



Review

HIV prevalence amongst injecting drug users in Iran: A systematic review of studies conducted during the decade 1998–2007

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ABSTRACT

Background and objectives: Iran is a country with low HIV prevalence in the general population and concentrated prevalence amongst injecting drug users (IDUs). Various studies have been carried out on HIV prevalence amongst IDUs in Iran and diverse results have been reported. This systematic review intended to find and collect all relevant studies, assess the quality of data and provide estimations on the national prevalence over time.

Methods: A broad search strategy was used, including searching international and local databases, research reports, and extensive personal contacts. All studies of IDUs conducted between 1998 and 2007 including clear description of method and HIV testing and confirmative western blot test were entered and qualitatively assessed. HIV prevalence rates were pooled for gender and stratified into several categories. **Results:** Twenty-two studies involving 3916 IDUs were included. Half of the studies had been conducted in Tehran. Ten studies were conducted in prisons, seven in treatment centres and five in the Drop-in-centres or communities. After 2005 the pooled HIV prevalence was 18.4% [95% Confidence Interval (CI) 16.7–20.2] significantly higher than the prevalence rate before 2005 [8.7% (95% CI 7.5–10)].

Conclusion: HIV prevalence amongst IDUs has increased over time and has the potential to increase exponentially. Scaling up harm reduction measures, increasing their availability and coverage, and improving the quality of services is highly recommended in order to prevent a future catastrophic epidemic.

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Introduction

Iran has faced a serious drug use problem for decades. However, it has encountered a more rapid change in the pattern of drug use in recent years and an increase in injecting drug use (Rahimi-Movaghar & Vameghi, 2011). There is evidence showing that Iran has the highest rate of use of opioids in the world (United Nation Office on Drugs and Crime, 2010). According to the only national survey of drug use, at least 1.2 million people are dependent on illicit drugs, mainly opioids (Yasami et al., 2002). A study conducted on drug users in 2007 has estimated that more than 22 per cent had injected drugs in the previous year (Narenjiha et al., 2009). Therefore, it is estimated that there are more than 260,000 injecting drug users (IDUs) in the country.

Iran is a country with low HIV prevalence in the general population and concentrated prevalence amongst injecting drug users

(IDUs). The first case of HIV transmission through injecting drug use was identified in 1989, and until 1995 there were only around 5–10 new such cases identified annually. The first outbreak of the epidemic amongst IDUs was reported in 1996 (Ministry of Health, 2010). So far, injection drug use has been reported in around 70% of the accumulated HIV/AIDS cases (Ministry of Health, 2011). Sharing injection equipment is common amongst IDUs (Razaghi, Rahimi-Movaghar, Amin-Esmaeili, Sahimi Izadian, & Baghestani, 2008; Zamani et al., 2006) and unsafe sex is not rare (Rahimi-Movaghar, Razaghi, Amin-Esmaeili, & Sahimi-Izadian, 2009; Zamani et al., 2005).

Various studies have examined HIV prevalence amongst IDUs in Iran and findings have been diverse. Typically, the results of the most up-to-date study have been accepted as the current HIV prevalence rate, irrespective of the context such as the site or location of the study. We have conducted this systematic review to overcome such limitations and to make an estimation based on all available studies.

Systematic reviews provide the opportunity to highlight the existing information and gaps in the scientific fields as well as qualitative weaknesses of previous research. There have been systematic reviews of HIV prevalence amongst IDUs from China and (Bao &

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Liu, 2009), Brazil (Malta et al., 2010) as well as a global systematic review (Mathers et al., 2008). However, this is the first systematic review of HIV prevalence amongst IDUs in Iran. Our aim was to collect all relevant studies on IDUs and provide estimations on the national HIV prevalence rate and how that has changed over time. We also wanted to assess the quality of the studies and provide recommendations about how to improve future planning for research on IDUs.

Methods

Search strategy

Our search strategy was compatible with guidelines presented by Khan, Kunz, Kleijnen, and Antes (2003). Comprehensive searches of peer-reviewed literature were conducted via databases including Medline through PubMed, ISI Web of Science, Asian Science Citation Index (ASCI), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Index Medicus of Eastern Mediterranean Region (IMEMR).

Iranian scientific databases were also searched. These included IranMedex, Iranian databank for HIV research, Iranian databank of hepatitis research/conference, the databank for research in mental health in Iran (IranPsych), scientific information databank (SID) and the databank of Iranian research institute for information science and technology (IRANDOC). All Iranian conference proceedings related to HIV/AIDS were also hand searched.

