Psychiatric aspects of homicide in Singapore: a five-year review (1997 - 2001)

Koh K G W W, Gwee K P, Chan Y H

ABSTRACT

Introduction: The association between mental illness and violent offenders is an important issue not just for psychiatrists but for the public as well. Several studies have linked an increased prevalence of psychiatric illness among offenders of violent crimes. This study seeks to update the psychiatric community in Singapore on individuals charged with murder from 1997 to 2001, all of whom received a psychiatric assessment.

Methods: 110 individuals were charged with murder from 1997 to 2001. Socio-demographical data, psychiatric diagnoses, offence and victim profiles and court outcomes were obtained from prison records and psychiatric files.

Results: There were 110 individuals charged with murder between January 1, 1997 to December 31, 2001, with a total of 113 victims. In 70 of the cases, one offender killed one victim. Offenders were mostly unmarried males in the 20-39 year age group who received a secondary school level of education or less. 57 of the remandees were found not to suffer from any mental illness. Alcohol abuse and dependence disorders accounted for the largest diagnostic group. Depressive disorders accounted for 9.1 percent of the accused persons and schizophrenia, 6.4 percent. Victim profiles and court outcomes are also described. A comparison is drawn between this study and the last large report on homicides in Singapore, published in 1985. No difference is detected when the rates of schizophrenia and depression are compared between the two eras.

Conclusion: Perpetrators of murder have been shown to have an increased incidence of psychiatric disorders. Reduction of the rate of homicide in the country may be achievable via the reduction of controllable factors found to be linked to the aetiology of murder. Alcohol and other illicit substance use are frequently found to be associated with homicide. The authorities are encouraged to enhance campaigns to dissuade alcohol abuse.

Keywords: alcoholism, forensic psychiatry, homicide, jurisprudence, mental disorders

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INTRODUCTION

The killing of one human by another evokes strong reactions of shock, confusion, questioning and oftentimes, a cry for justice. Indeed, the response to that cry in several countries, including Singapore, still comes in the form of capital punishment. An escape from that or other severe forms of punishment would only come from a failure by the investigatory authorities to prove *mens rea* or *actus reus*, legal acquittals or the finding of diminished responsibility as a result of mental illness. An understanding of the relation between psychiatric illness and violent offences, particularly murder, is thus an important matter for the psychiatrist as well as for the public.

Taylor and Gunn[1] studied 2,743 male prisoners and 1,241 male remandees and found a substantially higher prevalence of schizophrenia among men convicted of homicide (11%) than would be expected in the general population of Greater London (0.1 - 0.4%). Lindqvist[2] reported on all cases of criminal homicide (n=64) in northern Sweden between 1970 and 1981, and found that 31% were considered mentally diseased at trial, with 63% having been previously subjected to psychiatric care. Noreik and Gravem[3] found that of those charged with homicide and attempted homicide between 1980 to 1989 and who had been subjected to judicial psychiatric observation, 60% were schizophrenic and 17% had paranoid psychosis.

Department of Forensic Psychiatry Institute of Mental Health/Woodbridge Hospital 10 Buangkok View Singapore 539747

Koh K G W W, MBBS, MMed, GradDipPsychotherapy
Associate Consultant

Department of General Psychiatry 2

Gwee K P, MBBS, MMed, FAMS
Consultant and Deputy Chief

Biostatistics Unit Yong Loo Lin School of Medicine National University of Singapore 10 Medical Drive #02-02 Clinical Research Centre Singapore 117597

Chan Y H, PhD
Head

Correspondence to:
Dr Kenneth G W W Koh
Tel: (65) 6389 2000
Fax:(65) 6385 1050
Email: kenneth_koh@imh.com.sg

Glancy and Regehr[4] conducted a literature review which suggested that there was an association between schizophrenia and a variety of antisocial behaviours that include violent crime, including homicide, especially in North America. They further added that "the literature consistently shows that since the 1950s, schizophrenics have been involved in crime and arrested more frequently than the general population.... And they represent the majority of those found not guilty by reason of insanity".

