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Monitoring the use of illicit drugs in four countries through the International Arrestee Drug Abuse Monitoring (I-ADAM) program

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Abstract

The International Arrestee Drug Abuse Monitoring (I-ADAM) program is a network of researchers from different countries following similar protocols for collecting urinalysis and self-reported data on drug use from detained arrestees. This article introduces the research community to this new program through basic descriptive findings. The focus of this article is not to analyze the differences found in drug use patterns in different nations. Rather, we demonstrate similarities and differences in findings in order to raise questions for future research, and to provide policy makers with information about the potential value and limitations of the I-ADAM system. Using I-ADAM data for 2000 from four countries (Australia, England, South Africa and the United States), we

examine the rates of detainees testing positive for drugs and arrestee self-reports of past 12-month illicit drug use. This is followed by a comparison of results from the four different countries in terms of drugs used and offenses committed. I-ADAM has great potential to be a platform for researchers to broaden their study of the relationship between drug use and crime and examine variations in illicit drug use and their associated risk factors that are not country, nor culturally, specific.

Key Words

arrestees • drug/crime relationship • drug use • international comparative research • urinalysis

Introduction

A common approach to cross-national research is the comparison of official records or statistics (i.e. data collected specifically for the purpose of informing domestic policy and practice) from a variety of different nations (United Nations, 1983; Archer and Gartner, 1984; Neapolitan, 1997). Such research also has used survey data collected in different nations primarily for operational rather than analytic purposes (van Dijk and Mayhew, 1993; Mayhew and van Dijk, 1997). Because the data used for many cross-national comparisons are originally collected for domestic purposes, they inevitably are culturally linked to national definitions and meanings of crime, making it difficult to compare findings across nations (Beirne and Messerschmidt, 2000; Canache et al., 2001). This article addresses the concern of cultural relativism through a presentation of findings of analyses conducted using comparable data collected about the problem of drugs and crime in four different nations. Instead of comparing official records or statistics or domestic survey data from each nation, for this purpose researchers from the four nations cooperatively designed a standard protocol for data collection and analysis that was adapted in each case to particular national circumstances and cultural definitions. Findings are presented, but the primary purpose of this article is to demonstrate the feasibility and utility of this approach for cross-national research.

Drug use has been recognized as a significant global problem affecting the health and safety of individuals and social institutions around the world (United Nations Office for Drug Control and Crime Prevention, 2000). Research has demonstrated that there is a relationship between drug using and crime (Fagan, 1990; White and Gorman, 2000; Goulden and Sondhi, 2001; Weatherburn et al., 2001), and that the nature of that relationship is complex (Fendrich et al., 1995; Spunt et al., 1995; Anglin and Perrochet, 1998; White and Gorman, 2000). In this article we look at research that has been conducted independently in four different countries on drug use patterns among persons arrested for criminal offending.

A number of conceptual models have been used to explain the links between drugs and crime: drug use causes crime; crime causes drug use; drug use and crime are caused by a common factor; and drug use and crime exist in a nexus of causal factors, neither one clearly causing the other (White and Gorman, 2000). Attempts to understand and explain this relationship have been complicated by the fact that different drugs have different psychoactive properties (Fagan, 1990). Consequently, nations that have different drug problems or problems with different drugs may experience different forms of criminal activity. Also, as markets for drugs undergo change, types of drugs available in communities and related problems will similarly change. It is for this reason that international monitoring systems focusing on those who engage in criminal activity are critical to assessing changes in local drug markets, and that inevitably will affect global transnational trafficking in illicit drugs.

While the relationship between drug use and criminal behavior has been independently observed in single nations, it is not clear whether that relationship varies in nature or extent across nations. For example, do countries differ in the extent to which different types of offending are associated with different types of drug use? The monitoring and quantifying of drugs and crime is critical to policy development in this area. There is relatively little work that has quantified how much crime is attributable to drug use. Clearly the size of the problem will dictate the level of resources that should be devoted to the problem. There is also a pressing need for the development of performance indicators for drug law enforcement, and drug arrests are a poor indicator of drug-related crime (see Chilvers, 1998; Makkai, 2001b).[1] Without appropriate indicators of when and how drug markets change, the capacity for both law enforcement and treatment providers to respond will be both limited and potentially 'too late' to effectively deal with an emerging problem (Makkai, 1999).

