (60%) of all the homicides. • Significant difference for psychotic symptom(s) as trigger between schizophrenia (n = 19 (83%)) and schizophrenia+APD (n = 16 (46%)) groups. • APD dual diagnosis may reduce impact of psychotic symptoms triggering this type of violence (significantly more homicides in schizophrenia+APD group were judged to be triggered by a fight or argument).

Table 2. continued.

Laajasalo & Häkkänen (2006)	100% (entrance to study was defined by having committed a homicide offence). N = 37 (29.6%) judged to have used 'excessive violence' (the independent variable in this study).	• Tests of difference between non-excessive violence vs. excessive violence groups. • Logistic regression analysis for predicting use of excessive violence (variables entered included 'hallucinations and delusions' and 'psychotic motivation'). • A separate logistic regression analysis was conducted to predict excessive violence based on psychotic symptoms present in a sub-sample of psychotically motivated offenders (n = 85).	**No significant relationship** • Hallucinations and delusions, and psychotic motivation were not significant predictor variables for excessive violence in their model. • In a 'psychotically motivated' sub-sample, no single psychotic symptom entered into the model was found to be predictive of excessive violence.
Lincoln & Hodgins (2008)	N = 27 (15.9%) of participants (over 2 year follow-up period).	• Forward stepwise logistic regression analyses over four 6-month follow-up periods with violence as outcome (psychopathy measure, then PANSS positive factor, then PANSS insight rating were the dependent variables entered into the model).	**Positive relationship** • Although none of the variables were predictive of violence during the first 6 month period, psychopathy and severity of positive symptoms predicted violence during the second and third 6 month periods. By the fourth 6 month period, only severity of positive symptoms was predictive of violence.
Nolan et al (2005)	N = 88 (56.1%) of participants (over 14 week period).	• Between group differences were investigated for 'violent' vs. 'not violent' participants during the study period on PANSS scores. • Temporal relationship between positive symptoms and violence was investigated by analysing group differences for PANSS data within three days of a violent incident occurring.	**Positive relationship** • Significant differences were reported between groups on PANSS positive subscale scores, suggesting severity of positive symptoms is associated with violence. • Positive symptom severity was found to be increased in the days immediately prior to a violent incident occurring.
Stompe et al (2004)	N = 119 (100%) of study group participants (compared with non-violent control group; N = 105).	• Tests of difference used to make between group comparisons ('violent offenders' vs. 'non-offenders'; 'high violence' vs. 'low violence' offenders) on a variety of variables (inc. TCO symptoms). • Stepwise forward logistic regression models for risk of violence, and risk of 'high violence' completed (variables entered: social origin, then substance-related disorders, then TCO symptoms).	**No significant relationship** • No significant difference between 'offender' and 'non-offender' groups on prevalence of TCO symptoms. • TCO symptoms were not predictive of violence in stepwise forward logistic regression model after 'social origin' and 'substance-related disorders' entered. • However, 'high violence' group reported significantly higher prevalence of TCO symptoms than 'low violence' group, which was a significant predictor of high violence in the stepwise forward logistic regression model. Attributed this to 'threat' symptoms.

Table 2. continued.

Swanson et al (2006)	N = 270 (19.1%) of participants (over 6 month period).	• Mixed-model logistic regression was used to estimate multivariable models, with 3 dichotomous outcome measures: (minor violence vs. no violence; serious violence vs. no violence; any violence vs. no violence). • Final models were presented with significant covariates from domain models entered.	**Positive relationship** • Minor violence was found to be related to positive symptoms (higher PANSS positive scores), amongst 7 non-clinical characteristics and 4 other clinical characteristics. • Serious violence was reported to be associated with positive symptoms (above-median PANSS positive scores), but above-median PANSS negative scores reduced risk. Five other clinical/non-clinical characteristics were also related to risk.
Teixeira & Dalgalarrondo (2009)	N = 30 (100%) of participants in study group; N = 30 (0%) of participants in control group.	• Tests of difference (Mann-Whitney) between study and control group were carried out for PANSS sub-scale scores and MMDAS dimension scores. • Univariate logistic regression analysis model for risk of violence, entering the 6 MMDAS dimensions as dependent variables.	**No significant relationship** • No significant differences were found between groups on any of the PANSS subscales. • Significant differences were found on 3 of the MMDAS dimensions, and 2 ('acting on belief'; 'refraining from acting because of belief') were significant predictors of violence.

Chapter 2

Major Research Project

Metacognition in Forensic Patients with Schizophrenia and a History of Interpersonal Violence: An Exploratory Study

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Written according to guidelines for submission to the Psychosis: Psychological, Social and Integrative Approaches
(See Appendix 1.1)

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Submitted in partial fulfilment of the requirements for the degree of Doctorate in Clinical Psychology (DClinPsy)

Lay Summary

Our ability to think about our own thoughts and emotions, and those of others, and use this information to solve problems (metacognition) has been shown to be impaired in people diagnosed with the mental health condition, schizophrenia. This impairment is thought to be related to many of the difficulties people with schizophrenia experience. However, no research has looked before at whether it could be related to violence in people with this mental health condition, which although very rare can be problematic. This study explored this by interviewing a group of people with schizophrenia who had a history of violence and a group who did not, and comparing them on their metacognition skills. The results showed there was no difference between the groups on this ability, suggesting it is not related to violence in people with schizophrenia. However, some aspects of their metacognitive skills were better than others, which may be relevant more generally to the difficulties experienced by people with this diagnosis. Understanding this can help us to develop better psychological treatments for this group which take on board their pattern of difficulties with metacognition.

Abstract

Metacognition has been shown to be impaired in people with schizophrenia, and related to poorer social functioning outcomes. To date, no research has looked at the relationship between a particularly rare – but problematic – social functioning outcome (violence) and metacognition. The present study aimed at doing this by exploring patterns of metacognition in people with schizophrenia and a history of interpersonal violence, and comparing them to a group with schizophrenia and no history of violence. Participants took part in an interview which explored stress and coping, which was subsequently coded for metacognitive ability. Results indicate that metacognitive functioning is not directly associated with violence as an outcome in schizophrenia, as metacognition did not differ significantly between the two groups. However, results revealed that metacognition has a hierarchical structure with some domains more impaired than others, which may be relevant to the observed social functioning outcomes in schizophrenia. The limitations of the study and implications for clinical practice and future research are discussed.

Introduction

Metacognition

'Metacognition' is the term used to describe an extraordinary set of higher-order skills inherent to human functioning. Specifically, it describes the ability to think about thinking through our awareness and representation of one's own and others' cognitive and emotional states (mental states) and the use of this information to solve interpersonal problems (Semerari et al., 2003). Although the use of a single term to describe this skill may suggest it represents a single entity, current thinking views metacognition as comprising several capabilities which are related to one another, but are nevertheless distinct, both from a neurobiological and social functioning perspective (Bosco et al., 2009).

Within the literature, metacognition shares many conceptual similarities with other constructs, but the different theoretical orientations from which these have derived from is reflected in the differences between them. For example, 'theory of mind' (ToM) is one such construct often used interchangeably with metacognition in the literature. ToM reflects a strong cognitive focus to a social cognitive capacity, and refers to the ability to represent one's own and others' mental states, usually in relation to thoughts and beliefs (Brüne, 2005). Although ToM reflects a crucial part of metacognition, it is likely that it only represents one part of a wider system that allows one to think about thinking (Lysaker et al., 2010a). Combining ToM with psychoanalytic ideas, 'mentalization' describes another similar concept which has strong theoretical links to affect regulation, and is defined as the capacity to view mental states as independent from – but potentially able to influence – actions (Bateman & Fonagy, 2004). Furthermore, mentalization has a strong developmental basis, and it is argued that the skill is formed by secure early attachment relationships. In the absence of the opportunity to form a secure attachment early on, the capacity for mentalization can fail to develop sufficiently and impairments can emerge, for example in affect regulation abilities (Choi-Kain & Gunderson, 2008). Metacognition overlaps with the theoretical orientations of ToM and mentalization. However, it emerged within a psychotherapeutic context, and thus represents a similar but distinct set of ideas, being

more concerned with the relationship between metacognitive abilities and psychopathology.

Increasingly, the various roles and functions of metacognition are being recognised as important concepts in many different psychiatric disorders, for example personality disorders, eating disorders and post-traumatic stress disorder (PTSD) (Dimaggio, Vanheule, Lysaker, Carcione, & Nicolò, 2009). In particular, the relationship between metacognition and schizophrenia has received much attention over recent years.

Metacognition in schizophrenia

Traditionally, research in this area has drawn on laboratory-based paradigms that look at ToM ability in people with schizophrenia using adaptations of psychological tests commonly used with children; measures of "intentionality"; or tests of first- and second-order ToM which assess comprehension of irony, faux pax, humour, and metaphor. Although these studies suggest a specific deficit in ToM abilities in people with schizophrenia (Brüne, 2005), the limited generalisability of experimental laboratory tasks with people with psychiatric disorders to real-life situations warrants caution when interpreting the findings of these studies (Simpson, Done, & Vallée-Tourangean, 1998).

In response to some of these difficulties, Lysaker and colleagues have explored metacognitive deficits in people with schizophrenia through the study of narratives of self and illness (Lysaker et al., 2005; Lysaker, Dimaggio, Buck, Carcione, & Nicolò, 2007b; Lysaker et al., 2008; Lysaker et al., 2010a; Lysaker et al., 2010b), which they argue allows for greater ecological validity in the study of metacognition through the construction of a real-world context, as reflected in narratives, as opposed to that offered by the analogous laboratory tasks (Lysaker et al., 2005).

The findings from this body of research derived from narrative data have produced some interesting thoughts about metacognition in people with schizophrenia. For example, the evidence suggests that the majority of people with this diagnosis show impairments in metacognitive functioning, such as their ability to recognise their own mental states, and/or

being able to perceive the world as a place where other individuals with their own unique thoughts, feeling and perspectives co-exist (Lysaker et al., 2007b). Furthermore the evidence suggests that different clinical correlates may differentially affect metacognitive ability. In one such example, features common in people with a diagnosis of schizophrenia, for instance: specific aspects of neurocognition, negative symptoms, and having a history of childhood sexual abuse have been shown to be independently linked to different patterns of metacognitive impairment (Lysaker et al., in press). This further suggests metacognition has a modular quality, and is comprised of a set of semi-independent functions. In addition, mood (e.g., depression), insight and quality of life have also been shown to be associated with impairments in metacognitive ability (Lysaker et al., 2005).

Metacognition is further relevant for people with schizophrenia as it may act as a mediating factor to some of the negative outcomes and symptoms associated with this diagnostic group (Lysaker et al., 2010c). In other words, some of the symptoms common in people with schizophrenia, such as positive and negative symptoms, and other associated diagnostic outcomes, may be reflective of underlying difficulties in different areas of metacognitive functioning (Lysaker, Gumley, & Dimaggio, 2011b). For example, it is possible for one to conceive how having difficulties in being able to recognise and differentiate one's own, and/or others' mental states, and using this information to resolve problems, may have a negative impact on social functioning (Stratta, Daneluzzo, Riccardi, Bustini, & Rossi, 2009). Furthermore, it is also reported to have implications for occupational functioning, in so much as perhaps not being able to recognise and alter one's thoughts about issues in the workplace may prevent an individual from being able to make the appropriate changes to performance in line with changes to workplace demands (Lysaker et al., 2010a). Thus conceivably, metacognitive functioning in people with schizophrenia may have wide-reaching implications for the recovery process in people within this diagnostic group. Consequently, metacognitive functioning has been viewed to be a potentially important target for psychosocial interventions with people with schizophrenia (Stratta et al., 2009).

Metacognition, schizophrenia and violence

In response to these findings, researchers have begun to look further into the different patterns of metacognitive abilities and problems that exist in people with schizophrenia. Furthermore, they have considered how to develop interventions that may directly target these deficits in order to provide some resolution to many of the difficulties faced by people with schizophrenia. Perhaps one population metacognition may be particularly relevant to, and interesting to consider, is amongst people with schizophrenia who have a history of interpersonal violence, who are often treated within the forensic mental health system.

Although violence amongst people with schizophrenia is uncommon (Swanson et al., 2006), it is nevertheless problematic, particularly in forensic services where around half of those detained have committed violent or sexual offences (Rutherford & Duggan, 2008). Furthermore, poor outcomes that are more generally associated in people with schizophrenia can be particularly pronounced amongst this group; for example, social functioning. The use of interpersonal violence to resolve conflict can be viewed as one extreme of a social functioning spectrum (Krakowski, 2003).

