



European Monitoring Centre
for Drugs and Drug Addiction

Large variation in measures used for assessing opioid dependence treatment outcomes - a systematic review of long-term observational studies

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Background

- Drug use and addiction, notably to opioids, are important public health problems with high costs to individual and society
- Continuing discussion about treatment effectiveness ('recovery'), the chronicity of drug dependence complicates the picture
- Lack of clear overview of studies and outcomes, although specific outcomes have been reviewed (e.g. abstinence, injecting, HIV) and specific interventions (methadone, buprenorphine, heroin..)
- To our knowledge no review to date has provided an overview of the outcomes being assessed in the major treatment outcome studies of opioid dependence (regardless of the intervention offered)
- We aimed to assess what outcomes are being used in the existing longitudinal opioid treatment studies to understand gaps, needs and areas for further research

Objectives

This review assesses the outcome domains used in large observational prospective treatment studies of opioid users

Study questions:

- What are the main outcome domains used in longitudinal observational studies of opioid treatment?
- What is the use of binary measures (abstinence) and continuous measures (frequency) of drug use utilised in these studies?

Methods – search strategy

- We searched Pubmed and Cochrane databases for “substance-related disorders” AND “observational study”
- No publication date or language limitations
- Longitudinal observational studies

In addition:

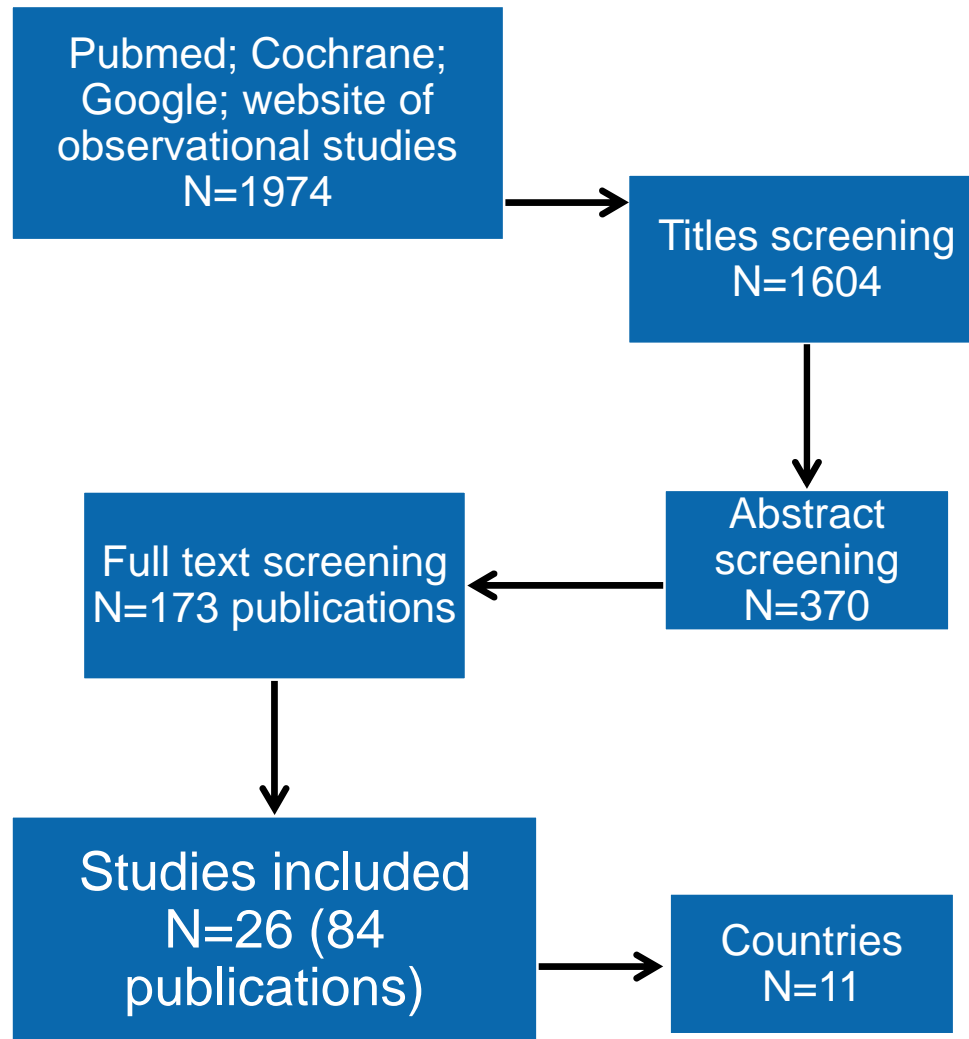
- Searched “related citations” to 12 known large studies
- Free text search for the known study acronyms
- Checked websites of the known studies
- Registered protocol in Prospero database (Ferri et al. 2014)

