Supplementary Online Content

Bentzley BS, Han SS, Neuner S, Humphreys K, Kampman KM, Halpern CH. Comparison of treatments for cocaine use disorder among adults: a systematic review and meta-analysis. *JAMA Netw Open*. 2021;4(5):e218049. doi:10.1001/jamanetworkopen.2021.8049

This supplementary material has been provided by the authors to give readers additional information about their work.

eMethods 1. Study Protocol

1) Search strategy
    a. Database: PubMED
        1} Query: cocaine[title] AND (Clinical Trial[ptyp] AND "loattrfull text"[sb] AND ("1995/12/31"[PDAT] : "2017/12/31"[PDAT]) AND English[lang])
            1. Title contains "cocaine"
            2. Article type: "Clinical Trial"
            3. Text availability: "Full text"
            4. Publication date: From 1995/12/31 to 2017/12/30 (20 years)
            5. Language: "English"
            6. Last search: 12/30/2015
            7. References returned = 733
        2} Query: cocaine[title] AND (Clinical Trial[ptyp] AND "loattrfull text"[sb] AND ("1995/12/31"[PDAT] : "2016/12/31"[PDAT]) AND English[lang])
            1. Title contains "cocaine"
            2. Article type: "Clinical Trial"
            3. Text availability: "Full text"
            4. Publication date: From 1995/12/31 to 2016/12/31 (21 years)
            5. Language: "English"
            6. Last search: 05/02/2017
            7. References returned = 747
        3} Query: cocaine[title] AND (Clinical Trial[ptyp] AND "loattrfull text"[sb] AND ("1995/12/31"[PDAT] : "2017/12/31"[PDAT]) AND English[lang])
            1. Title contains "cocaine"
            2. Article type: "Clinical Trial"
            3. Text availability: "Full text"
            4. Publication date: From 1995/12/31 to 2017/12/31 (22 years)
            5. Language: "English"
            6. Last search: 02/18/2018
            7. References returned = 775
        4} Query: cocaine[title] AND (Clinical Trial[ptyp] AND "loattrfull text"[sb] AND ("1995/12/31"[PDAT] : "2017/12/31"[PDAT]) NOT English[lang])
            1. Title contains "cocaine"
            2. Article type: "Clinical Trial"
            3. Text availability: "Full text"
            4. Publication date: From 1995/12/31 to 2017/12/31 (22 years)
            5. Language: Anything but English
            6. Last search: 12/16/2018
        5} References returned = 6
        6} After excluding duplicates these 3 searches together yielded 808 articles, indicating some articles that were returned in the original searches were no longer included in the later searches.
    b. References within Cochrane reviews on treatments for cocaine disorders were searched (6).
        1} Amato L, Minozzi S, Pani PP, Davoli M. Antipsychotic medications for cocaine dependence. Amato L, editor. Cochrane Database Syst Rev. Chichester, UK: John Wiley & Sons, Ltd; 2007;(3):CD006306.
            1. All references were included with the Pubmed search.
        2} Castells X, Casas M, Pérez-Mañá C, Roncero C, Vidal X, Capellà D. Efficacy of psychostimulant drugs for cocaine dependence. Castells X, editor. Cochrane Database Syst Rev. Chichester, UK: John Wiley & Sons, Ltd; 2010;(2):CD007380.
            1. Margolin A, Avants K, Malison RT, Kosten TR. High- and low-dose mazindol for cocaine dependence in methadone- maintained patients: a preliminary evaluation. Substance Abuse 1997;18:125–31.
            2. Perry EB, Gil R, Miles D, Brenner L, MacDougall L, Johson R, et al.Mazindol augmentation of antipsychotic treatment for schizophrenic patients with

comorbid cocaine abuse or dependence: a preliminary double-blind, randomized, placebo-controlled trial. Journal of Dual Diagnosis 2004;1: 37–47.

3} Knapp WP, Soares BGO, Farrel M, Lima MS. Psychosocial interventions for cocaine and psychostimulant amphetamines related disorders. Knapp WP, editor. Cochrane Database Syst Rev. Chichester, UK: John Wiley & Sons, Ltd; 2007;(3):CD003023.

1. Magura S, Rosenblum A, Lovejoy M, Handelsman L, Foote J, Stimmel B. Neurobehavioral Treatment for Cocaine-Using Methadone Patients: A Preliminary Report. Journal of Addictive Diseases 1994;13(4):143–60.
2. Petry NM, Peirce JM, Stitzer ML, Blaine J, Roll JM, Cohen A, et al.Effect of prize-based incentives on outcomes in stimulant abusers in outpatient psychosocial treatment programs: a national drug abuse treatment clinical trials network study. Archives of General Psychiatry 2005;62(10): 1148–56.
3. Silverman K, Svikis D, Robles E, Stitzer ML, Bigelow GE. A Reinforcement-Based Therapeutic Workplace for the Treatment of Drug Abuse. Six-Month Abstinence Outcomes. Exp Clin Psychopharmacol. 2001 Feb;9(1):14-23.

4} Minozzi S, Cinquini M, Amato L, Davoli M, Farrell MF, Pani PP, et al. Anticonvulsants for cocaine dependence. Minozzi S, editor. Cochrane Database Syst Rev. Chichester, UK: John Wiley & Sons, Ltd; 2015;4:CD006754.

1. Kampan KM, Pettinati H, Lynch KG, Dackis C, Sparkman T, Weigley C, et al. A pilot trial of topiramate for the treatment of cocaine dependence. Drug and Alcohol Dependence 2004;75(3):233–40.

5} Minozzi S, Amato L, Pani PP, Solimini R, Vecchi S, De Crescenzo F, et al. Dopamine agonists for the treatment of cocaine dependence. Amato L, editor. Cochrane Database Syst Rev. Chichester, UK: John Wiley & Sons, Ltd; 2015;5:CD003352.

1. All references were included with the Pubmed search.

6} Pani PP, Trogu E, Vecchi S, Amato L. Antidepressants for cocaine dependence and problematic cocaine use. Pani PP, editor. Cochrane Database Syst Rev. Chichester, UK: John Wiley & Sons, Ltd; 2011;(12):CD002950.

1. All references were included with the Pubmed search.

7} Pani PP, Trogu E, Vacca R, Amato L, Vecchi S, Davoli M. Disulfiram for the treatment of cocaine dependence. Pani PP, editor. Cochrane Database Syst Rev. Chichester, UK: John Wiley & Sons, Ltd; 2010;(1):CD007024.

1. All references were included with the Pubmed search.

c. Screening references during full text review, the following references were added to abstract screening (17).

1} Petry NM, Alessi SM, Marx J, Austin M, Tardif M. Vouchers versus prizes: contingency management treatment of substance abusers in community settings. J Consult Clin Psychol. 2005 Dec;73(6):1005–14.

2} Petry NM, Alessi SM, Carroll KM, Hanson T, MacKinnon S, Rounsaville B, et al. Contingency management treatments: Reinforcing abstinence versus adherence with goal-related activities. J Consult Clin Psychol. 2006 Jun;74(3):592–601.

3} Carroll KM, Ball SA, Martino S, Nich C, Babuscio TA, Nuro KF, et al. Computer-assisted delivery of cognitive-behavioral therapy for addiction: a randomized trial of CBT4CBT. Am J Psychiatry. 2008 Jul;165(7):881–8. PMCID: PMC2562873

4} Beck T, Haasen C, Verthein U, Walcher S, Schuler C, Backmund M, et al. Maintenance treatment for opioid dependence with slow-release oral morphine: a randomized cross-over, non-inferiority study versus methadone. Addiction. 2014 Apr;109(4):617–26. PMCID: PMC4226326

5} Holtyn AF, Koffarnus MN, DeFulio A, Sigurdsson SO, Strain EC, Schwartz RP, et al. The therapeutic workplace to promote treatment engagement and drug abstinence in out-of-treatment injection drug users: a randomized controlled trial. Prev Med. 2014 Nov;68:62–70. PMCID: PMC4155024

6} Milby JB, Schumacher JE, Vuchinich RE, Freedman MJ, Kertesz S, Wallace D. Toward cost-effective initial care for substance-abusing homeless. Journal of Substance Abuse Treatment. 2008 Mar;34(2):180–91. PMCID: PMC2764243

7} Milby JB, Schumacher JE, Wallace D, Freedman MJ, Vuchinich RE. To house or not to house: the effects of providing housing to homeless substance abusers in treatment. Am J Public Health. 2005 Jul;95(7):1259–65. PMCID: PMC1449349

8} Milby JB, Schumacher JE, Raczynski JM, Caldwell E, Engle M, Michael M, et al. Sufficient conditions for effective treatment of substance abusing homeless persons. Drug Alcohol Depend. 1996 Dec 2;43(1-2):39–47.

9} Schmitz JM, Rathnayaka N, Green CE, Moeller FG, Dougherty AE, Grabowski J. Combination of Modafinil and d-amphetamine for the Treatment of Cocaine Dependence: A Preliminary Investigation. Front Psychiatry. Frontiers; 2012;3:77. PMCID: PMC3430875

10} Nuijten M, Blanken P, Van den Brink W, Hendriks V. Modafinil in the treatment of crack-cocaine dependence in the Netherlands: Results of an open-label randomised controlled feasibility trial. J. Psychopharmacol. (Oxford). 2015 Jun;29(6):678–87.

11} Mannelli P, Patkar AA, Murray HW, Certa K, Peindl K, Mattila-Evenden M, et al. Polymorphism in the serotonin transporter gene and response to treatment in African American cocaine and alcohol-abusing individuals. Addict Biol. 2005 Sep;10(3):261–8.

12} Wechsberg WM, Lam WKK, Zule WA, Bobashev G. Efficacy of a woman-focused intervention to reduce HIV risk and increase self-sufficiency among African American crack abusers. Am J Public Health. 2004 Jul;94(7):1165–73. PMCID: PMC1448416

13} Donovan DM, Daley DC, Brigham GS, Hodgkins CC, Perl HI, Garrett SB, et al. Stimulant abuser groups to engage in 12-step: a multisite trial in the National Institute on Drug Abuse Clinical Trials Network. Journal of Substance Abuse Treatment. Elsevier; 2013 Jan;44(1):103–14. PMCID: PMC3434261

14} Winhusen TM, Brigham GS, Kropp F, Lindblad R, Gardin JG, Penn P, et al. A randomized trial of concurrent smoking-cessation and substance use disorder treatment in stimulant-dependent smokers. J Clin Psychiatry. 2014 Apr;75(4):336–43. PMCID: PMC4019678

15} Gottheil E, Thornton C, Weinstein S. Effectiveness of high versus low structure individual counseling for substance abuse. Am J Addict. 2002;11(4):279–90.

16} Thornton CC, Gottheil E, Weinstein SP, Kerachsky RS. Patient-treatment matching in substance abuse. Drug addiction severity. Journal of Substance Abuse Treatment. 1998 Nov;15(6):505–11.

17} Brown ES, Todd JP, Hu LT, Schmitz JM, Carmody TJ, Nakamura A, et al. A Randomized, Double-Blind, Placebo-Controlled Trial of Citicoline for Cocaine Dependence in Bipolar I Disorder. Am J Psychiatry. 2015 Oct;172(10):1014–21.

2) Abstract screening
   a. Performed using Covidence.org
   b. Total abstracts screened: 831 = 808 from 4 serial Pubmed searches +6 Cochrane references +17 references from references.
      1} Inclusion criteria
         1. Human subjects
         2. Testing a treatment for cocaine use disorder
         3. If uncertain, include in full text screening.
   c. Total articles identified for full text screening: 305
3) Full text screening
   a. Performed using Covidence.org
   b. Inclusion criteria
      1} Population
         1. Meets criteria for cocaine use disorder (DSM-V), cocaine dependence (DSM-IV or -III), cocaine abuse (DSM-IV or -III), or cocaine use.
         2. Age: ≥18 years.
      2} Number of participants: ≥1
      3} Outcome measures
         1. Duration of treatment is defined
         2. Intention-to-treat (ITT) proportion abstinent from cocaine based on urinalysis at the end of the treatment period is defined.
            a. Directly reported
            b. Indirectly reported by reporting proportion abstinent (or proportion urine drug screens negative) from cocaine based on urinalysis at the end of the treatment (non-ITT) as well as number of subjects retained in the study at that time.
         3. Mean intention-to-treat (ITT) proportion urine drug screens negative from cocaine during the treatment period.

a. Directly reported
b. Indirectly reported by reporting proportion urine drug screens negative from cocaine across the treatment period as well as number of subjects retained in the study at the end of treatment.

c. Exclusion criteria
   1} >25% subjects are not cocaine users
   2} Maintenance study: >80% of subjects test negative at study start.
   3} Secondary analysis of a study already included.
   4} Reporting only pooled urinalysis results, i.e. proportion negative from multiple drugs without reporting the specific proportion negative for cocaine.

d. Excluded studies base on full text review: 147
   1} 99 Did not report proportion coke-free (mean or at study endpoint)
   2} 14 Secondary analysis of a study that is already included
   3} 13 Maintenance study, all participants were initially coke-free
   4} 9 Does not report number of completers
   5} 2 Does not report N of each group.
   6} 2 Large portion of participants not cocaine users
   7} 2 Not a study of cocaine use disorders.
   8} 2 Pooled urinalysis results only
   9} 2 Duplicate
   10} 1 Inpatient study
   11} 1 Study protocol
   12} 1 Study found after search close

e. Studies included in review: 157

4) Data extraction

a. Data were recorded in an Excel spread sheet.
b. If data were only available in graph form, then Adobe Illustrator was used to measure values directly from graphs.
c. Data from 402 treatment groups were extracted
d. Opioid use disorders
   1} Treatment groups were categorically coded as having concomitant opioid use disorder if the study reported that the majority >50% of participants were active opioid users; reported a recent diagnosis of opioid abuse, dependence or use disorder; or reported that participants were enrolled in an opioid substitution program.
   2} Similarly, if >50% of participants in a treatment group were on methadone or buprenorphine then the treatment group was categorically coded as being treated with an opioid.

eMethods 2. R Scripts With Associated Output

Calculate primary outcomes and variance

***R script:

```
#Author: Brandon S Bentzley
#Project: Meta analysis of treatments for cocaine use disorders
#Date this R script was created: 2/20/2017
#Date this R script was last updated: 3/26/2018
#Description: This script uses escalc from the package metafor to calculate the log odds ratio (yi)
#and the variances (vi) for use in metaregression in a different script


# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/Malenka/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
# set the output file
sink("Output.out")
# load the dataset
mydata = read.csv("data.csv")


#Do analysis
    #CFE: number of participants cocaine free at end of trial
    #CPE: number of participants cocaine positive at end of trial
    #CFS: number of participants cocaine free at start of trial
    #CPS: number of participants cocaine positive at start of trial

mydata <- escalc(measure = "OR", ai = CFE, bi = CPE, ci = CFS, di = CPS, data = mydata, add = 1, to
= "only0", append = TRUE)
write.csv(mydata, file = "Calculate_yi_vi.csv")


# close the output file
sink()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
# change back to the original directory
setwd(initial.dir)
```

***Output:

None, log odds ratios (yi) and variance (vi) output to main data table (data.xls) included in online materials.

***Fixed-effects model without covariates ***

***R script:

```
#Author: Brandon S Bentzley
#Project: Meta-analysis of treatments for cocaine use disorders
#Date this R script was created: 2/20/2017
#Date this R script was last updated: 04/06/2018
#Description: This script uses rma() from the package metafor to calculate fixed effects with no
moderators

# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/Malenka/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
# set the output file
sink("Output.out")
# load the dataset
mydata = read.csv("data.csv", colClasses=c(
"Author"="character", "Year"="numeric", "Title"="character", "StudyID"="factor",
"Double_Blind"="factor", "Multisite"="factor", "Randomized"="factor", "SubDsrdr"="character",
"Placebo"="factor", "Psychotherapy"="factor", "ContingencyManagement"="factor", "Other"="factor",
"Opioid"="factor", "MiscMeds"="factor", "Psychostimulants"="factor", "Anticonvulsants"="factor",
"DopamineAgonists"="factor", "Antidepressants"="factor", "Antipsychotics"="factor",
"TreatmentNmbr"= "numeric", "TrtmntlorMore"="factor", "N_start"="numeric",
"Proportion_Male"="numeric", "Mean_Age"="numeric", "Mean_daysweek"="numeric",
"Proportion_30days"="numeric", "Years_use"="numeric", "ASI_Drug"="numeric",
"TestPosScreen"="factor", "CokeFreeBase"="numeric", "CokeFreeWk1"="numeric",
"BaselineType"="factor", "CokeFreeStart"="numeric", "Complication"="character", "FU"="numeric",
"Complete"="numeric", "CokeFreeLastWk_NotITT"="numeric", "CokeFreeMean_NotITT"="numeric",
"CokeFreeLastWk_ITT"="numeric", "CokeFreeMean_ITT"="numeric", "CokeFreeOutcome_Type"="factor",
"CokeFreeOutcome_ITT"="numeric", "CFS"="numeric", "CPS"="numeric", "CFE"="numeric",
"CPE"="numeric", "yi"="numeric", "vi"="numeric"))

#Do analysis
results<-rma(yi, vi, data = mydata, method = "FE", measure = "OR")
print(results)

# close the output file
sink()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
# change back to the original directory
setwd(initial.dir)
```

***Output:

```
Fixed-Effects Model (k = 314)

Test for Heterogeneity:
Q(df = 313) = 1337.9201, p-val < .0001

Model Results:

estimate       se     zval     pval    ci.lb    ci.ub
  0.0580   0.0366   1.5854   0.1129  -0.0137   0.1297

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

*****Random-effects model, single-level, without covariates *****

***R script:

```
#Author: Brandon S Bentzley
#Project: Meta-analysis of treatments for cocaine use disorders
#Date this R script was created: 2/20/2017
#Date this R script was last updated: 04/03/2018
#Description: This script uses rma() from the package metafor to calculate 1-level random effects
with no moderators. It also performs a "leave1out" analysis in which it reruns the model leaving
out 1 treatment group at a time. Metafor only allows for this with no moderators.


# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/Malenka/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
# set the output file
sink("Output.out")
# load the dataset
mydata = read.csv("data.csv", colClasses=c(
"Author"="character", "Year"="numeric", "Title"="character", "StudyID"="factor",
"Double_Blind"="factor", "Multisite"="factor", "Randomized"="factor", "SubDsrdr"="character",
"Placebo"="factor", "Psychotherapy"="factor", "ContingencyManagement"="factor", "Other"="factor",
"Opioid"="factor", "MiscMeds"="factor", "Psychostimulants"="factor", "Anticonvulsants"="factor",
"DopamineAgonists"="factor", "Antidepressants"="factor", "Antipsychotics"="factor",
"TreatmentNmbr"= "numeric", "Trtmnt1orMore"="factor", "N_start"="numeric",
"Proportion_Male"="numeric", "Mean_Age"="numeric", "Mean_daysweek"="numeric",
"Proportion_30days"="numeric", "Years_use"="numeric", "ASI_Drug"="numeric",
"TestPosScreen"="factor", "CokeFreeBase"="numeric", "CokeFreeWk1"="numeric",
"BaselineType"="factor", "CokeFreeStart"="numeric", "Complication"="character", "FU"="numeric",
"Complete"="numeric", "CokeFreeLastWk_NotITT"="numeric", "CokeFreeMean_NotITT"="numeric",
"CokeFreeLastWk_ITT"="numeric", "CokeFreeMean_ITT"="numeric", "CokeFreeOutcome_Type"="factor",
"CokeFreeOutcome_ITT"="numeric", "CFS"="numeric", "CPS"="numeric", "CFE"="numeric",
"CPE"="numeric", "yi"="numeric", "vi"="numeric"))


#Do analysis
results<-rma(yi, vi, data = mydata, method = "REML", measure = "OR")
print(results)

#Leave 1 out analysis
resLeaveout<-leave1out(results)
print(resLeaveout)
resLeaveoutexp<-leave1out(results, transf=exp)
print(resLeaveoutexp)

# close the output file
sink()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
# change back to the original directory
setwd(initial.dir)
```

***Output:

```
Random-Effects Model (k = 314; tau^2 estimator: REML)

tau^2 (estimated amount of total heterogeneity): 1.7965 (SE = 0.1969)
tau (square root of estimated tau^2 value):      1.3403
I^2 (total heterogeneity / total variability):   80.96%
H^2 (total variability / sampling variability):  5.25
```

```
Test for Heterogeneity:
Q(df = 313) = 1337.9201, p-val < .0001

Model Results:

estimate       se     zval     pval    ci.lb    ci.ub
  0.5045   0.0893   5.6487   <.0001   0.3295   0.6796      ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1


Leave 1 out sensitivity analysis:

    estimate     se   zval   pval  ci.lb  ci.ub         Q     Qp   tau2      I2     H2
3     0.5013 0.0895 5.6038 0.0000 0.3260 0.6766 1335.7488 0.0000 1.7980 81.0113 5.2663
4     0.5011 0.0895 5.5973 0.0000 0.3256 0.6765 1334.3671 0.0000 1.7995 81.0077 5.2653
5     0.4984 0.0893 5.5789 0.0000 0.3233 0.6734 1332.0826 0.0000 1.7905 80.9421 5.2472
6     0.5024 0.0896 5.6098 0.0000 0.3269 0.6780 1335.9597 0.0000 1.8022 81.0326 5.2722
9     0.5014 0.0895 5.6037 0.0000 0.3261 0.6768 1335.6687 0.0000 1.7990 81.0164 5.2677
10    0.4935 0.0889 5.5476 0.0000 0.3191 0.6678 1324.0834 0.0000 1.7699 80.7628 5.1983
11    0.5052 0.0896 5.6379 0.0000 0.3295 0.6808 1337.7523 0.0000 1.8044 81.0561 5.2787
12    0.4930 0.0889 5.5447 0.0000 0.3188 0.6673 1322.6350 0.0000 1.7681 80.7444 5.1933
13    0.4912 0.0887 5.5351 0.0000 0.3173 0.6651 1318.8276 0.0000 1.7585 80.6597 5.1705
14    0.5009 0.0895 5.5991 0.0000 0.3256 0.6763 1335.1364 0.0000 1.7980 81.0068 5.2650
15    0.4960 0.0892 5.5628 0.0000 0.3213 0.6708 1328.4176 0.0000 1.7818 80.8659 5.2263
16    0.4990 0.0894 5.5840 0.0000 0.3239 0.6742 1333.0336 0.0000 1.7924 80.9602 5.2522
17    0.4972 0.0893 5.5705 0.0000 0.3223 0.6722 1330.2591 0.0000 1.7865 80.9065 5.2374
18    0.4966 0.0892 5.5664 0.0000 0.3217 0.6715 1329.2950 0.0000 1.7841 80.8858 5.2317
19    0.5124 0.0892 5.7418 0.0000 0.3375 0.6872 1330.5937 0.0000 1.7837 80.8665 5.2264
32    0.5090 0.0896 5.6836 0.0000 0.3335 0.6846 1336.7272 0.0000 1.8010 81.0079 5.2653
33    0.5112 0.0894 5.7190 0.0000 0.3360 0.6864 1332.9231 0.0000 1.7918 80.9259 5.2427
34    0.5083 0.0896 5.6735 0.0000 0.3327 0.6839 1337.3337 0.0000 1.8029 81.0227 5.2695
36    0.5127 0.0892 5.7475 0.0000 0.3378 0.6875 1329.3107 0.0000 1.7815 80.8442 5.2204
37    0.5115 0.0894 5.7234 0.0000 0.3363 0.6866 1332.6471 0.0000 1.7903 80.9176 5.2404
38    0.5063 0.0897 5.6465 0.0000 0.3306 0.6821 1337.8812 0.0000 1.8063 81.0352 5.2729
39    0.5060 0.0897 5.6419 0.0000 0.3302 0.6818 1337.7455 0.0000 1.8067 81.0244 5.2699
40    0.5036 0.0897 5.6165 0.0000 0.3279 0.6793 1335.4430 0.0000 1.8056 81.0136 5.2669
41    0.4957 0.0891 5.5604 0.0000 0.3210 0.6704 1327.7301 0.0000 1.7803 80.8524 5.2226
42    0.4983 0.0893 5.5779 0.0000 0.3232 0.6734 1331.8161 0.0000 1.7903 80.9395 5.2465
43    0.5030 0.0895 5.6188 0.0000 0.3275 0.6784 1336.9600 0.0000 1.8013 81.0389 5.2740
44    0.4961 0.0893 5.5558 0.0000 0.3211 0.6711 1299.9203 0.0000 1.7846 80.7657 5.1990
45    0.5002 0.0894 5.5935 0.0000 0.3249 0.6754 1334.4845 0.0000 1.7958 80.9898 5.2603
46    0.5034 0.0896 5.6185 0.0000 0.3278 0.6790 1336.6914 0.0000 1.8038 81.0440 5.2754
47    0.5011 0.0895 5.6010 0.0000 0.3257 0.6764 1335.4044 0.0000 1.7980 81.0093 5.2657
48    0.5031 0.0895 5.6194 0.0000 0.3276 0.6785 1336.9947 0.0000 1.8015 81.0401 5.2743
49    0.5011 0.0895 5.6010 0.0000 0.3257 0.6764 1335.4044 0.0000 1.7980 81.0093 5.2657
50    0.5030 0.0895 5.6191 0.0000 0.3276 0.6785 1336.9797 0.0000 1.8014 81.0396 5.2741
51    0.5020 0.0895 5.6092 0.0000 0.3266 0.6774 1336.2206 0.0000 1.7999 81.0255 5.2702
54    0.4989 0.0894 5.5826 0.0000 0.3238 0.6741 1332.6627 0.0000 1.7925 80.9582 5.2516
55    0.4977 0.0893 5.5737 0.0000 0.3227 0.6727 1330.9265 0.0000 1.7884 80.9222 5.2417
56    0.4995 0.0895 5.5828 0.0000 0.3241 0.6749 1330.2809 0.0000 1.7961 80.9619 5.2526
57    0.5016 0.0896 5.5984 0.0000 0.3260 0.6772 1332.5431 0.0000 1.8020 80.9939 5.2615
58    0.5027 0.0896 5.6119 0.0000 0.3271 0.6783 1336.1227 0.0000 1.8028 81.0358 5.2731
59    0.5055 0.0897 5.6379 0.0000 0.3298 0.6813 1337.6469 0.0000 1.8063 81.0417 5.2747
60    0.5067 0.0896 5.6535 0.0000 0.3310 0.6824 1337.9142 0.0000 1.8050 81.0479 5.2765
61    0.5067 0.0896 5.6535 0.0000 0.3310 0.6824 1337.9142 0.0000 1.8050 81.0478 5.2764
62    0.5028 0.0896 5.6088 0.0000 0.3271 0.6785 1333.9696 0.0000 1.8046 81.0004 5.2633
63    0.5037 0.0897 5.6181 0.0000 0.3280 0.6795 1335.8333 0.0000 1.8057 81.0210 5.2690
64    0.5032 0.0897 5.6124 0.0000 0.3275 0.6789 1334.6920 0.0000 1.8052 81.0065 5.2650
65    0.5033 0.0897 5.6137 0.0000 0.3276 0.6790 1335.1696 0.0000 1.8051 81.0152 5.2674
66    0.4978 0.0893 5.5743 0.0000 0.3227 0.6728 1331.0936 0.0000 1.7885 80.9237 5.2421
67    0.4972 0.0893 5.5701 0.0000 0.3222 0.6721 1330.1727 0.0000 1.7862 80.9044 5.2368
68    0.4974 0.0893 5.5718 0.0000 0.3224 0.6724 1330.5647 0.0000 1.7872 80.9125 5.2390
69    0.4965 0.0892 5.5659 0.0000 0.3217 0.6714 1329.1835 0.0000 1.7838 80.8831 5.2310
70    0.5031 0.0896 5.6133 0.0000 0.3274 0.6788 1335.7314 0.0000 1.8044 81.0299 5.2715
71    0.5033 0.0896 5.6147 0.0000 0.3276 0.6789 1335.8413 0.0000 1.8046 81.0303 5.2716
80    0.5014 0.0895 5.6051 0.0000 0.3261 0.6768 1335.8651 0.0000 1.7984 81.0149 5.2673
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81	0.5037	0.0896	5.6229	0.0000	0.3281	0.6792	1337.1364	0.0000	1.8032	81.0481	5.2765
82	0.5032	0.0895	5.6205	0.0000	0.3277	0.6787	1337.0595	0.0000	1.8018	81.0422	5.2749
83	0.5043	0.0895	5.6325	0.0000	0.3288	0.6798	1337.6271	0.0000	1.8025	81.0498	5.2770
84	0.5008	0.0895	5.5982	0.0000	0.3255	0.6762	1335.0349	0.0000	1.7976	81.0042	5.2643
85	0.5013	0.0895	5.6024	0.0000	0.3259	0.6766	1335.5393	0.0000	1.7985	81.0129	5.2667
86	0.5096	0.0895	5.6923	0.0000	0.3341	0.6851	1336.0694	0.0000	1.7991	80.9927	5.2611
87	0.5081	0.0896	5.6685	0.0000	0.3324	0.6838	1337.4777	0.0000	1.8042	81.0129	5.2667
88	0.5061	0.0897	5.6428	0.0000	0.3303	0.6819	1337.7668	0.0000	1.8068	81.0189	5.2684
89	0.5033	0.0895	5.6257	0.0000	0.3279	0.6786	1337.3317	0.0000	1.7998	81.0327	5.2722
90	0.5043	0.0896	5.6258	0.0000	0.3286	0.6800	1337.0508	0.0000	1.8054	81.0454	5.2758
91	0.5066	0.0896	5.6531	0.0000	0.3309	0.6822	1337.9156	0.0000	1.8045	81.0519	5.2776
92	0.5031	0.0896	5.6147	0.0000	0.3275	0.6787	1336.2183	0.0000	1.8038	81.0379	5.2737
93	0.5076	0.0896	5.6645	0.0000	0.3320	0.6832	1337.7201	0.0000	1.8040	81.0374	5.2735
94	0.5067	0.0896	5.6534	0.0000	0.3310	0.6824	1337.9145	0.0000	1.8049	81.0487	5.2767
95	0.5067	0.0896	5.6534	0.0000	0.3310	0.6824	1337.9145	0.0000	1.8049	81.0487	5.2767
98	0.5127	0.0892	5.7460	0.0000	0.3378	0.6876	1325.7762	0.0000	1.7825	80.8200	5.2138
99	0.5132	0.0891	5.7577	0.0000	0.3385	0.6879	1325.7475	0.0000	1.7776	80.7964	5.2074
100	0.5068	0.0896	5.6538	0.0000	0.3311	0.6826	1337.9123	0.0000	1.8055	81.0400	5.2743
101	0.5081	0.0896	5.6688	0.0000	0.3324	0.6838	1337.4663	0.0000	1.8041	81.0136	5.2669
102	0.5125	0.0893	5.7413	0.0000	0.3375	0.6874	1328.2428	0.0000	1.7842	80.8478	5.2213
103	0.5082	0.0896	5.6718	0.0000	0.3326	0.6839	1337.3860	0.0000	1.8034	81.0209	5.2690
104	0.5086	0.0895	5.6806	0.0000	0.3331	0.6841	1337.1124	0.0000	1.8008	81.0228	5.2695
105	0.5094	0.0896	5.6867	0.0000	0.3338	0.6850	1335.9524	0.0000	1.8010	80.9774	5.2569
106	0.5122	0.0893	5.7379	0.0000	0.3373	0.6872	1330.0871	0.0000	1.7853	80.8696	5.2273
107	0.5082	0.0896	5.6715	0.0000	0.3326	0.6839	1337.3941	0.0000	1.8035	81.0201	5.2687
108	0.5099	0.0895	5.6969	0.0000	0.3344	0.6853	1335.7959	0.0000	1.7978	80.9868	5.2595
109	0.5128	0.0891	5.7550	0.0000	0.3381	0.6874	1330.2605	0.0000	1.7779	80.8327	5.2172
110	0.5098	0.0895	5.6956	0.0000	0.3344	0.6852	1335.8753	0.0000	1.7982	80.9886	5.2600
111	0.5129	0.0891	5.7574	0.0000	0.3383	0.6875	1329.9644	0.0000	1.7770	80.8245	5.2150
112	0.5098	0.0894	5.7022	0.0000	0.3346	0.6850	1335.8769	0.0000	1.7951	80.9852	5.2591
113	0.5103	0.0895	5.7006	0.0000	0.3349	0.6858	1333.4327	0.0000	1.7978	80.9282	5.2433
114	0.5085	0.0896	5.6726	0.0000	0.3328	0.6842	1336.9253	0.0000	1.8041	80.9652	5.2535
115	0.5134	0.0891	5.7611	0.0000	0.3388	0.6881	1320.9951	0.0000	1.7763	80.7592	5.1973
116	0.5031	0.0896	5.6149	0.0000	0.3275	0.6788	1336.2369	0.0000	1.8039	81.0381	5.2737
117	0.5097	0.0895	5.6931	0.0000	0.3342	0.6851	1335.9675	0.0000	1.7990	80.9900	5.2604
118	0.5059	0.0895	5.6514	0.0000	0.3304	0.6813	1337.9185	0.0000	1.8018	81.0473	5.2763
121	0.5014	0.0896	5.5958	0.0000	0.3258	0.6770	1329.3209	0.0000	1.8022	80.9556	5.2509
122	0.5053	0.0897	5.6324	0.0000	0.3294	0.6811	1336.8162	0.0000	1.8074	80.9749	5.2562
123	0.5069	0.0897	5.6541	0.0000	0.3312	0.6827	1337.9102	0.0000	1.8058	81.0299	5.2714
124	0.5034	0.0897	5.6147	0.0000	0.3277	0.6791	1335.1868	0.0000	1.8054	81.0126	5.2667
125	0.5034	0.0897	5.6149	0.0000	0.3277	0.6792	1335.1948	0.0000	1.8054	81.0119	5.2665
126	0.5059	0.0895	5.6515	0.0000	0.3304	0.6813	1337.9185	0.0000	1.8019	81.0477	5.2764
127	0.5088	0.0895	5.6830	0.0000	0.3333	0.6842	1337.0129	0.0000	1.8002	81.0200	5.2687
128	0.5105	0.0894	5.7138	0.0000	0.3354	0.6857	1334.9332	0.0000	1.7920	80.9583	5.2516
129	0.5021	0.0895	5.6096	0.0000	0.3266	0.6775	1336.2555	0.0000	1.8000	81.0265	5.2705
130	0.4982	0.0893	5.5774	0.0000	0.3231	0.6733	1331.7279	0.0000	1.7900	80.9374	5.2459
131	0.5015	0.0895	5.6044	0.0000	0.3261	0.6769	1335.7315	0.0000	1.7992	81.0180	5.2682
132	0.4998	0.0894	5.5895	0.0000	0.3245	0.6750	1333.8376	0.0000	1.7950	80.9805	5.2578
133	0.5016	0.0895	5.6049	0.0000	0.3262	0.6770	1335.7842	0.0000	1.7994	81.0194	5.2685
134	0.5030	0.0895	5.6191	0.0000	0.3276	0.6785	1336.9797	0.0000	1.8014	81.0396	5.2741
135	0.4995	0.0894	5.5878	0.0000	0.3243	0.6747	1333.6566	0.0000	1.7938	80.9725	5.2556
136	0.5011	0.0895	5.6010	0.0000	0.3257	0.6764	1335.4044	0.0000	1.7980	81.0093	5.2657
139	0.5043	0.0896	5.6276	0.0000	0.3286	0.6799	1337.3387	0.0000	1.8043	81.0522	5.2777
140	0.5016	0.0895	5.6048	0.0000	0.3262	0.6770	1335.7685	0.0000	1.7993	81.0190	5.2684
141	0.5003	0.0894	5.5941	0.0000	0.3250	0.6756	1334.4956	0.0000	1.7965	80.9940	5.2615
142	0.4999	0.0895	5.5875	0.0000	0.3246	0.6753	1332.5137	0.0000	1.7967	80.9808	5.2578
143	0.5044	0.0896	5.6285	0.0000	0.3288	0.6800	1337.3562	0.0000	1.8047	81.0522	5.2777
144	0.5089	0.0895	5.6888	0.0000	0.3336	0.6843	1336.7644	0.0000	1.7981	81.0113	5.2663
145	0.5123	0.0892	5.7420	0.0000	0.3374	0.6872	1331.1765	0.0000	1.7834	80.8707	5.2276
146	0.5062	0.0897	5.6455	0.0000	0.3304	0.6819	1337.8693	0.0000	1.8061	81.0415	5.2747
154	0.4967	0.0892	5.5673	0.0000	0.3219	0.6716	1329.5676	0.0000	1.7845	80.8898	5.2328
155	0.4987	0.0894	5.5816	0.0000	0.3236	0.6739	1332.5384	0.0000	1.7918	80.9534	5.2503
158	0.4966	0.0892	5.5665	0.0000	0.3218	0.6715	1329.3202	0.0000	1.7842	80.8864	5.2319
159	0.4949	0.0891	5.5556	0.0000	0.3203	0.6695	1326.3748	0.0000	1.7769	80.8227	5.2145
164	0.4992	0.0894	5.5851	0.0000	0.3240	0.6744	1333.1522	0.0000	1.7933	80.9662	5.2538
165	0.5003	0.0894	5.5935	0.0000	0.3250	0.6755	1334.4151	0.0000	1.7963	80.9920	5.2609
166	0.4987	0.0894	5.5816	0.0000	0.3236	0.6739	1332.5384	0.0000	1.7918	80.9534	5.2503
167	0.5009	0.0895	5.5985	0.0000	0.3255	0.6762	1335.0669	0.0000	1.7977	81.0051	5.2646
168	0.5045	0.0896	5.6271	0.0000	0.3288	0.6802	1337.0998	0.0000	1.8057	81.0440	5.2754

