Author's response to reviews

Title: Validating estimates of problematic drug use in England

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Reviewer’s report
Validating estimates of problematic drug use in England Title:
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George S Yacoubian Reviewer:
Reviewer’s report:
General

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1) How can "problematic" drug use be defined as "current use" of OP, CRK, or BENZOS? Is it the type of drug that is making it problematic or the recency of use? If the former, what about powder cocaine or marijuana? If the latter, how are you defining current use? is it use within the past 3 or 30 days, or a certain number of days used within the past 30 days? This definitional tautology is a major impediment.

New text has been added to clarify this definition (p4)

2) There have been several studies in the US that have attempted to estimate treatment need. A more thorough literature review is advised, from both intellectual and policy reasons.

As the aim of the paper is to determine the validity of a set of UK estimates derived using a particular method (i.e. the multiple indicator method). We feel that it would beyond the scope of the this paper to review US studies of treatment need which have used different methodologies.

3) The authors state that the British and Scottish Crime Survey indicated 250,000 users of OP/COC in the general population in the previous year. What does "in the previous year" mean? Does this refer to the year the data were collected or a 12-month time frame for use?

"in the previous year" means in the 12 months prior to the date of interview.

4) While no drug treatment or involvement with law agencies makes drug use less problematic, it is certainly not "non-problematic."

The text has been clarified (p4/5). The reference to non-problematic use has been omitted

5) Response rate is very low, and there is no indication what the original participation rate and what additional responses were acquired via the follow-up.

With regard to the response rate of 60.4%, it important to note that:

1. There has never been a UK study of the validity of drug prevalence estimates.
2. We compared the characteristics of survey respondents and non-respondents and there were no significant differences in relation to the prevalence of problematic drug use.

6) The paragraph describing Table 2 indicates that 73% expressed an opinion about their DAT estimate. Shouldn't this be 77%?

73% is correct. Of the 90 responding DATS 24 (27%) did NOT express an opinion. The remaining 73% responded about right, too low or too high.

7) Reporting textual information for fewer than 10 respondents is meaningless.

As the free text is simply descriptive it has relevance for the paper. For example 7 DATS reported reasons for saying that they thought the estimates were too high. Reason given included “errors in model figures; too high relative to numbers on treatment; estimates derived from BCS”. While we think this important information, we could omit this section if desired.

8) The biggest problem with this paper is the usefulness of the findings. I do not think that the methods are particularly solid. Moreover, I don't see what the results provide to local policymakers, much less an academic audience.

As the massive public expenditure on illicit drug use in the UK is based on estimates of this activity it is an important scientific question to assess their validity.

To date there has only been one study of this issue, namely the cited paper by Friedman et al. Their study examined the face validity of estimated numbers of injecting drug users for 96 metropolitan areas in the USA in 1996. The present study used a similar methodology which is as robust as possible given the context. At the present time, there does not seem to be a better way of assessing the validity of illicit drug user estimates. However in addition to assessing face validity we also examine criterion related validity.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1) Replace "since" with "because." Since is a reference for time (e.g., since the 1990s), and is not explanatory.

This change has been made

2) Several grammatical errors throughout.

These have been corrected
Discretionary Revisions (which the author can choose to ignore)
Reject because scientifically unsound What next?:
An article of insufficient interest to warrant publication in a scientific/medical journal
Level of interest:
Not suitable for publication unless extensively edited Quality of written English:
Reviewer's report
Validating estimates of problematic drug use in England Title:
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Li-Tzy WU Reviewer:

Reviewer's report:
General
Study Aim -- This study aims to assess the face validity of problematic and injecting
drug use estimates derived using a statistical model, known as the Multiple Indicator

Abstract –
Not sure if this sentence “This 61% of DATs had acceptable PDU/IDU estimates” is
correct.

This has been corrected. The correct figure is 64% applies only to PDU

“These figures increased as a consequence of this study.” ----- There are no clear
data to support if this is the case.

Strictly speaking, the number of DATS with a viable estimate increased as a
function of the study, the results of which were surveyed in this paper. The
text has been rewritten to reflect this

The present study indicates that these figures have increased substantially as
a result of the application of the MIM to English DATS.

“The MIM provides a way of providing valid estimates for an increasing number of
DATS” ----- There is uncertainty concerning the reliability and validity of the
indicators, it is unclear if the MIM actually provides a way of providing valid estimates
for an increasing number of DATS.

The present paper is a survey of results produced by MIM (multiple indicator
method). The MIM analysis is reported in full in an earlier paper. The paper
(and a report to the Home Office) contains extensive analysis if the indicators.
The method involves a three stage process: a) factor analysis of the drug
indicators, b) regression linking factor scores to known prevalence estimates
and c) imputation of estimates in all other DATS. The regression model
explains 32% of the variance for the problematic anchor points and 70% for the
injecting anchor points.

Background –

The paper was not numbered completely.

The paper now has pages numbers commencing with the title page
The two main acronyms, IDU and PDU, had never been defined at the beginning of the paper. Yet IDU, PDU, injecting drug use, and problematic drug use were used interchangeably.

**Acronyms are now defined in the abstract on p2.**

This study aims to assess the face validity of problematic drug use (PDU) and injecting drug use (IDU) estimates derived using a statistical model, known as the Multiple Indicator Method (MIM), for all English Drug Action Teams in 2001.

The acronyms are also defined in the introduction (p6)

Readability could be improved significantly if acronyms were defined and then be used consistently throughout the text.

