Reviewer's report

Title: The Epidemiology of HIV and other Sexually Transmitted Infections in African, Caribbean and Black Men in Toronto, Canada

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Reviewer: Ann Jolly

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Nelson, LaRon et al.

The epidemiology and other sexually transmitted infections in African, Caribbean and Black men in Toronto, Canada

This is a cross sectional study of HIV in minority ACB men who have sex with men, and men who have sex with women recruited in Toronto. Men were recruited by a number of means, including intercepting men on the street, through cultural events, social networks of peer recruiters who were trained in outreach. Questionnaires on previous STIs and demographic information were administered by ACASI with trained assistance available in case respondents need help. The questions were formulated for a Grade 5 reading level. Urine samples, blood samples and self administered swabs were taken for bacterial and viral STI and HCV. Men were divided into MSM and MSW groups; with the former including any men that answered yes to the question whether they had ever had sex with a man. Bivariate analysis using $\chi^2$ tests and and correlations were used to compare MSM and MSW groups as well as differences between HIV positive and negative groups. Logistic regressions with interaction terms were used to better describe the effects of STI history in MSM and MSW and their ultimate association with HIV positivity.

There are two major deficiencies in this paper, which the authors should address before publication.

1. There are a number of probability recruitment methods which could have been used in this study and would have delivered better estimates of population based HIV rates. Certainly, as the researchers went to the substantial expense and trouble of training peer recruiters in outreach methods it seems odd to pay so little attention to the method of recruitment. Among the methods which could have been used are time-space sampling, respondent driven sampling through social networks, capture recapture methods, purposive or targeted sampling as described by Watters and Biernacki and key informant sampling All of these are accepted methods of sampling with solid theoretical constructs behind them. Population estimates can also be generated from the first three methods, Pemphasizing the limitations of the authors’ chosen approach. The lack of a systematic approach to sampling is serious, as this sample is now incomparable to any others taken in the same population. In order to address this deficiency the authors should address the reasoning behind the lack of sampling approach and clearly describe
the differences in participants who were selected using the different methods they itemize. In addition it is important to recognize the scarcity of research and prevention dollars, and once they are awarded to use them responsibly; particularly in populations where the need is highest.

2. The second important deficiency is the complete lack of relevant literature review on ethnic heritage, minority groups and HIV in men who have sex with men. Below is one paper which seems to have been omitted in the literature review which contains data on prevalence in MSM of different ethnicities. The following paper has been omitted. "Serosorting and recreational drug use are risk factors for diagnosis of genital infection with chlamydia and gonorrhoea among HIV-positive men who have sex with men: results from a clinical cohort in Ontario, Canada." Grewal et al Sex Transm Infect 2017. However most important is the assertion in the abstract and that the 'disparities… between ACB men who have sex with men (MSM) and men who have sex only with women are poorly understood." And again page 12 line 44, where the authors claim that: "This is one of the first known reports to provide evidence of previously unrecognised racial disparities in HIV prevalence between subpopulations of MSM." I would caution the authors to be very, very careful about making this statement as routine as a quick search of PubMed MesH Headings for "HIV", race or ethnic group, and MSM pulled up 441 papers. One sample is the following: Differences in Risk Behavior and Demographic Factors Between Men Who Have Sex With Men With Acute and Nonacute Human Immunodeficiency Virus Infection in a Community-Based Testing Program in Los Angeles. Davey et al 2017 J Acquired Immune Deficiency Syndromes. More troubling to me is the apparent lack of understanding of the mechanism by which the increased risk occurs. The authors should reassess their above statements after reading at least these three papers; Am J Public Health. 2013 May;103(5):910-6. doi: 10.2105/AJPH.2012.301015. Epub 2013 Mar 14.The association between racial disparity in income and reported sexually transmitted infections. Owusu-Edusei K Jr1, Chesson HW, Leichliter JS, Kent CK, Aral SO.; Am J Public Health. 1999 June; 89(6): 825-833. PMCID: PMC1508665 Sexual mixing patterns in the spread of gonococcal and chlamydial infections. S O Aral, J P Hughes, B Stoner, W Whittington, H H Handsfield, R M Anderson, and K K Holmes and last Sex Transm Dis. 1999 May;26(5):250-61.Racial/ethnic group differences in the prevalence of sexually transmitted diseases in the United States: a network explanation. Laumann EO1, Youm Y. I encourage the authors to be more precise in recommending prevention strategies for ACB and minority MSM. On this note I recall that Public Health Ontario no longer collects ethnic background in notifiable disease reports. I seem to remember this was due to a publicly held vote in which participants thought it immaterial. Of course that made advocating for more resources for minority populations in public health very challenging. You may consider citing that as a first step in interventions.

