An Investigation of Male Observation Cases That Had Been Charged With Murder to Compare Those Diagnosed With Schizophrenia to Those Diagnosed With Bipolar or Schizoaffective Disorders

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DECLARATION

This thesis is presented in partial fulfilment of the requirements for the degree of Master of Medicine in Psychiatry at the Department of Psychiatry and Mental Health, Faculty of Health Sciences, University of Cape Town.

I, Dr Saulos Kalizga Gondwe, hereby declare that the work on which this dissertation is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, or is to be submitted for another degree in this or any other university.

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ABSTRACT

Background

The prevalence of violent crime, including murder, is moderately but significantly increased amongst those with severe mental illness compared to the general population. Understanding the characteristics of mentally ill murder offenders may help in the application of evidence-based treatment and rehabilitation strategies.

Rationale

In the Republic of South Africa (R.S.A), little is known about the characteristics of patients with severe mental illness who are charged with murder. This study has the potential of improving our understanding of these patients. This would subsequently facilitate the development of evidence based interventions in the South African context.

Aims

The current study aimed to describe the demographic, clinical and criminological characteristics of murder offenders with a diagnosis of schizophrenia or bipolar/schizoaffective disorder and to establish if there are any differences between the two patient groups.

Methods

Clinical records of male patients diagnosed with schizophrenia or bipolar/schizoaffective disorder following a charge of murder who had been admitted as State patients to the forensic unit of Valkenberg Hospital (VBH) were reviewed. Purposive sampling was used. Data were collected using a questionnaire specifically designed for the study. Those with comorbid intellectual disability (ID) or a neurocognitive disorder and those with missing information were excluded. Ethical approval was obtained from the University of Cape Town, faculty of health sciences human research ethics committee.

Results

Thirty-seven male patients were included in the study. Twenty-three had a diagnosis of schizophrenia and fourteen had a diagnosis of bipolar/schizoaffective disorder (SCAD). The mean age of the sample was 32.54 years (range: 17-50). Most had a secondary school level of education and were unemployed. There were no sociodemographic differences between the two groups. *Persecutory delusions* were the most common symptom for both groups (67.57%). The majority of patients had a psychiatric admission prior to the index offence (62.16%). The modal duration of

illness for schizophrenia prior to the index offence was less than one year (37.5%) and more than ten years for bipolar/SCAD patients (57.14%). Comorbid personality disorder (PD) was present in 62.5% of the sample. Antisocial PD was the most prevalent. The most commonly used substances were cannabis (70.27%) and alcohol (59.46%). Bipolar/SCAD patients were more likely to use other substances than alcohol or cannabis compared to schizophrenic patients. 89% of the victims were known to the offenders. Family members were victims in 65.2% of the murders. Most of the victims were male (70.27%). Most of the murders occurred at home (75.68%). Schizophrenia patients were more likely than bipolar/SCAD patients to commit the murder at home. Stabbing with a knife was the most common method of murder for both groups (49.45%).

Conclusions and Recommendations

It can therefore be concluded that patients with schizophrenia or bipolar/SCAD share most demographic, clinical and criminological characteristics which are thought to play a causative role in the commission of murder. Hence, they do not require different rehabilitation strategies.

However, general rehabilitation programs for both patient groups should cover several important areas including: social deficits, occupational functioning, substance misuse, treatment adherence and family involvement. Forensic rehabilitation programs should also fully integrate dual diagnosis interventions. Risk assessment and management in both civil and forensic psychiatry services should specifically address persecutory delusions. This should include optimising psychotropic treatment, cognitive behavioural approaches and emphasis on clinicians' duty to warn any potential imminent victims. There should be more robust assessment for comorbid personality disorders as this has a significant impact on the course of illness and the risk for recidivism.

In future, a South African multicentre study of similar design should be conducted to increase the sample size and improve the generalisability of the study findings. Future studies should also examine female murder offenders as a separate sample as they may essentially be different from male murder offenders.

ACKNOWLEDGEMENTS

I would like to sincerely thank my supervisor, Professor Sean Kaliski, for his support and guidance throughout this project. I would also like to thank my wife Janet and my children Sibo, Chima and Sithe for their understanding during the long period of my absence.

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LIST OF ABBREVIATIONS

1. APA……. American Psychiatric Association

2. CI……. Confidence Interval

3. COV……. Crime(s) of violence

4. DSM-III……. Diagnostic and Statistical Manual of Mental Disorders (3^{rd} edition)

5. DSM-5……...Diagnostic and Statistical Manual of Mental Disorders (5^{th} edition)

6. ICD-10……. International Classification of Diseases (10^{th} edition)

7. ID……Intellectual Disability

8. MDT……... Multidisciplinary Team

9. MHCA…… Mental Health Care Act (17 of 2002)

10. OR……Odds Ratio

11. aOR……. adjusted Odds Ratio

12. PD……Personality Disorder

13. RSA……. Republic of South Africa

14. SCAD……...Schizoaffective disorder

15. SMI……...Severe Mental Illness

16. TCOs…… Threat/Control Override symptoms

17. VBH……. Valkenberg Hospital

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CHAPTER 1

INTRODUCTION

Any possible relationship between mental illness and violence has social, political as well as clinical implications. These include stigma, unemployment, resource allocation, formulation of laws as applies to the mentally ill, amount of sedation and the degree of restriction that may be imposed on an individual's freedom.

Increasingly, treating clinicians have been held responsible for their patients' violent actions. As a result, there has been considerable research into the possible links between mental illness and violence (Paterson et al.,2004). The main aim of such studies has been to improve clinicians' ability to predict and manage this risk.

Forensic psychiatry is the branch of psychiatry that is specifically concerned with the interaction between mental illness and the law. Broadly, the term is applied to all legal aspects of psychiatry including civil law and laws regulating psychiatric practice. Narrowly, it is applied to the branch of psychiatry that deals with the assessment and treatment of mentally abnormal offenders (Gelder et al., 2006). The current study was restricted to the later definition of forensic psychiatry.

In the Republic of South Africa (RSA), the assessment and management of mentally ill murder offenders is principally guided by two acts-the Criminal Procedure Act (Act 51 of 1977) which states that:

> If the court finds that the accused committed the act in question and that he or she at the time of such commission was by reason of mental illness or mental defect not criminally responsible for such an act; the court shall find the accused not guilty; or if the court so finds after the accused has been convicted of the offence charged but before sentence is passed, the court shall set the conviction aside and find the accused not guilty, by reason of mental illness or mental defect, as the case may be and direct that the accused be declared a state patient and be referred back to the forensic hospital in terms of section 42 of the Mental health care act (Act 17 of 2002), there to be indefinitely detained and treated pending a decision by a judge in chambers (Swanepoel.,2015).

This study was conducted at Valkenberg Hospital (VBH) which is a tertiary hospital located in the Western Cape Province of RSA. The hospital comprises acute general psychiatric wards and

forensic wards. The forensic unit conducts assessments of both male and female patients referred to it by magistrate and high courts in the Western Cape. In addition, the hospital is involved in the clinical training of psychiatric registrars, intern psychologists, medical and nursing students for major universities in the Western Cape.

The referred individual undergoes a period of observation that generally lasts thirty (30) days but may be longer or shorter depending on the individual case. The assessment of murder offenders requires a panel of at least two psychiatrists. In addition, a multidisciplinary team (MDT) comprising nursing staff, a clinical psychologist, a social worker and an occupational therapist is involved at VBH. This assessment is based on clinical history and examination, nursing observations, social worker reports, occupational therapy reports, psychological reports, court records including; charge sheet, prima facie evidence, witness statements and collateral information from significant others. The main aim of this observation is to assess for the presence of a severe mental illness (SMI) (e.g. schizophrenia, SCAD or bipolar disorder) or a mental defect such as intellectual disability (ID) and whether these conditions had an impact on the offender's criminal responsibility at the time of commission of the alleged offence. The other aim is to assess whether there is a mental illness or ID that could affect the offender's current fitness to stand trial. At the completion of the forensic observation, an assessment report is produced for the courts. This report includes the clinical diagnosis and recommendations for the courts as to the disposition of the case.

The offender lacks criminal responsibility if he or she commits or makes an omission which constitutes an offence whilst suffering from a mental illness or ID which makes him or her incapable -of appreciating the wrongfulness of his or her act or omission; or of acting in accordance with an appreciation of the wrongfulness of his or her act or omission. The accused person is unfit to stand trial if he or she is unable to understand the trial proceedings or is unable to instruct his or her counsel in order to make a proper defence (Kaliski., 2006).

If the assessment finds that the offender lacks criminal responsibility or is unfit to stand trial, the courts may declare the individual a State patient and refer them back to the forensic hospital for detention, treatment and rehabilitation.

Male perpetrators declared State patients by the courts in the Western Cape are re-admitted to the VBH forensic unit. Patients may be admitted to the high, medium or low security wards depending on their clinical status, risk profile including a history of violence and/or substance

misuse as well as their level of functioning both occupationally and in activities of daily living. Female State patients are referred to Lenteguer Hospital which is the other tertiary hospital in the Western Cape. The current study only looked at the male State patients admitted to VBH.

1.1. Literature review

This literature review initially looked at studies of the relationship between mental illness in general and crimes of violence (COV) including murder. This was then followed by a further review specifically focussed on schizophrenia and bipolar/SCAD.

Relevant studies were identified by searching computerised databases. For the purposes of this study, murder and homicide were considered synonymous. Key search terms used included: *mental illness and violence*; *mental illness and murder*; *schizophrenia and violence*; *schizophrenia and murder*; *bipolar disorder and violence*; *bipolar disorder and murder*; *schizoaffective disorder and violence; schizoaffective disorder and murder; Republic of South Africa; Africa.*

Initial search results were further reviewed and studies were included based on their relevance to the current study. The lists of references from the initial results were searched manually to find additional relevant articles.

1.1.1. The association between mental illness and crimes of violence

A crime of violence (COV) is a legal term that covers an offence "that has as an element the use, attempted use, or threatened use of physical force against the person or property of another". This includes murder, rape, kidnapping, robbery, burglary, assault with a dangerous weapon or an attempt/conspiracy to commit any of the foregoing offences (Smith., 2018).