169	0.5087	0.0895	5.6822	0.0000	0.3332	0.6842	1337.0489	0.0000	1.8004	81.0211	5.2690
170	0.5064	0.0897	5.6476	0.0000	0.3307	0.6822	1337.8920	0.0000	1.8064	81.0267	5.2706
171	0.5052	0.0897	5.6337	0.0000	0.3294	0.6810	1337.3785	0.0000	1.8066	81.0327	5.2722
172	0.4938	0.0890	5.5487	0.0000	0.3193	0.6682	1324.1103	0.0000	1.7716	80.7755	5.2017
173	0.4939	0.0890	5.5497	0.0000	0.3195	0.6684	1324.4364	0.0000	1.7724	80.7827	5.2037
176	0.5067	0.0896	5.6535	0.0000	0.3311	0.6824	1337.9140	0.0000	1.8051	81.0469	5.2762
177	0.5019	0.0896	5.6006	0.0000	0.3262	0.6775	1332.6703	0.0000	1.8027	80.9937	5.2614
178	0.5038	0.0897	5.6191	0.0000	0.3280	0.6795	1336.1923	0.0000	1.8054	81.0303	5.2716
179	0.5108	0.0895	5.7073	0.0000	0.3354	0.6862	1331.3220	0.0000	1.7960	80.8940	5.2340
180	0.5104	0.0895	5.7019	0.0000	0.3350	0.6859	1332.3441	0.0000	1.7976	80.9037	5.2366
181	0.5077	0.0895	5.6728	0.0000	0.3323	0.6831	1337.5066	0.0000	1.8006	81.0342	5.2726
182	0.5077	0.0896	5.6692	0.0000	0.3322	0.6832	1337.6189	0.0000	1.8022	81.0397	5.2742
183	0.5066	0.0897	5.6470	0.0000	0.3308	0.6825	1337.7895	0.0000	1.8075	80.8449	5.2205
184	0.5071	0.0897	5.6529	0.0000	0.3313	0.6829	1337.9160	0.0000	1.8071	80.8422	5.2198
185	0.5047	0.0897	5.6253	0.0000	0.3288	0.6805	1334.1355	0.0000	1.8076	80.8571	5.2239
186	0.5083	0.0896	5.6738	0.0000	0.3327	0.6839	1337.3243	0.0000	1.8028	81.0229	5.2695
187	0.5089	0.0895	5.6892	0.0000	0.3336	0.6843	1336.7370	0.0000	1.7980	81.0104	5.2660
188	0.5082	0.0896	5.6710	0.0000	0.3326	0.6839	1337.4062	0.0000	1.8036	81.0194	5.2685
189	0.5077	0.0896	5.6696	0.0000	0.3322	0.6832	1337.6099	0.0000	1.8021	81.0394	5.2741
190	0.5034	0.0896	5.6188	0.0000	0.3278	0.6790	1336.7553	0.0000	1.8036	81.0446	5.2756
191	0.5116	0.0894	5.7232	0.0000	0.3364	0.6868	1328.7995	0.0000	1.7910	80.8692	5.2272
192	0.5125	0.0893	5.7392	0.0000	0.3375	0.6875	1322.9174	0.0000	1.7853	80.8032	5.2092
193	0.5095	0.0896	5.6864	0.0000	0.3339	0.6852	1333.5651	0.0000	1.8017	80.8557	5.2235
194	0.5101	0.0896	5.6961	0.0000	0.3346	0.6856	1332.5772	0.0000	1.7992	80.8875	5.2322
195	0.5113	0.0894	5.7177	0.0000	0.3360	0.6866	1330.8059	0.0000	1.7927	80.8960	5.2345
196	0.4996	0.0894	5.5884	0.0000	0.3244	0.6748	1333.6791	0.0000	1.7945	80.9766	5.2567
197	0.4996	0.0894	5.5885	0.0000	0.3244	0.6749	1333.6980	0.0000	1.7945	80.9771	5.2568
198	0.5015	0.0895	5.6042	0.0000	0.3261	0.6769	1335.7216	0.0000	1.7992	81.0178	5.2681
204	0.5104	0.0896	5.6994	0.0000	0.3349	0.6859	1324.7021	0.0000	1.7986	80.6850	5.1773
205	0.5095	0.0896	5.6856	0.0000	0.3339	0.6852	1330.6002	0.0000	1.8020	80.6898	5.1786
206	0.5099	0.0896	5.6911	0.0000	0.3343	0.6855	1329.2563	0.0000	1.8007	80.7241	5.1878
210	0.5090	0.0895	5.6895	0.0000	0.3336	0.6843	1336.7191	0.0000	1.7979	81.0099	5.2659
211	0.4999	0.0894	5.5930	0.0000	0.3247	0.6751	1334.4846	0.0000	1.7946	80.9826	5.2583
212	0.5065	0.0896	5.6530	0.0000	0.3309	0.6821	1337.9160	0.0000	1.8042	81.0527	5.2778
213	0.4962	0.0892	5.5639	0.0000	0.3214	0.6710	1328.6967	0.0000	1.7826	80.8726	5.2281
214	0.4965	0.0892	5.5659	0.0000	0.3217	0.6714	1329.1835	0.0000	1.7838	80.8831	5.2310
215	0.5011	0.0896	5.5936	0.0000	0.3255	0.6767	1330.1606	0.0000	1.8012	80.9692	5.2546
216	0.5013	0.0896	5.5946	0.0000	0.3256	0.6769	1329.4706	0.0000	1.8017	80.9598	5.2521
224	0.5089	0.0896	5.6793	0.0000	0.3333	0.6845	1336.6190	0.0000	1.8026	80.9861	5.2593
225	0.5107	0.0895	5.7076	0.0000	0.3353	0.6861	1332.7439	0.0000	1.7958	80.9234	5.2420
226	0.5135	0.0891	5.7648	0.0000	0.3389	0.6880	1325.7005	0.0000	1.7744	80.7782	5.2024
227	0.5075	0.0897	5.6600	0.0000	0.3318	0.6832	1337.7867	0.0000	1.8056	81.0039	5.2642
228	0.5045	0.0897	5.6238	0.0000	0.3287	0.6803	1335.4478	0.0000	1.8071	80.9640	5.2532
229	0.5115	0.0894	5.7209	0.0000	0.3363	0.6868	1328.2143	0.0000	1.7918	80.8603	5.2248
230	0.5064	0.0897	5.6445	0.0000	0.3305	0.6822	1337.6950	0.0000	1.8075	80.9097	5.2383
231	0.5063	0.0897	5.6436	0.0000	0.3305	0.6822	1337.5972	0.0000	1.8076	80.8804	5.2302
236	0.4984	0.0893	5.5791	0.0000	0.3233	0.6735	1332.0743	0.0000	1.7908	80.9441	5.2477
237	0.4993	0.0894	5.5856	0.0000	0.3241	0.6745	1333.2161	0.0000	1.7935	80.9677	5.2542
238	0.4976	0.0893	5.5730	0.0000	0.3226	0.6726	1330.8529	0.0000	1.7878	80.9179	5.2405
239	0.4969	0.0892	5.5685	0.0000	0.3220	0.6718	1329.8424	0.0000	1.7853	80.8965	5.2346
240	0.5090	0.0896	5.6834	0.0000	0.3335	0.6846	1336.7373	0.0000	1.8011	81.0079	5.2654
241	0.5108	0.0894	5.7118	0.0000	0.3355	0.6861	1334.1640	0.0000	1.7939	80.9498	5.2493
242	0.5069	0.0897	5.6539	0.0000	0.3312	0.6826	1337.9116	0.0000	1.8056	81.0367	5.2733
243	0.5109	0.0893	5.7198	0.0000	0.3358	0.6860	1334.3563	0.0000	1.7903	80.9424	5.2473
244	0.5104	0.0894	5.7103	0.0000	0.3352	0.6855	1335.2155	0.0000	1.7931	80.9666	5.2539
245	0.5108	0.0895	5.7091	0.0000	0.3354	0.6861	1333.2381	0.0000	1.7952	80.9341	5.2450
246	0.5096	0.0896	5.6896	0.0000	0.3340	0.6851	1335.8032	0.0000	1.8002	80.9787	5.2573
247	0.5092	0.0896	5.6851	0.0000	0.3337	0.6848	1336.3551	0.0000	1.8011	80.9922	5.2610
248	0.5106	0.0895	5.7063	0.0000	0.3352	0.6860	1333.4943	0.0000	1.7960	80.9377	5.2460
249	0.5101	0.0895	5.6993	0.0000	0.3347	0.6856	1334.8670	0.0000	1.7978	80.9638	5.2532
250	0.5067	0.0896	5.6535	0.0000	0.3310	0.6824	1337.9142	0.0000	1.8050	81.0479	5.2765
251	0.5018	0.0895	5.6037	0.0000	0.3263	0.6773	1335.2336	0.0000	1.8011	81.0217	5.2692
252	0.5064	0.0897	5.6473	0.0000	0.3307	0.6822	1337.8894	0.0000	1.8064	81.0290	5.2712
253	0.4996	0.0894	5.5884	0.0000	0.3244	0.6748	1333.6791	0.0000	1.7945	80.9766	5.2567
254	0.4996	0.0894	5.5879	0.0000	0.3243	0.6748	1333.6142	0.0000	1.7943	80.9750	5.2562
255	0.5042	0.0895	5.6319	0.0000	0.3288	0.6797	1337.6084	0.0000	1.8023	81.0488	5.2767
256	0.5010	0.0895	5.6006	0.0000	0.3257	0.6764	1335.3649	0.0000	1.7979	81.0082	5.2654
257	0.4965	0.0892	5.5659	0.0000	0.3217	0.6713	1329.2465	0.0000	1.7836	80.8820	5.2307
258	0.4982	0.0893	5.5778	0.0000	0.3231	0.6733	1331.8920	0.0000	1.7899	80.9373	5.2459

259	0.5042	0.0895	5.6317	0.0000	0.3287	0.6797	1337.6043	0.0000	1.8023	81.0485	5.2766
260	0.5013	0.0895	5.6025	0.0000	0.3259	0.6767	1335.5581	0.0000	1.7986	81.0134	5.2669
261	0.4991	0.0894	5.5845	0.0000	0.3239	0.6743	1333.0494	0.0000	1.7930	80.9636	5.2531
262	0.4977	0.0893	5.5743	0.0000	0.3227	0.6727	1331.1425	0.0000	1.7883	80.9232	5.2420
263	0.4986	0.0893	5.5808	0.0000	0.3235	0.6738	1332.4088	0.0000	1.7914	80.9502	5.2494
264	0.4991	0.0894	5.5845	0.0000	0.3239	0.6743	1333.0494	0.0000	1.7930	80.9636	5.2531
265	0.5035	0.0897	5.6164	0.0000	0.3278	0.6793	1335.6892	0.0000	1.8054	81.0221	5.2693
266	0.5063	0.0897	5.6468	0.0000	0.3306	0.6821	1337.8843	0.0000	1.8063	81.0332	5.2724
267	0.5061	0.0897	5.6450	0.0000	0.3304	0.6818	1337.8637	0.0000	1.8060	81.0439	5.2754
268	0.5041	0.0897	5.6217	0.0000	0.3283	0.6798	1336.3451	0.0000	1.8059	81.0274	5.2708
269	0.5035	0.0897	5.6165	0.0000	0.3278	0.6793	1335.6498	0.0000	1.8054	81.0207	5.2689
270	0.5080	0.0896	5.6672	0.0000	0.3323	0.6837	1337.5095	0.0000	1.8045	81.0067	5.2650
273	0.5105	0.0895	5.7014	0.0000	0.3350	0.6860	1323.9075	0.0000	1.7981	80.6875	5.1780
274	0.5111	0.0895	5.7120	0.0000	0.3358	0.6865	1318.3099	0.0000	1.7950	80.6699	5.1733
275	0.5125	0.0893	5.7372	0.0000	0.3374	0.6876	1302.7327	0.0000	1.7863	80.6145	5.1585
279	0.5053	0.0897	5.6361	0.0000	0.3296	0.6811	1337.5965	0.0000	1.8061	81.0456	5.2758
280	0.5104	0.0895	5.7031	0.0000	0.3350	0.6858	1334.5049	0.0000	1.7967	80.9576	5.2515
281	0.5039	0.0897	5.6194	0.0000	0.3282	0.6797	1335.5935	0.0000	1.8062	81.0059	5.2648
282	0.5095	0.0895	5.6898	0.0000	0.3340	0.6850	1336.1523	0.0000	1.7999	80.9929	5.2612
283	0.5149	0.0888	5.8008	0.0000	0.3409	0.6888	1317.9136	0.0000	1.7576	80.6284	5.1622
284	0.5137	0.0891	5.7668	0.0000	0.3391	0.6883	1320.0758	0.0000	1.7739	80.7413	5.1925
285	0.5125	0.0893	5.7399	0.0000	0.3375	0.6875	1325.8506	0.0000	1.7849	80.8289	5.2162
286	0.5080	0.0896	5.6674	0.0000	0.3323	0.6837	1337.5042	0.0000	1.8045	81.0076	5.2653
287	0.5065	0.0897	5.6476	0.0000	0.3307	0.6822	1337.8925	0.0000	1.8064	81.0261	5.2704
288	0.5084	0.0896	5.6741	0.0000	0.3328	0.6840	1337.3136	0.0000	1.8028	81.0231	5.2696
292	0.5060	0.0897	5.6442	0.0000	0.3303	0.6817	1337.8538	0.0000	1.8059	81.0471	5.2762
293	0.5034	0.0896	5.6169	0.0000	0.3278	0.6791	1336.3020	0.0000	1.8045	81.0380	5.2737
294	0.4994	0.0894	5.5866	0.0000	0.3242	0.6746	1333.4314	0.0000	1.7937	80.9704	5.2550
295	0.4988	0.0894	5.5819	0.0000	0.3236	0.6739	1332.6454	0.0000	1.7918	80.9535	5.2503
296	0.4954	0.0891	5.5592	0.0000	0.3208	0.6701	1327.5920	0.0000	1.7790	80.8427	5.2199
297	0.4985	0.0893	5.5798	0.0000	0.3234	0.6736	1332.2287	0.0000	1.7909	80.9457	5.2482
298	0.4997	0.0894	5.5893	0.0000	0.3245	0.6749	1333.8755	0.0000	1.7945	80.9782	5.2571
299	0.5001	0.0894	5.5929	0.0000	0.3248	0.6754	1334.4085	0.0000	1.7955	80.9878	5.2598
300	0.5061	0.0897	5.6445	0.0000	0.3303	0.6818	1337.8583	0.0000	1.8059	81.0458	5.2759
301	0.5045	0.0897	5.6277	0.0000	0.3288	0.6802	1337.1416	0.0000	1.8057	81.0443	5.2755
302	0.5034	0.0896	5.6154	0.0000	0.3277	0.6791	1335.6485	0.0000	1.8051	81.0238	5.2698
303	0.5035	0.0897	5.6161	0.0000	0.3278	0.6793	1335.3489	0.0000	1.8056	81.0124	5.2666
306	0.4949	0.0891	5.5562	0.0000	0.3203	0.6695	1326.7666	0.0000	1.7768	80.8237	5.2148
307	0.4968	0.0892	5.5680	0.0000	0.3219	0.6717	1329.7988	0.0000	1.7847	80.8920	5.2334
308	0.4974	0.0893	5.5722	0.0000	0.3225	0.6724	1330.7256	0.0000	1.7871	80.9129	5.2392
309	0.5000	0.0894	5.5919	0.0000	0.3248	0.6753	1334.2128	0.0000	1.7956	80.9869	5.2595
310	0.5019	0.0895	5.6086	0.0000	0.3265	0.6773	1336.1744	0.0000	1.7997	81.0242	5.2699
311	0.5042	0.0895	5.6317	0.0000	0.3287	0.6797	1337.6043	0.0000	1.8023	81.0485	5.2766
312	0.5059	0.0895	5.6514	0.0000	0.3304	0.6813	1337.9185	0.0000	1.8019	81.0476	5.2764
313	0.5043	0.0895	5.6322	0.0000	0.3288	0.6798	1337.6194	0.0000	1.8024	81.0494	5.2769
314	0.5043	0.0895	5.6323	0.0000	0.3288	0.6798	1337.6213	0.0000	1.8024	81.0495	5.2769
315	0.5021	0.0895	5.6096	0.0000	0.3266	0.6775	1336.2555	0.0000	1.8000	81.0265	5.2705
317	0.5054	0.0897	5.6323	0.0000	0.3295	0.6812	1335.4324	0.0000	1.8080	80.7981	5.2078
318	0.5060	0.0897	5.6402	0.0000	0.3301	0.6818	1337.5166	0.0000	1.8074	80.9693	5.2547
319	0.5021	0.0896	5.6069	0.0000	0.3266	0.6777	1335.6406	0.0000	1.8017	81.0278	5.2709
320	0.5000	0.0895	5.5882	0.0000	0.3246	0.6754	1332.6866	0.0000	1.7969	80.9830	5.2585
321	0.5066	0.0896	5.6532	0.0000	0.3310	0.6823	1337.9151	0.0000	1.8047	81.0507	5.2773
322	0.5017	0.0895	5.6020	0.0000	0.3261	0.6772	1334.9101	0.0000	1.8010	81.0182	5.2682
323	0.5063	0.0896	5.6524	0.0000	0.3307	0.6818	1337.9172	0.0000	1.8035	81.0531	5.2779
324	0.5053	0.0896	5.6389	0.0000	0.3297	0.6809	1337.7725	0.0000	1.8047	81.0560	5.2787
325	0.5128	0.0892	5.7510	0.0000	0.3380	0.6875	1329.4743	0.0000	1.7800	80.8374	5.2185
326	0.5106	0.0895	5.7074	0.0000	0.3353	0.6860	1333.8766	0.0000	1.7955	80.9459	5.2482
327	0.5085	0.0896	5.6771	0.0000	0.3329	0.6840	1337.2253	0.0000	1.8019	81.0242	5.2699
328	0.5108	0.0893	5.7169	0.0000	0.3357	0.6859	1334.6135	0.0000	1.7913	80.9499	5.2493
329	0.5103	0.0894	5.7090	0.0000	0.3351	0.6855	1335.3197	0.0000	1.7935	80.9697	5.2548
330	0.5092	0.0895	5.6875	0.0000	0.3337	0.6847	1336.5694	0.0000	1.7999	81.0062	5.2649
331	0.5087	0.0895	5.6813	0.0000	0.3332	0.6842	1337.0864	0.0000	1.8007	81.0221	5.2693
332	0.5069	0.0897	5.6539	0.0000	0.3312	0.6826	1337.9119	0.0000	1.8055	81.0380	5.2737
333	0.5063	0.0897	5.6467	0.0000	0.3306	0.6821	1337.8835	0.0000	1.8063	81.0336	5.2725
334	0.5091	0.0896	5.6825	0.0000	0.3335	0.6847	1336.4673	0.0000	1.8018	80.9904	5.2605
335	0.5092	0.0896	5.6854	0.0000	0.3337	0.6848	1336.3395	0.0000	1.8011	80.9923	5.2610
336	0.5120	0.0893	5.7343	0.0000	0.3370	0.6870	1331.1042	0.0000	1.7866	80.8852	5.2316
337	0.5039	0.0897	5.6194	0.0000	0.3282	0.6797	1335.5935	0.0000	1.8062	81.0059	5.2648
338	0.5064	0.0897	5.6469	0.0000	0.3306	0.6821	1337.8852	0.0000	1.8063	81.0325	5.2722