**The text has been amended so that usage of these terms is consistent.**

The authors stated that the MIM estimates are based on a model but did not explain what model it is.

New text has been added explaining the model. Clarification would be helpful.

**The MIM involves a three stage process: a) factor analysis of the drug indicators, b) regression linking factor scores to known prevalence estimates and c) imputation of estimates in all other DATS. The regression model explains 32% of the variance for the problematic anchor points and 70% for the injecting anchor points.**

The sentence “… there is no way of directly obtaining this information …” needs clarification. Does it mean that there is no way of directly obtaining the information concerning how many problematic and injecting drug users there actually are in each DAT? Are there expensive ways available?

**The text has been altered deleting the text “there is no way of directly obtaining this information” The idea being conveyed is that drug users are a “hidden population” and therefore the size of the hidden population can only be ascertained in various indirect ways.**

Methods – “Problematic drug use” was defined as current use of illicit opiates, crack-cocaine, or benzodiazepines, which seems to be arbitrarily. Rationale is needed to justify why it is limited to these three drug classes. Citation to support this definition would be helpful.

**New text has been added to explain the use of this definition. A citation to support the definition has been added**
The target study sample [149 English Drug Action Teams] is appropriate. However it is not clear how the study was conducted to ensure that only the person (or persons) best placed in each English Drug Action

The paper describes how respondent best placed to answer the survey was selected.

All DATs in England were sent a letter from the Home Office informing them of this study and that all DATS were being asked to respond to a questionnaire... The questionnaire, in Adobe PDF format was emailed to each DAT by the Home Office via the Regional Managers on 21st June 2004. It was requested that the questionnaire be completed by the person (or persons) best placed to assess the number of drug users in the DAT.

There needs to be a description of the 2001 MIM estimates for the 149 DATS in England because this study is to determine their face validity.

As explained above, text has been added to describe the process of obtaining the MIM estimates

Results – The overall readability would be improved significantly if the Results section was reorganized with clear sections for each PDU and IDU and with clear subheadings for each section.

Sub heading have been added to imporve the clarity of this section. All results are clearly labeled as relating to PDU or IDU.

What are NTA, and BCS?

Sorry, these should have been specified-Error corrected.
National Treatment Agency (NTA
British Crime Survey (BCS)

Under the subheading “FURTHER ANALYSIS OF INJECTING DRUG USE”, the authors described the findings of PDU. Should it be IDU?

Yes, the errors have been corrected.

The sentence beginning with “Figure 1 shows…,” the authors should make it clear that Figure 1 is related to PDU.

The text has been amended as suggested

Before “Figure 1”, a subheading for “COMPARISON OF DATS OWN PDU ESTIMATES AND THE MIM PDU ESTIMATES” is recommended.

This sub heading is in the text before figure 1 (p10)
Under the subheading “COMPARISON OF DATS OWN IDU ESTIMATES AND THE MIM IDU ESTIMATES”, the authors mentioned PDU (second line).

**The text has been amended**

Discussion –

The first paragraph, it is unclear how 63% was obtained.

**The text has been amended to explain exactly how this figure was obtained.** *(The correct figure is 64%)*

The second paragraph, it is unclear how 51% was obtained.

**The text has been amended to explain exactly how this figure was obtained.** *(The correct figure is 52%)*

A brief description of “capture-recapture” would be helpful to readers.

**New text has been added to explain capture recapture (p15)**

Conclusions – “Not withstanding this limitation, 46 DATs (31%) had a PDU estimate, while 38 (26)% had an IDU estimate” ----- The estimates of 31% and 26% still are considered low. Implications from these low estimates and how it may affect the findings of this study should be discussed [eg, the validity of DAT’s assessments/interpretations of the number of drug users in DATs.]

The aim of the paper is to assess how DATS (the majority of whom had not prior estimates) judge the MIM estimates (ie face validity). On this measure, the MIM estimates are deemed to be acceptable. However we acknowledge (p9 and 10) that where DATS had their own prior estimates they tended to be higher than the MIM estimates. However as we note in the paper there are issues concerns DATS prior estimates and it was not the aim of this paper to validate these prior estimates.

“The MIM shows that it is not necessary to use capture-recapture for every DAT. Both from a scientific and an economic point of view, the current results indicate that focusing capture-recapture on selected anchor points is likely to yield better results.” ----- These sentences need clarification on why focusing capture-recapture on selected anchor points is likely to yield better results.

**Capture-recapture in every DAT would be extremely expensive. If, as this and the previous MIM study argue, the MIM is a valid scientific method then it follows that focusing on a few DATS and applying MIM would be the optimal methodology.** The text has been amended to clarify this point.
The last paragraph of Conclusions – “Recently, researchers have estimated problematic drug use for all DATS in England using capture recapture. The estimated number of problematic drug user in England for 2004 was 340,000.”

Were the estimates of 340,000 obtained from the capture recapture method?

Yes, the estimate (accurate figures are now available) was obtained from the capture recapture method

“This figure represents an 18% increase on the 2001 MIM study, yet between 2001 and 2004 the level of self-reported drug use among people aged 16-59 in then population has dropped by 11% from an estimated 2.3 million to 2.1 million15, and the number of opiate overdose deaths declined16.”

How “self-reported drug use” was defined and how it was related to the definition for “problematic drug user”?

This section has been rewritten. First, as noted, precise figures are now available. Second, we compare the change in PDU estimates to a) the rate of self-reported class A drug use in the last month among people aged 16-59 and b) drug related deaths. These indicators are likely to be highly correlated with PDU.