

How Many Transgender Men Are There in San Francisco?

Willi McFarland · Erin Wilson · H. Fisher Raymond

Published online: 1 May 2017

© The New York Academy of Medicine 2017

Abstract The purpose of this study was to estimate the number of transgender men (transmen) adults living in San Francisco. We integrated two population size estimation methods into a community-based health survey of transmen ($n = 122$) in the San Francisco Bay Area in 2014–2015: the service multiplier and wisdom of the crowds. The median estimate was 806 transmen adults in San Francisco (0.11% of adults) and 4027 in the Bay Area. Considering potential biases, we believe our estimates are conservative. Knowing the denominator of persons at risk for health conditions is necessary for public health planning, surveillance, and impact evaluation.

Keywords Transgender/transsexual · Epidemiology · Statistics · Population size estimation

Introduction

Knowing the denominator of people at risk is necessary for assessing the burden and incidence of diseases, setting health priorities and goals, advocating for care and prevention programs, and evaluating the population-level impact of interventions. Transgender people are reported to be disproportionately affected by barriers to care, mental health problems, suicide, violence, discrimination,

poverty, and HIV compared to the general population possibly due to stigma and discrimination [1]. However, their numbers are uncertain because transgender status has not been systematically collected in censuses or vital statistics, and data from population-based surveys may be under-reported and imprecise [1–3]. Moreover, transgender individuals may be more hidden than other groups as one's trans status is not necessarily obvious nor need be disclosed [4]. Few studies attempt to quantify the proportion of transgender people in the general population nationally with estimates ranging from 0.1 to 0.5% of adults [1, 4, 5]. Others suggest a lower bound of 0.5% with actual prevalence likely higher [6]. An estimate that synthesizes multiple sources suggests there are 1.4 million people (0.6% of adults) in the USA who were identified as transgender defined as persons whose current gender identity is something other than that assigned at birth [7].

To our knowledge, no study attempts to specifically estimate the number of transgender men (transmen) at a local or health jurisdiction level. As part of a community-based, health assessment survey in San Francisco, we applied population size estimation methods to establish the number of transmen living in the city and in the wider Bay Area.

Method

Three methods were used to estimate the number of transmen living in San Francisco: the service multiplier and the wisdom of the crowds [8, 9]. The first

W. McFarland · E. Wilson · H. Fisher Raymond (✉)
San Francisco Department of Public Health, San Francisco, CA,
USA
e-mail: hfisher.raymond@sfdph.org

two methods were integrated into a survey of the transmen population in the San Francisco Bay Area conducted in 2014–2015. The service multiplier method, similar to capture-recapture [10], calculated the total population size as a count of transmen using a specified community-based organization (CBO) service in 2013 divided by the proportion of transmen in our survey who reported using the service in 2013. Several different counts were collected to make separate total population size calculations. The wisdom of the crowds method asked survey participants “How many transmen do you think there are living in San Francisco?” The median response was used as the population size estimate. The two methods were applied to the number of transmen in the city of San Francisco and for the San Francisco Bay Area. The third method approached estimation by using US Census adult population denominators for San Francisco and the Bay Area and a literature-based estimate of the proportion of adults who report being trans in a national survey [7, 11]. Since the national estimate does not breakdown by male or female spectrum, we divided the total adult trans person estimate by 2 to arrive at the estimate for transmen under the assumption their numbers are equal. The median result of all the different estimates was held to be the population size of transmen.

The survey of transmen used a hybrid sampling design we term “starfish sampling.” Starfish sampling uses a mix of venue-based and respondent-driven sampling-based methods. Venue-based sampling and respondent-driven sampling are standards, for example used by the CDC to sample men who have sex with men and people who inject drugs, respectively. Venue-based sampling entails listing of physical and online locations where transmen can be found (e.g., clubs, cafes, geo-locating dating apps). Using the list as a sampling frame, randomly selected days and time periods were chosen in which staff consecutively intercepted and interviewed transmen. Transmen who were sampled in the venue-based approach were then invited to refer eligible acquaintances to the study via respondent-driven sampling approaches. The definition of transmen and survey eligibility was people who identify as a gender different than those typically associated with their female sex at birth. “What is your gender?” (response choices: male, female, trans male, trans female, other) and “What was your sex at birth?” (response choices: male, female) were the two

questions used to determine eligibility. Participants were age 18 years and older. The questionnaire was interviewer administered and recorded on a tablet computer. The instrument included the wisdom of the crowds questions and the use of CBO services in 2013 corresponding to the client counts provided by the CBO.