This article introduces the research community to this new data set (called I-ADAM) through basic descriptive findings. We explain why I-ADAM is valuable, both its strengths and weaknesses, and provide some examples of how it might be useful for policymakers. We compare findings of research conducted using similar but not precisely the same methods of data collection and analysis in four different countries[2]: Australia, England, South Africa and the United States. No attempt is made to *explain* differences or similarities, test theories or make predictions. Rather, we *describe* observed patterns of diversity and similarity, and an approach to cross-national data collection and analysis.

In all cases, data are derived through the International Arrestee Drug Abuse Monitoring (I-ADAM) program. I-ADAM is an informal network of researchers from different countries who adhere to a similar research protocol for regularly collecting drug using data from arrestees. Based on a program developed by the National Institute of Justice (NIJ) in the United States, I-ADAM is an international partnership of government-sponsored research organizations. All participating countries operate and manage

their own data collection effort through the use of local or national funds or both.

I-ADAM is one of a few international drug surveillance systems. The existing drug data systems found in a number of countries use very different measures of drug use, and these surveys were not designed for multinational comparisons (Taylor, 2002). Therefore, post-hoc comparisons, across countries with these independently designed systems are not advisable. I-ADAM was designed from its inception to be a standardized international surveillance system (similar instruments, sampling, training and other protocols) that could be adapted to the cultural and research needs of different nations. Also, by focusing on arrestees, I-ADAM is able to provide some measurement of the problem of serious drug use (such as chronic heroin use) not typically found in general population studies.[3] As designed, I-ADAM data can be used to help estimate the burden that drug use creates for a criminal justice system. In the United States, for example, it has been estimated that the arrestee population makes up a significant portion of the heavy chronic drug using population (Rhodes et al., 2002). This group of drug users come into frequent contact with the police and thereby creates a tremendous strain on the resources of the criminal justice system.

All four countries included in this analysis collected data during calendar year 2000 as members of the I-ADAM program network (for more detail, see Taylor, 2002). The specific I-ADAM protocol in each nation is to some extent derived from the US version of the program, which has evolved since the late 1980s from a research model for studying drug use among arrestees (Reardon, 1993). At the same time, each is adapted to local conditions and concerns. Similarities and differences in methods are discussed below.

Although each of the countries has developed their I-ADAM program to address specific local policy issues, there are a number of key policy issues that are consistent across countries. These include: the need for prevalence data on drugs and crime from a key sentinel group—people detained by police; the need for quality and timely data that will assist drug law enforcement agencies; the need to develop long-term monitoring systems that will provide trend data on this sentinel group; and the need to cross-validate self-reports on drug use with objective urinalysis data on drug use.

Methods

Design

To study and compare illicit drug use across countries we considered a number of data options. First, we considered examining the existing general population household surveys found in each of these four countries. However, these surveys are not all done annually (i.e. there is no recent common data for the same year), and use very different measures of drug

use. Furthermore, we were interested in examining heavy drug use and violence that are rare events and found in very small numbers in general population studies. When we considered other sources of data (e.g. hospital emergency room drug use data or drug treatment center data) we also faced comparability problems (e.g. different measures of drug use and different sampling schemes). As opposed to relying on these existing data systems, designed independently for national purposes, we embarked on developing a new international data collection system to be used in each of the participating countries.

Using the I-ADAM system, a series of cross-sectional studies were undertaken in different countries during 2000, the most recent year for which comparable data are available. Although data collection in each of the I-ADAM participating countries is not identical, collection was the same in a number of important ways. First, the study used similar data collection methods. Each I-ADAM site used similar eligibility criteria for selecting study participants. Each I-ADAM site collects data from adult male booked/processed *arrestees* detained long enough to be interviewed (but less than 48 hours to allow for accurate drug testing). The study participants were interviewed before they had seen a magistrate or judge, but they had access to legal counsel to query about the voluntary nature of the study. Next, each I-ADAM site conducted voluntary, anonymous and confidential interviewing using a similar core survey instrument, along with a urine test for illicit drug use. At each I-ADAM data collection site, the interviewers (who were not in law enforcement) received similar training through jointly developed training materials.

