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Double counting of clients using services in Iran: implications for assessing the reach of harm reduction programs

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Abstract

Background: Many people with high-risk sexual or injection behaviors use harm reduction services with different identities and therefore counted more than once in client databases. This practice results in inaccurate statistics on the number of clients served and therefore the effective reach of these services. This study aimed to determine the levels of double counting of clients of harm reduction services, including needle and syringe programs, condom distribution, HIV testing and counseling, and methadone maintenance in five cities in Iran.

Methods: Between September and March 2020, our study included 1,630 clients, 115 staff of harm reduction centers, and 30 experts in the field of harm reduction in five cities in Iran. Clients of harm reduction services were asked about using harm reduction services multiple times at the same center or at different centers in the last year under different identities. Estimates of double counting derived from client responses were validated by panels of center staff and experts in harm reduction.

Results: Synthesizing data from clients, staff, and experts, the final estimates of double counting of clients using harm reduction services were: HIV testing 10% (95% confidence interval [CI] 0-15), needle and syringe programs 17% (95% CI 8.5-20), condom distribution programs 13% (95% CI 3-19), HIV/STI counseling 10% (95% CI 0-16), and methadone maintenance 7% (95% CI 2-10).

Conclusion: Double counting of clients in harm reduction services in Iran is considerable. Data on clients reach by harm reduction services need to be corrected for double counting to improve program planning, client population size estimation, and efficient resource allocation.

Background

Harm reduction programs refer to services to help reduce health risks when eliminating them may not be possible, for example the risk for HIV infection through sexual exposure or sharing injection equipement (1, 2). In the context of HIV prevention and injecting drug use, international health agencies, including the World Health Organization (WHO), the Joint United Nations Programme on HIV/AIDS (UNAIDS), and United Nations Office on Drugs and Crime (UNODC), recommend harm reduction programs as best practices for the prevention of HIV among people who inject drugs (PWID) (3). These best practice harm reduction programs for PWID include needle and syringe programs, opioid agonist therapy (OAT), HIV testing and counseling (HTC), condom promtion programs, targeted information, education and communication (IEC) (3). These interventions are included in the comprehensive package because of the scientific evidence available supporting their efficacy in preventing the spread of HIV and mitigating other harms associated with drug use (3, 4).

Iran made harm reduction programs available as an official policy in 2005. Iran developed the most robust harm reduction infrastructure in the Middle East, marked by the availability of low threshold methadone maintenance treatment (MMT), needle and syringe programs, condom distribution services, and training sessions to prevent HIV and other blood-transmitted diseases (5, 6). Harm reduction services

in Iran are mainly provided by mobile teams, drop-in centers (DIC), voluntary counseling centers (VCT), night shelters, and addiction treatment centers (7). In Iran's harm reduction system, along with harm reduction services, a wide range of medicalized services like addiction medication is provided. The effectiveness of existing policies and treatment systems can be seen in how successful they were in rendering individual and public benefits like better quality of life, crime reduction, and safety (8).

Nevertheless, the implementation of harm reduction programs in Iran still faces many challenges. One challenge is establishing strong monitoring and evaluation systems for existing interventions and programs, including the reach, coverage, and intensity of services provided to clients (9). Due to a lack of an integrated information system between the centers, individuals can receive services from multiple centers or one service with different identities from one center, resulting in double counting of services. Moreover, due to confidentiality concerns, individual identities may not be recorded or clients do not provide their true identity. These challenges result in double counting of the number of clients served by programs. Double counting of service recipients in harm reduction centers leads to restrictions on providing accurate statistics on the services provided, which creates unnecessary costs for the health system (10). Policymakers need client-count information that is more informative than counts of service interactions. Unfortunately, the extent of double counting is seldom quantified. Therefore, this study aims to determine the double counting of harm reduction services in harm reduction centers and determine correction factors to achieve accurate, efficient, and correct information in the health system.