The West of Scotland survey by Gillies[5] found that 18% of men and 45% of women accused of homicide had a psychiatric disorder. However, personality disorder was included as a mental illness in this study. Similarly, Wallace et al[6] found that personality disorder and substance abuse accounted for much of the relationship between mental disorder and serious criminal offending in Victoria, Australia. They concluded, somewhat differently from other researchers, that the increased offending in schizophrenia and affective illness was only modest and was often mediated by coexisting substance misuse.

The Manchester National Confidential Inquiry into Suicide and Homicide by People with Mental Illness (Shaw et al)[7] found that 14% of the 718 people convicted of homicide had been in contact with mental health services at some time and 14% of the 500 cases for whom psychiatric reports were retrieved had symptoms of mental illness at the time of the homicide. Again, the commonest diagnosis was personality disorder, with alcohol and drug misuse also being common. Asnis et al[8] reviewed studies which employed various data sources including former psychiatric inpatients, outpatients, the community, violent and homicide offenders and concluded that substance abuse (including alcohol) and antisocial personality disorder were particularly associated with an increased risk for violent/homicidal behaviours; with schizophrenia, mood disorders and anxiety disorders appearing to have somewhat greater risk than the general population, but not of the same magnitude as substance abuse and antisocial personality disorder. Eronen et al[9], adopting a different approach, reported that schizophrenia increased the odds-ratio (OR) of homicidal violence by about eight-fold in men and 6.5 fold in women, antisocial personality disorder by over ten-fold in men and over 50-fold in women.

The last major review of homicides in Singapore and their association with psychiatric disorders was in 1985[10]. In that study, it was found that 10.6% of the 75 persons accused of homicide from 1980 to 1982 had some mental illness. In that study, personality disorder and substance abuse per se were not included as mental illnesses, as was then and still is, often the view of the Singapore Courts. The present study attempts to draw some comparison with this previous work and seeks to ascertain if the rates of mental illness in homicide offenders have changed over the past 20 years.

METHODS

All individuals who have been charged with murder in Singapore are remanded at Changi Prison Hospital or Changi Women's Prison Hospital and receive a thorough psychiatric assessment by a trained psychiatrist. The prison medical and psychiatric records and nominal rolls of all those charged with murder in the period January 1, 1997 to December 31, 2001 were examined. The following data were obtained:

The offender

1. Demographical data.
2. Personal history – including past psychiatric history, past history of violence, forensic history, substance abuse history, recent stressors.
3. Present psychiatric history – including diagnosis(es), symptoms and signs, alcohol and/or substance abuse in the 24 hours preceding the offence.

The offence

1. The number and gender of victims.
2. The method / weapon used in the offence.

The victim

1. Demographical data.
2. The relationship of the victim to the offender.
3. Any substance misuse.

Court outcome

1. Psychiatrist's opinion on soundness of mind of the offender.
2. Whether the defence of diminished responsibility was put forth.
3. Verdict.

RESULTS

There were 110 individuals charged with murder between January 1, 1997 to December 31, 2001, with a total of 113 victims. In 70 of the cases, one offender killed one victim. Among those cases where the ratio of killer to victim was not 1:1, there was a group of four offenders who killed three victims: A, B, C, and D were all involved

in the killing of P; B and C also killed Q, and D also killed R. There was a case in which a female offender killed two victims, which were her two children. In another group, single victims were killed by two or more offenders, making 11 victims and 34 offenders in this group, some of which were clearly gang-related killings.

Homicide offenders – demographics

Males accounted for 88.2% of the sample (n=97) and females 11.8% (n=13) (p=0.006, OR=2.8, 95% CI 1.3 to 5.8) (Table I). Two-thirds of the homicide offenders were not married, with 63 (57.2%) being single, nine (8.2%) being separated or divorced and two (1.8%) being widowed. The age of the homicide offenders varied widely, with the peak being seen in the 20-39 age group, accounting for 66.3% of the offenders (n=73). Many also received a secondary school level of education or less. Of the 106 whose educational levels were recorded, 93 (87.8%) fell into this group. The others had either further vocational training or had received pre-university, polytechnic or university education.