Sampling

Selection of sites[4]

While some countries do interview juveniles and women, for this article analysis is limited to adult (i.e. over 18 years of age) male respondents.[5] There are also some differences between I-ADAM countries in terms of how data are collected. First, data were collected in a different number of sites in each nation in 2000, ranging from three in South Africa to 28 in the USA (see Table 1). In most cases, sites were selected because they represented some of the largest urban centers of the respective countries (e.g. Johannesburg, London, New York and Sydney) or because the selected cities had high rates of drug use and crime. Also, the selected cities had to provide at least modest levels of cooperation at the local level.

Also, as noted in Table 1, the method of sample selection within sites varied across the four countries (see Taylor, 2002 for more details on the sampling plans used in each of the countries). For example, in England the sample included a census of all arrestees booked into the participating facilities during the data collection period, in the USA probability-based samples were drawn in each site to be representative of all detained

Table 1. Country characteristics (response year 2000)

Country	*Number of participating cities*	*Sample size at each country*	*Sampling method*
Australia	4	2121	Convenient sampling
England	8	1419	Census
South Africa	3	1932	Convenient sampling
United States	28	22,729	Probability-based sampling

arrestees from selected county-based catchment areas (e.g. New York county) and in the other two countries a more convenient sampling scheme was used (all arrestees detained during only selected six to 12-hour interviewing shifts of a given 24-hour period were sampled).

One of the most difficult parts of implementing the I-ADAM program has been creating an infrastructure to support the program. Much of the early work therefore revolved around building a sustainable system. Unfortunately, resources were not available to build complex probability-based sampling schemes (like the plans used in the US ADAM program). While the absence of probability-based sampling perhaps created some comparability problems across the countries, it was a necessary compromise to get data collection started. This situation will improve in subsequent years as each country gains more experience and is able to acquire more resources. It has been our experience that these types of methodology issues are difficult issues to get exactly right early in such a large effort. Policymakers need to be convinced that the basic idea is sound and can be implemented. Once a track record has been established it becomes easier to implement more sophisticated methods.

Generally, response rates in all I-ADAM countries have been high. Table 2 shows the overall percent of respondents in each country who agreed to be interviewed, and the percent of those interviewed who agreed to provide a urine specimen.

The composition of the samples from each of the different countries is covered in Table 3. Once again, since data are collected in a number of sites

Table 2. Average response rate across all sites for 2000

	Australia	*England*	*South Africa*	*United States*
Percent who agreed to interview[a]	78.4%	86.5%	95.5%	80.6%
Percent of those interviewed who agreed to provide a urine specimen	74.4%	95.6%	90.8%	87.5%

[a] This is the proportion of all eligible male arrestees approached for an interview who agreed to be interviewed in 2000

Table 3. Demographic composition of country samples (%)

	Australia	*England*	*South Africa*	*United States*
Employed (full or part time)	46.1	32.2	23.1	63.2
High school graduate	30.7	61.3[a]	22.7	68.9
Homeless (in the past 30 days)	7.0	2.8	1.2	6.2
Married or living as married/common-law	24.4	25.4	28.3	21.5
Age				
18–20 years old	18.8	24.0	20.4	14.5
21–25 years old	26.9	26.4	24.5	19.7
26–30 years old	22.3	19.7	20.5	15.9
31–35 years old	12.4	12.4	14.5	14.5
36+ years old	19.6	17.6	20.1	35.4
Top criminal charge against arrestee[b]				
Violent offense[c]	16.8	22.6	26.1	21
Drug-related offense[d]	9.1	12.3	11.6	27.4
Property offense[e]	32.3	47.6	31.7	16.9
Other offense[f]	41.8	17.3	30.6	34.7