339	0.5031	0.0896	5.6122	0.0000	0.3274	0.6788	1335.0230	0.0000	1.8048	81.0156	5.2675
340	0.5058	0.0897	5.6407	0.0000	0.3301	0.6816	1337.7176	0.0000	1.8066	81.0310	5.2717
341	0.5000	0.0894	5.5912	0.0000	0.3247	0.6752	1334.1315	0.0000	1.7954	80.9848	5.2590
342	0.5006	0.0894	5.5967	0.0000	0.3253	0.6759	1334.8696	0.0000	1.7971	81.0000	5.2632
347	0.5065	0.0896	5.6529	0.0000	0.3309	0.6821	1337.9161	0.0000	1.8042	81.0528	5.2778
348	0.4994	0.0894	5.5871	0.0000	0.3242	0.6746	1333.5588	0.0000	1.7935	80.9699	5.2548
349	0.5141	0.0889	5.7795	0.0000	0.3397	0.6884	1322.5851	0.0000	1.7679	80.7195	5.1866
350	0.5119	0.0894	5.7288	0.0000	0.3368	0.6870	1329.0571	0.0000	1.7889	80.8707	5.2276
351	0.5129	0.0892	5.7513	0.0000	0.3381	0.6877	1327.0205	0.0000	1.7802	80.8194	5.2136
352	0.5102	0.0895	5.6999	0.0000	0.3348	0.6857	1334.3515	0.0000	1.7978	80.9510	5.2496
353	0.5004	0.0895	5.5930	0.0000	0.3250	0.6757	1334.1346	0.0000	1.7971	80.9947	5.2617
354	0.5090	0.0895	5.6899	0.0000	0.3336	0.6843	1336.6974	0.0000	1.7978	81.0091	5.2657
355	0.5043	0.0895	5.6322	0.0000	0.3288	0.6798	1337.6194	0.0000	1.8024	81.0494	5.2769
356	0.5003	0.0894	5.5940	0.0000	0.3250	0.6755	1334.5491	0.0000	1.7960	80.9915	5.2608
357	0.5059	0.0895	5.6514	0.0000	0.3304	0.6813	1337.9185	0.0000	1.8019	81.0476	5.2764
358	0.5030	0.0895	5.6191	0.0000	0.3276	0.6785	1336.9797	0.0000	1.8014	81.0396	5.2741
359	0.5127	0.0892	5.7464	0.0000	0.3379	0.6876	1326.2568	0.0000	1.7823	80.8231	5.2146
360	0.5093	0.0896	5.6853	0.0000	0.3337	0.6849	1336.0158	0.0000	1.8014	80.9754	5.2564
361	0.5043	0.0895	5.6321	0.0000	0.3288	0.6797	1337.6147	0.0000	1.8024	81.0491	5.2768
362	0.5042	0.0895	5.6314	0.0000	0.3287	0.6796	1337.5933	0.0000	1.8022	81.0479	5.2765
363	0.5028	0.0895	5.6177	0.0000	0.3274	0.6783	1336.8944	0.0000	1.8010	81.0367	5.2733
364	0.4976	0.0893	5.5726	0.0000	0.3226	0.6727	1330.3850	0.0000	1.7885	80.9202	5.2411
365	0.5016	0.0895	5.6036	0.0000	0.3262	0.6771	1335.4423	0.0000	1.8003	81.0206	5.2689
366	0.5015	0.0895	5.6008	0.0000	0.3260	0.6770	1334.7923	0.0000	1.8005	81.0156	5.2675
367	0.5004	0.0895	5.5919	0.0000	0.3250	0.6758	1333.5018	0.0000	1.7979	80.9937	5.2614
368	0.5041	0.0896	5.6267	0.0000	0.3285	0.6798	1337.3030	0.0000	1.8041	81.0517	5.2775
369	0.4991	0.0894	5.5795	0.0000	0.3238	0.6744	1329.4422	0.0000	1.7947	80.9503	5.2494
370	0.5022	0.0895	5.6105	0.0000	0.3267	0.6776	1336.3308	0.0000	1.8003	81.0286	5.2711
373	0.5021	0.0896	5.6055	0.0000	0.3265	0.6777	1335.2234	0.0000	1.8020	81.0242	5.2699
374	0.4997	0.0895	5.5858	0.0000	0.3244	0.6751	1331.9757	0.0000	1.7963	80.9750	5.2562
375	0.5040	0.0896	5.6257	0.0000	0.3284	0.6796	1337.2588	0.0000	1.8039	81.0509	5.2773
376	0.4978	0.0893	5.5751	0.0000	0.3228	0.6728	1331.4023	0.0000	1.7884	80.9249	5.2424
377	0.5043	0.0895	5.6323	0.0000	0.3288	0.6798	1337.6213	0.0000	1.8024	81.0495	5.2769
378	0.4975	0.0893	5.5726	0.0000	0.3225	0.6724	1330.8005	0.0000	1.7873	80.9148	5.2397
379	0.5043	0.0895	5.6327	0.0000	0.3289	0.6798	1337.6343	0.0000	1.8026	81.0502	5.2771
380	0.5014	0.0895	5.6036	0.0000	0.3260	0.6768	1335.6600	0.0000	1.7989	81.0161	5.2676
381	0.4977	0.0893	5.5741	0.0000	0.3227	0.6727	1331.0956	0.0000	1.7882	80.9221	5.2417
382	0.4947	0.0891	5.5547	0.0000	0.3202	0.6693	1326.2288	0.0000	1.7759	80.8152	5.2125
383	0.4969	0.0892	5.5685	0.0000	0.3220	0.6718	1329.8811	0.0000	1.7852	80.8959	5.2345
384	0.5003	0.0894	5.5940	0.0000	0.3250	0.6755	1334.5491	0.0000	1.7960	80.9915	5.2608
385	0.5001	0.0894	5.5924	0.0000	0.3248	0.6754	1334.2764	0.0000	1.7958	80.9885	5.2600
386	0.5010	0.0895	5.6000	0.0000	0.3257	0.6764	1335.2273	0.0000	1.7983	81.0091	5.2657
387	0.5000	0.0894	5.5912	0.0000	0.3247	0.6753	1334.0732	0.0000	1.7957	80.9863	5.2594
388	0.5126	0.0892	5.7463	0.0000	0.3378	0.6875	1329.0854	0.0000	1.7821	80.8452	5.2206
389	0.5076	0.0896	5.6632	0.0000	0.3319	0.6832	1337.7424	0.0000	1.8045	81.0334	5.2724
394	0.5107	0.0894	5.7092	0.0000	0.3354	0.6860	1334.2087	0.0000	1.7948	80.9519	5.2499
395	0.5095	0.0895	5.6928	0.0000	0.3341	0.6849	1336.3532	0.0000	1.7984	81.0011	5.2635
396	0.5046	0.0897	5.6272	0.0000	0.3288	0.6803	1336.9019	0.0000	1.8063	81.0318	5.2720
397	0.5059	0.0897	5.6408	0.0000	0.3301	0.6816	1337.7206	0.0000	1.8066	81.0304	5.2716
398	0.5131	0.0892	5.7506	0.0000	0.3382	0.6880	1297.8421	0.0000	1.7810	80.6090	5.1570
399	0.5163	0.0882	5.8562	0.0000	0.3435	0.6890	1312.7108	0.0000	1.7272	80.3784	5.0964
400	0.5162	0.0882	5.8538	0.0000	0.3434	0.6890	1313.2026	0.0000	1.7286	80.3911	5.0997
401	0.5092	0.0896	5.6837	0.0000	0.3336	0.6848	1336.1325	0.0000	1.8017	80.9755	5.2564
402	0.5071	0.0897	5.6544	0.0000	0.3313	0.6828	1337.9056	0.0000	1.8062	81.0053	5.2646

*****Random-effects model, single-level, treatment group moderators *****

***R script:

```
#Author: Brandon S Bentzley
#Project: Meta analysis of treatments for cocaine use disorders
#Date this R script was created: 2/20/2017
#Date this R script was last updated: 04/17/2018
#Description: This script uses rma() from the package metafor to calculate random effects with
treatment group moderators only

# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/Malenka/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
# set the output file
sink("Output.out")
options(width=120)
# load the dataset and define variable data types
mydata = read.csv("data.csv", colClasses=c(
"Author"="character", "Year"="numeric", "Title"="character", "StudyID"="factor",
"Double_Blind"="factor", "Multisite"="factor", "Randomized"="factor", "SubDsrdr"="character",
"Placebo"="factor", "Psychotherapy"="factor", "ContingencyManagement"="factor", "Other"="factor",
"Opioid"="factor", "MiscMeds"="factor", "Psychostimulants"="factor", "Anticonvulsants"="factor",
"DopamineAgonists"="factor", "Antidepressants"="factor", "Antipsychotics"="factor",
"TreatmentNmbr"= "numeric", "TrtmntlorMore"="factor", "N_start"="numeric",
"Proportion_Male"="numeric", "Mean_Age"="numeric", "Mean_daysweek"="numeric",
"Proportion_30days"="numeric", "Years_use"="numeric", "ASI_Drug"="numeric",
"TestPosScreen"="factor", "CokeFreeBase"="numeric", "CokeFreeWk1"="numeric",
"BaselineType"="factor", "CokeFreeStart"="numeric", "Complication"="character", "FU"="numeric",
"Complete"="numeric", "CokeFreeLastWk_NotITT"="numeric", "CokeFreeMean_NotITT"="numeric",
"CokeFreeLastWk_ITT"="numeric", "CokeFreeMean_ITT"="numeric", "CokeFreeOutcome_Type"="factor",
"CokeFreeOutcome_ITT"="numeric", "CFS"="numeric", "CPS"="numeric", "CFE"="numeric",
"CPE"="numeric", "yi"="numeric", "vi"="numeric"))

#Use this to output data types for the variables for testing
#print(str(mydata))

#Do analysis
#Other mods:
results<-rma(yi, vi,
    mods =  ~ factor(Anticonvulsants) + factor(Antidepressants) + factor(Antipsychotics) +
factor(ContingencyManagement)
    + factor(DopamineAgonists) + factor(MiscMeds) + factor(Opioid) + factor(Other) +
factor(Placebo)
    + factor(Psychotherapy) + factor(Psychostimulants),
    data = mydata, method = "REML", measure = "OR")
print(results)


# close the output file
sink()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
# change back to the original directory
setwd(initial.dir)
```

***Output:

```
Mixed-Effects Model (k = 314; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     1.2715 (SE = 0.1555)
tau (square root of estimated tau^2 value):             1.1276
```

```
I^2 (residual heterogeneity / unaccounted variability): 74.40%
H^2 (unaccounted variability / sampling variability):   3.91
R^2 (amount of heterogeneity accounted for):            29.22%

Test for Residual Heterogeneity:
QE(df = 302) = 962.0227, p-val < .0001

Test of Moderators (coefficient(s) 2,3,4,5,6,7,8,9,10,11,12):
QM(df = 11) = 89.5220, p-val < .0001

Model Results:

                                estimate      se     zval    pval    ci.lb   ci.ub
intrcpt                          -0.3339  0.2908  -1.1483  0.2508  -0.9038  0.2360
factor(Anticonvulsants)1          0.7008  0.3849   1.8206  0.0687  -0.0537  1.4553    .
factor(Antidepressants)1          1.3898  0.4212   3.2994  0.0010   0.5642  2.2155  ***
factor(Antipsychotics)1          -0.6881  0.4750  -1.4486  0.1474  -1.6191  0.2429
factor(ContingencyManagement)1    0.6296  0.2128   2.9591  0.0031   0.2126  1.0466   **
factor(DopamineAgonists)1        -0.0453  0.3656  -0.1240  0.9014  -0.7620  0.6713
factor(MiscMeds)1                 0.6824  0.2881   2.3687  0.0179   0.1177  1.2470    *
factor(Opioid)1                   1.1518  0.1741   6.6154  <.0001   0.8106  1.4931  ***
factor(Other)1                    0.8896  0.3657   2.4328  0.0150   0.1729  1.6063    *
factor(Placebo)1                  0.2931  0.2332   1.2569  0.2088  -0.1639  0.7501
factor(Psychotherapy)1           -0.1917  0.2223  -0.8625  0.3884  -0.6273  0.2439
factor(Psychostimulants)1         0.4786  0.3612   1.3252  0.1851  -0.2293  1.1865

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

*****Random-effects model, single-level, all covariates, with collinearity diagnostics*****

***R script:

```
#Author: Brandon S Bentzley
#Project: Meta analysis of treatments for cocaine use disorders
#Date this R script was created: 2/20/2017
#Date this R script was last updated: 04/24/2018
#Description: This script uses rma() from the package metafor to calculate random effects with
treatment and other moderators.
#Note: Complete = Proportion of participants who completed the trial is currently commented out
with a #

# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/Malenka/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
library(mctest)
# set the output file
sink("Output.out")
options(width=120)
# load the dataset and define variable data types
mydata = read.csv("Data.csv", colClasses=c(
"Author"="character", "Year"="numeric", "Title"="character", "StudyID"="factor",
"Double_Blind"="factor", "Multisite"="factor", "Randomized"="factor", "SubDsrdr"="character",
"Placebo"="factor", "Psychotherapy"="factor", "ContingencyManagement"="factor", "Other"="factor",
"Opioid"="factor", "MiscMeds"="factor", "Psychostimulants"="factor", "Anticonvulsants"="factor",
"DopamineAgonists"="factor", "Antidepressants"="factor", "Antipsychotics"="factor",
"TreatmentNmbr"= "numeric", "TrtmntlorMore"="factor", "N_start"="numeric",
"Proportion_Male"="numeric", "Mean_Age"="numeric", "Mean_daysweek"="numeric",
"Proportion_30days"="numeric", "Years_use"="numeric", "ASI_Drug"="numeric",
"TestPosScreen"="factor", "CokeFreeBase"="numeric", "CokeFreeWk1"="numeric",
"BaselineType"="factor", "CokeFreeStart"="numeric", "Complication"="character", "FU"="numeric",
"Complete"="numeric", "CokeFreeLastWk_NotITT"="numeric", "CokeFreeMean_NotITT"="numeric",
"CokeFreeLastWk_ITT"="numeric", "CokeFreeMean_ITT"="numeric", "CokeFreeOutcome_Type"="factor",
"CokeFreeOutcome_ITT"="numeric", "CFS"="numeric", "CPS"="numeric", "CFE"="numeric",
"CPE"="numeric", "yi"="numeric", "vi"="numeric"))

#Do analysis
#Other mods:
results<-rma(yi, vi,
    mods = ~ factor(Anticonvulsants) + factor(Antidepressants) + factor(Antipsychotics)
    + factor(ContingencyManagement)+ factor(DopamineAgonists) + factor(MiscMeds)
    + factor(Opioid) + factor(Other) + factor(Placebo)
    + factor(Psychotherapy) + factor(Psychostimulants)
    + factor(Double_Blind) + factor(Multisite) + factor(Randomized)
    + factor(BaselineType) + factor(CokeFreeOutcome_Type)
    + FU + Year + Proportion_Male + Mean_Age + Complete,  #Complete included in 2nd output
    data = mydata, method = "REML", measure = "OR")
print(results)

#Calculte I2 http://www.metafor-project.org/doku.php/tips:i2_multilevel_multivariate
X <- model.matrix(results)
W <- diag(1/mydata$vi)
    #Only include rows with values (Not NAs)
    rowsInclude =as.numeric(row.names(X))
    W2=W[rowsInclude, rowsInclude]
P <- W2 - W2 %*% X %*% solve(t(X) %*% W2 %*% X) %*% t(X) %*% W2
Isquared <- 100 * results$tau2 / (results$tau2 + (results$k-results$p)/sum(diag(P)))
print(paste0("I2 = ", Isquared), quote = FALSE)

#Calc collinear
X <- X[,-c(1)] #for deleting columns; this takes out the intrcp=1 for all groups
Y <- mydata$yi
Y2=Y[rowsInclude] #only include data with outcomes
```

```
coldiag <- mctest(X, Y2, type="i") #perform colinearity diagnostics
print(coldiag)

# close the output file
sink()
closeAllConnections()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
detach("package:mctest")
# change back to the original directory
setwd(initial.dir)
```

***Output 1: (Without completion rate as covariate and collinearity diagnostics)

```
Mixed-Effects Model (k = 300; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     0.3260 (SE = 0.0712)
tau (square root of estimated tau^2 value):             0.5709
I^2 (residual heterogeneity / unaccounted variability): 41.79%
H^2 (unaccounted variability / sampling variability):   1.72
R^2 (amount of heterogeneity accounted for):            80.62%

Test for Residual Heterogeneity:
QE(df = 276) = 470.0981, p-val < .0001

Test of Moderators (coefficient(s) 2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24):
QM(df = 23) = 420.2026, p-val < .0001

Model Results:
```

	estimate	se	zval	pval	ci.lb	ci.ub	
intrcpt	-77.2125	28.0742	-2.7503	0.0060	-132.2369	-22.1882	**
factor(Anticonvulsants)1	0.7648	0.3246	2.3560	0.0185	0.1286	1.4010	*
factor(Antidepressants)1	0.4163	0.3638	1.1445	0.2524	-0.2966	1.1293	
factor(Antipsychotics)1	-0.3023	0.3889	-0.7774	0.4369	-1.0645	0.4599	
factor(ContingencyManagement)1	0.5649	0.1595	3.5406	0.0004	0.2522	0.8776	***
factor(DopamineAgonists)1	0.2358	0.3094	0.7622	0.4460	-0.3706	0.8422	
factor(MiscMeds)1	0.4526	0.2776	1.6304	0.1030	-0.0915	0.9967	
factor(Opioid)1	1.0543	0.1360	7.7533	<.0001	0.7878	1.3208	***
factor(Other)1	0.7482	0.2805	2.6677	0.0076	0.1985	1.2980	**
factor(Placebo)1	0.1735	0.2442	0.7104	0.4775	-0.3052	0.6521	
factor(Psychotherapy)1	-0.1550	0.1719	-0.9019	0.3671	-0.4918	0.1818	
factor(Psychostimulants)1	0.5343	0.3102	1.7227	0.0849	-0.0736	1.1422	.
factor(Double_Blind)1	-0.5472	0.2202	-2.4846	0.0130	-0.9789	-0.1156	*
factor(Multisite)1	-0.0527	0.1987	-0.2651	0.7910	-0.4421	0.3367	
factor(Randomized)1	-0.1859	0.3823	-0.4862	0.6268	-0.9353	0.5635	
factor(BaselineType)2	-2.2027	0.1690	-13.0349	<.0001	-2.5339	-1.8715	***
factor(BaselineType)3	-2.3502	0.2156	-10.9034	<.0001	-2.7727	-1.9278	***
factor(CokeFreeOutcome_Type)2	-0.4909	0.1526	-3.2165	0.0013	-0.7901	-0.1918	**
factor(CokeFreeOutcome_Type)3	-1.0311	0.2719	-3.7921	0.0001	-1.5640	-0.4982	***
factor(CokeFreeOutcome_Type)4	-0.4405	0.2113	-2.0846	0.0371	-0.8547	-0.0263	*
FU	0.0078	0.0109	0.7191	0.4721	-0.0135	0.0291	
Year	0.0390	0.0141	2.7657	0.0057	0.0114	0.0667	**
Proportion_Male	1.2896	0.4050	3.1845	0.0014	0.4959	2.0833	**
Mean_Age	0.0076	0.0164	0.4661	0.6412	-0.0244	0.0397	

```
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] I2 = 41.7905199672199

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)
```

All Individual Multicollinearity Diagnostics Result

	VIF	TOL	Wi	Fi	Leamer	CVIF	Klein
factor(Anticonvulsants)1	1.7849	0.5603	9.8824	10.3903	0.7485	1.7776	0
factor(Antidepressants)1	1.6124	0.6202	7.7103	8.1066	0.7875	1.6058	0
factor(Antipsychotics)1	1.6230	0.6161	7.8446	8.2478	0.7849	1.6165	0
factor(ContingencyManagement)1	1.4550	0.6873	5.7289	6.0234	0.8290	1.4491	0
factor(DopamineAgonists)1	1.8983	0.5268	11.3100	11.8913	0.7258	1.8906	0
factor(MiscMeds)1	2.6489	0.3775	20.7613	21.8284	0.6144	2.6382	1
factor(Opioid)1	1.5834	0.6316	7.3452	7.7227	0.7947	1.5770	0
factor(Other)1	1.6085	0.6217	7.6612	8.0550	0.7885	1.6019	0
factor(Placebo)1	3.7901	0.2638	35.1295	36.9352	0.5137	3.7747	1
factor(Psychotherapy)1	1.3170	0.7593	3.9909	4.1961	0.8714	1.3116	0
factor(Psychostimulants)1	1.9133	0.5227	11.4992	12.0903	0.7230	1.9055	0
factor(Double_Blind)1	3.6602	0.2732	33.4946	35.2162	0.5227	3.6454	1
factor(Multisite)1	1.3985	0.7150	5.0177	5.2756	0.8456	1.3928	0
factor(Randomized)1	1.5271	0.6549	6.6361	6.9772	0.8092	1.5209	0
factor(BaselineType)2	1.6795	0.5954	8.5552	8.9949	0.7716	1.6727	0
factor(BaselineType)3	1.4615	0.6842	5.8106	6.1093	0.8272	1.4556	0
factor(CokeFreeOutcome_Type)2	1.7800	0.5618	9.8205	10.3253	0.7495	1.7728	0
factor(CokeFreeOutcome_Type)3	1.4339	0.6974	5.4635	5.7443	0.8351	1.4281	0
factor(CokeFreeOutcome_Type)4	1.4448	0.6922	5.6001	5.8879	0.8320	1.4389	0
FU	1.2395	0.8068	3.0151	3.1701	0.8982	1.2344	0
Year	1.7177	0.5822	9.0363	9.5008	0.7630	1.7107	0
Proportion_Male	1.4192	0.7046	5.2782	5.5495	0.8394	1.4135	0
Mean_Age	1.4301	0.6992	5.4156	5.6939	0.8362	1.4243	0

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Antidepressants)1 , factor(Antipsychotics)1 , factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Placebo)1 , factor(Psychotherapy)1 , factor(Psychostimulants)1 , factor(Multisite)1 , factor(Randomized)1 , factor(CokeFreeOutcome_Type)2 , factor(CokeFreeOutcome_Type)4 , FU , Mean_Age , coefficient(s) are non-significant may be due to multicollinearity

R-square of y on all x: 0.5556

* use method argument to check which regressors may be the reason of collinearity

---

***Output 2: (With completion rate as covariate)

Mixed-Effects Model (k = 295; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity): 0.1391 (SE = 0.0513)
tau (square root of estimated tau^2 value): 0.3730
I^2 (residual heterogeneity / unaccounted variability): 22.57%
H^2 (unaccounted variability / sampling variability): 1.29
R^2 (amount of heterogeneity accounted for): 91.49%

Test for Residual Heterogeneity:
QE(df = 270) = 360.8767, p-val = 0.0002

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25):
QM(df = 24) = 576.4932, p-val < .0001

Model Results:

	estimate	se	zval	pval	ci.lb	ci.ub	
intrcpt	-52.8881	24.7395	-2.1378	0.0325	-101.3767	-4.3996	*
factor(Anticonvulsants)1	0.5338	0.2861	1.8653	0.0621	-0.0271	1.0946	.
factor(Antidepressants)1	0.6158	0.3296	1.8682	0.0617	-0.0302	1.2617	.
factor(Antipsychotics)1	0.0121	0.3456	0.0349	0.9721	-0.6652	0.6893	
factor(ContingencyManagement)1	0.6991	0.1429	4.8908	<.0001	0.4189	0.9792	***
factor(DopamineAgonists)1	0.4971	0.2690	1.8481	0.0646	-0.0301	1.0242	.
factor(MiscMeds)1	0.4015	0.2476	1.6218	0.1048	-0.0837	0.8867	
factor(Opioid)1	0.3481	0.1438	2.4206	0.0155	0.0662	0.6300	*
factor(Other)1	0.6760	0.2441	2.7687	0.0056	0.1975	1.1545	**

factor(Placebo)1	0.2060	0.2131	0.9669	0.3336	-0.2116	0.6236	
factor(Psychotherapy)1	-0.1181	0.1482	-0.7966	0.4257	-0.4086	0.1725	
factor(Psychostimulants)1	0.6275	0.2710	2.3154	0.0206	0.0963	1.1587	*
factor(Double_Blind)1	-0.2305	0.1947	-1.1840	0.2364	-0.6121	0.1511	
factor(Multisite)1	-0.0085	0.1827	-0.0466	0.9628	-0.3665	0.3495	
factor(Randomized)1	-0.5110	0.3358	-1.5218	0.1281	-1.1691	0.1471	
factor(BaselineType)2	-2.2693	0.1560	-14.5456	<.0001	-2.5751	-1.9635	***
factor(BaselineType)3	-2.5035	0.1940	-12.9023	<.0001	-2.8838	-2.1232	***
factor(CokeFreeOutcome_Type)2	-0.1909	0.1393	-1.3706	0.1705	-0.4638	0.0821	
factor(CokeFreeOutcome_Type)3	-0.7695	0.2614	-2.9437	0.0032	-1.2818	-0.2572	**
factor(CokeFreeOutcome_Type)4	-0.2304	0.1860	-1.2392	0.2153	-0.5949	0.1340	
FU	0.0247	0.0098	2.5221	0.0117	0.0055	0.0438	*
Year	0.0270	0.0124	2.1686	0.0301	0.0026	0.0514	*
Proportion_Male	0.8453	0.3701	2.2840	0.0224	0.1199	1.5706	*
Mean_Age	-0.0284	0.0152	-1.8648	0.0622	-0.0583	0.0015	.
Complete	2.5504	0.2836	8.9928	<.0001	1.9946	3.1063	***

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] I2 = 22.5747638275299

***Random-effects model, multi-level, all covariates ***

***R script:

```
#Author: Brandon S Bentzley
#Project: Meta analysis of treatments for cocaine use disorders
#Date this R script was created: 2/20/2017
#Date this R script was last updated: 06/04/2018
#Description: This script uses rma.mv() from the package metafor to calculate random effects with
treatment and other moderators. It also includes multilevel modeling with random effects grouped by
study individual study within lead author. It calculates I2, the intraclass correlational
coefficient (ICC), and makes various diagnostic plots (some stuff is commented out)
#Note: Complete = Proportion of participants who completed the trial is currently commented out
with a #


# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/Malenka/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
# set the output file
sink("Output.out")
# set file width
options(width=120)
# load the dataset and define variable data types
mydata = read.csv("data.csv", colClasses=c(
"Author"="character", "Year"="numeric", "Title"="character", "StudyID"="factor",
"Double_Blind"="factor", "Multisite"="factor", "Randomized"="factor", "SubDsrdr"="character",
"Placebo"="factor", "Psychotherapy"="factor", "ContingencyManagement"="factor", "Other"="factor",
"Opioid"="factor", "MiscMeds"="factor", "Psychostimulants"="factor", "Anticonvulsants"="factor",
"DopamineAgonists"="factor", "Antidepressants"="factor", "Antipsychotics"="factor",
"TreatmentNmbr"= "numeric", "TrtmntlorMore"="factor", "N_start"="numeric",
"Proportion_Male"="numeric", "Mean_Age"="numeric", "Mean_daysweek"="numeric",
"Proportion_30days"="numeric", "Years_use"="numeric", "ASI_Drug"="numeric",
"TestPosScreen"="factor", "CokeFreeBase"="numeric", "CokeFreeWk1"="numeric",
"BaselineType"="factor", "CokeFreeStart"="numeric", "Complication"="character", "FU"="numeric",
"Complete"="numeric", "CokeFreeLastWk_NotITT"="numeric", "CokeFreeMean_NotITT"="numeric",
"CokeFreeLastWk_ITT"="numeric", "CokeFreeMean_ITT"="numeric", "CokeFreeOutcome_Type"="factor",
"CokeFreeOutcome_ITT"="numeric", "CFS"="numeric", "CPS"="numeric", "CFE"="numeric",
"CPE"="numeric", "yi"="numeric", "vi"="numeric"))

#Do analysis (multilevel)
results<-rma.mv(yi, vi, random = ~ 1 | Author/StudyID,
    mods = ~ factor(Anticonvulsants) + factor(Antidepressants) + factor(Antipsychotics)
    + factor(ContingencyManagement) + factor(DopamineAgonists) + factor(MiscMeds)
    + factor(Opioid) + factor(Other) + factor(Placebo)
    + factor(Psychotherapy) + factor(Psychostimulants)
    + factor(Double_Blind) + factor(Multisite) + factor(Randomized)
    + factor(BaselineType) + factor(CokeFreeOutcome_Type)
    + FU + Year + Proportion_Male + Mean_Age, + Complete, #Complete in Output2 only
    data = mydata, method = "REML", measure = "OR")
print(results)

#Makes Profile Likelihood Plots of sigma2
par(mfrow=c(2,1))
profile(results, sigma2=1)
profile(results, sigma2=2)

#Calculuate Intraclass Correlation of the True Effects
print(paste0("ICC = ", round(results$sigma2[1] / sum(results$sigma2), 3)), quote = FALSE)

#Calculte I2 http://www.metafor-project.org/doku.php/tips:i2_multilevel_multivariate
X <- model.matrix(results)
W <- diag(1/mydata$vi)
    #Only include rows with values (Not NAs)
```

```
    rowsInclude =as.numeric(row.names(X))
    W2=W[rowsInclude, rowsInclude]
P <- W2 - W2 %*% X %*% solve(t(X) %*% W2 %*% X) %*% t(X) %*% W2
Isquared<-100 * sum(results$sigma2) / (sum(results$sigma2) + (results$k-results$p)/sum(diag(P)))
print(paste0("I2 = ", Isquared), quote = FALSE)


# close the output file
sink()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
# change back to the original directory
setwd(initial.dir)
```

***Output 1: (Without completion rate as a covariate)

```
Multivariate Meta-Analysis Model (k = 300; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.3190  0.5648     75     no          Author
sigma^2.2  0.3220  0.5675    114     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 276) = 470.0981, p-val < .0001