30 (27.3%) of those remanded for murder were not Singapore citizens or permanent residents. Of these foreigners, 22 were working in Singapore, four were on a social visit pass, and five were illegal immigrants. Three of the foreigners had been in Singapore for under one month, five between one month and one year, and 19 had been here for longer than one year. The lengths of stay for three foreigners were not available. A large proportion of homicide offenders were found to be menial or unskilled workers (n=52, 47.3%), with the next largest number being jobless (n=29, 26.4%). Smaller in number were students (n=5, 4.5%), full-time national servicemen (n=3, 2.7%), skilled workers (n=19, 17.3%) and professionals (n=2, 1.8%).

Table I. Demographical characteristics of homicide offenders.

	Number	Percentage (%)
Gender		
Male	97	88.2
Female	13	11.8
Marital Status		
Single	63	57.2
Married	35	31.8
Separated/divorced	9	8.2
Widowed	2	1.8
Unknown	1	0.9
Age distribution (in years)		
10-19	12	10.9
20-29	36	32.7
30-39	37	33.6
40-49	18	16.4
50-59	4	3.6
60-69	3	2.7
>70	0	0
Educational level		
None	2	1.8
Primary	46	41.8
Secondary	45	40.9
Vocational	3	2.7
Pre-university	5	4.5
Polytechnic	5	4.5
University	0	0
Unknown	4	3.6
Occupation		
Jobless	29	26.4
Student	5	4.5
Full-time national serviceman	3	2.7
Unskilled worker	52	47.3
Skilled worker	19	17.3
Professional	2	1.8

Homicide offenders – psychiatric characteristics

A positive history of violence was found in only 44.3% (n=43) of the 97 cases where this information was available. However, a slightly higher figure of 54.8% (n=57) was obtained when the scope was widened to include a positive past forensic history, which would then take into account brushes with the law that might not have involved violence (Table II). With regard to alcohol and other substance use in the 24 hours preceding the offence, 33 (30.0%) of the homicide offenders reported alcohol use, four (3.6%) admitted to substance misuse, and three (2.7%) had combined alcohol and illicit substance abuse. In the four remandees where the type of drug misused was listed, two took heroin, one cannabis and one, a mixture of cough mixture and sleeping tablets.

With regard to the psychiatric diagnosis or diagnoses of the remandees, 57 (51.8%) of the remandees were found not to suffer from any mental illness. Alcohol abuse and alcohol dependence disorders accounted for the largest diagnostic group, making up 16.4% (n=18) of the sample. Further, it was noted that with the homicide offenders, in cases where there was more than one diagnosis, alcohol abuse/dependence was almost invariably comorbid. If these were added to the former group with a singular diagnosis of alcohol abuse/dependence, the prevalence of homicides where the offender had an alcohol

Table II. Psychiatric diagnosis of homicide offenders.

	Number	Percentage (%)
Singular diagnosis		
Acute stress reactions and adjustment disorders	2	1.8
Alcohol abuse/dependence	18	16.4
Antisocial personality disorder (ASPD)	2	1.8
Bipolar disorder	1	0.9
Borderline personality disorder	1	0.9
Delusional disorder (persecutory type)	1	0.9
Depression	9	8.2
Mild mental retardation	1	0.9
Intermittent explosive disorder	1	0.9
Other substance abuse	3	2.7
Schizophrenia	6	5.5
Comorbid diagnoses		
Alcohol abuse/dependence and mild mental retardation	1	0.9
Alcohol abuse/dependence and other substance abuse	3	2.7
Alcohol abuse/dependence and ASPD	1	0.9
Alcohol abuse/dependence and depression	1	0.9
Alcohol abuse/dependence and schizophrenia	1	0.9
Delusional disorder (persecutory type) and depression	1	0.9
No mental illness	57	51.8
Total	110	100

Table III. Characteristics of homicide victims.