[a] In this analysis, the NEW-ADAM equivalent of high school graduate is someone who left full-time education at the age of 16 or older

[b] In the NEW-ADAM program, arrestees were interviewed before being charged. Hence in the NEW-ADAM program, the percentages refer to the number of persons arrested on suspicion of committing a criminal offense. The figures exclude persons detained under warrants and persons answering bail

[c] Violent offenses are offenses against the person

[d] Drug-related offenses are offenses of drug supply, possession, production, importation, exportation and cultivation

[e] Property offenses are offenses involving theft of property

[f] Other offenses include offenses involving damage to property, alcohol offenses, public disorder offenses and miscellaneous offenses

in each nation, these figures may mask local differences, but they do provide a brief overview of the types of cases to be found in each of the country samples. First, all of the cases in this article are adult males (over the age of 18) collected in the year 2000. In South Africa, very few of the arrestees were employed (23%) or high school graduates (23%). In Australia, very few of the arrestees were high school graduates (31%) and less than half were currently employed. England also had very few arrestees who were employed (32%), but they had a higher proportion of high school graduates (61%). The United States sample had the highest proportion of high school graduates (69%) and employed arrestees (63%). All four countries had fairly small samples of arrestees who were homeless or married/living as married. The largest age group was between the ages of 21 to 25, except in the United States where 36 years of age or older was the largest group. Excluding the 'other offense' category, 'property' offenses were the most common charge group, except in the United States where 'drug-related' offenses were most common.

Table 4. Cut-off levels (nano grams per milliliter) used by I-ADAM countries[a]

Cannabis	*Opiates*	*Amphetamines*	*Cocaine*
50	300	1000	300

[a] In the NEW-ADAM program (England), the cut-off level for amphetamines is 500 and the level for cocaine is 150. In this article, these cut-off levels have been increased to 1000 for amphetamines and to 300 for cocaine to conform to the levels used in the other countries. For the analyses here the Australian cut-off for amphetamines has been increased to 1000 to enhance comparability across countries. This results in a smaller number testing positive (see Makkai, 2001a)

Instruments

All countries used the same core questions,[6] covering self-reported prevalence and frequency of recent and long-term drug use, arrest history, demographics, income sources and drug treatment history. Interviews lasted from 15 to 40 minutes, depending on the country and the number of questions asked. Each nation also asked some additional non-core questions. For example, Australia includes a drug market grid as well as running addendum surveys that ask about specific topics. These have included stolen property markets, weapons and heroin use.

In addition, each nation tests respondents for different drugs relative to local problems, but all collect urine results for marijuana, opiates, amphetamines and cocaine use. For urine testing, a determination about particular drug use is made on the basis of a locally determined cut-off level.

Procedures

Trained interviewers (none of who were employed in law enforcement) conducted face-to-face interviews and collected urine samples from detained arrestees within 48 hours of arrest. Similar eligibility criteria were used to define populations and select respondents in all cases.

Human subjects

Participation in the study was always voluntary, and confidential. Each I-ADAM site provides a private or semi-private interview environment, which is conducive to open, valid and reliable responses by participants. Each study participant was informed about the nature and purpose of the study and told that participation would not have a negative or positive impact on future legal proceedings.

Results

In the section that follows, we provide findings from each of the countries about patterns of drug use. Due to some comparability problems with these data, pointed to earlier (i.e. somewhat different sampling approaches which

Table 5. Percent testing positive (site with lowest rate, median and maximum) for adult males in 2000

	Australia			*England*			*South Africa*			*United States*		
	Low	*Md*	*High*	*Low*	*Md*	*High*	*Low*	*Md*	*High*	*Low*	*Md*	*High*
Marijuana	41	56	62	36	48	63	33	48	49	29	41	57
Cocaine	< 1	2	6	4	17	44	2	2	3	11	31	49
Opiates	14	33	44	13	33	57	1	2	2	2	7	27
Amphetamines	6	16	34	1	3	11	< 1	< 1	3	0	2	37

may have led to the appearance of methodology-driven differences between these groups when no differences in fact exist), we do not draw conclusions from these results. We present these results as illustrations of how to use I-ADAM data, in preparation for future more rigorous data collections. Despite these comparability issues, we thought the data were important enough to cautiously speculate on what these results could mean.

