

Lifetime prevalence of substance abuse and mental distress among homicide offenders in Jimma Prison, Ethiopia.

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ABSTRACT

The offence of homicide is ubiquitous. However, a diversity of factors precipitating the action may vary from culture to culture. Ethiopia is one of the oldest independent countries in Africa as well as one of the poorest. As a poverty stricken economy whose mainstay is Agriculture, the presence of famine, displacement, land disputes make the production and distribution of the stimulant herb, khat preponderant. The authors therefore consider it a feasible site for the evaluation of homicide in the developing world. This study examined the sociodemographic characteristics, prevalence of substance abuse and mental distress among incarcerated homicidal offenders. In a cross-sectional study among homicidal offenders, a face to face interview was conducted using a semi-structured questionnaire, Self Reporting Questionnaire (SRQ-20), and CAGE to obtain various socio-demographic, clinical, and forensic data at the Jimma Prison Ethiopia. The information was confirmed with the official prison, police, medical records and collateral reliable informants. In 546 consenting homicidal suspects and convicts interviewed, males (93.0%), a monthly income of less than \$70USD (89.4%), married (65.0%), and those with no formal education (56%) featured prominently. There was a high lifetime prevalence of substance abuse (64.1%) most notably khat in 44% of offenders. 35.9% were mentally distressed, defined as an SRQ score of ≥ 7 out of 20. In conclusion, low socioeconomic status, high prevalence of substance abuse, especially the culturally accepted stimulant khat, and mental disorders are relevant ingredients for the understanding of homicide in Ethiopia. We therefore recommend further study to allow for planning of forensic psychiatric services.

INTRODUCTION

Homicide occurs in all societies, but there is none in which members welcome the occurrence. The rate of homicide varies from country to country, and widely between social groups in any one country. In the United States of America (USA) the rate varies from 12 per million to 140 per million, depending on the social group involved and the area studied (1). Homicide was the 15th leading cause of death and the 4th leading preventable cause of death in the USA in 2000 (2,3). To this fact, homicide has been described as a significant public health problem in the USA (4). European rates are generally lower, with rates in England and Wales being 12 per million (5). Relatively little is known about rates of homicide in Africa and other countries of the developing world (6). Studies seem to focus on reported crime rates, global epidemiological estimates through the international organizations, mass killings from incidents of war and genocides and mentally disordered offenders (7).

The variation in rates serves as a springboard for different explanations, mechanisms and etiologies of homicide. These include the theoretical underpinnings (8,4), seasonal variation (9), means or weapons used (10,8), the role of mental illness (11,12) and the difference in the developing world (6,7). Cultural differences, attitudes and reporting techniques are some of the accepted explanations for differences in rates ((7,13). The knowledge obtained from these associations increases our understanding of a complex and disturbing event.

The role of mental illness in homicide has been expounded in various reviews and epidemiological studies (14,15,11,16,17). A serious crime such as murder may be the first evidence of a mental disorder. It has been suggested that murderers as a group are seriously abnormal from the psychiatric point of view (18). An individual suffering from persecutory delusions may commit serious crime against property and persons. The schizophrenic patient suffering from paranoid delusions and auditory hallucinations, may commit an apparently motiveless murder (19). Taylor's (20) figures for the prevalence of schizophrenia among a sample of life-sentence prisoners majority of whom had

committed murder, were much higher than the 1% baseline in the general population. Similarly, in an American study, 75% of murder-suicide offenders were depressed (21). The depressed individual with delusions of guilt, worthlessness and impending disaster, may commit murder (to save a loved one from experiencing the impending disaster) followed by suicide (22).

The role of substance use disorders in homicide events is universally recognized. Nevertheless, the role of alcohol in homicide is conflicting. Bienen (23) has observed that alcohol played a limited role in the homicide events, as only 2 out of the 205 offenders had been drinking prior to the crime, and only 5 victims had been drinking prior to the homicides. On the contrary, in Gilles (24) classic study of homicide in Scotland, 213 (58%) of the 367 males accused and 30% of the females were intoxicated with alcohol at the time of their offences. Gilles highlighted the significant contribution of alcohol to the homicide events. It has also been observed that aggression is most likely to occur when drinking of alcohol occurs during close interpersonal interactions, particularly in social and or competitive circumstances (25,26); and one report has shown that a significant proportion of murderers and their victims are under the influence of alcohol at the time of the crime (27).

Similarly, the increasing contribution of illicit drugs to homicide incidents has been highlighted by Gudjonson and Petursson (28), they observed that 20% of murderers had been treated for abusing illicit drugs. Most drugs used by drug dependent individuals of differing personality types, may result in aggression. For instance, amphetamine abuse is a recognized factor in the genesis of acute homicidal aggression (29). The relevance of khat in violence and mental disorder are well reported in epidemiological studies (30,31) and implicated in homicide (32,33). Mental disorders and substance abuse are well known risk factors in homicide, accordingly the risk of homicide increases in mentally abnormal offenders who abuse substances in addition (15, 11,16,34).