	Number	Percentage (%)
Gender		
Male	73	64.6
Female	40	35.4
Age distribution (in years)		
<10	6	5.3
10-19	24	21.2
20-29	16	14.2
30-39	16	14.2
40-49	16	14.2
50-59	13	11.5
60-69	8	7.1
>70	8	7.1
Unknown	6	5.3
Method of being killed		
Blunt instrument	35	31.0
Gunshot	2	1.8
Sharp instrument (stabbed or slashed)	52	46.0
Sharp + blunt instrument	7	6.2
Sharp instrument + other method	4	3.5
Other method	13	11.5
Relationship to offender		
Spouse	7	6.2
Relative	19	16.8
Child (<12 yrs old)	4	3.5
Acquaintance/friend	28	24.8
Opposing gang member	20	17.7
Colleague	13	11.5
Stranger	16	14.2
Others	6	5.3

abuse or dependence disorder would rise to 25 (22.7%). If, in turn, the individuals who abused substances aside from alcohol were added to this latter set, the proportion of homicides where the alleged offender had some sort of substance abuse/dependence disorder would now be 25.4% (n=28).

Depressive disorders accounted for the next highest number of homicide offenders with a psychiatric illness, with ten (9.1%) of the accused persons being so diagnosed. Schizophrenia was, perhaps surprisingly, under-represented. Only seven (6.4%) were found to suffer from this, one of whom had a comorbid alcohol abuse/dependence disorder. An additional two (1.8%) were found to have a delusional disorder of the persecutory type. No other sub-type of delusional disorders was found in this sample. Even more remarkable was the lack, in this sample, of individuals diagnosed to have a personality disorder. Only one person was found to have a borderline personality disorder and three diagnosed as having anti-social personality disorder (including one who had a comorbid alcohol abuse/dependence disorder). Possible reasons for this are discussed later. Only one of the accused persons was found to have mental retardation.

Of the 17 individuals who were found to suffer from psychotic symptoms, the most common symptom was the presence of persecutory delusions, which were present in 12 (70.6%) cases. Nine (52.9%) reported auditory hallucinations,

but in only one of these were they of the command type. Passivity and morbid jealousy were less common, with only two (11.8%) each reporting their presence. The association between the act of homicide followed by attempted suicide was rare. Only eight (7.2 %) cases were found.

Homicide victims – characteristics

In terms of the murder victim's relationship to the offender (Table III), being an opposing gang member posed one with the highest risk of being killed. 20 (17.9%) individuals were killed in the course of gang fights. Strangers were not spared, with this group making up the next highest number of victims (n=16, 14.3%). Spouses, however, appeared less likely to fall victim compared to friends, acquaintances or other first degree relatives, with only seven (6.3%) victims being spouses of the offenders.

The age distribution of the homicide victims was widely spread. There was a peak in the teenage years of 10-19, but numbers remained high till past the 50-59 year age group. Males were almost twice as likely to be killed compared to females, with 73 (64.6%) male victims, compared to 40 (35.4%) female victims. 82 (77.4%) of the victims were Singapore citizens/permanent residents, while 24 (22.6%) were foreigners. The nationalities of seven victims were unknown.

One-quarter (n=28, 25.9%) of the victims were found to have consumed alcohol within the 24 hours preceding the murder, while two (1.9%) were positive for having consumed illicit drugs within the same time period. Most of the victims were killed by stabbing or slashing with sharp instruments (n=52, 46%). When dual methods of killing that included the use of a sharp instrument were added, the count rose to 63 (55.8%). Blunt trauma was the second most common method of being killed and was used by 33 (29.2%) offenders. As opposed to countries where gun laws are more liberal, only two victims were killed by gunshot, and by the same two individuals.