Results

A total of 122 transmen adults were enrolled in the survey, including 90 recruited at randomly selected venues and 32 by referral from other participants. Client counts for transmen receiving services in 2013 were obtained from four sources in San Francisco (Table 1). Individual counts ranged from 16 transmen receiving services at the municipal STD clinic to 140 transmen clients of one CBO. Population size estimates using the service multiplier method ranged from a low of 281 transmen in San Francisco (based on the 16 clients of the STD clinic divided by the 5.7% of respondents reporting using the clinic in our survey) to a high of 1138 (based on the 140 clients of the largest CBO divided by 12.3% reporting using the CBO in our survey). The median response to the wisdom of the crowds question was 600. The literature-based estimate was 2728. The overall median estimate for the four service multipliers, the wisdom of the crowds method, and the literature-based projection was 806 transmen living in San Francisco.

Two counts were obtained for transmen for the San Francisco Bay Area (also Table 1); 345 patients were seen at one private physician’s practice and an observation of 288 transmen attending a regional social event. The corresponding population size calculations were 6053 and 1946 transmen, respectively, in the Bay Area. The median response to the wisdom of the crowds question for the Bay Area was 2000. The literature-based estimate was 22,294. The median of these estimates was 4027.

Discussion

We estimate 806 transmen living in San Francisco as of 2015, translating to 0.11% of adults (US Census, 2016). On the one hand, this prevalence may be consistent with the 0.1 to 0.5% range of previous estimates for all transgender persons [1, 5, 12] given that transmen are

Table 1 Population size estimates, female-to-male transgender adults (transmen), San Francisco, 2015.

Area	Method	Source	Count	% in survey (n = 122)	Population size estimate	Uncertainty estimates
San Francisco (city and county)	Service multiplier	Service provider #1	83	8.2%	1012	371–1656 ^a
		Service provider #2	140	12.3%	1138	581–1698 ^a
		Service provider #3	75	22.1%	339	205–476 ^a
		Municipal STD clinic	16	5.7%	281	37–526 ^a
	Wisdom of the crowds	Survey, median response	NA	NA	600	150–20,000 ^b
	Literature	Census, Flores report	717,884	0.76% (0.42– 1.31%) [7]	5456 /2 = 2728	1507–4702 ^c
Median					806	
San Francisco Bay Area	Multiplier	Private physician practice	345	5.7%	6053	1637–10,470 ^a
		Community event	288	14.8%	1946	1087–2806 ^a
	Wisdom of the crowds	Survey, median response	NA	NA	2000	40–96,000 ^b
	Literature	Census, Flores report	Total adults=5,867,054	0.76% (0.42– 1.31%) [7]	44,590/ 2 = 22,294	1230–38,429 ^c
Median					4027	

NA not applicable

^a 95% confidence intervals

^b 2.5 and 97.5 percentiles of responses

^c Calculated using published credible intervals [7]

only one part of the population. That is, transgender women (transwomen) make up the other part. To make the literature-based projection, we assumed equal numbers of transmen and transwomen; therefore, a combined population estimate based on our multiple methods would be 0.22% of the population. On the other hand, we admit that the estimate is lower than we expected considering San Francisco’s historical attraction of lesbian, gay, bisexual, and transgender (LGBT) persons [13], and because we are predominantly urban, and given that other methods place a lower bound for prevalence of transgender persons at 0.5% [6].

While our empirical study is not able to project who we may have missed or under-counted, it is worth considering several ways our estimate for the number of transmen falls on the low side of the projection in the literature. First, our survey methods and our multipliers may only include a sub-set of transmen, namely those who are able to

access services and willing to participate in research. Second, the wisdom of the crowds method is highly subjective and would be influenced by the extent to which transmen feel isolated or marginalized and perceive their numbers to be low. Third, our assumption that half of transgender persons are transmen may be incorrect; that is, transwomen may make a higher proportion of the population. Finally, there may be under participation in research and services among transmen of color. Of note, the demographic make-up our sample has fewer Latino and Asian participants than the census of the city. Unfortunately, we do not have data on migration of transmen into San Francisco and can only speculate on whether the makeup of the transmen population should resemble that of the city or the population of the US as a whole.

The methods we used are in fact vulnerable to either over- or under-estimation from several potential biases. The major theoretical threat to the service

multiplier method is the independence of the two data sources [14]. If there is positive dependence in that participation in our survey is correlated with use of the CBO services, as suggested above, then calculations would under-estimate the transmen population size. Over-estimation would occur if the CBO client counts include duplicate individuals or if survey respondents do not recall or recognize the CBO or under-report using the service (such as due to the stigma associated with receiving STD services). Given that the CBO and our sampling methods are likely to recruit the most visible and well-connected transmen, we suspect the former bias (i.e., under-estimation) prevails in our service multiplier estimates. The wisdom of the crowds method might over-estimate if respondents perceive they have large networks that are mostly other transmen. Given the relatively low level of recruitment by peer referral, we suspect under-estimation may prevail. We also acknowledge ambiguity around the geographic extent and underlying population size of the greater San Francisco Bay Area in terms of CBO catchment areas and respondents' perceptions. Finally, our study suffers from small sample size—a problem for all research with transgender persons and particularly with transmen. Taken together, we believe the net bias in our study is towards under-estimation of the number of transmen in San Francisco and the Bay Area. A challenge to all population size estimation methods is that there is no gold standard to assess whether this is true.

