

Systematic review and pairwise meta-analysis comparing the predictive performance of treatment adherence measures for virologic failure detection in people living with HIV

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BACKGROUND AND OBJECTIVES

- A critical feature of an adherence assessment tool is its ability to predict virologic failure in people living with HIV (PLHIV)
- We therefore aimed to compare the predictive performance of commonly used adherence measures

METHODS

- Systematic search: MEDLINE, EMBASE and LILACS up to February 2018
- Inclusion criteria:

- People living with HIV on ART
- Adherence measures
- Adherence measures
- Virologic failure (as defined by each study)
- Quantitative observational studies

Electronic Monitoring
 Pill Count
 Pharmacy Refill
 Self-Report
 Physician Assessment

- Data collection: individual patient-level data → for each adherence measure, we collected the number of virologic failures within non-adherent participants
- Analysis: two or more studies comparing the same pair of adherence measures → Pairwise meta-analyses with random effects

DISCUSSION

- Self-report outperforms pill count only when the self-report instrument refers to a shorter recall time frame
 Self-report measures are prone to recall bias, so a shorter time frame would increase accuracy
- Clinician assessment has been reported as the least reliable adherence measure among all.
 Our findings favoring physician-estimated non-adherence may be explained by the fact that physicians are likely to rely on the available clinical information when they are unsure about patient adherence or do not trust the patient's report
- There is still no consensus on how best to combine measures, which measures to combine, or how many time points to include
 This heterogeneity could explain the lack of association we found between multiple vs. single measures

CONCLUSION

Low-cost and simple adherence measures such as self-report predict virologic failure better than or equally well as objective measures. Our results suggest that there is no need to use expensive or time-consuming adherence measures when the objective is to identify PLHIV at risk of treatment failure.

References: Williams et al. AIDS Behav, 17(1): 284-2, 2013.
 Miller et al. J Gen Intern Med, 17(1): 1-11, 2002.
 Murri et al. J Gen Intern Med, 19(11): 1104-1110, 2004.