Each of the Tables 5–8 contain results for each nation's individual site with the lowest rate for a particular drug variable category, its highest rate and its middle or median rate. Tables 5 and 6 provide the urinalysis results for marijuana, cocaine (both crack and powder cocaine combined), opiates (the most common opiate found in all the countries is heroin) and amphetamines (which includes methamphetamines). Tables 7 and 8 provide the self-reported results for all the same drugs, except these tables have a category for heroin only, as opposed to having a category for the general class of opiates. Tables 6 and 8 provide an additional breakdown for the percentage of arrestees using drugs for those either charged with a violent offense or a property offense.

In all four countries, as seen in Table 5, marijuana was the most popular drug, with Australia having the highest urinalysis positive rate for marijuana (median 56%) and the United States having the lowest (median 41%). The highest rates for cocaine positives were found in the United States (median 31%) and Australia and South Africa had the lowest (median 2%). The highest rates for opiates positives were found in Australia and England (median 33%) and South Africa had the lowest (median 2%). The highest rates for amphetamine positives were found in Australia (median 16%) and South Africa had the lowest (median 0.5%). Across three of the four categories of drugs, in Table 5, Australia had the highest levels and South Africa had the lowest rates. In South Africa, the drug mandrax (a blend of methaqualone and antihistamine) is very popular (with about 20 percent of the arrestees testing positive for it) (see Parry et al., 2001 for more details), but that drug is not highlighted in this article.

Table 6 demonstrates that for all of the countries, except the United States, and for most of the drugs, property offenders have higher drug using rates than those charged with a violent offense. This relationship appears to be pronounced in Australia where for all the drug categories property

Table 6. Percent testing positive for adult males for violent and property offenses in 2000

	Australia			*England*			*South Africa*			*United States*		
	Low	*Md*	*High*	*Low*	*Md*	*High*	*Low*	*Md*	*High*	*Low*	*Md*	*High*
Marijuana												
Violent offenses	37	51	55	27	42	47	37	42	44	14	39	63
Property offenses	40	59	67	39	48	67	44	53	69	21	37	56
Cocaine												
Violent offenses	0	1	3	0	6	27	0	0	3	5	22	49
Property offenses	0	3	7	0	22	56	3	4	5	6	35	65
Opiates												
Violent offenses	15	21	29	3	10	17	2	3	4	< 1	4	15
Property offenses	21	46	62	19	52	80	< 1	2	4	0	2	35
Amphetamines												
Violent offenses	4	10	32	0	4	10	0	1	1	0	2	26
Property offenses	9	20	35	0	2	8	0	1	1	0	2	35

offenders are higher than violent offenders. In particular, opiate use is dramatically higher for property offenders in both Australia (median 46% to 21%) and England (median 52% to 10%). Also, property offenders (median 22%) used more than three times as much cocaine as violent offenders (median 6%) did in England and cocaine was the lone exception in the United States sample in which property offenders (median 35%) had higher use rates than violent offenders (median 22%).

Despite some of the validity issues of people lying about their drug use (see Lu et al., 2001), when we examined our measures of self-reported drug use we observed very high rates of drug use across all four countries (see Table 7). Also, similar patterns were observed despite the fact that we were examining a longer reference period of past year self-reported drug use, as opposed to the shorter three-day detection period provided by urinalysis. In all four countries (see Table 7), marijuana was the most popular drug, with England having the highest self-report rate for marijuana (median 70%) and South Africa having the lowest (median 28%). The highest rates for self-reported cocaine use were found *not* in the United States (median 25%) but in England (median 47%)[7] and South Africa had the lowest (median 4%). Heroin rates were highest in Australia (median 36%) and South Africa had the lowest (median 0.4%). Also, once again Australia had the

