Characteristics of domestic homicide perpetrated by persons with severe mental illness – a forensic psychiatric observation population-based study

by

Marise Bruwer

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Supervisor: Professor Sean Kaliski

Department of Psychiatry

University of Cape Town

DECLARATION

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

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ABSTRACT

Background: Domestic homicide (killing of a person aged 16 or older by a family member or a current or former partner) accounts for 50% – 70% of homicides perpetrated by offenders with mental illness. Despite these statistics, surprisingly little is currently known about the characteristics of domestic homicides perpetrated by those with severe mental illness. To the best of our knowledge, domestic homicide in the context of severe mental illness has not been researched in South Africa.

Objective: To investigate domestic homicides by offenders with severe mental illness referred to the Forensic Mental Health Service at Valkenberg Hospital for forensic psychiatric observation.

Methods: A five-year retrospective folder review was conducted to obtain data on the characteristics of offenders and victims, as well as the circumstances surrounding the homicide.

Results: The majority of the offenders in our sample were young (mean age of 31), single, unemployed males who were known to mental health care services. Substance use disorders and non-adherence to medication were common. Psychotic disorders were the most prevalent diagnoses. The majority of victims were male and a significant minority of the domestic homicides were parricides (28.6%). The incident took place at the victim's residence or the victim and perpetrator's shared residence in most cases. Stabbing was the most common method used. Almost half of the perpetrators were psychotic when the incident took place and 60% of these were first episode psychoses. In spite of the high prevalence of substance use disorders (66.7%), only 23.8% of the sample reported that they were intoxicated when they committed the offence.

Conclusions: The majority of our sample was known to mental health care services. This implies that there were potential missed opportunities to prevent these lethal assaults. Our research identified treatment adherence, comorbid substance use disorders and aggressive treatment of first episode psychosis as a possible focus of future interventions in order to prevent domestic homicides due to mental illness.

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CHAPTER ONE
INTRODUCTION AND LITERATURE REVIEW

Domestic homicide accounts for the majority of homicides committed by offenders with mental illness.

International literature on the subject is sparse and to the best of our knowledge no studies focusing on the homicide of family members by mentally ill offenders have been conducted in the South African context.

Objectives of literature review

The objectives of this literature review are as follows:

1. To review recent literature regarding the association between homicide and severe mental illness.
2. To specifically assess the literature describing the characteristics of mentally ill perpetrators of homicide.
3. To gain an appreciation of the existing literature on circumstances surrounding homicide by perpetrators with mental illness.
4. To review the literature on the characteristics of homicide victims of mentally ill offenders.
5. To determine what still needs to be researched regarding characteristics of domestic homicide committed by perpetrators with mental illness.

Literature search strategy and quality criteria

A search of the literature was carried out to determine what previous studies have been undertaken on domestic homicide by mentally ill perpetrators. Three databases (Medline, Pubmed and Psychinfo) were searched, using various combinations of the key terms ‘family,’ ‘domestic,’ ‘homicide,’ ‘murder’ and ‘mental illness’. Additional references were obtained from the bibliographies of the articles found.

The review focused on articles published over the past ten years (2005 – 2015); however older articles were included if they were deemed to be of historical importance or if they presented data not replicated in later studies. Articles were

excluded if they were not English or if they did not pertain to the subject being studied.

Review articles were included if they used a well-documented, systematic search strategy. Original articles were included if their research methodology was considered sound. Soundness was assessed based on whether sampling methods and sample size were designed to minimise bias and maximise generalisability of the results; if the methods of data analysis were described and valid; and if the discussion included the limitations and potential bias of the study and commented on the generalisability of the results.

Summary of the literature

Mental illness and homicide

Homicides by people with serious mental illness are given wide media coverage, stigmatising and promoting societal fears of people with mental illness, and have led to increased concerns about deinstitutionalization.[1,2]

Studies in high-income countries suggest that between 8% and 23% of all homicide perpetrators are mentally ill at the time of the offence.[3] In an attempt to clarify prevalence rates of psychiatric morbidity in homicide offenders, a Swedish population study investigated 2 005 homicide offenders over 14 years; these subjects represent a study group that was more than twice the size of any previous study group. They found that over 90% of homicide offenders had a psychiatric diagnosis. One in five suffered from a psychotic illness, and about half had a substance use or personality disorder.[4]

In 2002 approximately 16% of persons sentenced for the crime of murder in America's prisons had a mental illness. In 2008 there was an estimated 26 000 persons with mental illness incarcerated for murder in the United States.[5]

Conflicting evidence regarding trends in homicide rates due to mental disorder exists. One study from England and Wales suggested upward trends in recent years[6] and another suggested a gradual decline since the mid-1970s.[7] A thirty-year retrospective study of homicide in New Zealand reported a significant decline (19.5% in 1970 to 5.0% in 2000) in the percentage of mentally abnormal homicides.[5]

Drug and alcohol misuse can trigger or exacerbate symptoms of psychosis. The most probable explanation for the increase in homicide rates due to mental disorder in the England and Wales study appears to be the concomitant increase in

drug misuse over the period, although causality could not be established from their data.[7]

Schizophrenia and homicide

The association between schizophrenia and homicide is well established, but there is substantial heterogeneity between studies reporting risk of violence in individuals with schizophrenia and other psychoses. Uncertainty over the causes of this heterogeneity remains.

Fazel et al.[8] undertook a systematic review of studies that report on associations between violence and schizophrenia and other psychoses, as well as investigations that reported on risk of homicide in individuals with schizophrenia and other psychoses. They found that schizophrenia and other psychoses were associated with violence and violent offending, particularly homicide.