Although the issue of violence amongst people with schizophrenia is undoubtedly complex, and both the underlying causes and functions multi-faceted, given the proposed link between metacognitive abilities and symptom expression and functioning outcomes, it is interesting to consider the relationship between metacognition and violence. For example, one may propose at a theoretical level that any impairment in the ability to recognise and interpret internal cognitive and emotional states, and to recognise and interpret others' mental states, and use this information to resolve interpersonal problems that one faces, may be particularly relevant to people with schizophrenia and a history of interpersonal violence. Certainly Levinson and Fonagy (2004) have proposed that individuals with impairment in the capacity to envisage others' mental states might be more likely to cause harm to others, as this mental state information is what ordinarily inhibits harmful behaviour because it allows us to perceive the views of others. It further seems plausible to consider that metacognition may be related to the use of violence by a minority of this population, given that many of the identified violence recidivism risk factors are likely

vulnerable to impaired metacognitive ability, for example, lack of personal support, lack of insight, and impulsivity (Webster, Douglas, Eaves, & Hart, 1997).

Exploration of metacognition in people with schizophrenia and a history of interpersonal violence could allow for further consideration of effective treatment and rehabilitation strategies for this population. Although central to the rehabilitation and recovery goals for this group is the reduction and management of violence risk (and therefore inherent within this idea, improvement in social functioning), there is currently still little in the way of interventions available which fulfil this need. At the turn of the century, Bloom, Mueser and Müller-Isberner (2000) concluded that although, as yet, there was a lack of specific evidence-based literature on the treatment of violence amongst mentally disordered offenders (including those with schizophrenia), the required components had been identified that could produce an effective approach to treatment. However, more than a decade later, and it appears as though we are still searching for an effective approach to psychosocial treatment.

Therefore, it appears that there would be a clear benefit to exploring patterns of metacognitive ability in people with schizophrenia who have a history of interpersonal violence. This would be important not only to further develop our knowledge and understanding of the nuances of metacognition in schizophrenia, but also as it may contribute towards the development of targeted interventions that could be matched to the pattern of metacognitive functioning evident in those with a history of interpersonal violence. To the author's knowledge, metacognition has not been investigated before in relation to violence in schizophrenia. The current study will do this by exploring patterns of metacognitive ability through narratives of self, in a sample of forensic patients with schizophrenia who have a history of interpersonal violence. The findings will be compared with a sample of individuals with schizophrenia who have no history of interpersonal violence, and who are being treated in the community. This will allow for observations to be made regarding any differences in metacognitive ability present between these two groups.

Research Aims, Questions and Hypotheses

This study aims to address the following research questions:

1. How does metacognitive ability in a forensic population of people with schizophrenia and a history of interpersonal violence compare to people with schizophrenia who have no history of interpersonal violence, and who are being treated in the community?

2. What patterns of metacognitive ability exist in people with schizophrenia and a history of interpersonal violence who are being treated by forensic services?

The following hypotheses will be explored:

Hypothesis 1: The forensic group will show differences of ability in each of the three domains of metacognition measured, relative to the community psychosis group (i.e., metacognitive ability will show between-group differences).

Hypothesis 2: Differences in ability will exist between the three different domains of metacognitive functioning in a forensic population of people with schizophrenia who have a history of interpersonal violence (i.e. for the forensic group metacognitive ability will show within-group differences across the three domains).

Method

Participants

Two groups of participants were recruited for the present study: a forensic group and a psychosis comparator group. Participants in the 'Forensic' group were receiving treatment from forensic mental health services, and were recruited from a medium-secure hospital, a low-secure hospital, and two Forensic Community Mental Health Teams. To be included in

this group participants had to be aged between 18-64; have a primary diagnosis of schizophrenia (or similar); and have a history of interpersonal violence as defined by the HCR-20 (Webster et al., 1997): actual, threatened or attempted harm towards others. Being managed within forensic services implied the history of interpersonal violence was at a level that presented a significant risk of harm to self and/or others.

The 'Psychosis' group were recruited from Community Mental Health Teams where they were currently receiving treatment. For inclusion in this group, participants had to be aged between 18-64; have a primary diagnosis of schizophrenia (or similar); and have no history of interpersonal violence.

Individuals who were acutely psychotic, had a diagnosis of autistic spectrum disorder or were identified as having a learning disability were excluded from participating in the study. Furthermore, people who had a history of organic or acquired brain injury were unable to participate, as were those who did not have English as their first language, due to the use of narrative data.

Participants in the 'Forensic' group were recruited by the author by approaching the appropriate clinical teams who then identified potentially suitable participants to take part. These individuals were then provided with information on the study (Appendix 2.1) and were able to "opt in" and notify their interest (Appendix 2.2). During an initial meeting with the author to discuss participation in the study, written and informed consent was taken (Appendix 2.3). As the current study formed part of a wider collaborative study with two other researchers (Dr Angus MacBeth – AM; and Ms Elizabeth Reilly – ER), participants in the 'Psychosis' group were recruited using similar methods by a second researcher (AM).

Measures

Narrative Interview for Compassion and Recovery (NICR)

The NICR (MacBeth & Gumley, 2011) is a semi-structured interview that explores stress and coping with participants, including their sources of support during these times and strategies they used to manage interpersonal conflict (Appendix 2.4). So that it was suitable

for the purpose of assessing metacognitive ability, it allowed participants the opportunity to "think about their own thinking, the thinking of others and the problems they are presented, without posing direct problems to be solved" (Lysaker et al., 2005, p.65). As the NICR was being used for the first time in the present study, and by two other researchers (AM and ER) in two other simultaneous studies, careful consideration was given to the use and administration of the interview. This involved training and supervision with the creators of the NICR, the author, and researcher ER who would also be using it. Transcripts of the NICR from these first three studies (including the one reported here) will be made available in order to calculate inter-reliability on the use of the interview.

Metacognitive Assessment Scale (Revised Edition) (MAS-R)

The MAS-R (Carcione et al., 2010; available from the authors on request) is a tool that can be applied to narrative transcripts to measure metacognitive ability (revised from an earlier version; Semerari et al., 2003). In addition to looking at metacognition as a whole, it can also provide a measure of different domains of metacognition. In order to do this the MAS-R uses 3 sub-scales: Understanding of One's Own Mind (UM); Understanding of Other's Mind (UOM); and Mastery (M), which each comprise different sub-functions, to build up a profile of an individual's metacognitive abilities. Using the MAS-R rating scale (Appendix 2.5), for each sub-function points can be awarded by the rater using a Likert-type scale of 0-5 ('not engaged' – 'sophisticated') according to the level of metacognitive skills evident in the narrative. These can then be summed to yield a measure of metacognitive ability, overall or at the sub-scale/domain level. Scores on the three sub-scales measured (UM; UOM; and M) can range from 0-40; 0-25; and 0-40 respectively. The Principal Investigator who was trained in the use of the MAS-R provided training and supervision to the author in the use of this tool. Consultation from the tool's creators was also provided in order to ensure proper and reliable use. As this was the first time that the MAS-R had been used in empirical group research, no normative or comparative data is available at present for clinical populations similar to the ones included in the current study. However, in order to measure inter-rater reliability for the MAS-R, a sample of 6 transcripts was coded by both the author and another researcher (ER) trained to use the tool. An analysis using the Kappa statistic was performed to determine consistency between the two raters. The outcome of this analysis was $\kappa = 0.93$, $p < .001$, which is classified as "outstanding" inter-rater reliability.

Furthermore, the same 6 transcripts were coded by one of the authors of the MAS-R. In terms of inter-rater reliability, significant Pearson correlations were reported for ratings of the UM ($r = 0.95$, $p < 0.05$); UOM ($r = 1.00$, $p < 0.001$); and M ($r = 0.97$, $p < 0.01$) sub-scales.

Brief Symptom Inventory (BSI)

The BSI (Derogatis, 1993) is a self-report measure that aims at identifying psychological symptoms of clinical significance. The 53-item measure looks at 9 symptom classes including depression, anxiety and paranoid ideation. Further to this, it can yield overall measures of current and past symptom levels, symptom intensity and total number of symptoms. Higher scores indicate greater levels of psychopathology. Convergent validity, test re-test reliability and internal consistency have been reported as 'very good' (Derogatis & Melisaratos, 1983).

The Positive and Negative Syndrome Scale (PANSS)

The PANSS (Kay, Fiszbein, & Opler, 1987) is a scale comprising 30 items that allows ratings to be made on a range of symptoms associated with severe mental health problems. The scale is divided into 3 sub-scales that allow for separate analysis of positive and negative symptoms, and general psychopathology. Increasing scores reflect greater levels of psychopathology. Inter-rater reliability is reported as $\alpha = 0.80$ (Kay, Opler, & Lidenmayer, 1987).

HCR-20

The HCR-20 (Webster et al., 1997) is a structured clinical assessment tool, which aids clinical judgement on risk of future interpersonal violence. It comprises 20 items, which are classified under 3 sub-scale headings: historical (10 items), clinical (5 items) and risk-management (5 items) (Table 1). Each item can be scored 0-2 (0 = no evidence; 1 = partially present; 2 = definite evidence) accordingly. The total score for the HCR-20 can range from 0-40. The total scores for the Historical, Clinical and Risk Management sub-scales range from 0-20; 0-10; and 0-10 respectively. Although in clinical practice the HCR-20 is used within a qualitative framework, it can be used quantitatively for research purposes, with increasing scores representing increasing risk of future violence. Inter-rater reliability for the HCR-20 has been described as 'very good' (Belfrage, 1998).

INSERT TABLE 1 HERE

Research Procedures

For the 'Forensic' group, the author completed the study with each participant across two separate sessions lasting approximately 1 hour each. During the first session participants took part in the semi-structured interview. At the second session participants completed the self-report measure and the author administered the PANSS. Participants were then debriefed (Appendix 2.6). Researcher AM followed these procedures with the 'Psychosis' group, first interviewing participants and then meeting with them to administer the PANSS and complete the self-report measure. For the 'Forensic' group, between the two sessions the author accessed the NHS mental health files of participants in order to score the HCR-20 and record diagnostic information.

Interviews for the 'Forensic' group were then transcribed by the author, while the interviews from the 'Psychosis' group were transcribed by researcher AM. The author then used the MAS-R to code the narrative data from the transcripts for the 'Forensic' group and 6 transcripts for the 'Psychosis' group. Researcher ER used the MAS-R to code the 5 remaining transcripts for this group.

Statistical Analysis

As there was little research available that addressed the aims described earlier, this was an exploratory study, and as such it was not possible to perform appropriate a-priori power calculations to inform sample size. Therefore, the author sought to explore the effect sizes observed in tests of assumption and tests of difference as a direct outcome of this study in order to inform future research.

Statistical Package for Social Sciences (SPSS) v.18 was used for data entry and analysis. A-priori, Kolmogorov-Smirnov and Levine's tests were performed in order to investigate the assumptions of normality and homogeneity of variance respectively for the data. The outcomes from this analysis then guided the selection of the appropriate parametric or non-parametric equivalent tests to answer the research questions. Both descriptive and inferential statistics were used to explore within- and between-group data, and included analysis of variance (ANOVA), correlations, and tests for the comparison of two means. Post-hoc analyses were then performed on the data using the appropriate parametric or non-parametric tests.

Ethics

Ethical approval for the study was granted by the NHS West of Scotland Research Ethics Committee (REC reference number: 10/S0703/67) (Appendix 2.7). Further approval was also obtained from the NHS Greater Glasgow & Clyde (GG&C) Research and Development committee (Appendix 2.8), and the NHS GG&C Directorate of Forensic Mental Health and Learning Disability research and audit committee.

Results

Participant Characteristics

For the 'Forensic' group, 27 people in total were approached to take part in the study. Eight individuals declined to continue any further after the first meeting with the author and one individual was not accepted into the study as they did not meet the criteria, leaving n=18 remaining. After consent was taken the drop-out rate was 0% for the interview stage, although 1 participant (6%) did not return to complete the self-report measures. For the 'Psychosis' group 21 people in total were approached to take part. Ten individuals did not consent to participation, therefore n=11 took part in the study. Once consent was taken the drop-out rate was 0%.

The main demographic characteristics of the two groups are presented in Table 2. Comparisons between the two groups showed that there were significant differences on some demographic characteristics. Specifically, Chi-square analysis showed that there was a significant difference between the groups ('Forensic' and 'Psychosis') for gender, as the 'Forensic' group consisted only of males and the 'Psychosis' group contained females. There was also a significant between-group difference for education, with the 'Psychosis' group receiving more education.

INSERT TABLE 2 HERE

Table 3 shows the main clinical characteristics of the two groups. Mann-Whitney tests showed that there were differences between several variables. The 'Psychosis' group scored significantly higher on the PANSS positive and general psychopathology sub-scales. Furthermore, significant differences were evident on the majority of sub-scales in the BSI. Again, the 'Psychosis' group showed the significantly higher scores on the Obsessive-Compulsive; Interpersonal Sensitivity; Depression; Anxiety; Phobic Anxiety; Paranoid Ideation; and Psychoticism subscales.