There is almost a universal consensus that the prevalence of COV including murder committed by patients with mental illness is moderately but significantly increased when compared to the general population (Paterson et al., 2004). Some authors contend that the reliance of many studies on written reports, arrests or case records may actually underestimate this association when compared to studies that have used patient self-reports of violence (Wright et al., 2002).

The finding that mental illness is associated with an increased risk of COV is consistent in studies that have used different methodologies e.g. in studies of rates of COV before admission to psychiatric hospital, during admission, and after discharge; in studies comparing rates of COV by

discharged psychiatric patients to those by matched community samples; in studies comparing prevalence rates of mental illness among incarcerated prisoners and the general population; and in comparison to rates of COV by people with or without mental illness in a particular birth cohort. However, several factors including the wide variation in study methodologies and differences in operational definitions of violence as well as mental illness, make it difficult to directly compare the different findings.

One of the ground breaking studies on the relationship between mental illness and COV was by Swanson et al. (1990). This was an American study that used data from the Epidemiological Catchment Area survey (N=10 059). Mental illnesses were classified based on the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III) by the American Psychiatric Association (APA., 1980). In the study, researchers compared rates of COV by those with mental illnesses to a matched nondisordered community sample. In the absence of comorbidity, only schizophrenia and substance misuse significantly increased the risk compared to the community sample. Almost 10% of those with schizophrenia compared to 2% of the general population reported engaging in violent behaviours in the 12 months preceding the interview. It is important to note that substance misuse posed a greater risk regardless of the presence or absence of a primary psychiatric disorder. Individuals with alcohol or drug use disorders were more than twice as likely than those with schizophrenia to engage in violent behaviour.

Alexandre Valenca and Talvane de Morais (2006) conducted a literature review of studies that had looked at the possible relationship between different types of mental disorders and violence including murder. There was a significant association between certain mental disorders and violence for both men and women. However, this association was stronger for women with mental illness compared to women without (e.g. Hodgins et al., 1996; Hodgins., 1992; Tiihonen et al., 1997; Wallace et al., 1998). The association was consistently found in birth cohort studies; in studies that compared patients discharged from psychiatric hospitals and matched community samples; and in studies that assessed the rates of mental disorders amongst incarcerated prisoners. Birth cohort studies showed that individuals who develop severe mental illness (SMI) are more likely to be convicted of crime than those who do not develop a mental disorder-for example, a Danish birth cohort study that had reviewed individual psychiatric and criminal records at the age of 43 (Hodgins et al.,1996). The study found a history of being imprisoned for at least one COV was 20% for those with psychotic depression and 27% for those with bipolar disorder compared to 13% for those who had never received any psychiatric treatment. The risk of committing a COV was greater among those with severe affective disorders-such as bipolar disorder-compared to the

general population (3.3% vs. 02% for men; 6.3% vs 0.6% for women). Studies that compared individuals with mental illness discharged from psychiatric hospitals with matched community samples also found significantly higher rates of violence by those with SMIs (e.g. Steadman et al., 1998; Tengstrom & Hodgins., 2002). Similarly, in prison populations, there were higher rates of mental illness among the convicts compared to the general population (Cote & Hodgins., 1992; Taylor & Gunn., 1984).

The study by Steadman et al. (1998) compared the criminality of discharged patients (N =1136) in the U.S.A to that of people without mental illness in the same community. In the first-year post-discharge, 27.5% of the patients had committed at least one COV that resulted in the victim requiring medical attention. The diagnoses related to the highest frequency of COV were schizophrenia (14.8%), depression (28.5%) and bipolar disorder (22%). The strongest predictor of violent behaviour was a past history of violence. In addition, comorbid substance misuse increased the risk significantly. For instance, a one-year follow-up of those with a dual diagnosis (SMI comorbid with substance misuse) showed a violence rate of 31.1% compared to 17.9% for those without comorbid substance misuse. In one sample area, there was actually no difference in the COV rates by those with SMI (without comorbid substance misuse) and a matched community sample (n=519).

Most studies agree that the relationship between SMI and COV is complex. For example, comorbid alcohol and substance misuse are major contributors to the increased risk of COV by people with SMI (e.g. Swanson et al., 1990; Steadman et al., 1998; Fazel et al., 2009). One study (Eronen et al., 1996b) found that schizophrenia with comorbid alcoholism increased the risk of ‘all violence’ two-fold compared with schizophrenia only. Similarly, Räsänen et al. (1998) found a 36% COV conviction rate for those with a dual diagnosis of schizophrenia and alcoholism compared to 7.5% for those with schizophrenia only. A literature review on comorbidity in forensic psychiatry (Palijan et al., 2009) found a causal relationship between major psychiatric disorders and comorbid substance misuse in 50 to 80% of forensic psychiatric cases. In addition, the comorbid substance misuse in the violent offender was usually unrecognised or misdiagnosed leading to suboptimal treatment. The MacArthur Community Risk Study (Monahan., 2002) suggests that the prevalence of violence among people discharged from a psychiatric hospital without comorbid substance misuse is similar to that of other people living in the community not diagnosed with substance misuse.

In addition to comorbid substance misuse, other factors have also been found to mediate the increased risk of COV by those with SMI. For example, Elbogen and Johnson (2009) found that the risk of COV in people with mental illness was also affected by contextual factors including recent divorce; historical factors such as past violence; clinical factors such as perceived threat; and dispositional factors such as gender. In addition, Van Dorn et al. (2012) found that premorbid conditions and other contemporary factors were important in mediating violence in people with SMI. These included childhood abuse or neglect, household antisocial behaviour, binge drinking and stressful life events.

It can be concluded that there is consistency in the finding that the prevalence of COV committed by patients with mental illness is moderately but significantly increased when compared to the general population. However, this is only true for a subgroup of SMIs such as schizophrenia spectrum and bipolar disorders. Amongst the SMIs, there is more evidence for an increased risk of committing COV by schizophrenia patients than for those diagnosed with bipolar disorder. It is important to note that the relationship between SMI and COV is complex i.e. it is mediated by several factors including perceived threat, comorbid substance misuse and/or PD as well as a past history of violence.

1.1.2. The association between mental illness and murder

Among the crimes of violence, murder is considered the most extreme with significant implications for the victim, the perpetrator and their families. Hence murder by people with mental illness has been a special area of study in several countries. Similar to studies of general COV, attempts have been made to establish whether any relationship exists between specific mental illnesses and murder in order to improve risk assessment and management. The wide variation in methodologies and operational definitions makes direct comparisons of the various studies difficult. Legal differences in how mentally ill murder offenders are sentenced in different countries further complicate comparisons. Regardless of these limitations, there is some evidence of an association between mental illness and murder.

A Danish birth cohort study (Brennan et al., 2000) followed up individuals born between 1944 and 1947(N= 335,900). Official records of psychiatric hospitalisations and criminal arrests up to 1991 (i.e. up to the age of 43 to 46) were obtained for the entire cohort. They found that there was a significant association between having a SMI (that led to hospitalisation) and COV including murder when compared to those never admitted (OR= 2.0-8.8 for men and 3.9-23.2 for women). When specific diagnoses were considered, only schizophrenia and organic psychoses were

independently associated with an increased risk of COV. Affective psychoses (e.g. bipolar disorder with psychotic features/major depression with psychotic features) were only significantly associated with COV in the presence of a comorbid substance use or PD.

A Swedish study (Fazel & Grann., 2004) examined the psychiatric diagnosis of individuals convicted of murder or attempted murder from 1988 to 2001 (N=2,005). These represented about 81% of all cases during the study period. The authors found that 90% of the offenders had a psychiatric diagnosis-including personality and substance use disorders. Among these people, 20% had a psychotic illness which in this study included schizophrenia, bipolar disorder, substance induced psychoses and organic psychosis. Schizophrenia alone was present in 9% of the sample. In addition, substance use disorders or personality disorders were the principal diagnoses in 24% and 14% of the offenders respectively. The rates of these disorders in the offenders are higher than their base prevalence in the general population.

A study of murder convicts in England and Wales from 1996 to 1999 (N=1594), found that 34% of the sample had a lifetime history of a mental disorder. The lifetime prevalence of affective disorders or schizophrenia was 7% and 5% respectively-higher than the general population prevalence rates. However, personality disorders (9%) and alcohol and/or drug dependence (13%) were more common. Less than 50% of the individuals with a history of a mental disorder had ever attended any psychiatric services. A small proportion of the sample (10%) had symptoms of acute mental illness at the time of the offence (Shaw et al., 2006).

Another study examined court records of 500 murder offenders in England and Wales. These represented 70% of the murder convictions during the study period. About 44% of the offenders had a lifetime history of a mental disorder. The commonest diagnoses were affective disorders (11%, 95% CI; 8%-13%) and personality disorders (9%, 95% CI; 7%-12%). The lifetime history of schizophrenia was 6%. Only 18% (95% CI; 13%-23%) of those with a lifetime history of mental disorder were in contact with psychiatric services in the year before the offence. Active symptoms of mental illness were present in 14% (95% CI; 11%-17%) of the perpetrators at the time of the murder. Depressive symptoms were the most common active symptoms (67%) followed by psychotic symptoms i.e. delusions or hallucinations or both (38%) (Shaw et al., 1999).

An American study (Martone et al., 2013) examined the psychiatric characteristics of all murder defendants (N=208) between 2001 and 2005 in one urban county. Forensic psychiatric

examinations to assess fitness to stand trial and acute treatment needs were conducted within 48 hours of the arrest possibly limiting the impact of the arrest on the mental state. The prevalence of a DSM-IV *Axis I* or *Axis II* diagnosis (APA., 1990) among the defendants was 58% compared to 25% in the general population. The most common diagnosis was a substance use disorder (47%). The majority of those with a substance use disorder (76%) had no other *Axis I* disorder. Among the 17% of defendants with a nonsubstance use *Axis I* disorder, the most common were affective disorders. A small proportion (4%) had a psychotic disorder. Only 5% had a diagnosis of antisocial personality disorder. The treatment levels in the sample were low i.e. only 37% had a lifetime history of prior psychiatric treatment. Among those with at least one *Axis I* diagnosis, only 8% had outpatient treatment in the 3 months preceding the offence.

