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LETTER TO THE EDITOR

Whether medical marijuana is ever substituted for other substances is not the full story

Dear Editors,

Lucas *et al.* [1] recently stated that 87% of a sample (n = 473) of medical cannabis patients in Canada reported substituting marijuana for either alcohol, illicit substances or prescription drugs. The 87% figure was prominently displayed in both the abstract and the first sentence of the results section, making it appear to be the main result of the study. Indeed, the headline '87%' finding gained momentum in popular media and news sources, as journalists at *The Atlantic* [2] and *The Washington Post* [3] used the finding as evidence that barriers to access medical marijuana are fuelling the United States' problems with other drugs. This assertion appears, however, to be an extrapolation from an inadequately worded question. The three questions that were likely to have been the basis for the study's 87% figure are:

> *'Now we would like to ask you about substituting cannabis for other drugs or alcohol. What this means is purposely choosing to use cannabis INSTEAD of alcohol or other drugs.*
> a. *Have you ever used cannabis as a substitute for alcohol? (circle one) ....Yes ....No*
> b. *Have you ever used cannabis as a substitute for illegal drugs? (circle one) ....Yes ....No*
> c. *Have you ever used cannabis as a substitute for prescription drugs? ....Yes ....No*' [4]

Readers should note that this question asks about having 'ever' substituted cannabis for another drug. This means, for example, that someone who substituted 10 medical marijuana cigarettes for a single beer would be counted in the substitution figure. Further, the question does not exclude the possibility that those counted in the '87%' may have increased their use of alcohol, illegal drugs or prescription drugs. For example, someone who just once substituted medical cannabis for alcohol, never did so again, and then went on to increase their alcohol or other drug use *because* of their medical cannabis use would still count toward the 87%. A single question on lifetime substitution should not be used as a basis for determining whether increased access to medical marijuana can reduce alcohol, illicit drug or prescription drug use. While most researchers could recognise the limitations of the study resulting from this question's wording, this wording was omitted the paper. The researchers concede that 'no data was gathered on the extent of self-reported substitution' and so 'it is not possible to determine how much actual prescription drug, alcohol or illicit drug use was substituted for', but this important caveat is understated in the main text and omitted from the abstract. Further, the study's instrument, the Cannabis Access for Medical Purposes Survey, does not account for an opposite effect (i.e. complementarity), and so it is quite possible that the complement effect outweighs the substitution effect.

In addition, while the questionnaire is concerned with medical marijuana use, the specific question asks about cannabis use in general, not specifically medical cannabis use. However, respondents might easily have drawn on experiences while using recreational marijuana and not medical cannabis. Combined with the possibility that some medically authorised marijuana use has recreational intentions, it is difficult to discern whether these results concern medical or recreational marijuana.

Questions regarding substitution like those in the Cannabis Access for Medical Purposes Survey provide little relevant information for the medical marijuana policy debate. In addition, it seems possible that several studies related to this topic [5–7] also rely on poorly worded surveys and are also limited in their usefulness. The fact that the results of such limited studies were widely disseminated in popular media should remind researchers to convey a precise and complete interpretation (including information on limitations) of their results in both their abstract and main text.

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