

Buprenorphine versus methadone for the treatment of opioid dependence: a systematic review and meta-analysis of randomised and observational studies

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Introduction: Opioid dependence is associated with substantial health and social burdens, opioid agonist treatment (OAT) is highly effective in improving outcomes for people who receive treatment. We aimed to compare the OAT medications buprenorphine and methadone in the treatment of opioid dependence across a wide range of outcomes.

Method: Primary outcomes were retention, treatment adherence, and extra-medical opioid use. Secondary measures included substance use, criminal justice, physical and mental health outcomes. We searched Embase, MEDLINE, CENTRAL, and PsycINFO through August 2022; clinical trial registries, and Cochrane reviews. All RCT and observational studies among people with opioid dependence treated with buprenorphine compared to methadone that collected data on any of our outcomes, were included. Comparative estimates were pooled using random-effects meta-analyses. Retention rates across multiple time points was pooled, stratified by medication and study types. Meta-regressions examined potential reasons for variation in observed effects. GATHER and PRISMA guidelines were followed, PROSPERO registration CRD42020205109.

Results: We identified 32 RCTs (N=5808 participants) and 69 observational studies (N=323 340) comparing buprenorphine and methadone, and an additional 51 RCTs (N=11 644) and 124 observational studies (N=700 035) that reported on treatment retention with buprenorphine. At timepoints beyond 1 month, retention was better for methadone than for buprenorphine. There was some evidence that extra-medical opioid use was lower in those receiving buprenorphine. Pooled evidence favoured buprenorphine treatment for cocaine use, cravings, anxiety, treatment satisfaction, and cardiac dysfunction; and evidence favoured methadone for hospitalisation and alcohol use.

Discussions and Conclusions: Evidence suggests that treatment retention is better for methadone than for sublingual buprenorphine. Comparative evidence on other outcomes examined showed few statistically significant differences.

Implications: These findings highlight the imperative for interventions to improve retention, consideration of client-centred factors (such as client preference) when selecting between methadone and buprenorphine, and harmonisation of data collection and reporting to strengthen future syntheses.

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