Evidence-based approach to HIV/AIDS policy and research prioritization in the Islamic Republic of Iran

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أسلوب مُسْنَد بالبيِّنات لوضع أولويات للبحوث والسياسات حول الإيدز والعدوى بفيروس العَوَز المناعي البشري في جمهورية إيران الإسلامية

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الخلاصة: تمسُّ الحاجة إلى أسلوب مُسْنَد بالبيِّنات أثناء صياغة الخطة الاستراتيجية الوطنية الثانية للوقاية من الإيدز والعدوى بفيروس العَوَز المناعي البشري في جمهورية إيران الإسلامية. وتصف هذه الورقة مراجعة منهجية للبيِّنات المحلية حول محددات سراية الإيدز والعدوى بفيروس العَوَز المناعي البشري وذلك ضمن 3 فئات هي: معارف ضئيلة ومواقف سلبية عن سراية فيروس العوز المناعي البشري، وتعاطي المخدرات بالحقن، والتساهل في الممارسات الجنسية. ومن بين 93 تقريراً قام الباحثون بمراجعتها كان هناك 53 تقريراً تلبّي معايير الإدراج بالدراسة. وكانت هناك ندرة في المعلومات حول معدل انتشار ومدى التأثيرات للمحددات الثلاثة للخطر على الصعيد الوطني والإقليمي. وقد كان لعدم التجانس بين الدراسات حتى ضمن المجموعات السكانية الفرعية أهمية يُعْتَدُّ بها إحصائياً. واستنتج الباحثون أن الحاجة ماسّة لقاعدة محسنة للبحوث ولتبادل أفضل للمعلومات بين بلدان إقليم شرق المتوسط.

ABSTRACT In formulating the second national strategic plan for prevention of HIV/AIDS in the Islamic Republic of Iran a more evidence-based approach was needed. This paper reports on a systematic review of the local evidence about the determinants of HIV/AIDS transmission in 3 categories: poor knowledge and negative attitudes about HIV transmission; injection drug use; and sexual promiscuity. Of 93 reports reviewed, 53 met the inclusion criteria. Information about the prevalence and magnitude of effect for the 3 risk determinants at the national and regional level was scarce. Heterogeneity between studies, even in the same sub-population, was significant. An improved research base and better sharing of information are needed within countries of the Eastern Mediterranean Region.

Approche fondée sur des bases factuelles de la politique relative au VIH/sida et établissement des priorités de la recherche en République islamique d'Iran

RÉSUMÉ Lors de l'élaboration du second plan national stratégique pour la prévention du VIH/sida en République islamique d'Iran, une approche davantage fondée sur des données factuelles s'est avérée nécessaire. Cet article présente une étude systématique des données locales sur les déterminants de la transmission du VIH/sida dans trois domaines : méconnaissance et attitudes négatives vis-à-vis de la transmission du VIH, consommation de drogues par voie intraveineuse et promiscuité sexuelle. Sur 93 rapports étudiés, 53 d'entre eux satisfont les critères d'inclusion. Les informations relatives à la prévalence et à l'amplitude de l'effet des trois déterminants du risque aux niveaux national et régional étaient peu nombreuses. L'hétérogénéité des études, y compris dans la même sous-population, était importante. Une meilleure base de recherche et un meilleur partage des informations sont nécessaires dans les pays de la Région de la Méditerranée orientale.

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Introduction

The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates the number of people living with HIV in the Islamic Republic of Iran at 66 000. Thus, while HIV prevalence among women aged 15–49 years is well below the 1% threshold which defines a generalized epidemic, prevalence estimates of more than 5% among injection drug users (IDUs) mean that the country is facing a concentrated HIV epidemic [*1*].

