

Size Estimation of Men who have Sex with Men in Tbilisi, Georgia, 2010

Study report

**Prepared by:
Association “Tanadgoma”**

December 2010



Acknowledgements

Association “Tanadgoma” would like to acknowledge the financial support provided by COC Netherlands under the project “Prevention and Empowerment in the CIS: responding to HIV/AIDS amongst sexual minorities”, financed by the Dutch Ministry of Foreign Affairs. At the same time, this survey would not be possible without combining it with the Bio-Behavioral Surveillance Survey conducted under the GFATM-supported project “Establishment of evidence base for national HIV/AIDS program by strengthening HIV/AIDS surveillance system in the country”.

The report was prepared by Nino Tsereteli, Kakhaber Kepuladze (Tanadgoma), and Dr. Ivdity Chikovani (CIF).

The authors are thankful to Dr. Ivana Bozicevic from the WHO Collaborating Center for HIV/AIDS Surveillance, Zagreb, Croatia for her technical support and guidance.

Special thanks are extended to the field staff of Tanadgoma - social workers Kakhaber Kepuladze, Tea Tchakhrakia, also all the staff - Lela Kurdgelashvili, Maia Jibuti, Giorgi Lomidze, Archil Rekhviashvili, Irina Bregvadze, Khatuna Khazhomia and Olia Burjanadze - for their input into the field work.

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1. Introduction

Men having Sex with Men are recognized as one of the key vulnerable groups in the context of concentrated HIV epidemics in Eastern Europe and Central Asia (EECA). Unfortunately there is no comprehensive data to fully identify the role of this population in the HIV epidemic, and studies by major international organizations estimate that HIV surveillance systems in these countries do not capture well the MSM population.

Sex between men is thought to account for between five and 10 percent of HIV infection globally. Though data is limited, consensus among an expanding group of stakeholders is that significant risk and HIV infection among MSM is likely in EECA region. Surveys in any city of the region suggest prevalence rates up to 10 times higher among MSM than in the general population.

Data on HIV prevalence among MSM in the whole region of Eastern Europe and Central Asia are mostly available for the last four years, when the first sentinel surveillance surveys were conducted. As an illustration, HIV prevalence among MSM in some of the countries of the region is: Ukraine 8.6% (2009); Moldova 4.8% (2008); Russian Federation 3.5% (2007); Belarus 3.1% (2008) and 2.1% (2009); Azerbaijan 1.1% (2008);¹ Armenia 1.9 % (2010)², Georgia (Tbilisi) 6.4% (2010)³.

Georgia is among the countries with low HIV/AIDS prevalence but high potential for developing a widespread epidemic. As of December 31, 2010, there were 2609 cases of HIV infection registered in the country, 1923 men and 686 women. According to the ways of transmission 57.2% were infected through injecting drug use, 35.2% - through heterosexual contacts, 3% - through homo/bisexual contacts, 2.3% - through vertical transmission⁴. According to experts' opinion, there are 4000 estimated people living with HIV in Georgia.

In 2009 (according to the Bio-BSS conducted in 5 cities of Georgia) the prevalence among IDUs ranged from 0% (Gori) to 4.5% (Batumi), with 2.5% in Tbilisi. According to the Bio-BSS among FSWs in two cities of Georgia, HIV prevalence was 0.8% in Batumi and 1.9% (Tbilisi). The last Bio-BSS among MSM conducted in Tbilisi in 2010 identified the prevalence of 6.4%. So, in the capital city the highest prevalence indicating concentrated epidemic was found among MSM.

The growing recognition that significant under-reporting masks the true picture of male to male sexual transmission of HIV in Eastern European epidemics is based on the following:

1. Despite the fact that MSM programs exist to a certain extent in most EECA countries, there is a lack of political will and a common strategy for the development of such programs at regional and national levels.

¹ "Men having sex with men in Eastern Europe: Implications of a hidden HIV epidemic. Regional analysis report", AIDSTAR-Two, November 2, 2010. www.aidstar-two.org

² www.armajds.am

³ Bio-behavioral surveillance survey among men who have sex with men in Tbilisi, Georgia, December 2010, Study report, Curatio International Foundation, Association "Tanadgoma" (unpublished)

⁴ National Center for Disease Control and Public Health, 2011.