RESULTS

Figure 1. Flow diagram for study inclusion

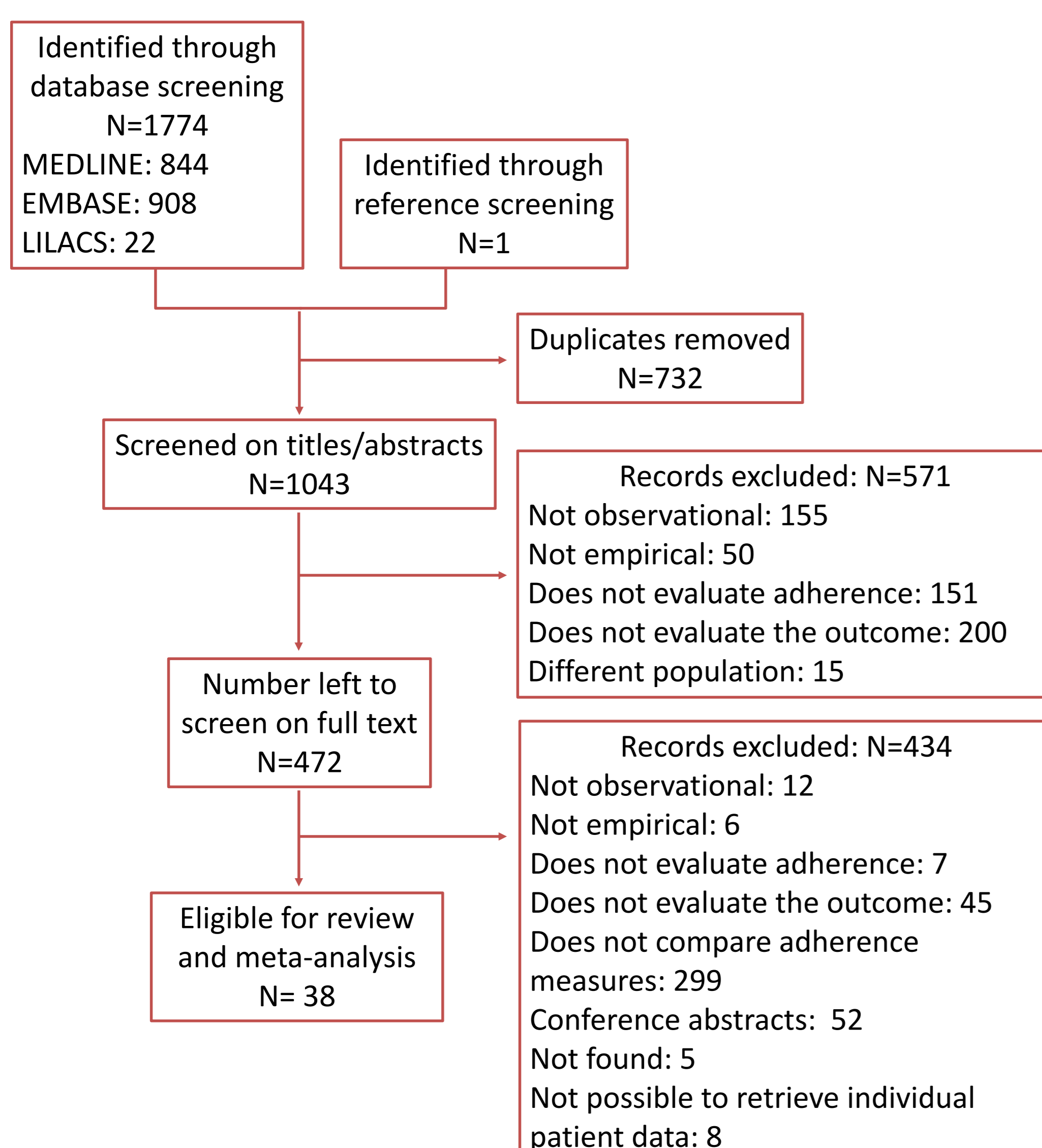
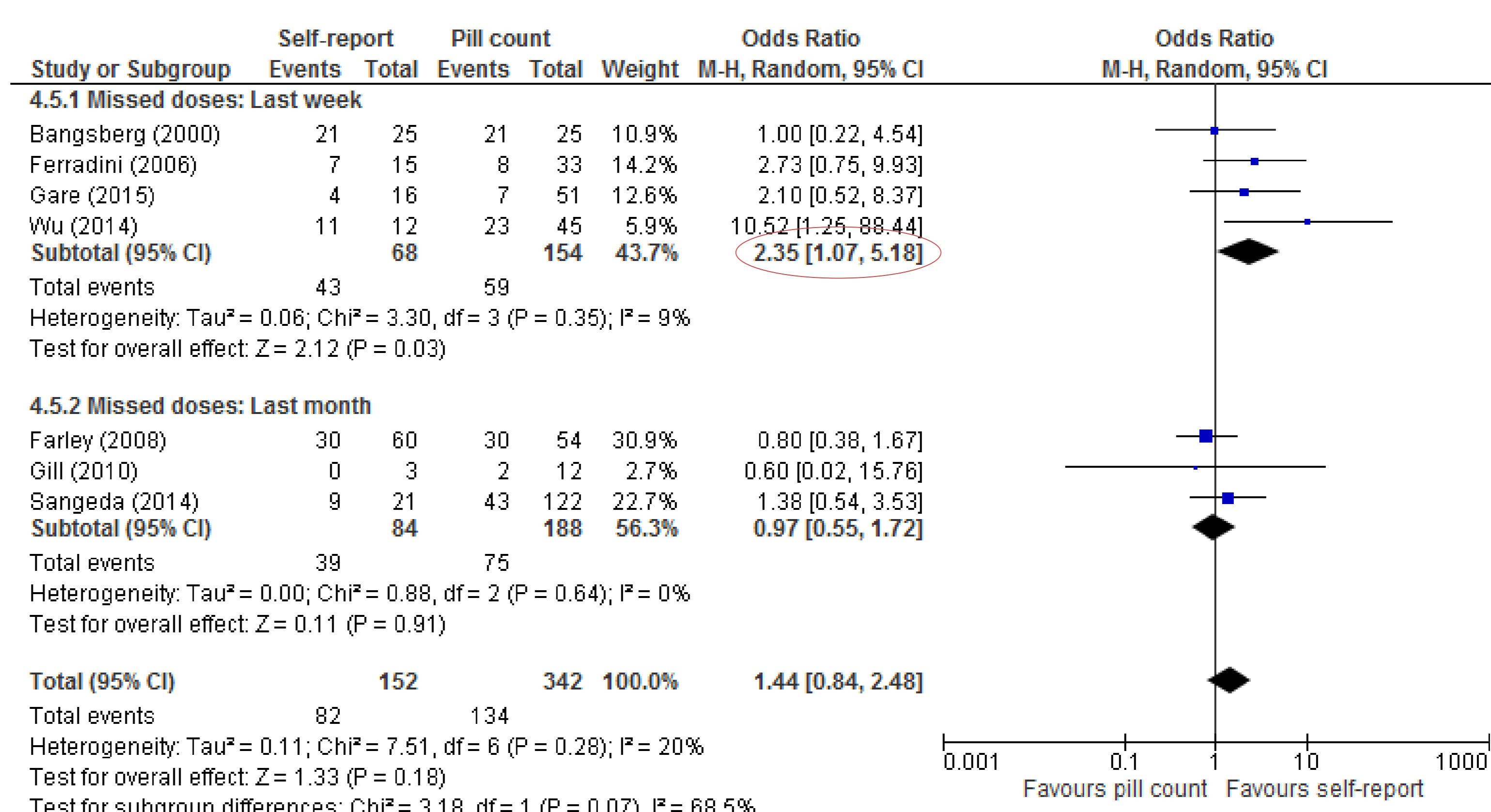


Table 1. Summary of main findings of pairwise meta-analyses comparing the effects of adherence measures on virologic failure

Comparison	No of studies	Sample size	Pooled OR (95% CI)	p-value	I ² (p-value) ^a
Self-report vs. pharmacy refill	24	11248	1.04 (0.82-1.32)	0.72	54% (<0.01)
Self-report vs. electronic monitoring	7	345	1.34 (0.75-2.38)	0.33	0% (0.74)
Self-report vs. pill count	7	494	1.44 (0.84-2.48)	0.18	20% (0.28)
Self-report vs. physician assessment	5	1295	1.00 (0.49-2.02)	1.00	80% (<0.01)
Pharmacy refill vs. pill count	2	299	1.13 (0.61-2.10)	0.70	40% (0.20)
Pharmacy refill vs. physician assessment	4	1683	0.48 (0.25-0.93)	0.03	62% (0.05)
Electronic monitoring vs. pill count	2	69	1.10 (0.33-3.71)	0.88	0% (0.52)
Self-report + pharmacy refill vs. self-report	3	215	1.04 (0.56-1.92)	0.91	0% (0.67)
Self-report + pharmacy refill vs. pharmacy refill	3	282	0.98 (0.59-1.64)	0.94	0% (0.91)

^a Test for heterogeneity; OR: Odds ratio (95% confidence interval)

Figure 2. Forest plot of subgroup analysis (self-report vs. pill count)



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