Evidence suggests that non-adherence to treatment, substance abuse and active psychotic symptoms further increase the risk of violent episodes in patients with schizophrenia.[9,10] Prior offending rates for those with schizophrenia are also a significant indicator for risk of future offending among homicide offenders.[11]

A recent systematic review argues that most of the excess risk for violence and violent offending, particularly homicide, in patients with schizophrenia and other psychoses appeared to be mediated by substance abuse comorbidity. The risk in patients with comorbidity were similar to that for substance abuse without psychosis.[8]

Mood disorders and homicide

The available literature on the relationship between schizophrenia and homicide is significantly more prolific than publications describing the association between bipolar illness and homicide, in spite of the fact that evidence shows that patients with bipolar disorder were more likely than those with schizophrenia to be violent over the course of a year.[12]

A 22-year study of bipolar disorder and homicide found a higher total offense rate during the manic phase, however the rate of homicide was higher in the depressive phase. They concluded that the risk of homicide should not be overlooked in the depressive phase of bipolar I disorder.[12]

A study of persons with severe mental illness, sentenced to prison for the crime of murder, characterized the offender as predominately suffering from a mood

disorder. This finding suggests that persons who have been sentenced to a psychiatric hospital for murder are likely to suffer from more severe mental illness than those with mental illness who have been sentenced to the penal system for murder, and that findings from studies of this population will not transfer well to the prison population. This assertion is supported, in that studies that used hospitalized samples tend to have a higher proportion of persons with a diagnosis of schizophrenia and persons who were experiencing psychotic symptoms at the time of the murder.[5]

Homicide in first episode psychosis

Studies on homicide during psychotic illness found that the first episode of psychotic illness carried the greatest risk of committing homicide and that most lethal assaults occurred during the first year of illness.[13] Illicit drug use, a history of brain injury, auditory hallucinations and delusional beliefs of immediate danger are particularly associated with lethal assault.[14]

The findings of a systematic review and meta-analysis by Nielssen et al.[15] on rates of homicide during the first episode of psychosis and after treatment were:
approximately 4 in 10 of the homicides committed by people with a psychotic illness occur before treatment; approximately 1 in 700 people with psychosis commit a homicide before treatment; approximately 1 in 10 000 patients with psychosis who have received treatment will commit a homicide each year; and the rate of homicide in psychosis before treatment is approximately 15 times higher than the annual rate after treatment.

Authors therefore suggest that the first episode of psychotic illness should be treated as a psychiatric emergency, with a lower threshold for initiating involuntary treatment.

Characteristics of mentally ill perpetrators of homicide

Several studies consistently report that persons with severe mental illness who have been incarcerated for homicide are predominantly male, in their thirties, unemployed, raised in dysfunctional households with a history of substance abuse, contact with mental health care services, non-adherence to treatment, interpersonal violence and criminality.[5,10,16,17]

Perpetrators' average level of schooling varied significantly between studies, ranging from a primary school qualification to a high school qualification. We suggest that this reflects the inconsistency of study samples and geographic variation.[5,9,17]

In a study on 96 persons with severe mental illness who were convicted of murder, Matejkowski et al.[5] found major depression to be the most common diagnosis, followed by schizophrenia and other psychotic disorders.

Fewer than two-thirds of offenders had been treated at least once, as an inpatient or outpatient, for their mental illness; fewer than half had been treated more than once.

Nearly half the offenders had a history of suicide attempts, the majority (58%) of which were associated with having a diagnosis of major depression. In addition to psychiatric disorders, about one-fifth of offenders possessed myriad physical disabilities that were determined to be 'stigmatizing' by the researchers (e.g., hepatitis, a deformed limb, or a speech impediment).

More than two-thirds of all subjects had a history of drug abuse, and a nearly identical number had a history of alcohol abuse, while more than half of the sample reported both.

A study of homicide offenders with schizophrenia from the Russian Federation, conducted over 30 years, concluded that characteristics of homicide offenders from regions with a high total homicide rate did not differ significantly from those of offenders from regions with far lower rates of homicide.[10]

Circumstances surrounding homicide by perpetrators with mental illness

Most studies report that the preferred method of homicide is stabbing with a sharp object.[10,16,17] However, a study conducted in the United States found that firearms were most commonly used, whereas stabbing was the second most common method.[5] These findings probably reflect the absence of strict regulations on gun ownership in the United States. A Korean study on offenders with bipolar disorder found that suffocation was the most common method.[12] We propose that the unusually large proportion of female offenders – who killed their children during the depressive phase of illness – in their sample, influenced their results.

Studies focusing on patients with psychotic disorders or conducted in forensic settings found a high prevalence of psychotic symptoms at the time of the murder. Auditory hallucinations evolving into delusional beliefs that the victim was a threat

were symptoms strongly associated with lethal assault. Contrary to what was previously believed, command hallucinations *per se* were not common.[9,10,16,17]

In contrast, a study focusing on homicide offenders with severe mental illness in prison found that subjects were predominantly suffering from a mood disorder and that delusional motives were rare.[5]

A study on the correlation of psychopathology and weapon choice on 103 perpetrators of homicide and attempted homicide conducted in a forensic psychiatry population in Italy, showed a significant correlation between some types of mental disorder and weapon choice. A strong correlation was found between delusional disorders and the use of sharp weapons, whereas depressive disorders were more strongly associated with asphyxia. Organic disorders were found to be highly correlated with the use of blunt instruments. In cases where the homicide was the result of an impulsive reaction, the use of sharp weapons was most often observed.[18]

The location of the homicide was usually the victim's residence or the victim and perpetrator's shared residence.