INSERT TABLE 3 HERE

Metacognition

A-priori the MAS data were explored in order to identify potential covariates that could affect the validity of the analysis. Kendall's tau correlations were performed to look at the

relationship between scores on the MAS with age; education; PANSS scores; and BSI scores across the two groups. Significant relationships were found to exist between the MAS with education and PANSS negative sub-scale scores. This showed that education was significantly correlated with the 'Understanding Others' Mind' sub-scale. The analysis also showed that PANSS negative scores were significantly correlated with the 'Understanding own Mind'; 'Understanding Others' Mind'; and 'Mastery' sub-scales; and MAS total score. The findings of the correlations are presented in Table 4.

INSERT TABLE 4 HERE

The median scores obtained for both the 'Forensic' and 'Psychosis' groups on the MAS are presented in Table 5. Mann-Whitney tests were performed to investigate the differences between the groups on the MAS. Although Table 5 shows there is a trend for the 'Psychosis' group to have scored higher on all three sub-scales on the MAS, and on the total score for metacognitive ability, statistical analysis showed that there were no significant differences between the groups on the 'Understanding own Mind'; 'Understanding Other's Mind'; and 'Mastery' sub-scales; or on total MAS score. Therefore, it was not necessary to transform the data in order to perform an Analysis of Covariance (ANCOVA) to control for the effects of PANSS negative sub-scale scores and education.

INSERT TABLE 5 HERE

In order to further explore the pattern of metacognitive ability in the 'Forensic' group, the mean item score for each MAS sub-scale was calculated. A Friedman's ANOVA was then

selected to determine whether there were any significant differences between the sub-scales on mean item scores. The results showed that there were significant differences between the three sub-scales in terms of mean score awarded in each scale (χ^2 (2) = 27.80, p< .001). Wilcoxon Signed Ranks Test post-hoc comparisons indicated that mean item scores on the 'Understanding own Mind' sub-scale was significantly higher than those on the 'Understanding Others' Mind' sub-scale (z = -3.24, p< .001, r =- 0.44) and 'Mastery' sub-scale (z = -3.73, p < .001, r = -0.51). Furthermore, the results indicated that mean item scores on the 'Understanding Others' Mind' sub-scale were significantly higher than those on the 'Mastery' subscale (z = -3.57, p< .001, r = -0.49). A similar result was found for the 'Psychosis' group, with the indication that there was a significant difference between the sub-scales on mean item scores (χ^2 (2) = 18.73, p< .001). However, Wilcoxon Signed Ranks Test post-hoc comparisons showed that significance levels were lower when considering that mean item scores on the 'Understanding own Mind' sub-scale were significantly higher than the 'Understanding Others' Mind' subscale (z = -2.94, p = .001, r = -0.51) and 'Mastery' sub-scale (z = -2.95, p = .001, r = -0.51), and also that the mean item scores on the 'Understanding Others' Mind' sub-scale were in turn significantly higher than the 'Mastery' sub-scale (z = -2.49, p = .010, r = -0.43).

Post-Hoc Analyses

Kendall's tau correlations were repeated for the 'Forensic' group. The pattern of correlations remained relatively stable, with again significant relationships being found between PANSS negative sub-scale scores and the MAS subscales in addition to the total MAS scores. Correlation coefficients were similar to those reported across the two groups: 'Understanding own Mind' (τ = -0.50, p< 0.01); 'Understanding Others' Mind' (τ = -0.52, p< 0.01); 'Mastery' (τ = -0.47, p< 0.05); MAS total score (τ = -0.52, p< 0.01). Furthermore, a significant relationship was again found between education and 'Understanding Others' Mind' sub-scale scores (τ = 0.39, p< 0.05), but in addition there was also evidence of a significant correlation between education and 'Mastery' sub-scale scores (τ = 0.39, p< 0.05).

In order to investigate whether having a secondary diagnosis of personality disorder in the 'Forensic' group had an effect on metacognitive ability, the data were analysed to

determine whether there were any differences on MAS scores between those with a Personality Disorder (PD) diagnosis (n = 7 Anti-social PD; n = 1 Psychopathic PD) and those without. Again, Mann-Whitney tests were used to investigate any between-group differences. They showed that there was no difference between those who did or did not have a secondary diagnosis of PD on the 'Understanding own Mind' (U = 40.00, p = NS, r = 0); 'Understanding Others' Mind' (U = 33.00, P = NS, r = -0.15); and 'Mastery' (U = 39.50, p = NS, -0.01) sub-scales; or on MAS total score (U = 39.50, p = NS, r = -0.01). Therefore again it was not necessary to transform the data and perform an ANCOVA to control for the effects of PANSS negative scale scores and education.

A further post-hoc analysis looked at whether metacognitive ability was related to risk of future violence, and therefore a Kendall's tau correlation was used to analyse the relationship between scores on the MAS and the HCR-20. No significant correlation was found between the HCR-20 and 'Understanding own Mind' ($\tau = 0.09$, p = NS); 'Understanding Others' Mind' ($\tau = -0.03$, p = NS); or 'Mastery' ($\tau = 0.01$, p = NS) sub-scales; or the total MAS scores ($\tau = 0.07$, p = NS).

Discussion

Main Findings

This was an exploratory study which aimed at investigating two questions. Firstly, the study asked how metacognitive ability in people with schizophrenia and a history of interpersonal violence might compare to people with schizophrenia with no history of violence. Related to this question it was hypothesised that the 'Forensic' group would show differences in metacognitive ability across the three domains measured relative to the community 'Psychosis' group. This prediction was not supported by the findings of the study.

Secondly, the study asked what patterns of metacognitive ability exist in people with schizophrenia who have a history of interpersonal violence and are treated within forensic mental health services. Specifically, it was predicted that differences would exist between

the different domains of metacognitive functioning measured. The evidence supported this prediction, as the findings suggested there were significant within-group differences between the three domains of metacognition measured by the MAS-R, with 'understanding own mind' being more sophisticated than 'understanding others' mind', which were both in turn better than the ability to put this information together to solve problems ('mastery').

Previous Literature

Taken together these findings show some consistencies with the previous literature, but also highlight some interesting and surprising findings. Unexpectedly, although scores on the MAS-R sub-scales were consistently higher for the 'Psychosis' group, no significant differences were found between the two groups in terms of metacognitive ability. These findings are interesting, as although the issue of violence in people with schizophrenia is undoubtedly complex (Walsh, Buchanan, & Fahy, 2002), one may expect, based on the evidence highlighting the role metacognition may play in outcomes and symptom expression (Lysaker et al., 2011b), that in a group of people with schizophrenia, those who have used interpersonal violence to resolve problems may show a difference in metacognitive ability from those that have not. In line with this it may also be expected that metacognition and risk of interpersonal violence would therefore be associated with one another, which the findings again did not support. Furthermore, these findings are inconsistent with those reported by Levinson and Fonagy (2004) who investigated the relationship between offending and reflective functioning (RF), which is theoretically related to mentalization, and is defined as the ability to recognise and define mental processes in the self and in others (Fonagy, Target, Steele, & Steele, 1998). They found that RF capacity was significantly lower in their sample of psychiatric-disordered offenders than in their non-offending personality disorder comparison group. In addition, when comparing offenders who had committed violent or non-violent crimes, the violent offending group showed significantly lower RF ability, and moreover, 93% could be categorised as having 'low' RF, compared to 29% of the non-violent offenders.

Another interesting finding emerged from the observation of metacognitive ability between those who had a diagnosis of Anti-social or Psychopathic PD, and those who had no PD

diagnosis in the 'Forensic' group. The existing literature on PD and metacognition suggests that people with different PD diagnoses (e.g., narcissistic, borderline, or avoidant) show different patterns of metacognitive impairment from one another (Dimaggio, Semerari, Carcione, Nicolò, & Procacci, 2007), and thus PD diagnosis is related to metacognition. Inconsistent with this, the evidence from this study suggests that a secondary diagnosis of PD is not associated with a different pattern of metacognitive ability. However, this finding should be interpreted with caution as many of the participants, although not deemed as meeting the criteria for PD, had significant anti-social and psychopathic personality traits.

Although there are no standardised data for the MAS-R, and this study was not looking specifically at the degree of impairment of metacognition relative to a healthy control group, closer inspection of the data suggests that in line with the literature (e.g., Levinson & Fonagy, 2004; Lysaker et al., 2005), both groups showed an overall impairment in metacognitive function. The mean individual item data showed that in both groups, the presence and use of metacognitive abilities was rated within the 'scarce' to 'moderate' range, and did not reach classifications of 'good' or 'sophisticated'. Therefore, although there were no significant differences between the two groups, both showed difficulty with metacognitive functioning, which in line with the findings reported above, does not seem specific to interpersonal violence or PD diagnosis. However, the presence of negative symptoms was significantly related to metacognitive ability with increasing PANSS negative scores being associated with decreasing metacognitive ability. Although the cross-sectional design of this study precludes one from drawing conclusions about the direction of causality, these findings support others that advocate for the presence of a relationship between negative symptoms and metacognitive functioning. For example, this finding is consistent with those reported by Greig, Bryson and Bell (2004) who found that increasing levels of negative symptoms in people with schizophrenia was associated with greater impairment on ToM tasks, while emotional withdrawal has been shown to be inversely related to the three domains of metacognition measured by the MAS (Lysaker et al., 2005). Furthermore, individuals with schizophrenia spectrum disorders who had impairments in both being able to recognise one's own and other's emotional states have been shown to have significantly higher levels of negative symptoms than those who did not have impaired emotion awareness (Lysaker et al., in press). Taken together, these findings may suggest

that the presence of negative symptoms indicate metacognitive impairments, which may need to be addressed if there is to be an improvement in symptom expression.

The findings that addressed the second hypothesis add further support to the idea of metacognitive ability being a modular construct, and comprising semi-independent functions which work both together and independently of one another (e.g., Bosco et al., 2009; Dimaggio et al., 2009). Specifically, the pattern of metacognition measured by the MAS-R for both groups showed that some domains (and sub-domains) appeared to be less sophisticated than others, suggesting different aspects of metacognition can be differentially impaired. In particular the ability to represent and think about own mental states was more sophisticated than the ability to represent and think about others' mental states, which in turn were both more developed than the ability to integrate this mental state information to solve problems. This 'hierarchical' pattern of metacognitive ability is consistent with other findings (e.g., Lysaker, Buck, & Ringer, 2007a) whereby it is proposed that being able to first recognise and interpret one's own mental states will have a strong influence on the development of being able to solve problems using mental state information and being able to understand and interpret the mental state of others. This is consistent with the developmental underpinnings of mentalization (Bateman & Fonagy, 2004) which assert that a secure early attachment relationship will allow an infant to develop an awareness of their own internal states, from which more complex and organised representations can then be produced (Choi-Kain & Gunderson, 2008). However, of note the present study found that the ability to understand others' mental states was more sophisticated than 'Mastery' skills, whereas other studies have reported the opposite (e.g., Lysaker et al., 2007a; Lysaker et al., 2005).

Limitations

There were several limitations in this study that warrant further discussion. Firstly, due to the small sample size, the statistical tests of difference performed may have been under-powered, and thus, if significant differences did exist between the variables under investigation they may not have been detected. Therefore future studies in this area should use a larger sample size.

There were also some methodological limitations in this study. The nature of the interview meant metacognition was assessed within a relatively stable context. Recent evidence suggests that mentalization ability is influenced by many factors including motivation to investigate mental states, internal feelings of threat and safety, and the social role one is currently engaged in (Liotti & Gilbert, 2011). Therefore, the way metacognition unfolded in the interview scenario during the research may be different to how it would unfold during other interview scenarios, or during real-life situations whereby one feels there is an immediate threat to their personal safety, and thus generalisability of the findings is limited.

Finally, the two groups in the study were different in many respects, for example, significant differences were reported on several clinical characteristics and factors such as gender and level of education. Whilst recognising that this study did not utilise a matched-control design, these differences between the two groups could have had implications for the findings reported. These differences were in part due to the nature of the participants in the 'Forensic' group who were mostly long-stay patients in secure hospitals who had responded well to treatment, and thus their mental health was relatively stable. This could have had further implications for the findings in this study, as although the risk of future violence for the 'Forensic' group was comparable to that reported for similar groups in other studies (e.g., Belfrage, 1998) for many their 'history of interpersonal violence' was indeed historical, with the last episode having occurred several years ago. Thus in future, comparisons may be better made between groups who are more similar in clinical characteristics, and where violence is in greater proximity to assessment of metacognition. This may be achieved by recruiting 'Forensic' participants from admissions wards rather than rehabilitation wards. Furthermore, given this limitation of the 'Forensic' sample recruited, and the small effect sizes reported for tests of difference between the two groups, this study may not be the most appropriate to inform a-priori power, and sample size calculations.