The Iranian National AIDS Committee harmonizes the national response to HIV/AIDS through a strategic framework. The first national strategic plan (years 2002–06) was mainly based on consensus among policy-makers and academics and was not fully evidence-based. The plan was based on 11 main strategies, including education and information, IDU, harm reduction and prevention of mother-to-child transmission, the latter related more to case-finding and treatment. A good strategic plan for prevention of HIV/AIDS should cover all at-risk and high-risk populations and allocate resources based on current and projected priorities. These broadly-defined populations should be translated into specific groups in each society based on the local context. It was therefore decided during the mid-term review of the first strategic plan that a more evidence-based approach was needed in formulating the second strategic plan (years 2007–10). For any risk factor for a disease, knowing its factual prevalence, its counterfactual prevalence and the magnitude of its effect can help estimate the avoidable burden of that disease [*2*].

The current research was a systematic review of the evidence under 3 main search themes. At the time of this study in 2005 the debate about HIV in the Islamic Republic of Iran hinged on whether the epidemic was shifting from predominately IDU-based transmission to heterosexual transmission. We therefore chose to investigate the following risk factors for HIV transmission: poor knowledge and negative attitudes about transmission of HIV; IDU; and sexual promiscuity. At the time, there was no published review from the Islamic Republic of Iran about the prevalence and magnitude of effect of any of these factors. The available evidence would then be used to determine policy priorities for the second national strategic plan, while the gap between the evidence needed and that available would help to determine research priorities.

Methods

We used a systematic review approach to find the prevalence and magnitude of effect of each of the 3 risk determinants.

Systematic review

All domestic and foreign electronic and nonelectronic databases which were accessible and websites of key centres and institutes were searched. We consulted conference abstracts, theses, journals (Iranian and foreign), the references of articles and the "grey literature". Experts were questioned about the relevant literature too.

The following databases were searched: *IranMedex* (http://www.iranmedex.com, a private company databank of articles published in Iranian biomedical journals); *Irandoc* (http://www.irandoc.ac.ir, a database of postgraduate theses and dissertations); *Scientific Information Database* (http://www.sid.ir; a database of articles published in Iranian scientific research journals); *Cochrane Library*; *Medline*; and *Embase*. The following Iranian public institutions were consulted: Ministry of Health and Medical Education, State Welfare Organization, Ministry of Culture and Islamic Guidance, Centre for Disease Control and Prisons Organization. We also consulted Iranian nongovernmental organizations (NGOs), research centres and the media as well as international NGOs and UN agencies, including the World Health Organization.

The keywords used for electronic and manual searches were as follows: knowledge and attitude (health education, health knowledge, attitudes, practice, perception) towards high-risk behaviours including sexual behaviour (unsafe sex, homosexuality and heterosexuality, risk behaviour, prostitution, needle sharing, intravenous substance and drug abuse, sexually transmitted infections), in combination with the keywords HIV and AIDS.

The inclusion criteria for information were: no earlier than 1994; a defined population (in prevalence studies) and a well-defined exposure and outcome (in analytic studies).

For each risk factor measure we used a data extraction form with items including: study population, date and location of study, estimated measure and study quality indicators. The quality of the reports was assessed by considering the study population and design, examining biases and confounding factors.

Data from the forms were entered into 3 different evidence tables for the 3 search themes.

Data analysis

Based on the possibility of different subpopulations, we conducted sub-group analysis to reduce the heterogeneity within each sub-group. After excluding the remaining qualitative heterogeneity, quantitative heterogeneity graphical and statistical methods, i.e. forest and radial plots and chi-squared [*3*] statistical tests were utilized. All analyses were performed using *Stata SE*, version 8.0.

Results

The findings are reported and tabulated under the 3 search themes.

Poor knowledge and negative attitudes about HIV transmission

There were 35 reports about poor knowledge and negative attitudes to HIV; 26 of them met the inclusion criteria and were entered in the study (Table 1). The reports were divided into 6 groups based on the study population (health care workers, school and college students, runaway girls and female commercial sex workers, barbers and hairdressers, and general population); the summary measure was calculated separately for each group.