Intoxication with a substance (alcohol being the most common) at the time of the incident was reported in 35% – 45 % of persons with severe mental illness who committed homicide.[5,12,16,17]

In one study[16] substance misuse, particularly of cannabis and stimulant drugs, which are known to induce episodes of psychotic illness in susceptible individuals, was reported by 73% of perpetrators of homicide during psychotic illness. Interestingly, only 35% reported being intoxicated at the time of the offence. The role of substance misuse appeared to be to induce acute symptoms leading to serious assault. This is consistent with previous findings of a study which found that serious violence by mentally ill subjects was more strongly associated with acute symptoms than with intoxication.[19]

Findings regarding the most common motive for homicide by mentally ill offenders vary. A prison population study reported rage and anger as the most common motive[5] and studies investigating forensic psychiatric patients reported that delusional motives (especially paranoid) were predominant.[9,12,16]

Homicide of strangers by mentally ill offenders

Homicide of strangers by people with psychotic illness is rare (3.4% – 14.3 % of all homicides committed by persons with mental illness).[3,5,9,13]

A meta- analysis[13] of population-based studies of homicide by persons suffering from a psychosis in which the number of subjects who killed strangers was also reported, examined the characteristics of stranger homicide and family homicide offenders in a multicentre case-control study in four high-income countries. They defined a stranger homicide as any case in which the victim had no knowledge of the offender 24 hours before the homicide. Cases where the victim was a close family member, including a spouse, child, parent, grandparent, sibling, or other cohabiting relative was classified as family homicide.

The study found that stranger homicide offenders were more likely to be homeless, have exhibited antisocial conduct, and have fewer negative symptoms than those who killed family members. The victims of stranger homicide were mostly adult males and the homicides rarely occurred in the victim's home or workplace.

Mental illness and domestic homicide

Mentally ill offenders usually know their victims. Domestic homicide (killing of a person aged 16 or older by a family member or a current or former partner) accounts for 50% – 70% of homicides perpetrated by offenders with mental illness.[3,5,9,13]

Parricide (the killing of a parent) is the most common type of domestic homicide committed by mentally ill offenders, followed by intimate partner homicide (homicide by a current or former intimate partner).[10,16]

The high probability of killing a parent or relative seems to be associated with the disability arising from severe mental illness, as many of the young adult perpetrators were still living with their parents and families.[5]

A population-based study[3] on mental illness and domestic homicide between 1997 and 2008 found that 20% of intimate partner homicide perpetrators and 34% of adult family homicide (killing of a person aged 16 or older by a family member other than a current or former intimate partner) perpetrators in England and Wales had symptoms of mental illness at the time of the offence. This is much higher than has been reported in this setting among perpetrators of other types of homicide. The prevalence of psychotic symptoms was particularly high (27%) among adult family

homicide perpetrators. Perpetrators of intimate partner homicide were more likely to have depressive symptoms at the time of offence.

A study of bipolar disorder and homicide reported that victims were more likely to be family members of the patients in depressive phases than in manic phases (96.2% vs. 63.9%).[12]

Parricide

Several studies[20,21] report that parricide accounts for around 2% – 3% of all homicides, although rates in Korea over the last 10 years have been reported as 5.3%. A high percentage of assailants suffer from severe mental illness.

Non-adherence to medication, living with the victim, female sex of the victim, and triggering events including scolding, threatening forced hospitalization, and forcing medication on the patient are significant factors associated with parricide among homicidal patients with schizophrenia.

Intimate partner homicide

Rates of intimate partner homicide have decreased since the mid-seventies although the decrease has been much greater for male victims than for female victims.[22]

Oram et al.[3] reported that 20% of a sample of 1 180 perpetrators of intimate partner homicide had symptoms of mental illness at the time of the offence.

Prior partner abuse, use of alcohol and other drugs, jealousy, actual or threatened separation, physical illness and psychiatric illness are reported to be risk factors for intimate partner homicide.[22]

Spousal violence often continues into old age. Homicides perpetrated by older offenders (older than 65) typically involve a man killing his partner. Two studies on homicide perpetrated by older people found that at least 44% of perpetrators had a mental illness, usually depressive disorder, at the time of the homicide.[23,24]

Fratricide

Homicide of siblings has attracted limited research and is not well understood. Existing studies[25] reveal that males were offenders and victims in more than 70% of cases. Several studies report that the majority of offenders were intoxicated at the time of the offence and the authors that reported low substance intoxication rates, report significant confounding factors.

A small Canadian study found that 30% of perpetrators of fratricide were suffering from a mental disorder.

Need for further research

In spite of the fact that mentally ill homicide offenders kill family members in the vast majority of cases, the literature on the topic remains sparse. Sample sizes are small and usually focus on a small subgroup of offenders or victims.

Studies based on forensic hospital samples also raise concerns about generalizability of findings, because persons sentenced to psychiatric hospitals after psychiatric observation are more likely to have a psychotic illness than a mood disorder.[5,9,10,16,17] By studying a forensic observation sample we will include offenders with mental illness that are found to have criminal capacity, whereas forensic hospital samples exclude these offenders.

Most studies focusing on homicide and mental illness were conducted in low homicide rate countries. The 2014 United Nations Global Homicide Report showed that South Africa has the second highest homicide rate in the world.[26] We are not aware of a study focusing on domestic homicide and mental illness in South Africa or any other high homicide rate country.

It is important to know the risk of lethal assault arising as a result of acute mental illness, which symptoms are associated with serious assault, and when in the course of illness a serious assault is likely to occur.

An opportunity exists to learn more about the characteristics of domestic homicide committed by perpetrators with mental illness. This information can inform future risk assessment, management and prevention of the worst outcome of mental illness – homicide.