Conclusion

A gold standard method to estimate the number of transgender people and their proportions in populations may emerge as more censuses include gender identity and transgender status (Gates, 2011). Nonetheless, even these measures may continue to under- or over-estimate until the spectrum of transgender identity is better understood and recognized, until legal protections for transgender people are strengthened, and until society is more accepting. Until that day, we hold our estimates of the number of transmen living in our city and region as conservative (i.e., low) based on the weight of possible biases and our methods as a data-driven basis upon which to improve.

Acknowledgments Support for this study was provided by the National Institute of Child Health and Human Development (Grant # R21 1HD071765).

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

References

1. Conron KJ, Scott G, Stowell GS, Landers SJ. Transgender health in Massachusetts: results from a household probability sample of adults. *Am J Public Health*. 2012;102(1):118–22. doi:10.2105/AJPH.2011.300315.
2. Gates G. How many people are lesbian, gay, bisexual and transgender? 2011. Retrieved from <http://williamsinstitute.law.ucla.edu/wp-content/uploads/Gates-How-Many-People-LGBT-Apr-2011.pdf>. Accessed 13 April 2016.
3. Haas AP, Lane A. Collecting sexual orientation and gender identity data in suicide and other violent deaths: a step towards identifying and addressing LGBT mortality disparities. *LGBT Health*. 2015;2(1):84–7. doi:10.1089/lgbt.2014.0083.
4. Hughes JP, Emel L, Hanscom B, Zangeneh S. Design issues in transgender studies. *J Acquir Immune Defic Syndr*. 2016;72(Suppl 3):S248–51. doi:10.1097/QAI.0000000000001077.
5. Reed B, Rhodes S, Schofield P, Wylie K. Gender variance in the UK: prevalence, incidence, growth, and geographic distribution. 2009. Retrieved from <http://www.gires.org.uk/assets/Medpro-Assets/GenderVarianceUK-report.pdf>. Accessed 13 April 2016.
6. Olyslager F, Conway L. On the calculation of the prevalence of transsexualism. 2007. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.692.8704&rep=rep1&type=pdf>. Accessed 13 April 2016.
7. Flores AR, Herman JL, Gates GJ, Brown TNT. How many adults identify as transgender in the United States. 2016. Retrieved from <http://williamsinstitute.law.ucla.edu/research/how-many-adults-identify-as-transgender-in-the-united-states/>. Accessed 13 April 2016.
8. Johnston LG, Prybylski D, Raymond HF, Mirzazadeh A, Manopaiboon C, McFarland W. Incorporating the service multiplier method in respondent-driven sampling surveys to estimate the size of hidden and hard-to-reach populations: case studies from around the world. *Sexually Transm Dis*. 2013;40:304–10. doi:10.1097/OLQ.0b013e31827fd650.
9. Khalid FJ, Hamad FM, Othman AA, Khatib AM, Mohamed S, Ali AKH, Dahoma MJ. Estimating the number of people who inject drugs, female sex workers, and men who have sex with men, Unguja Island, Zanzibar: results and synthesis of multiple methods. *AIDS Behav*. 2014;18(Suppl 1):S25–31. doi:10.1007/s10461-013-0517-x.
10. Joint United Nations Programme on HIV/AIDS. Estimating the size of populations at risk for HIV. 2003. Retrieved from

- http://data.unaids.org/publications/external-documents/estimatingpopsizes_en.pdf. Accessed 13 April 2016.
11. US Census. San Francisco population characteristics. Retrieved from <http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>. Accessed 13 April 2016.
 12. Bye L, Gruskin E, Greenwood G, Albright V, Krotki K. California lesbians, gays, bisexuals, and transgender (LGBT) tobacco use survey—2004. 2005. Sacramento, CA, California Department of Health Services. 2004. Retrieved from <http://www.lgbttobacco.org/files/2004%20-%20Bye%20LGBTTobaccoStudy.pdf>. Accessed 13 April 2016.
 13. Black D, Gates G, Sanders S, Taylor L. Why do gay men live in San Francisco? 1998. Retrieved from <http://sfpl.org/pdf/main/glc/glbtsfdemographics.pdf>.
 14. Brenner H. Use and limitations of the capture-recapture method in disease monitoring with two dependent sources. *Epidemiology*. 1995;6(1):42–8.