Clinical Implications of Research

The findings of this study can generate some useful suggestions for intervention in people with schizophrenia who have a history of interpersonal violence. Previous research

attempting to address the treatment of violence in people within this diagnostic category has been scarce, and that which has been done has demonstrated little advantage for different interventions. For example, Haddock et al. (2009) carried out a randomised controlled trial to assess the effectiveness of cognitive-behavioural therapy (CBT) on violence, anger and psychosis in people with a diagnosis of schizophrenia that had a history of violence. Compared to a social activity therapy group, those in the CBT group showed little advantage in terms of a reduction in violence or aggression. The findings of this study support the suggestion that metacognitive capacity and specific weaknesses should be taken into consideration when undertaking any psychotherapeutic work (Dimaggio et al., 2011), and thus interventions such as CBT and problem-solving based therapies take for granted that the patient has the capacity for these skills. Therefore, as the results of this study and others suggest that metacognitive ability forms a hierarchy, with some domains of metacognition being more impaired than others (e.g., Lysaker et al., 2007a), therapists should begin by initially assessing and developing an individual's ability to represent and recognise their own mental states. The MAS-R (or MAS) may be a useful tool to do this within a therapeutic setting (Buck & Lysaker, 2009). Following this, the process can be replicated for the ability to recognise and interpret others' mental states, before targeting interventions that support individuals to integrate mental state information to resolve problems (i.e., 'Mastery' skills). Finally, once these skills are present, one can then perhaps make better use of psychotherapies that assume these abilities are functioning (e.g., CBT). Lysaker et al. (2011a) have recently begun to develop a model that explains how the assessment and development of the ability to think about our own thinking may be achieved in psychotherapy sessions.

Future Research Directions

This was an exploratory study and as such the sample size was quite small. Therefore future research in this area should use larger sample sizes, in order to increase the power of statistical tests. Furthermore, metacognitive ability should be investigated over time in people with schizophrenia and a history of interpersonal violence, with a focus on different clinical correlates such as negative symptoms, so as to allow for a more detailed pattern of metacognitive ability in this population to be developed and understood. Furthermore, it

should also be a priority to recruit participants who are currently violent in order to ensure greater validity. In addition, more research is required into how metacognitive abilities may be developed over time so that individuals may perhaps derive optimum benefit from psychotherapeutic interventions.

Conclusions

Overall, this study highlights the similarities in the quality of metacognitive functioning, and the patterns of metacognitive ability, between people with schizophrenia who do or do not have a history of interpersonal violence. Specifically both groups showed that their ability to think about their own mental states is the strongest, followed by their ability to think about the mental states of others, and finally the ability to integrate this information to solve problems is the weakest. This adds to our knowledge of the nuances of patterns of metacognitive ability amongst this diagnostic group, and suggests that although metacognition may be related to several outcomes common to those with schizophrenia, it does not appear that a specific difference in metacognitive ability is related to violence as an outcome. However, as metacognitive ability was consistently stronger amongst those without a history of violence, it might be helpful to continue to investigate this issue with more participants in order to allow for greater power of statistical tests to detect differences between the groups, and with a 'Forensic' group who are actively violent.

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Table 1. Items rated in the HCR-20.

Historical (Past) Items	**Clinical (Present) Items**	**Risk Management (Future) Items**
H1 Previous violence	C1 Lack of insight	R1 Plans lack feasibility
H2 Young age at first violent incident	C2 Negative attitudes	R2 Exposure to destabilisers
H3 Relationship instability	C3 Active symptoms of major mental illness	R3 Lack of personal support
H4 Employment problems	C4 Impulsivity	R4 Noncompliance with remediation attempts
H5 Substance use problems	C5 Unresponsive to treatment	R5 Stress
H6 Major mental illness		
H7 Psychopathy		
H8 Early maladjustment		
H9 Personality disorder		
H10 Prior supervision failure		

Table 2. Demographic characteristics of participants

Variable	Forensic Group n = 18	Psychosis Group n = 11	Test of difference (t/ X^2) ES
Age in Years, mean (SD)	40.50 (10.42)	41.00 (9.51)	t(27) = -0.13, r = 0.02
Gender			$\chi^2(1) = 7.59$*, phi = 0.51
Male	18	7	
Female	0	4	
Ethnic Group			$\chi^2(1) = 0.13$, phi = 0.07
White Scottish	17	10	
Other	1	1	
Marital Status			$\chi^2(2) = 0.12$, Cramer's V = 0.06
Single	12	8	
Married	2	1	
Separated/Divorced	4	2	
Education			$\chi^2 = 11.05$*, Cramer's V = 0.62
Left school before 16/no qualifications	11	2	
Standard Grades/O Levels	3	2	
Highers or equivalent	2	0	
College or equivalent	2	4	
University	0	2	
Not available	0	1	

*p < .05; ES, effect size

Table 3. Clinical characteristics of participants

Variable	Forensic Group n = 18	Psychosis Group n = 11	Test of Difference (t/U/ $\chi^{2)}$, ES
Primary Diagnosis			$X^2(3) = 4.07$,
Schizophrenia	18	7	Cramer's V = 0.38
Schizoaffective Disorder	2	2	
Unspecified Non-Organic Psychosis	0	1	
Persistent Delusional Disorder	0	1	
Years since Diagnosis, mean (SD)	14.33 (5.48)	10.00 (7.10)	t(26) = -1.80, r = 0.33
PANSS, median (IQR)			
Positive symptoms	9.50 (4)	15.00 (6)	U = 39.00**, r = -.051
Negative symptoms	12.50 (9)	15.00 (8)	U = 86.00, r = -0.11
General psychopathology	20.00 (6)	35.00 (13)	U = 34.00**, r = -0.54
BSI, median (IQR)			
Somatization	0.86 (1.21)	0.57 (1.00)	U = 84.50, r = -0.08
Obsessive-Compulsive	0.50 (1.33)	1.67 (1.17)	U = 31.00**, r = -0.55
Interpersonal Sensitivity	0.25 (1.50)	1.75 (1.50)	U = 38.50**, r = -0.49
Depression	0.33 (1.17)	1.67 (1.33)	U = 33.50**, r = -0.53
Anxiety	0.17 (1.42)	1.67 (1.84)	U = 40.50*, r = -0.47
Hostility	0.00 (0.40)	0.60 (0.80)	U = 62.50, r = -0.29
Phobic anxiety	0.00 (0.80)	1.20 (2.00)	U = 32.00**, r = -0.55
Paranoid Ideation	0.00 (0.90)	1.80 (2.00)	U = 31.00**, r = -0.56
Psychoticism	0.20 (1.50)	1.60 (1.40)	U = 45.00*, r = -0.43
HCR-20, mean (SD)			
Historical	15.61 (2.91)	-	-
Clinical	3.28 (2.34)	-	-
Risk Management	4.28 (2.56)	-	-
Total	23.17 (6.86)	-	-

ES, effect size; IQR, Interquartile Range; PANSS, Positive and Negative Symptom Scale; BSI, Brief Symptom Inventory.

* p< 0.05; ** p< 0.01

Table 4. Kendall's tau (τ) correlations between scores on the MAS with demographic and clinical outcomes.

	Understanding own Mind (UM)	Understanding Others' Mind (UOM)	Mastery (M)	MAS total score
Demographic Variables				
Age	-0.03	-0.03	-0.03	-0.01
Education	0.29	0.33*	0.23	0.28
PANSS				
Positive symptoms	-0.24	-0.18	-0.15	-0.18
Negative symptoms	-0.53***	-0.51***	-0.44**	-0.52***
General psychopathology	-0.26	-0.25	-0.16	-0.22
BSI				
Somatization	0.07	0.03	-0.05	0.03
Obsessive-Compulsive	0.05	0.11	0.00	0.05
Interpersonal Sensitivity	-0.04	0.07	0.01	-0.01
Depression	-0.01	0.05	-0.02	-0.03
Anxiety	0.06	0.09	0.02	0.06
Hostility	0.18	0.18	0.14	0.16
Phobic anxiety	-0.10	-0.05	-0.02	-0.09
Paranoid Ideation	0.00	0.13	-0.01	0.03
Psychoticism	-0.03	0.06	-0.03	-0.03
Global Severity Index	0.05	0.09	0.03	0.03

*p< .05; **p< .01; ***p< .001

Table 5. MAS score profiles with between-group and within group comparisons.

	Forensic Group Median (IQR)	Psychosis Group Median (IQR)	Test of Difference (U, z) ES
'Understanding Own Mind' (UM) sub-functions			
Basic Requirements§ (1item; range: 0-5)	3.00 (2)	3.00 (1)	-
Monitoring (3 items; range 0-15)	7.50 (6)	9.00 (3)	-
Differentiation (2 items; range 0-10)	5.00 (4)	5.00 (3)	-
Integration (2 items; range 0-10)	0.50 (4)	1.00 (3)	-
'UM' SUB-SCALE TOTAL (range 0-40)	16.00 (16)	18.00 (8)	$U = 94.50^{NS}$, z = -0.20, r = -0.04
Mean individual item score (range 0-5)	2.00 (2.03)	2.25 (1.00)	-
'Understanding Other's Mind' (UOM) sub-functions			
Monitoring (3 items; range 0-15)	5.00 (2)	6.00 (4)	-
Decentration (1 item; range 0-5)	1.00 (1)	1.00 (0)	-
'UOM' SUB-SCALE TOTAL (range 0-15)	9.00 (3)	10.00 (5)	$U = 84.50^{NS}$, z = -0.66, r = -0.12
Mean individual item score (range 0-5)	1.80 (0.65)	2.00 (1.00)	-
'Mastery' (M) sub-functions			
Basic Requirements (1 item; range 0-5)	3.00 (1)	3.00 (0)	-
1st Level Strategies (2 items; range 0-10)	2.50 (2)	4.00 (2)	-
2nd Level Strategies (2 items; range 0-10)	2.00 (1)	2.00 (2)	-
3rd Level Strategies (3 items; range 0-10)	1.00 (2)	0.00 (1)	-
'MASTERY' SUB-SCALE TOTAL (range 0-40)	8.00 (7)	11.00 (3)	$U = 85.50^{NS}$, z = -0.61, r = -0.11
Mean individual item score (range 0-5)	1.00 (0.81)	1.38 (0.38)	-
METACOGNITION TOTAL SCORE	30.00 (26)	35.00 (17)	$U = 89.50^{NS}$, z = -0.43, r = -0.08

§Basic Requirements scores are included in both 'UM' and 'UOM' mean sub-scale totals
IQR, Interquartile Range; ES, effect size; ^{NS}, not significant

Chapter 3

Advanced Clinical Practice I Reflective Critical Account

"Because we're Worth it": Justifying the Value of Clinical Psychology in a Difficult Financial Climate

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Submitted in partial fulfilment of the requirements for the degree of Doctorate in Clinical Psychology (DClinPsy)

Abstract

This reflective account describes the challenges I encountered when working with a client in a community Older Adult service. This is set within the context of my consideration of the need for the Clinical Psychology profession to justify its worth to services, which incorporates deliberation of the New Ways of Working (2007) policy. The account will first guide the reader through what has influenced my decision to reflect on the issues at hand, before entering the main body of the account. This is guided by psychodynamic principles, and aspects of Gibbs' (1988) model of reflection and Rolfe et al's (2001) framework for reflective practice. From these I have provided a description of the situation, reflected upon my thoughts and feelings, and used this as a guide to consider an evaluation and analysis of the situation, as well as a conclusion to my reflections. I have then presented a meta-reflective account on my experience of this practice.

Chapter 4

Advanced Clinical Practice II Reflective Critical Account

"Take me to your Leader": An Alien Concept for Clinical Psychology or a Sign of Things to Come? Reflecting on the Psychologist as Professional Lead

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Abstract

The following reflective account portrays my consideration of the issues and challenges associated with Clinical Psychologists as Professional Leads in mental health services. This is based upon my experience as a Trainee Clinical Psychologist within a Children and Young People's Specialist Service which used this model of management, and contemplates the recommendations for the profession set by the New Ways of Working Project Group for Organising, Leading, and Managing Psychological Services. The account will first consider why I have chosen to present this issue, before leading the reader to the main narrative of reflection. This includes my thoughts on the areas of personal development that would be required for me to meet the challenges inherent in undertaking management roles. Having previously found them to be helpful, the reflection is aided by consideration of two educational models for reflective practice: Gibbs' (1988) model of reflection and Rolfe et al's (2001) framework for reflective practice. However, the account also reflects the free-floating flow of thoughts encouraged by psychoanalysis. I conclude with a meta-reflection on my experiences of preparing the reflective account presented.

