

Patterns of substance use in male incarcerated drug users in Sri Lanka

^{1,2}LAKAL. O. DISSABANDARA, ³SHAVINDRA R. DIAS, ⁴PETER R. DODD & ¹ALFREDA STADLIN^{1*}

¹*School of Medical Science, Griffith University, Australia, Departments of ²Anatomy and ³Psychiatry, University of Peradeniya, Sri Lanka; ⁴School of Molecular and Microbial Sciences, University of Queensland, Australia*

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Lakal. O. Dissabandara MBBS, MPhil, Lecturer, Department of Anatomy, University of Peradeniya, Kandy, Sri Lanka & PhD student, School of Medical Science, Griffith University, Southport, Australia, Shavindra R. Dias MBBS, MD, Lecturer, Dept of Psychiatry, University of Peradeniya, Kandy, Sri Lanka, Peter R. Dodd PhD, Reader, School of Molecular and Microbial Sciences, University of Queensland, Qld, Australia, Alfreda Stadlin PhD, Senior Lecturer, School of Medical Science, Griffith University, Southport, Qld, Australia. Correspondence to Alfreda Stadlin PhD, School of Medical Science, Building G05, Room 2.21, Griffith University Gold Coast Campus, Gold Coast Mail Centre, PMB50, Southport, Queensland 4222, Australia. Tel: 61-7-555-28215; Fax: 61-7-555-28908; Email: a.stadlin@griffith.edu.au

Abstract

Introduction and Aims. The number of illicit drug users incarcerated in Sri Lanka has been growing over the last decade. This paper presents drug-use characteristics and risk-taking behaviours among a group of male incarcerated drug users. **Design and Methods.** An interviewer-administered structured questionnaire was completed by 278 drug users in three prisons in Sri Lanka. **Results.** The majority (81.3%) of interviewees were aged 25–45 years. Most of them had received low levels of education, and experienced childhood delinquency and a deprived upbringing. Drug use was largely initiated during early adolescence, then continued to chronicity and to the development of drug dependence. There was a significant family history of substance abuse. There was a high incidence (25-35%) of family history of drug abuse. Heroin (98%) and cannabis (54%) were the main drugs of abuse in the past 30 days. Polydrug use was common (75% in the past 12 months). Tobacco and alcohol use were widespread. The prevalence of intravenous drug use was higher than officially reported (1% vs 15.8%). There was a high prevalence (53%) of risk-taking sexual behaviour. **Discussion and Conclusion.** The pattern of drug use was similar to those reported in nearby countries. However, the high prevalence of intravenous drug use and risk-taking sexual behaviour is a concern. There is an urgent need to develop effective treatment strategies and to prevent the spread of HIV and hepatitis in Sri Lanka.

Introduction

Drug addicts account for a significant proportion of prison admissions throughout the world [1-4]. Drug use is markedly more common among adult male prisoners than in the general population [5-7]. The prison drug-addict population tends to have fewer educational qualifications, more financial difficulties, poorer physical health, and more behavioural, psychological and psychiatric problems than non-drug-using prisoners [8, 9]. There is growing concern about the increased number of drug-dependent prisoners because of the need to provide special programs such as treatment and rehabilitation within the prison [10], and because of the spread of infections such as HIV and hepatitis due to needle sharing by intravenous drug users (IDU)s.

In Sri Lanka, drug-related crimes and prison admissions have steadily increased in recent years. In 1981 there were about 800 drug-related arrests, but this had grown to about 5,000 by 1996 [11], and to about 16,000 by 1999 [12]. The latest data in 2006 showed that there were 47,298 drug-related arrests. More than half of the arrestees were over 30 years of age and the male to female ratio was 28:1 [13].

Despite the high rate of drug-related arrests in this country, little data is available on drug-use patterns and associated risk factors among incarcerated drug users. Such information would help guide health-promotion and intervention/treatment strategies, and facilitate the monitoring of risk-factor trends over time. The prison environment provides an excellent opportunity for the development of drug treatment strategies, since currently there are no established programs in the country; at present, community drug users are hard to reach because of the stigma associated with drug use. This is the first study to establish demographic characteristics, patterns of drug use, and risk behaviour in a sample of male incarcerated drug users in Sri Lanka. It is hoped that such data will provide incentive for treatment strategies to be developed for the country.