2. Homosexual male behavior is largely decriminalized in Eastern Europe. However, homosexuality is not socially acceptable, which causes high levels of stigma and discrimination associated to homosexual behavior.

3. In the region, there is a lack of population research and size estimations for MSM. Existing population descriptions are not systematic and use methodologies that are not standardized and sometimes unclear.

4. Funding and coverage levels for MSM prevention programs are low and insufficient to halt HIV epidemics in this population.

Information collected in Georgia about MSM is not sufficient, especially in the field of HIV prevention. There is some evidence collected by two NGOs working with this group of population during the recent years. One is NGO “Tanadgoma” which provides HIV prevention services in three cities of Georgia. Another was an LGBT organization “Inclusive Foundation”, which ceased functioning and now has a descendent NGO “DRCAA”. There are several MSM-related researches conducted in Georgia, some qualitative and some – quantitative. As for qualitative studies, they were conducted in three sites were projects targeting MSM are functioning. These studies aimed at identifying existing knowledge and practices spread among MSM. Also, three behavior surveillance surveys with biomarker component were conducted in Tbilisi. These surveys are the main source of behavioral and biomarker information. Besides, several studies were conducted on discrimination and legal aspects related to homosexuality. But one of the real needs in the country is to have some estimates regarding size of this population. This need is also reflected in the National Strategic Plan on HIV/AIDS for 2011 – 2016.

Estimating the size of hard-to-reach populations is important to effectively plan, implement, monitor and evaluate HIV/AIDS prevention and care programs. Estimates provide a better understanding of the burden of disease, which in turn helps shape more informed programs and policies. *National* estimates are needed for policy formulation, while *local* estimates are sufficient for programming purposes. Establishing the size of populations most at risk to HIV allows epidemiologists to develop models which estimate and project HIV prevalence or inform countries of the distribution of HIV incidence within their country.

This report describes the first attempt to carry out local MSM size estimation, which would allow Georgia to better plan and implement HIV prevention, care and treatment, as well as to advocate for more focus on this group of population within public health programs. It is important to combine these data with other surveillance data from this group.

The study was conducted in conjunction with a third wave of Bio-BSS among MSM in Tbilisi carried out in 2010 under the GFATM supported project.

2. Description of the survey target group

(This description is based only on the results of the qualitative survey conducted by “Tanadgoma” prior to the Bio-BSS and Size Estimation)

In spring 2010 (01.03.2010 – 29.03.2010), prior to the Bio-BSS and Size Estimation surveys, “Tanadgoma” conducted a qualitative research. The research included 2 focus group discussions and 10 in-depth interviews with MSM (25 participants in total), at “Tanadgoma” office. The main topics of this research were:

- Personal homosexual experiences
- The places of MSM meetings, characteristics of these places and the ways of getting acquaintance
- The hierarchy among MSM, structure of the group and personal relations
- The circle of acquaintances among MSM
- Motivation for participation in the quantitative research
- Design and format of the recruiting coupons

As a result, all information needed for sampling methodology for the quantitative survey was collected, proving feasibility of RDS, as majority of the participants stated that for bringing maximal number of participants the information about BSS research should be spread by the representatives of same group (MSM).

Based on the results of the qualitative survey the group of Men who have Sex with Men in Tbilisi can be divided according to two parameters: **social status** (“with money” and “without money”, according to the language used by MSM) and **involvement in the commercial sex**.

1. Description of MSM according to the social status:

➤ **MSM with lower socio-economic background**

This group includes mainly: MSM that have arrived to the capital from other cities/regions in search of job or other material benefits; and MSM that live in the capital, which have low or no income or are unemployed (often these are persons below poverty line).

➤ **MSM with relatively higher socio-economic background**

This group includes persons with relatively higher income, who can afford visiting expensive bars, clubs and other gathering places together with mainstream society; and so called “elite” gays, which include persons with high positions, representatives of show business, in general, public faces.

As a rule, representatives of these two – high and low – layers do not meet each other in everyday life. However, there are some types of relationships between them: mainly generally knowing each other or

having sexual contacts with persons belonging to other group. In general, representatives of these two groups are not willing to communicate with each other, to meet each other at the places of gathering and to be associated with each other. The higher is the level of MSM, the less is possibility that he is involved in the commercial sex and the less is the frequency of occasional sexual contacts. And vice versa, the lower level of MSM, the higher number of sexual partners and higher probability of involvement in the commercial sex.