Although the foregoing studies have mostly looked at mental illness in general, the courts mainly focus on the effects of SMIs (e.g. schizophrenia/psychosis and mania) on criminal offending. The association between SMIs and murder is mediated by several factors including: comorbid substance misuse; personality disorders and absence of treatment or treatment non-adherence.

Pamela Taylor and John Gunn (1999) argued that individuals with comorbid personality and substance use disorders actually account for the greater proportion of those with a broad diagnosis of a mental illness that commit murder. In addition, people with comorbid SMI and personality disorder or substance misuse are often denied treatment and often managed by the criminal justice system. This implies that the SMI may not be effectively treated leading to a possible increased risk of COV and murder.

A Russian study reviewed murders committed by individuals with schizophrenia (N=133) over a 30-year period in a single region (Golenkov et al., 2011). They found a 10-fold increased risk of murder by people with schizophrenia when compared to the general population (OR=13.5, CI; 11.4-16.0). In addition, first-episode patients were six times more likely to commit murder than those with long standing or previously treated schizophrenia. Most offenders had missed appointments and had been non-adherent to antipsychotic medication in the period before the murder. The authors argue for the role of proper diagnosis and treatment of psychotic patients in order to reduce their risk of committing COV.

A systematic review compared the rates of murder during the first episode of psychosis before and after initiation of treatment (Nielsen & Large., 2010). One in six hundred psychotic patients committed murder prior to receiving treatment compared to one in nine thousand after initiating

antipsychotics. The rate ratio of murder before treatment in the reviewed studies was 15.5 times the annual rate after treatment for psychosis (95% CI; 11.0-21.7). The authors proposed that earlier treatment of first-episode psychosis might reduce the risk of murder.

It can be concluded that the relationship between mental illness and murder closely parallels that of mental illness and COV i.e. the risk of committing murder is significantly and consistently increased in only a subgroup of SMIs such as schizophrenia spectrum and bipolar disorders. The evidence of this association is stronger for schizophrenia than bipolar disorder. The increased risk of murder by these patients is mediated by certain factors such as perceived threat, comorbid substance misuse and/or PD, a past history of violence as well as the absence of treatment or treatment non-adherence.

1.1.3 Comparison of rates of COV between schizophrenia and bipolar/SCAD

As previously noted, the increased risk of COV by people with mental illness seems to be confined to a selected group of SMIs in the context of certain mediating factors. Most studies have looked at the association between schizophrenia or psychotic disorders and COV. Hence there is a dearth of literature on other SMIs including bipolar disorder. This gap has been confirmed by several reviews (Volavka et al., 2013; Latalova., 2009; Valenca & de Morais., 2006).

In addition, most studies have compared the rates of COV by psychiatric patients to general population rates. Therefore, any comparisons between different SMIs are essentially inferential rather than direct.

The current review first looked at studies of schizophrenia followed by those that included both schizophrenia spectrum disorders as well as other SMIs such as bipolar disorder. It is important to note that SCAD has traditionally been included under schizophrenia spectrum disorders e.g. in the DSM-5 (APA., 2013). The present study grouped SCAD together with bipolar disorder. This is because we postulated that mood symptoms, which are prominent in both SCAD and bipolar disorder would confer significant differences to schizophrenia patients in whom only psychotic symptoms predominate.

A systematic review looked at epidemiological studies published since 1990 (Angermeyer., 2000). Despite methodological differences in the reviewed studies, there was a moderate but significant association between schizophrenia or more generally psychotic disorders and COV that was

consistent. Patients with schizophrenia were four to seven times more likely to commit a COV when compared to the general population.

Another study compared the criminal records of individuals first hospitalised with schizophrenia (N=2861) to that of a community sample matched for age, gender and region of inhabitation. The conviction rate for at least one COV was significantly higher for those with schizophrenia compared to the community controls (8.2% and 1.8% respectively). This translates to a four to seven-fold increased risk of conviction for those with schizophrenia. Substance misuse further increased the conviction rate with 68% of those who used compared to 11.7% of nonusers being convicted (Paterson et al., 2004). Similarly, a fifteen-year follow-up study of discharged schizophrenia patients (N=644) found a four-fold increase in COV conviction rate compared to the general population. Of the 6% who had been violent, nearly 50% had comorbid alcohol misuse. The relative risk of criminal offence among men and women with schizophrenia when compared to the general population was 1.2 and 2.2 respectively (Lindqvist & Allebeck., 1990).

A Finnish birth cohort study (Räsänen et al., 1998) followed up individuals to the age of 26. Data on psychiatric hospitalizations were derived from the Finnish hospital discharge register which contains all psychiatric diagnoses of patients treated in either psychiatric or general hospitals. A total of five hundred and sixty-one subjects (N=561) were identified and cross-referenced with entries in the Finnish national crime register. By the age of 26, there was a higher conviction rate for COV among schizophrenia patients with a history of hospitalisation (7.5%) compared to 2.2% for non-hospitalized men. However, these findings may present a selection bias and overestimate the risk as more severely psychotic patients are more likely to be admitted to hospital. Violence may actually be the primary reason for being admitted. In addition, those hospitalised may have their data readily available at the expense of others with mild symptoms who are treated in the community which may further compound the bias.

Increased rates of schizophrenia have also been found among prison populations when compared to the general population. For example, Taylor and Gunn (1984) studied a random sample of consecutive male admissions remanded to Brixton prison (N=1241). This was the largest remand prison in the U.K. at the time. The prevalence of schizophrenia among the remandees was 6% compared to the estimated prevalence rate of 0.5% in the south London population. The prevalence of schizophrenia was even higher among those who had committed COV i.e. non-fatal personal assaults (9%), murder (11%) and arson (30%).

When assessing the association between schizophrenia and COV, it is important to recognise the role of dual diagnoses, clinical and historical factors. For example, Richard-Devantoy and colleagues (2009) found that the risk of COV was particularly increased with paranoid schizophrenia (i.e. schizophrenia with predominant hallucinations and delusions), antisocial PD, and alcohol or drug use disorders. Among patients with schizophrenia, the risk was increased further with comorbid alcohol or drug misuse. In men, schizophrenia alone increased the odds of violence seven-fold whilst with comorbid alcoholism, the odds increased seventeen-fold. It is important to note that whilst the prevalence rate of schizophrenia in murder offenders was high (6%), it was even higher for personality disorders (10%) and alcohol misuse or dependence (38%).

A two-year follow-up study (Moran et al., 2003) examined the association between comorbid personality disorders and violence in community dwelling patients with psychosis. A total of 670 patients were screened for comorbid ICD-10 personality disorder. In addition, a history of physical assault was assessed using multiple data sources. Twenty-eight per cent (28%) of the patients had comorbid personality disorder (n=186, 95% CI; 24-31). Those with a comorbid personality disorder were significantly more likely to behave violently over the 2-year period (aOR=1.71, 95% CI; 1.05-2.79) compared to those without a comorbid personality disorder. Personality disorders that were significantly associated with violence were paranoid (aOR=1.36, 95% CI; 1.01-1.84) and antisocial (aOR=1.45, 95% CI; 1.08-1.95).

In addition to comorbid personality and substance use disorders, specific symptom clusters rather than the broad diagnosis of schizophrenia have been associated with an increased risk of violence. For example, a 2-year study in England (Coid et al., 2013) investigated characteristics which were associated with violent behaviour during a first episode of psychosis (N=458). By the end of the study period, 12% of the sample had engaged in serious violence. Three forms of delusions were significantly associated with serious violence i.e. persecution (z=3.09, P=0.002), being spied on (z=3.03, P=0.002) and conspiracy (z=2.98, P=0.002). Anger related to the delusional beliefs was considered the most significant affect that mediated the violence.

In 1994, Link and Stueve proposed that some delusions were significantly more associated with violence than other psychotic symptoms. These were thought insertion, passivity phenomena or feelings of external control as well as body-mind control delusions. As these symptoms describe a patient's feeling of being "gravely threatened by someone who intends to cause harm" and an override of self-control through external forces, they were called threat/control-override (TCO)

symptoms. Other authors expanded the original definition to include other symptoms such as thought withdrawal, persecutory delusions and a belief that others are following the individual (Stompe et al., 2004). Some authors have confirmed the significance of TCOs in the commission of COV. For example, Swanson et al. (1996) found that patients with TCOs were twice as likely as those with hallucinations to engage in assaultive behaviours and five times as likely when compared to those without any mental illness.

Junginger (1996) argued that much of the violence by psychotic patients is not random but driven by rational responses to delusions and hallucinations. The content and themes of the delusions and hallucinations may imply a specific pattern of violence and that analysis of the psychotic content could be much more informative than associations of broad categories. This could also be helpful in identifying individuals at risk of violence by the psychotic patients.

Unlike schizophrenia, the evidence for any association between severe affective disorders (e.g. bipolar disorder, major depression) and COV is much less robust. This is partly due to the previously noted dearth in research as much focus has been on schizophrenia. A literature review (Fovet et al., 2015) found an increased risk of COV by bipolar disorder patients compared to the general population (OR=2.1, 95% CI; 1.8-4.3). The risk was even higher among patients with comorbid bipolar and substance use disorders than among those without either disorder (OR=10.1, CI; 5.3-19.2). The authors suggested that as a result of this increased risk, patients with bipolar disorder are also overrepresented in prison populations with a prevalence of 2% to 7%. Other factors found to be important in COV by bipolar disorder patients were comorbid antisocial PD and onset of the bipolar disorder before the age of 21.

A literature review of studies published between 1996 and 2012 (Volavka., 2013) found a statistically significant increase of violence in both bipolar disorder and schizophrenia when compared to the general population. The risk of violence in both disorders was greatly increased by comorbid substance misuse. Most of the violence in bipolar disorder seemed to occur during the acute manic phase. Independent of the severity of bipolar disorder (i.e. bipolar I and bipolar II) and polarity of the episode, those in a current mood episode showed significantly higher aggression scores than those not in a current mood episode. Current psychosis also significantly increased aggression, hostility, and anger. Other factors that were associated with aggression and violence in bipolar disorder included paranoia, irritability, lack of insight and executive dysfunction. They postulated that executive dysfunction may increase COV due to its association with impaired inhibition. They further proposed that impaired insight partly mediates aggression

and violence due to reduced adherence to treatment. Apart from the acute mood episodes, a lifetime diagnosis of bipolar disorder also increased the risk of aggression when compared to healthy controls. For example, one study found that 12.2% of people with a lifetime diagnosis of bipolar disorder compared to 1.9% without any disorder had engaged in violence (Corrigan & Watson., 2005). In addition, there were high levels of comorbidities (e.g. ranging from 17% -64%) that are known to further increase the risk of violence. These comorbidities included antisocial PD, borderline PD and substance misuse. Since antisocial PD is partly defined by the presence of aggression, it would be expected to raise the risk of violence in bipolar patients. Similarly, borderline PD is associated with impulsive aggression which would also increase the risk of violence in bipolar patients.