3. The last major comment I have concerns the Tables. In each table it is usual to cite the number of people included in the particular analysis, the odds ratio, the P value and CI. The tables are unclear and the confidence limits are very wide for some variables. The primary variables which make up interaction terms in the logistic regression models have to be included along with their OR, CI and p values. If the p values are insignificant the variable should be dropped from the equation unless the interaction term is present and significant. The tables are far from clear and should be revised. I would like a biostatistician to review the analysis here as
you have n=80 or so in one of your groups and only 44 in the HIV+ group; this number may be too small for the number of independent variables you have. Logistic regressions can be used for comparing differences between groups, but also for group membership prediction; please be clear about which approach you wish to take and why. Then explain the findings in those terms. Remember though that you have only the association of STI reporting with HIV positivity; the one is not necessarily predictive of the other. Page 13 line 48. In fact many HIV positive men may feel that as they are already HIV+ they have not much more to lose so the STI infections succeed the HIV+ test not precede it. Also please discuss the use of this model for prediction if that is what your goal is; the sensitivity, specificity and positive predictive values would be a good place to start.

Minor comments.

1. Page 4 line 51. The authors have gone to some lengths to explain the biological factors such STI infection which renders the host more susceptible to HIV. They cite a "growing" body of evidence. To be clear, a landmark paper by Dr. Wasserheit in 1992 was the first to confirm the added risk of STI in HIV transmission; "Epidemiological synergy. Interrelationships between human immunodeficiency virus infection and other sexually transmitted diseases." Sex transm Dis 1992. It is advisable that given the authors' focus on ethnic background they state very clearly that the biological processes behind STI and HIV transmission are unrelated to race. This is in contrast to other infections in which racial differences between hosts do play a part; the classical example being sickle cell anemia and malaria in various populations.

2. The abstract cites a rate of syphilis of 4.7% in this population, but later they make reference to 11.25% which is borne out in table 2.

3. Page 5 line 26. One of the primary reasons for higher HIV rates in African American men is that they are far more likely to encounter a seropositive partner. Thus the historically high rates in this group are self perpetuating to some extent.

4. Page 7 line 56. Please explain how the 'word of mouth' referrals worked; were people given business cards with study details on them? Or was it strictly by mouth?

5. Page 8 line 14 Please report how consent and refusals were managed and analyse the differences between those participants who consented and those who refused.

6. Page 8 line 38. Many, many men have had some sexual experience with other men in trial periods. Please justify and reference why you chose the time frame for sex with same sex
partner to be "ever" rather than in the last year or 6 months. Then incorporate the effect of including more MSW in your MSM group than normally would be the case.

7. Page 9 line 24. Omit the details of univariate analysis, they are a given.

8. Page 9 line 33 please replace "…compare… laboratory confirmed HIV and STIs between MSM and MSW" with "compare… laboratory confirmed HIV and STIs in MSM with that of MSW"

9. Page 9 line 46. HPV 6 and 11 are also major oncogenic types, please give a reason why those were excluded.

10. Page 10 line 6. If you are searching for a good predictor model, goodness of fit test results should be cited, as well as predictive power together with which variables explained the highest amount of variation.

11. Page 10 line 17 and throughout. You start the sentence "For those men born outside Canada.. their average age…. Try this; " The average age of men born outside Canada at arrival in Canada was 19.58 years, and they had lived an average age of 23.4 years in Canada subsequently. Starting a sentence with For men or for bacterial STI is ungrammatical as English requires the subject, the verb and then the object; The Subject is the doer of the action, then the action then the object of the action.

12. Page 10 line 51. Replace with "A significantly higher proportion of MSM were diagnosed with syphilis than were MSW"

13. Page 10 line 55 Replace with "There were no differences in proportions of HCV HBV and HSV-2 between MSW and MSM though more MSM were diagnosed with other viral infections."

14. Page 10 line 38 Omit "The prevalence of HIV and other STI are summarized in Table 2" and add "(Table 2)" at the end of the next sentence.


16. Page 11 line 41 replace "we" with "were"
17. Page 11 line 53 and Table 5 The CI 11.50; 555.72 are very wide, please state how many people were in the cell size as I worry about sample size.

18. Page 13 line 34. Please explain "….non punitive STI screening…" in the context of primo non nocere.

19. Page 14 line 17 please rephrase it is not clear whether self determination on the patient's part leads to knowledge or the reverse.

20. Page 14 A syphilis outbreak(s) and subsequent high rates in Toronto are possible explanations for the high rates of syphilis in MSW and MSM. Please review the outbreak reports to better interpret your findings.

21. Page 14 Line 58 Wonderful!! We need more of this holistic care for people and add in HCV screening for these super active folks as it is a risk for them also.

22. Page 15 line 12. It is ironic that in STI prevention, very often those who are most active and at high risk are those hardest to reach but also in most need.

23. Page 15 line 49. Remember that the money spent on another study is money that cannot go to prevention. Just saying.

I feel that there is good in this paper and the authors seem to have a good grasp of interventions and the need for them. However the research methodology must be strengthened if they are to be taken seriously.

I miss Rob Remis also, and sympathize with the authors on their loss; his spirit lives on!

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