Appendix 1.1: Instructions for Authors for Psychosis: Psychological, Social and Integrative Approaches

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Manuscripts must include a statement that informed consent was obtained from human subjects. Authors should protect patient anonymity by avoiding the use of patients' names or initials, hospital number, or other identifying information.

7. Code of experimental ethics and practice and confidentiality

Contributors are required to follow the procedures in force in their countries which govern the ethics of work conducted with human or animal subjects. The Code of Ethics of the World Medical Association (Declaration of Helsinki) represents a minimal requirement.

For human subjects or patients, describe their characteristics. For human participants in a research survey, secure the consent for data and other material - verbatim quotations from interviews, etc. - to be used. Specific permission for any facial photographs is required. A letter of consent must accompany any photographs in which the possibility of identification exists. It is not sufficient to cover the eyes to mask identity.

It is your responsibility to ensure that the confidentiality of patients is maintained. All clinical material used in your article must be disguised so that it is not recognisable by a third party. Where possible and appropriate, the permission of the patient should be obtained. Authors are invited to discuss these matters with the editor if they wish.

8. Drug names

Generic rather than trade names of drugs should be used, although trade names may be mentioned in parentheses in the first text reference to the drug.

9. Competing financial interests

A competing interest exists when your interpretation or presentation of information may be influenced by your personal or financial relationship with other people or organizations. Authors should disclose all financial and non-financial competing interests.

Authors are required to complete a declaration of competing interests and submit it together with the manuscript. All competing interests that are declared will be listed at the end of published articles. Where an author gives no competing interests, the listing will read 'The author(s) declare that they have no competing interests'. Please consider the following questions:

1. In the past five years have you received reimbursements, fees, funding, or salary from an organization that may in any way gain or lose financially from the publication of this manuscript, either now or in the future? Is such an organization financing this manuscript? If so, please specify.
2. Do you hold any stocks or shares in an organization that may in any way gain or lose financially from the publication of this manuscript, either now or in the future? If so, please specify.
3. Do you hold or are you currently applying for any patents relating to the content of the manuscript? Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript? If so, please specify.
4. Do you have any other financial competing interests? If so, please specify.

If you are unsure as to whether you, or one of your co-authors, has a competing interest please discuss it with the editorial office.

10. Affirmation of authorship

All authors are expected to have made substantive intellectual contributions to, and to have been

involved in drafting or revising the manuscript. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content. Acquisition of funding, collection of data, or general supervision of the research group, alone, does not justify authorship. With the submission of a manuscript, it is assumed that all authors have read and approved the final manuscript.

11. Acknowledgements

All contributors who do not meet the above criteria for authorship, should be listed in an acknowledgements section. Examples of those who might be acknowledged include those who provided general, technical, or writing assistance Acknowledgement of funding/grants are also included in this section.

Manuscript submission

All submissions should be made online at the ***Psychosis*** ScholarOne Manuscripts site. New users should first create an account. Once a user is logged onto the site submissions should be made via the Author Centre. To ensure blinded review authors should only include identifying information on a title page which can be uploaded separately.

Manuscripts may be submitted in any standard Word format or PostScript. This journal does not accept Microsoft Word 2007 documents. Please use Word's "Save As" option to save your document as an older (.doc) file type. LaTeX files should be converted to PDF prior to submission because Manuscript Central is not able to convert LaTeX files into PDFs directly.

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Appendix 1.2: Quality Criteria Rating Sheet

Quality Criteria Rating Sheet: Positive Psychotic Symptoms and Violence Amongst People with Schizophrenia: A Systematic Review	
Author:	
Year:	
Title:	
Journal:	
Assessor:	

Topic	Item	Description	Rating
SAMPLING	1.1	The population and method of recruitment.	Geographic cohort = 5 Convenience sample = 2 Highly selective sample (e.g. volunteers) OR not stated = 0
	1.2	Were refusal/drop-out rates indicated?	Yes = 1 No = 0
	1.3	Were analyses conducted comparing participants and those who refused to participate/dropped out?	Yes = 1 No = 0
	1.4	Did it state whether participants were inpatients/outpatients?	Yes = 1 No = 0
	1.5	Were diagnoses of participants reported?	Yes = 1 No = 0
	1.6	Were the diagnostic criteria explicitly stated (e.g. DSM-IV, ICD-10)?	Yes = 1 No = 0
	1.7	Were mean ages of participants reported?	Yes = 1 No = 0
	1.8	Were genders of the participants reported?	Yes = 1 No = 0
	1.9	Inclusion criteria explicitly stated?	Yes = 1 No = 0
	1.10	Exclusion criteria explicitly stated?	Yes = 1 No/The study had no exclusion criteria = 0
			Section worth 25%: Each item contributes 2.5% to the overall methodological value of the study.
POSITIVE SYMPTOM AND COVARIATE ASSESSMENT	2.1	Were positive symptoms assessed and reported with a reliable and valid measure?	Yes = 1 No = 0
	2.2	Were positive symptoms examined separately (e.g. TCO/hallucinations/delusions)?	Yes = 1 No/Only one type of positive symptom was looked at = 0
	2.3	Were negative symptoms assessed and reported with a reliable and valid measure?	Yes = 1 No/Not assessed = 0

	2.4	Was mood (e.g. depression/anxiety) assessed with a reliable and valid measure?	Yes = 1 No/Not assessed = 0
	2.5	Was psychopathy assessed with a reliable and valid measure?	Yes = 1 No/Not assessed = 0
	2.6	Was there an indication of who assessed patients i.e. their qualifications and training on measures?	Yes = 1 No/Self-report measures only = 0
	2.7	Were assessors blind to participants who had been violent?	Yes = 1 No/Not stated = 0
	2.8	Was length of illness/total years in treatment reported?	Yes = 1 No = 0
	2.9	Was the medication that participants were taking reported?	Yes = 1 No = 0
	2.10	Were rates of substance dependency listed?	Yes/Those with substance abuse disorder excluded = 1 No = 0
			Section worth 25%: Each item contributes 2.5% to the overall methodological value of the study.
VIOLENCE ASSESSMENT	3.1	Does the study describe how it defines violence towards others?	Yes = 1 No = 0
	3.2	Was a standardised and validated measure used to assess violence?	Yes = 1 No = 0
	3.3	Was information on violence gathered from more than one source of information?	Yes = 1 No/Not stated = 0
	3.4	Was assessment of violence carried out longitudinally i.e. 2 or 3 different time points?	Yes = 1 No/Measure designed specifically to assess violence not used/Not stated = 0
	3.5	Was the timing of the assessment of violence stated?	Yes = 1 No/Measure designed specifically to assess violence not used = 0
	3.6	Was violence rated blind to knowledge of other variables e.g. psychopathy, positive symptoms, insight, etc.?	Yes = 1 No/Not stated/Not applicable = 0
	3.7	Were other forms of violence apart from physical harm towards others assessed?	Yes = 1 No = 0
	3.8	Does the study describe how it defined other forms of violence?	Yes = 1 No/Not applicable = 0
	3.9	Was the prevalence rate of violence clearly described?	Yes = 1 No = 0
	3.10	Was violence history before the study period/lifetime violence rate reported?	Yes = 1 No = 0
			Section worth 25%: Each item contributes 2.5% to the overall methodological value of the study.
METHODOLOGY (DESIGN, POWER AND ANALYSIS	4.1	What type of design was employed for the study?	Prospective = 1 Retrospective = 0
	4.2	Were aims/hypothesis explicitly stated?	Yes = 1 No = 0

	4.3*	Was this statistical power sufficient?	Yes = 1 No/Not reported = 0
	4.4	Was alpha modified in multiple statistical analyses to reduce the probability of type 1 error?	Yes/Not applicable/No correlation = 1 No/Not discussed = 0
	4.5	Were between group comparisons made between those who were/were not violent?	Yes = 1 No = 0
	4.6	Were attempts made to match individuals who were/were not violent for between group comparisons (gender, time since diagnosis, etc.)?	Yes = 1 No/Not applicable = 0
	4.7	Were attempts made to statistically control for confounding variables e.g. drug and alcohol misuse, length of time since diagnosis, etc.?	Yes = 1 No = 0
			Section worth 25%: Each item contributes 2.5% to the overall methodological value of the study *except item 4.3 which is worth 10%.
		Total:	**%**

Appendix 2.1: Participant Information Sheet (Forensic Version)

(1 of 2 versions: Community Psychosis version)

NHS Greater Glasgow and Clyde

UNIVERSITY of GLASGOW

THINKING ABOUT RECOVERY PARTICIPANT INFORMATION SHEET

Invitation to Participate in a Research Project

Title of the Project – Thinking about Recovery: The Importance of Reflection and Compassion in Understanding Individuals' Recovery from Complex Mental Health Problems.

What is the research about?
This study is designed to investigate compassion and psychological reflection in people who have experienced complex mental health problems. This kind of research will help mental health services to understand the needs of people who have experienced complex mental health problems, and to develop new psychological therapies that aim to help people recover. The study is being undertaken as part of the fulfilment for an academic qualification (Doctorate in Clinical Psychology).

Who is being asked to take part?
We are asking people who have experienced complex mental health problems in the past to take part in the study.

Why have I been asked to take part?
A member of the mental health team responsible for your care (e.g. Consultant Psychiatrist, Clinical Psychologist or CPN) has suggested that you might be interested in participating in this study. I am meeting with you to tell you a little more about what participating in the study would involve.

What do you mean by the term 'compassion'?
By 'compassion', we mean a feeling of warmth, sympathy and caring that we can have about ourselves and others.

What are you asking me to consent to?
Consenting to participate in this study means that you will meet with a researcher on NHS premises three times and complete an interview and some questionnaires. You will also be asked to consent to the researcher gaining access to your mental health file. This will be to gather more important information for the study such as what treatment you have received to date. This information will be treated in the strictest confidence (see below).

What will I be asked to do if I agree to take part?
The first meeting is an opportunity for you to ask questions about the study and discuss taking part. For your convenience, this will be arranged at a time when you are seeing a member of your clinical team anyway. If you decide to participate, during the second meeting you will meet with the researcher to be interviewed. During the interview, you will be asked about important relationships in your life and how you cope with stressful situations. You will be asked to give a specific example of coping with a challenging time in your life. This does not have to be something which has been very distressing for you and it is up to you which experiences you choose to discuss. You will **not** be asked to disclose information about an index offence. This meeting will last approximately 1 hour and the interview will be recorded.
On the final visit you will be asked to fill in some questionnaires. You will then be able to ask the researcher any questions you might have about your participation in the project. The time required for this meeting will vary, depending upon completion time of the questionnaires and any questions you may wish to ask, but will last approximately 30 minutes.

Will my information be confidential?
All the information you provide, and file information, will be treated confidentially. All recordings, transcriptions and other data will be stored in a password protected computer. The interview will be fully-anonymised when it is transcribed by the researcher who interviews you. This means that it will not include your name, the names of people, schools or jobs you may mention or any other information which could identify you. Only the researcher who interviews you will hear the original transcript. Once the interview is transcribed, the recorded audio copy will be destroyed. The transcribed and anonymised interview and questionnaires will then be analysed by the research team. If you agree we may use quotations from conversations in reports about this research.

If you share information that makes the research team concerned for your safety or the safety of other people, we may be required to tell others involved in your care (e.g. your key-worker or psychiatrist). We will always notify you beforehand if we are going to do this, and explain why.

What happens to the consent form?
To ensure anonymity and confidentiality, the consent form will be kept separately from the transcribed interview in a locked filing cabinet within the Section of Psychological Medicine.

What are the benefits of taking part?
In general, research improves our knowledge of what people's difficulties are and what can do to help overcome these and improve people's lives, so your participation will help increase our knowledge of areas and potentially improve treatment for others in the future.

Is there a downside to taking part?
As stated above, in the interview you will be asked to discuss how you coped with a challenging time in your life. We do not expect you to be worried or distressed by your participation in the study. However, if you have any concerns about what we discussed, you can contact the researcher for more information or indeed discuss this further with your key-worker or member of your clinical team. Although we do not anticipate that participating in this study will cause you any distress, if this did happen we will help you to access appropriate support if needed.

What happens if I decide not to take part?
Nothing. Taking part is entirely up to you. If you do not wish to take part it will not affect any treatment that you currently receive. Also, if you do decide to take part, you are able to change your mind and withdraw from the study at any time without it affecting your care either now or in the future.

After this meeting, the research team will give you at least 48 hours to decide whether you want to take part in the study. If you still want to participate, then we will make arrangements to meet again.