However, the association between bipolar disorder and COV is not as strong as that found with schizophrenia. For example, a Swedish longitudinal study (Fazel et al., 2010) followed up individuals with two or more discharge diagnoses of bipolar disorder (n=3743). These were compared to general population controls (n=37 429) and unaffected full siblings (n=4059). During follow-up, 8.4% of those with bipolar disorder committed a COV compared with 3.5% of the general population controls (adjusted Odds Ratio [aOR] = 2.3, 95% CI; 2.0-2.6). The risk was mostly confined to those with comorbid substance misuse (aOR= 6.4, 95% CI; 5.1-8.1). The risk increase was minimal in people without comorbid substance misuse (aOR= 1.3, 95% CI; 1.0-1.5). The risk was further attenuated when unaffected full siblings of individuals with bipolar disorder were used as controls (aOR= 1.1, 95% CI; 0.7-1.6). In addition, there was no difference among the different sub-groups of bipolar disorder (i.e. manic versus depressive and psychotic versus nonpsychotic). A follow-up systematic review and meta-analysis of eight previous studies (N=6,383) was conducted within the same study. The odds ratio for COV by bipolar disorder patients when compared to the general population ranged from two to nine (OR: 2-9).

It can be concluded that there is an increased risk of COV by both schizophrenia and bipolar disorder patients. However, this association is stronger for schizophrenia than bipolar disorder. In addition, these disorders share some of the factors that mediate the commission of COV such as comorbid substance misuse and/or PD.

1.1.4 Comparison of the rates of murder between schizophrenia and bipolar/SCAD

In keeping with studies of COV and mental illness, most of the studies of the relationship between specific SMIs and murder have focussed on schizophrenia at the expense of the various other disorders. This literature review initially looked at studies of rates of murder by patients with schizophrenia or schizophrenia spectrum disorders (which include SCAD). This was followed by a review of studies that have looked at severe affective disorders including bipolar disorder.

Several studies have demonstrated a significant association between schizophrenia and murder. A meta-analysis of eighteen studies from Western Europe, Australasia and East Asia estimated that almost 6.5% of all murders were committed by patients with schizophrenia (95% CI; 5.56%-7.54%). This is higher than the overall population prevalence of schizophrenia suggesting an association between schizophrenia and murder (Large et al., 2009). Similarly, Richard-Devantoy et al. (2013) reported a 6% prevalence of schizophrenia among murder offenders in western populations. The previously cited Russian study (Golenkov et al., 2011) also found an increased risk of murder by people with schizophrenia compared to the general population (OR=13.5, 95% CI; 11.4-16). The mean age of the perpetrators was 34.8 years. Most of the perpetrators (78%) had paranoid schizophrenia and 45% had alcohol intoxication at the time of commission of the offence.

Another study (Paterson et al., 2004) found a 6.4% prevalence rate of schizophrenia spectrum disorders in murder offenders compared to 1.7% prevalence rate of these disorders in the general Finnish population. One strength of this study was a high murder clearance rate- perpetrators were identified in 95% of the cases. Another strength was that all murder offenders underwent psychiatric evaluation. As previously noted, the overrepresentation of schizophrenia among murder offenders when compared to its population prevalence suggests that there is an association between schizophrenia and murder.

Some studies have found even higher prevalence rates of schizophrenia among murder offenders than those previously cited. For example, one study (Fazel & Grann., 2004) examined the psychiatric diagnosis of individuals convicted of murder or attempted murder during a fourteen-year period in Sweden (N=2005). Psychiatric data were obtained from forensic-psychiatric evaluations and hospital records. The prevalence of psychotic disorders was 20% including 9% with schizophrenia. Substance misuse has been found to further increase the risk of murder by people with schizophrenia. In a meta-analysis of twenty studies (N=18,423), the risk of murder

was increased in individuals with psychosis compared to the general population (OR= 2.1, 95% CI; 1.7-2.7). However, comorbid substance misuse substantially increased the risk (OR= 8.9, 95% CI; 5.4-14.7). The risk in those with comorbid substance misuse was similar to apsychotic substance misusers. However, there was no difference in risk between schizophrenia and nonschizophrenic psychosis (Fazel et al., 2009). Whilst these findings further emphasise the role of substance use, they also imply that the risk of COV may be increased by psychotic symptoms in general rather than a diagnosis of schizophrenia specifically. The previously cited study (Richard-Devantoy et al., 2013) found a two-fold increased risk of murder in schizophrenia without comorbid substance misuse and an eight-fold increase in risk in those with comorbid substance misuse when compared to the general population. This increase especially occurred in those with comorbid alcohol misuse.

Finnish studies have provided some of the most reliable data on the relationship between schizophrenia and murder. This is because of the high clearance rate i.e. 95% of all murders are solved. In addition, most of the offenders undergo intensive psychiatric evaluation. An 8-year Finnish study (Eronen et al., 1996a) evaluated 693 murders. They found that schizophrenia increased the OR of committing murder 8-fold in men and 6.5-fold in women. Another study (Eronen et al., 1996b) looked at ninety-three Finnish homicide offenders with schizophrenia over a 12-year period. The risk of committing a murder for schizophrenia patients of both genders was ten times greater than for the general population (95% CI; 8.1-12.5, $p<0.001$). Schizophrenia without comorbid alcohol misuse increased the risk more than seven times for males (95% CI; 5.4-9.7, $p<0.001$). Schizophrenia with comorbid alcohol misuse further increased the risk to more than seventeen times for males (95% CI; 12.4-23.7, $p<0.001$). In addition to substance misuse, other factors have also been associated with an increased risk of murder by patients with schizophrenia. These factors include a younger age, male gender, low socioeconomic status, prior history of interpersonal violence, a stressful event in the year prior to the murder, severe psychosis, long duration of untreated psychosis and poor treatment adherence (Richard-Devantoy et al., 2013).

Some studies have focussed on the clinical factors that might increase the risk of murder in people with schizophrenia. For example; a survey of murder convicts (N=1,594) in England and Wales found a prevalence of 5% for schizophrenia. Of these, 56% had been ill for less than twelve months and 56% had shown clinical changes in the month before commission of the offence. These clinical changes included change in quality, intensity, conviction and emotional response to their delusional beliefs. In addition, 28% of the patients had no prior contact with psychiatric services (Meehan et al., 2006).

Few studies have looked at the relationship between various other psychiatric disorders and murder i.e. when compared to the number of studies on schizophrenia. Generally, the association between bipolar disorder/SCAD and murder is not as strong as that for schizophrenia.

A study of murders in New Zealand (N= 1498), found that 8.7% of the murders (N=130) were due to a psychiatric disorder (Simpson et al., 2004). These were classified as 'abnormal' murders. Demographic and clinical data were analysed for one hundred and twenty-six patients (n=126). A large proportion had schizophrenia (43.6%), 15% had "other" psychoses and 3.9% had bipolar disorder-higher than the general population prevalence. Among the perpetrators with mental illness 29% had no prior admission to a psychiatric hospital. It is important to note that 'other' psychoses could include SCAD.

An Austrian study (Schanda et al., 2004), evaluated the rates of SMIs in perpetrators of a single murder who were sentenced to internment to a mental institution during a twenty five-year period i.e. from 1975 to 1999 (N=77). SMIs were significantly associated with an increased risk of murder (2-fold in men and 6-fold in women). The specific SMIs associated with murder were schizophrenia (aOR in men= 5.85, CI; 4.29-8.01; in women =18.38, CI; 11.24-31.55) and delusional disorder in men (age-adjusted OR =5.98, CI; 1.91-16.51). The odds of committing murder due to bipolar disorder alone was 0.4. These odds increased to 3.1 with comorbid alcohol misuse/dependence. This implies that the risk was increased with schizophrenia with or without comorbid alcohol dependence whilst with bipolar disorder the risk was only increased in the presence of comorbid alcohol dependence.

One of the clinical factors that may increase the risk of violence in people with affective disorders is the presence of psychotic symptoms. For example, one study looked at the rates of homicidal ideation and intent by individuals diagnosed with any DSM-IV schizophrenia subtype (N=223) over a 6-month period. Psychotic and manic symptoms as well as impaired global function all correlated significantly with homicidal ideation and attempted murder. The authors argued that these findings support the supposition that lack of: reality testing (a key feature of psychosis); judgement; and communication can lead to violent or homicidal behaviour (Schwartz et al., 2001). Whilst this study only evaluated schizophrenia spectrum disorders, individuals with bipolar disorder may present with similar symptoms. It can therefore be inferred that these clinical features will also increase the risk of murder if present in bipolar disorder.

It can be concluded that there is as a modest but significant increase in the risk of both COV and murder being committed by individuals with schizophrenia spectrum and bipolar disorders. This association is stronger for schizophrenia than for bipolar disorder. In addition, comorbid alcohol and drug use further increase this risk.

However, it is important to note that the proportion of COV incurred by the public due to SMIs is small. For example, Swanson et al. (1990) found that although there was a significant association between schizophrenia and violence, only 3% of the community violence could be attributed to the patients. In addition, for any given country, the higher the general murder rate, the lower the proportion of murders committed by individuals with mental disorders (Brennan et al., 2000). This is important since the perception that the mentally ill are violent is a major contributor to stigma.

1.1.5 Comparison of the characteristics of the victims of murder by schizophrenia and bipolar/SCAD patients

The relevance of the victim in the criminal process cannot be overemphasised. This is even more important in the case of murder. Awareness of the victim characteristics can also facilitate the designing of evidence-based risk assessment and management.