Ethiopia, where the current study was conducted has a long and turbulent history. It is one of the oldest civilizations and the oldest independent country in Africa. With its population around 74 million, prosperous urban cities especially the capital city, it is located in the horn of Africa. Its democratic government was formed in 1992 after toppling the Socialist regime of Mengistu Haile Mariam. The demobilization of soldiers of the prior regime, hastily done, resulted in the creation of a jobless set of armed men. Most people live in rural settings. Ethiopia shares borders with mainly unstable countries, Somalia, Eritrea and Sudan. Conflicts in Somalia and between Ethiopia and Eritrea have long halted development, created a more violent atmosphere and have been significantly associated with the trade in the psychostimulant herb, khat (*Catha edulis* Forsk) (35, 36).

This study therefore, with the objective of determining the sociodemographic variables, lifetime prevalence of substance abuse, and mental distress among homicide offenders in Jimma, Ethiopia, is part of a larger project to elicit the prevalence of mental disorder among prisoners.

METHOD

SITE OF STUDY

Jimma Prison, the site of the current study is under the Oromiya Regional Correcting Units Administrative Office. It started functioning after the expulsion of the occupying

Italian forces in 1943. The prison serves the following regions: Oromiya, Southern nations and nationalities, and Gambella region. Its relationship with the Jimma University Specialist Hospital is advantageous in facilitating research projects like the current study. The study is part of a larger cross-sectional study of homicide offenders conducted at Jimma Regional Prison, Jimma, Ethiopia. At the time of the study, the prison had a total of about 1492. Homicide offences are classified in the country's criminal code as culpable homicide and manslaughter. Sentences usually run from seven years to life imprisonment. There is no death penalty in Ethiopia (37). Those charged and/or convicted of these offences were the subjects of the study.

PROCEDURE

The study commenced after receiving approval from the Ethical Committee of Jimma University and the Prison authorities. Interviewers included two staff psychiatrists, two psychiatric residents and three undergraduate medical students trained in the use of the instruments. A prior training period included the standardization of interview skills and the establishment of an acceptable level of reliability. Psychiatric interviews were conducted by the staff psychiatrists. The other interviewers administered the semi structured instruments and cross validated information using various prison records, court reports, medical notes, and reliable informants. All consenting subjects were interviewed consecutively using semi-structured questionnaires to collect sociodemographic and forensic data.. The study was conducted from October 2003 to July 2004. The data collected was entered for analysis using the SPSS, version 11.0 for Windows.

INSTRUMENTS

SUBSTANCE USE QUESTIONNAIRE

The questionnaire on lifetime history of substance use was similar to that used in community survey in Ethiopia (38). The questionnaire sought to find out past history of drug use, duration of use, current use, and frequency of use. It also sought to find out the

time of day in which substance was used, reason for its use, how substance obtained, and age at first use.

THE SELF REPORTING QUESTIONNAIRE (SRQ-20)

The self reporting questionnaire (SRQ), was originally developed by World Health Organization (WHO) within the framework of a collaborative study on strategies for Extending Mental Health Care (39). Questions that were thought to represent a wide variety of cultural backgrounds were extracted from four previously used screening instruments to form the SRQ (40). The SRQ is not expected to diagnose mental disorders, but it was designed to indicate 'mental distress' and serve as a first stage screening instrument for a second-stage diagnostic instrument or clinical interview. The instrument has been validated and frequently used in both developed and low-income countries for studies in health-care settings and for conducting community surveys. The SRQ has previously been translated into Amharic and validated in Ethiopia (41) and used in community surveys (42,43). Various cut off points of 8/9 for clinic attendees and 4/5 for non-clinic attendees have been used to estimate prevalence(39). We used a cut off point of 7 out of 20 items based on previous Ethiopian studies(41, 42,43).

CAGE

CAGE is a 4-item screening questionnaire. It is an acronym derived from 4 questions:

1. Have you ever thought you should **cut** down on your drinking?
2. Have you ever been **annoyed** by other people's criticism of your drinking?
3. Have you ever felt **guilty** about your drinking?
4. Have you ever had an early morning drink (eye opener) to steady your nerves?

It has acceptable validity and reliability. The sensitivity of the instrument, for example, has been shown to be high when a cut-off of 2 or 3 items out of 4 is used (44,45,46,47). In this study a cut-off point of 2 was used.

