Dear Sir

Re: Validating estimates of problematic drug use in England

We are grateful to the referees for their insightful comments on the paper. We have carefully studies these comments and made a number of important changes to the paper. We believe the paper is now clearer and more focused.

This letter contains details of all the changes made to the paper. Our comments and changes are in bold.

Reviewer 1: George S Yacoubian

Reviewer 1 noted that “the revisions suggested by this reviewer seem to be addressed. I still, however, have concerns regarding the usefulness of these findings to the scientific community. That said, I will defer to the other reviewer(s) and editorial board on this matter.”

As noted, we have endeavoured to meet all this reviewer’s comments.

On the point of usefulness of the findings, the key point is that public health expenditure on illicit drug use in the UK is based on estimates of the scale of the problem. It is therefore an important question to ask how valid these estimates are. As the estimates (ours and others) have been published in academic journals, then it follows that their validity is also of academic interest. We cite the paper by Reuter who argued that “prevalence estimates in the United States were not widely used because of policy-makers' perception of their limited credibility”.

There are several minor stylistic, grammatical, punctuation, and spelling errors throughout, which I trust will be addressed by the journal’s editorial staff.

We have carefully been through the paper and correct a number of minor errors.

Reviewer 2: Li-Tzy WU

Reviewer 2 raised several points. We have addressed these as follows.

Page 3: “However, direct methods (such as survey) of ascertaining the actual number of drug users in the country are unreliable due its illicit nature.” This sentence seems to be too strong and needs clarification.

New text added:

However, direct methods of ascertaining the number of problematic drug users in the country are unlikely to yield accurate figures. This is because of multiple response bias affecting the likelihood of problem drug users a) living in a household that would be included in a sample survey, b) agreeing to participate in sample survey; and c) reporting recent problem drug use.
Page 3: “Thus, if a ‘capture’ sample of 200 animals are marked and released and a recapture’ sample of 100 contains 10 animals which are marked, the estimate for the total population would be 2,000 (i.e. 10:100=20:200).” It looks like “(i.e. 10:100=20:200)” should be “(i.e. 10:100=200:2000).”

This error has been corrected: (i.e. 10:100=200:2,000).

Page 4: “The definition of problematic drug use was ‘current use of illicit opiates, crack-cocaine or benzodiazepines’. The definition of injecting drug use was ‘current use of any illicit drug where injecting was the method of drug administration’.” Does “current use” mean past week, past month, or else? Is there a specified, consistent timeframe of current drug use for all anchor points?

The text has been modified to explain the basis of these definitions:

The definition of problematic drug use was ‘current use of illicit opiates, crack-cocaine or benzodiazepines’. The definition of injecting drug use was ‘current use of any illicit drug where injecting was the method of drug administration’. These definitions are based on the data collection procedures of those organizations whose data is used in capture recapture studies. These organizations consist of drug treatment agencies, the police, HIV-test registers and needle and syringe exchanges. As most of these agencies categorise drug users simply as being current users at time of contact, it is not possible to give a more precise timeframe.

Results –
Page 8, first paragraph: The finding that “only 23% reported “about right” should be made clear here.

The text has been amended as suggested.

Page 10, first paragraph: “It is worth noting that 6 of the DATs who thought their MIM estimate were either ‘too low’ or ‘too high’ compared to the MIM estimate, actually had estimates within 10% of the MIM estimate (see table 8).”

The proportion for “6 of the DATs” should be added to text. There is no table 8.

The text has been amended as suggested. It now reads:

It is worth noting that 6 of the 42 DATs (14%) who thought their MIM estimate were either ‘too low’ or ‘too high’ compared to the MIM estimate, actually had estimates within 10% of the MIM estimate.

There is no table 8. This was an error and this text has been removed.

Page 10, first paragraph: “DATs with their own estimate had significantly higher MIM IDU rates than those without estimates (295 vs. 219, F=2.7, p=0.10).”

The p-value of 0.10 indicates “non-significant.”

This sentence has been completely removed. On reflection, the issue is not central to the paper. The paper makes the point that where DATs had their own estimate, they tended to be higher than the MIM estimates.
“Figure 2 show the geographical distribution of DATS perception of their MIM estimate for problematic drug use.” This sentence could be moved to the ending of the first paragraph on page 10.

This sentence has been moved to the suggested place (now at the end of page 9). As this affects the order of the figures, the original figure 2 is now figure 1 and vice versa.

Discussion –

Page 12: “Among responding DATs (N=90, response rate=60%),…”The response rate (60%) is low, and additional comments on this rate could be helpful to readers.

We have provided addition comments: The text now reads:

Responders and non did not differ significantly in terms of their mean DAT populations (320,674 vs. 313,078, F=0.03, p=0.86). Responders did not significantly differ from non-responders in terms of their estimated PDU rate (PDU 665 vs. per 616 100,000 population, F=1.96, p=0.164). Thus, from the available data, their appears to be no selection bias.

Page 13: “Of the 31 DATs who had their own PDU estimates, 24 of these were higher than the MIM estimate while 7 were lower. Of the 20 DATs who had their own IDU estimates, 17 of these were higher than the MIM estimate while 3 were lower.” The discrepancy between DATs’ own estimates and MIM estimates is high here [24/31= 77%, and 17/20= 85%] and deserves commenting on it.

We have added a comment:

As noted above these estimates may not be comparable with the MIM estimates. Nevertheless, the reasons for so many DATS having higher estimates requires further investigation.

Page 13: “This is the first study to validate estimates of problematic drug use in the UK. The survey results indicate that the MIM method produced valid results for over half of the DATs who responded to the survey (64% for PDU and 52% for IDU).” This sentence may be too strong. If excluding the ‘didn’t know’ category from this number, the corresponding numbers are 40% and 25%, respectively (64%-24%=40%; 52%-27%=25%).

We have modified the text:

64%/52% of the DATs thought the PDU/IDU estimates were about right or did not dispute them. However these figures are lower if the “don’t know” are excluded (40% and 25% respectively), and further work is needed to determine the reasons for this discrepancy.

Conclusions –

Page 14: “The results of the survey indicate that the MIM estimates of problematic and injecting drug use have, with certain caveats, acceptable face validity.”

This sentence needs clarification for two reasons. The agreement in estimates between DATs’ own and MIM is low. The proportion of reporting “about right” categories is not high (33%, 23%).
We have modified the text:

We have omitted the sentence: “The results of the survey indicate that the MIM estimates of problematic and injecting drug use have, with certain caveats, acceptable face validity.” We have also omitted this sentence from the abstract.

We have added the sentence: Given that public health expenditure on illicit drug use is based on estimates of the scale of the problem, validation should be an inherent feature of prevalence estimation studies.

The abstract has been amended to reflect the changes made in the paper. The conclusion now reads: This is the first UK study to determine the validity estimates of problematic and injecting drug misuse. The results of this paper highlight the need to consider criterion and face validity when evaluating estimates of the number of drug users.

We have omitted the sentence:

The present study indicates that the 2001 MIM estimates of PDU and IDU have face validity for the majority of DATS.

Yours sincerely

Dr Martin Frisher