As in the preceding discussions, most of the studies have looked at the victims of patients with schizophrenia. This makes comparisons with other diagnostic categories difficult. In general, studies have found that the victims of murder by people with a diagnosis of schizophrenia or psychotic disorders are unlikely to be strangers.

For example, Shaw et al. (2004) found that psychotic individuals were more likely to murder family members or close acquaintances whereas those who misuse alcohol or drugs were more likely to murder strangers. Similarly, Simpson et al. (2004) found that in 74% of ‘abnormal’ murders, the victims were family members or partners of the perpetrators compared to 9% in normal murders. “Abnormal” murders were defined as those in which the presence of a mental illness in the offender played a significant role. These disorders included both schizophrenia spectrum disorders and bipolar disorder.

Another study compared psychiatric and criminal backgrounds of psychotic and non-psychotic offenders (N=111) residing in the same psychiatric hospitals in Germany and the Netherlands. They found that in all cases involving psychotic patients, the offender had known the victim beforehand (Nijman et al., 2003). Psychotic patients included those with schizophrenia, SCAD, or

bipolar disorder with psychotic features. Christian Joyal and colleagues (2004) evaluated fifty-eight patients diagnosed with schizophrenia or SCAD who were convicted of murder or attempted murder and ordered to a forensic hospital for treatment. Eighty-six percent (86%) of the perpetrators had a personal or professional relationship with the victim. The violence more often occurred in a private residence (78%) than in a public place (22%). Delusions of persecution predominated and 60% of the murders occurred subsequent to homicidal delusions or hallucinations. In contrast, perpetrators with antisocial PD more often attacked individuals who are not their family members or housemates.

Similarly, Crocker et al. (2015) found that victims of mentally ill perpetrators of COV were mostly family members or professionals e.g. the police and mental health care workers. They recommended that interventions to reduce violence and criminality should be a priority in civil mental health services. They proposed specific interventions including: further education of families, offering appropriate support to families, and further research to better understand the needs of families and how best to support them.

The foregoing literature suggests similarities in the characteristics of victims of COV and murder by people with SMIs i.e. the victims are well known to the perpetrators and are mostly family members. This may be due to shared clinical risk factors in the perpetrators regardless of the primary diagnosis e.g. presence of persecutory delusions in both schizophrenia spectrum disorders and bipolar disorder with psychotic features.

1.2. Rationale of the study

Several studies have evaluated the relationship between mental illness and COV including murder. The literature review in the current study revealed that most of these studies have been conducted in the developed world, making it difficult to generalise their findings to low- and middle-income countries such as South Africa e.g. due to differences in sociodemographics; level of mental health care services and the prevalence and types of comorbid substance use between developed and developing countries. In addition, few studies of the characteristics of mentally ill murder offenders diagnosed with specific SMIs have been conducted in South Africa.

The present study aimed to describe the demographic, clinical and criminological characteristics of schizophrenic and bipolar/SCAD patients that are certified as State patients following a charge of murder. It also aimed to ascertain whether there are differences in the characteristics which are thought to play a causative role in the act of murder being committed by the two patient groups.

Any differences would facilitate the development of diagnosis-specific rehabilitation and risk reduction strategies for improved community reintegration of the patients.

1.3. Aims of the study

The primary aim of this study was to describe the demographic, clinical and criminological characteristics of certified murder offenders with a diagnosis of schizophrenia or bipolar disorder/SCAD. The secondary aim was to compare schizophrenic and bipolar/SCAD perpetrators on demographic, clinical and other factors.

1.3.1. Specific objectives

1. To describe the demographic and clinical characteristics of murder offenders with a diagnosis of schizophrenia.
2. To describe the demographic and clinical characteristics of murder offenders with a diagnosis of bipolar or SCAD.
3. To compare the demographic and clinical characteristics of murder offenders diagnosed with schizophrenia to those diagnosed with bipolar disorder or SCAD.
4. To compare the offence characteristics for schizophrenia and bipolar/SCAD patients who commit murder.

1.4. Null hypothesis

We hypothesised that there would be no difference in characteristics which are thought to play a causative role in the act of murder being committed by those that are diagnosed with schizophrenia and those diagnosed with bipolar/SCAD. If there is no difference, it can be inferred that there is no need to use different rehabilitation strategies for the two patient groups.
The alternative hypothesis was that mood symptoms, which are prominent in both SCAD and bipolar disorder would confer significant differences to schizophrenia patients in whom only psychotic symptoms predominate.

CHAPTER 2

METHODOLOGY

2.1. Study design

This study was a pilot retrospective descriptive audit of observation cases that had been declared State patients by the courts following forensic psychiatric assessment at Valkenberg Hospital (VBH) in South Africa. A data collection tool specifically designed for the study was used as a template (**See appendix**). The data were obtained from the clinical notes made during the observation period.

2.2. Study setting

The study was conducted at the forensic unit of VBH in the Western Cape Province of R.S.A.

2.3. Study population

The study population were male State patients clinically diagnosed with schizophrenia or bipolar disorder/SCAD who had undergone a complete forensic observation at Valkenberg Hospital after being charged with murder. The two groups were distinguished according to the presence of psychosis during the observation period. Those that had a lifetime history of at least one episode of mania/hypomania were included in the bipolar/SCAD group. Those with psychosis without a mood component were included in the schizophrenia group. We postulated that presence of prominent mood symptoms would be an important distinguishing factor. Hence SCAD which is characterised by the concurrent presence of both prominent psychotic and mood symptoms, was grouped with bipolar disorder rather than its traditional classification among the schizophrenia spectrum disorders-for example in the DSM-5 (APA., 2013).

2.4. Exclusion criteria

The patients with either schizophrenia or bipolar/SCAD were further reviewed. The following were excluded from the study.

1. Those with comorbid neurocognitive impairment.

2. Those with comorbid intellectual disability.
3. Those whose primary diagnosis is a substance use disorder.
4. Those whose clinical notes contain inadequate information.
5. Patients still undergoing the thirty-day forensic observation process.

2.4. Sampling

The subjects were selected by purposive sampling. The forensic unit registry keeps a well updated database of all patients who had been declared State patients after undergoing forensic observation. It also includes the patients' diagnoses and criminal charges. Initially, clinical records of all patients that had undergone observation in the past 15 years (2003-2018) and fulfilled the criteria (i.e. a diagnosis of schizophrenia or bipolar/SCAD and a charge of murder) were retrieved from the registry. The duration was eventually extended to 30 years (1988-2018) to increase the sample size (**See results**). The retrieved folders were then included/excluded based on the aforementioned exclusion criteria.

2.5. Data collection

Data were collected using a questionnaire specifically developed for this study (**See appendix**). It included demographic, clinical and criminological parameters. Specific clinical symptoms were included either because they are potential risk factors for COV according to literature (e.g. delusions, hallucinations or TCOs) or in order to differentiate the two diagnostic groups (e.g. presence of depressive, manic or psychotic symptoms). TCOs were divided into a threat component (persecutory delusions) and a control-override component (thought withdrawal, thought insertion, delusions of control and passivity phenomena). All the data were obtained from the clinical folders compiled during the observation period. All the data were collected by the author.

2.6. Data management and analysis

Data were stored in both electronic and hard copy versions. The electronic copy was password protected whilst the hard copies were kept under lock and key. Both were only accessible to the author and the supervisor. The data were analysed using the statistical package for the social sciences (SPSS version 20.). The two patient groups were initially analysed using descriptive statistics (e.g. mean age, marital status, duration of illness, comorbid diagnoses etc.). The two groups were then compared using the chi-square (χ^2) test for categorical data and the student's *t*

test for mixed categorical and continuous data with a *P* value of less than 0.05 considered statistically significant.

2.7. Ethical considerations

Ethical approval was obtained from the University of Cape Town Faculty of Health Sciences Research Ethics committee (HREC Ref: 261/2018). Further approval was obtained from the South African Department of Health through the National Health Research Database (*WC_201808_012*).

Forensic patients are doubly vulnerable because they suffer from a severe mental illness and have been accused of criminal acts. The SMI may impair their capacity to provide informed consent. At the same time, the accusation of criminality may render the patient open to coercion as they may feel under pressure to cooperate for favourable treatment and outcomes such as being declared not criminally responsible and early release. However, this study was conducted after the observation process had already been completed. In addition, only clinical records made during the observation period were reviewed. Hence there was no need to obtain informed consent from the individual patients.

2.8. Confidentiality

Patient names were not used, rather each patient was assigned a number to facilitate reference for the study. Patient folders were secured within the registry and were never taken out of the hospital premises.

CHAPTER 3

RESULTS

3.1 Sample size

Initially, clinical records of forensic observations over a 15-year-period (2003-2018) were reviewed. This yielded thirty-nine potential cases i.e. those that had a diagnosis of schizophrenia or bipolar/SCAD, a charge of murder and had a physical clinical record present in registry. The duration was extended to 30 years (1988-2018) with the aim of increasing the sample size. This yielded a total sample of fifty-six (N=56). Out of these, nine with a diagnosis of schizophrenia and seven with a diagnosis of bipolar disorder/SCAD were excluded due to missing information. Three additional patients were excluded due to a comorbid diagnosis of either intellectual disability or neurocognitive disorder. Hence a total of thirty-seven subjects (n=37) were included in the final analysis. Twenty-three had a diagnosis of schizophrenia whilst fourteen had bipolar disorder/SCAD.

3.2. Sociodemographic characteristics

The mean age of the total sample at the time of commission of the index offence was 32.54 years (range: 17-50, S. D=7.67). There was no significant difference in mean age between those with schizophrenia and those with bipolar disorder/SCAD (t=1.220; p=0.231). Only 30.4% (n=7) of patients with schizophrenia and 42.8% (n=6) of patients with bipolar disorder/SCAD were employed at the time of the murder. There was no significant difference in the employment status of the two patient groups (χ^2= 0.34; p= 0.49). Most of the subjects (78.38%) had a secondary level of education (schizophrenia=18, bipolar disorder/SCAD= 11). There was no association between the level of education and the patient's diagnosis (χ^2=2.87; p=0.412).

The marital status of the two patient groups is shown in **Table 1** below.
There was no association between marital status and patient's diagnosis (χ^2=5.231; p=0.073).