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CHAPTER TWO

CHARACTERISTICS OF DOMESTIC HOMICIDE BY PERSONS WITH SEVERE MENTAL ILLNESS – A FORENSIC PSYCHIATRIC OBSERVATION POPULATION-BASED STUDY

MANUSCRIPT PREPARED FOR SUBMISSION TO THE SOUTH AFRICAN MEDICAL JOURNAL

Abstract

Background: Domestic homicide (killing of a person aged 16 or older by a family member or a current or former partner) accounts for 50% – 70% of homicides perpetrated by offenders with mental illness. Despite these statistics, surprisingly little is currently known about the characteristics of domestic homicides perpetrated by those with severe mental illness. To the best of our knowledge, domestic homicide in the context of severe mental illness has not been researched in South Africa.

Objective: To investigate domestic homicides by offenders with severe mental illness referred to the Forensic Mental Health Service at Valkenberg Hospital for forensic psychiatric observation.

Methods: A five-year retrospective folder review was conducted to obtain data on the characteristics of offenders and victims, as well as the circumstances surrounding the homicide.

Results: The majority of the offenders in our sample were young (mean age of 31), single, unemployed males who were known to mental health care services. Substance use disorders and non-adherence to medication were common. Psychotic disorders were the most prevalent diagnoses. The majority of victims were male and a significant minority of the domestic homicides were parricides (28.6%). The incident took place at the victim's residence or the victim and perpetrator's shared residence in most cases. Stabbing was the most common method used. Almost half of the perpetrators were psychotic when the incident took place and 60% of these were first episode psychoses. In spite of the high prevalence of substance use disorders (66.7%),

only 23.8% of the sample reported that they were intoxicated when they committed the offence.

Conclusions: The majority of our sample was known to mental health care services. This implies that there were potential missed opportunities to prevent these lethal assaults. Our research identified treatment adherence, comorbid substance use disorders and aggressive treatment of first episode psychosis as a possible focus of future interventions in order to prevent domestic homicides due to mental illness.

CHARACTERISTICS OF DOMESTIC HOMICIDE BY PERSONS WITH SEVERE MENTAL ILLNESS – A FORENSIC PSYCHIATRIC OBSERVATION POPULATION-BASED STUDY

Background and aims

Studies in high-income countries suggest that between 8% and 23% of all homicide perpetrators are mentally ill at the time of the offence.[1] In 2002 approximately 16% of persons sentenced for the crime of murder in America's prisons had a mental illness and in 2008 there was an estimated 26 000 persons with mental illness incarcerated for murder in the United States.[2]

Homicide of strangers by people with psychotic illness is rare (3.4% – 14.3% of all homicides committed by persons with mental illness).[1-5] Mentally ill offenders usually know their victims. Domestic homicide (killing of a person aged 16 or older by a family member or a current or former partner) accounts for 50% – 70% of homicides perpetrated by offenders with mental illness.[1-5] Previous studies found that parricide (the killing of a parent) was the most common type of domestic homicide committed by mentally ill offenders, followed by intimate partner homicide (homicide by a current or former intimate partner).[6,7]

Despite these statistics, surprisingly little is currently known about the characteristics of domestic homicides perpetrated by those with severe mental illness. Most studies focusing on homicide and mental illness were conducted in low homicide rate countries. The 2014 United Nations Global Homicide Report[8] showed that South Africa has the second highest homicide rate in the world. To the best of our knowledge, domestic homicide in the context of severe mental illness has not been researched in South Africa.

The aim of this descriptive study was to investigate domestic homicides in the Western Cape Province of South Africa, by offenders with severe mental illness, referred to the Forensic Mental Health Service at Valkenberg Hospital for forensic psychiatric observation. All forensic psychiatric observations in the Western Cape are referred to the above-mentioned service.

In the case of a serious violent offence, the courts must appoint a panel of psychiatrists responsible for expert opinions on the accused's fitness to stand trial in addition to whether the accused possessed criminal capacity at the time of the alleged offence.

The observation process is usually a 30-day period in the maximum secure ward where the nursing staff, occupational therapists, psychologists and psychiatrists observe court referred defendants. The accused is then returned to court where it is decided whether the trial will continue, or whether the accused is acquitted and certified as a state patient for an indefinite period of treatment and rehabilitation in the forensic unit.

A five-year retrospective folder review was conducted to obtain data on the characteristics of offenders and victims, as well as the circumstances surrounding the murder.

Methods

Study design

Descriptive, retrospective record review.

Setting

Forensic Mental Health Service, Valkenberg Hospital, Cape Town, South Africa.

All forensic psychiatric observations in the Western Cape are referred to the above-mentioned service.

The forensic psychiatry unit in Cape Town is situated on the premises of Valkenberg Hospital. It is mostly concerned with providing forensic psychiatric assessments for the courts in the greater Cape Provincial area, and has the responsibility of rehabilitating mentally disordered offenders.

Nursing staff, occupational therapists, psychologists and psychiatrists observe court referred defendants to determine fitness to stand trial and criminal capacity during a 30-day observation period.

The court subsequently decides on continuation of the trial, or acquittal with an indefinite period of treatment and rehabilitation as a state patient in the forensic unit.

Study population

All persons charged with domestic homicide that were referred to the Forensic Mental Health Service at Valkenberg Hospital (between 1 January 2010 to 31 December 2014) for a 30-day observation and found to have a lifetime diagnosis of severe mental illness, were included in our study. Those found not to have a lifetime diagnosis of severe mental illness were excluded from the study.

Domestic homicide is defined as the killing of a person aged 16 or older by a person to whom he was related or with whom he was or had been in an intimate personal relationship or a member of the same household as himself.[9]

Mania, major depression, bipolar disorder, schizophrenia or other psychotic disorders will be regarded as severe mental illnesses for the purpose of this study.

Sample size

During the period 1 January 2010 to 31 December 2014, 113 persons charged with homicide were referred to the Forensic Mental Health Service at Valkenberg Hospital for observation. This includes persons charged with non-domestic homicide as well as persons without a lifetime diagnosis of mental illness.