Outcomes

Of the 110 accused persons, only three (2.7%) were assessed by the respective psychiatrists to be of unsound mind at the time of the offence. Agreement by the High Court judge with the psychiatrist's opinion regarding soundness or unsoundness of mind of the offender was present in 109 of the cases. In only one case (0.9%) did the Court disagree with the psychiatrist's opinion. The defence of diminished responsibility was found to be valid in 21 cases (19.0%) by the assessing psychiatrist. In two cases, the outcome could not be traced, but in all the rest, the Court lowered the charge. There was one case where the defence of diminished responsibility was not suggested by the psychiatrist, but the Court granted it.

The results of this study were compared with the earlier work on homicides in Singapore by Kua et al[10]. An attempt was made to compare the two studies to determine if there were any differences. This was somewhat made challenging by the fewer diagnostic groups presented in the earlier work. Furthermore, it must be appreciated that diagnostic criteria would have been different (although only minimally) in the two periods where the studies took place. Also, personality disorders were not considered as mental illnesses in the 1985 paper. What emerged though was that the prevalence of schizophrenia was not markedly different in the two studies, with 4.7% (n=3) in the 1985 study and 5.5% (n=6) in the present study (p=1.0). Depression seemed to be more greatly represented in this present work, with nine (8.1 %) cases being found in this study compared with two (3.1%) cases being detected in the 1980-1982 cohort. However, statistical significance was not detected when the two samples were compared with regard to depression (p=0.322).

DISCUSSION

This study covers a five-year period, the longest of any study on homicide in Singapore. The sample size is large and comparable to sizes reported in other studies on homicide published in the international literature. There has been little or no big scale research on this important area of homicide and mental illness in Singapore and indeed the Southeast Asian region. The results will be important in attempts to reduce the homicide rates by means of controlling of risk factors identified in this paper, for instance by curbing alcohol and substance abuse. The study also lends weight to the ongoing bid to destigmatise psychiatric patients. The common fallacy that most killers are mentally ill is debunked in this study. Further, a comparison between this and the 1982 study on homicide in Singapore show that the rates of schizophrenics who commit homicide here have not changed.

One of the main limitations of this work is that the data was collected retrospectively. This was a requirement of the Prison Authorities, as they had deemed that it would have been inappropriate to have access to and publish work on offenders

Table IV. Proportions of unsolved homicides in Singapore.

Year	% homicides unsolved
1997	48.4
1998	51.4
1999	47.5
2000	34.1
2001	27.3

whose cases had not completely run their course. Oftentimes, retrials and appeals would take months to years and any interview of prisoners only at that point in time, would have been perhaps even more inaccurate, compared to the present method of case note review, due to the great separation in time between offence and interview.

Countering this effect of a potential lack of information was the necessarily thorough manner in which the cases were assessed by the psychiatrists. Being aware that a conviction of murder would lead to the death penalty, the psychiatrists were extremely complete and detailed in their assessments. Only the prison psychiatrist, designated forensic psychiatrists from the Institute of Mental Health's Department of Forensic Psychiatry or other psychiatrists of consultant grade and above from the Institute of Mental Health were assigned to assess the homicide cases. Further, the Chief of Department and the Medical Director would vet the forensic reports, all these thereby maintaining strict standards of diagnosis and assessment.

Being a retrospective study and because there was no research intention when the accused persons were originally seen by the psychiatrists, no formal application of diagnostic instruments were employed at the time of the assessments. However, close scrutiny of the case notes revealed that the DSM-IV or ICD-10 criteria were applied closely and the final diagnosis complied with these criteria. The fact that the psychiatrist would have had to back up their diagnosis in Court and the fact that the Singapore Courts are also familiar with these two diagnostic systems would have made the psychiatrists employ these particular diagnostic systems and apply these criteria meticulously.