Table 1: Marital status of patients with schizophrenia compared with those with bipolar/SCAD

	Schizophrenia N (%)	**Bipolar/SCAD N (%)**
Marital status		
Single	18 (78.26)	6 (42.86)
Married	4 (17.39)	5 (35.71)
Divorced	1 (4.35)	3 (21.43)

3.3. Clinical characteristics

Twenty-three (62%) of the subjects had schizophrenia and fourteen (38%) had bipolar/SCAD. Two patients (14%) from the bipolar/SCAD group had schizoaffective disorder. The most prevalent symptoms for both patient groups at the time of the offence were persecutory delusions-present in 67.57% of the total sample. There was no difference in the prevalence of persecutory delusions between the two groups (χ^2=0.51; p=1.00). In addition, there was no difference in the prevalence of any of the other symptoms.

The full symptom profile of the two groups is shown in **Table 2** below. It is interesting that none of the patients in the bipolar/SCAD group had any symptoms of mania. This is possibly because the symptoms recorded in the clinical records were those present during the observation period whilst the diagnosis was made based on both current symptoms as well as a lifetime history of at least one episode of mania.

Table 2: Symptoms recorded during the forensic observation process

	Schizophrenia N (%)	**Bipolar/SCAD N (%)**	**X2**	**p**
Symptom				
Persecutory delusions	16 (69.57)	9 (64.29)	0.51	1.00
Command hallucinations	3(13.04)	2 (14.29)	0.63	1.00
Visual hallucinations	1(4.35)	1 (7.14)	0.133	0.62
Other hallucinations e.g. olfactory, tactile	0(0)	1 (7.14)	0.38	0.38
Control override symptoms	3(13.04)	2 (14.29)	0.64	1.00
Depressive symptoms	2(8.70)	1 (7.14)	0.68	1.00

The majority of the patients (60.87% for schizophrenia and 64.29% for bipolar disorder/SCAD) had a history of psychiatric admissions prior to the index offence. There was no significant difference in the prior admission histories between the two patient groups (χ^2=0.56, p=1.00).

The duration of psychiatric illness prior to the index offence for the two patient groups is illustrated in **Table 3** below. The very wide range in the duration of illness for both patient groups (4 months to 19 years) makes the mode rather than the mean a more appropriate measure of dispersion. The modal duration for bipolar disorder/SCAD patients was more than ten years (57.14%) whilst it was less than one year (39.13%) for schizophrenia. Notably, two of the patients with schizophrenia (8.70%) had no psychiatric history prior to commission of the murder.

Table 3: Duration of psychiatric illness prior to the index offence

	Schizophrenia N (%)	**Bipolar/SCAD N (%)**
Duration of illness (yrs)		
0	2 (8.70)	0 (0)
Less than 1 yr.	9 (39.13)	3 (21.43)
1-5 yrs.	3 (13.04)	2 (14.28)
3-5 yrs.	4 (17.39)	1 (7.14)
More than 10 yrs.	5 (21.74)	8 (57.14)

Comorbid personality disorder (PD) was present in 21.62% (n=8) of the sample. The most common (62.5%, n=5) of these was antisocial PD. The presence of antisocial PD between the two patient groups approached statistical significance (χ^2=0.057, p=0.06) being more prevalent in the bipolar/SCAD group.

There was a high prevalence of comorbid alcohol and/or substance use among both patient groups as illustrated in **Table 4** below. Comorbid cannabis use was present in 70.27% (n=26) and alcohol use was present in 59.46% (n=22) of the sample. Twenty patients (54.05%) had comorbid polysubstance use. Patients with bipolar disorder/SCAD (50%) were more likely than patients with schizophrenia (4.35%) to use other substances apart from alcohol and cannabis (χ^2=0.002, p=0.002).

Table 4: Alcohol and substance use patterns among the two patient groups

	Schizophrenia N (%)	**Bipolar/SCAD N (%)**	χ^2	**p**
Substance				
Alcohol	14 (60.87)	8 (57.14)	0.55	1.00
Cannabis	16 (69.57)	10 (71.43)	0.60	1.00
Methamphetamine	3 (13.04)	5 (35.71)	2.63	1.00
Other[a]	1 (4.35)	7 (50)	0.002	0.002
Polysubstance[b]	13 (56.52)	7 (50)	0.48	0.744

3.4. Offence characteristics

The majority of the victims (89.19%) were known to the offender (95.83% for schizophrenia and 78.57% for patients with bipolar disorder/SCAD).

Family members were victims of patients with schizophrenia in 65.2% of the cases. The proportion was lower in the murders committed by individuals diagnosed with bipolar/SCAD patients (42.9%). However, there was no statistically significant difference in the victim-perpetrator relationship for the two patient groups as illustrated in **Table 5** below.

[a] "Other substances" were Methaqualone and Khat. One patient with schizophrenia and six patients with bipolar/SCAD had used Methaqualone. In addition, one patient with bipolar disorder had used Khat (*Catha edulis*) which is a stimulant drug commonly used in Eastern Africa and the Arabian Peninsula (Ageely., 2008).

[b] Polysubstance use refers to the use of two or more substances including alcohol.

Table 5: Victim relationship to the perpetrator by diagnosis

		Schizophrenia N (%)	**Bipolar/SCAD N (%)**	**X^2**	**P value**
Victim relationship	Family member[c]	15 (65%)	6 (43%)	1.773	.183
	Not family member	8 (35%)	8 (57%)		
	Known person[d]	22 (96%)	11 (79%)	2.633	.105
	Stranger	1 (4%)	3 (21%)		

Twenty-six (70.27%) of the victims were male (58.33% for patients with schizophrenia and 85.71% for patients with bipolar disorder/SCAD). There was no association between the victims' sex and the offender's diagnosis (χ^2=2.57, p=0.11).

The majority of the offences (75.68%) were committed at home rather than in a public place. Patients with schizophrenia were more likely than those with bipolar disorder/SCAD to commit the murder at home (χ^2=4.20; p=0.02).

Table 6 below illustrates the weapon/method of commission of the murder for the two patient groups. A knife was the most commonly used murder weapon for both patient groups (45.95%).

[c] Family member includes; intimate partner, parent, child, grandparents and other "biological" relatives.

[d] Known person includes; family members, friends and acquaintances.

Table 6: Weapon/method of commission of murder by the two patient groups

	Schizophrenia N (%)	**Bipolar/SCAD N (%)**
Weapon/Method		
Arson	1 (4.35)	0 (0)
Bat	1 (4.35)	0 (0)
Garden fork	1 (4.35)	1 (7.14)
Gun	4 (17.39)	0 (0)
Blunt force	2 (8.70)	1 (7.14)
Knife	8 (34.78)	9 (64.29)
Panga/Machete	1 (4.35)	0 (0)
Rope	0 (0)	1 (7.14)
Sharp object	0 (0)	1 (7.14)
Spade	2 (8.70)	0 (0)
Strangulation	1 (4.35)	1 (7.14)
Not recorded	2 (8.70)	0 (0)

CHAPTER 4

DISCUSSION

The current study found no significant differences in sociodemographic factors between state patients with schizophrenia or bipolar/SCAD who commit murder. In addition, their sociodemographic profile is generally similar to that of other forensic psychiatric populations studied elsewhere (Strydom et al., 2011; Douglas et al., 2003; Wang et al., 2007). The similar sociodemographic profiles of the two patient groups could be due to the fact that both conditions are severe mental illnesses with significant impairment in social and occupational functioning (e.g. being unemployed). In addition, their onset during adolescence and early adulthood may signicantly impact on an individual's psychosocial and occupational development. Glancy and Regehr (1992) suggested that patients with schizophrenia may be predisposed to other factors that may increase the risk of violence. These factors include unemployment and low educational status. It is likely that the same applies to other SMIs such as bipolar disorder/SCAD.

There was a higher proportion of patients with schizophrenia (62%) in the current study. Actually, the prevalence could have been higher if SCAD had been grouped with schizophrenia. Nevertheless, this supports findings from other studies that show an overrepresentation of schizophrenia or psychotic disorders among mentally disordered offenders (e.g. Strydom et al., 2011; Douglas et al., 2003; Skipworth et al., 2006; Wang et al., 2007; Barrett et al.,2007; Innocenti et al., 2014). However, it could also be due to a referral bias from the justice system as psychotic disorders represent the "typical" legal definition of a mental illness that may affect an individual's criminal responsibility (Kaliski., 2006).

In the current study *persecutory delusions* were the most common symptom for both patient groups (67.57%). The high prevalence of persecutory delusions emphasises the significance of this symptom as a risk factor for COV as shown in previous studies. This has been mostly in studies of patients with schizophrenia and/or psychosis (e.g. Link & Stueve., 1998; Elbogen & Johnson., 2009; Swanson et al., 1990). The high prevalence of persecutory delusions (64.29%) in the bipolar/SCAD group is very interesting. This might be due to the clustering of bipolar and SCAD as one group i.e. it is possible that the prominent psychotic symptoms that are a feature of SCAD contributed. However, the small proportion of SCAD patients in the group (14%) cannot fully

account for this. Another reason could be that persecutory delusions in bipolar disorder are actually an important mediator of violence rather than the other symptoms e.g. irritability, impulsivity, grandiosity etc. It is not uncommon for bipolar patients in clinical practice to present with persecutory delusions. These are usually secondary to grandiose delusions e.g. the patient may hold a firm belief that others want to harm them because of the special talents that they possess. For example, a study of bipolar patients found that 50% had presented with psychotic symptoms during their lifetime. They had manifested all types of psychotic symptoms. However certain symptoms such as grandiose delusions and persecutory ideas related to grandiosity had been more characteristic. In addition, 18% to 65% of those with psychotic symptoms had persecutory delusions which were usually, but not always, mood congruent (Dunayevich & Keck., 2000). Another study (Picardi et al., 2018) found that persecutory delusions were broadly distributed across a sample of affective and non-affective psychotic patients (N=830). As previously stated, there might be a bias from the justice department to refer bipolar patients that present with psychotic symptoms compared to those with "pure" mood symptoms. This is because psychotic symptoms or disorders represent the "typical" legal definition of a mental illness that may affect an individual's criminal responsibility (Kaliski., 2006).