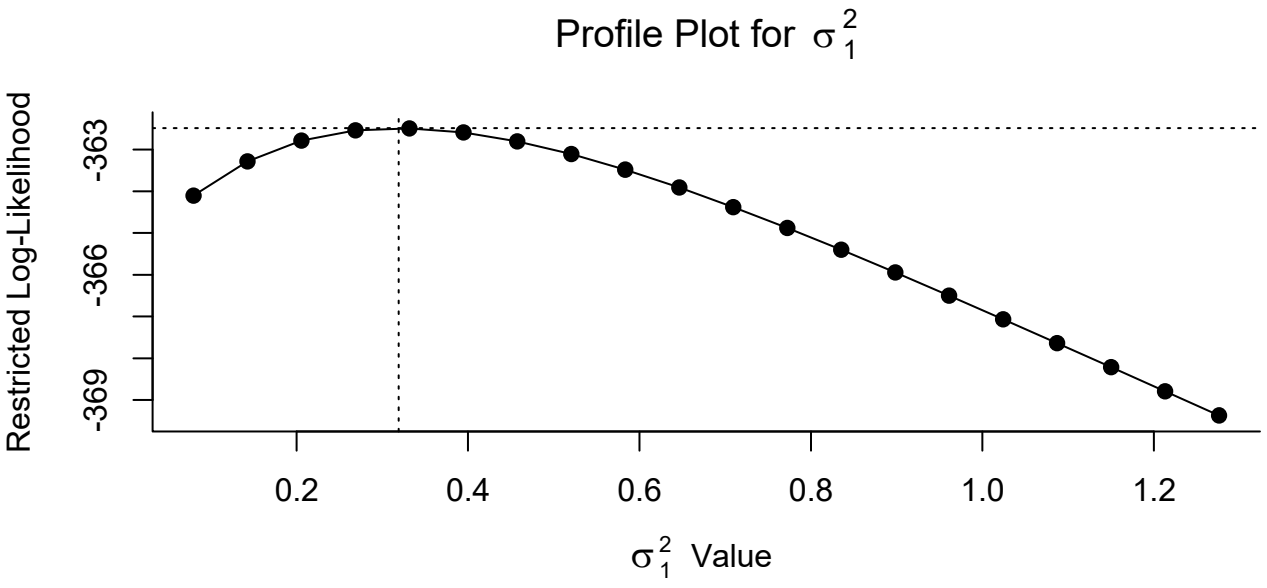
Test of Moderators (coefficient(s) 2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24):
QM(df = 23) = 172.8707, p-val < .0001

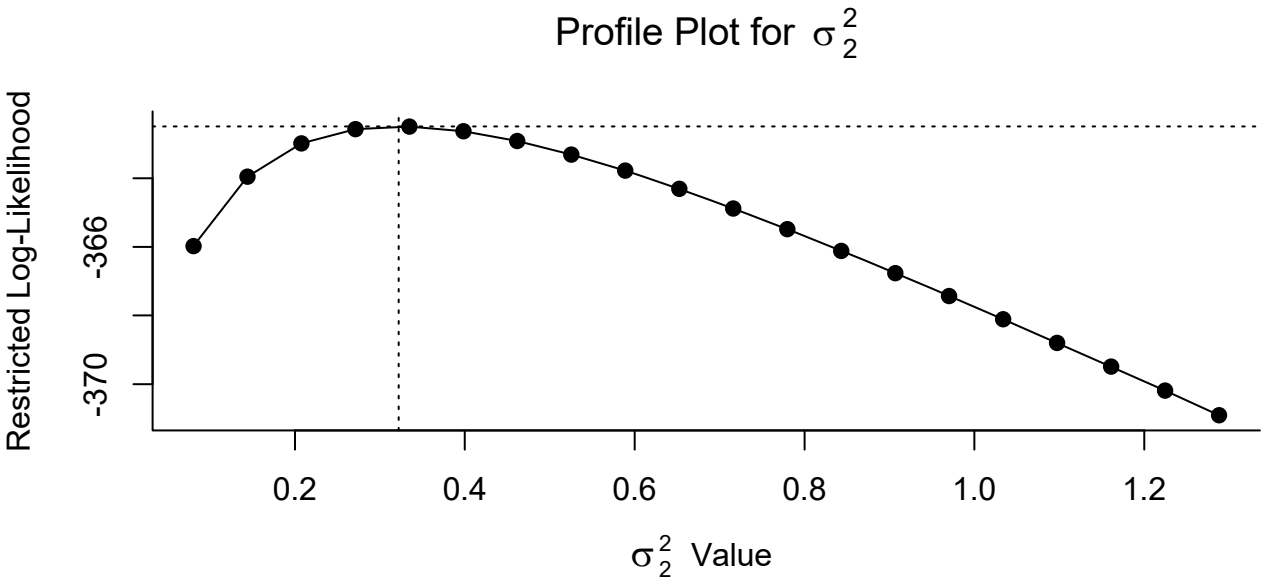
Model Results:

                                estimate       se     zval    pval      ci.lb    ci.ub
intrcpt                          -79.1880  41.1179  -1.9259  0.0541  -159.7775   1.4015    .
factor(Anticonvulsants)1           0.8396   0.3579   2.3456  0.0190     0.1380   1.5411    *
factor(Antidepressants)1           0.6749   0.3934   1.7156  0.0862    -0.0961   1.4459    .
factor(Antipsychotics)1            0.4645   0.4312   1.0772  0.2814    -0.3807   1.3098
factor(ContingencyManagement)1     0.7388   0.1390   5.3153  <.0001     0.4664   1.0112  ***
factor(DopamineAgonists)1          0.4400   0.3359   1.3098  0.1903    -0.2184   1.0983
factor(MiscMeds)1                  0.4963   0.3181   1.5601  0.1187    -0.1272   1.1199
factor(Opioid)1                    0.8406   0.2093   4.0171  <.0001     0.4305   1.2508  ***
factor(Other)1                     0.7850   0.3663   2.1431  0.0321     0.0671   1.5029    *
factor(Placebo)1                   0.3889   0.2743   1.4178  0.1563    -0.1487   0.9265
factor(Psychotherapy)1             0.0737   0.1942   0.3795  0.7043    -0.3069   0.4543
factor(Psychostimulants)1          0.9091   0.3422   2.6566  0.0079     0.2384   1.5799   **
factor(Double_Blind)1             -0.7168   0.3183  -2.2524  0.0243    -1.3406  -0.0931    *
factor(Multisite)1                 0.2064   0.3063   0.6738  0.5004    -0.3939   0.8067
factor(Randomized)1                0.2029   0.4590   0.4421  0.6584    -0.6967   1.1026
factor(BaselineType)2             -2.0780   0.2410  -8.6226  <.0001    -2.5503  -1.6057  ***
factor(BaselineType)3             -2.2036   0.3082  -7.1506  <.0001    -2.8076  -1.5996  ***
factor(CokeFreeOutcome_Type)2     -0.2724   0.2214  -1.2301  0.2186    -0.7064   0.1616
factor(CokeFreeOutcome_Type)3     -0.9075   0.4483  -2.0243  0.0429    -1.7862  -0.0288    *
factor(CokeFreeOutcome_Type)4     -0.3042   0.3135  -0.9704  0.3319    -0.9187   0.3102
FU                                 0.0149   0.0147   1.0189  0.3083    -0.0138   0.0436
Year                               0.0402   0.0206   1.9501  0.0512    -0.0002   0.0806    .
Proportion_Male                    0.7181   0.4607   1.5589  0.1190    -0.1848   1.6211
Mean_Age                          -0.0115   0.0215  -0.5366  0.5915    -0.0537   0.0306

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] ICC = 0.498
[1] I2 = 58.5381289694449
```





Output 2: (With completion rate as a covariate)

Multivariate Meta-Analysis Model (k = 295; method: REML)

Variance Components:

	estim	sqrt	nlvls	fixed	factor
sigma^2.1	0.1826	0.4273	74	no	Author
sigma^2.2	0.2833	0.5322	112	no	Author/StudyID

Test for Residual Heterogeneity:
QE(df = 270) = 360.8767, p-val = 0.0002

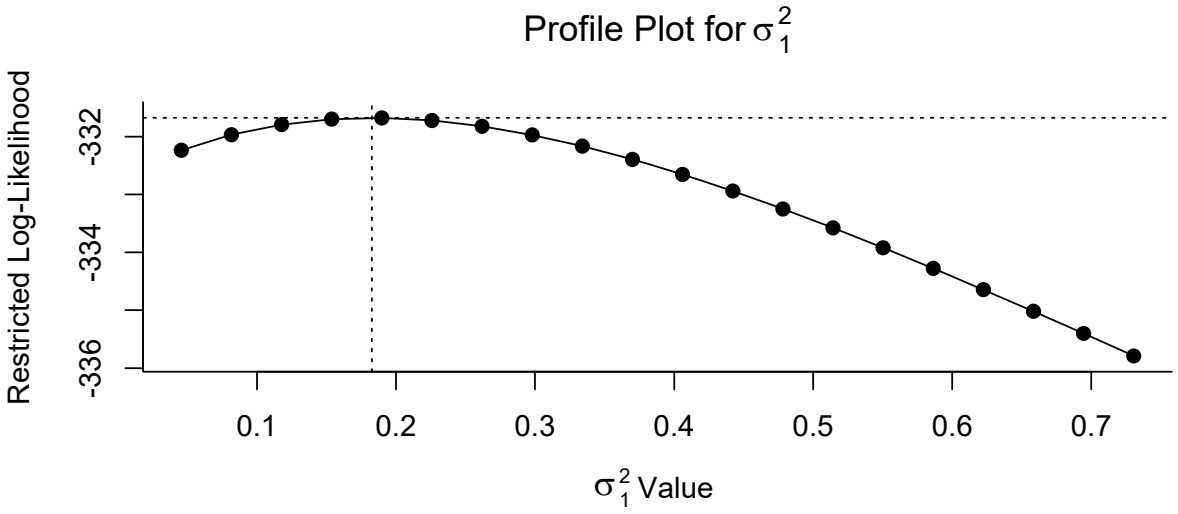
Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25):
QM(df = 24) = 249.5480, p-val < .0001

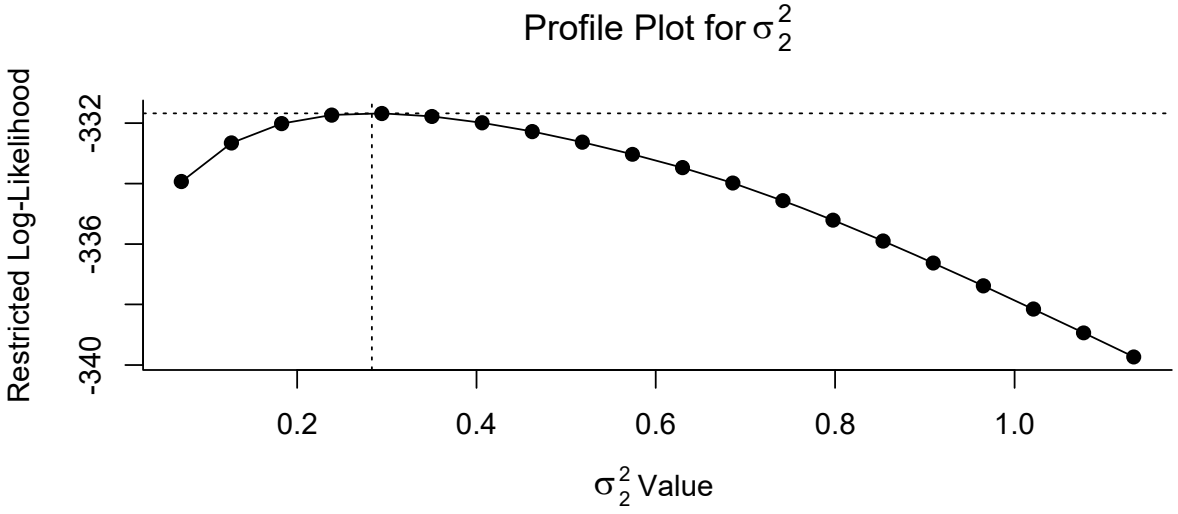
Model Results:

	estimate	se	zval	pval	ci.lb	ci.ub	
intrcpt	-51.6096	38.0420	-1.3566	0.1749	-126.1706	22.9514	
factor(Anticonvulsants)1	0.5118	0.3494	1.4648	0.1430	-0.1730	1.1967	
factor(Antidepressants)1	0.5505	0.3834	1.4357	0.1511	-0.2010	1.3020	
factor(Antipsychotics)1	0.1528	0.4180	0.3656	0.7146	-0.6664	0.9721	
factor(ContingencyManagement)1	0.7218	0.1523	4.7393	<.0001	0.4233	1.0203	***
factor(DopamineAgonists)1	0.2873	0.3260	0.8811	0.3782	-0.3517	0.9263	
factor(MiscMeds)1	0.2407	0.3111	0.7738	0.4391	-0.3690	0.8505	
factor(Opioid)1	0.2378	0.2123	1.1203	0.2626	-0.1782	0.6538	
factor(Other)1	0.3651	0.3559	1.0258	0.3050	-0.3324	1.0625	
factor(Placebo)1	0.0880	0.2679	0.3284	0.7426	-0.4371	0.6131	
factor(Psychotherapy)1	-0.1259	0.1878	-0.6704	0.5026	-0.4939	0.2422	
factor(Psychostimulants)1	0.5854	0.3347	1.7489	0.0803	-0.0706	1.2413	.
factor(Double_Blind)1	-0.2368	0.3003	-0.7885	0.4304	-0.8254	0.3518	
factor(Multisite)1	0.0713	0.2989	0.2386	0.8114	-0.5145	0.6572	
factor(Randomized)1	-0.1088	0.4311	-0.2523	0.8008	-0.9537	0.7361	
factor(BaselineType)2	-2.1771	0.2251	-9.6730	<.0001	-2.6183	-1.7360	***
factor(BaselineType)3	-2.3125	0.2886	-8.0139	<.0001	-2.8780	-1.7469	***
factor(CokeFreeOutcome_Type)2	0.0147	0.2115	0.0697	0.9445	-0.3998	0.4293	
factor(CokeFreeOutcome_Type)3	-0.5449	0.4656	-1.1702	0.2419	-1.4575	0.3677	
factor(CokeFreeOutcome_Type)4	-0.0839	0.2918	-0.2877	0.7736	-0.6559	0.4880	
Complete	2.7488	0.3682	7.4647	<.0001	2.0271	3.4705	***
FU	0.0300	0.0143	2.1053	0.0353	0.0021	0.0580	*
Year	0.0262	0.0191	1.3721	0.1700	-0.0112	0.0636	
Proportion_Male	0.6879	0.4467	1.5399	0.1236	-0.1877	1.5635	
Mean_Age	-0.0330	0.0207	-1.5938	0.1110	-0.0735	0.0076	

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] ICC = 0.392
[1] I2 = 49.3996299622723





*****Random-effects model, multi-level, all covariates, with imputed data *****

***R script:

```
#Author: Brandon S Bentzley
#Project: Meta analysis of treatments for cocaine use disorders
#Date this R script was created: 04/06/2018
#Date this R script was last updated: 04/07/2018
#Description: Runs MICE to impute missing data to create 5 imputed data sets as .csv files

# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/Malenka/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
require(mice)
require(lattice)
# set the output file
sink("Output.out")
# set file width
options(width=500)
# load the dataset and define variable data types
mydata = read.csv("DataForImp.csv", colClasses=c(
"Author"="character", "Year"="numeric", "Title"="character", "StudyID"="factor",
"Double_Blind"="factor", "Multisite"="factor", "Randomized"="factor", "SubDsrdr"="character",
"Placebo"="factor", "Psychotherapy"="factor", "ContingencyManagement"="factor", "Other"="factor",
"Opioid"="factor", "MiscMeds"="factor", "Psychostimulants"="factor", "Anticonvulsants"="factor",
"DopamineAgonists"="factor", "Antidepressants"="factor", "Antipsychotics"="factor",
"TreatmentNmbr"= "numeric", "TrtmntlorMore"="factor", "N_start"="numeric",
"Proportion_Male"="numeric", "Mean_Age"="numeric", "Mean_daysweek"="numeric",
"Proportion_30days"="numeric", "Years_use"="numeric", "ASI_Drug"="numeric",
"TestPosScreen"="factor", "CokeFreeBase"="numeric", "CokeFreeWk1"="numeric",
"BaselineType"="factor", "CokeFreeStart"="numeric", "Complication"="character", "FU"="numeric",
"Complete"="numeric", "CokeFreeLastWk_NotITT"="numeric", "CokeFreeMean_NotITT"="numeric",
"CokeFreeLastWk_ITT"="numeric", "CokeFreeMean_ITT"="numeric", "CokeFreeOutcome_Type"="factor",
"CokeFreeOutcome_ITT"="numeric", "CFS"="numeric", "CPS"="numeric", "CFE"="numeric",
"CPE"="numeric"))

#Use this to output data types for the variables for testing
#print(str(mydata))

#MICE perform multiple imputation on Data set, 5 times, seed makes it reproducible
set.seed(123)
imp <- mice(mydata, m = 5, maxit = 5, seed = 123)

#Show imputation methods used
write.csv(imp$meth, file = "methods.csv")

#Write the imputed data sets to a long CSV file
write.csv(complete(imp, 'long'), file = "Data_imputed_long.csv")

# close the output file
sink()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
# change back to the original directory
setwd(initial.dir)



#Author: Brandon S Bentzley
#Project: Meta-analysis of treatments for cocaine use disorders
#Date this R script was created: 04/06/2018
#Date this R script was last updated: 04/07/2018
#Description: Runs Escalc on 5 imputed data sets
```

```
# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/Malenka/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
require(mice)
require(lattice)
# set the output file
sink("Output.out")
# set file width
options(width=500)


#Run Escalc for 5 files
mydata = read.csv("Data_Imputed_1.csv")
mydata <- escalc(measure = "OR", ai = CFE, bi = CPE, ci = CFS, di = CPS, data = mydata, add = 1, to
= "only0", append = TRUE)
write.csv(mydata, file = "Data_Imputed_1_EC.csv")

mydata = read.csv("Data_Imputed_2.csv")
mydata <- escalc(measure = "OR", ai = CFE, bi = CPE, ci = CFS, di = CPS, data = mydata, add = 1, to
= "only0", append = TRUE)
write.csv(mydata, file = "Data_Imputed_2_EC.csv")

mydata = read.csv("Data_Imputed_3.csv")
mydata <- escalc(measure = "OR", ai = CFE, bi = CPE, ci = CFS, di = CPS, data = mydata, add = 1, to
= "only0", append = TRUE)
write.csv(mydata, file = "Data_Imputed_3_EC.csv")

mydata = read.csv("Data_Imputed_4.csv")
mydata <- escalc(measure = "OR", ai = CFE, bi = CPE, ci = CFS, di = CPS, data = mydata, add = 1, to
= "only0", append = TRUE)
write.csv(mydata, file = "Data_Imputed_4_EC.csv")

mydata = read.csv("Data_Imputed_5.csv")
mydata <- escalc(measure = "OR", ai = CFE, bi = CPE, ci = CFS, di = CPS, data = mydata, add = 1, to
= "only0", append = TRUE)
write.csv(mydata, file = "Data_Imputed_5_EC.csv")

# close the output file
sink()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
# change back to the original directory
setwd(initial.dir)



#Author: Brandon S Bentzley
#Project: Meta-analysis of treatments for cocaine use disorders
#Date this R script was created: 04/06/2018
#Date this R script was last updated: 08/23/2018
#Description: Runs multilevel analysis using 5 imputed data sets, calculates I2 for each data set,
runs collinearity diagnostics on each imputed data set, reports pooled results, makes funnel plots

# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/Malenka/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
require(mice)
require(lattice)
library(mctest)
```

```
# set the output file
sink("Output.out")
# set file width
options(width=130)

#Build data frame from long combined CSV file of all imputations
mydata = read.csv("Data_imputed_long.csv", colClasses=c(
"Author"="character", "Year"="numeric", "Title"="character", "StudyID"="factor",
"Double_Blind"="factor", "Multisite"="factor", "Randomized"="factor", "SubDsrdr"="character",
"Placebo"="factor", "Psychotherapy"="factor", "ContingencyManagement"="factor", "Other"="factor",
"Opioid"="factor", "MiscMeds"="factor", "Psychostimulants"="factor", "Anticonvulsants"="factor",
"DopamineAgonists"="factor", "Antidepressants"="factor", "Antipsychotics"="factor",
"TreatmentNmbr"= "numeric", "Trtmnt1orMore"="factor", "N_start"="numeric",
"Proportion_Male"="numeric", "Mean_Age"="numeric", "Mean_daysweek"="numeric",
"Years_use"="numeric", "ASI_Drug"="numeric", "BaselineType"="factor", "CokeFreeStart"="numeric",
"FU"="numeric", "Complete"="numeric", "CokeFreeOutcome_ITT"="numeric", "CFS"="numeric",
"CPS"="numeric", "CFE"="numeric", "CPE"="numeric", "yi"="numeric", "vi"="numeric"))

#Turn mydata into mids object
imp <- as.mids(mydata)

#Perform analysis on mids object and return as mira
fit <- with(imp, rma.mv(yi, vi, random = ~ 1 | Author/StudyID,
    mods = ~ factor(Anticonvulsants) + factor(Antidepressants) + factor(Antipsychotics)
    + factor(ContingencyManagement) + factor(DopamineAgonists) + factor(MiscMeds) + factor(Opioid)
    + factor(Other) + factor(Placebo) + factor(Psychotherapy) + factor(Psychostimulants)
    + factor(Double_Blind) + factor(Multisite) + factor(Randomized)
    + factor(BaselineType) + factor(CokeFreeOutcome_Type)
    + FU + Year + Proportion_Male + Mean_Age + Mean_daysweek + Years_use + ASI_Drug + Complete,
    method = "REML", measure = "OR"))


#Print all model results with calculated I2 and collinearity diagnostics

#Loop through all models
for (model_num in c(1:5)){

#Print results for model #
print(paste("Model",model_num,sep=""), quote = FALSE)
results <- getfit(fit, model_num)
print(results)

#Calc I2 for model #
dataframe <- complete(imp, model_num)
X <- model.matrix(results)
W <- diag(1/dataframe$vi)
    #Only include rows with values (Not NAs)
    rowsInclude =as.numeric(row.names(X))
    W2=W[rowsInclude, rowsInclude]
P <- W2 - W2 %*% X %*% solve(t(X) %*% W2 %*% X) %*% t(X) %*% W2
Isquared<-100 * sum(results$sigma2) / (sum(results$sigma2) + (results$k-results$p)/sum(diag(P)))
print(paste("Model", model_num, "I2 = ", Isquared, sep=""), quote = FALSE)
cat("\n")#new line

#Calc collinear for model #
X <- X[,-c(1)] #for deleting columns; this takes out the intrcp=1 for all groups
Y <- dataframe$yi
coldiag <- mctest(X, Y, type="i") #perform colinearity diagnostics
print(paste("Collinearity diagnostics for Model ", model_num, sep=""), quote = FALSE)
print(coldiag)
cat("\n") #new line

#Make PDF file for graphs
pdf(file=paste("Model_",model_num,"_Funnel_Imputed.pdf",sep=""), width=93.5/25.4, height=93.5/25.4)

#Font size
par(ps=8)

#Make funnel plot
```

```
funnel(results, level=c(90, 95, 99), digits=c(2,2), shade=c("white", "gray", "darkgray"),
atransf=exp, at=log(c(0.01, 0.1, 1, 10, 100)))

dev.off() #turn off PDF

 } #End For Loop


#Pool the results and print them
print(paste0("Pooled Results"), quote = FALSE)
pool.fit <- pool(fit)
print(summary(pool.fit))


# close the output file
sink()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
detach("package:mice")
detach("package:lattice")
detach("package:mctest")
# change back to the original directory
setwd(initial.dir)
```

Output 1: (Without completion rate as covariate)

```
[1] Model1

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.7942  0.8912     98     no          Author
sigma^2.2  0.9012  0.9493    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 375) = 1150.6193, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27):
QM(df = 26) = 109.2886, p-val < .0001

Model Results:

                                estimate       se     zval    pval      ci.lb    ci.ub
intrcpt                          -64.1216  45.9724  -1.3948  0.1631  -154.2258  25.9826
factor(Anticonvulsants)1           0.6381   0.3589   1.7777  0.0755    -0.0654   1.3416    .
factor(Antidepressants)1           0.3295   0.3952   0.8337  0.4045    -0.4451   1.1040
factor(Antipsychotics)1           -0.0160   0.4451  -0.0359  0.9713    -0.8884   0.8565
factor(ContingencyManagement)1     0.7748   0.1303   5.9450  <.0001     0.5193   1.0302  ***
factor(DopamineAgonists)1          0.2552   0.3513   0.7265  0.4675    -0.4333   0.9438
factor(MiscMeds)1                  0.3300   0.3142   1.0506  0.2934    -0.2857   0.9458
factor(Opioid)1                    0.5405   0.2637   2.0498  0.0404     0.0237   1.0573    *
factor(Other)1                     0.2946   0.3427   0.8596  0.3900    -0.3771   0.9663
factor(Placebo)1                   0.1647   0.2822   0.5838  0.5593    -0.3883   0.7178
factor(Psychotherapy)1             0.1505   0.2028   0.7418  0.4582    -0.2471   0.5480
factor(Psychostimulants)1          0.8638   0.3393   2.5457  0.0109     0.1987   1.5288    *
factor(Double_Blind)1             -0.7054   0.3626  -1.9455  0.0517    -1.4161   0.0052    .
factor(Multisite)1                 0.3496   0.3797   0.9206  0.3573    -0.3947   1.0939
factor(Randomized)1                0.2495   0.4388   0.5685  0.5697    -0.6106   1.1096
factor(BaselineType)2             -1.1135   0.2646  -4.2076  <.0001    -1.6322  -0.5948  ***
factor(BaselineType)3              0.1027   0.2551   0.4026  0.6872    -0.3972   0.6026
factor(CokeFreeOutcome_Type)2      0.1633   0.3100   0.5268  0.5984    -0.4442   0.7708
factor(CokeFreeOutcome_Type)3     -0.0682   0.5105  -0.1335  0.8938    -1.0686   0.9323
factor(CokeFreeOutcome_Type)4      0.4616   0.3397   1.3587  0.1742    -0.2042   1.1274
```

```
FU                          0.0295   0.0129   2.2935  0.0218     0.0043   0.0548    *
Year                        0.0320   0.0231   1.3854  0.1659    -0.0133   0.0772
Proportion_Male             1.0443   0.4539   2.3009  0.0214     0.1547   1.9338    *
Mean_Age                   -0.0049   0.0232  -0.2125  0.8317    -0.0503   0.0405
Mean_daysweek               0.0438   0.0650   0.6734  0.5007    -0.0836   0.1712
Years_use                  -0.0030   0.0215  -0.1391  0.8894    -0.0451   0.0391
ASI_Drug                   -0.6410   0.5890  -1.0884  0.2764    -1.7955   0.5134

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] ICC = 0.468
[1] Model1I2 = 76.7166905524325

[1] Collinearity diagnostics for Model 1

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)


All Individual Multicollinearity Diagnostics Result

                                    VIF    TOL      Wi      Fi Leamer   CVIF Klein
factor(Anticonvulsants)1         1.4714 0.6796  7.0906  7.4057 0.8244 1.8481     0
factor(Antidepressants)1         1.4544 0.6876  6.8346  7.1383 0.8292 1.8267     0
factor(Antipsychotics)1          1.3824 0.7234  5.7509  6.0065 0.8505 1.7362     0
factor(ContingencyManagement)1   1.3664 0.7319  5.5105  5.7554 0.8555 1.7161     0
factor(DopamineAgonists)1        1.5736 0.6355  8.6271  9.0105 0.7972 1.9764     0
factor(MiscMeds)1                2.1914 0.4563 17.9183 18.7145 0.6755 2.7523     1
factor(Opioid)1                  1.8416 0.5430 12.6582 13.2207 0.7369 2.3130     1
factor(Other)1                   1.4842 0.6737  7.2830  7.6066 0.8208 1.8642     0
factor(Placebo)1                 3.0118 0.3320 30.2570 31.6015 0.5762 3.7827     1
factor(Psychotherapy)1           1.3753 0.7271  5.6445  5.8953 0.8527 1.7273     0
factor(Psychostimulants)1        1.4975 0.6678  7.4823  7.8148 0.8172 1.8808     0
factor(Double_Blind)1            3.2377 0.3089 33.6552 35.1507 0.5558 4.0665     1
factor(Multisite)1               1.2803 0.7811  4.2158  4.4031 0.8838 1.6080     0
factor(Randomized)1              1.3837 0.7227  5.7701  6.0265 0.8501 1.7378     0
factor(BaselineType)2            1.9469 0.5136 14.2417 14.8745 0.7167 2.4453     1
factor(BaselineType)3            1.8524 0.5398 12.8202 13.3898 0.7347 2.3266     1
factor(CokeFreeOutcome_Type)2    2.1671 0.4614 17.5532 18.3332 0.6793 2.7218     1
factor(CokeFreeOutcome_Type)3    1.3123 0.7620  4.6969  4.9056 0.8729 1.6482     0
factor(CokeFreeOutcome_Type)4    1.9311 0.5179 14.0031 14.6253 0.7196 2.4253     1
FU                               1.2264 0.8154  3.4058  3.5571 0.9030 1.5404     0
Year                             1.5038 0.6650  7.5779  7.9146 0.8155 1.8888     0
Proportion_Male                  1.4701 0.6802  7.0704  7.3846 0.8248 1.8464     0
Mean_Age                         1.4746 0.6782  7.1376  7.4547 0.8235 1.8520     0
Mean_daysweek                    1.3890 0.7199  5.8506  6.1106 0.8485 1.7445     0
Years_use                        1.4529 0.6883  6.8112  7.1139 0.8296 1.8248     0
ASI_Drug                         1.6284 0.6141  9.4508  9.8707 0.7837 2.0452     1

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(Antipsychotics)1 ,
factor(ContingencyManagement)1 , factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Other)1 ,
factor(Placebo)1 , factor(Psychotherapy)1 , factor(Psychostimulants)1 , factor(Multisite)1 ,
factor(Randomized)1 , factor(CokeFreeOutcome_Type)2 , factor(CokeFreeOutcome_Type)3 ,
factor(CokeFreeOutcome_Type)4 , Mean_Age , Mean_daysweek , Years_use , ASI_Drug , coefficient(s)
are non-significant may be due to multicollinearity