Although we aimed to estimate the summary for each subgroup, the variety of responses did not allow this. For example poor knowledge varied from 1.6% to 90% of the population. Hence, in all cases except one (in which chi-squared = 0.08) the chi-squared value for heterogeneity was significant in all cases. We also intended to use funnel plots for subgroups with a sufficient number of studies, but the large heterogeneity within each subgroup (due to differences in study quality, a possible time trend and inconsistent definitions of poor knowledge and attitude) made it impossible to differentiate between heterogeneity and possible publication bias, in fact any source of information bias. As there was no information regarding the magnitude of effect for this risk determinant on HIV transmission, it was impossible to estimate the avoidable burden of risk related to poor knowledge and negative attitudes.

Injection drug use

We identified 48 reports in the category of IDU, of which 18 met the inclusion criteria. The reports were divided into 2 groups: IDU in prison and other correctional facilities and IDU in the community, including drop-in centres and outpatient treatment facilities (Table 2). Many of the reports in this category could be classified as "grey literature", obtained from key resource people in the public sector and were mainly based on unpublished registry data.

As there was significant qualitative heterogeneity among reports, even within each stratum, we did not use meta-analysis methods. There was no report on effect size for IDU as a risk for HIV infection. However, analysis of the crude results of one study yielded an odds ratio of 3 for having HIV infection among IDUs compared with noninjection drug users [4].

Sexual promiscuity

Because of the cultural taboos surrounding extramarital sex in any form in the Islamic Republic of Iran, reports on sexual promiscuity and commercial sex work were scarce and mostly methodologically unacceptable. However, we included all the reports we identified as they provided the only available information (Table 3). It should be noted that the definitions of commercial sex work, promiscuous sexual behaviour and breach of Islamic law by women overlapped loosely in the reports. There was no report on men who have sex with men.

Due to the profound heterogeneity of the reports, we decided not to conduct any meta-analysis or use scenario-based estimations. There were 2 unofficial reports providing estimates of the number of commercial sex workers in the Islamic Republic of Iran, one estimating it as 60 000 and another as 50 000.

Discussion

A key finding of this study was the scarcity of information, at both the national and regional level, regarding the magnitude of effect for the 3 risk determinants studied. While it would be possible to utilize measures from studies in other countries, such estimates might not be applicable for policy-making in the Islamic Republic of Iran because of fundamental social, cultural and economic differences, as well as epidemiological differences [5]. Another finding was the considerable heterogeneity between studies, even in the same sub-population, which made it impossible to estimate the prevalence of risk determinants. The shortage of information needed to estimate the magnitudes of effects and prevalence made it impossible to make even an educated guess about the avoidable burden of any of the 3 risk determinants. The heterogeneity was statistically significant, as evident from significant chi-squared tests. Therefore, there appears to be a qualitative source for the heterogeneity, which cannot be explained by simple random variation in findings that could be treated by random-effects meta-analysis techniques.

The observed heterogeneity may also be attributed to other factors: the relatively long period covered by the study and possible time-related changes in the risk profile of the country; the considerable differences in the quality of studies; and inconsistency in the operational definition of risk determinants in different studies. There was also evidence of delays in the publication of many reports and papers. The results cannot therefore be compared even in similar target populations.

One of the limitations of this study was that we were not certain of having found all the existing evidence. Many of the reports cited in this study were initially produced only for internal circulation within an organization. In addition, evidence on sexual relations between men, which could be important, was non-existent. This can be explained by the very strong cultural taboos surrounding homosexuality in Muslim countries and the corresponding dearth of opportunities to investigate the issue.

The systematic review method helps identify information and evidence gaps that should be filled if planning and policy-making are to be truly evidence-based. In many developing countries, including ours, the infrastructure for generating and sharing evidence is

Table 1 Prevalence of poor knowledge and negative attitudes about transmission of HIV among different groups of people in the Islamic Republic of Iran