As with any other study that has been conducted on homicide and its relation to mental illness, the samples obtained only reflect those who have actually been apprehended and are thus appearing before the interviewer. All these studies, including this present one, are thus limited by the rate of unsolved cases. Interpol publishes the rates of unsolved homicides through the years[11]. While improving through the years, it is easily seen that a large proportion of homicide offenders go uncaught (Table IV). It is thus necessary to consider the possibility that the increased incidence of homicide being committed by mentally-ill individuals actually reflects that these individuals are simply being caught more easily, while the non-mentally incapacitated perpetrators escape apprehension. Similarly, foreigners may be arrested more often than locals as the former may have fewer resources in avoiding capture.

In the same light, this may also be a reason as to why so few homicide offenders with higher levels of education have been found. Perhaps they have been more intellectually capable of concealing evidence and evading capture. Granted though, an alternative reason for there being relatively fewer more highly educated homicide offenders may simply be that these individuals are better able to solve problems through enhanced communication and weighing alternatives, handling interpersonal problems more effectively and thus be less prone to strike out physically.

Demographically speaking, homicide offenders appeared most likely to be unmarried males in the 20-39 year age group, with a secondary school or lower level of education and either working in a menial or unskilled job, or jobless. At higher risk too were foreigners. Rather disturbing was the lack of a history of violence in a large proportion of homicide offenders. It suggests that the majority of homicides cannot be predicted with ease and shows up the difficulties faced by psychiatrists who have been called upon to assess risk of dangerousness.

Schizophrenia was over-represented in the study group (6.4%) compared to the general population. This is in agreement with other large-scale studies such as the ones by Taylor and Gunn[1], and Glancy and Regehr[4]. It differs, however, in the degree of the excess; Taylor and Gunn, for instance, found a prevalence of 11%. What this study more closely accurately reproduces though, is the local prevalence, with a rate of 4.7 % of the 1985 study by Kua et al[10] being diagnosed with schizophrenia. By far though, the prevalence of schizophrenia is much lower than the percentage of homicide offenders found not to have any mental illness, underscoring the truth that a person is more likely to be killed by someone without any psychiatric illness.

As with the studies by Wallace et al[6], Shaw

et al[7], and Asnis et al[8], this study detected a large proportion of homicide offenders who had consumed alcohol or abused other substances in the 24 hours preceding the offence. One-quarter (25.4%) of the homicide offenders in this study had some sort of alcohol/substance abuse or dependence disorder. The local results also reinforced the point that such disorders were more prevalent in association with homicide than the affective and psychotic disorders, as emphasised in the three studies quoted above.

Contrary to the same three studies which found an increased rate of alcohol/substance abuse or dependence and homicide, ie those of Wallace et al[6], Shaw et al[7] and Asnis et al[8], which also reported high rates of personality disorders in their offenders, a striking finding in this study was the lack of diagnoses of such Axis II disorders in this set of homicide offenders. This may possibly be explained by the manner in which persons with personality disorder are viewed by the Singapore Courts, which generally do not uphold such diagnoses to have any merit in diminishing one's responsibility in a murder. Indeed, it is likely the perception of many psychiatrists that the Singapore Courts in fact hold the converse view, such that a diagnosis of a personality disorder might possibly even disadvantage the accused rather than mitigate him. Particularly since Singapore metes out capital punishment for those convicted of murder, many psychiatrists might then prefer not to diagnose accused persons with this class of disorder unless the diagnosis is blatantly obvious.

Characteristics which accorded one with the highest risk of becoming a homicide victim included the male sex, being in the teenage age group and being a member of an opposing gang. As with the offender group, alcohol and drug consumption, within the 24 hours before the offence, was found in a large proportion of victims (25.9%).