We were able to access the records of 106 of the abovementioned accused. Of these, 21 persons were charged with domestic homicide and were found to have a lifetime diagnosis of severe mental illness. Those charged with homicide other than domestic and without a lifetime diagnosis of severe mental illness were excluded from the study.

Measurements

The data extracted from folders, were obtained by repeated clinical interviews and continuous observation during a 30-day inpatient hospital stay. Assessment reports compiled by a panel, consisting of two psychiatrists and a psychologist, were used. Additional information was collected from nursing reports, collateral information obtained by social workers and accompanying documentation from the court.

The following variables were extracted for analysis:

<u>Perpetrator characteristics</u>

Sex, age, years of education, marital status, occupation, previous contact with mental health care services, previous admissions to mental health care services, criminal

convictions, DSM IV Axis 1 and 2 diagnoses and recommendations to the court regarding fitness to stand trial and criminal responsibility.

Victim characteristics

Sex and relationship to perpetrator.

Circumstances surrounding the domestic homicide

Location, method, motive, impulsive act or planned act, adherence to psychiatric medication if offender was receiving treatment at the time, intoxication at the time of the offence, symptoms of mental illness at the time of the offence.

Coding of data ensured anonymity. Subjects were assigned a research number. The master list with corresponding name and research number was only available to the principal investigator. All data were saved in password protected computer files. The data that was used had already been submitted to the courts as part of the psychiatric observation process, and therefore are in the public domain.

Ethical approval for the study was obtained from the University of Cape Town Human Research Ethics Committee and consent for access to clinical folders from the CEO of Valkenberg Hospital.

Data analysis

Data were captured on Excel spread sheets and were imported to, and analysed using IBM SPSS Statistics version 22. Categorical variables were expressed as frequency and bar charts. Numerical variables were expressed as means, standard deviations, ranges and histograms. Associations between categorical variables were tested using cross tabulation and Fisher's exact test (due to small sample numbers). Relationships between continuous and categorical variables were graphed using boxplots. The non-parametric Wilcoxon rank sum test was applied to boxes that showed skew distribution. Significant differences were determined at a 5% significance level ($p < 0.05$).

Results

Perpetrator characteristics

The majority of the accused were men, with only two of the 21 individuals being

women (see Table 1). The mean age at the time of offence was 31 years (SD 11.00; range 18-64). The mean years of formal education was 8 (SD 3-16). The majority of the patients were unemployed at the time of the offence (66.7%). Only 19% of the sample was either married or cohabiting with a partner. Previous contact with mental health care services was reported by 71.4% of the patients and 61.9% had been admitted to hospital for psychiatric treatment. Two-thirds had prior criminal convictions. The vast majority of perpetrators (85.8%) had received a lifetime diagnosis of psychotic illness and 66.7% had a substance use disorder. More than half (52.4%) of the accused were found fit to stand trial and criminally responsible.

Table 1: Perpetrator Characteristics

	Frequency	Percentage
Gender		
Male	19	90.5%
Female	2	9.5%
Occupational Status		
Employed	7	33.3%
Unemployed	14	66.7%
Marital Status		
Married/Cohabiting	4	19%
Single	17	81%

Psychiatric History		
Known to mental health services	14	71.4%
First contact with mental health services	7	33.3%
Substance use disorder	14	66.7%
Lifetime diagnosis of psychotic disorder	18	85.8%
Forensic Parameters		
Prior criminal convictions	14	66.7%
Fit to stand trial and criminally responsible	11	52.4%

Victim characteristics

The majority (76.2%) of victims were male, with females accounting for only 23.8%. A significant minority of domestic homicides were parricides (28.6%) and intimate partner homicides (19%).

Circumstances surrounding domestic homicide

The location of the homicide was usually the victim's residence or the victim and perpetrator's shared residence (76.2%) (see Table 2). Stabbing with a sharp instrument was the method used in 76.2% of the homicides. The majority (71.4%) of perpetrators stated that rage or anger was the motive for the homicide, where the remainder (28.6%) of the sample were found to have a delusional motive. Homicides were reported to be impulsive acts for 85.7% of perpetrators, and a small minority (14.3%) were planned. Only 38.5% of the offenders that were receiving psychiatric treatment (61.9% of the total sample) were adherent to medication. Less than half (47.6%) of the sample was psychotic at the time of the incident and 60% of these

were first episode psychoses. Only 23.8% were intoxicated with a substance when they perpetrated the offence.

Table 2: Circumstances surrounding domestic homicide

	Frequency	Percentage
Location of Homicide		
Victim's or shared residence	16	76.2%
Method		
Stabbing	16	76.2%
Motive		
Rage/anger	15	71.45%
Delusional	6	28.6%
Impulsive vs Planned Homicide		
Impulsive	18	85.7%
Planned	3	14.3%
Mental State at time of Offence		
Psychotic at time of incident	10	47.6%
Intoxicated at time of offence	5	23.8%

Relationship between age, marital status, employment and lifetime diagnosis of psychotic disorder

The boxplot graph to compare the ages of the psychotic and apsychotic group showed skew distributions. The subsequent non-parametric Wilcoxon rank sum test showed no statistically significant difference in age between the two categories. The Fisher's exact test showed no statistically significant association between diagnosis of a

psychotic disorder and marital status/cohabitation (p=0.568) or presence of psychotic disorder and employment (p=0.16).

Association between substance intoxication at the time of offence and substance use disorder

Fisher's exact test did not show a statistically significant relationship between substance intoxication at the time of offence and presence of a substance use disorder (p=0.123).

Discussion

Characteristics of the accused

Most of our samples' characteristics are in keeping with previous studies of homicide by mentally ill offenders.[2,6,7,10] The majority of subjects were male, with a mean age of 31 years. Most of them were unemployed and single. A large percentage were known to mental health care services and two-thirds suffered from a substance use disorder.