Methods

Participants and Settings

Following the coordination with the health system authorities at the provincial level in Iran, the study was implemented between September to March 2020. The study participants comprised clients and staff of harm reduction centers from selected cities to include diverse geographic regions in Iran, including Kerman, Kermanshah, Mashhad, Shiraz, and Karaj. We used expert panels to corroborate the findings from clients and staff interviewed in our study. We evaluated the double counting of several different sexual and injection harm reduction services, such as HIV rapid testing, needle and syringe programs, programs providing free condoms, HIV/STI counseling, and methadone maintenance using a brief questionnaire or checklist. The clients and staff of harm reduction centers within the defined study period were asked to complete the checklist after providing informed consent.

Study process

We defined the double counting of using services in two levels: a) double counting of using services in each service center at different times in the last year; and b) double counting of using services in different service centers in the last year. To measures of double counting were collected from clients and staff of

harm reduction services interviewed using the checklist. The estimates of these two sources were validated against an expert panel in each city.

Opinions of clients and staff to estimate double counting

The opinion of clients and staff estimated the percentage of double counting at each service center at different times with the numerator as the number of people who have received services at least once with a different identity and the denominator as all people who have received services. The percentage of double counting of using services in different service centers used the numerator as the number of people who received one specific service at least once from more than one center and the denominator as all people who have received services.

We combined the results of clients and staff sources. In this approach, if the clients' opinion had a larger estimation, that number was considered as the best estimation (because the staff opinions are more likely to underestimate and do not state the exact estimate, we gave more weight to the client opinion). Otherwise, the average of the two estimates was considered as the combined estimation of clients and staff. Then, the median of the numbers related to different cities based on each service was used to estimate the percentage of people with different identities at each center and the percentage of people with different identities at other centers.

Expert panel and final estimations

Following the first phase, an expert panel was held with experts and key informants. In this meeting, according to their personal and professional experience, we asked them to express the best estimate for the following indicators "percentage of people with different identities to each center" and "people with different identities to different centers to provide services separately for each city". Finally, the median of the numbers related to different cities based on each service was used for the final estimations (Fig. 1).

Statistical analysis

Descriptive statistics of participants’ characteristics were calculated as percent, means, or medians. To calculate the final estimation, the percentage of people with different identities to any center or other centers was considered the final estimated number for the country. The number of double-counting cases that referred to both one center and different centers was excluded. We also used the opinion of an expert panel to cross-validate the performed estimates. To calculate the confidence interval (CI), we consider the lowest estimate of each service as the lower limit and the highest estimate as the upper limit of CI.

Results

Participants and study characteristics

Overall, 1,630 clients in were recruited in Kerman (n=286), Kermanshah (n= 247), Mashhad (n= 435), Shiraz (n= 442), and Karaj (n=220). The mean age (standard deviation [SD]) of clients was 43.0 years (12.3) and 69.7% were male (Table 1). A total of 115 staff were recruited from the same cities, including Kerman (n=17), Kermanshah (n=17), Mashhad (n=35), Shiraz (n=34), and Karaj (n=12). For the panels, five to six experts participated in each city.

The percentage of double counting of using services in each service center at different times

Based on the opinion of clients and staff, the percentage of double counting of using services in each service center at different times were: HIV testing at 3% (95% CI 1-10), needle and syringe programs at 9% (95% CI 5.5-12), condom distribution at 6% (95% CI 2-10), HIV/STI counseling at 2.5% (95% CI 1-10), and methadone maintenance at 1.5% (95% CI 0-25). According to the expert panels, double counting in HIV testing services was estimated at 4% (95% CI 1-10), needle and syringe programs at 6% (95% CI 2-10), condom distribution programs at 4% (95% CI: 1-7), HIV/STI counseling at 1% (95% CI: 0-2), and methadone maintenance at 0% (95% CI: 0-3).

Double counting of using services in different service centers

Based on the opinion of clients and staff, double counting of using services in different service centers was estimated for HIV testing at 8% (95% CI 0-10), needle and syringe programs at 10% (95% CI 3.5-10), condom distribution programs at 10% (95% CI 2-15), HIV/STI counseling at 8% (95% CI 0-10), and methadone maintenance treatment at 5% (95% CI 1-21) (Table2). Based on the expert panels, double counting at HIV testing programs was estimated at 9% (95% CI 1-20), needle and syringe programs at 10% (95% CI 2-30), condom distribution programs at 10% (95% CI 2-20), HIV/STI counseling at 7% (95% CI 1-10), and methadone maintenance treatment at 3% (95% CI 0-40).