Study group/location [reference]	Year of study	Sample size	Poor knowledge %	Negative attitudes %	Statistics		
					χ^2 for heterogeneity	*P*-value	I^2-value %
Health care workers							
Kerman [*6*]	1994	105	34.3	–	160.2	< 0.001	98
Shiraz [*7*]	1997	47	74.4	–			
Yazd [*8*]	1997	168	4.2	–			
Karaj [*9*]	2002	217	3.7	0.5			
High-school and college students							
Hamadan [*10*]	1996	1272	32.2	–	4501	< 0.001	66
Yazd [*11*]	1999	1850	58.2	14.4			
Tehran [*12*]	2000	646	46.1	–			
Babol [*13*]	2000	81	20.3	48.1			
Babol [*13*]	2000	69	48.1	56.5			
Astara[a]	2002	163	11.3	–			
Tehran [*14*]	2002	4641	22.3	–			
Tehran[b]	2004	424	0.0	31.0			
Shiraz[c]	2004	288	9.4	–			
Prisoners							
Zanjan [*15*]	1998	284	54.7	–	10 457	< 0.001	94
Dezful[d]	2002	205	15.1	–			
Countrywide[e]	2003	2251	28.5	21.5			
Runaway girls and female commercial sex workers							
Kermanshah[a]	2002	50	33.3	–	5.05	0.08	94
Tehran [*16*]	2003	110	38.9	59.3			
Shiraz [*17*]	2004	106	25.0	–			
Barbers and hairdressers							
Gorgan [*18*]	2000	150	56.2	43.4	144	< 0.001	92
Boroujerd [*19*]	2003	200	13.0	–			
Sari [*20*]	2003	199	5.5	–			
General population							
West Azerbaijan[f]	1996	504	44.0	–	12 000	< 0.001	73
Sanandaj [*21*]	1998	852	33.7	–			
Kermanshah [*22*]	2000	2300	90.0	–			
Tehran [*23*]	2001	400	1.6	22.3			
Astara[a]	2002	100	24.2	–			
Saravan[a]	2002	100	32.9	–			
Eslamshahr[a]	2002	140	12.7	–			
Tehran [*24*]	2003	1172	13.7	–			
Shiraz [*25*]	2004	1200	11.2	–			

[a] *Malakafzali H. A multidisciplinary prevention/management program for HIV/AIDS in high risk areas of Iran, unpublished report, 2002.*
[b] *Aria P et al. Knowledge, attitude, and practice of youngsters about AIDS in 17th municipality district of Tehran, unpublished report 2004.*
[c] *Mirahmadizadeh A, Hemati A. Effect of health education on knowledge, attitude, and practice in Shiraz population, unpublished report, 2004.*
[d] *Kazemi M et al. Knowledge of Dezful Fajr addict prisoners toward AIDS, unpublished report, 2002.*
[e] *Moradi Lakeh M, Afshar P. Knowledge, attitude, and practical skills of prisoners about health priorities in prisons, unpublished report, 2003.*
[f] *Shariatzadeh M et al. Knowledge attitude and skills towards AIDS in West Azerbaijan, unpublished report, 1996.*

Table 2 Prevalence of injection drug use (IDU) among different groups of people inside and outside prisons, and prevalence of HIV among drug users in the Islamic Republic of Iran

Study group/location [reference]	Year of study	Sample size	IDU	HIV-positive	
				Non-IDU	IDU
		No.	%	%	%
Inside prison					
Shiraz, rehabilitation camp[a]	1999	1061	44.0	0.76	1.2
Countrywide, rehabilitation camps[b]	2000	–	–	1.14	–
Countrywide, drug-related prisoners [*26*]	2000	–	–	3.3	–
Countrywide, prisons [*26*]	2002	2799	23.1	–	4.0
Tehran, prison[c]	2003	370	50.0	–	24.0
Countrywide, prisons[d]	2003	2251	9.8	–	–
Countrywide, prisons [*27*]	2003	2437	–	–	4.0
Outside prison					
Countrywide [*28*]	1998	1500	21.2	–	–
Tehran [*29*]	2000	–	> 5.0	–	–
Tehran [*30*]	2001	65	35.7	–	–
Tehran [*4*]	2002	200	14.0	5.0	15.0
Countrywide [*31*][e]	2002	–	24.0	–	–
Kermanshah[f]	2001	384	–	–	16.1
Countrywide [*32*][e]	2003	–	4000–9000 females (No.)	–	–
Countrywide[g]	2003	–	242 000 (No.)		
Kermanshah, triangular clinic[h,i]	2002	697	31.0	25.0 (among all drug users)	