In contrast to the existing evidence, the majority (66.7%) of our population did not have prior criminal convictions.

The most common psychiatric diagnoses in our observation population were psychotic disorders. This finding is congruous with results of studies on forensic psychiatric samples, however mood disorders are more common in prison samples of homicide offenders with severe mental illness.[2] The paucity of mood disorders, in our and other forensic psychiatric samples, suggests that the court is more likely to refer accused with psychotic disorders compared to mood disorders for psychiatric observation.

Victim characteristics

It is interesting that the majority of the victims in our study were male (76.2%). Oram et al.[1] studied the characteristics of 1 431 perpetrators convicted of domestic homicide between 1997 and 2008. Their findings were the opposite (70% of the victims were female).

The most likely explanation for the discrepancy in results is the high proportion (80%) of intimate partner homicides (homicide of a current or ex-partner or spouse aged 16 or older) in their sample. Among the victims of adult family

homicide (homicide of a parent or of a sibling or child aged 16 or older) in their study, only 39% were female.[1]

We propose that the relatively small proportion (19% of the total sample) of intimate partner homicides in our study as the reason for the disparity.

A substantial proportion (42.9%) of victims studied were victims other than an intimate partner, parent, child, stepparent or stepchild. We hypothesize that the common practice of cohabiting with extended family and overcrowding in the South African context may partly explain this phenomenon.

Circumstances surrounding domestic homicide

Some of our findings were similar to existing literature on homicide in the context of mental illness. In the majority of cases the location of the homicide was the victim's residence or the victim and perpetrator's shared residence.[2,7,10,11] Stabbing was the most common method used.[6,7,10] The majority of our sample that were receiving psychiatric medication at the time of the offence, were non adherent.

In contrast to studies of forensic samples that found delusional motives to be the most common,[4,7,11] rage or anger was reported to be the motive in the majority of our subjects. The retrospective under-reporting of delusional motives by perpetrators may account for this dissimilarity. We also acknowledge that rage/anger and delusional motives are not mutually exclusive. The high proportion of impulsive homicides and stabbings in our sample is consistent with another study that illustrated an association between impulsive homicides and the use of sharp weapons.[12]

Intoxication with a substance at the time of the incident was reported by 23.8% of our study subjects. This is a lower figure than the 35% – 45% reported by other studies of persons with severe mental illness who committed homicide.[2,7,10,11] Once again, the fact that we relied on self-reporting might have led to under-reporting.

Although intoxication during the incident was reported to be relatively uncommon in our sample, 66.7% of the perpetrators were known to have a substance use disorder. These results are consistent with two other studies that concluded that the role of substance misuse appeared to be to induce acute symptoms leading to serious assault[7] and that serious violence by mentally ill subjects was more strongly associated with acute symptoms than with intoxication.[13]

Almost half (47.6%) of our sample were psychotic when they committed the

offence. The high prevalence of first episode psychosis amongst those found to be psychotic in our sample is in line with studies on homicide during psychotic illness. These studies report that the first episode of psychotic illness carries the greatest risk of committing homicide and that most lethal assaults occur during the first year of illness.[5,14]

Limitations of the study

This study had several limitations. The study design (retrospective folder review) limited the extent and consistency of information we were able to collect, and the quality of the data was dependent on the quality of medical records and the reliability of patient self-reports.

The small sample size restricted statistical analysis and also curtails the generalizability of the findings.

Only individuals referred for psychiatric observation by the court were included in the study. Homicide-suicides were therefore automatically excluded.

Our results may also be influenced by selection bias, as offenders with more severe symptoms of mental illness are more likely to be referred for observation than offenders with less severe symptoms.

Conclusion

A significant majority of our sample were known to mental health care services and were under psychiatric treatment at the time of the incident. This implies that there were potential missed opportunities to prevent the tragic outcome of domestic homicide.

Our research identified treatment adherence, comorbid substance use disorders and aggressive treatment of first episode psychosis as a possible focus of future interventions in order to prevent lethal assaults.

Furthermore, the empowerment and rehabilitation of mental health care users with serious mental illness may reduce disability and dependence on family members, which in turn could reduce their frustration, aggression and domestic violence.

This study highlights the need for further research on domestic homicide by persons with mental illness, in order to inform risk assessment, treatment and prevention.

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APPENDICES

Appendix 1: Data extraction form

SUBJECT	AGE	GENDER	ETHNIC	EDUC	MARITAL	JOB	CONTMHC	PSYADM	CONV	DSMAX1	DSMAX2	LEGREC

VGENDER	RELAT	LOCAT	METHOD	MOTIVE	PLAN	MEDS	INTOX	SYMP	EPISOD

Appendix 2: Data dictionary

Domestic Homicide

Data Dictionary:

Column	Variable Name	Label (Units)	Format	Codes and Ranges	Missing Values
A	SUBJECT	Subject research number	Text (3)	Range 1-100	Not allowed
B	AGE	Age at time of offence	Numeric (3.0)	Range 0 - 100	Blank
C	GENDER	Gender of subject	Numeric (1.0)	1=Male 2=Female	-9
D	ETHNIC	Ethnicity of subject	Numeric (1.0)	1=African 2=Asian 3=Caucasian 4=Coloured 5=Indian 6=Other	-9
E	EDUC	Years of formal education	Numeric (2.0)	Range 0 - 25	Blank
F	MARITAL	Marital status at time of offence	Numeric (1.0)	1=Single 2=Married or cohabiting 3=Divorced or separated 4=Widowed	-9
G	JOB	Job status at time of offence	Numeric (1.0)	1=Employed 2=Unemployed	-9