Whilst the threat/persecutory symptoms were prominent in the current study, control-override/passivity phenomena were not (13.51%). This is slightly different from other studies that have reported both threat and control-override symptoms the so called TCO's- to be important risk factors for COV's (e.g. Link et al., 1998). However, this concurs with another study which found that TCOs as a symptom cluster were not associated with violence i.e. they were present in similar rates in both offending and nonoffending male schizophrenic patients (88.2% and 90.5% respectively). On the other hand, TCOs were significantly associated with severe COV i.e. murder and attempted murder. This association was primarily attributable to persecutory rather than control-override symptoms (Stompe et al., 2004). Similar findings were reported by a 2-year population-based epidemiology survey of first-episode psychosis in England (N=458). 74.7% of the subjects had non-affective psychosis such as schizophrenia and SCAD.25.3% of the subjects had affective psychoses such as bipolar disorder with psychosis.11.8% of the subjects had engaged in serious COV. Persecutory delusions but not control-override symptoms were significantly associated with violence regardless of the diagnosis (Coid et al., 2013).

The frequency of hallucinations in the present study (21.62%) was relatively low when compared to delusions. This supports other studies that have found hallucinations to be either less or not as important as delusions in the commission of COV by the mentally ill. For example, Swanson et al

(1996) found that patients with TCOs were twice as likely as those with hallucinations to engage in assaultive behaviours.

The prevalence of comorbid substance use in the current study was high. The most commonly used substances were cannabis (70.27%) and alcohol (59.27%). Similarly, other studies have found high rates of comorbid substance misuse among forensic psychiatric patients. The aforementioned South African study (Strydom et al., 2011) found high rates of cannabis (66.7%) and alcohol (74%) use among forensic psychiatric inpatients. Studies from elsewhere concur with these findings (e.g. Lindqvist & Allebeck.,1990; Steadman et al., 1998; Golenkov et al.,2011; Crocker et al., 2015). More importantly, comorbid substance misuse in individuals with SMIs has consistently been associated with an increased risk for COV including murder (e.g. Lindqvist & Allebeck., 1990; Taylor & Gunn., 1999; Paterson et al., 2004; Schanda et al., 2004; Fazel et al., 2009; Palijan et al.,2009; Crocker et al., 2015). Some studies have actually proposed that the risk of COV in those with SMIs is minimal to none in the absence of comorbid substance misuse (e.g. Schanda et al., 2004; Fazel et al., 2010; Monahan., 2002). This implies that assessing and optimally managing comorbid alcohol and substance use in the two patient groups is essential in both civil and forensic mental health services. This would facilitate the reduction of both the risk of violence and recidivism. In the forensic services the reduction of recidivism would facilitate patient's reintegration into the community, which is one of the main treatment goals.

In the current study, there was no significant difference between the two patient groups in the pattern of use for most of the substances i.e. alcohol, cannabis and methamphetamine. However, bipolar/SCAD patients were more likely to use additional substances such as methaqualone (χ^2=0.002, p=0.002). It is possible that the manic symptoms in the bipolar/SCAD group contributed to the slightly different substance use pattern. Engagement in risky behaviours is one key feature of mania-this might include increased use of a wide range of substances i.e. more than what would happen in schizophrenia.

The prevalence of comorbid PD in the current study (21.62%) was similar to most previous studies (e.g. Taylor & Gunn., 1999; Putkonen et al., 2004). The presence of comorbid PD approached, but did not reach statistical significance being slightly more prevalent in the bipolar/SCAD group (χ^2=0.057, p=0.06). The clinical significance of this is unclear due to the small sample size. However, it is possible that comorbid PD plays a more significant role in COV by bipolar/SCAD patients compared to schizophrenia patients. Conversely, it may imply that comorbid PD plays a significant role in COV regardless of the primary psychiatric illness. For

example, one study (Joyal et al., 2011) suggested that for patients with comorbid SMI and PD, violence is not necessarily associated with the acute symptoms of psychosis.

However, it is important to note that other studies have found much lower rates of comorbid PD (e.g., Erb et al.,2001; Innocenti et al., 2014) whilst others have found much higher rates (e.g. Putkonen et al. ,2004). Many factors could explain the disparity in the prevalence of comorbid PD among forensic psychiatric patients. For example, Putkonen et al. (2004) postulated that the lower rates of PD in some studies may be due to several factors including: many individuals understating their behavioral problems when interviewed; PD not being traditionally determined or documented in patients who meet the criteria for a SMI; and a reliance by assessment teams on diagnosing PD based on direct questions which has been demonstrated to underestimate rates of PD. The authors proposed a more comprehensive assessment for comorbid PD as this may have significant implications on treatment outcomes. For example, nonpsychotic individuals with antisocial PD are associated with poor adherence to medical treatment including medication, psychotherapy and integrated SUD and psychiatric treatment programs for dually diagnosed patients.

It is also important to note that the rates of comorbid PD in the current study were as diagnosed during the thirty-day observation period. This duration limits the possibility of making a diagnosis of PD in acutely psychotic individuals. This is because an individual's 'apparent' personality during an acute psychotic episode may essentially be different from their 'true' personality when they are not psychotic. Additionally, collateral informants may be reluctant to provide details that point to their relative as having longstanding personality problems. This is because they may worry that such a diagnosis might negatively affect the patient's criminal case. There may also be a reluctance from the forensic assessment team to make this diagnosis which is sometimes considered pejorative or prejudicial towards the patient. There may also be a clinical bias towards diagnosing SMIs rather than PDs.

The majority of the patients in the current study (62.16%) had a psychiatric history prior to commission of the index offence. In addition, most of those with a prior psychiatric history had poor treatment adherence and had defaulted treatment This is similar to most other studies that have found high rates of prior psychiatric history in forensic psychiatric patients (e.g. Strydom et al.,2011; Douglas et al.,2003; Wang et al.,2007). This implies that for a majority of the patients, there is an opportunity for civil psychiatric services to optimise treatment and minimise the risk of violence. In fact, some authors have argued that treatment adherence is one of the most important factors in reducing COV by the mentally ill (e.g. Chaimowitz et al., 2008; Nielsen & Large.,

2010). It is important to note that few other studies have found lower rates of prior psychiatric history in forensic patients. For example, one study found that only 37% of their sample had a prior psychiatric history (Martone et al., 2013).

The majority of the victims in the current study were known to the offender (89.19%). Notably, family members were victims in 54.05% of the cases. In addition, most of the victims were male (70.27%). There was no association between the victim-perpetrator relationship and the patient's diagnosis. This essentially means that the victims of schizophrenia and bipolar/SCAD patients are similar. The fact that over half of the victims were family members has important implications. This is because family members are crucial for rehabilitation and community reintegration of the patients. If not family members, the alternative people that clinical teams might involve in rehabilitation are those already known to the patient e.g. friends and social workers. Since these also form a large proportion of the victims, the circle of support for the patient may narrow even more, further limiting their reintegration opportunities. This points to the need for more responsive support systems for families and/or acquaintances that are at increased risk of being the victims of COV whilst at the same time being the primary support structure for the patients.

The victim characteristics in the current study are similar to those of most other studies. These have found that the majority of victims of psychiatric patients are known to the offender (e.g. Shaw et al., 2004; Rueve et al., 2008) and they are male (e.g. Martone et al., 2013). For example, a study of cases of murder or attempted murder by patients with schizophrenia or SCAD (N=58) found that 86% of the victims had a professional or personal relationship with the perpetrator (Joyal et al., 2004). A similar study found that in 74% of "abnormal" murders, the victim was either a family member or a partner compared to 9% in "normal" murders (Simpson et al., 2004). Even higher rates were reported by Nijman et al. (2003) who found that 100% of the victims (N=111) were known to their psychotic offenders. An American review of psychiatric characteristics of murder offenders (N=208) found that 73% of the murders involved both a male offender and victim (Martone et al., 2013).

In the current study, most of the murders (75.68%) occurred at home. This is similar to the previously cited study (Joyal et al., 2004) that found that 78% of the crimes occurred at a private residence. This finding combined with the aforementioned victim characteristics should inform public health education strategies i.e. patients with SMIs are unlikely to attack strangers out in public. This could help reduce stigma toward these patients which is partly driven by a misperception of their dangerousness.

The current study also found that patients with schizophrenia were more likely than bipolar/SCAD patients to commit murder at home. A possible reason could be that individuals with schizophrenia are more likely to be socially withdrawn (e.g. due to negative symptoms) and therefore be at home rather than in public. Conversely, individuals with affective symptoms like bipolar/SCAD patients may be more likely to be out in the public e.g. due to social disinhibition, overfamiliarity, increased levels of energy etc.

The most commonly used weapon in the current study was a knife (45.95%). This could have several explanations such as contextual or clinical factors. Contextual factors could include easy access to knives. Some studies have found that certain clinical factors are associated with the method of murder in those with SMI. For example, a systematic review found that individuals experiencing psychotic symptoms and perceptions of threat tend to carry sharp weapons with them and that there is a frequent use of knives/sharp instruments in this group. The review concluded that there was an association between close contact methods (e.g. sharp instruments or strangulation) of murder and schizophrenia or affective disorders (Minero et al., 2017). Therefore, risk management strategies should possibly include limiting access to sharp objects/knives in the home for individuals suffering psychotic symptoms regardless of whether they have schizophrenia or bipolar/SCAD.

The finding that there are no significant differences between the two patient groups has significant cost and rehabilitation implications. Whilst the diagnosis is important e.g. for instituting evidence-based treatments as well as predicting the clinical prognosis, it should not be the sole determinant of the overall forensic rehabilitation strategy for State patients. Individualised rehabilitation plans need to be based on the shared demographic, clinical and criminological factors rather than the diagnosis *per se*. Similarly, group therapy programs, which are commonly used in forensic settings, do not necessarily need separate 'schizophrenia' and 'bipolar/SCAD' sessions. However, there may be need for 'dual diagnosis' groups for patients who are diagnosed with both an SMI and a substance use disorder/PD. This could be less costly for forensic units than if each diagnostic group needed its own unique rehabilitation plan.