Synthesized estimates

The final synthesized estimation of double counting of using harm reduction services were, in order of highest to lowest effects: HIV testing at 10% (95% CI 0-15), needle and syringe programs at 17% (95% CI 8.5-20), condom distribution at 13% (95% CI 3-19), HIV/STI counseling at 10% (95% CI 0-16), and methadone maintenance treatment at 7% (95% CI: 2-10) (figure 2).

Discussion

This study estimates that the double counting of clients using harm reduction services in Iran may be substantial. Needle and syringe programs had the highest percentage of double counting of using services in each harm reduction center at different times and using services in different harm reduction centers. Methadone maintenance services had the lowest referral percentage with different identities to one or more centers. Our findings are robust in that they are based on the reports of a large sample of clients, the program staff, and experts in the field. To the best of our knowledge, this is the first study that estimates the double counting of clients in harm reduction services in Iran.

We consider several possible reasons for the double counting. First, because of the high mobility of the target population such as PWID, these people move between different centers. Second, providing services to these people is anonymous, and people tend to get services from different places. Third, because people can get from one service center several times, the services of one center may become unavailable or limited per client, and therefore people will go to other centers for this reason.

Our findings of substantial double counting of clients affect the assessment of meeting prevention targets for the reach and coverage of harm reduction programs. For example, the WHO recommends providing 200 sterile needles and syringes per PWID per year by 2020 and 300 needles and syringes per PWID per year by 2030 to effectively tackle HIV transmission via this route (11). By 2016, only 12 countries provided at least 200 clean needles per PWID per year, and Iran only provided 50 syringes and needles per PWID per year (12). While the number of needles and syringes provided to PWID in Iran is already low compared to the international standard, our results show that there may be a 17% double counting. Thus, the actual number of PWID serviced will be even lower than the reported number. Service providers should consider double counting when setting targets for clients reached and reporting progress towards these targets. The effectiveness of harm reduction programs depends on their reach and intensity. For example, supplying clean needles and syringes has been demonstrated to reduce heroin use, associated deaths, HIV risk behaviors, and criminal activity (13). In a study by Susan Hurley et al., HIV prevalence increased by 5.9% per year in cities without needle and syringe programs and decreased by 5.8% per year in the cities with such programs (14). Evaluation by WHO shows that needle and syringe exchange is effective, lacks negative consequences, is cost-effective relative to other interventions, results in cost-savings, and has positive externalities such as reduced crime (11, 15, 16). Also, according to condom programs, if the number of condoms distributed by PWID-targeted services per PWID is < 50, the coverage level is low (17). Data on condom distribution for PWID appears scant for the region. For example, in 2017, only four countries had program data in the Middle East and North Africa for condom distribution specifically for PWID (17). In our study, there is a potential 13% double counting in providing condoms to people in harm reduction centers, which affects accurate reporting of services.

We found that methadone services had the lowest level of double counting at one or more service centers. The requirement that people have to present their national cards to receive methadone at harm reduction centers is likely to prevent PWID from presenting with different alias at the same or different centers. Moreover, there is a centralized Iranian Drug Abuse Treatment Information System (IDATIS) to

provide methadone maintenance services for drug users throughout the country. The system requires national identification numbers (18).

The use of unique codes can reduce the double counting of clients at other harm reduction services in Iran. For example in Uzbekistan, Tajikistan, and the Ferghana Valley region of Kyrgyzstan, a standard method to provide each client with a unique identifier code (UIC) can be expanded across multiple service centers and types. This UIC enables a service to record individual clients' patterns of attendance. A UIC can reveal whether a client is reached regularly by a service such as a needle and syringe program without needing to collect personally identifying information such as names or government-issued national identification numbers. In particular, coverage of program types can be even more accurately measured if the same UIC is used across different service centers. Services in different countries have developed various but similar UIC systems ,(19, 20). The coding system should be easy for a client to recall and must protect clients' confidentiality by ensuring that the UIC cannot be decoded to reveal the identity of the client.

