

UNSW NDARC

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Agreement between self-reported illicit drug use and biological samples: A systematic review and meta-analysis

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Co-author declarations

Merck Sharp & Dohme Gilead AbbVie Camurus Cepheid Hologic Indivior Merck Seqirus United Context



- Social undesirability
- Negative consequences
- Poor recall
- Variable content





- Lab testing
- Point-of-care screening

Characteristics of the...

- Study
- Individual



Context



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



BIOLOGICAL TEST RESULT

		Positive	Negative
		a	b Solf reported use
	Yes	AND	AND
SELF-		tested positive	tested negative
REPORTED			
DRUG USE		С	d
		Self-reported no	Self-reported no
	No	use	use
		AND	AND
		tested positive	tested negative



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BIOLOGICAL TEST RESULT

		Positive	Negative	
SELF- REPORTED	Yes	a Self-reported use AND tested positive	b Self-reported use AND tested negative	
DRUG USE	No	C Self-reported no use AND tested positive	d Self-reported no use AND tested negative	
			,	Agreement (self-reported use AND tested positive OR (self-reported no use AND tested negative) (a+d)/(a+b+c+d)



BIOLOGICAL TEST RESULT

		Positive	Negative
SELF- REPORTED DRUG USE	Yes	a Self-reported use AND tested positive	b Self-reported use AND tested negative
	No	C Self-reported no use AND tested positive	d Self-reported no use AND tested negative
	·	Sensitivity % tested positive who self-reported use a/(a+c)	Specificity % tested negative who self-reported no use d/(b+d)



Peer-reviewed literature: Medline, Embase, PsycINFO

Grey literature search

Comparisons of the same major drug class excluding alcohol, tobacco, and new psychoactive substances

Random effects modelling frameworks

Self-report: Past 1-4 days & Past Month



Characteristics of included studies



Risk of bias



Summary of QUADAS-2 Risk of Bias results



Overall agreement



Urine: Overall agreement between self-report and biological test result



Saliva: Overall agreement between self-report and biological test result



Hair: Overall agreement between self-report and biological test result

0.5



Agreement measures conditioning on biological test result (past month use)



	Studies (k)	Records (N)	Sensitivity	Specificity
Cannabis	26	28	0.81 (0.71-0.88)	0.84 (0.75-0.90)
Cocaine	24	24	0.66 (0.55-0.75)	0.91 (0.86-0.95)
Methamphetamine	10	10	(sparse data)	(sparse data)
Heroin	11	11	0.81 (0.53-0.94)	0.81 (0.38-0.97)
Opioids	14	14	0.82 (0.58-0.94)	0.77 (0.55-0.90)







Urinalysis for cocaine, 1 month

Pooled estimate

Standard mean





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0.00	0.25	0.50	0.75	1.00	0.00	0.25	0.50	0.75	1.00

	Studies (k)	Records (N)	Sensitivity	Specificity
Cannabis	16	17	0.68 (0.17-0.96)	0.85 (0.53-0.96)
Cocaine	30	31	0.51 (0.34-0.68)	0.95 (0.88-0.98)
Methamphetamine	11	11	0.48 (0.24-0.73)	0.92 (0.73-0.98)
Heroin	11	11	0.79 (0.47-0.94)	0.82 (0.48-0.96)
Opioids	10	10	0.32 (0.09-0.71)	0.95 (0.75-0.99)







Hair analysis for cocaine, all timeframes

Pooled estimate

Heterogeneity of study effects





Longer timeframes of self-reported drug use compared with urinalysis tended to provide better agreement



Agreement higher among cohorts with a high proportion of people who use drugs



Agreement higher in trials and situations with no consequences



Studies measuring cocaine use when people were informed they would be tested



Conclusion

- Self-reported drug use has high levels of overall agreement with biological measures
- Variation between drug classes, biological indicators, and populations...
- Consider the suitability of biological testing methods in relation to their limitations