R-square of y on all x: 0.3712

* use method argument to check which regressors may be the reason of collinearity
===================================

[1] Model2

Multivariate Meta-Analysis Model (k = 402; method: REML)
```

Variance Components:

	estim	sqrt	nlvls	fixed	factor
sigma^2.1	0.7885	0.8880	98	no	Author
sigma^2.2	0.5092	0.7136	157	no	Author/StudyID

Test for Residual Heterogeneity:
QE(df = 375) = 1056.8754, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27):
QM(df = 26) = 224.3326, p-val < .0001

Model Results:

	estimate	se	zval	pval	ci.lb	ci.ub	
intrcpt	-51.5233	40.1224	-1.2842	0.1991	-130.1618	27.1151	
factor(Anticonvulsants)1	0.0356	0.3259	0.1093	0.9130	-0.6031	0.6743	
factor(Antidepressants)1	0.3043	0.3645	0.8348	0.4038	-0.4102	1.0188	
factor(Antipsychotics)1	0.2369	0.3934	0.6022	0.5470	-0.5341	1.0078	
factor(ContingencyManagement)1	0.6994	0.1166	6.0000	<.0001	0.4709	0.9278	***
factor(DopamineAgonists)1	-0.0170	0.3239	-0.0524	0.9582	-0.6519	0.6179	
factor(MiscMeds)1	0.0464	0.2842	0.1633	0.8703	-0.5107	0.6035	
factor(Opioid)1	0.4609	0.2371	1.9445	0.0518	-0.0037	0.9256	.
factor(Other)1	0.3778	0.3004	1.2574	0.2086	-0.2111	0.9666	
factor(Placebo)1	0.0514	0.2575	0.1994	0.8419	-0.4533	0.5560	
factor(Psychotherapy)1	0.2310	0.1748	1.3215	0.1863	-0.1116	0.5735	
factor(Psychostimulants)1	0.4601	0.3114	1.4776	0.1395	-0.1502	1.0705	
factor(Double_Blind)1	-0.0499	0.3043	-0.1641	0.8696	-0.6463	0.5464	
factor(Multisite)1	0.3000	0.3285	0.9133	0.3611	-0.3439	0.9439	
factor(Randomized)1	0.4648	0.3790	1.2262	0.2201	-0.2781	1.2077	
factor(BaselineType)2	-1.5385	0.2137	-7.2007	<.0001	-1.9573	-1.1197	***
factor(BaselineType)3	-1.9259	0.2050	-9.3926	<.0001	-2.3278	-1.5240	***
factor(CokeFreeOutcome_Type)2	-0.5466	0.2509	-2.1788	0.0293	-1.0382	-0.0549	*
factor(CokeFreeOutcome_Type)3	-1.6466	0.4406	-3.7371	0.0002	-2.5102	-0.7830	***
factor(CokeFreeOutcome_Type)4	-1.3996	0.3117	-4.4902	<.0001	-2.0105	-0.7887	***
FU	0.0109	0.0104	1.0455	0.2958	-0.0095	0.0312	
Year	0.0259	0.0202	1.2809	0.2002	-0.0137	0.0654	
Proportion_Male	0.6477	0.4061	1.5949	0.1107	-0.1482	1.4436	
Mean_Age	0.0052	0.0214	0.2434	0.8077	-0.0367	0.0472	
Mean_daysweek	0.0169	0.0621	0.2723	0.7854	-0.1048	0.1386	
Years_use	0.0075	0.0194	0.3863	0.6993	-0.0306	0.0456	
ASI_Drug	-0.0953	0.5300	-0.1798	0.8573	-1.1340	0.9435	

Signif. codes: 0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] ICC = 0.608
[1] Model2I2 = 75.2205556421797

[1] Collinearity diagnostics for Model 2

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)

All Individual Multicollinearity Diagnostics Result

	VIF	TOL	Wi	Fi	Leamer	CVIF	Klein
factor(Anticonvulsants)1	1.4791	0.6761	7.2053	7.5255	0.8223	1.3867	0
factor(Antidepressants)1	1.4268	0.7009	6.4184	6.7036	0.8372	1.3376	0
factor(Antipsychotics)1	1.3826	0.7233	5.7536	6.0093	0.8505	1.2962	0
factor(ContingencyManagement)1	1.3546	0.7382	5.3337	5.5708	0.8592	1.2700	0
factor(DopamineAgonists)1	1.5980	0.6258	8.9941	9.3937	0.7911	1.4982	0
factor(MiscMeds)1	2.1834	0.4580	17.7980	18.5889	0.6768	2.0470	1
factor(Opioid)1	2.0332	0.4918	15.5389	16.2294	0.7013	1.9061	1
factor(Other)1	1.4681	0.6812	7.0400	7.3529	0.8253	1.3764	0

```
factor(Placebo)1                3.0028 0.3330 30.1219 31.4604 0.5771 2.8152     1
factor(Psychotherapy)1          1.3470 0.7424  5.2184  5.4503 0.8616 1.2628     0
factor(Psychostimulants)1       1.4812 0.6751  7.2375  7.5592 0.8217 1.3887     0
factor(Double_Blind)1           2.9449 0.3396 29.2507 30.5506 0.5827 2.7609     1
factor(Multisite)1              1.3926 0.7181  5.9050  6.1674 0.8474 1.3056     0
factor(Randomized)1             1.4196 0.7044  6.3105  6.5909 0.8393 1.3309     0
factor(BaselineType)2           1.9273 0.5189 13.9465 14.5663 0.7203 1.8069     1
factor(BaselineType)3           1.6994 0.5884 10.5191 10.9866 0.7671 1.5932     0
factor(CokeFreeOutcome_Type)2   2.0547 0.4867 15.8621 16.5669 0.6976 1.9263     1
factor(CokeFreeOutcome_Type)3   1.5000 0.6667  7.5193  7.8534 0.8165 1.4062     0
factor(CokeFreeOutcome_Type)4   2.4749 0.4041 22.1820 23.1677 0.6357 2.3202     1
FU                              1.2613 0.7929  3.9293  4.1039 0.8904 1.1825     0
Year                            1.5466 0.6466  8.2210  8.5863 0.8041 1.4500     0
Proportion_Male                 1.5213 0.6573  7.8403  8.1887 0.8108 1.4263     0
Mean_Age                        1.6431 0.6086  9.6725 10.1023 0.7801 1.5405     0
Mean_daysweek                   1.4602 0.6848  6.9218  7.2294 0.8275 1.3690     0
Years_use                       1.8347 0.5450 12.5538 13.1117 0.7383 1.7201     0
ASI_Drug                        1.8421 0.5428 12.6658 13.2286 0.7368 1.7271     0

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(Antipsychotics)1 ,
factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Placebo)1 , factor(Psychotherapy)1 ,
factor(Psychostimulants)1 , factor(Double_Blind)1 , factor(Multisite)1 , factor(Randomized)1 , FU ,
Mean_Age , Mean_daysweek , Years_use , ASI_Drug , coefficient(s) are non-significant may be due to
multicollinearity

R-square of y on all x: 0.4764

* use method argument to check which regressors may be the reason of collinearity
===================================

[1] Model3

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.7224  0.8499     98     no          Author
sigma^2.2  0.5227  0.7230    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 375) = 1033.4830, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27):
QM(df = 26) = 182.9648, p-val < .0001

Model Results:

                              estimate       se     zval    pval     ci.lb    ci.ub
intrcpt                      -16.5344  39.5260  -0.4183  0.6757  -94.0039  60.9351
factor(Anticonvulsants)1       0.3824   0.3239   1.1807  0.2377   -0.2524   1.0173
factor(Antidepressants)1       0.1941   0.3515   0.5520  0.5809   -0.4950   0.8831
factor(Antipsychotics)1        0.0704   0.3922   0.1796  0.8575   -0.6983   0.8392
factor(ContingencyManagement)1 0.8235   0.1148   7.1739  <.0001    0.5985   1.0485  ***
factor(DopamineAgonists)1      0.0415   0.3188   0.1301  0.8965   -0.5834   0.6663
factor(MiscMeds)1              0.1680   0.2794   0.6012  0.5477   -0.3797   0.7156
factor(Opioid)1                0.6187   0.2219   2.7884  0.0053    0.1838   1.0536   **
factor(Other)1                 0.2808   0.2983   0.9414  0.3465   -0.3038   0.8655
factor(Placebo)1               0.0392   0.2513   0.1561  0.8759   -0.4533   0.5318
factor(Psychotherapy)1         0.1277   0.1748   0.7307  0.4649   -0.2148   0.4703
factor(Psychostimulants)1      0.3980   0.3063   1.2994  0.1938   -0.2024   0.9984
factor(Double_Blind)1         -0.3986   0.2988  -1.3337  0.1823   -0.9843   0.1871
factor(Multisite)1             0.3555   0.3187   1.1155  0.2646   -0.2691   0.9800
factor(Randomized)1            0.3244   0.3748   0.8656  0.3867   -0.4102   1.0590
factor(BaselineType)2         -1.1621   0.2206  -5.2675  <.0001   -1.5945  -0.7297  ***
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```
factor(BaselineType)3            -1.2667   0.2037  -6.2199  <.0001   -1.6659  -0.8676  ***
factor(CokeFreeOutcome_Type)2    -0.5263   0.2466  -2.1338  0.0329   -1.0096  -0.0429    *
factor(CokeFreeOutcome_Type)3    -1.6218   0.4636  -3.4983  0.0005   -2.5304  -0.7132  ***
factor(CokeFreeOutcome_Type)4    -1.5978   0.2969  -5.3810  <.0001   -2.1798  -1.0158  ***
FU                                0.0173   0.0102   1.6969  0.0897   -0.0027   0.0374    .
Year                              0.0076   0.0199   0.3839  0.7011   -0.0313   0.0466
Proportion_Male                   1.0586   0.4049   2.6145  0.0089    0.2650   1.8521   **
Mean_Age                          0.0277   0.0212   1.3080  0.1909   -0.0138   0.0692
Mean_daysweek                     0.1330   0.0617   2.1574  0.0310    0.0122   0.2539    *
Years_use                         0.0154   0.0200   0.7705  0.4410   -0.0238   0.0546
ASI_Drug                         -0.5393   0.4576  -1.1784  0.2386   -1.4362   0.3577

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Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] ICC = 0.58
[1] Model3I2 = 74.9574674457457

[1] Collinearity diagnostics for Model 3

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)


All Individual Multicollinearity Diagnostics Result

                                    VIF    TOL      Wi      Fi Leamer   CVIF Klein
factor(Anticonvulsants)1         1.4736 0.6786  7.1228  7.4393 0.8238 1.7449     0
factor(Antidepressants)1         1.4418 0.6936  6.6448  6.9400 0.8328 1.7072     0
factor(Antipsychotics)1          1.4228 0.7029  6.3584  6.6410 0.8384 1.6847     0
factor(ContingencyManagement)1   1.3709 0.7294  5.5791  5.8270 0.8541 1.6233     0
factor(DopamineAgonists)1        1.5848 0.6310  8.7959  9.1867 0.7943 1.8766     0
factor(MiscMeds)1                2.1846 0.4577 17.8170 18.6088 0.6766 2.5868     1
factor(Opioid)1                  1.6472 0.6071  9.7344 10.1669 0.7792 1.9505     0
factor(Other)1                   1.4481 0.6905  6.7400  7.0395 0.8310 1.7147     0
factor(Placebo)1                 3.0292 0.3301 30.5198 31.8760 0.5746 3.5869     1
factor(Psychotherapy)1           1.3860 0.7215  5.8050  6.0630 0.8494 1.6411     0
factor(Psychostimulants)1        1.4983 0.6674  7.4950  7.8281 0.8169 1.7742     0
factor(Double_Blind)1            3.1619 0.3163 32.5152 33.9601 0.5624 3.7440     1
factor(Multisite)1               1.3666 0.7318  5.5130  5.7580 0.8554 1.6181     0
factor(Randomized)1              1.4004 0.7141  6.0217  6.2893 0.8450 1.6582     0
factor(BaselineType)2            1.9988 0.5003 15.0220 15.6895 0.7073 2.3668     0
factor(BaselineType)3            2.0102 0.4975 15.1935 15.8687 0.7053 2.3803     0
factor(CokeFreeOutcome_Type)2    1.9675 0.5083 14.5517 15.1983 0.7129 2.3297     0
factor(CokeFreeOutcome_Type)3    1.5997 0.6251  9.0195  9.4203 0.7906 1.8942     0
factor(CokeFreeOutcome_Type)4    2.2493 0.4446 18.7897 19.6247 0.6668 2.6634     1
FU                               1.2327 0.8112  3.4993  3.6548 0.9007 1.4596     0
Year                             1.5482 0.6459  8.2456  8.6121 0.8037 1.8333     0
Proportion_Male                  1.4187 0.7049  6.2977  6.5775 0.8396 1.6799     0
Mean_Age                         1.5754 0.6348  8.6536  9.0381 0.7967 1.8654     0
Mean_daysweek                    1.5850 0.6309  8.7987  9.1897 0.7943 1.8768     0
Years_use                        1.9582 0.5107 14.4110 15.0514 0.7146 2.3187     0
ASI_Drug                         1.4401 0.6944  6.6186  6.9127 0.8333 1.7052     0

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(Antipsychotics)1 ,
factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Other)1 , factor(Placebo)1 ,
factor(Psychotherapy)1 , factor(Psychostimulants)1 , factor(Double_Blind)1 , factor(Multisite)1 ,
factor(Randomized)1 , Year , Mean_Age , Mean_daysweek , ASI_Drug , coefficient(s) are non-
significant may be due to multicollinearity

R-square of y on all x: 0.5165

* use method argument to check which regressors may be the reason of collinearity
===================================
```

```
[1] Model4

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.7882  0.8878     98     no          Author
sigma^2.2  0.6228  0.7892    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 375) = 1029.4430, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27):
QM(df = 26) = 124.7149, p-val < .0001

Model Results:

                                estimate       se     zval    pval      ci.lb    ci.ub
intrcpt                          -47.7313  43.8140  -1.0894  0.2760  -133.6051  38.1426
factor(Anticonvulsants)1           0.2162   0.3529   0.6127  0.5401    -0.4755   0.9080
factor(Antidepressants)1           0.2804   0.3838   0.7306  0.4650    -0.4718   1.0325
factor(Antipsychotics)1            0.0800   0.4139   0.1932  0.8468    -0.7312   0.8911
factor(ContingencyManagement)1     0.7042   0.1315   5.3571  <.0001     0.4466   0.9619  ***
factor(DopamineAgonists)1          0.0209   0.3354   0.0623  0.9503    -0.6365   0.6783
factor(MiscMeds)1                  0.0309   0.3029   0.1021  0.9187    -0.5628   0.6246
factor(Opioid)1                    0.3601   0.2385   1.5094  0.1312    -0.1075   0.8276
factor(Other)1                     0.2921   0.3320   0.8796  0.3791    -0.3587   0.9428
factor(Placebo)1                  -0.0696   0.2687  -0.2591  0.7955    -0.5963   0.4570
factor(Psychotherapy)1             0.1775   0.1974   0.8993  0.3685    -0.2094   0.5645
factor(Psychostimulants)1          0.5749   0.3245   1.7717  0.0764    -0.0611   1.2108    .
factor(Double_Blind)1             -0.4629   0.3257  -1.4211  0.1553    -1.1013   0.1755
factor(Multisite)1                 0.3194   0.3622   0.8821  0.3777    -0.3904   1.0292
factor(Randomized)1               -0.1804   0.4164  -0.4333  0.6648    -0.9966   0.6358
factor(BaselineType)2             -1.6199   0.2492  -6.4996  <.0001    -2.1084  -1.1314  ***
factor(BaselineType)3             -1.0147   0.2577  -3.9369  <.0001    -1.5199  -0.5096  ***
factor(CokeFreeOutcome_Type)2      0.1029   0.2889   0.3561  0.7218    -0.4634   0.6691
factor(CokeFreeOutcome_Type)3     -0.2487   0.4632  -0.5369  0.5914    -1.1564   0.6591
factor(CokeFreeOutcome_Type)4      0.7213   0.3210   2.2472  0.0246     0.0922   1.3504    *
FU                                 0.0284   0.0121   2.3568  0.0184     0.0048   0.0520    *
Year                               0.0245   0.0220   1.1122  0.2661    -0.0187   0.0676
Proportion_Male                    0.7542   0.4321   1.7455  0.0809    -0.0926   1.6011    .
Mean_Age                          -0.0239   0.0218  -1.0960  0.2731    -0.0666   0.0188
Mean_daysweek                      0.1085   0.0649   1.6719  0.0945    -0.0187   0.2358    .
Years_use                          0.0100   0.0206   0.4858  0.6271    -0.0303   0.0503
ASI_Drug                           0.3502   0.8464   0.4137  0.6791    -1.3088   2.0091

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] ICC = 0.559
[1] Model4I2 = 72.938820015205

[1] Collinearity diagnostics for Model 4

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)