Table 7. Percent adult males self-reporting past year drug use in 2000

	Australia			*England*			*South Africa*			*United States*		
	Low	*Md*	*High*	*Low*	*Md*	*High*	*Low*	*Md*	*High*	*Low*	*Md*	*High*
Marijuana	53	66	76	64	70	76	16	28	40	34	53	61
Cocaine	11	19	22	26	47	58	3	4	4	17	25	47
Heroin	21	36	44	17	30	52	< 1	< 1	< 1	1	6	25
Amphetamines	21	37	58	6	22	31	< 1	< 1	< 1	0	5	37

Table 8. Percent adult males self-reporting past year drug use for violent and property offenses in 2000

	Australia			*England*			*South Africa*			*United States*		
	Low	*Md*	*High*	*Low*	*Md*	*High*	*Low*	*Md*	*High*	*Low*	*Md*	*High*
Marijuana												
Violent offenses	49	58	67	33	54	67	22	25	28	17	45	63
Property offenses	63	72	87	68	78	80	24	25	50	34	52	74
Cocaine												
Violent offenses	12	15	18	8	27	42	2	3	4	5	20	42
Property offenses	16	22	30	42	52	70	2	3	4	10	36	60
Heroin												
Violent offenses	20	24	31	6	13	19	0	0	1	0	2	13
Property offenses	44	54	66	27	51	71	0	0	1	0	11	35
Amphetamines												
Violent offenses	20	35	41	0	10	21	0	0	0	0	4	28
Property offenses	24	47	64	7	22	42	0	0	1	0	6	43

highest amphetamine rate (median 37%), with one Australian site having a past year amphetamine rate of 58 percent.

As seen earlier, property offenders in Table 8 appear to have higher self-reported drug use rates than violent offenders. This effect which was not present in Table 6 for the United States sample is evident in Table 8 for all four drug categories. However, Table 8 also shows that the rather small effect seen in Table 6 for South Africa has disappeared and there does not appear to be any difference between violent and property offenders.

Discussion

The purpose of this article was to introduce the research community to a new data set through a review of some basic descriptive findings that have emerged from the I-ADAM program. The focus of this article was not to analyze differences found in drug use patterns in different nations. Rather, it was to demonstrate similarities and differences in findings in order to raise questions for future research and to provide policymakers with information about the potential value of the I-ADAM system. What is interesting is that despite all the comparability problems of interpreting cross-national research (see Finckenauer, 2002) and the differences in research design among the I-ADAM countries, certain similar patterns emerge that are hard to ignore.

First, there is a considerable amount of drug use across all four countries in the arrestee population. About half of all the arrestees in all four countries test positive for recent three-day marijuana use. Although other sources of international data have suggested that there is a lot of drug use across the globe (e.g. see United Nations Office for Drug Control and Crime Prevention, 2000), I-ADAM is one of the few to specifically examine

the very problematic population of persons arrested by the police. The arrestee population should be of special concern to policymakers. Not only has criminal activity and drug use been linked (see White and Gorman, 2000 for a thorough review of this literature), but tracking the behavior of criminals that use drugs should also be of interest to public health officials. The prevalence of infectious diseases is very high among incarcerated persons (Hammett et al., 1999), a substantial proportion of newly diagnosed AIDS cases among adults in the United States are in jails (Dean-Gaitor and Fleming, 1999) and a sizeable proportion of cases of sexually transmitted disease and tuberculosis are found among incarcerated persons (Centers for Disease Control and Prevention, 1998, 2000). Arrestees engage in a number of risky behaviors beyond simply using drugs, and I-ADAM can be a window into that activity. In fact, a number of addendum surveys have been appended to normal I-ADAM data collection on an ad hoc basis to examine issues such as risky sexual practices, gun market activity, domestic violence and gangs.