Can I change my mind?
Yes. You can change your mind at any time and do not need to give a reason. Your care will not be affected in any way.

What will happen to the results of the study?
The results will be published in a medical journal and through other routes to ensure that the general public are also aware of the findings. You will not be identified in any report/publication arising from this study.

Who is organising and funding the research?
The University of Glasgow.

Who has reviewed the study?
The study has been reviewed by the University of Glasgow to ensure that it meets standards of scientific conduct. It has also been reviewed by NHS Greater Glasgow & Clyde Mental Health Ethics Committee to ensure that it meets standards of ethical conduct.

Contact for Further Information
If you have any questions you would like to ask, please do not hesitate to get in contact.

Researcher
Laura Mitchell
Trainee Clinical Psychologist
[ADDRESS]
Email xxxxxx@research.gla.ac.uk
Telephone Number: 0141 xxx xxxx

Chief Investigator
Prof Andrew Gumley
Professor in Clinical Psychology
[ADDRESS]
Telephone Number: 0141 xxx xxxx

Thank you for taking time to read this

This has been approved by the NHS GG&C Ethics Committee

Appendix 2.2: Participant Opt-In Form – Forensic Inpatient Version
(Version 1 of 3: forensic outpatient version; psychosis community version)

NHS Greater Glasgow and Clyde

THINKING ABOUT RECOVERY
Invitation to Participate in a Research Project

UNIVERSITY of GLASGOW

Laura Mitchell
Trainee Clinical Psychologist
[ADDRESS]

Dear _____

I am inviting you to participate in a research study called: 'Thinking About Recovery'. This project is separate to the care you are currently receiving, and participation is voluntary. An information sheet about the study is attached to this letter.

If you are interested in hearing more about the study, please complete the tear-off slip below and place it in the addressed envelope provided. This can then be handed to a member of ward staff so it can be passed on to me.

I can then arrange to meet with you to discuss the research in more detail. Please be aware that you are welcome to withdraw from the study at any point without having to give a reason.

Thank you for your time.

Yours sincerely,

Laura Mitchell
Trainee Clinical Psychologist

Name: _____ [please print clearly]

Hospital:_____ Ward: _____

Keyworker:_____

I am interested in meeting again to discuss my participation in the research project 'Thinking About Recovery'.

Signed: _____

Appendix 2.3: Consent Form (Forensic Version)

(Version 1 of 2: Psychosis community version)

NHS Greater Glasgow and Clyde

Invitation to Participate in a Research Project

UNIVERSITY of GLASGOW

THINKING ABOUT RECOVERY

Name of Participant: ……

Name of Researcher: ……..

Please Tick in the appropriate column:	YES	NO
Have you read the information sheet?	[ ]	[ ]
Have you had opportunity to ask questions and to discuss the project?	[ ]	[ ]
Have you received satisfactory answers to the questions?	[ ]	[ ]
Have you received enough information?	[ ]	[ ]
Do you understand that you are free to withdraw your consent:		
at any time?	[ ]	[ ]
without having to give a reason?	[ ]	[ ]
and without affecting your future care?	[ ]	[ ]
Do you consent to take part in this research project?	[ ]	[ ]
Do you consent to the researcher accessing your NHS file?	[ ]	[ ]
Can we quote remarks you may make in reports about this research (we would not use your name)?	[ ]	[ ]

Participant signature: …… Date: ……

Name in Block Letters: ……

Researcher signature: …… Date: ……

Name in Block Letters: ……

This research project has been approved by NHS GG&C Ethics Committee

Appendix 2.4: Narrative Interview for Compassion and Recovery

1) - Introduction

Today I would like to give you an opportunity to talk about how you respond at times when you are feeling stressed or upset.

For example, I'm thinking here of things like moving house, money worries, or social occasions. However, I'm most interested in examples that are relevant to your current circumstances. I would also like to hear about your sources of support at such times, how you feel when you are upset, and how you cope with such situations.

To help me get a picture of your own circumstances I would first like to spend some time getting an idea of the people and relationships that are important to you. Then we would like you to tell us about some specific experiences you have had where you have felt stressed or upset.

I understand that some of the experiences that I asking you about may be difficult for you to discuss. Therefore you do not have to tell me about the *most* distressing experience you have had, but I would like to hear an experience that you feel has been stressful, upsetting or challenging.

Before we start, are there any questions you have about today?

2) - Social support network
First of all, I would like to know a little more about who the important people in your life are at the moment. I'm going to write these down as you say them.

{After completing list}

2.1) To help keep me understand how much these people are involved in your life I am going to map what you've told me out on this piece of paper {I*ntroduce Social Network Diagram*}. First I'm going to write your name in the centre of the page, then I would like to take each of the people we have talked about and write their name on the page, with an arrow pointing to you, the shorter the length of the arrow from them to you the closer you feel your relationship. Let's start with Person 1…

2.2) Out of the people we've just talked about who would you say you have the closest relationship with?

2.3) Why would you say that you are closest to that person?

3) Everyone copes with stress in different ways. What do you do when you feel stressed or upset?

3.1) Does anything in particular help when you are feeling stressed?

3.2) What do you do if your solution to the problem does not work?

3.3) Does anyone else ever help you when you have difficulties?

3.4) Would you ask anyone else for help of you needed it?

3.5) Sometimes things can just be so hard that we avoid them – have you ever done that?

3.6) Thinking of the people on the diagram, would you go to any of them for support?

4) - Recent stressor/compassion frame

Thank you for explaining that to me. Now, I'm going to ask you about how you cope with stress. I would like you to tell me about a specific experience or thing that happened to you in the last month or so. Just something that sticks out in your mind.

I would like you to tell me about a time when you had to use your coping skills. There are a few questions I would like to ask you about this, but first I would like you, in your own words, to give me an idea of what happened:

If general response given - That's a good general description, but I'm wondering if there was a particular time that happened?

If no example offered - The experiences I am thinking about are things like moving house, financial worries, or concerns about going out. Doe anything come to mind from those examples?

4.1) Follow-up probes to establish context of autobiographical memory:

4.1.1) What happened next?

4.1.2) What did you do?

4.1.3) Who was involved?

4.1.4) What were you thinking at the time?

4.1.5) How did you feel at the time?

4.1.6) Did you look to any of the people on the diagram for support?

***4.2a* - If social support figure mentioned**

4.2.1) You said Person X was involved, How did Person X respond to you during the experience we've talked about?

4.2.2) At the time, did you feel supported by them?
In what way?

4.2.3) How did you respond to them doing/saying that?

4.2.4) What do you think was going through Person X's mind at that time?
How do you think **they** might have been feeling?

4.2.5) Do you have any ideas about what made them feel that way?
…Or what made them behave in that way?

4.2.6) Reflecting on this now, do you feel they were supportive of you?

4.2.7) Do you think they realised the effect that response had on you?

4.2.8) Looking back, is there a different way Person X could have approached or supported you during this situation?

4.2.9) Is there anything that you would have liked them to do to help?

4.2.10) Thinking about the support you got from person X. Is that the same for all situations? If not, why?

4.2.11) Would there be anyone else that you looked to for support? What did they do?

4.2.11) I'm just wondering, how do you think someone else would deal with the situation you've just described…?

4.2.12) What sort of things would you say to a friend, if they went through a similar experience but acted differently to you?

4.2.13) How do you think this experience has influenced your life?

4.2.b - If no support figures mentioned
I'm just curious, did you talk to any of the people we've talked about on your diagram about this experience?

Then as for (4.2.1)

{If none offered}

Thinking about that experience, is there anyone whom you would have liked to have been supported by?

Then as for (4.2.1)

5 - Summing up
We've talked about quite a lot today, but is there anything you feel you have learned from the experiences we've talked about?

5.1 What are your hopes for the future?

----------END----------

(Throughout Interview) General Prompts:

I'm interested to know more about that, can you tell me a bit more?

Could you give me an example of feeling/doing/thinking that?

I'm wondering what makes you say that?

Appendix 2.5: MAS-R Rating Scale Scoring Sheet

	MAS – R 2009	Not engaged	Scarce	Minimal	Moderate	Good	Sophisti-cated
Basic req.	**BR** The person recognizes to possess mental functions and represents her/himself as an individual who thinks and feels in an independent manner.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
monitoring	**UM1** ***COGNITIVE IDENTIFICATION*** the person is able to distinguish and differentiate his/her own cognitive operations (e.g. remembering, imagining, having fantasies, dreaming, desiring, deciding, foreseeing and thinking).	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	UM2 EMOTIONAL ***IDENTIFICATION the*** person is able to define, distinguish and name his/her own emotional states.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	UM3 ***RELATING VARIABLES*** the person identifies and describes the relations among the aspects of subjective experience: i.e. causes for his own thought or emotion or behaviour, the effects of a thought or an emotion, the inner or social factors influencing own actions.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
differentiation	**UM4** the person recognises his/her thought as subjective, his/her opinions and forecasts as hypotheses, considering the possibility they change as contexts change and time passes (including the ability to take a critical distance from own beliefs). Thoughts are not considered reality per se and ideas or wishes cannot influence directly events or change reality.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	UM5 the person distinguishes among belief, fantasy, dreams, memories and forecasts. Reality judgement is intact and the person is aware of when and where a scene is taking place.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
integration	**UM6** the person is able to describe in a coherent narrative the cognitive and emotional aspects of his/her own states of mind and how they were changing during time, grasping links and causal relations that promoted changes.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	UM7 the person describes the cognitive and emotional aspects of his/her own different states of mind integrating the multiplicity – and possible contradictions – of representations in a consistent narrative.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
monitoring	**UOM1** ***COGNITIVE IDENTIFICATION*** the person is able to define and distinguish the others' cognitive operations (e.g. remembering, imagining, having fantasies, dreaming, desiring, deciding, foreseeing and thinking).	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	UOM2 EMOTIONAL ***IDENTIFICATION*** the person is able to define and distinguish the others' emotional states.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	UOM3 ***RELATING VARIABLES*** the person is able to make hypotheses about the links explaining the relationships among other's thoughts, emotions and overt behaviour e.g. the causes behind a thought, emotion or type of behaviour	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Decentrati	**D** The person is able to describe the other's mental state forming hypothesis which are independent from his/her own perspective and from his/her own involvement in the relationship.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
Basic req.	**M1** The person discusses his own behaviour and psychological processes and states not as simple matter-of-fact data but as tasks to be done and problems to be solved, defining the terms of the problem in a plausible way and adopting an active problem-solving stance	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
1st level strat.	**M2** the person tries to act on problematic states modifying the bodily state.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	M3 the person tries to avoid the eliciting conditions of a problematic state and/or uses the relational context as a support.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
2nd level strat.	**M4** the person deals with the problem voluntarily imposing or inhibiting a behaviour on him/herself.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	M5 the person deals with the problem through the regulation and management of his/her mental states, distracting her/himself from ideas and emotions causing suffering.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
3rd level strat.	**M6** the person deals with the problem operating on underpinning beliefs and evaluations and/or by using his/her general knowledge on his/her own mental functioning.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	M7 The person faces the interpersonal dimension of the problem using his/her own knowledge of other people's mental functioning.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐
	M8 The person faces the problem accepting in a mature way his/her own limits in changing his/her own inner states and influencing events.	N.E. ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Appendix 2.6: Participant Debriefing Sheet

NHS
Greater Glasgow and Clyde

UNIVERSITY of GLASGOW

Debriefing Sheet

Thank-you for agreeing to take part in this study. Your data is will now be anonymised and put together with other data so we can look at differences in the way people think about themselves and others.

We do not expect that participating in this research will have a negative effect on anyone. However, if you have felt upset or worried by anything raised from your participation in this study, please discuss this with your key worker or a member of your clinical team.

We remind you that you can withdraw your consent to participation in this study at any time without giving a reason. This will not affect your current or future care or treatment. Contact details are provided below.

Thank-you once again for your time.

Laura Mitchell
Trainee Clinical Psychologist
[ADDRESS]
Email xxxxxxx@student.gla.ac.uk
Telephone number: (0141) xxx xxxx

Prof Andrew Gumley
Psychological Medicine
[ADDRESS]
Telephone number: (0141) xxx xxxx

Appendix 2.7: Letter of Ethical Approval

WoSRES
West of Scotland Research Ethics Service

NHS
Greater Glasgow and Clyde

West of Scotland REC 1
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West of Scotland Research Ethics Service
Ground Floor, Tennent Institute
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Ref AHT/SAJ

20 December 2010

Prof Andrew I Gumley
University of Glasgow
Mental Health and Wellbeing
Gartnavel Royal Hospital
1055 Great Western Road
Glasgow
G12 0XH

Dear Prof Gumley

Study Title: **Thinking about Recovery: The importance of Reflection and Compassion in understanding individuals recovery from complex mental health problems**

REC reference number: **10/S0703/67**

Thank you for your letter of 29 November 2010, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information was considered in correspondence by a sub-committee of the REC

A list of the sub-committee members is attached.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to

the start of the study at the site concerned.