All Individual Multicollinearity Diagnostics Result

                                  VIF    TOL      Wi      Fi Leamer   CVIF Klein
factor(Anticonvulsants)1       1.5346 0.6516  8.0399  8.3972 0.8072 1.8364     0
factor(Antidepressants)1       1.4619 0.6840  6.9477  7.2564 0.8271 1.7495     0
factor(Antipsychotics)1        1.3989 0.7149  5.9989  6.2655 0.8455 1.6740     0
factor(ContingencyManagement)1 1.3502 0.7406  5.2672  5.5012 0.8606 1.6158     0
factor(DopamineAgonists)1      1.5876 0.6299  8.8376  9.2304 0.7936 1.8999     0
```

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factor(MiscMeds)1              2.2347 0.4475 18.5698 19.3950 0.6689 2.6743     1
factor(Opioid)1                1.5657 0.6387  8.5089  8.8870 0.7992 1.8738     0
factor(Other)1                 1.4914 0.6705  7.3904  7.7188 0.8189 1.7848     0
factor(Placebo)1               3.1049 0.3221 31.6580 33.0647 0.5675 3.7157     1
factor(Psychotherapy)1         1.3835 0.7228  5.7679  6.0242 0.8502 1.6557     0
factor(Psychostimulants)1      1.4867 0.6726  7.3203  7.6456 0.8201 1.7792     0
factor(Double_Blind)1          2.9565 0.3382 29.4264 30.7341 0.5816 3.5381     1
factor(Multisite)1             1.4532 0.6881  6.8159  7.1187 0.8295 1.7390     0
factor(Randomized)1            1.4402 0.6943  6.6210  6.9152 0.8333 1.7235     0
factor(BaselineType)2          1.8836 0.5309 13.2895 13.8801 0.7286 2.2541     1
factor(BaselineType)3          1.7258 0.5794 10.9159 11.4009 0.7612 2.0653     1
factor(CokeFreeOutcome_Type)2  2.5299 0.3953 23.0093 24.0317 0.6287 3.0275     1
factor(CokeFreeOutcome_Type)3  1.3343 0.7495  5.0273  5.2507 0.8657 1.5967     0
factor(CokeFreeOutcome_Type)4  2.1595 0.4631 17.4389 18.2138 0.6805 2.5843     1
FU                             1.2653 0.7903  3.9909  4.1682 0.8890 1.5143     0
Year                           1.6411 0.6094  9.6418 10.0702 0.7806 1.9639     0
Proportion_Male                1.4072 0.7106  6.1249  6.3971 0.8430 1.6841     0
Mean_Age                       1.3932 0.7178  5.9133  6.1760 0.8472 1.6672     0
Mean_daysweek                  1.2982 0.7703  4.4850  4.6843 0.8777 1.5536     0
Years_use                      1.2326 0.8113  3.4990  3.6545 0.9007 1.4751     0
ASI_Drug                       1.9410 0.5152 14.1530 14.7820 0.7178 2.3229     1

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(Antipsychotics)1 ,
factor(ContingencyManagement)1 , factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Other)1 ,
factor(Placebo)1 , factor(Psychotherapy)1 , factor(Psychostimulants)1 , factor(Multisite)1 ,
factor(Randomized)1 , factor(CokeFreeOutcome_Type)2 , factor(CokeFreeOutcome_Type)3 ,
factor(CokeFreeOutcome_Type)4 , Mean_Age , Years_use , ASI_Drug , coefficient(s) are non-
significant may be due to multicollinearity

R-square of y on all x: 0.4127

* use method argument to check which regressors may be the reason of collinearity
===================================

[1] Model5

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.2789  0.5281     98     no          Author
sigma^2.2  0.9800  0.9899    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 375) = 1023.1494, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27):
QM(df = 26) = 149.9986, p-val < .0001

Model Results:

                              estimate       se     zval    pval      ci.lb    ci.ub
intrcpt                      -39.6270  42.3165  -0.9364  0.3490  -122.5657  43.3118
factor(Anticonvulsants)1       0.3909   0.3480   1.1231  0.2614    -0.2913   1.0730
factor(Antidepressants)1       0.4241   0.3853   1.1009  0.2710    -0.3310   1.1792
factor(Antipsychotics)1       -0.2520   0.4037  -0.6242  0.5325    -1.0433   0.5393
factor(ContingencyManagement)1 0.7851   0.1250   6.2800  <.0001     0.5401   1.0301  ***
factor(DopamineAgonists)1     -0.0828   0.3344  -0.2476  0.8045    -0.7382   0.5727
factor(MiscMeds)1              0.0809   0.2970   0.2724  0.7853    -0.5012   0.6630
factor(Opioid)1                0.6644   0.2303   2.8849  0.0039     0.2130   1.1158   **
factor(Other)1                 0.2392   0.3060   0.7817  0.4344    -0.3606   0.8390
factor(Placebo)1              -0.0392   0.2660  -0.1474  0.8828    -0.5605   0.4821
factor(Psychotherapy)1         0.1495   0.1838   0.8134  0.4160    -0.2107   0.5096
factor(Psychostimulants)1      0.4791   0.3224   1.4859  0.1373    -0.1529   1.1110
```

```
factor(Double_Blind)1             0.0709   0.3085   0.2299  0.8182    -0.5337   0.6755
factor(Multisite)1               -0.0422   0.3538  -0.1192  0.9052    -0.7356   0.6513
factor(Randomized)1              -0.4997   0.4054  -1.2327  0.2177    -1.2943   0.2948
factor(BaselineType)2            -1.2367   0.2258  -5.4774  <.0001    -1.6792  -0.7942  ***
factor(BaselineType)3            -0.2764   0.2334  -1.1842  0.2363    -0.7340   0.1811
factor(CokeFreeOutcome_Type)2    -0.5184   0.3013  -1.7204  0.0854    -1.1090   0.0722    .
factor(CokeFreeOutcome_Type)3    -1.3126   0.4623  -2.8396  0.0045    -2.2187  -0.4066   **
factor(CokeFreeOutcome_Type)4     0.7580   0.3240   2.3393  0.0193     0.1229   1.3931    *
FU                                0.0202   0.0118   1.7148  0.0864    -0.0029   0.0432    .
Year                              0.0197   0.0213   0.9278  0.3535    -0.0219   0.0614
Proportion_Male                   0.7853   0.4270   1.8390  0.0659    -0.0516   1.6222    .
Mean_Age                          0.0085   0.0213   0.4015  0.6880    -0.0332   0.0503
Mean_daysweek                     0.0553   0.0683   0.8092  0.4184    -0.0786   0.1892
Years_use                         0.0104   0.0199   0.5226  0.6013    -0.0286   0.0494
ASI_Drug                          0.2461   0.5257   0.4681  0.6397    -0.7843   1.2765

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] ICC = 0.222
[1] Model5I2 = 72.6886552758625

[1] Collinearity diagnostics for Model 5

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)


All Individual Multicollinearity Diagnostics Result

                                    VIF    TOL      Wi      Fi Leamer   CVIF Klein
factor(Anticonvulsants)1         1.5184 0.6586  7.7961  8.1425 0.8115 2.2490     0
factor(Antidepressants)1         1.4336 0.6976  6.5211  6.8109 0.8352 2.1234     0
factor(Antipsychotics)1          1.4263 0.7011  6.4119  6.6968 0.8373 2.1126     0
factor(ContingencyManagement)1   1.3736 0.7280  5.6196  5.8693 0.8532 2.0346     0
factor(DopamineAgonists)1        1.5800 0.6329  8.7228  9.1104 0.7956 2.3402     0
factor(MiscMeds)1                2.2206 0.4503 18.3579 19.1736 0.6711 3.2891     1
factor(Opioid)1                  1.5609 0.6407  8.4359  8.8107 0.8004 2.3120     0
factor(Other)1                   1.4845 0.6736  7.2873  7.6111 0.8207 2.1989     0
factor(Placebo)1                 3.0791 0.3248 31.2698 32.6593 0.5699 4.5607     1
factor(Psychotherapy)1           1.4048 0.7119  6.0878  6.3583 0.8437 2.0807     0
factor(Psychostimulants)1        1.4848 0.6735  7.2920  7.6160 0.8207 2.1993     0
factor(Double_Blind)1            2.8373 0.3524 27.6327 28.8606 0.5937 4.2025     1
factor(Multisite)1               1.3446 0.7437  5.1823  5.4126 0.8624 1.9916     0
factor(Randomized)1              1.4173 0.7055  6.2769  6.5559 0.8400 2.0994     0
factor(BaselineType)2            1.9907 0.5023 14.8994 15.5615 0.7088 2.9485     1
factor(BaselineType)3            1.9884 0.5029 14.8660 15.5266 0.7092 2.9452     1
factor(CokeFreeOutcome_Type)2    2.9980 0.3336 30.0493 31.3846 0.5775 4.4405     1
factor(CokeFreeOutcome_Type)3    1.3292 0.7523  4.9513  5.1713 0.8674 1.9688     0
factor(CokeFreeOutcome_Type)4    2.0528 0.4872 15.8334 16.5370 0.6980 3.0405     1
FU                               1.2250 0.8163  3.3847  3.5351 0.9035 1.8145     0
Year                             1.6017 0.6243  9.0493  9.4515 0.7902 2.3724     0
Proportion_Male                  1.4141 0.7072  6.2274  6.5041 0.8409 2.0945     0
Mean_Age                         1.4013 0.7136  6.0355  6.3037 0.8448 2.0756     0
Mean_daysweek                    1.3987 0.7150  5.9964  6.2629 0.8455 2.0717     0
Years_use                        1.7174 0.5823 10.7892 11.2687 0.7631 2.5437     0
ASI_Drug                         2.2857 0.4375 19.3375 20.1968 0.6614 3.3856     1

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(DopamineAgonists)1 , factor(MiscMeds)1
, factor(Other)1 , factor(Placebo)1 , factor(Psychotherapy)1 , factor(Psychostimulants)1 ,
factor(Double_Blind)1 , factor(Multisite)1 , factor(CokeFreeOutcome_Type)2 , Year , Mean_Age ,
Mean_daysweek , Years_use , ASI_Drug , coefficient(s) are non-significant may be due to
multicollinearity

R-square of y on all x: 0.4451
```

```
* use method argument to check which regressors may be the reason of collinearity
==================================

[1] Pooled Results
                                          est          se           t         df     Pr(>|t|)
lo 95       hi 95 nmis
intrcpt                           -43.907529397 46.62440419 -0.94172848  93.765559 3.487516e-01 -
1.364844e+02 48.66933572   NA
factor(Anticonvulsants)1            0.332647014  0.42119681  0.78976623  30.372545 4.357870e-01 -
5.271094e-01  1.19240342   NA
factor(Antidepressants)1            0.306467265  0.38726472  0.79136376 277.406870 4.294079e-01 -
4.558836e-01  1.06881815   NA
factor(Antipsychotics)1             0.023853718  0.45466371  0.05246453  83.513078 9.582838e-01 -
8.803720e-01  0.92807939   NA
factor(ContingencyManagement)1      0.757399884  0.13719332  5.52067619  84.120914 3.673800e-07
4.845817e-01  1.03021811   NA
factor(DopamineAgonists)1           0.043565170  0.36104169  0.12066520 114.433769 9.041678e-01 -
6.716266e-01  0.75875690   NA
factor(MiscMeds)1                   0.131248988  0.32511825  0.40369615  93.885178 6.873542e-01 -
5.142912e-01  0.77678920   NA
factor(Opioid)1                     0.528921867  0.27365336  1.93281698  56.122529 5.831050e-02 -
1.924528e-02  1.07708902   NA
factor(Other)1                      0.296889670  0.32118685  0.92435188 335.535127 3.559674e-01 -
3.349039e-01  0.92868323   NA
factor(Placebo)1                    0.029299990  0.28359370  0.10331679 143.980508 9.178553e-01 -
5.312449e-01  0.58984487   NA
factor(Psychotherapy)1              0.167235651  0.19207922  0.87065976 286.691709 3.846684e-01 -
2.108287e-01  0.54530002   NA
factor(Psychostimulants)1           0.555174471  0.37890957  1.46518989  42.255480 1.502708e-01 -
2.093591e-01  1.31970799   NA
factor(Double_Blind)1              -0.309188061  0.47224852 -0.65471473  12.771146 5.242683e-01 -
1.331281e+00  0.71290439   NA
factor(Multisite)1                  0.256476576  0.39503559  0.64924929  65.212156 5.184575e-01 -
5.324153e-01  1.04536847   NA
factor(Randomized)1                 0.071709436  0.59575588  0.12036715  12.654782 9.060823e-01 -
1.218921e+00  1.36233995   NA
factor(BaselineType)2              -1.334140571  0.34474420 -3.86994348  13.022345 1.927259e-03 -
2.078785e+00 -0.58949589   NA
factor(BaselineType)3              -0.876220704  0.91178991 -0.96098969   3.846426 3.929943e-01 -
3.448120e+00  1.69567847   NA
factor(CokeFreeOutcome_Type)2      -0.265012317  0.48781970 -0.54325875   8.339523 6.011674e-01 -
1.382004e+00  0.85197980   NA
factor(CokeFreeOutcome_Type)3      -0.979574713  0.95892697 -1.02153213   6.406533 3.440181e-01 -
3.290360e+00  1.33121103   NA
factor(CokeFreeOutcome_Type)4      -0.211317791  1.33442960 -0.15835814   3.715219 8.824049e-01 -
4.031024e+00  3.60838801   NA
FU                                  0.021258733  0.01433818  1.48266594  27.831663 1.493991e-01 -
8.119705e-03  0.05063717    0
Year                                0.021932369  0.02353582  0.93187184  88.077402 3.539501e-01 -
2.483956e-02  0.06870430    0
Proportion_Male                     0.858014017  0.47046869  1.82374307  85.613488 7.168031e-02 -
7.730703e-02  1.79333506   11
Mean_Age                            0.002526762  0.03004749  0.08409231  16.258369 9.340098e-01 -
6.108889e-02  0.06614242   10
Mean_daysweek                       0.071504944  0.08308718  0.86060136  22.647279 3.984773e-01 -
1.005222e-01  0.24353213  128
Years_use                           0.008061793  0.02161866  0.37290907 151.840409 7.097362e-01 -
3.465041e-02  0.05077400  166
ASI_Drug                           -0.135866567  0.77879113 -0.17445829  22.854495 8.630415e-01 -
1.747487e+00  1.47575337  273
                                         fmi     lambda
intrcpt                           0.18945253 0.17234616
factor(Anticonvulsants)1          0.37935369 0.33978748
factor(Antidepressants)1          0.06211933 0.05538185
factor(Antipsychotics)1           0.20513723 0.18632682
factor(ContingencyManagement)1    0.20413435 0.18543470
factor(DopamineAgonists)1         0.16397259 0.14948762
factor(MiscMeds)1                 0.18928363 0.17219526
```

```
factor(Opioid)1                0.26486070 0.23912167
factor(Other)1                 0.03525675 0.02952337
factor(Placebo)1               0.13653674 0.12462530
factor(Psychotherapy)1         0.05799971 0.05145103
factor(Psychostimulants)1      0.31406283 0.28234722
factor(Double_Blind)1          0.59701515 0.53848918
factor(Multisite)1             0.24114551 0.21822360
factor(Randomized)1            0.59967295 0.54103752
factor(BaselineType)2          0.59138227 0.53310133
factor(BaselineType)3          0.95410440 0.93516443
factor(CokeFreeOutcome_Type)2  0.72719960 0.66878111
factor(CokeFreeOutcome_Type)3  0.81198787 0.76121860
factor(CokeFreeOutcome_Type)4  0.95987787 0.94285974
FU                             0.39819821 0.35645231
Year                           0.19784341 0.17983309
Proportion_Male                0.20171385 0.18328055
Mean_Age                       0.52950055 0.47497634
Mean_daysweek                  0.44539624 0.39848989
Years_use                      0.13042098 0.11904206
ASI_Drug                       0.44322847 0.39654783


Output 2: (With completion rate as covariate)

[1] Model1

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.2787  0.5279     98     no          Author
sigma^2.2  1.0922  1.0451    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 374) = 949.7756, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28):
QM(df = 27) = 174.8822, p-val < .0001

Model Results:

                               estimate       se     zval    pval      ci.lb    ci.ub
intrcpt                       -64.4895  42.8486  -1.5051  0.1323  -148.4711  19.4922
factor(Anticonvulsants)1        0.4189   0.3502   1.1960  0.2317    -0.2676   1.1053
factor(Antidepressants)1        0.1757   0.3884   0.4525  0.6509    -0.5854   0.9369
factor(Antipsychotics)1        -0.3218   0.4379  -0.7350  0.4624    -1.1801   0.5364
factor(ContingencyManagement)1  0.6804   0.1303   5.2205  <.0001     0.4249   0.9358  ***
factor(DopamineAgonists)1       0.1018   0.3423   0.2973  0.7662    -0.5692   0.7727
factor(MiscMeds)1               0.0375   0.3076   0.1220  0.9029    -0.5653   0.6403
factor(Opioid)1                 0.1267   0.2552   0.4965  0.6195    -0.3735   0.6270
factor(Other)1                 -0.0205   0.3382  -0.0605  0.9518    -0.6834   0.6425
factor(Placebo)1               -0.1149   0.2744  -0.4189  0.6753    -0.6527   0.4228
factor(Psychotherapy)1         -0.0773   0.2017  -0.3830  0.7017    -0.4726   0.3181
factor(Psychostimulants)1       0.5585   0.3323   1.6805  0.0929    -0.0929   1.2098    .
factor(Double_Blind)1          -0.4477   0.3416  -1.3107  0.1900    -1.1172   0.2218
factor(Multisite)1              0.3364   0.3644   0.9231  0.3559    -0.3778   1.0505
factor(Randomized)1             0.0818   0.4154   0.1970  0.8438    -0.7324   0.8960
factor(BaselineType)2          -1.2333   0.2561  -4.8152  <.0001    -1.7353  -0.7313  ***
factor(BaselineType)3          -0.0828   0.2509  -0.3298  0.7415    -0.5746   0.4091
factor(CokeFreeOutcome_Type)2   0.5681   0.3025   1.8779  0.0604    -0.0248   1.1610    .
factor(CokeFreeOutcome_Type)3   0.4853   0.5035   0.9638  0.3351    -0.5016   1.4722
factor(CokeFreeOutcome_Type)4   0.6928   0.3318   2.0883  0.0368     0.0426   1.3431    *
FU                              0.0351   0.0124   2.8380  0.0045     0.0108   0.0593   **
Year                            0.0318   0.0215   1.4766  0.1398    -0.0104   0.0739
Proportion_Male                 1.0264   0.4433   2.3154  0.0206     0.1576   1.8952    *
Mean_Age                       -0.0173   0.0221  -0.7831  0.4336    -0.0605   0.0260
Mean_daysweek                   0.0240   0.0630   0.3803  0.7037    -0.0996   0.1476
```

```
Years_use                        -0.0187   0.0209  -0.8961  0.3702    -0.0597   0.0222
ASI_Drug                         -0.4087   0.5778  -0.7072  0.4794    -1.5412   0.7239
Complete                          2.7472   0.3763   7.3001  <.0001     2.0096   3.4847  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] ICC = 0.203
[1] Model1I2 = 72.6574118961228

[1] Collinearity diagnostics for Model 1

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)


All Individual Multicollinearity Diagnostics Result

                                    VIF    TOL      Wi      Fi Leamer   CVIF Klein
factor(Anticonvulsants)1         1.4833 0.6742  6.9714  7.2696 0.8211 2.3390     0
factor(Antidepressants)1         1.4544 0.6876  6.5544  6.8347 0.8292 2.2934     0
factor(Antipsychotics)1          1.3825 0.7233  5.5167  5.7526 0.8505 2.1799     0
factor(ContingencyManagement)1   1.3702 0.7298  5.3397  5.5681 0.8543 2.1606     0
factor(DopamineAgonists)1        1.5746 0.6351  8.2876  8.6421 0.7969 2.4829     0
factor(MiscMeds)1                2.2211 0.4502 17.6117 18.3650 0.6710 3.5022     1
factor(Opioid)1                  2.1712 0.4606 16.8919 17.6144 0.6787 3.4235     1
factor(Other)1                   1.5040 0.6649  7.2694  7.5804 0.8154 2.3715     0
factor(Placebo)1                 3.0421 0.3287 29.4533 30.7132 0.5733 4.7968     1
factor(Psychotherapy)1           1.3786 0.7254  5.4602  5.6937 0.8517 2.1737     0
factor(Psychostimulants)1        1.4977 0.6677  7.1786  7.4857 0.8171 2.3616     0
factor(Double_Blind)1            3.2920 0.3038 33.0573 34.4713 0.5512 5.1908     1
factor(Multisite)1               1.2862 0.7775  4.1284  4.3050 0.8817 2.0281     0
factor(Randomized)1              1.3882 0.7204  5.5989  5.8384 0.8487 2.1889     0
factor(BaselineType)2            1.9551 0.5115 13.7762 14.3654 0.7152 3.0829     1
factor(BaselineType)3            1.8839 0.5308 12.7479 13.2932 0.7286 2.9705     0
factor(CokeFreeOutcome_Type)2    2.2468 0.4451 17.9825 18.7517 0.6671 3.5428     1
factor(CokeFreeOutcome_Type)3    1.3664 0.7318  5.2851  5.5112 0.8555 2.1546     0
factor(CokeFreeOutcome_Type)4    1.9602 0.5101 13.8493 14.4416 0.7142 3.0909     1
FU                               1.2306 0.8126  3.3262  3.4685 0.9014 1.9404     0
Year                             1.5316 0.6529  7.6672  7.9952 0.8080 2.4150     0
Proportion_Male                  1.4848 0.6735  6.9921  7.2912 0.8207 2.3412     0
Mean_Age                         1.4792 0.6760  6.9120  7.2077 0.8222 2.3325     0
Mean_daysweek                    1.3896 0.7196  5.6190  5.8594 0.8483 2.1911     0
Years_use                        1.4658 0.6822  6.7183  7.0057 0.8260 2.3113     0
ASI_Drug                         1.6405 0.6096  9.2386  9.6338 0.7807 2.5868     0
Complete                         1.5170 0.6592  7.4567  7.7757 0.8119 2.3920     0

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(Antipsychotics)1 ,
factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Opioid)1 , factor(Other)1 , factor(Placebo)1
, factor(Psychotherapy)1 , factor(Psychostimulants)1 , factor(Multisite)1 , factor(Randomized)1 ,
factor(CokeFreeOutcome_Type)3 , Proportion_Male , Mean_Age , Mean_daysweek , Years_use , ASI_Drug ,
coefficient(s) are non-significant may be due to multicollinearity

R-square of y on all x: 0.4799

* use method argument to check which regressors may be the reason of collinearity
===================================

[1] Model2

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
```

```
sigma^2.1  0.5918  0.7693     98     no          Author
sigma^2.2  0.4885  0.6989    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 374) = 878.8091, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28):
QM(df = 27) = 304.9178, p-val < .0001

Model Results:

                                estimate       se     zval    pval      ci.lb     ci.ub
intrcpt                        -53.6869  37.8771  -1.4174  0.1564  -127.9245  20.5508
factor(Anticonvulsants)1        -0.1631   0.3192  -0.5111  0.6093    -0.7887   0.4624
factor(Antidepressants)1         0.2361   0.3584   0.6587  0.5101    -0.4664   0.9386
factor(Antipsychotics)1         -0.0255   0.3874  -0.0658  0.9475    -0.7848   0.7338
factor(ContingencyManagement)1   0.5391   0.1175   4.5898  <.0001     0.3089   0.7693  ***
factor(DopamineAgonists)1       -0.1367   0.3174  -0.4307  0.6667    -0.7587   0.4853
factor(MiscMeds)1               -0.2277   0.2793  -0.8152  0.4150    -0.7752   0.3198
factor(Opioid)1                  0.0421   0.2335   0.1804  0.8568    -0.4154   0.4997
factor(Other)1                   0.1667   0.2948   0.5654  0.5718    -0.4111   0.7444
factor(Placebo)1                -0.2042   0.2523  -0.8095  0.4183    -0.6986   0.2902
factor(Psychotherapy)1           0.0377   0.1731   0.2176  0.8278    -0.3015   0.3768
factor(Psychostimulants)1        0.2153   0.3062   0.7029  0.4821    -0.3850   0.8155
factor(Double_Blind)1            0.2227   0.2914   0.7643  0.4447    -0.3484   0.7938
factor(Multisite)1               0.1259   0.3123   0.4030  0.6869    -0.4863   0.7381
factor(Randomized)1              0.4320   0.3601   1.1996  0.2303    -0.2738   1.1378
factor(BaselineType)2           -1.5897   0.2073  -7.6702  <.0001    -1.9959  -1.1835  ***
factor(BaselineType)3           -1.9878   0.2006  -9.9111  <.0001    -2.3808  -1.5947  ***
factor(CokeFreeOutcome_Type)2   -0.2246   0.2434  -0.9227  0.3562    -0.7016   0.2525
factor(CokeFreeOutcome_Type)3   -0.8915   0.4305  -2.0707  0.0384    -1.7353  -0.0477    *
factor(CokeFreeOutcome_Type)4   -1.0962   0.3017  -3.6330  0.0003    -1.6875  -0.5048  ***
FU                               0.0121   0.0100   1.2177  0.2233    -0.0074   0.0316
Year                             0.0266   0.0191   1.3974  0.1623    -0.0107   0.0640
Proportion_Male                  0.6070   0.3966   1.5305  0.1259    -0.1703   1.3843
Mean_Age                        -0.0157   0.0207  -0.7555  0.4500    -0.0563   0.0250
Mean_daysweek                    0.0027   0.0599   0.0444  0.9646    -0.1147   0.1201
Years_use                        0.0006   0.0188   0.0301  0.9760    -0.0362   0.0374
ASI_Drug                        -0.1133   0.5166  -0.2194  0.8263    -1.1258   0.8991
Complete                         2.7060   0.3305   8.1880  <.0001     2.0583   3.3538  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] ICC = 0.548
[1] Model2I2 = 71.5879261626329

[1] Collinearity diagnostics for Model 2

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)


All Individual Multicollinearity Diagnostics Result

                                  VIF    TOL      Wi      Fi Leamer   CVIF Klein
factor(Anticonvulsants)1       1.4952 0.6688  7.1417  7.4472 0.8178 1.5336     0
factor(Antidepressants)1       1.4268 0.7009  6.1552  6.4185 0.8372 1.4634     0
factor(Antipsychotics)1        1.3828 0.7232  5.5216  5.7578 0.8504 1.4183     0
factor(ContingencyManagement)1 1.3585 0.7361  5.1702  5.3914 0.8580 1.3934     0
factor(DopamineAgonists)1      1.5988 0.6255  8.6367  9.0062 0.7909 1.6399     0
factor(MiscMeds)1              2.2159 0.4513 17.5374 18.2875 0.6718 2.2728     0
factor(Opioid)1                2.3580 0.4241 19.5859 20.4236 0.6512 2.4185     1
factor(Other)1                 1.4895 0.6714  7.0603  7.3622 0.8194 1.5278     0
factor(Placebo)1               3.0393 0.3290 29.4128 30.6708 0.5736 3.1173     1
factor(Psychotherapy)1         1.3510 0.7402  5.0626  5.2791 0.8603 1.3857     0
factor(Psychostimulants)1      1.4826 0.6745  6.9608  7.2585 0.8213 1.5207     0
```

```
factor(Double_Blind)1          3.0571 0.3271 29.6693 30.9384 0.5719 3.1356     1
factor(Multisite)1             1.3982 0.7152  5.7438  5.9894 0.8457 1.4341     0
factor(Randomized)1            1.4222 0.7031  6.0897  6.3502 0.8385 1.4587     0
factor(BaselineType)2          1.9306 0.5180 13.4224 13.9966 0.7197 1.9802     0
factor(BaselineType)3          1.7228 0.5804 10.4252 10.8711 0.7619 1.7671     0
factor(CokeFreeOutcome_Type)2  2.1205 0.4716 16.1608 16.8520 0.6867 2.1749     0
factor(CokeFreeOutcome_Type)3  1.5603 0.6409  8.0806  8.4263 0.8006 1.6003     0
factor(CokeFreeOutcome_Type)4  2.5241 0.3962 21.9829 22.9232 0.6294 2.5890     1
FU                             1.2642 0.7910  3.8102  3.9732 0.8894 1.2966     0
Year                           1.5696 0.6371  8.2160  8.5674 0.7982 1.6099     0
Proportion_Male                1.5333 0.6522  7.6913  8.0203 0.8076 1.5726     0
Mean_Age                       1.6699 0.5988  9.6621 10.0754 0.7738 1.7128     0
Mean_daysweek                  1.4628 0.6836  6.6745  6.9599 0.8268 1.5003     0
Years_use                      1.8348 0.5450 12.0397 12.5546 0.7383 1.8819     0
ASI_Drug                       1.8447 0.5421 12.1827 12.7038 0.7363 1.8920     0
Complete                       1.5074 0.6634  7.3179  7.6309 0.8145 1.5461     0

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(Antipsychotics)1 ,
factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Opioid)1 , factor(Other)1 , factor(Placebo)1
, factor(Psychotherapy)1 , factor(Psychostimulants)1 , factor(Double_Blind)1 , factor(Multisite)1 ,
factor(Randomized)1 , FU , Proportion_Male , Mean_daysweek , Years_use , ASI_Drug , coefficient(s)
are non-significant may be due to multicollinearity

R-square of y on all x: 0.5673

* use method argument to check which regressors may be the reason of collinearity
===================================

[1] Model3

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.5716  0.7560     98     no          Author
sigma^2.2  0.5447  0.7380    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 374) = 875.5325, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28):
QM(df = 27) = 253.7804, p-val < .0001

Model Results:

                               estimate       se     zval    pval     ci.lb    ci.ub
intrcpt                         -8.2694  38.3076  -0.2159  0.8291  -83.3509  66.8121
factor(Anticonvulsants)1         0.1396   0.3210   0.4348  0.6637   -0.4896   0.7688
factor(Antidepressants)1         0.0981   0.3490   0.2812  0.7786   -0.5860   0.7823
factor(Antipsychotics)1         -0.2276   0.3905  -0.5828  0.5600   -0.9929   0.5378
factor(ContingencyManagement)1   0.6967   0.1156   6.0295  <.0001    0.4702   0.9232  ***
factor(DopamineAgonists)1       -0.1179   0.3160  -0.3730  0.7092   -0.7371   0.5014
factor(MiscMeds)1               -0.1623   0.2791  -0.5816  0.5608   -0.7093   0.3847
factor(Opioid)1                  0.1490   0.2253   0.6612  0.5085   -0.2926   0.5905
factor(Other)1                   0.0367   0.2963   0.1238  0.9014   -0.5441   0.6175
factor(Placebo)1                -0.2478   0.2503  -0.9900  0.3222   -0.7383   0.2428
factor(Psychotherapy)1          -0.0811   0.1752  -0.4631  0.6433   -0.4245   0.2622
factor(Psychostimulants)1        0.1496   0.3049   0.4907  0.6237   -0.4480   0.7472
factor(Double_Blind)1           -0.1547   0.2929  -0.5282  0.5974   -0.7288   0.4194
factor(Multisite)1               0.2394   0.3122   0.7668  0.4432   -0.3725   0.8513
factor(Randomized)1              0.2369   0.3644   0.6500  0.5157   -0.4774   0.9512
factor(BaselineType)2           -1.2602   0.2179  -5.7830  <.0001   -1.6874  -0.8331  ***
factor(BaselineType)3           -1.4074   0.2027  -6.9449  <.0001   -1.8046  -1.0102  ***
factor(CokeFreeOutcome_Type)2   -0.1989   0.2459  -0.8088  0.4186   -0.6810   0.2831
```

```
factor(CokeFreeOutcome_Type)3    -0.7863   0.4652  -1.6901  0.0910   -1.6981   0.1255    .
factor(CokeFreeOutcome_Type)4    -1.2362   0.2965  -4.1695  <.0001   -1.8173  -0.6551  ***
FU                                0.0196   0.0100   1.9557  0.0505   -0.0000   0.0392    .
Year                              0.0031   0.0193   0.1589  0.8738   -0.0347   0.0408
Proportion_Male                   0.9844   0.4008   2.4561  0.0140    0.1988   1.7699    *
Mean_Age                          0.0149   0.0207   0.7194  0.4719   -0.0257   0.0556
Mean_daysweek                     0.1549   0.0606   2.5570  0.0106    0.0362   0.2736    *
Years_use                         0.0044   0.0197   0.2234  0.8232   -0.0342   0.0430
ASI_Drug                         -0.3329   0.4529  -0.7349  0.4624   -1.2206   0.5549
Complete                          2.6701   0.3339   7.9979  <.0001    2.0158   3.3245  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] ICC = 0.512
[1] Model3I2 = 72.7824694740359

[1] Collinearity diagnostics for Model 3

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)


All Individual Multicollinearity Diagnostics Result

                                    VIF    TOL      Wi      Fi Leamer   CVIF Klein
factor(Anticonvulsants)1         1.4893 0.6714  7.0575  7.3593 0.8194 2.2391     0
factor(Antidepressants)1         1.4420 0.6935  6.3745  6.6472 0.8328 2.1679     0
factor(Antipsychotics)1          1.4228 0.7028  6.0981  6.3589 0.8384 2.1391     0
factor(ContingencyManagement)1   1.3772 0.7261  5.4411  5.6738 0.8521 2.0706     0
factor(DopamineAgonists)1        1.5852 0.6308  8.4410  8.8021 0.7942 2.3833     0
factor(MiscMeds)1                2.2172 0.4510 17.5560 18.3070 0.6716 3.3334     0
factor(Opioid)1                  2.0919 0.4780 15.7481 16.4217 0.6914 3.1449     0
factor(Other)1                   1.4725 0.6791  6.8153  7.1069 0.8241 2.2138     0
factor(Placebo)1                 3.0632 0.3265 29.7572 31.0301 0.5714 4.6052     1
factor(Psychotherapy)1           1.3894 0.7197  5.6160  5.8562 0.8484 2.0888     0
factor(Psychostimulants)1        1.5006 0.6664  7.2202  7.5291 0.8163 2.2560     0
factor(Double_Blind)1            3.2153 0.3110 31.9508 33.3174 0.5577 4.8339     1
factor(Multisite)1               1.3705 0.7296  5.3441  5.5726 0.8542 2.0605     0
factor(Randomized)1              1.4024 0.7130  5.8045  6.0528 0.8444 2.1085     0
factor(BaselineType)2            2.0056 0.4986 14.5039 15.1243 0.7061 3.0152     0
factor(BaselineType)3            2.0617 0.4850 15.3133 15.9683 0.6964 3.0996     0
factor(CokeFreeOutcome_Type)2    2.0371 0.4909 14.9588 15.5987 0.7006 3.0627     0
factor(CokeFreeOutcome_Type)3    1.6676 0.5997  9.6290 10.0409 0.7744 2.5071     0
factor(CokeFreeOutcome_Type)4    2.3050 0.4338 18.8219 19.6270 0.6587 3.4653     0
FU                               1.2399 0.8065  3.4599  3.6079 0.8981 1.8641     0
Year                             1.5890 0.6293  8.4953  8.8587 0.7933 2.3889     0
Proportion_Male                  1.4287 0.6999  6.1834  6.4478 0.8366 2.1479     0
Mean_Age                         1.5845 0.6311  8.4306  8.7912 0.7944 2.3822     0
Mean_daysweek                    1.6131 0.6199  8.8435  9.2217 0.7873 2.4252     0
Years_use                        1.9593 0.5104 13.8356 14.4274 0.7144 2.9456     0
ASI_Drug                         1.4401 0.6944  6.3479  6.6194 0.8333 2.1651     0
Complete                         1.5483 0.6459  7.9080  8.2463 0.8037 2.3277     0

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(Antipsychotics)1 ,
factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Opioid)1 , factor(Other)1 , factor(Placebo)1
, factor(Psychotherapy)1 , factor(Psychostimulants)1 , factor(Double_Blind)1 , factor(Multisite)1 ,
factor(Randomized)1 , factor(CokeFreeOutcome_Type)2 , Year , Mean_Age , Mean_daysweek , ASI_Drug ,
coefficient(s) are non-significant may be due to multicollinearity

R-square of y on all x: 0.5821

* use method argument to check which regressors may be the reason of collinearity
===================================
```

```
[1] Model4

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.4262  0.6529     98     no          Author
sigma^2.2  0.7074  0.8411    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 374) = 848.2921, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28):
QM(df = 27) = 190.1784, p-val < .0001

Model Results:

                                estimate       se     zval    pval      ci.lb    ci.ub
intrcpt                          -27.8369  41.5269  -0.6703  0.5026  -109.2282  53.5544
factor(Anticonvulsants)1          -0.0367   0.3461  -0.1062  0.9154    -0.7151   0.6416
factor(Antidepressants)1           0.1737   0.3788   0.4584  0.6466    -0.5688   0.9161
factor(Antipsychotics)1           -0.2175   0.4084  -0.5326  0.5943    -1.0180   0.5830
factor(ContingencyManagement)1     0.6132   0.1313   4.6694  <.0001     0.3558   0.8706  ***
factor(DopamineAgonists)1         -0.1425   0.3290  -0.4332  0.6648    -0.7873   0.5022
factor(MiscMeds)1                 -0.2456   0.2982  -0.8235  0.4102    -0.8301   0.3389
factor(Opioid)1                   -0.1019   0.2362  -0.4316  0.6661    -0.5648   0.3610
factor(Other)1                    -0.0203   0.3276  -0.0620  0.9505    -0.6624   0.6217
factor(Placebo)1                  -0.3359   0.2634  -1.2751  0.2023    -0.8522   0.1804
factor(Psychotherapy)1            -0.0670   0.1969  -0.3406  0.7334    -0.4529   0.3188
factor(Psychostimulants)1          0.3143   0.3194   0.9840  0.3251    -0.3117   0.9403
factor(Double_Blind)1             -0.1646   0.3097  -0.5316  0.5950    -0.7716   0.4424
factor(Multisite)1                 0.0493   0.3500   0.1409  0.8880    -0.6367   0.7353
factor(Randomized)1               -0.2831   0.3972  -0.7128  0.4760    -1.0615   0.4954
factor(BaselineType)2             -1.6361   0.2411  -6.7869  <.0001    -2.1086  -1.1636  ***
factor(BaselineType)3             -0.9993   0.2525  -3.9573  <.0001    -1.4942  -0.5044  ***
factor(CokeFreeOutcome_Type)2      0.5004   0.2848   1.7572  0.0789    -0.0578   1.0586    .
factor(CokeFreeOutcome_Type)3      0.0131   0.4475   0.0293  0.9767    -0.8640   0.8902
factor(CokeFreeOutcome_Type)4      1.0985   0.3163   3.4733  0.0005     0.4786   1.7184  ***
FU                                 0.0324   0.0116   2.7899  0.0053     0.0096   0.0552   **
Year                               0.0139   0.0209   0.6647  0.5062    -0.0270   0.0548
Proportion_Male                    0.6748   0.4233   1.5944  0.1108    -0.1547   1.5044
Mean_Age                          -0.0287   0.0207  -1.3862  0.1657    -0.0692   0.0119
Mean_daysweek                      0.1681   0.0636   2.6445  0.0082     0.0435   0.2927   **
Years_use                          0.0044   0.0196   0.2256  0.8215    -0.0341   0.0429
ASI_Drug                           0.5253   0.8381   0.6269  0.5308    -1.1172   2.1679
Complete                           2.6427   0.3704   7.1347  <.0001     1.9167   3.3687  ***

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Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] ICC = 0.376
[1] Model4I2 = 68.3514959518097

[1] Collinearity diagnostics for Model 4

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)


All Individual Multicollinearity Diagnostics Result

                                  VIF    TOL      Wi      Fi Leamer   CVIF Klein
factor(Anticonvulsants)1       1.5457 0.6470  7.8700  8.2066 0.8043 2.2177     0
factor(Antidepressants)1       1.4642 0.6830  6.6946  6.9809 0.8264 2.1008     0
factor(Antipsychotics)1        1.4013 0.7136  5.7873  6.0348 0.8448 2.0106     0
factor(ContingencyManagement)1 1.3508 0.7403  5.0591  5.2755 0.8604 1.9381     0
```

```
factor(DopamineAgonists)1      1.5890 0.6293  8.4948  8.8582 0.7933 2.2799     0
factor(MiscMeds)1              2.2594 0.4426 18.1640 18.9410 0.6653 3.2418     1
factor(Opioid)1                1.9329 0.5174 13.4552 14.0307 0.7193 2.7734     0
factor(Other)1                 1.5120 0.6614  7.3853  7.7012 0.8132 2.1695     0
factor(Placebo)1               3.1213 0.3204 30.5951 31.9037 0.5660 4.4785     1
factor(Psychotherapy)1         1.3892 0.7198  5.6138  5.8540 0.8484 1.9933     0
factor(Psychostimulants)1      1.4870 0.6725  7.0247  7.3252 0.8200 2.1337     0
factor(Double_Blind)1          3.0489 0.3280 29.5516 30.8157 0.5727 4.3747     1
factor(Multisite)1             1.4895 0.6714  7.0597  7.3616 0.8194 2.1371     0
factor(Randomized)1            1.4450 0.6921  6.4177  6.6922 0.8319 2.0733     0
factor(BaselineType)2          1.8839 0.5308 12.7492 13.2945 0.7286 2.7031     0
factor(BaselineType)3          1.7260 0.5794 10.4715 10.9194 0.7612 2.4765     0
factor(CokeFreeOutcome_Type)2  2.6571 0.3764 23.9005 24.9228 0.6135 3.8125     1
factor(CokeFreeOutcome_Type)3  1.3493 0.7411  5.0377  5.2532 0.8609 1.9360     0
factor(CokeFreeOutcome_Type)4  2.2290 0.4486 17.7260 18.4842 0.6698 3.1982     1
FU                             1.2697 0.7876  3.8903  4.0567 0.8875 1.8218     0
Year                           1.7230 0.5804 10.4281 10.8741 0.7618 2.4722     0
Proportion_Male                1.4179 0.7053  6.0273  6.2851 0.8398 2.0344     0
Mean_Age                       1.3934 0.7177  5.6740  5.9167 0.8472 1.9993     0
Mean_daysweek                  1.3241 0.7552  4.6742  4.8741 0.8690 1.8998     0
Years_use                      1.2401 0.8064  3.4628  3.6109 0.8980 1.7793     0
ASI_Drug                       1.9449 0.5142 13.6289 14.2118 0.7170 2.7906     0
Complete                       1.5654 0.6388  8.1550  8.5038 0.7993 2.2461     0

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(Antipsychotics)1 ,
factor(ContingencyManagement)1 , factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Opioid)1 ,
factor(Other)1 , factor(Psychotherapy)1 , factor(Psychostimulants)1 , factor(Double_Blind)1 ,
factor(Multisite)1 , factor(Randomized)1 , factor(CokeFreeOutcome_Type)3 , Year , Proportion_Male ,
Mean_Age , Years_use , ASI_Drug , coefficient(s) are non-significant may be due to
multicollinearity

R-square of y on all x: 0.5084

* use method argument to check which regressors may be the reason of collinearity
===================================

[1] Model5

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.1245  0.3529     98     no          Author
sigma^2.2  1.0443  1.0219    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 374) = 929.9673, p-val < .0001

Test of Moderators (coefficient(s)
2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28):
QM(df = 27) = 198.4783, p-val < .0001

Model Results:

                               estimate       se     zval    pval     ci.lb    ci.ub
intrcpt                       -16.2073  41.0720  -0.3946  0.6931  -96.7070  64.2923
factor(Anticonvulsants)1        0.2205   0.3448   0.6395  0.5225   -0.4553   0.8963
factor(Antidepressants)1        0.3921   0.3822   1.0259  0.3049   -0.3570   1.1413
factor(Antipsychotics)1        -0.4160   0.4011  -1.0372  0.2996   -1.2021   0.3701
factor(ContingencyManagement)1  0.6595   0.1262   5.2272  <.0001    0.4122   0.9068  ***
factor(DopamineAgonists)1      -0.1726   0.3309  -0.5216  0.6019   -0.8213   0.4760
factor(MiscMeds)1              -0.1214   0.2947  -0.4122  0.6802   -0.6990   0.4561
factor(Opioid)1                 0.3590   0.2298   1.5623  0.1182   -0.0914   0.8094
factor(Other)1                  0.0644   0.3042   0.2118  0.8322   -0.5318   0.6607
factor(Placebo)1               -0.2158   0.2633  -0.8196  0.4124   -0.7318   0.3002
```