H	CONTMHC	Previous contact mental health care services	Numeric (1.0)	1=Yes 2=No	-9
I	PSYADM	Previous psychiatric admission	Numeric (1.0)	1=Yes 2=No	-9
J	CONV	Previous criminal conviction	Numeric (1.0)	1=Violent 2=Non violent 3=No	-9
K	DSMAX1	DSM4 Axis 1 diagnosis	Numeric (1.0)	1=Schizophrenia 2=Bipolar 3=Mania 4=MDD 5=Other Psychotic disorder 6=Substance use disorder	-9
L	DSMAX2	DSM4 Axis 2 diagnosis	Numeric (1.0)	1=Intellectual disability 2=Paranoid 3=Schizoid 4=Schizotypal 5=Histrionic 6=Narcissistic 7=Antisocial 8=Borderline 9=Avoidant 10=Dependent	-9

				11=Obsessive compulsive	
M	LEGREC	Legal recommendation	Numeric (1.0)	1=Triable, accountable 2=Triable, non-pathological factors 3=Triable, not accountable 4=Triable, diminished accountability 5=Not triable, accountable 6=Not triable, non-pathological factors 7=Not triable, not accountable 8=Not triable, diminished accountability	-9
N	VGENDER	Victim gender	Numeric (1.0)	1=Male 2=Female	-9
O	RELAT	Victim relationship to perpetrator	Numeric (1.0)	1=Intimate partner 2=Parent 3=Child	-9

				4=Sibling 5=Other	
P	LOCAT	Location of homicide	Numeric (1.0)	1=Shared residence 2=Victims' residence 3=Other	-9
Q	METHOD	Method of homicide	Numeric (1.0)	1=Stabbing 2=Firearm 3=Blunt trauma 4=Strangulation or suffocation 5=Other	-9
R	MOTIVE	Motive for homicide	Numeric (1.0)	1=Rage or anger 2=Delusional 3=Other (Specify)	-9
S	PLAN	Planned or impulsive homicide	Numeric (1.0)	1=Impulsive 2=Planned	-9
T	MEDS	Adherence to psychiatric medication if on treatment	Numeric (1.0)	1=Not on treatment 2=Adherent 3=Non adherent	-9
U	INTOX	Substance intoxication at the time of the offence	Numeric (1.0)	1=No 2=Alcohol 3=Cannabis 4=Methamphetamine 5=Other	-9

V	SYMP	Symptoms of mental illness at time of offence	Numeric (1.0)	1=Delusional belief of threat 2=Auditory hallucinations 2=Mania 3=Depression	-9
W	EPISOD	First episode psychosis	Numeric (1.0)	1=Not psychotic 2=First episode psychosis 3=Not first episode psychosis	-9

Appendix 3: Human Research Ethics Committee approval

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

Room E52-24 Old Main Build
Groote Schuur Hosp
Observatory 7
Telephone [021] 404 7682 • **Facsimile** [021] 406 6
Email: nosi.tsama@uct.a
Website: www.health.uct.ac.za/research/humanethics/fo

15 May 2015

HREC REF: 177/2015

Prof S Kaliski
Psychiatry, Training Centre
Valkenberg Hospital

Dear Prof Kaliski

PROJECT TITLE: CHARACTERISTICS OF DOMESTIC HOMICIDE PERPETRATED BY PERSON WITH SEVERE MENTAL ILLNESS-A FORENSIC PSYCHIATRY OBSERVATION POPULATIO BASED STUDY (MMed-candidate- Dr M Bruwer)

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethi Committee for review.

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 30th May 2016.

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

We also acknowledge that the MMed student Dr M Bruwer is also involved in this study.

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

Please quote the HREC REF in all your correspondence.

Yours sincerely

Signed

PROFESSOR MARC BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938

Appendix 4: Department of Health approval

STRATEGY & HEALTH SUPPORT
Health.Research@westerncape.gov.za
tel: +27 21 483 6857: fax: +27 21 483 9895
5th Floor, Norton Rose House,, 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za)

REFERENCE: **WC_2015RP29_145**
ENQUIRIES: Ms Charlene Roderick

Station Road
Observatory
7925

For attention: **Prof Sean Kaliski and Dr Marise Bruwer**

Re: CHARACTERISTICS OF DOMESTIC HOMICIDE PERPETRATED BY PERSONS WITH SEVERE MENTAL ILLNESS - A FORENSIC PSYCHIATRIC OBSERVATION POPULATION-BASED DESCRIPTIVE STUDY.

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.
Please contact the following people to assist you with any further enquiries in accessing the following sites:

Vanguard CDC **L Mbanga** **Contact No: 021 695 8244**

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final feedback (annexure 9) within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za).
3. The reference number above should be quoted in all future correspondence.

Yours sincerely

DR A HAWKRIDGE
DIRECTOR: HEALTH IMPACT ASSESSMENT
DATE: 21/9/2015
CC **K GRAMMER** **DIRECTOR: SOUTHERN/ WESTERN**

Appendix 5: Instructions to authors (South African Medical Journal)

Author Guidelines

Accepted manuscripts that are not in the correct format specified in these guidelines will be returned to the author(s) for correction, and will delay publication.

AUTHORSHIP Named authors must consent to publication. Authorship should be based on substantial contribution to: (i) conception, design, analysis and interpretation of data; (ii) drafting or critical revision for important intellectual content; and (iii) approval of the version to be published. These conditions must all be met (uniform requirements for manuscripts submitted to biomedical journals; refer to **www.icmje.org**).

CONFLICT OF INTEREST Authors must declare all sources of support for the research and any association with a product or subject that may constitute conflict of interest.

RESEARCH ETHICS COMMITTEE APPROVAL Provide evidence of Research Ethics Committee approval of the research where relevant.