For NHS research sites only, management permission for research ("R&D approval") should be obtained from the relevant care organisation(s) in accordance with NHS research governance arrangements. Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk

Where the only involvement of the NHS organisation is as a Participant Identification Centre (PIC), management permission for research is not required but the R&D office should be notified of the study and agree to the organisation's involvement. Guidance on procedures for PICs is available in IRAS. Further advice should be sought from the R&D office where necessary.

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Investigator CV	Prof A Gumley	13 October 2010
Protocol	1	01 October 2010
CV Student Superbvisor		13 October 2010
Invitation letter Keyworker/GP/Psychiartrist	V1	10 September 2010
REC application		06 October 2010
Covering Letter		25 November 2010
Interview Schedules/Topic Guides	Narrative compassion interview V1	13 October 2010
Letter of invitation to participant	Standard/Forensic Outpatient version 1.0	12 November 2010
GP/Consultant Information Sheets	1	13 October 2010
Participant Information Sheet: Standard/Forensic outpatient	version 2.0	12 November 2010
Response to Request for Further Information		29 November 2010
Participant Information Sheet: Forensic	version 2.0	12 November 2010
Participant Consent Form: Standard	version 2	12 November 2010
Participant Consent Form: Forsenic	version 2	12 November 2010
CV's students	Lizzie Reilly, Angus MacBeth, Laura Mitchell	13 October 2010
Invitation to Participants Forensic Inpatient	version 1.0	12 November 2010
Referees or other scientific critique report	Prof T McMillan	26 August 2010

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Now that you have completed the application process please visit the National Research Ethics Service website > After Review

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known please use the feedback form available on the website.

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

We would also like to inform you that we consult regularly with stakeholders to improve our service. If you would like to join our Reference Group please email referencegroup@nres.npsa.nhs.uk.

10/S0703/67	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project

Yours sincerely

Andrea M Torrie

Dr John Hunter
Chair

Email: andrea.torrie@ggc.scot.nhs.uk

Enclosures: *List of names and professions of members who were present at the meeting and those who submitted written comments [if final opinion was confirmed was given at a meeting]*

"After ethical review – guidance for researchers" *[SL-AR1 for CTIMPs, SL- AR2 for other studies]*

Copy to: *Dr Erica Packard*

West of Scotland REC 1

Attendance at Sub-Committee of the REC meeting on 17 December 2010

Committee Members:

Name	*Profession*	*Present*	*Notes*
Dr D Attwood	Dentistry	No	
Mr Ian Boyd	Countryside Warden	No	
Dr Rosemarie Davidson	Consultant in Clinical Genetics	No	
Mr Paul Davies	Principal Pharmacist	No	
Mr John Devitt	Printer (Retired)	No	
Dr K Duffy	Research	No	
Mr McKenzie Gibson	Manager - Optical Company/retired Physics Lecturer	No	
Dr Ros Glasspool	Oncologist	No	
Dr J Godden	Scientific Officer	No	
Dr A Heuchan	Consultant Neonatal Medicine	No	
Dr John Hunter	Chairman West of Scotland (1) Ethics	Yes	
Dr Peter Hutchison	GP/Vice Chair	Yes	
Dr J D McClure	Statistician	No	
Mr Jim McHugh	Insurance	No	
Dr T Moores	Consultant Paediatric Anaesthetist	No	
Dr Audrey Morrison	Research Practitioner	Yes	
Mr R Sim	Investments (Retired)	Yes	
Dr M Sproule	Consultant Radiologist	No	
Mr Bill Ure	Transport (Retired)	No	

Also in attendance:

Name	*Position (or reason for attending)*
Miss Sharon Jenner	Secretariat
Mrs A Torrie	Senior/Lead Administrator

Appendix 2.8: Letter of R&D approval

NHS
Greater Glasgow and Clyde

Coordinator/Administrator: Dr Erica Packard/Ms Elaine O'Donnell
Telephone Number: 0141 211 6208
E-Mail: erica.packard@ggc.scot.nhs.uk
Website: www.nhsggc.org.uk/r&d

R&D Management Office
Western Infirmary
Tennent Institute
1st Floor 38 Church Street
Glasgow, G11 6NT,

27 January 2011

Dr Emma Drysdale
Douglas Inch Centre
2 Woodside Terrace
Glasgow
G3 7UY

NHS GG&C Board Approval

Dear Dr Drysdale

Study Title:	**The importance of Reflection and Compassion in understanding individuals recovery from complex mental health problems**
Principal Investigator:	**Dr Emma Drysdale**
GG&C HB site	**Forensic Mental Health Service, Douglas Inch Centre**
Sponsor	**NHS Greater Glasgow and Clyde**
R&D reference:	**GN10CP237**
REC reference:	**10/S0703/67**
Protocol no: (including version and date)	**V1; 01/10/10**

I am pleased to confirm that Greater Glasgow & Clyde Health Board is now able to grant **Approval** for the above study.

Conditions of Approval

1. **For Clinical Trials** as defined by the Medicines for Human Use Clinical Trial Regulations, 2004
   a. During the life span of the study GGHB requires the following information relating to this site
      i. Notification of any potential serious breaches.
      ii. Notification of any regulatory inspections.

It is your responsibility to ensure that all staff involved in the study at this site have the appropriate GCP training according to the GGHB GCP policy (www.nhsggc.org.uk/content/default.asp?page=s1411), evidence of such training to be filed in the site file.

2. **For all studies** the following information is required during their lifespan.

NHS
Greater Glasgow and Clyde

a. Recruitment Numbers on a quarterly basis
b. Any change of staff named on the original SSI form
c. Any amendments – Substantial or Non Substantial
d. Notification of Trial/study end including final recruitment figures
e. Final Report & Copies of Publications/Abstracts

Please add this approval to your study file as this letter may be subject to audit and monitoring.

Your personal information will be held on a secure national web-based NHS database.

I wish you every success with this research study

Yours sincerely,

EPackard

Dr Erica Packard
Research Co-ordinator

Cc: Prof Andrew Gumley

Appendix 2.9: Major Research Project Proposal

Major Research Project Proposal

An investigation into metacognition and violence in psychosis

Matriculation number: 0805282

Date of submission: 23rd July 2010

Version number: 4

Research Question

What patterns of metacognitive ability exist in violent offenders with schizophrenia in a forensic setting? An exploration of personal narratives.

Introduction

In a recent longitudinal study, Fazel, Långström, Hjern, Grann and Lichtenstein (2009) reported that, although the statistical probability was extremely low, a diagnosis of schizophrenia was nevertheless associated with an increased risk of perpetrating violent crime. Although no one single variable explains violence in individuals with a schizophrenia spectrum disorder, and violence is relatively uncommon, it can be problematic (Swanson et al., 2006). For example, if we turn our attention towards forensic mental health populations, although the types of offences committed are mixed, nearly half of patients are detained for violent or sexual offences (Rutherford & Duggan, 2008).

In recent years the focus of care in forensic mental health services has shifted from looking solely at the assessment and management of risk to using this to inform rehabilitation and long-term community management practices (Lindqvist & Skipworth, 2000). Beyond this some approaches have begun to look past the risk-need models of rehabilitation and towards positive psychology approaches (e.g. Good Lives Model, Ward & Brown, 2004). However, despite these attempts to identify effective ways of rehabilitating mentally disordered offenders (MDOs) (and ultimately reducing recidivism rates), there is still little in the way of evidenced-based treatments for people with a history of violence and schizophrenia.

At the turn of the millennium Bloom, Mueser and Müller-Isberner (2000) concluded that although as yet there was a lack of specific evidence-based literature on the treatment of violence amongst MDOs (including those with schizophrenia), the required components had been identified that could produce an effective approach to treatment. However, more than a decade later, and it appears as though we are still searching for an effective treatment approach. Medication is common in the treatment of violence in patients with schizophrenia, although findings on effectiveness are inconsistent, due in part to the methodological limitations of studies (Volavka & Citrome, 2008). In terms of psychological treatments for violence amongst MDOs, the evidence base is even less. In a recent study, Haddock et al (2009) carried out a randomised controlled trial to assess the effectiveness of cognitive-behavioural therapy (CBT) on violence, anger and psychosis in people with a diagnosis of schizophrenia who had a history of violence. Compared to a treatment as usual group and social activity therapy group, those in the CBT group showed little advantage in terms of a reduction in violence or aggression. For example, no significant difference was found between groups for the number of people who had shown no violence or aggression vs. the number who had shown one or more incidents, either during treatment or at 6- or 12-month follow-up.

Following the difficulty in identifying successful treatments for violence amongst MDOs with schizophrenia, one might begin to question what it is about this population that makes this a difficult task. Although undoubtedly a complex issue, one area to consider might be that suggested by Peter Fonagy (2003). He argued that there was a relationship between one's ability to 'mentalize' and violence. Specifically, when mentalization abilities are compromised, there follows an increased propensity for violence. Mentalization (or metacognitive functioning), has been shown to be impaired in people with schizophrenia (Frith, 1992).

‘Metacognition’ describes the skill humans acquire that enables them to think about thinking (Semerari et al., 2003). This general ability allows us to not only represent our own mental states and those of others, but allows us to make sense of our predicaments and understand the intentions of others, as well as being able to adapt to new and challenging situations (Frith, 1992). It is argued that metacognitive capabilities are possible through their comprising several semi-independent faculties that work both independently and together (Dimaggio, Lysaker, Carcione, Nicolò & Semerari, 2008). Within the literature other terms are often used interchangeably with metacognition – specifically ‘Theory of Mind’ (ToM) and ‘Mentalization’ – which describe similar phenomena. ToM refers to the ability to represent one’s own and others’ mental states, usually in relation to thoughts and beliefs (Brüne, 2005). However, although this describes a crucial part of metacognition, it likely only represents one part of a wider system that allows one to think about thinking (Lysaker et al., 2009). Mentalization is described as the capacity to view mental states as independent from, but able to potentially influence, actions. However, this concept has evolved from the attachment literature, in comparison to metacognition’s cognitive origins (Bateman & Fonagy, 2004).

Although the relationship between metacognition and violence in schizophrenia has not been investigated, metacognition in schizophrenia has been considered more generally. It is thought the differences reported in metacognitive functioning underpin many of the positive and negative symptoms commonly associated with schizophrenia spectrum disorders, including delusions and hallucinations (Frith, 1992). Traditionally, research in this area has tested ToM abilities using adaptations of psychological tests commonly used with young children. Further to this, research has also measured “intentionality” using short stories, and story-boarding tasks, or tests of first- and second-order ToM through comprehension of irony, faux pax and metaphor. The findings from this laboratory-based research indicate a specific deficit in ToM abilities in schizophrenia (Brüne, 2005). However, although improvements in methodology have been made over the years, there is still limited

generalisability of experimental laboratory tasks to real-life situations, particularly in persons with psychiatric disorders (Simpson, Done & Vallée-Tourangean, 1998).

Lysaker and colleagues have investigated metacognitive deficits in people with schizophrenia, specifically measuring difficulties this group has with capturing their own thoughts and the thoughts of others, by using narratives of self and illness (Lysaker et al., 2005; Lysaker, Dimaggio, Buck, Carcione & Nicolò, 2007; Lysaker et al., 2008; Lysaker et al., 2009). They argue narratives provide a way of assessing metacognition from different perspectives within a real-world context, which provides an alternative to the analogous laboratory tasks (Lysaker et al., 2005).

From their research using the narratives of people with schizophrenia, Lysaker et al, (2007) reported metacognitive deficits were apparent in the majority of their sample. Specifically 85% of their participants had difficulty being able to identify and differentiate their own emotions and/or being able to view the world as a place where other individuals with their own unique thoughts, feelings and perspectives co-exist. Furthermore they suggested different metacognitive profiles appear to be associated with different neurocognitive correlates. It is therefore possible that metacognitive deficits observed in people with schizophrenia may be a cause or function of neurocognitive impairments, which acts as a barrier to functioning within this clinical population. This hypothesis was further supported by the finding that different areas of metacognition were influenced by (or possibly themselves influenced) different domains of executive functioning (Lysaker et al., 2008). Although the cross-sectional design of this study makes direction of causality difficult to discern, were deficits in certain areas of executive functioning to influence metacognition, these results explain some of the interpersonal difficulties, and positive and negative symptoms, people with schizophrenia spectrum disorders experience. For example, deficits in inhibitory processes may make it difficult for one to switch from being preoccupied with self-related thoughts to thinking about a situation from the perspective of another person. This may

have implications for source monitoring, which could perhaps explain the experience of delusions.