The findings presented here should be interpreted with caution due to limitations. First, we do not have accurate key population size estimation such as PWID or other at-risk groups. Moreover, many individuals have dual risks of sexual and drug injection behaviors. Second, although efforts were made to recruit individuals from diverse geographical areas, this sample is not representative of all of Iran. However, we chose cities with regional, and geographical diversity to reduce this challenge. Third, recall bias may affect results as interviewing required the participants to recall and reflect on past events over time.

Conclusions

We estimate that there is a significant amount of double counting and therefore overestimation in the coverage of harm reduction services in Iran. Policymakers should consider this double counting when setting targets and reporting services delivered. Our findings may provide an approach to establishing correction factors for reporting harm reduction services utilization in diverse settings worldwide.

Declarations

Ethics approval and consent to participate

Ethical issues included the guarantee of the participants' confidentiality using anonymous checklists and obtaining verbal informed consent. The study protocol was reviewed and approved by the Kerman University of Medical Sciences ethics committee (Ethics Code: IR.KMU.REC.1397.573).

Consent for publication

Not applicable

Availability of data and materials

The Ministry of Health and Medical Education (MOH) of Iran own the data. After the permission of the MOH, data will be available upon request submitted to info@hivhub.ir (the HIV/STI Surveillance Research Center).

Competing interests

The authors declare that they have no competing interests

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Authors' contributions

Design and conduct the survey: FT, NGH, HSH

Data collection: FT, MM, AH, AK, MGH, NN, MT

Data analysis: FT, MKH

Supervision: MG, HSH, AH

Writing-original draft: FT, WM

Writing, review, and editing: FT WM NGH MKH AH MG MM AH AK MGH NN MT HSH

All authors read the manuscript and approved the final version of the manuscript.