Our next finding was that while marijuana use is found in all four countries there are differences in which the more serious drugs are consumed. Arrestees testing positive for cocaine are much more common in the United States than the other three countries. However, Australia and England are finding very high rates of opiate positives. In South Africa, aside from marijuana, mandrax is the most problematic drug consumed by arrestees (see Parry et al., 2001 for more details).[8] However, very little to no mandrax is found in Australia, England and the United States (see Taylor, 2002: 168). Finally, this article reveals that property offenders appear to have higher drug use rates than violent offenders. This finding held up fairly consistently for Australia and England across the urinalysis and self-reported measures. This same relationship was also clearly evident for the longer past year self-report measure for the US arrestees, but only for cocaine when examining the urinalysis results. Support for this relationship was found in South Africa, but only when examining the cocaine and marijuana urinalysis results.

This finding regarding differences in the prevalence of particular drugs across countries is potentially very important. Having knowledge about emerging patterns of drugs in other countries could be potentially very useful for policymakers in preparing for new epidemics. For example, policymakers could alert health officials to the need for more treatment availability if they had some advanced warning. Also, other countries may have developed treatment regimens for a new drug that could be shared. A rigorous and well-developed I-ADAM program (which is only slowly emerging) could provide policymakers from across countries with a system for providing reliable data on new emerging drugs.

Some researchers have speculated that the arrestee population is often on the forefront of experimentation with new drugs and can provide an early warning to future drug epidemics (see Hunt and Rhodes, 2001). For example, in the 1980s, the predecessor to the ADAM program (called the

DUF program) found high levels of crack cocaine use at a time when treatment programs were not detecting its use and were focusing on treatment for heroin abuse. In the 1990s, a similar trend or pattern for methamphetamine was detected in the US ADAM arrestee population.

While some data on emerging drugs can be obtained from the existing segmented and locally specific data collection programs, policymakers are not likely to have much confidence in those systems due to its unknown nature. It is our belief that internationally developed monitoring tools are more likely to instill confidence and be used. The transparent nature of the development of I-ADAM provides national policymakers with the potential to get input from researcher colleagues in their own country. These researchers will be in a good position to critically examine trends from these other countries due to the familiarity of the standardized methods of data collection. In a broader way the collegial development process for I-ADAM has created a close network of drug researchers across the globe interested in the drug–crime problem. This network could be potentially expanded and act as resource for policymakers to exchange ideas and approaches to the drug–crime problem.

While comparative or cross-national research has a long tradition in the social sciences (Ragin, 1994; Hantrais, 1996; Finckenauer, 2002), it has not been without its critics. As Finckenauer wrote, skeptics have questioned the value, contribution to knowledge and even the credibility of studies that are designed to analyze data from across national boundaries (2002: iii). Some of the issues that need to be resolved include the comparability of the country study methodology (e.g. measures, sampling and analysis), the problem of incorporating the micro conditions (i.e. cultural variations within countries) into the macro picture and political sensitivity issues. In fact, even researchers who conduct such studies agree that often cross-national comparisons suffer from problems including variation in management styles, uncertain and uneven levels of funding, incomparability of data and dissimilar understandings of central concepts (Hantrais, 1996: 3–4). Nonetheless, while cross-national data analysis may be problematic, studies that compare findings from different nations can be of value to researchers, policymakers and practitioners (Ragin, 1994; Finckenauer, 2002).

This article presented some basic information on drug use across four participating I-ADAM countries. However, more detailed multivariate analyses could be done using I-ADAM data (e.g. an attempt in this direction was made by Taylor and Bennett, 1999). This type of comparative research has great potential and would allow researchers to assess the relative impact of drug policies across countries, determine risk factors for heavy drug use that are not culturally specific and conduct more robust tests of theories about drug use and crime. For example, from a number of studies in the USA, we know that drugs and crime are related. What we have yet to learn is how they are related. This is a very difficult question to answer, but one that might be somewhat easier if researchers across countries were examining it and comparing results through a common

platform. One isolated statistical result among many national findings may not be seen as important, but if the same small finding emerged across nations it would get noticed. In this manner, findings across countries might reveal general patterns of human behavior that transcend national origin that might otherwise escape notice.