[a] *Prisons Organization, unpublished report.*
[b] *Bolhari J. Drug abuse in prisons in Iran, unpublished report, 2002.*
[c] *Farhoudi B, Afshar P. HIV–TB co-infection and risk factors in injection drug users in a prison in Iran, unpublished report, 2003.*
[d] *Moradi Lakeh M, Afshar P. Knowledge, attitude, and practical skills of prisoners about health priorities in prisons, unpublished report, 2003.*
[e] *This reference is a review not primary research.*
[f] *Alaie K. Sociodemographic factors in HIV/AIDS drug dependents in Iran, unpublished report, 2001.*
[g] *Vazirian M. A review of demand reduction programs in Iran: recommendations for strategic development plans, unpublished report, 2003.*
[h] *Kermanshah provincial health centre, personal communication.*
[i] *Triangular clinics are facilities providing services dealing with injection drug use, sexually transmitted infections and HIV.*

poorly developed and the studies that are conducted do not follow standard research guidelines or protocols. In line with global recommendations for utilizing knowledge in health decisions [*33*,*34*], the Islamic Republic of Iran has also taken steps toward reducing the gap between knowledge and practice by development of educational capacity-building programmes in the field of systematic reviews, practice guidelines and knowledge translation [*35*].

However, the great heterogeneity of the studies identified in our systematic search means that they could not

Table 3 Prevalence of HIV among people with high-risk sexual practices in the Islamic Republic of Iran

Location	Study group	Year of study	HIV-positive (%)
Kermanshah[a]	Women in prison for misdemeanours against Islamic laws	2001–03	2.4
Kermanshah[b]	HIV test volunteers who had unsafe sex	2001–02	13.0
Kemransha[c]	CSW	–	3.0
Kohkilouye[c]	Homeless CSW	–	11.0
Charmahal[c]	Homeless CSW	2000	14.0
Countrywide[b]	STI clinic patients (male and female)	–	0.02
Unnamed district[b]	HIV test volunteers with no IDU history	–	9.0

[a] *Kermanshah provincial health centre, personal communication.*
[b] *Ministry of Health, personal communication.*
[c] *Prisons Organization, personal communication.*
CSW = commercial sex workers; STI = sexually transmitted infections; IDU = injection drug use.

be used as evidence to guide policy and planning. Accordingly, we recommend that the relevant government bodies take steps to establish the necessary infrastructure for improving the research base in HIV/AIDS.

We also recommend the development of a virtual network of all the producers and users of HIV/AIDS-related information at country level as well as a strengthening of existing regional links to facilitate the sharing of knowledge between countries of the Eastern Mediterranean Region in order to plug the gaps in the evidence. Monitoring and evaluation of current interventions on HIV/AIDS prevention deserve more attention.

Finally, information about risk behaviours for HIV transmission as well as HIV incidence and prevalence trends in different populations within the Islamic Republic of Iran needs to be analysed alongside routine reporting data within a comprehensive, unified system under the leadership and support of the National AIDS Committee.

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HIV prevention and care among injecting drug users in the Islamic Republic of Iran: a review of best practice

This document reviews the implementation of harm reduction programmes, care and support services for people living with HIV/AIDS, and the attempts to reach and deliver services to hidden populations of injecting drug users in the Islamic Republic of Iran. It is intended for programme managers and policy-makers in all countries in order to share the Iranian experience as a model for a comprehensive approach to introducing and scaling up harm reduction. In addition to identifying harm reduction programme elements and their implementation, the document can also be a useful resource for advocacy.

A number of recommendations are also provided in order to enhance the Iranian response to HIV among injecting drug users. These recommendations can be used by policy-makers and programme managers in the Islamic Republic of Iran to improve and accelerate the positive impact of the services. They may also serve as useful programmatic tips for programme developers currently setting up harm reduction services in other countries of the Region.

The full text of this document is freely available at: http://www.emro.who.int/asd/pdf/hiv_review_iran.pdf