2. Description of MSM according to involvement in the commercial sex:

➤ MSM involved in the commercial sex

This group includes mainly MSM that belong to relatively lower socio-economic background and in exchange of material remuneration offer sexual services to other men.

The main reasons for involvement in the commercial sex are: money, possibility for frequent change of partners, possibility of spending good time.

This category of MSM can be characterized as representatives of lower layer with dire economic situation; residents of the capital, or from regional city/village, that have arrived to the capital for some time; generally they do not have other occupation or job (many of them are students); they tend not to be married or are separated. Actually a lot of them are men who have sex with men and women (MSMW). They can be reached at: the open gathering places in the city (so-called MSM cruising areas); as well as some closed places - facilities (baths, saunas etc), which are known to be places where MSM can meet each other.

➤ MSM not involved in the commercial sex

This group includes mainly MSM that belong to middle and relatively higher socio-economic background. These MSM mainly establish homosexual contacts with other men due to the following reasons: pleasure - satisfying sexual needs, possibility for frequent change of partners.

This category of MSM can be characterized as having good socio-economic status; residents of the capital, or from regional city/village, that have arrived to the capital for some time; majority has some occupation or job; they tend to be married, with children, or have occasional or permanent female partners. They can be reached at: the open gathering places in the city (known as places of gathering for MSM commercial sex workers), where they are looking for commercial or non-commercial sexual partners; the open gathering places in the city (known as places of gathering for MSM); closed entertaining places (cafes, bars, baths, movie theaters, etc), which are known to be places where MSM can meet each other.

3. Goal

Goal of the survey presented in this report is to estimate the population size of MSM who have low socio-economic status, and are in need of HIV prevention services in Tbilisi, Georgia.

4. Methods

Two methods were chosen for conducting MSM size estimation in Tbilisi, Georgia: a) capture-recapture and b) multiplier methods.

4.1. Capture-recapture

Due to the close connections of “Tanadgoma” with the target community, some information about the Bio-BSS planned for the nearest future was spread within the MSM community. However, nothing was mentioned about size estimation, since this information could have been understood incorrectly and might have scared them.

Data about gathering places

In the formative stage of this study, as well as based on the previous outreach experience, the NGO “Tanadgoma” mapped several contact locations throughout the city where MSM are known to search or wait for clients and/or other MSM.

Outreach mapping carried regularly by social workers of “Tanadgoma” have identified 10 such places. These locations included bars (1 location), nightclubs/discos (1 location), open places: streets and park areas (8 locations).

According to qualitative research the following MSM meeting places were identified:

- Open places (9 sites);
- Closed places (8 sites – bars, cafes, public baths, and nightclubs).

The characteristics of open places: The majority of the respondents of the formative research were active visitors of open places. They visit these places at least 2-3 times a week.

MSM gather at these places in the late afternoon and the evenings, when it gets dark. They mention that approximately 10-15 MSM can be seen at these places at the same time. Some 5-6 MSM could be found at some of these sites also during the daytime. Some of respondents said that they were involved in commercial sex at these places. These MSM represent low socio-economic layer.

The characteristics of closed places: Public baths are used by MSM of different social levels. MSM go to baths mainly for occasional one-shot sexual contact. In cafes and bars MSM of different levels can be seen but mainly those with average income, not “elite” gays, those who can afford spending money for drinks.

Those two types of closed places (baths and café/bars) are different from open places because gatherings at these places are not structured and are not systematic. MSM visit cafes and bars in the evening after 8-10 p.m. and they might stay there as late as 4-5 a.m. At weekends around 30 MSM usually gather at one of the bars with “gay-friendly” reputation. During the working days there are less MSM at these sites (around 6-7).

The mapping data, revealed through the qualitative research, suggested the time for conducting the first capture at each of the places. Accordingly, the capture was conducted in the time periods of 14:00 – 17:00 and 19:00 – 23:00. The daytime capture was conducted only at the “open places”, and the evening activities – both at the “open” and “closed” (a nightclub and a lobby of one of the movie theatres) places.