Given this body of work that has looked at metacognitive problems in people with schizophrenia, and the difficulty reported with treating violence amongst forensic populations with this diagnosis, it seems timely to begin to explore this further. Although exploring the presence of a link between metacognition and violence would be complex and difficult to discern, a more general investigation into the pattern of metacognitive problems could be helpful. Exploring this matter in people with schizophrenia with a history of interpersonal violence (IV) who are currently being treated within the forensic mental health system could allow us more insight into how better to approach the rehabilitative needs of this population. For example, problems identified may be a vulnerability factor to the development of further interpersonal difficulties, in terms of interpreting and understanding mental states. The proposed research aims to do this by exploring metacognitive profiles, evidenced through narratives of self, in individuals with schizophrenia. Metacognitive abilities of those who have a history of IV and being treated by forensic services will be compared to a community sample with schizophrenia who have no history of IV.

Aims

This is an exploratory study that aims to investigate the profile of metacognitive abilities in individuals in forensic settings with schizophrenia who have a history of IV. Findings will be compared to a control group of a community sample of people with schizophrenia who do not have a history of IV.

Where differences between the two groups are present, effect sizes will be calculated in order to inform power calculations for future research.

Hypotheses

H_1: Metacognitive deficits will exist in both the experimental group and the control group.

H_2: The experimental group will show a lesser degree of metacognitive functioning relative to the control group.

Plan of Investigation

Participants

Experimental group:
15 male NHS forensic patients with a primary diagnosis of schizophrenia, or similar, who have a history of IV.

Control group:
15 male NHS community patients with a primary diagnosis of schizophrenia, or similar. Participants will have no history of IV.

Inclusion and Exclusion Criteria

Experimental Group:
To be included in the study, participants must be age 18-64 and have a primary diagnosis of schizophrenia or similar. Diagnosis will be confirmed by information from patient's files. This will be in the form of a DSM-IV or an ICD-10 diagnostic code. Participants with a secondary diagnosis of a mood disorder and/or personality disorder will also be included. The definition of a 'history of IV' will be taken from the HCR-20: actual, threatened or attempted harm

towards others. This can be verbal or physical and may include fire-raising if the intent was to cause physical or psychological harm to others. The IV will relate to an index offence and an assessment of risk must suggest participants would be at risk of further interpersonal violence, without the protective environment of a secure setting. Evidence of IV will be judged from HCR-20 reports in the participant's file, or other file information, for example a Scottish Criminal Records Office (SCRO) pro-forma, which details criminal convictions. Participants will also be under the care of NHS forensic services.

Those who are acutely psychotic will be excluded from participating in the study. Further exclusions include people who have an identified Intellectual Disability or Autistic Spectrum Disorder. In addition, people who have a history of brain injury, originating from organic disorders or substance misuse, will not be able to participate in the study. A final exclusion criteria purports people will be unable to participate if they do not have English as their first language, given the use of narrative data.

Control Group:

To be included in the study, participants must be age 18-64 and have a primary diagnosis of schizophrenia or similar. Diagnosis will be confirmed by information from patient's files. This will be in the form of a DSM-IV or an ICD-10 diagnostic code. Participants with a secondary diagnosis of a mood disorder and/or personality disorder will also be included. Participants will also be under the care of NHS community mental health teams.

Patients with a history of IV will be excluded from participating in the study. Further exclusions, as detailed for the experimental group, also apply.

Recruitment Procedures

Experimental group participants will be recruited from services within the NHS Greater Glasgow & Clyde Forensic Mental Health and Learning Disabilities Directorate and from forensic services within NHS Scotland. Recruitment will first target the Rowanbank Clinic, a 74-bed medium-secure forensic mental health unit. Further to this the trainee will target forensic wards at Leverndale Hospital, and out-patients at the Douglas Inch Centre. The trainee will also recruit from the Orchard Clinic, Edinburgh.

The trainee will initially liaise with the responsible medical officers (RMOs) at each site, who will be asked to identify patients suitable for participation in the study. The trainee will then approach in person the patients identified and provide them with information about the study. Patients will be given a minimum of 48 hours to study the participant information, and given the opportunity to ask the trainee and/or their RMO questions, before consent to participation is sought.

Control group participants will be recruited from Community Mental Health Services within Greater Glasgow & Clyde. This will be part of a linked project supervised by Prof Andrew Gumley.

Measures

Brief Symptom Inventory (BSI)

The BSI (Derogatis, 1975) is a self-report measure that aims to identify psychological symptoms of clinical significance. The 53-item measure looks at nine symptom classes including depression, anxiety and paranoid ideation. Further to this it can yield overall measures of current and past symptom levels, symptom intensity and total number of symptoms.

HCR-20

The HCR-20 (Webster, Douglas, Eaves & Hart, 1997) is a structured clinical assessment tool, which aides clinical judgement on risk of future interpersonal violence. It comprises 20 items, which are classified under 3 domains: historical, clinical and risk-management. Each item in the 3 domains can be scored 0-2 (0 = no evidence; 1 = partially present; 2 = definite evidence) accordingly. Although in clinical practice the HCR-20 is used within a qualitative framework, it can be used quantitatively for research purposes.

Inventory of Interpersonal Problems – Short Circumplex Form (IIP-SC)

The IIP-SC (Soldz, Budman, Demby & Merry, 1995) is a 32-item measure, which looks at a person's level of interpersonal functioning. It can be used to help differentiate interpersonal from non-interpersonal sources of distress that an individual might be experiencing. It has been developed from the 127-item IIP to make it suitable for research purposes.

Metacognitive Assessment Scale (MAS):

The MAS (Carcione, Dimaggio, Conti, Fiore, Nicolò & Semerari, in press) is a tool that can be applied to narratives to measure metacognitive abilities. In addition to looking at metacognition as a whole, it can also provide a measure of the sub-functions of metacognition. To do this the MAS uses 3 sub-scales (Understanding of One's Own Mind, Understanding of Other's Mind, and Mastery), which each contain various sub-functions, to build up a profile of an individual's metacognitive abilities. For each sub-function points can be awarded by the rater according to the level of metacognitive skills evident in the narrative. These can be summed to yield a total score of metacognitive ability.

The Positive and Negative Syndrome Scale (PANSS):

The PANSS (Kay, Fiszbein & Opler, 1987) is a scale comprising 30 items that allows ratings to be made on a range of symptoms associated with severe mental health problems.

Ratings are made along a 7-point scale. The scale is divided into 4 sub-scales that allow for separate analysis of positive and negative symptoms.

Relational Compassion Scale (RCS)

The RCS is a 40-item questionnaire, which assesses relational appraisal of compassionate self-other relating on a 4-point Likert scale (0-3). It is a self-report measure, and has been shown to have good internal reliability and construct validity (Hacker, 2008).

Relationship Scales Questionnaire (RSQ):

The RSQ (Griffin & Bartholomew, 1994) is a 30-item self-report measure drawn from other measures of attachment. Participants are asked to rate how closely statements match their personal style in close relationships. Statements are representative of different attachment patterns. Scores can be produced to reflect each participant's alignment with the different attachment styles.

Design

The proposed research is part of a larger collaborative study under the supervision of Prof Andrew Gumley. Proposals submitted by Dr Angus MacBeth and Ms Elizabeth Reilly will be combined with this one to form a single protocol, which will be submitted to ethics.

The research proposed in this submission will use a 2-group between and within groups design. The independent variable under control is history of interpersonal violence amongst people with a diagnosis of schizophrenia. The dependent variable being measured is metacognitive abilities.

Research Procedures

Following recruitment (where potential participants are given verbal and written information about the research), the trainee will meet with participants in the experimental group on 2 occasions, at least 48 hours after initial contact. During the first of these meetings the trainee will gain formal consent for participation in the study, and access to patient files. If this is granted the trainee will then begin a period of engagement, before conducting a semi-structured interview to generate the narrative data to be analysed. To do this the interview will allow participants the opportunity to "think about their own thinking, the thinking of others and the problems they are presented, without posing direct problems to be solved." (Lysaker et al., 2005, p.65). The interview will take approximately 1 hour to complete.

Between the first and second meeting, the trainee will gain access to participant files to record demographic information. This will include age, diagnostic codes (for both primary and secondary diagnoses), number of years since primary diagnosis was given, and treatment history (e.g. therapeutic programmes completed). File information will also be used to score the HCR-20 and record details of IV.

At the second meeting the trainee will clarify any anomalies identified in the file information with the participant. Following this, participants will be given the self-report measures with instructions on how to complete them. Self-report measures will then be collected and the participant will be fully debriefed. This will allow for plenty of opportunity for the participant to ask the trainee questions.

Interviews will be transcribed and coded using the MAS to produce quantitative data on metacognitive abilities. Half the transcribed interviews from the control group will also be coded by the trainee using the MAS. The remaining control group transcribed interviews will be coded using the MAS by the trainee's colleague, Ms Elizabeth Reilly. All research data

will then be entered into a Statistical Package for Social Sciences (SPSS) database and analysed using the appropriate statistics to answer the research question.

Justification of Sample Size

This is an exploratory study, as there is little research available that addresses the aims of the proposed research. Therefore it is not possible to perform a power calculation based on similar research in order to produce an estimate of required sample size. In terms of the available resources, including time required for data collection, transcription, coding, and analysis, it is predicted this allows for n=15 for the experimental and control groups (therefore total n=30). Where differences do exist, Table 1 shows the power (1-β) this sample size would have, for different effect sizes, for both parametric and non-parametric tests of difference.

Table 1: Estimates of power (1-β) as a function of effect size and distribution of data

	Test of difference used	
Effect Size (Cohen's *d*)	**Parametric**	**Non-Parametric**
Small (0.2)	0.13	0.13
Medium (0.5)	0.23	0.37
Large (0.8)	0.43	0.67

Post-hoc effect size calculations will be done where possible to inform future studies in this area.

Settings and Equipment

The trainee will first conduct research with participants at the Rowanbank Clinic, Glasgow. If recruitment from out with this site is required, participants will be seen at the site from which they were recruited. This will be a NHS hospital or out-patient clinic.

To complete the research whilst adhering to NHS data protection policies, the researcher will require access to a digital voice recorder, an encrypted laptop, and an on-site filing cabinet with a lock.

Data and Analysis

Data will exist in several forms. The interviews will be stored on a digital voice recorder. This information will then be transcribed by the researcher and stored in a secure format on an encrypted laptop. Further information will be collected from questionnaires completed by participants, and from participants' mental health files. This data will be stored securely on site premises or entered onto a database on an encrypted laptop.

Transcribed interviews will be coded using the MAS. It is only possible to use this tool after specific training and supervision has been given. Therefore this process will be closely supervised by Prof Andrew Gumley, which will require him to have access to the data via the University of Glasgow computer network. Prof Gumley will check all the codings produced by the researcher to ensure accuracy and consistency. This will also provide inter-rater reliability data. Coded data from the MAS will then be statistically analysed using the appropriate parametric and/or non-parametric tests that will test for differences between the experimental and control groups. Data from the self-report measures and participant files will be analysed using the appropriate parametric and/or non-parametric tests to provide supplementary between- and within-group information. These will help to explore other variables of interest.

Health and Safety Issues

Researcher Safety Issues

As the research is mainly being conducted within a medium-secure environment, appropriate health and safety considerations will apply. All research will be completed on NHS premises during working hours when other clinicians are present.

Participant Safety Issues

Although ethical approval will be sought before beginning data collection, some aspects of the process may be quite emotive. In particular, asking participants during the interview to reflect on a difficult situation may evoke an emotional response. However, participants will be made aware that they can withdraw from the study at any point and will be fully debriefed after the interview. Furthermore, they will be encouraged to discuss any difficult issues participating in the research has raised for them with the trainee or a member of their clinical team.

Ethical Issues

Usual ethical research considerations will apply. However, due to the nature of the research setting, and the participants, obtaining ethical consent may take slightly longer than other non-clinical research proposals. Therefore ethics applications will need to be considered early on in the research process.

This research requires access to sensitive information on acts of IV committed by people with schizophrenia. This information will be obtained from patient files. Participants will be asked to give fully informed consent for access to these files and will have time to think

about the matter and ask questions. They will also be made aware that they can withdraw consent at any point in the research process.

Financial Issues

Please see finance form submitted with the proposal.

Timetable

April 2010: Submit MRP proposal

August 2010: Submit ethics proposal

September 2010: Start participant recruitment

September 2010 – February 2011: Interview participants and collect further data from mental health files

October 2010 – March 2011: Data transcription and coding

April 2011: Data analysis

May 2011 – July 2011: Write-up and submission

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