factor(Psychotherapy)1	-0.0003	0.1838	-0.0016	0.9987	-0.3605	0.3599	
factor(Psychostimulants)1	0.3049	0.3193	0.9551	0.3395	-0.3208	0.9306	
factor(Double_Blind)1	0.4158	0.3025	1.3747	0.1692	-0.1770	1.0087	
factor(Multisite)1	-0.3247	0.3479	-0.9333	0.3506	-1.0065	0.3571	
factor(Randomized)1	-0.6251	0.3957	-1.5799	0.1141	-1.4007	0.1504	
factor(BaselineType)2	-1.2107	0.2232	-5.4241	<.0001	-1.6482	-0.7732	***
factor(BaselineType)3	-0.3264	0.2317	-1.4086	0.1590	-0.7805	0.1278	
factor(CokeFreeOutcome_Type)2	-0.2757	0.2989	-0.9225	0.3563	-0.8615	0.3101	
factor(CokeFreeOutcome_Type)3	-1.1853	0.4558	-2.6003	0.0093	-2.0788	-0.2919	**
factor(CokeFreeOutcome_Type)4	0.9762	0.3214	3.0371	0.0024	0.3462	1.6062	**
FU	0.0244	0.0115	2.1194	0.0341	0.0018	0.0470	*
Year	0.0074	0.0206	0.3605	0.7185	-0.0330	0.0479	
Proportion_Male	0.7174	0.4220	1.6998	0.0892	-0.1098	1.5445	.
Mean_Age	0.0034	0.0208	0.1639	0.8698	-0.0374	0.0442	
Mean_daysweek	0.1000	0.0676	1.4781	0.1394	-0.0326	0.2325	
Years_use	0.0079	0.0195	0.4030	0.6870	-0.0304	0.0462	
ASI_Drug	0.1406	0.5208	0.2700	0.7872	-0.8801	1.1613	
Complete	2.3499	0.3653	6.4322	<.0001	1.6338	3.0659	***

```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] ICC = 0.107
[1] Model5I2 = 71.1384534650972

[1] Collinearity diagnostics for Model 5

Call:
imcdiag(x = x, y = y, method = method, corr = FALSE, vif = vif,
    tol = tol, conf = conf, cvif = cvif, leamer = leamer, all = all)


All Individual Multicollinearity Diagnostics Result

                                   VIF    TOL      Wi      Fi Leamer   CVIF Klein
factor(Anticonvulsants)1        1.5278 0.6545  7.6126  7.9383 0.8090 2.5635     0
factor(Antidepressants)1        1.4345 0.6971  6.2673  6.5354 0.8349 2.4070     0
factor(Antipsychotics)1         1.4288 0.6999  6.1848  6.4493 0.8366 2.3974     0
factor(ContingencyManagement)1  1.3794 0.7249  5.4728  5.7069 0.8514 2.3146     0
factor(DopamineAgonists)1       1.5824 0.6319  8.4003  8.7596 0.7949 2.6552     0
factor(MiscMeds)1               2.2391 0.4466 17.8713 18.6358 0.6683 3.7570     1
factor(Opioid)1                 1.8683 0.5352 12.5238 13.0594 0.7316 3.1349     0
factor(Other)1                  1.4926 0.6700  7.1047  7.4086 0.8185 2.5044     0
factor(Placebo)1                3.0955 0.3230 30.2238 31.5166 0.5684 5.1940     1
factor(Psychotherapy)1          1.4080 0.7102  5.8842  6.1359 0.8428 2.3624     0
factor(Psychostimulants)1       1.4849 0.6734  6.9944  7.2936 0.8206 2.4916     0
factor(Double_Blind)1           2.9566 0.3382 28.2199 29.4270 0.5816 4.9609     1
factor(Multisite)1              1.3628 0.7338  5.2330  5.4568 0.8566 2.2867     0
factor(Randomized)1             1.4199 0.7043  6.0563  6.3154 0.8392 2.3825     0
factor(BaselineType)2           1.9921 0.5020 14.3096 14.9216 0.7085 3.3426     1
factor(BaselineType)3           2.0068 0.4983 14.5207 15.1418 0.7059 3.3672     1
factor(CokeFreeOutcome_Type)2   3.0369 0.3293 29.3777 30.6343 0.5738 5.0956     1
factor(CokeFreeOutcome_Type)3   1.3292 0.7523  4.7486  4.9517 0.8674 2.2303     0
factor(CokeFreeOutcome_Type)4   2.1059 0.4749 15.9501 16.6324 0.6891 3.5335     1
FU                              1.2335 0.8107  3.3681  3.5122 0.9004 2.0697     0
Year                            1.6533 0.6049  9.4224  9.8254 0.7777 2.7741     0
Proportion_Male                 1.4196 0.7044  6.0524  6.3113 0.8393 2.3820     0
Mean_Age                        1.4054 0.7115  5.8469  6.0970 0.8435 2.3581     0
Mean_daysweek                   1.4031 0.7127  5.8143  6.0630 0.8442 2.3543     0
Years_use                       1.7186 0.5819 10.3648 10.8081 0.7628 2.8837     0
ASI_Drug                        2.2982 0.4351 18.7233 19.5242 0.6596 3.8561     1
Complete                        1.5202 0.6578  7.5026  7.8235 0.8111 2.5507     0

1 --> COLLINEARITY is detected by the test
0 --> COLLINEARITY is not detected by the test

factor(Anticonvulsants)1 , factor(Antidepressants)1 , factor(Antipsychotics)1 ,
factor(DopamineAgonists)1 , factor(MiscMeds)1 , factor(Other)1 , factor(Placebo)1 ,
factor(Psychotherapy)1 , factor(Psychostimulants)1 , factor(Double_Blind)1 , factor(Multisite)1 ,
```

```
factor(CokeFreeOutcome_Type)2 , Year , Mean_Age , Mean_daysweek , Years_use , ASI_Drug ,
coefficient(s) are non-significant may be due to multicollinearity

R-square of y on all x: 0.485

* use method argument to check which regressors may be the reason of collinearity
===================================

[1] Pooled Results
                                          est          se           t          df     Pr(>|t|)
lo 95       hi 95 nmis
intrcpt                           -34.097987842 48.27044216 -0.70639477  37.857740 4.842677e-01 -
1.318284e+02 63.63247374   NA
factor(Anticonvulsants)1            0.115818029  0.41784647  0.27717843  28.572466 7.836386e-01 -
7.393297e-01  0.97096580   NA
factor(Antidepressants)1            0.215154030  0.39085017  0.55047700 190.047517 5.826387e-01 -
5.558077e-01  0.98611578   NA
factor(Antipsychotics)1            -0.241687050  0.43553775 -0.55491642 132.476182 5.798876e-01 -
1.103195e+00  0.61982103   NA
factor(ContingencyManagement)1      0.637781370  0.14243518  4.47769554  56.536803 3.711791e-05
3.525092e-01  0.92305355   NA
factor(DopamineAgonists)1          -0.093583011  0.34910282 -0.26806719 148.500996 7.890196e-01 -
7.834338e-01  0.59626774   NA
factor(MiscMeds)1                  -0.143916495  0.31716930 -0.45375292 111.326331 6.508900e-01 -
7.723883e-01  0.48455534   NA
factor(Opioid)1                     0.114973780  0.29958962  0.38377091  24.931905 7.044016e-01 -
5.021281e-01  0.73207561   NA
factor(Other)1                      0.045406318  0.32394027  0.14016880 247.431394 8.886407e-01 -
5.926257e-01  0.68343839   NA
factor(Placebo)1                   -0.223713055  0.27510297 -0.81319754 180.765257 4.171746e-01 -
7.665392e-01  0.31911305   NA
factor(Psychotherapy)1             -0.037615979  0.19541312 -0.19249464 201.850777 8.475483e-01 -
4.229289e-01  0.34769691   NA
factor(Psychostimulants)1           0.308500622  0.35939394  0.85839127  62.444429 3.939594e-01 -
4.098159e-01  1.02681718   NA
factor(Double_Blind)1              -0.025703282  0.48596819 -0.05289087  10.410016 9.588201e-01 -
1.102755e+00  1.05134819   NA
factor(Multisite)1                  0.085255912  0.43772651  0.19476982  22.104767 8.473522e-01 -
8.222839e-01  0.99279573   NA
factor(Randomized)1                -0.031506711  0.60374099 -0.05218581  10.728214 9.593396e-01 -
1.364450e+00  1.30143704   NA
factor(BaselineType)2              -1.386003553  0.32400133 -4.27777123  14.899684 6.701933e-04 -
2.077001e+00 -0.69500589   NA
factor(BaselineType)3              -0.960720049  0.88377489 -1.08706421   3.880078 3.398770e-01 -
3.444673e+00  1.52323300   NA
factor(CokeFreeOutcome_Type)2       0.073855531  0.53841487  0.13717216   6.854665 8.948367e-01 -
1.204786e+00  1.35249699   NA
factor(CokeFreeOutcome_Type)3      -0.472941367  0.89066435 -0.53099842   6.946993 6.119662e-01 -
2.582290e+00  1.63640720   NA
factor(CokeFreeOutcome_Type)4       0.087029672  1.30305671  0.06678886   3.728623 9.501759e-01 -
3.637086e+00  3.81114559   NA
FU                                  0.024718703  0.01514238  1.63241843  17.316998 1.206413e-01 -
7.184438e-03  0.05662184    0
Year                                0.016551678  0.02435471  0.67960890  36.660928 5.010210e-01 -
3.281106e-02  0.06591442    0
Proportion_Male                     0.801982262  0.46672377  1.71832316  75.035505 8.986159e-02 -
1.277720e-01  1.73173648   11
Mean_Age                           -0.008654739  0.02844550 -0.30425684  17.678523 7.644845e-01 -
6.849452e-02  0.05118504   10
Mean_daysweek                       0.089927630  0.10339815  0.86972182   9.430174 4.060454e-01 -
1.423588e-01  0.32221409  128
Years_use                          -0.000291333  0.02290343 -0.01272006  49.225874 9.899025e-01 -
4.631215e-02  0.04572948  166
ASI_Drug                           -0.037782728  0.72778119 -0.05191495  32.349712 9.589157e-01 -
1.519596e+00  1.44403079  273
Complete                            2.623178930  0.39553540  6.63197011  80.469772 3.508446e-09
1.836109e+00  3.41024892    7
                                         fmi     lambda
intrcpt                           0.33472115 0.30047938
```

factor(Anticonvulsants)1	0.39240330	0.35131125
factor(Antidepressants)1	0.10506271	0.09569397
factor(Antipsychotics)1	0.14616246	0.13336861
factor(ContingencyManagement)1	0.26358948	0.23799159
factor(DopamineAgonists)1	0.13284467	0.12124400
factor(MiscMeds)1	0.16728655	0.15245986
factor(Opioid)1	0.42285236	0.37833981
factor(Other)1	0.07547906	0.06803619
factor(Placebo)1	0.11063222	0.10084632
factor(Psychotherapy)1	0.09837507	0.08948553
factor(Psychostimulants)1	0.24776678	0.22405364
factor(Double_Blind)1	0.65788407	0.59791642
factor(Multisite)1	0.45115128	0.40364171
factor(Randomized)1	0.64871599	0.58881190
factor(BaselineType)2	0.55326797	0.49707415
factor(BaselineType)3	0.95246607	0.93298526
factor(CokeFreeOutcome_Type)2	0.79012727	0.73668826
factor(CokeFreeOutcome_Type)3	0.78580860	0.73190359
factor(CokeFreeOutcome_Type)4	0.95924459	0.94200685
FU	0.51266287	0.45945141
Year	0.34096501	0.30596667
Proportion_Male	0.22019423	0.19968260
Mean_Age	0.50724306	0.45448119
Mean_daysweek	0.68840926	0.62866131
Years_use	0.28677969	0.25837917
ASI_Drug	0.36610943	0.32809467
Complete	0.21022826	0.19084016

Egger's Test of Bias

```
#Author: Brandon S Bentzley
#Project: Meta analysis of treatments for cocaine use disorders
#Date this R script was last updated: 02/15/2021
#Description: Egger tests for bias, aka regression of funnel plots



# store the current directory
initial.dir<-getwd()
# change to the new directory
setwd("/Users/bsbentzley/Documents/Stanford/STAAR/2015.12.03 - DBS cocaine/Ranalysis")
# load the necessary libraries
library(gdata)
library(metafor)
# set the output file
sink("Output.out")
# set file width
options(width=120)
# load the dataset and define variable data types
mydata = read.csv("Data_imputed_long.csv", colClasses=c(
"Author"="character", "Year"="numeric", "Title"="character", "StudyID"="factor",
"Double_Blind"="factor", "Multisite"="factor", "Randomized"="factor", "SubDsrdr"="character",
"Treatments"="character", "Placebo"="factor", "Psychotherapy"="factor",
"ContingencyManagement"="factor", "Other"="factor", "Opioid"="factor", "MiscMeds"="factor",
"Psychostimulants"="factor", "Anticonvulsants"="factor", "DopamineAgonists"="factor",
"Antidepressants"="factor", "Antipsychotics"="factor", "TreatmentNmbr"= "numeric",
"Trtmnt1orMore"="factor", "N_start"="numeric", "Proportion_Male"="numeric", "Mean_Age"="numeric",
"Mean_daysweek"="numeric", "Proportion_30days"="numeric", "Years_use"="numeric",
"ASI_Drug"="numeric", "TestPosScreen"="factor", "CokeFreeBase"="numeric", "CokeFreeWk1"="numeric",
"BaselineType"="factor", "CokeFreeStart"="numeric", "Complication"="character", "FU"="numeric",
"Complete"="numeric", "CokeFreeLastWk_NotITT"="numeric", "CokeFreeMean_NotITT"="numeric",
"CokeFreeLastWk_ITT"="numeric", "CokeFreeMean_ITT"="numeric", "CokeFreeOutcome_Type"="factor",
"CokeFreeOutcome_ITT"="numeric", "CFS"="numeric", "CPS"="numeric", "CFE"="numeric",
"CPE"="numeric", "yi"="numeric", "vi"="numeric"))

#Loop through all treatment groups
for (i in c(1:11)){

#Select only data from a particular treatment category
if (i==1) {TRT="Placebo"
mydata_sub<-subset(mydata, Placebo==1)}
if (i==2) {TRT="Psychotherapy"
mydata_sub<-subset(mydata, Psychotherapy==1)}
if (i==3) {TRT="ContingencyManagement"
mydata_sub<-subset(mydata, ContingencyManagement==1)}
if (i==4) {TRT="Other"
mydata_sub<-subset(mydata, Other==1)}
if (i==5) {TRT="Opioid"
mydata_sub<-subset(mydata, Opioid==1)}
if (i==6) {TRT="MiscMeds"
mydata_sub<-subset(mydata, MiscMeds==1)}
if (i==7) {TRT="Psychostimulants"
mydata_sub<-subset(mydata, Psychostimulants==1)}
if (i==8) {TRT="Anticonvulsants"
mydata_sub<-subset(mydata, Anticonvulsants==1)}
if (i==9) {TRT="DopamineAgonists"
```

```
mydata_sub<-subset(mydata, DopamineAgonists==1)}
if (i==10) {TRT="Antidepressants"
mydata_sub<-subset(mydata, Antidepressants==1)}
if (i==11) {TRT="Antipsychotics"
mydata_sub<-subset(mydata, Antipsychotics==1)}


    #Loop through non-imputed and imputed data
    for (j in c(0:5)){

    #subset of each dataset,  #0 has native missing data, 1-5 are imputed datasets
    mydata_subsub<-subset(mydata_sub, .imp==j)

    ###Multi-level mixed effects models for Egger Tests
    test.egger = rma.mv(yi,vi, mod = vi, random = ~ 1 | Author/StudyID, data = mydata_subsub)

    ####Egger test for bias
    print(TRT)
    print(j) #0 has native missing data, 1-5 are imputed datasets
    print(test.egger)
    }

} #End For Loop

#Multilevel full analysis,

#Loop through non-imputed and imputed data for full dataset with all treatment categories
for (k in c(0:5)){

#subset of each dataset
mydata_subfull<-subset(mydata, .imp==k)
test.egger = rma.mv(yi,vi, mod = vi, random = ~ 1 | Author/StudyID, data = mydata_subfull)


####Egger test for bias
print("Full Model")
print(k)  #0 has native missing data, 1-5 are imputed datasets
print(test.egger)
} # End for loop

# close the output file
sink()
# unload the libraries
detach("package:gdata")
detach("package:metafor")
# change back to the original directory
setwd(initial.dir)

*******

[1] "Placebo"
[1] 0
```

```
Multivariate Meta-Analysis Model (k = 78; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.8280  0.9100     42     no          Author
sigma^2.2  0.3591  0.5992     65     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 76) = 228.3277, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 16.6029, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -0.6630  0.3154  -2.1024  0.0355  -1.2811  -0.0449    *
mods       1.3385  0.3285   4.0747  <.0001   0.6946   1.9823  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Placebo"
[1] 1

Multivariate Meta-Analysis Model (k = 96; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.1237  1.0600     51     no          Author
sigma^2.2  0.2659  0.5157     80     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 94) = 290.0080, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 21.1484, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.4157  0.3041  -1.3671  0.1716  -1.0117  0.1803
mods       1.3361  0.2905   4.5987  <.0001   0.7666  1.9055  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Placebo"
[1] 2

Multivariate Meta-Analysis Model (k = 96; method: REML)
```

```
Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.8309  0.9115     51     no          Author
sigma^2.2  0.8295  0.9107     80     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 94) = 315.0832, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 17.5368, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -0.7618  0.3209  -2.3737  0.0176  -1.3908  -0.1328    *
mods       1.3485  0.3220   4.1877  <.0001   0.7174   1.9797  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Placebo"
[1] 3

Multivariate Meta-Analysis Model (k = 96; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.2684  1.1262     51     no          Author
sigma^2.2  0.5300  0.7280     80     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 94) = 343.3167, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 12.0580, p-val = 0.0005

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -0.8671  0.3154  -2.7496  0.0060  -1.4852  -0.2490   **
mods       1.1144  0.3209   3.4725  0.0005   0.4854   1.7434  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Placebo"
[1] 4

Multivariate Meta-Analysis Model (k = 96; method: REML)
```

```
Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.9780  0.9889     51     no          Author
sigma^2.2  0.3440  0.5865     80     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 94) = 283.9711, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 24.4018, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.5411  0.3143  -1.7214  0.0852  -1.1571  0.0750    .
mods       1.5006  0.3038   4.9398  <.0001   0.9052  2.0960  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Placebo"
[1] 5

Multivariate Meta-Analysis Model (k = 96; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.7510  0.8666     51     no          Author
sigma^2.2  0.5964  0.7723     80     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 94) = 280.9826, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 20.2187, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.5832  0.3069  -1.9001  0.0574  -1.1847  0.0184    .
mods       1.3662  0.3038   4.4965  <.0001   0.7707  1.9618  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychotherapy"
[1] 0

Multivariate Meta-Analysis Model (k = 259; method: REML)

Variance Components:
```

```
            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.2076  1.0989     65     no          Author
sigma^2.2  0.5730  0.7570     98     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 257) = 889.8962, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 1.6025, p-val = 0.2055

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.5313  0.2373  2.2389  0.0252   0.0662  0.9964  *
mods       0.2844  0.2246  1.2659  0.2055  -0.1559  0.7247

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychotherapy"
[1] 1

Multivariate Meta-Analysis Model (k = 330; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.1582  1.0762     82     no          Author
sigma^2.2  0.7329  0.8561    131     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 328) = 1145.1182, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 22.4099, p-val < .0001

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.4171  0.2208  1.8886  0.0589  -0.0158  0.8499    .
mods       0.9017  0.1905  4.7339  <.0001   0.5284  1.2750  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychotherapy"
[1] 2

Multivariate Meta-Analysis Model (k = 330; method: REML)

Variance Components:
```

```
            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.9096  0.9537     82     no          Author
sigma^2.2  0.9705  0.9851    131     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 328) = 1389.6902, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 18.5778, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.2354  0.2016  -1.1675  0.2430  -0.6306  0.1598
mods       0.8408  0.1951   4.3102  <.0001   0.4584  1.2231  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychotherapy"
[1] 3

Multivariate Meta-Analysis Model (k = 330; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.1551  1.0748     82     no          Author
sigma^2.2  1.1943  1.0929    131     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 328) = 1432.3839, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.7444, p-val = 0.3883

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.0599  0.2181  0.2748  0.7835  -0.3676  0.4874
mods       0.1821  0.2110  0.8628  0.3883  -0.2316  0.5957

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychotherapy"
[1] 4

Multivariate Meta-Analysis Model (k = 330; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
```

```
sigma^2.1  1.2841  1.1332     82     no          Author
sigma^2.2  0.6489  0.8056    131     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 328) = 1109.1718, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 14.1316, p-val = 0.0002

Model Results:

         estimate      se    zval    pval   ci.lb   ci.ub
intrcpt    0.6045  0.2303  2.6252  0.0087  0.1532  1.0558   **
mods       0.7468  0.1987  3.7592  0.0002  0.3574  1.1361  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychotherapy"
[1] 5

Multivariate Meta-Analysis Model (k = 330; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.6891  0.8301     82     no          Author
sigma^2.2  1.2129  1.1013    131     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 328) = 1108.9843, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 6.8123, p-val = 0.0091

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.4230  0.2168  1.9508  0.0511  -0.0020  0.8480   .
mods       0.5309  0.2034  2.6100  0.0091   0.1322  0.9296  **

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "ContingencyManagement"
[1] 0

Multivariate Meta-Analysis Model (k = 69; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.4707  0.6861     27     no          Author
```

```
sigma^2.2  0.3542  0.5951     38     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 67) = 207.4040, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 8.0721, p-val = 0.0045

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.5007  0.3091  1.6201  0.1052  -0.1051  1.1065
mods       1.1203  0.3943  2.8411  0.0045   0.3475  1.8932  **

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "ContingencyManagement"
[1] 1

Multivariate Meta-Analysis Model (k = 88; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.1424  0.3773     33     no          Author
sigma^2.2  0.7093  0.8422     50     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 86) = 256.0774, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 29.9044, p-val < .0001

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.2374  0.2748  0.8639  0.3877  -0.3012  0.7759
mods       1.7693  0.3236  5.4685  <.0001   1.1352  2.4035  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "ContingencyManagement"
[1] 2

Multivariate Meta-Analysis Model (k = 88; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.2943  0.5425     33     no          Author
sigma^2.2  0.7926  0.8903     50     no  Author/StudyID
```

```
Test for Residual Heterogeneity:
QE(df = 86) = 360.1599, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 14.4169, p-val = 0.0001

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.0172  0.2875  -0.0597  0.9524  -0.5807  0.5464
mods       1.4391  0.3790   3.7970  0.0001   0.6962  2.1819  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "ContingencyManagement"
[1] 3

Multivariate Meta-Analysis Model (k = 88; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.3173  0.5633     33     no          Author
sigma^2.2  0.9476  0.9734     50     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 86) = 374.3820, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 10.8216, p-val = 0.0010

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.0411  0.2982  -0.1379  0.8903  -0.6256  0.5433
mods       1.3105  0.3984   3.2896  0.0010   0.5297  2.0913  **

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "ContingencyManagement"
[1] 4

Multivariate Meta-Analysis Model (k = 88; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.2403  0.4902     33     no          Author
sigma^2.2  0.4994  0.7067     50     no  Author/StudyID
```

```
Test for Residual Heterogeneity:
QE(df = 86) = 231.2155, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 32.2073, p-val < .0001

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.2693  0.2769  0.9726  0.3307  -0.2734  0.8119
mods       1.7952  0.3163  5.6751  <.0001   1.1752  2.4152  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "ContingencyManagement"
[1] 5

Multivariate Meta-Analysis Model (k = 88; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.1260  0.3549     33     no          Author
sigma^2.2  0.6342  0.7964     50     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 86) = 239.9328, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 26.9386, p-val < .0001

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.1012  0.2610  0.3879  0.6981  -0.4102  0.6127
mods       1.6962  0.3268  5.1902  <.0001   1.0557  2.3368  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Other"
[1] 0

Multivariate Meta-Analysis Model (k = 21; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0001     11     no          Author
sigma^2.2  1.0571  1.0282     12     no  Author/StudyID

Test for Residual Heterogeneity:
```

```
QE(df = 19) = 52.1176, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 2.5727, p-val = 0.1087

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.7616  0.5430  1.4026  0.1607  -0.3027  1.8259
mods       0.8248  0.5142  1.6040  0.1087  -0.1831  1.8326

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Other"
[1] 1

Multivariate Meta-Analysis Model (k = 26; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0001     14     no          Author
sigma^2.2  0.9366  0.9678     15     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 24) = 56.2187, p-val = 0.0002

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 4.1038, p-val = 0.0428

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.8301  0.5165  1.6072  0.1080  -0.1822  1.8424
mods       0.9901  0.4888  2.0258  0.0428   0.0322  1.9480  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Other"
[1] 2

Multivariate Meta-Analysis Model (k = 26; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0003     14     no          Author
sigma^2.2  2.7994  1.6731     15     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 24) = 130.9743, p-val < .0001
```

```
Test of Moderators (coefficient(s) 2):
QM(df = 1) = 4.8216, p-val = 0.0281

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.2932  0.6478  -0.4525  0.6509  -1.5628  0.9765
mods       1.3142  0.5985   2.1958  0.0281   0.1412  2.4872  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Other"
[1] 3

Multivariate Meta-Analysis Model (k = 26; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0004     14     no          Author
sigma^2.2  2.8013  1.6737     15     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 24) = 130.7994, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 4.8297, p-val = 0.0280

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.2944  0.6479  -0.4544  0.6495  -1.5643  0.9755
mods       1.3154  0.5985   2.1977  0.0280   0.1423  2.4885  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Other"
[1] 4

Multivariate Meta-Analysis Model (k = 26; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0001     14     no          Author
sigma^2.2  0.9366  0.9678     15     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 24) = 56.2187, p-val = 0.0002
```

```
Test of Moderators (coefficient(s) 2):
QM(df = 1) = 4.1038, p-val = 0.0428

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.8301  0.5165  1.6072  0.1080  -0.1822  1.8424
mods       0.9901  0.4888  2.0258  0.0428   0.0322  1.9480  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Other"
[1] 5

Multivariate Meta-Analysis Model (k = 26; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0002     14     no          Author
sigma^2.2  2.2431  1.4977     15     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 24) = 111.1455, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 4.4686, p-val = 0.0345

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.0831  0.6231  0.1333  0.8939  -1.1383  1.3044
mods       1.2124  0.5735  2.1139  0.0345   0.0883  2.3365  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Opioid"
[1] 0

Multivariate Meta-Analysis Model (k = 142; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.5448  0.7381     32     no          Author
sigma^2.2  0.1551  0.3939     49     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 140) = 257.9966, p-val < .0001

Test of Moderators (coefficient(s) 2):
```

```
QM(df = 1) = 12.5663, p-val = 0.0004

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.5269  0.2689  1.9599  0.0500  -0.0000  1.0539    .
mods       1.0012  0.2824  3.5449  0.0004   0.4476  1.5547  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Opioid"
[1] 1

Multivariate Meta-Analysis Model (k = 159; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.6177  0.7859     34     no          Author
sigma^2.2  0.1197  0.3460     55     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 157) = 283.7641, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 16.2211, p-val < .0001

Model Results:

         estimate      se    zval    pval   ci.lb   ci.ub
intrcpt    0.5507  0.2626  2.0967  0.0360  0.0359  1.0655    *
mods       1.0537  0.2616  4.0275  <.0001  0.5409  1.5665  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Opioid"
[1] 2

Multivariate Meta-Analysis Model (k = 159; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.4455  1.2023     34     no          Author
sigma^2.2  0.3765  0.6136     55     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 157) = 529.1676, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 4.4702, p-val = 0.0345
```

```
Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.4851  0.3507  1.3833  0.1666  -0.2022  1.1724
mods       0.7043  0.3331  2.1143  0.0345   0.0514  1.3572  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Opioid"
[1] 3

Multivariate Meta-Analysis Model (k = 159; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.4872  1.2195     34     no          Author
sigma^2.2  0.3012  0.5488     55     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 157) = 523.1105, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 4.5844, p-val = 0.0323

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.5070  0.3427  1.4792  0.1391  -0.1648  1.1787
mods       0.6859  0.3203  2.1411  0.0323   0.0580  1.3137  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Opioid"
[1] 4

Multivariate Meta-Analysis Model (k = 159; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.6361  0.7976     34     no          Author
sigma^2.2  0.1204  0.3470     55     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 157) = 281.1605, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 15.2348, p-val < .0001
```

```
Model Results:

         estimate      se    zval    pval   ci.lb   ci.ub
intrcpt    0.5584  0.2711  2.0602  0.0394  0.0272  1.0897    *
mods       1.0515  0.2694  3.9032  <.0001  0.5235  1.5796  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Opioid"
[1] 5

Multivariate Meta-Analysis Model (k = 159; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.5072  0.7122     34     no          Author
sigma^2.2  0.7522  0.8673     55     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 157) = 375.3041, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 3.7491, p-val = 0.0528

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.7365  0.3189  2.3099  0.0209   0.1116  1.3615  *
mods       0.6184  0.3194  1.9363  0.0528  -0.0076  1.2444  .

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "MiscMeds"
[1] 0

Multivariate Meta-Analysis Model (k = 38; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.8811  0.9387     21     no          Author
sigma^2.2  0.1883  0.4339     26     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 36) = 80.7060, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 2.1600, p-val = 0.1416

Model Results:
```

```
         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.0951  0.4744  0.2004  0.8412  -0.8347  1.0249
mods       0.6615  0.4501  1.4697  0.1416  -0.2207  1.5437

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "MiscMeds"
[1] 1

Multivariate Meta-Analysis Model (k = 54; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.0832  1.0408     27     no          Author
sigma^2.2  0.0000  0.0001     37     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 52) = 105.2566, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 5.2179, p-val = 0.0224

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.2081  0.4311  0.4828  0.6293  -0.6368  1.0530
mods       0.8411  0.3682  2.2843  0.0224   0.1194  1.5627  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "MiscMeds"
[1] 2

Multivariate Meta-Analysis Model (k = 54; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.1464  1.0707     27     no          Author
sigma^2.2  1.4405  1.2002     37     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 52) = 217.4944, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 1.6396, p-val = 0.2004

Model Results:
```

```
         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.2861  0.5820  -0.4915  0.6230  -1.4268  0.8546
mods       0.6710  0.5241   1.2805  0.2004  -0.3561  1.6982

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "MiscMeds"
[1] 3

Multivariate Meta-Analysis Model (k = 54; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.7540  0.8683     27     no          Author
sigma^2.2  1.3655  1.1685     37     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 52) = 198.3370, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 1.2338, p-val = 0.2667

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.4512  0.5282  -0.8543  0.3929  -1.4864  0.5840
mods       0.5621  0.5060   1.1108  0.2667  -0.4297  1.5539

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "MiscMeds"
[1] 4

Multivariate Meta-Analysis Model (k = 54; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.1857  1.0889     27     no          Author
sigma^2.2  0.0000  0.0001     37     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 52) = 106.1010, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 3.7190, p-val = 0.0538

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
```

```
intrcpt    0.3099  0.4626  0.6699  0.5029  -0.5968  1.2167
mods       0.7585  0.3933  1.9285  0.0538  -0.0124  1.5294  .

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "MiscMeds"
[1] 5

Multivariate Meta-Analysis Model (k = 54; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0001     27     no          Author
sigma^2.2  1.1331  1.0645     37     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 52) = 123.3111, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 4.7770, p-val = 0.0288

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.1702  0.4545  -0.3744  0.7081  -1.0609  0.7206
mods       0.9198  0.4208   2.1856  0.0288   0.0950  1.7446  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychostimulants"
[1] 0

Multivariate Meta-Analysis Model (k = 19; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.4836  0.6954      8     no          Author
sigma^2.2  0.5910  0.7688     13     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 17) = 46.3431, p-val = 0.0002

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 3.0608, p-val = 0.0802

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.4426  0.6702  -0.6604  0.5090  -1.7561  0.8709
```

```
mods       1.3591  0.7768   1.7495  0.0802  -0.1635  2.8817  .

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychostimulants"
[1] 1

Multivariate Meta-Analysis Model (k = 24; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.3924  0.6264     10     no          Author
sigma^2.2  0.4654  0.6822     17     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 22) = 49.2371, p-val = 0.0007

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 5.9121, p-val = 0.0150

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.4893  0.5752  -0.8506  0.3950  -1.6168  0.6382
mods       1.3659  0.5617   2.4315  0.0150   0.2649  2.4669  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychostimulants"
[1] 2

Multivariate Meta-Analysis Model (k = 24; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.9887  1.4102     10     no          Author
sigma^2.2  0.8559  0.9252     17     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 22) = 82.9868, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.0195, p-val = 0.8890

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.0579  0.9239  -0.0627  0.9500  -1.8686  1.7528
mods       0.1183  0.8475   0.1396  0.8890  -1.5427  1.7793
```

```
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychostimulants"
[1] 3

Multivariate Meta-Analysis Model (k = 24; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.9826  1.4081     10     no          Author
sigma^2.2  0.9826  0.9913     17     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 22) = 84.3098, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.0528, p-val = 0.8183

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt    0.1815  0.9131   0.1987  0.8425  -1.6081  1.9710
mods      -0.1870  0.8141  -0.2297  0.8183  -1.7826  1.4086

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychostimulants"
[1] 4

Multivariate Meta-Analysis Model (k = 24; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.3924  0.6264     10     no          Author
sigma^2.2  0.4654  0.6822     17     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 22) = 49.2371, p-val = 0.0007

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 5.9121, p-val = 0.0150

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.4893  0.5752  -0.8506  0.3950  -1.6168  0.6382
mods       1.3659  0.5617   2.4315  0.0150   0.2649  2.4669  *
```

```
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Psychostimulants"
[1] 5

Multivariate Meta-Analysis Model (k = 24; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.4382  0.6620     10     no          Author
sigma^2.2  2.0622  1.4360     17     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 22) = 80.8123, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.0752, p-val = 0.7839

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.0604  0.8123  0.0743  0.9407  -1.5317  1.6524
mods       0.2115  0.7711  0.2742  0.7839  -1.2998  1.7228

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Anticonvulsants"
[1] 0

Multivariate Meta-Analysis Model (k = 17; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.3704  0.6086     12     no          Author
sigma^2.2  0.0000  0.0001     14     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 15) = 29.5457, p-val = 0.0137

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 15.7017, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.3255  0.5299  -2.5012  0.0124  -2.3641  -0.2868    *
mods       2.7236  0.6873   3.9625  <.0001   1.3764   4.0707  ***

---
```

```
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Anticonvulsants"
[1] 1

Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.3970  0.6301     14     no          Author
sigma^2.2  0.0000  0.0001     16     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 32.9050, p-val = 0.0171

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 21.3924, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.3947  0.5320  -2.6215  0.0088  -2.4375  -0.3519   **
mods       2.9675  0.6416   4.6252  <.0001   1.7100   4.2250  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Anticonvulsants"
[1] 2

Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.9235  0.9610     14     no          Author
sigma^2.2  0.0000  0.0001     16     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 47.2131, p-val = 0.0002

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 14.9264, p-val = 0.0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.8601  0.6100  -3.0491  0.0023  -3.0557  -0.6644   **
mods       3.0847  0.7984   3.8635  0.0001   1.5198   4.6496  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