Eligibility criteria

During the capture exercise the following criteria were applied: The special label trinkets (designed especially for the size estimation and carrying the inscription “I love safe sex”) were distributed to the persons: a) known to be MSM from previous outreach experience and b) to those who were identified by other MSM as also belonging to this group.

Since the places visited during the capture were not only “gay” places, it was not allowed to approach every male found at those places. Besides, since it was known that MSM of low and maybe also middle socio-economic status usually gather at the places where the first capture was conducted, it is assumed that Tanadgoma managed to reach particularly that segment of MSM population in the first capture. Although as no demographic information was collected, it was not possible to verify whether all those who received the trinkets actually belonged to the low socio-economic layer.

As for the second capture (Bio-BSS survey – MSM recruited through RDS, inclusion criteria for participation in the study included the following: 1) age 18 years or older, 2) homosexual anal or oral sex during the last 12 months and 3) being resident of Tbilisi.

To ensure that participants met the eligibility criteria, a verification procedure was followed in the study site during the RDS. The verification procedure conducted by an experienced social worker included a preliminary informal discussion. The participants were asked different questions face to face in a private setting, so that it was possible to detect whether they belonged to the target group. The basic questions asked were related to knowledge and experience of the participants about places and means for MSM to find partners, sexual practices they use with their partners, frequency of partner change, health problems related to homosexual relations they have experienced etc.

Description of the capture-recapture process

After having completed this list of sites for the first capture, 2 social workers during 5 working days visited these places and distributed label trinkets to every MSM in the contact area. MSM were instructed to keep it, not to give it to anyone and remember that they have received it. In total 92 label trinkets were distributed to 92 MSM.

As the size estimation exercise was linked to the Bio-BSS planned in a week after the first capture was finished, the Bio-BSS was considered to be the second capture. Bio-BSS was conducted using the RDS methodology. Every MSM that visited the survey location, in addition to the standard BSS procedures, was asked a question about whether he had received the trinket or not. Only 28 out of the 278 recruited MSM gave positive answer to this question.

Refusals

Only 2 MSM refused to receive the trinket during the first capture: one was not Tbilisi resident and said he was leaving Tbilisi the day after, another was afraid of jeopardizing his position at some government structure.

Refusals for the RDS participation were given by the social workers conducting the verification procedure. 12 potential participants were defined as non eligible for the survey, as 5 of them were not MSM and 7 were MSM but did not have homosexual contact during the last 12 months. Also, 2 participants withdrew from the survey during the interview, most likely due to fear of their status disclosure.

No duplicates were identified in the first capture, although everyone was asked whether they had already received a trinket.

Non-response bias

Respondents who returned to receive incentive for recruitment were additionally asked about whether anyone refused to accept coupons from them and what were characteristics of those who refused. However, it was not possible to use this information due to very low response rate to these questions.

Estimation of population of men who have sex with men with a capture-recapture method

To estimate the total population of MSM who are referring or might be in need of HIV preventive services, we applied a 'capture–recapture' formula:

$$N = M * \frac{C}{R}$$

where:

N is the total estimate of the population;

M is the number of MSM identified in the first capture;

C is the number of MSM in the second capture;

R is the number of matches – MSM that were “tagged” in the both captures.

To estimate the 95% confidence interval for N , the following formula was used:

$$95\% CI = \pm 1.96 \sqrt{Var(N)}$$

where $Var(N)$ is calculated:

$$\frac{MC * (M-R) * (C-R)}{R^3}$$

4.2. Multiplier method

The basic principle of this method is that the number of people belonging to the population being estimated who appear at selected institutions or services during a certain time period is equal to the total size of the estimated population multiplied by the proportion of the population who attended the selected institutions or services during the same time period.

In this survey, Tanadgoma decided to use its program data as a source for multiplier. Data source registers what kinds of services are provided to target population – MSM. During the Bio-BSS, three questions were included in the questionnaire regarding the use of Tanadgoma services by the survey participants during the last 12 months. These questions were:

1. Have you received voluntary counseling and testing on HIV at Tanadgoma during the last 12 months?
2. Have you received informational materials (booklets, leaflets) from Tanadgoma during the last 12 months?
3. Have you been given condoms by Tanadgoma during the last 12 months?

