AGREEMENT BETWEEN SELF-REPORTED ILLICIT DRUG USE AND BIOLOGICAL SAMPLES: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background:
Studies often rely on self-report and biological testing methods for measuring illicit drug use, yet evidence for their agreement is limited to specific populations and self-report instruments. We aimed to comprehensively examine the evidence for agreement between self-reported and biologically measured illicit drug use across all major illicit drug classes, biological indicators, populations, and settings.

Methods:
We systematically searched peer-reviewed databases and grey literature. Included studies reported 2x2 table counts or agreement estimates comparing self-reported and biologically measured use published up to March 2022. With biological results considered the reference standard and use of random effect regression models, we evaluated pooled estimates for overall agreement (primary outcome), sensitivity, specificity, false omission rates (proportion reporting no use that test positive) and false discovery rates (proportion reporting use that test negative) by drug class, potential consequences attached to self-report (i.e., work, legal or treatment impacts), and timeframe of use.

Results:
From 7,924 studies, we extracted data from 207 eligible studies. Overall agreement ranged from good to excellent (>0.79). False omission rates were generally low while false discovery rates varied by setting. Specificity was generally high but sensitivity varied by drug, sample type, and setting. Self-report in clinical trials and situations of no consequences was generally reliable. For urine, recent (i.e., past 1-4 days) self-report produced lower sensitivity and false discovery rates than past month. Agreement was higher in studies that informed participants biological testing would occur (DOR: 2.9, 95% CI: 1.2-6.9). The main source of bias was biological assessments (51% studies).

Conclusion:
While there are limitations associated with self-report and biological tested measures of drug use, overall agreement was high, suggesting both provide good measures of illicit drug use. Recommended methods of biological testing are more likely to provide reliable measures of recent use if there are problems with self-disclosure.

Disclosure of Interest Statement:
Professor Hickman reported receiving grants from National Institute for Health Research & Medical Research Council for analysis of the data set included in this review during the conduct of the study and speaker honoraria from Merck Sharp & Dohme and Gilead in the past 3 years outside the submitted work. Professor Grebely reported receiving grants from AbbVie, Camurus, Cepheid, Gilead Sciences, Hologic, Indivior, and Merck, and personal fees from AbbVie, Cepheid, Gilead Sciences, and Merck outside the submitted work. Professor Farrell reported receiving grants from the Australian

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All other authors declare no competing interests.