4.1. Limitations and Strengths of the current study

The small sample size of the current study (N=37) is a limitation. This is because there is a higher likelihood of type II errors. These occur when the null hypothesis is accepted yet it is false (i.e. a false negative). This usually occurs when a real difference between groups is obscured by a small sample size (Lawrie et al., 2000).

Several factors may have contributed to this small sample size. One reason could be the short duration of the study. This was mitigated by extending the duration from the initial 15 years to 30 years. However, this only minimally increased the sample size as the physical clinical records of the older cases were more likely to be missing from the hospital registry. Another reason could be that the current study focussed on only two diagnostic categories. The other reason could be that the present study only focussed on murder. Most other studies have broadly studied mental illness rather than specific diagnoses. Yet others have studied violence and criminality rather than murder *per se* (e.g. Swanson et al., 1990; Steadman et al., 1998; Belfrage., 1998; Martone et al., 2013). Schizophrenia and bipolar/SCAD are both relatively rare conditions. Many studies have also shown that murder as a reason for admission to forensic psychiatry is relatively infrequent compared to other crimes e.g. attempted murder, malicious injury, rape *et cetera* (e.g. Strydom et al., 2011; Putkonen et al., 2004). In addition, the present study only considered forensic observation cases which depend on referral from the justice system. It is possible that other potential State patients end up being incarcerated in prison without undergoing forensic assessment. The exclusion of folders with missing information reduced the sample size even further.

The study design i.e. a retrospective descriptive study is another possible limitation of the current study. Whilst it was able to identify associations, these are not necessarily the same as cause and effect. A prospective study may best identify the direction of causality.

Another possible limitation of this study is the exclusion of mentally ill female murder offenders. It is possible that female forensic psychiatric patients who commit murder are different. Therefore, the current findings may not be generalisable to South African female forensic patients.

The use of clinical diagnosis rather than research criteria during observations is another possible limitation. This is because clinical diagnosis may be less reliable than research diagnosis i.e. the diagnosis may change at different times and/or when different clinicians are involved in the

assessment. However, the use of a consensus diagnosis by a panel of at least two psychiatrists and an MDT possibly mitigates this limitation.

Notwithstanding the aforementioned limitations, the current study has several strengths. To the best of our knowledge, this is the first study that has specifically looked at State patients with a diagnosis of schizophrenia or bipolar/SCAD charged with murder in RSA. Hence, it provides important insights into the characteristics of these patients that may inform treatment and rehabilitation strategies both in forensic and civil mental health services, public policy and future research. Although this study did not include female patients, it is still very informative as the majority of forensic psychiatric patients are males. For example, one study found that forensic male admissions were six times, significantly, higher than for females (Innocenti et al., 2014).

The fact that the findings of the current study concur with those of most other studies done elsewhere further enhances its utility as applies to the South African forensic population.

4.2. Conclusions

There are no significant differences in sociodemographic, clinical and criminological characteristics of male State patients diagnosed with schizophrenia or bipolar/SCAD admitted to VBH following a charge of murder.

The most common symptom is *persecutory delusions*. There is a high prevalence of comorbid alcohol and/or SUD amongst both patient groups. However, individuals with bipolar/SCAD are more likely to use other substances such as methaqualone in addition to alcohol and cannabis.

The majority of the victims are males and known to the offender, with almost half of them being family members. The murders most commonly occur at home. However, individuals with schizophrenia are more likely to commit the offence at home than those with bipolar/SCAD. Stabbing with a knife is the most common method used during the murder regardless of the offender's diagnosis.

4.3. Recommendations

The current study has demonstrated that State patients with schizophrenia or bipolar/SCAD that have committed murder are similar in most parameters e.g. sociodemographic, clinical and victim profiles.

Therefore, these two patient groups do not need their own unique rehabilitation programmes for successful reintegration into the community. However, these programs should cover several important areas including: social deficits, occupational functioning, substance misuse, treatment adherence and family involvement.

The effective treatment of substance misuse is very important in reducing the risk of COV in those with SMI. Forensic rehabilitation programs should therefore fully integrate dual diagnosis interventions.

Risk assessment and management in both civil and forensic psychiatry services should specifically address persecutory delusions. This should include optimising psychotropic treatment, cognitive behavioural approaches, and duty to warn any potential imminent victims.
There should be more robust assessment for comorbid personality disorders as this has a significant impact on the course of illness and the risk for recidivism. Since this is not feasible during the observation period, it should be routinely done after re-admission of the individual as a State patient following conclusion of the court process.

Enhanced and responsive support should be offered to families and friends of patients with SMIs to reduce risk of COV as well as enhance their re-integration into the community. This support should include: psychoeducation on how to recognise early relapse signs; the importance of supervision of medication adherence; accessibility to emergency care systems during acute relapses; and referral of the families for treatment of their own mental health problems some of which may have been precipitated by the trauma of the index offence.

In future, a South African multicentre study of similar design should be conducted to increase the sample size and improve the generalisability of the study findings. Since female offenders may be essentially different from male offenders, a separate study to examine the characteristics of female State patients would facilitate our understanding of this unique patient population.

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APPENDIX

Appendix 1: Ethical Approval letter from the University

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room E53-46 Old Main Building
Groote Schuur Hospital
Observatory 7925
Telephone [021] 406 6338
Email: lamees.emtedi@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

30 July 2018

HREC REF: 261/2018

Prof Sean Kaliski
Psychiatry & Mental Health
Psychiatry, Training Centre
Valkenberg Hospital
Liesbeeck Parkway
Observatory

Dear Prof Kaliski

PROJECT TITLE: A COMPARISON OF STATE PATIENTS CONVICTED OF MURDER AND DIAGNOSED WITH BIPOLAR OR SCHIZOAFFECTIVE DISORDER AND SCHIZOPHRENIA (MMed-candidate-Dr S Gondwe)

Thank you for submitting your response dated 02 July 2018 to the comments raised by the Faculty of Health Sciences Human Research Ethics Committee.

DATE OF MEETING: 27 July 2018

DECISION: It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30 July 2019.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

The HREC acknowledges that the MMed Candidate Dr S Gondwe will also be involved in this study.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.

Please quote the HREC reference number in all your correspondence.

Yours sincerely

Signature Removed

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE

UNIVERSITY OF CAPE TOWN

FACULTY OF HEALTH SCIENCES
HUMAN RESEARCH ETHICS COMMITTEE 2018

Attendance Register for the meeting held on 27 July 2018

Name	Role	*S-scientific ; NS-non-scientific	Gender	Present
1. Prof M Blockman	Chair	S	M	Present
2. Dr T Burgess	Deputy Chair	S	F	Absent
3. Dr A Hunter	Deputy Chair	S	M	Present
4. Dr L Andersen	General Member	S	F	Present
4. A/Prof D Blom	GM	S	M	Present
5. Dr M Carrihill	GM	S	F	Present
6. A/Prof S Clow	GM	S	F	Present
7. A/Prof M Coetzee	GM	S	F	Absent
8. A/Prof K Cohen	GM	S	F	Absent
9. A/Prof C Colvin	GM	S	M	Absent
10. Prof C Dandara	GM	S	M	Absent
11. A/Prof E Duncan	GM	S	F	Present
12. Prof J Joska	GM	S	M	Present
13. A/Prof S Kalula	GM	S	F	Absent
14. Prof V Lambert	GM	S	F	Absent
15. Dr Z Mohamed	GM	S	F	Present
16. Prof B Morrow	GM	S	F	Present
17. Dr S Mowla	GM	S	F	Present
18. Mr L Naidoo	GM	NS	M	Present
19. Dr M Nejthardt	GM	S	M	Present
20. A/Prof J Peter	GM	S	M	Absent
21. Dr G Petro	GM	S	M	Present
22. A/Prof A Pope	GM	NS	F	Absent
23. Dr L Schoeman	GM	S	F	Present
24. Ms N Vusani	GM	NS	F	Absent
25. Dr C Warden	GM	S	F	Absent
26. Prof R Wood	GM	S	M	Absent

27 July 2018

Appendix 2: Data Collection Tool

QUESTIONNAIRE

A. Offender Characteristics

Demographics

Age: (in years)

Sex: male/female

Level of education: (years of schooling)

Employment status: employed (skilled/unskilled)/unemployed

Marital status: single/married/divorced/widowed

Diagnosis (please tick one)

Bipolar disorder (Yes/No)

Schizoaffective disorder (Yes/No)
Schizophrenia (Yes/No)

Clinical Factors

Persecutory delusions: Yes/No

Control override symptoms: Yes/No

Command auditory hallucinations: Yes/No

Other auditory hallucinations: Yes/No

Visual hallucinations: Yes/No

Other hallucinations: olfactory (Yes/No), gustatory (Yes/No), tactile (Yes/No)

Mania (Yes/No)

Depression (Yes/No)

Comorbid Drug or Alcohol Use

Alcohol: Yes/No

Cannabis: Yes/No

Amphetamines: Yes/No

Cocaine: Yes/No

Other: Yes/No (please specify)

Polysubstance use (2 or more substances)

Comorbid Personality disorder

Antisocial PD: Yes/No

Narcisstic PD: Yes/No

Borderline PD: Yes/No

Other PD: please specify

Past Psychiatric history

Yes/No

If yes: diagnosis

If yes: duration from first diagnosis to index offence (in years)

If yes, previous admissions: (Yes/No)

If prior admissions: number of admissions

If prior admissions: duration from last admission to index offence (in months)

B. Victim Characteristics

Age: (in years)

Sex: male/female

Relationship to offender (please tick one)

Intimate partner (wife/husband/girlfriend/boyfriend)

Child (son/daughter)
Parent (father/mother/stepfather/stepmother)

Sibling (brother/sister)

Other family member (Yes/No)

Friend (Yes/No)

Acquaintance (yes/No)

Stranger (yes/No)

C. Setting of Crime (please specify)

Home (Yes/No)

Public (Yes/No)

Other (please specify) (Yes/No)

Guide to the questionnaire:

Record clinical diagnosis made by the ward assessment team

Record personality disorder diagnosis made by the ward assessment team

Record clinical factors assessed to be present during the index offence

Record presence of 2 or more drugs including alcohol as polysubstance use

Record setting as public if other people have ready access e.g. park, street etc.

Record setting as other if not a dwelling place, not public as above e.g. a secluded place