RESULTS

Population/ Site

Jimma caters for a large political area from which prisoners come. The total number of prisoners at the time of the study was 1492. Two hundred of the 546 homicide offenders had been convicted.

Table 1: Age and sex distribution of homicidal offenders

AGE-GROUP	S E X		
	MALE	FEMALE	TOTAL

	No	%	No	%	No	%
10-20	75	14.8	10	26.3	85	15.6
20 – 29	164	32.3	9	23.7	173	31.7
30 – 39	110	21.7	7	18.4	117	21.5
40 – 49	61	12.0	2	5.3	63	11.5
50 – 59	28	5.5	3	7.9	31	5.7
≥ 60+	70	13.8	7	18.4	77	14.1
Total	508	100.0	38	100.0	546	100.0

The male to female ratio of homicidal offenders was 13:1. The difference in mean age for male offenders (35.49 ± 19.84) and female offenders (35.21 ± 19.12) was not statistically significant ($t=0.083$, $df=544$, $P= 0.934$). More than half of the males fell within the age groups of 20– 39 years while half of the female offenders were aged 10 – 29 years (Table 1).

Socioeconomic Variables

Most offenders (65%) were married at the time of the offence, while 31% were single, and 1.8% were either divorced or separated. Widows/widowers formed 2.2%. The majority of offenders either had no formal education or attended primary school, 56.2 and 34.3% respectively. Post secondary education was rare in the population of offenders (2.4%). The distribution of religious background in the offenders followed the proportional distribution of religious groups in the community, with Muslims constituting 65% of offenders. The employment status of offenders reflects the population occupational distribution with 71% of offenders in agricultural work. While military personnel and students accounted for 3.7% and 5.5% of offenders respectively, only 1.5% of offenders were unemployed. There was an inverse relationship between the monthly income and the percentage of offenders with about 90% of offenders earning below \$70USD a month. The proportion of offenders who earned between \$70 – \$100USD and those who earned more than \$100USD a month were 8.1% and 2.6% respectively.

Prevalence of substance abuse

Overall 350 (64.1%) offenders abused substances.

Table 2 Types of substances abused by offenders

Substance Abused	Frequency	% of Total
Alcohol	188	34.4
Khat	240	44.0
Cigarette	110	20.2
Cannabis	4	0.7
Benzodiazepines	7	1.3
Antihistamines	4	0.7
Petrol	27	5.0
Other substances	5	0.9
Total	546	100.0

Although use of combined substances of abuse was common with 44% of substance abusers, the most used substance was the herbal stimulant plant khat (*catha edulis* Forsk) in 44% of the offenders. Eighty percent of offenders were using substances up to the time of arrest and 10% claimed the offence was committed under the influence of substances..

Prevalence of mental distress

The prevalence rate of mental distress using a cut-off point of 7 out of 20 was 35.9%.

There was no difference in the mean SRQ scores between those who abused substances (8.77 ± 5.529) and those who did not (8.45 ± 17.35), $t=1.693$, $df=544$, $p=0.505$.

Table 3: Association of substance abuse and mental distress

Variable	Substance Abuse	%	No abuse	%	Total	%
Mental distress	128	36.6	68	34.7	196	35.9

No distress	222	63.4	128	65.3	350	64.1
Total	350	100.0	196	100.0	546	100.0

There was no significant difference between substance abuse and mental distress, $\chi^2=0.192$, $df=1$, $p=0.661$

DISCUSSION

Studying the distribution of relevant socioeconomic and psychological factors among homicidal offenders utilizing a face-to-face interview technique as in the current study offers a quality of improvement over homicide studies in the developing world. Some of the deficiencies of previous studies include a focus on psychiatric populations (7), psychosocial aspects (48) study of motives (49) and retrospective review (6). We are unaware of any large scale study among homicide offenders in the horn of Africa known for its instability and conflict. Recognizing the difference in history, level of conflict and varied socioeconomic factors in Ethiopia was relevant to the results of the study.

In this study, young males perpetrated homicides at rates similar to published figures in the developed world (11,50,51,52). The mean age of offenders is higher in comparison with other homicidal offenders (35 versus 33) (53,6). Since the mid 1980s, the rise of teens involved in homicide (54,50) and the gradual decrease of the mean age of homicidal adults has lowered the general mean age of homicidal offenders. This pattern is not clear from the current study. Males however committed proportionately more offenses than females in comparison with other studies (M:F = 13:1 versus 6-9:1) (50,52). The high mean age is affected by the skew introduced by a large proportion of over sixties accounting for 14.1% of the offender sample. These older adults were mostly demobilized soldiers from the toppled regime of early 1990s. Trauma of war, unemployment and access to firearms were suspected as being responsible for the homicide committed by them. Post Traumatic Stress Disorder has been described in offenders who committed serious violent or sexual like offences in war veterans resembling these older offenders (55,56).