The MeSH terms and text words (and their combinations and truncated synonyms) were adapted as appropriate to search each database by combining the following three sets of terms: (1) English transcription of Iran and its cities with universities of medical sciences and their names, adopted from Farhoudian et al. (2007); (2) terms related to drug use, drug use disorders and the names of illegal drugs used in Iran, as well as terms related to incarceration; and (3) terms related to HIV/AIDS.

Iranian databanks were searched with terms related to HIV/AIDS. The Persian keywords were equivalent to their English words and all probable combinations were considered. Moreover, two of the authors reviewed the reference lists of all retrieved articles and made extensive contacts to find additional studies. We did not have any language or publication status limitations. Authors were contacted in order to access the missing data.

Inclusion criteria

The titles and abstracts of citations obtained through the search strategy were screened and the full texts of potentially eligible studies were obtained. All potentially relevant studies were assessed independently by two reviewers (MAE, ARM) and discrepancies between reviewers were resolved by consensus. Studies were eligible if they fulfilled the following criteria:

1. Cross-sectional, cohort and case-control studies, if the studied sample was representative of a group of injecting drug users.
2. HIV testing was performed and all positive cases were confirmed by Western immunoblot assay (WB).
3. The time of study implementation was in the 10-year period, between 1998 and 2007.

Exclusion criteria

Studies were excluded if they were not primary studies. We also excluded studies conducted on high-risk IDU, such as those conducted in infection wards of hospitals, referral clinical centres for HIV positive patients and tuberculosis patients. Studies were also

excluded where key information such as sample size and HIV test results were missing, and where we could not obtain these data by contacting the authors. In cases where several papers reported the results of the same study, the paper with the most detail was selected. The excluded studies are described in Table 1.

Quality assessment and data extraction

To assess the quality of included studies, a simple checklist was generated:

1. Sources and methods of sampling defined clearly
2. Refusal rate provided, refusal rate < 30% or refused cases described
3. Gender specific data provided
4. Injecting or non-injecting drug users' specific data provided
5. Definition of injecting drug use (lifetime/current) provided
6. Year of study implementation reported

Two investigators assessed the quality and extracted the data independently and reconciled differences by consensus. The deficiencies in the quality of studies are presented in Table 2, by displaying the numerals of unfulfilled criterion for each study. However, some missing information was collected by contacting the authors and this is presented in Tables 2 and 3.

The following data were extracted: bibliometric characteristics, year of study implementation, recruitment setting (prison, treatment centres, DICs, etc.), study location (province), method of HIV testing, type of injecting drug use (lifetime/current), sampling method, sample size, refusal rate, age characteristics of participants, HIV test results, gender and gender-specific data.

Statistical analysis

According to the different epidemiologic profiles of male and female IDUs, the HIV prevalence rates were extracted, presented and calculated separately for each gender. In addition, the HIV prevalence rates were pooled for the total sample and stratified by province, recruitment setting, type of injecting drug use and year of study implementation. The confidence interval (95% CI) of the HIV prevalence rate for each study and each stratum was calculated using the binomial distribution model. The findings have also been displayed in forest plots. The analyses were performed using STATA software, version 8 (STATA corporation, college station, TX, USA, 2003).

Results

Overall, 86 studies (40 English and 46 Persian) were potentially relevant. According to the inclusion/exclusion criteria, 31 studies (11 English and 20 Persian) were removed. This left 55 (29 English and 26 Persian) studies for more detailed evaluation. They included 31 peer-reviewed journal article, 20 congress abstracts, two final research reports and two theses. Nineteen studies were excluded because of being duplicates or a subset of a published or unpublished study by the same authors. After extensive personal communication, another 18 studies (9 English and 9 Persian) were excluded, because they did not provide the relevant data (Table 1).

Finally, 18 documents (12 English and 6 Persian) were included in this review. One document (Rahbar, Rooholamini, & Khoshnood, 2004) had reported two separate studies in one paper and two studies (Rahimi-Movaghar, Razaghi, Sahimi-Izadian, & Amin-Esmaeili, 2010; Zamani et al., 2006) were conducted in more than one setting. As the sampling methods were different for each setting, we presented them as separate studies. Overall, the total number of studies included was 22, which provided HIV infection rates

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