Methods

The study was conducted in 3 male prison units in Kandy, Sri Lanka over a period of 6 months from September 2006 to March 2007. The subjects were recruited during the morning

assembly, when the study was explained to them. Only those who had been imprisoned for drug and drug-related offences and those who could read and understand Sinhalese were asked to participate by giving written consent. An interviewer-administered structured questionnaire was used to ascertain personal and family details, first-time drug use, the pattern of drug use, alcohol and tobacco use, sexual behaviour, and family history of substance use. Interviews were conducted in a private room within the prison by a trained interviewer with a medical or sociological background, after binding assurances of anonymity were given to the prisoners. Each interview lasted 60 to 90 minutes. All subjects were assessed for substance dependence using DSM-IV criteria.

Informed written consent was obtained prior to the interview. Ethical approval for the study was obtained from the Human Research Ethics Committee, Faculty of Medicine, University of Peradeniya, Sri Lanka.

The data were analysed using SPSS version 14. Means and standard deviations were calculated for continuous data, and categorical data are presented as percentage frequencies.

Results

Demographics

The final sample consisted of 278 inmates, after 16 incomplete interviews were excluded due to language comprehension problems. The age range of the participants was 19 to 61 years with an average of 34 ± 8.2 years. The majority (81.3%) were 25–45 years of age.

The majority of the prisoners interviewed were Sinhalese from the Western province, and their main religion Buddhism. There were similar numbers of married and unmarried inmates. Only 10% had completed secondary education; 26 % were manual labourers and 20% street vendors. Most lived in their own home or in their parents' home (Table 1).

Family history

The majority (91.6%) of parents of the drug users were married. The level of parental education was low: 162 (62.5%) of fathers and 172 (67.5%) of mothers had either no or only

primary education. A high prevalence of licit and illicit substance use was found among family members. The fathers of drug users frequently smoked and drank, and 25% of them used drugs. Smoking (68%), drinking (37%) and taking drugs (35%) were also common amongst siblings (Table 2).

Patterns of alcohol and tobacco use

The prevalence of lifetime and last-12-month use of alcohol were 95% and 84% respectively. The average age of initiation of alcohol use was 18.3 ± 3.8 years (Table 3). Arrack, a spirit made of coconut palm sap, was the commonest type of alcohol used (37.6%) while 25.3% and 19.3% drank beer and illicit liquor respectively. Of the last-12-month alcohol users, 54.5% used alcohol on a regular basis (weekly or more), with 16.8% reporting daily alcohol consumption. The average daily consumption during a typical day of alcohol drinking was 11.7 ± 11.4 units.

All the drug users were current smokers, and had begun using tobacco in adolescence or earlier. The age at first use of tobacco was 16.6 ± 3.4 years (Table 3) The most common modes of use were cigarettes (79.5%) and a local preparation (Beedi; 13.7%). The average number of cigarettes or Beedi smoked daily were 18 ± 10.1 while the average duration of regular tobacco use was 11.1 ± 6.9 years.

Patterns of drug use

Table 4 shows the types of drug used by the prisoners. All subjects interviewed, except for 10 primarily heroin users and 4 primarily cannabis users, fulfilled the DSM-IV criteria for substance dependence. The average age at first drug use was at 18.1 ± 4.9 years (Table 3). The average duration of drug use was 15 ± 7.1 years, equivalent to an average of 42.5 ± 14.2 % of their life. The average duration of heroin use was 13.1 ± 7 years.

The two most frequently used drugs were heroin and cannabis (Table 4). Cannabis was mainly used in the form of ganja cigars (joints). Other types of cannabis consumed were charesh and modaka. Only 27.9% of cannabis users were daily users. They consumed an average of 3.9 joints per day. All the lifetime heroin users had continued to use heroin during the last 12 months as well as the

last 30 days prior to imprisonment (Table 4). They were all daily users, with an average daily dose of 432 ± 377 mg (range 50–4,000 mg) per day. The majority of heroin users (53.8%) consumed heroin three times a day; 37% used heroin more than three times a day. Methadone, opium, tramadol, cough syrup and diazepam use was relatively common (Table 4). The prevalence of regular use of cocaine, and recreational drugs such as ecstasy, amphetamines and methamphetamines was low.