For I-ADAM to enter the policy arena much work still needs to be done to strengthen the I-ADAM system. Ideally, as done with residential household surveys, I-ADAM might collect representative samples of the entire arrestee population for each nation (this approach was successfully piloted in South Africa). Unfortunately, this is probably too cost prohibitive. However, a more modest goal might be for more of the I-ADAM sites to adopt rigorous sampling approaches (even if the samples only cover part of a city) to assure that the samples are representative of the populations from which they are drawn. Next, I-ADAM needs to improve its links to additional complimentary data sources of non-arrestees to enhance its coverage of heavy drug using populations who do not come to the attention of the police. Such a comparison sample would allow for some compelling testing of theories about the drug–crime relationship and assess risk factors for drug use. One of the most important things that the I-ADAM community needs to maintain is its practice of bringing substance abuse researchers and policymakers together from various countries. Such a dialogue encourages each country to learn from each other about the underlying nature of the world's drug problems and interventions, and in that way I-ADAM can continue to play a role in the area of drug policy development.

Notes

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1 Later in this article we demonstrate that across all four countries many persons arrested for non-drug crimes (e.g. property offenses) also have illicit drugs in their body around the time of the commission of these crimes. Therefore, if one were to rely on only cases where a person was arrested for drugs to measure the effectiveness of drug law enforcement quite a lot of drug activity would be missed.
2 Beyond the four nations discussed in this report some of the other countries that are currently participating in I-ADAM include: Barbados, Chile,

Malaysia, Nigeria, Scotland, Sweden, Thailand and Venezuela. However, none of these other nations had 2000 data that was ready for analysis.

3 There are some problems with relying on I-ADAM data to act as a comprehensive system for capturing the extent of serious drug use. First, only arrests compromise the data. It is likely that some type of serious drug users have little to no probability of being arrested and therefore any estimator relying exclusively on I-ADAM data would under-represent such a group. However, if I-ADAM data were linked to other sources of data (e.g. 'street' samples of the homeless/transient population or treatment center data) a more comprehensive measurement approach could potentially be achieved.

4 The four sites in Australia included: one in South Port (on the Gold Coast of Queensland), another in East Perth in Western Australia and two in Sydney (Bankstown and Parramatta). The 16 sites in England and Wales included: Sunderland; Norwich; Newport; Southampton; Wolverhampton; Bournemouth; Hammersmith; Bethnal Green; Middlesbrough; Leeds; Liverpool; Plymouth; Bolton; Nottingham; Colindale; and Brixton. The three sites in South Africa included: Cape Town; Durban; and Johannesburg. The 35 sites in the United States included: Albuquerque, NM; Anchorage, AK; Atlanta, GA; Birmingham, AL; Chicago, IL; Cleveland, OH; Dallas, TX; Denver, CO; Des Moines, IA; Detroit, MI; Ft Lauderdale, FL; Houston, TX; Indianapolis, IN; Laredo, TX; Las Vegas, NV; Los Angeles, CA; Manhattan, NY; Miami, FL; Minneapolis, MN; New Orleans, LA; Oklahoma City, OK; Omaha, NE; Philadelphia, PA; Phoenix, AZ; Portland, OR; Sacramento, CA; Salt Lake City, UT; San Antonio, TX; San Diego, CA; San Jose, CA; Seattle, WA; Spokane, WA; Honolulu, HI; Tucson, AZ; and Washington, DC.

5 Too few juveniles and adult female arrestees are collected in each of the four countries to permit reasonable statistical inferences.

6 Some examples of the common core questions include the following: Have you ever used any marijuana/hashish (or other local term)? How old were you the first time you tried marijuana/hashish (or other local term)? Did you use marijuana/hashish (or other local term) in the past 12 months?

7 This may simply reflect more honesty from the arrestees in England because the urinalysis findings on cocaine were much higher for the United States compared to England.

8 As pointed out by an anonymous reviewer of this article, there are other sources of drug data aside from I-ADAM that show that drug use patterns in Africa differ markedly from the other countries in this article (e.g. see United Nations Office for Drug Control and Crime Prevention, 2000).

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