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Figures

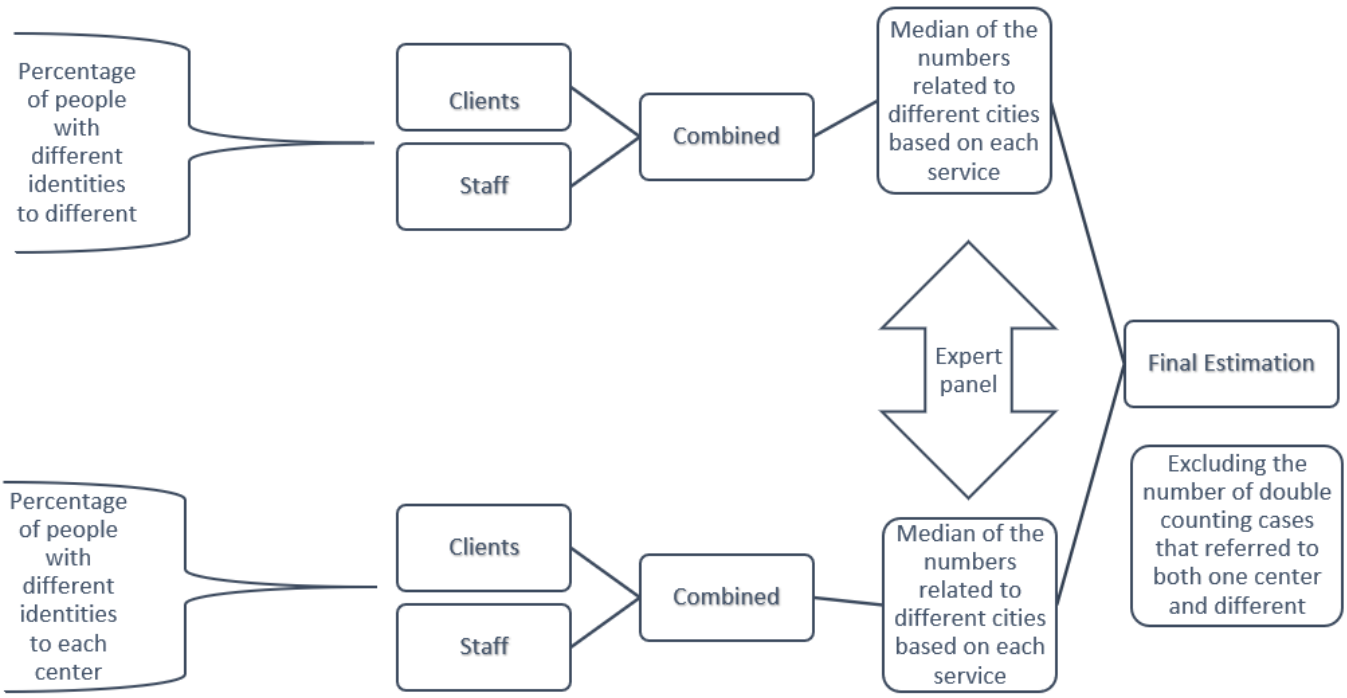


Figure 1

Flow diagram of final estimates of the percentage of people with different identities to one or more harm reduction centers in Iran, 2020.

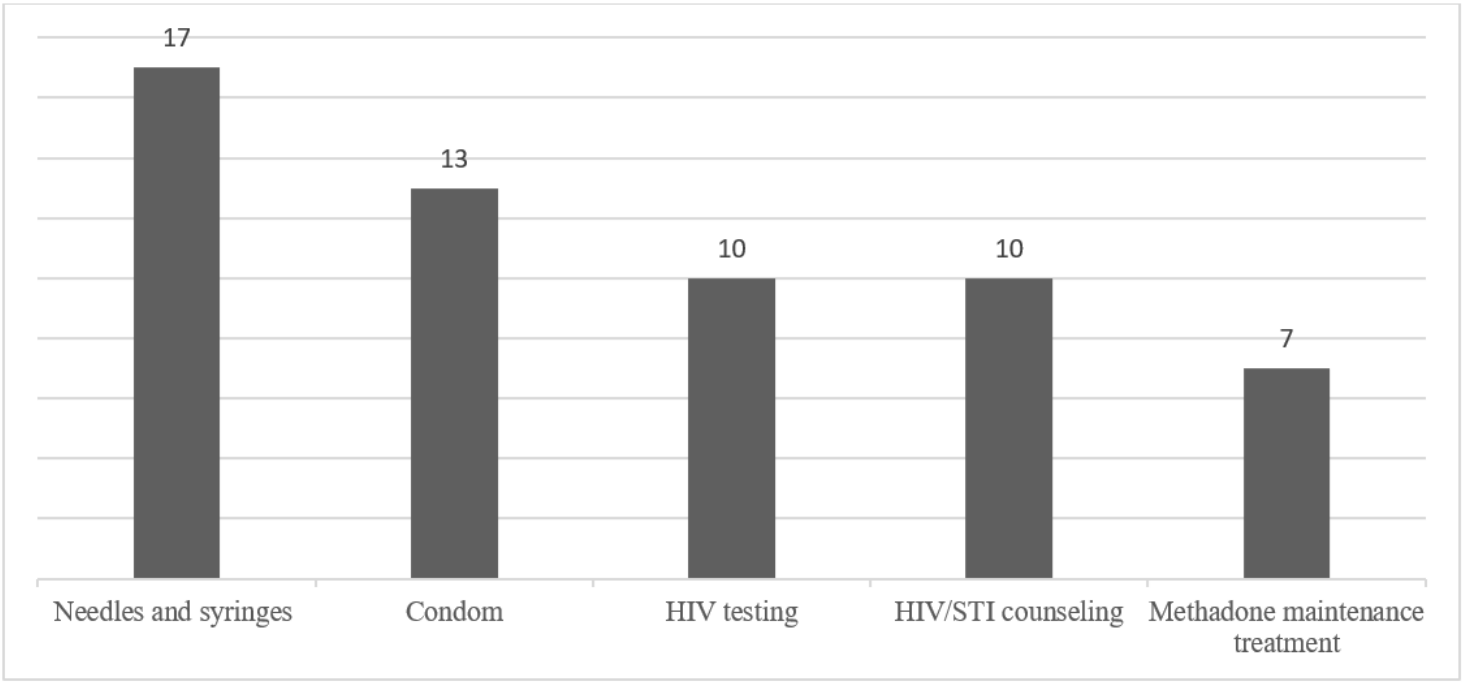


Figure 2

Final estimates of the percentage of people with different identities to one or more harm reduction centers in Iran, 2020.