More than two-thirds of respondents had used cannabis as their “gateway” drug to heroin use, while less than one-third used heroin in this way (Table 5). The great majority of users were introduced to drugs by friends (Table 5). The predominant reason given for first taking drugs was to seek excitement (Table 5). Nearly half the participants became regular drug users right from the initiation of drug use (Table 5).

The prevalence of lifetime and last-twelve-month polydrug use were 78.6% ($n = 217$) and 75.4% ($n=210$) respectively. The most-preferred combination was heroin and cannabis (79.1%) followed by heroin, cannabis and valium (16%). 92.7% of the polydrug users mentioned “to increase the effect of drugs” as the reason for polydrug use, while the others used one drug to alleviate side-effects of another.

Smoking was the preferred method of cannabis use, while heroin users preferred to “chase the dragon” (inhaling smoke of heated heroin) regularly. Of the subjects interviewed, 15.8% reported having ever injected a drug. None of them used this method on a regular basis. Thirteen subjects reportedly self-injected while 15 had shared needles.

Criminal and anti-social activities

The main reason for imprisonment was possession of illicit drugs (87.9%), followed by burglary (8.1%), assault (2.6%) and sexual offences (1.1%). The average duration of imprisonment was 10.7 ± 4.5 months (range 2–33 months). Ninety-two subjects (33.4%) had been imprisoned more than once. Seventy-two inmates (26.7%) reported imprisonment for criminal offences other than drug use during their lifetime. One hundred and eight (38%) reported use of drugs inside the

prison. The most common drugs used while in prison were diazepam, chlorpheniramine, promethazine and cannabis. None were IDUs while in custody.

Of the 278 participants, 58.3% reported having had an unsatisfactory relationship with their parents during childhood. The prevalence of family conflicts, sexual abuse, and physical abuse during childhood were 11.2%, 6.8% and 22.4% respectively. The majority of participants (66.9%) reported frequent engagement in antisocial acts like assault, damaging property and stealing during childhood. The prevalence of antisocial behaviour during adulthood was 34.2%.

Sexual Behaviour

The lifetime prevalence of having sex with a commercial sex worker (CSW) was 67.3%. Of these subjects, 52.7% participated on a regular basis. Only 14.4 % reported regular condom use when having sex with a CSW. 11.2% had had previous treatment for sexually transmitted diseases.

Discussion

This paper is the first description of the nature of drug use among incarcerated male drug abusers in Sri Lanka.

The sample consisted mainly of young and middle-aged men, which is the main workforce in the country. (Previous studies have shown the involvement of the same age groups in drug-taking behaviour in other countries in the region [14]). Most of the drug users had initiated their drug habit during late adolescence. This is a critical transition period from adolescence to adulthood. It is a period in which risk-taking/novelty-seeking behaviour coincide with brain neurotransmission remodeling[15]. Early onset of illicit drug use is high during this period, and early drug exposure is correlated with drug dependence in adolescents [16, 17]. Truancy, early school failure, and resultant low educational achievement are well-recognized factors associated with substance abuse [18]. In this study approximately 60% of drug users reported adverse childhood experiences, including unsatisfactory relationships with parents, and physical and sexual abuse. The self-reported prevalence of childhood delinquency (67%) was noteworthy. Childhood sexual abuse [19-22] and conduct disorders [23-25] are reportedly associated with substance abuse. The low parental

education level may be another contributory factor, since 86% have up to some secondary education.

A positive correlation/association between illicit drug use and unemployment or low-income employment have been reported in previous studies [26-28]. We found that most drug users came from poor-employment backgrounds, such as labourers and street vendors. It was noteworthy that more than 10% of them were also drug dealers.

The main reason given for the initiation of drug use was “to seek excitement” followed by “curiosity”. Peer pressure was not recognized as a main factor, despite the fact that their peers were mainly responsible for introducing them to drugs. In an earlier study in Sri Lanka [29], peer pressure and curiosity were cited as major factors contributing to the initiation of cannabis use in a group of drug addicts. Similar trends have been identified in other countries [2, 30, 31]. Curiosity and excitement-seeking underlie the trait of novelty-seeking, which has been associated with drug use, as well as with childhood delinquency and poor parent/child relationships [32-34]. It would be of interest to investigate personality traits, especially novelty-seeking, in this population.