Methods – inclusion / exclusion criteria

Inclusion criteria:

- Population = sample of opioid users
- Intervention = any drug treatment
- Outcomes = any outcome at follow-up (base-line data or covariates of outcomes excluded)
- Study design = non-experimental observational longitudinal studies (efficacy studies / RCTs excluded)
- Study quality indicator = reporting of loss to follow-up (LTFU)

Search strategy and results



Results

- 26 studies with 84 publications included
- Eleven countries: Australia, Denmark, Germany, Ireland, Israel, Italy (2x), Spain (2x), Netherlands, Norway, UK (5x), USA (10x)
- Data collection 1962–2009 (publication dates 1979–2013)
- Median FU 34.5 months (n=20 range 12-396, IQR 16.5-94.5) or 54.8 person months (n=9 range 4.4-397.2, IQR 25.8-64.8)
- N = >65,279 at baseline and >48,320 at end of FU
- % LTFU median 29.3 (n=22 range 0-64.1, IQR 14.8-37.6)

Results – main outcome domains

Drug use (20 /26 studies),
includes: Abstinence (20)

Treatment aspects (15)

Crime (13)

Mortality (13)

Health (12)

Social functioning (12)

Harms (8)

Cost-effectiveness /
economic issues (2)

Recovery (2)

but similar definitions included
'rehabilitation', '(non-)sickness',
'success' and 'social adaptation'
(7 studies in total)

Results – main outcome domains 2

- Studies reported on around half of the eight outcome domains identified, however the specific domains included varied considerably
- This varied from a high of 20 studies reporting on drug use outcomes to a low of 2 studies reporting on economic estimates
- The number of outcomes used appeared to increase slightly since the turn of the century, with 20 studies initiated before 2000 including on average only three of the eight domains, while six studies initiated since 2000 covered on average five domains

Table 2a. Treatment outcomes reported in longitudinal observational opioid treatment studies – number and percentage covered out of eight domains

Study label	Lead authors	Drug use	Crime	Health (mental and physical)	Treatment-related	Social functioning	Harms	Mortality	Economic	Domains covered (%)
INITIATED BEFORE 1990										40.0%
Study1	Hser et al. Nosyk et al. Smyth et al.	x						x		2
Study2 / DARP	Simpson et al.	x	x		x	x				4
Study3	De Leon et al.	x	x			x				3
Study4	Hastrup et al.	x		x		x		x		4
Study5	Kosten et al.	x	x	x	x	x				5
Study6 / TOPS	Condelli et al.	x			x					2
Study7 / EMETYST	Sanchez-Carbonell et al.	x	x	x	x	x		x		6
Study8 / ACS	Termorshuizen et al.	x								1
Study9 / ALIVE	Galai et al.	x								1
Study10	Bovasso et al.	x	x	x		x				4

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Study label	Lead authors	Drug use	Crime	Health (mental and physical)	Treatment-related	Social functioning	Harms	Mortality	Economic	Domains covered (%)
INITIATED 1990-1999										38.8%
Study11	Simpson et al.	x	x		x					3
Study12 / DATOS	Broome et al., Flynn et al., Hser et al., Hubbard et al., Murphy et al., Rao et al.	x	x	x	x	x	x			6
Study13	Brugal et al.							x		1
Study14	Peles et al.				x			x		2
Study15	D'Ippoliti et al.				x					1
Study16 / NTORS	Gossop et al. Godfrey et al.	x	x	x	x	x	x	x	x	8
Study17	Hutchinson et al.	x	x	x		x	x			5
Study18	Arendt et al.							x		1
Study19	Clausen et al.							x		1
Study20 / VEDETTE	Bargagli et al., Davoli et al., Ferri et al., Salamina et al.				x		x	x		3