PROTECTION OF PATIENT'S RIGHTS TO PRIVACY Identifying information should not be published in written descriptions, photographs, and pedigrees unless the information is essential for scientific purposes and the patient (or parent or guardian) gives informed written consent for publication. The patient should be shown the manuscript to be published. Refer to **www.icmje.org**.

ETHNIC CLASSIFICATION References to ethnic classification must indicate the rationale for this.

MANUSCRIPTS Shorter items are more likely to be accepted for publication, owing to space constraints and reader preferences. ***Research articles*** (previously 'Original articles') not exceeding 3 000 words, with up to 6 tables or illustrations, are usually observations or research of relevance to clinical medicine and related fields. References should preferably be limited to no more than 15. Please provide a structured abstract not exceeding 250 words, with the following recommended headings: *Background, Objectives, Methods, Results,* and *Conclusion.* ***Scientific letters*** will, in future, be incorporated as shorter ***Research articles***. ***Editorials***, Opinions, etc. should be about 1000 words and are welcome, but unless invited, will be subjected to the SAMJ peer review process. ***Review articles*** are rarely accepted unless invited. ***Letters to the editor***, for publication, should be about 400 words with only one illustration or table, and must include a correspondence address. ***Forum articles*** must be accompanied by a short description (50 words) of the affiliation details/interests of the author(s). Refer to recent forum articles for guidance. Please

provide an accompanying abstract not exceeding 150 words. ***Book reviews*** should be about 400 words and must be accompanied by the publication details of the book. ***Obituaries*** should be about 400 words and may be accompanied by a photograph.

MANUSCRIPT PREPARATION Refer to articles in recent issues for the presentation of headings and subheadings. If in doubt, refer to 'uniform requirements' - **www.icmje.org**. Manuscripts must be provided in **UK English**. **Qualification, affiliation and contact details** of ALL authors must be provided in the manuscript and in the online submission process. **Abbreviations** should be spelt out when first used and thereafter used consistently, e.g. 'intravenous (IV)' or 'Department of Health (DoH)'. **Scientific measurements** must be expressed in SI units except: blood pressure (mmHg) and haemoglobin (g/dl). Litres is denoted with a lowercase 'l' e.g. 'ml' for millilitres). Units should be preceded by a space (except for %), e.g. '40 kg' and '20 cm' but '50%'. Greater/smaller than signs (> and <) should be placed immediately preceding the relevant number, i.e. 'women >40 years of age'. The same applies to ± and o, i.e. '35±6' and '19oC'. **Numbers** should be written as grouped per thousand-units, i.e. 4 000, 22 160... **Quotes** should be placed in single quotation marks: i.e. The respondent stated: '...' Round **brackets** (parentheses) should be used, as opposed to square brackets, which are reserved for denoting concentrations or insertions in direct quotes. **General formatting** The manuscript must be in Microsoft Word or RTF document format. Text must be single-spaced, in 12-point Times New Roman font, and contain no unnecessary formatting (such as text in boxes, with the exception of Tables).

ILLUSTRATIONS AND TABLES If tables or illustrations submitted have been published elsewhere, the author(s) should provide consent to republication obtained from the copyright holder. **Tables** may be embedded in the manuscript file or provided as **'supplementary files'**. They must be numbered in Arabic numerals (1,2,3...) and referred to consecutively in the text (e.g. 'Table 1'). Tables should be constructed carefully and simply for intelligible data representation. Unnecessarily complicated tables are strongly discouraged. Tables must be cell-based (i.e. not constructed with text boxes or tabs), and accompanied by a concise title and column headings. Footnotes must be indicated with consecutive use of the following symbols: * † ‡ § ¶ || then ** †† ‡‡ etc. **Figures** must be numbered in Arabic numerals and referred to in the text e.g. '(Fig. 1)'. Figure legends: Fig. 1. 'Title...' All llustrations/figures/graphs must be of **high resolution/quality**: 300 dpi or more is preferable, but images must not be resized to increase resolution. Unformatted and uncompressed images must be attached individually as '**supplementary files**' upon submission (not solely embedded in the accompanying manuscript). TIFF and PNG formats are preferable; JPEG and PDF formats are accepted, but authors must be wary of image compression. Illustrations and graphs prepared in Microsoft Powerpoint or Excel must be accompanied by the original workbook.

REFERENCES Authors must verify references from the original sources. *Only*

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Journal references: Price NC, Jacobs NN, Roberts DA, et al. Importance of asking about glaucoma. Stat Med 1998;289:350-355. [http://dx.doi.org/10.1000/hgjr.182] [PMID:2764753]

Book references: Jeffcoate N. Principles of Gynaecology. 4th ed. London: Butterworth, 1975:96-101. *Chapter/section in a book:* Weinstein L, Swartz MN. Pathogenic properties of invading microorganisms. In: Sodeman WA jun, Sodeman WA, eds. Pathologic Physiology: Mechanisms of Disease. Philadelphia: WB Saunders, 1974:457-472.

Internet references: World Health Organization. The World Health Report 2002 - Reducing Risks, Promoting Healthy Life. Geneva: World Health Organization, 2002. http://www.who.int/whr/2002 (accessed 16 January 2010).

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4.The manuscript is in Microsoft Word or RTF document format. The text is single-spaced, in 12-point Times New Roman font, and contains no unnecessary formatting.

5.Illustrations/figures are high resolution/quality (not compressed) and in an acceptable format (preferably TIFF or PNG). These must be submitted individually as 'supplementary files' (not solely embedded in the manuscript).

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7.Where possible, references are accompanied by a digital object identifier (DOI) and PubMed ID (PMID)/PubMed Central ID (PMCID).

8.An abstract has been included where applicable. 9.The research was approved by a Research Ethics Committee (if applicable) 10. Any conflict of interest (or competing interests) is indicated by the author(s).

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