So, the proportion of the survey participants that have received at least one out of the three options of service from Tanadgoma, was calculated.

Estimation of population of men who have sex with men with a multiplier method

Based on the data collected through Bio-BSS for the multiplier method, as well as on the programmatic data of Tanadgoma the population size estimates are calculated using the following formula:

$$S = \frac{\text{\# of key population in the programmatic database of Tanadgoma}}{\% \text{ population in the BioBSS having received at least one service from Tanadgoma}}$$

5. Results

Capture-recapture

Capture 1 included 92 men. Capture 2 included 278 men, with 28 found in both captures (recaptures)

By applying values of M, C and R in the formula the estimate size of MSM population appeared to be 913 (95% CI, 646 – 1,181).

Multiplier

According to Tanadgoma database 205 MSM had received condom or any other services (VCT, IEC material) during the 12 month period preceding the survey (September 2009 – September 2010). The services were provided during outreach visits. Tanadgoma also possesses data on number of MSM visits to Tanadgoma office; however once these data are not individual level it is not possible to enumerate MSM themselves.

Bio-BSS data suggest that 105 MSM (37.8%) received at least one of the following: condom, IEC material or VCT services from Tanadgoma during last 12 month.

Hence the size of MSM population would be 542 (205 / 37.8%).

Based on the both sources of data (the Tanadgoma database and the results of the RDS-based Bio-BSS), there are certain characteristics of MSM that can be compared (Table 1).

Table 1: Multiplier data sources

| | | Tanadgoma database (N=205) (01.09.2009 – 31.08.2010) | Bio-BSS (N=278) (27.09.2010 – 03.12.2010) |
|---|--------------------------|---|--|
| Age | ≤24 | 46% | 30.9% |
| | ≤25 | 56% | 69.1% |
| Marital status | Single | 52.5% | 61.5% |
| | Married | 24% | 19.4% |
| Education | Elementary | 30% | 2.9% |
| | Secondary | 37.2% | 52.2% |
| | Higher/Incomplete higher | 32.8% | 45% |
| Involvement in commercial sex during last year | Yes | 71.5% | 28.8% |
| HIV testing (ever) | Yes | 73.7% | 42.4% |
| Last HIV testing | During the last year | 38.7% | 26.3% |
| | More than 1 year ago | 35% | 16.2% |

The data comparison between Tanadgoma database and RDS survey shows similarities by various characteristics, specifically:

- a) MSM in both sources have similar age structure and marital status.
- b) MSM recorded in the Tanadgoma database have lower educational level – which can indicate that they have lower socio-economic status.

- c) Out of those contacted by Tanadgoma during the last year, almost three fourths report being involved in commercial sex. As for the RDS data, about one third reported the same.
- d) Small difference was found between Tanadgoma and RDS data of HIV testing uptake during the last year.

The RDS survey was done at Tanadgoma site and was organized by Tanadgoma, so it was expected that in the RDS survey there would be many of those who use Tanadgoma program services. The RDS survey managed to bring big proportion (more than one third) of MSM that have been covered by Tanadgoma. There is an overlap of programmatic and survey data, hence the multiplier underestimate the population size.

6. Discussion

Four assumptions underlie the capture–recapture methodology: the population must be closed, the capture history of each member accurate, capture sources independent, and the probability of being captured during both rounds equal.

- In the current study, the MSM population was not completely closed (new recruits to the sex trade, migration from other locations) but little change would have been expected over the period of 1-10 weeks⁵;
- Experience of social workers helped to ensure capture accuracy.
- Assumption of independence was successfully maintained in our case. Field experience suggests that there was no reason for MSM to be more or less likely to be recaptured due to reception of the trinket.
- Equal probability of being captured in both samples could have been violated. We assume that the MSM with high socio-economic status were less likely to be found in the second capture. Based on our Bio-BSS sample (second capture) 46.4% did not have permanent occupation, more than 50% had monthly income within 300 GEL (167 USD), only 21% have monthly income more than 500 GEL (277 USD) and 28.8% were involved in the commercial sex. Ethnic distribution of the sample (74.3% Georgians and 25.7% other nationalities) does not correspond to the Georgian population’s ethnic composition, where 84% are Georgians. All above could have resulted in underestimation of the sample size.