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Study label	Lead authors	Drug use	Crime	Health (mental and physical)	Treatment-related	Social functioning	Harms	Mortality	Economic	Domains covered (%)
INITIATED SINCE 2000										66.7%
Study21 / DORIS	Bloor et al., McKeganey et al.	x	x	x	x	x	x	x		7
Study22 / ATOS	Darke et al. Havard et al. Teesson et al.	x	x	x	x		x	x		6
Study23 / PREMOS	Soyka et al., Wittchen et al.	x		x	x			x		4
Study24 / ROSIE	Comiskey et al.	x	x	x	x	x	x	x		7
Study25 / DTORS	Donmall et al., Jones et al.	x	x	x	x	x	x		x	7
Study26 / NDTMS	Marsden et al.	x								1

Drug use outcomes and abstinence

- Most (20/26) studies reported on changes in drug use, all 20 included explicit measures of abstinence
- All studies measuring abstinence used self-report in face-to-face interviews, although 13 studies complemented this with partial or full validation through biological testing
- Abstinence, however, was defined in many different ways, ranging from no heroin use to additionally requiring no use of other illicit drugs or no heavy alcohol use
- Abstinence also varied from being strictly seen as zero use to allowing for incidental use
- The inclusion of methadone in the definition of abstinence, (i.e. if those prescribed methadone were considered abstinent or not), varied across studies.
- The temporal periods of no drug use used to define abstinence also varied considerably.

Concept of 'recovery' or 'treatment success'

- Mostly not clear what was regarded as a 'recovery' or 'treatment success'
- 7 studies mentioned 'recovery' or a 'recovery'-type concept, these included also: 'success', 'not being sick', 'rehabilitation' and 'social adaptation'
- Only 2 of these studies explicitly mentioned 'recovery', but using different definitions: five years of heroin abstinence (Study 1); and absence of drug and daily alcohol use as well as criminal behaviour (Study 12)
- This makes it difficult to compare successful treatment

Variability in the other, non-drug use domains

- Variability was similarly high in the other, 'non-drug use', domains
- Many studies omitted several outcome domains that were regarded as important in other studies
- E.g. out of the 20 studies that included drug use outcomes, 5 did not report crime outcomes, 8 did not report physical or mental health, 8 did not report on social functioning and 13 did not report on risk behaviours
- Only 2 of these 20 studies included HIV or HCV status and only 7 included injection among their drug use outcomes reported
- This can partly be explained by studies being designed before the HIV epidemic had become widely recognised, but it is more surprising that these measures are not routinely included in the more recent studies

Quality of studies

- Quality of studies was high as assessed per the completeness of reporting on follow-up procedures
- Only four of the 26 studies did not provide sufficient information to calculate LTFU
- In some of the included mortality studies using record linkage the lack of clarity on LTFU appeared to follow from the assumption that population databases and record linkage procedures are both error-free and complete.
- Follow-up rates were also unclear in some of the studies that had allowed for differential follow-up in their analysis

Limitations

- Some publications may have not been captured by our search strategy and we may have also missed studies altogether
- Limitations are possible due to the information provided in the publications reviewed
- The analysis presented here is ambitious, trying to overview all studies on all outcomes, and thus necessarily lacks detail on each of the individual outcomes included

Conclusions

- We found considerable variation in the outcome domains reported in longitudinal opioid treatment studies
- There is some indication of more domains being covered since 2000 (convergence towards multi-domain studies)
- However, even for the same domains measures are highly variable and often differ on fundamental issues
- The understanding of successful opiate treatment outcomes or 'recovery' is made more difficult by this variation. A need exists for consensus on a set of core outcome measures.



Thank you for your attention

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