The relatively higher male to female ratio observed may result from sociocultural factors of excessive demands placed on men to provide for their families in a difficult situation. There is rampant land dispute, requiring a nomadic existence and migration in search of fertile arable land among the predominantly rural dwellers. Equally, peasant farmers formed the majority of the offenders, and the low earning power reflects the poverty and economic deprivation in which the subjects lived. This condition may provide the communities with scant resources to achieve culturally valued goals and deprive them of quality and the expected comforts of life (57,58). Such an environment could confer increased homicide mortality risks (59,60, 61, 62).

The relationship between earning power and homicide offences was demonstrated in the population studied. The low-income earners committed most of the offences. Poverty and its consequences have been studied reliably as socioeconomic variables in violence and homicide (63,60). Though homicide is a male phenomenon as confirmed in this study, the spousal homicide rate was equal for both genders. Female homicides are significantly linked to infanticide (64,65). The presence of a major mental disorder and possible

personality disorder are likely explanations for the finding. The female offenders were overall ten years younger than the males. That age corresponds to the onset of mental disorder. This median age differentiation has been noted in other studies (50,51).

Studies have reported a higher proportion of non-married subjects and the homeless among homicide offenders (66,67). The difference from our result could be explained by sociocultural factors like the preservation of traditional values of marriage and the expectation that men and women of adult age are to remain married. The larger Muslim population in the region of Jimma with its polygamous practice adds to the large number of the married offenders. The same traditional values may have provided for even the most vulnerable in society. The low income earners, poorly educated and unskilled who would have been homeless otherwise depend on the collective good of others for sustenance.

The lifetime prevalence of substance abuse was high (64.1%) and higher than other similar studies (6, 48), but in consonance with Gottlieb's (69) report of homicide offenders in Copenhagen, where 64.8% of the offenders had significant pre-offence involvement with alcohol and drugs. This high prevalence would suggest marked psychosocial maladjustment in the subjects. Two of the most abused substances were alcohol and khat. The absence of hard drugs like cocaine and the presence of solvents, specifically petrol among substances abused are attributable to factors related to cultural acceptability, affordability, accessibility, and low income. Muslim subjects for instance endorse the use of khat. This cultural acceptability, especially its role in religious ceremony is consistent with previous studies in Ethiopia (38). Khat use and its consequences are now widely recognized in the western world (31,33). Khat has been linked to the risk of homicide especially in the mentally ill (68) and psychosis following khat abuse resulting to homicide has been documented (32). In this study, where 10% of offenders admitted to committing the offence under the influence of substances, the observed contribution of alcohol and drugs to the homicide offence differs from those of Asuni (49) and Bienen (23) who noted the absence of alcohol and drugs as factors in homicide events in Western Nigeria. Most of the substance abuse was found among

young adults in the age group 20-29, which supports the literature on substance abuse (52,7).

About a third (35.9%) of offenders were mentally distressed at the time of the study, which suggests probable psychiatric morbidity. This figure is higher than 11.7% reported for the general population in Ethiopia (70). The prevalence of psychiatric disorders is considerably higher in prisoners than the general population. For instance, Gunn et al (71) estimated that 33% of prisoners in an English prison were psychiatric cases using the General Health Questionnaire (GHQ). They observed that this rate was higher than the 20% estimated by Goldberg and Blackwell (72) regarding general practitioner consultations in an English community. They opined that the privations of imprisonment definitely increased the risk of psychiatric morbidity. In contrast, McKay et al (73) have suggested that psychological distress in most cases, had resulted from the deprivation of relationships with the outside world, rather than the privation of prison life. Additionally, one would expect increased rate of psychological distress in a population with high rate of substance abuse, though no significant association was found between lifetime history of substance abuse and mental distress. The abuse of substances couple with mental distress in these offenders would most likely have increased their risk of homicide (11,15,16,34).

In view of the fact that the risk of homicide increases in mentally abnormal offenders who abuse substances in addition, it is necessary to determine the percentage of offenders who committed the offence of homicide under the influence of alcohol and drugs and those who were mentally ill before they committed the index offence. This valuable study is the subject of our subsequent research geared towards developing the most efficient system of evaluating and treating offenders before and after incarceration.

Conclusion

Homicide and substance abuse were more prevalent among young male adults of low socioeconomic group. Low monthly income is associated with a higher homicide rate. In view of the high lifetime prevalence of substance abuse and mental distress among

offenders, the role of the culturally accepted stimulant herb of abuse, khat, and alcohol need to be explored and their association with homicide employed for societal perceptual change. We recommend further research to determine the type of psychiatric disorders and to differentiate between normal and abnormal homicides to allow for planning of forensic psychiatric services.

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