Based on these limitations from capture-recapture calculation upper bound estimate (1,200) was used. Still we assume that current estimate of 1,200 MSM does not reflect the total number of MSM living in Tbilisi. It reflects MSM subgroup that belongs to lower socio-demographic layer, and those who attend the known and public cruising venues.

⁵ The Bio-BSS survey lasted for almost 10 weeks.

In our case multiplier method has several limitations:

- 1) The RDS survey was done at Tanadgoma site and was organized by Tanadgoma, so it was expected that in the RDS survey there would be many of those who use Tanadgoma program services. The RDS survey managed to bring big proportion (more than one third) of MSM that have been covered by Tanadgoma. There is an overlap of programmatic and survey data, hence the multiplier underestimate the population size.
- 2) The proportion of Bio-BSS respondents who reported reception of one of the services or commodities (condoms, IEC, VCT) from Tanadgoma refer to services received at outreach or at Tanadgoma office, while Tanadgoma database includes MSM reached by outreach services. Hence there is no highly accurate match of data sources, that result in overestimation of multiplier (37.8%).
- 3) Although time reference period was clear and the same in both data sources, 12 month period could have been difficult to recall with accuracy.

All above has lead to significant underestimation of the population size derived by the multiplier method.

UNAIDS and the WHO suggest that for the regions, Asia, Latin America & Caribbean, and Europe, the prevalence of currently-active MSM is likely to be in the range 2%-5%, with a typical point estimate of 3%.⁶ Based on above recommendation on the prevalence of the high risk group we estimated number of active MSM in Tbilisi. Tbilisi male population 18-59 years of age is 397,000⁷ Hence the size of MSM population falls within range 7,900 (397,000 *2%) – 19,900 (397,000 *5%) with point estimate of 11,900 (397,000 *3%).

There are number of factors (high stigmatization and negative attitude towards this group due to cultural and conventional social norms) leading to an assumption that 3% is an overestimation. Data from some countries in the EECA region, e.g. Armenia and Belarus, have been calculated according to the lower bound of 2-5% range. So, 2% - 7.900 provides more realistic estimation for Tbilisi.

In conclusion size estimation of currently active MSM population in Tbilisi is based on two estimation methods (**Table 2**):

- 1) capture-recapture, that estimates size of MSM with low socioeconomic status meaning no permanent or temporary job and monthly income not more than 500 GEL (280 US Dollars);
- 2) UNAIDS/WHO recommendation, that estimates total MSM population.

Multiplier method is not used due to significant underestimation of data.

Table 2: Size estimation of currently active MSM population in Tbilisi

⁶ Development of the software packages, EPP v2 and Spectrum, and Measuring and tracking the epidemic in countries where HIV is concentrated among populations at high risk of HIV Report of a meeting of the UNAIDS Reference Group for Estimates, Modelling and Projections held in Sintra, December 8-10th 2004. UNAIDS, 2005

⁷ Demographic data, Health statistics yearbook, 2009. National Center for Disease Control and Public Health

| Characteristics | MSM with low-socioeconomic status | Total MSM population |
|------------------------|--|-----------------------------|
| Method | Capture-recapture | UNAIDS/WHO |
| Size | 1,200 | 7,900 |

These estimates, especially UNAIDS/WHO data should be treated with caution as it is based on rough assumptions and may not be suitable to actual country context.

7. Recommendations

Based on the considerations brought in the discussion, there are several recommendations that should be taken into account for the future PSE surveys among MSM:

- National consultation should be conducted in order to achieve consensus on how to interpret these data and use of these data for further programming in different fields, especially in HIV/AIDS prevention.
- If multiplier method will be used for size estimation in future, it is advised to use programmatic data of some other and various sources.
- Next time when RDS and population size estimations are carried out, information on non-responders in the RDS should be thoroughly collected in order to better interpret results.
- It is recommended to undertake PSE study in conjunction with upcoming Bio-BSS in 2012 in Tbilisi and apply also other sampling methods (e.g. internet based survey) to reach MSM with high socio-economic background. This will give more reliable estimates with regard to total MSM population size in Tbilisi.