There is substantial evidence for a familial predisposition towards substance abuse [35-37]. Familial aggregation of substance abuse, together with smoking at a young age, is a strong predictor of heroin dependence [38]. A high prevalence of substance abuse was observed among fathers and siblings which is suggestive of possible familial predisposition.

Cannabis was the drug most commonly used by the addicts; its ready availability may reflect its large-scale illicit cultivation in Sri Lanka [39]. Along with personal, social and economic factors, the availability of a substance influences its use [40]. Cannabis is regarded as the gateway to heroin use, and a number of studies have confirmed that early and regular cannabis use increases the risk of initiation of the use of other illicit drugs [17, 41, 42]

Before the 1980s, cannabis and opium were the commonest drugs used in Sri Lanka. Heroin use began in 1980s with the expansion of the tourist industry [43]. According to the available data, cannabis is still the commonest illicit drug used in Sri Lanka [39].

Intravenous drug use is a major problem in the South Asia region, and is common among

prisoners [44-46]. A previous report estimated the prevalence of IDUs in Sri Lanka to be 1% of the total number of drug users [39]. Although the lifetime prevalence was higher in this sample, none of the interviewees were regular IDUs. The absence of regular IDUs among the prisoners is favourable as there is a threat in the spread of AIDS and other blood-borne infective diseases amongst IDUs.

Drug users commonly use different psychoactive substances concurrently, and polydrug use is becoming more frequent also in Sri Lanka. The tendency for poly drugs use was high life time, last 12 months and last 30 days. The concurrent use of benzodiazepines and heroin has been reported in previous studies [47-52]. The lifetime prevalence of benzodiazepine use by heroin addicts can be as high as 94% [53]. Benzodiazepines are believed to enhance the euphoric effect of opiates [53, 54]. The main reason given for polydrug use in the present group was also to “boost the high”. The high frequency of the use of prescribed drugs such as methadone, tramadol and diazepam in Sri Lanka may be due to its availability from pharmacies, even without a prescription. The Sri Lankan authorities need to regulate the dispensing of such medication to the general public. Polysubstance abuse complicates the understanding, assessment and treatment of addicts [55, 56]. Dangerous psychosocial and medical consequences have been reported to follow polysubstance abuse, including acute toxicity and death [57, 58].

The use of tobacco and alcohol in this population demonstrates the cross-addiction to these agents. In interviews most drug users stated that once they were addicted to heroin they no longer preferred alcohol, unless there was a party or a shortage of heroin. A similar trend has been reported elsewhere [59, 60].

There was an evolution of substance use and associated risky behaviour in this group, typically starting from tobacco smoking at a young age, progressing to alcohol, cannabis, heroin, and polydrug use, and sometimes to IDUs (Table 3). Abuse of licit substances such as tobacco and alcohol prior to the abuse of illicit drugs has been reported [42, 61, 62]. An early onset of substance use is predictive of substance abuse problems at later ages, including consistent use, polysubstance abuse, and dependence [63]. This fact was apparent in the present study, with a mean duration of 15 years of drug use which comprised about 45% of the subjects' lives.

High-risk sexual behaviour [64, 65] and criminality [66] are known negative complications of adolescent drug abuse, and were apparent in the present study. The lifetime prevalence of having sex with a CSW was rather high, and the regular use of condoms was low. The association between drug abuse and sexually transmitted disease is well documented [67-70]. The prevalence of sexually transmitted disease among incarcerated drug users, especially HIV, has been a major concern [3, 68, 71, 72]. The self-reported prevalence of sexually transmitted disease in this group was significant. Criminality is often associated with substance abuse [73-75]. Criminal behaviour may lead to the use of drugs [76], especially in order to finance drug purchases [77], or due to antisocial personality behaviour among drug users [78]. In this group most of the drug users were arrested for possession of the drugs, while a smaller percentage was arrested for theft and burglary.

The sampling of a prison population of drug addicts is a limitation of the study. Nevertheless, we present data on the history, current trends and factors associated with drug abuse in this population. A typical respondent started as a teenager with a family history of substance abuse and disrupted education, which began with tobacco smoking and alcohol consumption and progressed to illicit drugs, mainly heroin and cannabis. He was sexually promiscuous and harboured dissocial or antisocial traits.