Psychiatrically speaking, the only reasons a person who has killed another may escape capital punishment are either an acquittal on the grounds of unsoundness of mind or from diminished responsibility. The legal concept of unsoundness of mind is enshrined in Section 84 of our Penal Code. This states that "Nothing is an offence which is done by a person who, at the time of doing it, by reason of unsoundness of mind, is incapable of knowing the nature of the act, or that he is doing what is either wrong or contrary to law." This generally applies to cases where the individual is so severely psychotic that he is incapable of being aware of his actions or that they are wrong. For instance, an individual deluded that the victim was about to kill him and lashed out lethally in "self-defence" would be acquitted on this ground. However, it does not imply therefore that all psychotic individuals will qualify for this defence, for even while acutely psychotic, they may be aware of their actions and that such actions are wrongful. Strict adherence to this principle would thus actually give rise to the low numbers of psychotic individuals who qualify for this defence, as this study has demonstrated, as most psychotic individuals, even while acutely relapsed, maintain a fair awareness of their actions and are able to judge right from wrong.

Perhaps somewhat surprisingly would be the fact that individuals without any mental illness who kill, such as those in an epileptic automatism, may also qualify for this defence. This is because the section does not explicitly mention a requirement for mental illness or disease of mind. Whatever the origin of the unsoundness of mind though, such a finding results in confinement in the Institute of Mental Health. Release is only upon recommendation by the Board of Visitors to the Institution.

A psychotic individual is more likely to qualify for the defence of diminished responsibility. This is only applicable to the offence of murder and not to other capital offences such as drug trafficking. Exception 7 to Section 300 of the Penal Code states that "Culpable homicide is not murder if the offender was suffering from such abnormality of mind (whether arising from a condition of arrested or retarded development of mind or any inherent causes or induced by disease or injury) as substantially impaired his mental responsibility for his acts or omissions in causing the death or being a party to causing the death".

The last major local study on homicide offenders by Kua et al[10] was conducted 20 years ago. A comparison of the cases then and now, show that schizophrenia is over-represented in homicide offenders compared with the general population, but the degree of this appears to have remained fairly unchanged. Depression seemed initially to make up a greater proportion in this study compared to the 1980-1982 cohort. However, this did not stand up to statistical comparison and there was no significant difference. This seems to replicate the findings of Taylor and Gunn (1999)[12] who found little fluctuation in the numbers of people with a mental illness committing criminal homicide in a 38-year period from 1957 to 1995.

In conclusion, homicide is perhaps the most

serious offence an individual can commit. Its perpetrators have been shown to have an increased incidence of psychiatric disorders. Unfortunately, this has erroneously evolved into the myth that all psychiatric patients are violent, particularly those with the psychotic illnesses, thereby stigmatising those who suffer from such illnesses. This study reveals that indeed, the most violent of offences – in this case, murder, are most often committed by those without any mental illness, thereby serving as a powerful tool in campaigns to destigmatise mental illness. While not totally preventable, reduction of the rate of homicide in the country may be achievable via the reduction of controllable factors found to be linked to its aetiology, for example in the early detection, treatment and management of psychiatric disorders.

Mental health education to the psychiatrically well is one of the new tenets of a progressive society. Not only should we educate those who suffer from mental illness, but the general populace should also be educated to detect psychiatric abnormality early. In Singapore, mental health education programmes have gained more prominence in recent years and have taken the form of newspaper articles, magazine write-ups, public talks and forums, and television snippets. Somewhat wanting in Singapore though, is the lack of education on the deleterious effects of alcohol. As shown in this and other international studies, alcohol and substance abuse are associated with a large proportion of homicides. An intensification of existing health education on this might help to ameliorate the incidence of violent offences here and thus possibly reduce the homicide rate in the country.

This study looked at a five-year period and made attempts to compare it with a three-year period two decades prior. The numbers of accused who were found to be mentally ill were rather small, such that statistical analysis was difficult. Nonetheless, it was heartening to detect that rates of the two major illnesses of schizophrenia and depression and their association with homicide had not risen from then compared to the present. Given the gravity of the homicidal act, it is recommended that data on violent offenders be continually captured, preferably prospectively, with the employment of recognised diagnostic rating scales. This would allow for greater rapidity in spotting trends and risk factors, identifying those at potential for causing harm to others and perhaps even lowering the homicide rate in the Republic of Singapore.

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