Because many problems are associated with drug use, intervention programs should be multi-problem focussed if they are to achieve success. The importance of implementing preventive measures targeting high risk young adolescents is essential, for example: those with a positive family history of substance abuse, poor employment and education background and childhood abuse. Public education highlighting the sexually transmitted diseases associated with engaging CSW and IDUs is also essential to minimize the spread of HIV and other blood-borne viruses. As there are a growing number of drug users being imprisoned every year, it would be worthwhile to regard incarceration as an opportunity for treatment and rehabilitation.

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Table 1. *Socio-demographic data of drug users*

	*n= 278	(%)
Geographic Districts		
Western	223	80.2
Central	35	12.6
Northwestern	10	3.6
Southern	8	2.9
Other	2	0.7
Ethnicity		
Sinhalese	247	88.8
Tamil	11	4.0
Muslim	13	4.7
Burgher	3	1.1
Malay	4	1.4
Religion		
Buddhist	221	80.1
Hindu	10	3.6
Christian	31	11.2
Islam	13	4.7
Other	3	0.4
Civil status		
married	126	45.7
never married	139	50.4
separated	8	2.9
divorced	2	0.7
living together	1	0.3
Level of education		
Primary	78	29.4
Some secondary	150	56.6
Completed secondary	26	9.8
Vocational training	10	3.8
Degree	1	0.4
Occupation		
Street Vendor	55	19.8
Skilled labourer	8	2.9
Manual labourer	71	25.5
Drug dealer	31	11.2
Driver	20	7.2
Hotel/Tourist industry	16	5.8
Mason/Carpenter	17	6.1
Electrician/Mechanic	7	2.5
Defense Forces	9	3.2
Self employed	11	4.0
Other	6	2.2
No occupation	27	9.7
Type of housing		
Temporary house	5	1.8
Public house	12	4.3
Rental	21	7.6
Own/parent's house	237	85.6
Other	3	0.7

*Sample size may vary due to missing data.

Table 2. *Pattern of substance use amongst family members*

		Smoking	Alcohol	Drug
		%		
Father	Frequently used	77.3	59.1	25.1
	Rarely used	7.7	17.5	4.1
	Never used	15.0	13.4	70.8
Mother	Frequently used	5.4	4.8	4.4
	Rarely used	0.7	1.1	0
	Never used	93.9	94.1	95.6
Other siblings	Frequently used	68.0	37.4	34.9
	Rarely used	2.5	5.8	2.9
	Never used	29.5	56.8	62.2

Table 3: *Age of initiation of substance use*

	Mean (yrs)
Tobacco	16.6 ± 3.4
Alcohol	18.3 ± 3.8
Cannabis	18.1 ± 4.9
Heroin	20.8 ± 5.1
Polydrugs	21.1 ± 5.0
IV drugs	24.1 ± 4.1

Table 4. *Pattern of drug use*

	Life time use	Last 12 month use	Last 30 days use
	Frequency (%)		
Heroin	97.8	97.8	97.8
Cannabis	86.3	78.8	54.3
Methadone	33.5	26.3	19.4
Opium	29.5	26.3	22.7
Tramadol	28.1	23	7.9
Cough syrup	22.7	16.5	15.5
Diazepam	19.4	19	16.9
Methamphetamine	10.8	4	1.8
Amphetamine	9.4	6.1	2.9
Ecstasy	8.6	2.5	0
Cocaine	7.9	0	0

Table 5. *Pattern of first drug use*

	Frequency (%)
First drug used	
Cannabis	70.5
Heroin	29.5
Source of first drug	
Friend	83.1
Drug dealer	14.7
Family member	1.1
Other	1.1
Reason for first drug use	
To seek excitement and fun	59.7
Curiosity	18.3
Peer pressure	10.4
To be trendy	3.6
To avoid personal problems	3.6
To relieve boredom	0.7
To relax and relieve anxiety	0.4
Other	3.2
Time taken for regular drug use since initiation of drugs	
Right from the beginning	45.5
<1 month	14.1
1-6 month	15.5
6-12 month	11.6
>1 year	13.4