```
[1] "Anticonvulsants"
[1] 3

Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.9034  0.9505     14     no          Author
sigma^2.2  0.0000  0.0001     16     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 46.2202, p-val = 0.0003

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 14.8811, p-val = 0.0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.8256  0.6035  -3.0248  0.0025  -3.0085  -0.6427   **
mods       3.0539  0.7917   3.8576  0.0001   1.5023   4.6055  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Anticonvulsants"
[1] 4

Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.3970  0.6301     14     no          Author
sigma^2.2  0.0000  0.0001     16     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 32.9050, p-val = 0.0171

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 21.3924, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.3947  0.5320  -2.6215  0.0088  -2.4375  -0.3519   **
mods       2.9675  0.6416   4.6252  <.0001   1.7100   4.2250  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

```
[1] "Anticonvulsants"
[1] 5

Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.3970  0.6301     14     no          Author
sigma^2.2  0.0000  0.0001     16     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 32.9050, p-val = 0.0171

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 21.3924, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.3947  0.5320  -2.6215  0.0088  -2.4375  -0.3519   **
mods       2.9675  0.6416   4.6252  <.0001   1.7100   4.2250  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "DopamineAgonists"
[1] 0

Multivariate Meta-Analysis Model (k = 18; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0001      9     no          Author
sigma^2.2  0.2556  0.5056     10     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 16) = 22.3523, p-val = 0.1322

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 4.2579, p-val = 0.0391

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -0.9012  0.3685  -2.4452  0.0145  -1.6235  -0.1788  *
mods       1.1913  0.5773   2.0635  0.0391   0.0598   2.3228  *

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "DopamineAgonists"
```

```
[1] 1

Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.2785  0.5278     10     no          Author
sigma^2.2  0.0000  0.0001     12     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 26.2047, p-val = 0.0952

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 10.7469, p-val = 0.0010

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.0335  0.3528  -2.9297  0.0034  -1.7249  -0.3421  **
mods       1.6644  0.5077   3.2783  0.0010   0.6693   2.6595  **

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "DopamineAgonists"
[1] 2

Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0000     10     no          Author
sigma^2.2  0.8971  0.9471     12     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 40.0693, p-val = 0.0020

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 1.9548, p-val = 0.1621

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.0620  0.4838  -2.1951  0.0282  -2.0102  -0.1138  *
mods       0.9904  0.7084   1.3981  0.1621  -0.3980   2.3788

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "DopamineAgonists"
[1] 3
```

```
Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0000     10     no          Author
sigma^2.2  0.9545  0.9770     12     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 41.2222, p-val = 0.0014

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 1.8024, p-val = 0.1794

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.0616  0.4944  -2.1471  0.0318  -2.0307  -0.0925  *
mods       0.9642  0.7182   1.3425  0.1794  -0.4434   2.3719

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "DopamineAgonists"
[1] 4

Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.2785  0.5278     10     no          Author
sigma^2.2  0.0000  0.0001     12     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 26.2047, p-val = 0.0952

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 10.7469, p-val = 0.0010

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.0335  0.3528  -2.9297  0.0034  -1.7249  -0.3421  **
mods       1.6644  0.5077   3.2783  0.0010   0.6693   2.6595  **

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "DopamineAgonists"
[1] 5
```

```
Multivariate Meta-Analysis Model (k = 20; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.2785  0.5278     10     no          Author
sigma^2.2  0.0000  0.0001     12     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 18) = 26.2047, p-val = 0.0952

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 10.7469, p-val = 0.0010

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.0335  0.3528  -2.9297  0.0034  -1.7249  -0.3421  **
mods       1.6644  0.5077   3.2783  0.0010   0.6693   2.6595  **

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Antidepressants"
[1] 0

Multivariate Meta-Analysis Model (k = 15; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0001      8     no          Author
sigma^2.2  0.0000  0.0001      8     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 13) = 14.8644, p-val = 0.3159

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 39.2060, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.7957  0.5371  -3.3433  0.0008  -2.8483  -0.7430  ***
mods       3.3421  0.5338   6.2615  <.0001   2.2960   4.3882  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Antidepressants"
[1] 1

Multivariate Meta-Analysis Model (k = 18; method: REML)
```

```
Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0088  0.0939     11     no          Author
sigma^2.2  0.0088  0.0939     11     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 16) = 16.4389, p-val = 0.4228

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 44.6331, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.4394  0.4231  -3.4018  0.0007  -2.2687  -0.6101  ***
mods       2.9627  0.4435   6.6808  <.0001   2.0935   3.8319  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Antidepressants"
[1] 2

Multivariate Meta-Analysis Model (k = 18; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.2311  0.4808     11     no          Author
sigma^2.2  0.2311  0.4808     11     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 16) = 24.3265, p-val = 0.0826

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 21.7454, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -2.1752  0.7425  -2.9296  0.0034  -3.6305  -0.7199   **
mods       3.4345  0.7365   4.6632  <.0001   1.9910   4.8781  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Antidepressants"
[1] 3

Multivariate Meta-Analysis Model (k = 18; method: REML)
```

```
Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.5339  0.7307     11     no          Author
sigma^2.2  0.5339  0.7307     11     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 16) = 32.9936, p-val = 0.0074

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 17.3226, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -2.4412  0.7974  -3.0615  0.0022  -4.0041  -0.8784   **
mods       3.4176  0.8211   4.1620  <.0001   1.8082   5.0270  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Antidepressants"
[1] 4

Multivariate Meta-Analysis Model (k = 18; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0000     11     no          Author
sigma^2.2  0.0000  0.0000     11     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 16) = 15.8653, p-val = 0.4624

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 39.8996, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.7312  0.5327  -3.2497  0.0012  -2.7753  -0.6871   **
mods       3.2204  0.5098   6.3166  <.0001   2.2212   4.2197  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Antidepressants"
[1] 5

Multivariate Meta-Analysis Model (k = 18; method: REML)

Variance Components:
```

```
            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.0000  0.0000     11     no          Author
sigma^2.2  0.0000  0.0000     11     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 16) = 15.8653, p-val = 0.4624

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 39.8996, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb    ci.ub
intrcpt   -1.7312  0.5327  -3.2497  0.0012  -2.7753  -0.6871   **
mods       3.2204  0.5098   6.3166  <.0001   2.2212   4.2197  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Antipsychotics"
[1] 0

Multivariate Meta-Analysis Model (k = 11; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.6061  0.7785      7     no          Author
sigma^2.2  0.0000  0.0000      8     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 9) = 15.9240, p-val = 0.0685

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.0759, p-val = 0.7830

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.4668  0.7468  -0.6250  0.5320  -1.9305  0.9970
mods      -0.2106  0.7644  -0.2755  0.7830  -1.7087  1.2876

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Antipsychotics"
[1] 1

Multivariate Meta-Analysis Model (k = 12; method: REML)

Variance Components:
```

```
            estim    sqrt  nlvls  fixed          factor
sigma^2.1  2.5846  1.6077      8     no          Author
sigma^2.2  0.0000  0.0000      9     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 10) = 32.3451, p-val = 0.0004

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.2031, p-val = 0.6522

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt    0.3107  1.0188   0.3049  0.7604  -1.6861  2.3075
mods      -0.3920  0.8699  -0.4507  0.6522  -2.0969  1.3129

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Antipsychotics"
[1] 2

Multivariate Meta-Analysis Model (k = 12; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.3001  0.5478      8     no          Author
sigma^2.2  0.0000  0.0000      9     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 10) = 15.9437, p-val = 0.1013

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.0138, p-val = 0.9064

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.8338  0.5416  -1.5396  0.1237  -1.8953  0.2277
mods       0.0772  0.6567   0.1176  0.9064  -1.2099  1.3643

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Antipsychotics"
[1] 3

Multivariate Meta-Analysis Model (k = 12; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
```

```
sigma^2.1  0.3001  0.5478      8     no          Author
sigma^2.2  0.0000  0.0000      9     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 10) = 15.9437, p-val = 0.1013

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.0138, p-val = 0.9064

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.8338  0.5416  -1.5396  0.1237  -1.8953  0.2277
mods       0.0772  0.6567   0.1176  0.9064  -1.2099  1.3643

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Antipsychotics"
[1] 4

Multivariate Meta-Analysis Model (k = 12; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.8713  1.3679      8     no          Author
sigma^2.2  0.0000  0.0000      9     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 10) = 38.0970, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.9041, p-val = 0.3417

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt    0.5121  0.8768   0.5841  0.5592  -1.2064  2.2307
mods      -0.7907  0.8315  -0.9509  0.3417  -2.4205  0.8391

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Antipsychotics"
[1] 5

Multivariate Meta-Analysis Model (k = 12; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.5057  0.7111      8     no          Author
```

```
sigma^2.2  0.0000  0.0000      9     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 10) = 18.7211, p-val = 0.0440

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 0.2555, p-val = 0.6133

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.2947  0.5895  -0.4998  0.6172  -1.4501  0.8608
mods      -0.3438  0.6802  -0.5054  0.6133  -1.6769  0.9893

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Full Model"
[1] 0

Multivariate Meta-Analysis Model (k = 314; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.9313  0.9650     79     no          Author
sigma^2.2  0.6442  0.8026    120     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 312) = 1056.9190, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 2.4776, p-val = 0.1155

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.4636  0.2063  2.2476  0.0246   0.0593  0.8679  *
mods       0.3130  0.1989  1.5740  0.1155  -0.0767  0.7028

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Full Model"
[1] 1

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.9940  0.9970     98     no          Author
sigma^2.2  0.7667  0.8756    157     no  Author/StudyID
```

```
Test for Residual Heterogeneity:
QE(df = 400) = 1356.3866, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 24.2349, p-val < .0001

Model Results:

         estimate      se    zval    pval   ci.lb   ci.ub
intrcpt    0.3899  0.1967  1.9824  0.0474  0.0044  0.7755    *
mods       0.8445  0.1716  4.9229  <.0001  0.5083  1.1808  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Full Model"
[1] 2

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.9341  0.9665     98     no          Author
sigma^2.2  0.9837  0.9918    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 400) = 1717.7091, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 15.8142, p-val < .0001

Model Results:

         estimate      se     zval    pval    ci.lb   ci.ub
intrcpt   -0.1829  0.1875  -0.9756  0.3293  -0.5503  0.1845
mods       0.7109  0.1788   3.9767  <.0001   0.3605  1.0613  ***

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

[1] "Full Model"
[1] 3

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.0729  1.0358     98     no          Author
sigma^2.2  1.1675  1.0805    157     no  Author/StudyID
```

```
Test for Residual Heterogeneity:
QE(df = 400) = 1767.5876, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 1.0675, p-val = 0.3015

Model Results:

         estimate      se    zval    pval    ci.lb   ci.ub
intrcpt    0.0389  0.1978  0.1967  0.8441  -0.3489  0.4267
mods       0.1963  0.1900  1.0332  0.3015  -0.1761  0.5687

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Full Model"
[1] 4

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  1.1213  1.0589     98     no          Author
sigma^2.2  0.6921  0.8319    157     no  Author/StudyID

Test for Residual Heterogeneity:
QE(df = 400) = 1310.6344, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 14.5114, p-val = 0.0001

Model Results:

         estimate      se    zval    pval   ci.lb   ci.ub
intrcpt    0.5723  0.2068  2.7669  0.0057  0.1669  0.9776   **
mods       0.6885  0.1807  3.8094  0.0001  0.3343  1.0428  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

[1] "Full Model"
[1] 5

Multivariate Meta-Analysis Model (k = 402; method: REML)

Variance Components:

            estim    sqrt  nlvls  fixed          factor
sigma^2.1  0.5233  0.7234     98     no          Author
sigma^2.2  1.3207  1.1492    157     no  Author/StudyID

Test for Residual Heterogeneity:
```

```
QE(df = 400) = 1355.9961, p-val < .0001

Test of Moderators (coefficient(s) 2):
QM(df = 1) = 7.4209, p-val = 0.0064

Model Results:

         estimate      se    zval    pval   ci.lb   ci.ub
intrcpt    0.3985  0.1964  2.0291  0.0425  0.0136  0.7834   *
mods       0.5050  0.1854  2.7241  0.0064  0.1417  0.8684  **

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

eMethods 3. Model Outputs in Data Sets (Subsetted by Treatment Category)

```
[1] "Placebo"
[1] 0

Mixed-Effects Model (k = 77; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     1.2507 (SE = 0.3318)
tau (square root of estimated tau^2 value):             1.1183
I^2 (residual heterogeneity / unaccounted variability): 68.72%
H^2 (unaccounted variability / sampling variability):   3.20
R^2 (amount of heterogeneity accounted for):            38.12%

Test for Residual Heterogeneity:
QE(df = 71) = 201.5267, p-val < .0001

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 31.8170, p-val < .0001

Model Results:

                estimate       se     zval    pval      ci.lb    ci.ub
intrcpt          -67.2407  71.1746  -0.9447  0.3448  -206.7404  72.2590
FU                -0.0229   0.0445  -0.5158  0.6060    -0.1101   0.0642
Year               0.0343   0.0360   0.9524  0.3409    -0.0363   0.1048
Proportion_Male   -0.3931   1.0174  -0.3864  0.6992    -2.3872   1.6009
Mean_Age          -0.0663   0.0420  -1.5780  0.1146    -0.1486   0.0160
Complete           3.3005   0.6761   4.8815  <.0001     1.9753   4.6257  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


[1] "Psychotherapy"
[1] 0

Mixed-Effects Model (k = 246; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     0.9985 (SE = 0.1483)
tau (square root of estimated tau^2 value):             0.9992
I^2 (residual heterogeneity / unaccounted variability): 68.46%
H^2 (unaccounted variability / sampling variability):   3.17
R^2 (amount of heterogeneity accounted for):            44.29%

Test for Residual Heterogeneity:
QE(df = 240) = 650.7375, p-val < .0001

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 110.1070, p-val < .0001

Model Results:

                estimate       se     zval    pval      ci.lb     ci.ub
```

```
intrcpt          -93.8624  35.5015  -2.6439  0.0082  -163.4441  -24.2807   **
FU                 0.0173   0.0148   1.1721  0.2412    -0.0117    0.0463
Year               0.0468   0.0179   2.6107  0.0090     0.0117    0.0820   **
Proportion_Male    0.0331   0.5195   0.0637  0.9492    -0.9850    1.0512
Mean_Age          -0.0521   0.0249  -2.0894  0.0367    -0.1009   -0.0032    *
Complete           3.5270   0.3595   9.8098  <.0001     2.8223    4.2317  ***

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


[1] "ContingencyManagement"
[1] 0

Mixed-Effects Model (k = 62; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     0.6040 (SE = 0.2047)
tau (square root of estimated tau^2 value):             0.7772
I^2 (residual heterogeneity / unaccounted variability): 59.98%
H^2 (unaccounted variability / sampling variability):   2.50
R^2 (amount of heterogeneity accounted for):            35.17%

Test for Residual Heterogeneity:
QE(df = 56) = 134.9547, p-val < .0001

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 24.4281, p-val = 0.0002

Model Results:

                estimate       se     zval    pval    ci.lb     ci.ub
intrcpt          171.9289  71.3211   2.4106  0.0159  32.1421  311.7158   *
FU                 0.0538   0.0230   2.3386  0.0194   0.0087    0.0989   *
Year              -0.0864   0.0359  -2.4102  0.0159  -0.1567   -0.0161   *
Proportion_Male    0.6389   0.9249   0.6908  0.4897  -1.1739    2.4517
Mean_Age           0.0051   0.0439   0.1167  0.9071  -0.0809    0.0912
Complete           1.6922   0.6446   2.6249  0.0087   0.4287    2.9556  **

---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1


[1] "Other"
[1] 0

Mixed-Effects Model (k = 18; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     1.0731 (SE = 0.6586)
tau (square root of estimated tau^2 value):             1.0359
I^2 (residual heterogeneity / unaccounted variability): 80.40%
H^2 (unaccounted variability / sampling variability):   5.10
R^2 (amount of heterogeneity accounted for):            34.10%
```

```
Test for Residual Heterogeneity:
QE(df = 12) = 33.7279, p-val = 0.0007

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 8.6743, p-val = 0.1228

Model Results:

                estimate        se     zval    pval      ci.lb     ci.ub
intrcpt          93.7221  323.5241   0.2897  0.7721  -540.3735  727.8176
FU                0.0467    0.0996   0.4694  0.6388    -0.1485    0.2420
Year             -0.0442    0.1645  -0.2685  0.7883    -0.3667    0.2783
Proportion_Male  -4.2648    2.7354  -1.5591  0.1190    -9.6261    1.0966
Mean_Age         -0.1248    0.1747  -0.7146  0.4748    -0.4672    0.2175
Complete          4.2506    2.3611   1.8003  0.0718    -0.3771    8.8783  .

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1


[1] "Opioid"
[1] 0

Mixed-Effects Model (k = 136; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     0.9458 (SE = 0.1993)
tau (square root of estimated tau^2 value):             0.9725
I^2 (residual heterogeneity / unaccounted variability): 63.92%
H^2 (unaccounted variability / sampling variability):   2.77
R^2 (amount of heterogeneity accounted for):            0.81%

Test for Residual Heterogeneity:
QE(df = 130) = 339.7699, p-val < .0001

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 5.9468, p-val = 0.3114

Model Results:

                estimate       se     zval    pval      ci.lb    ci.ub
intrcpt          -27.3325  47.3302  -0.5775  0.5636  -120.0981  65.4330
FU                -0.0182   0.0160  -1.1410  0.2539    -0.0495   0.0131
Year               0.0147   0.0239   0.6155  0.5382    -0.0321   0.0615
Proportion_Male    0.5005   0.6413   0.7804  0.4352    -0.7565   1.7574
Mean_Age          -0.0446   0.0392  -1.1358  0.2560    -0.1215   0.0323
Complete           0.8222   0.7258   1.1328  0.2573    -0.6004   2.2447

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1


[1] "MiscMeds"
[1] 0
```

```
Mixed-Effects Model (k = 37; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     1.0429 (SE = 0.4521)
tau (square root of estimated tau^2 value):             1.0212
I^2 (residual heterogeneity / unaccounted variability): 68.96%
H^2 (unaccounted variability / sampling variability):   3.22
R^2 (amount of heterogeneity accounted for):            0.00%

Test for Residual Heterogeneity:
QE(df = 31) = 78.6164, p-val < .0001

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 5.6360, p-val = 0.3433

Model Results:

                  estimate        se     zval    pval      ci.lb     ci.ub
intrcpt          -133.5635  124.7241  -1.0709  0.2842  -378.0182  110.8913
FU                 -0.0270    0.0890  -0.3031  0.7618    -0.2015    0.1475
Year                0.0689    0.0630   1.0947  0.2736    -0.0545    0.1923
Proportion_Male    -2.8305    1.9968  -1.4175  0.1563    -6.7442    1.0832
Mean_Age           -0.0602    0.0710  -0.8471  0.3969    -0.1994    0.0791
Complete            0.7056    1.2845   0.5493  0.5828    -1.8119    3.2232

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1


[1] "Psychostimulants"
[1] 0

Mixed-Effects Model (k = 19; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     0.2349 (SE = 0.2926)
tau (square root of estimated tau^2 value):             0.4847
I^2 (residual heterogeneity / unaccounted variability): 31.36%
H^2 (unaccounted variability / sampling variability):   1.46
R^2 (amount of heterogeneity accounted for):            83.31%

Test for Residual Heterogeneity:
QE(df = 13) = 23.3007, p-val = 0.0382

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 24.8851, p-val = 0.0001

Model Results:

                  estimate        se     zval    pval      ci.lb    ci.ub
intrcpt          -138.9877  112.7082  -1.2332  0.2175  -359.8916  81.9162
FU                 -0.0531    0.0420  -1.2633  0.2065    -0.1354   0.0293
Year                0.0714    0.0573   1.2447  0.2133    -0.0410   0.1837
Proportion_Male    -4.5710    3.1437  -1.4540  0.1459   -10.7325   1.5906
```

```
Mean_Age           -0.0426    0.0590  -0.7220  0.4703    -0.1583   0.0731
Complete            3.4549    1.5874   2.1764  0.0295     0.3436   6.5662  *

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1


[1] "Anticonvulsants"
[1] 0

Mixed-Effects Model (k = 17; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     0.1374 (SE = 0.3008)
tau (square root of estimated tau^2 value):             0.3707
I^2 (residual heterogeneity / unaccounted variability): 18.75%
H^2 (unaccounted variability / sampling variability):   1.23
R^2 (amount of heterogeneity accounted for):            92.71%

Test for Residual Heterogeneity:
QE(df = 11) = 10.8030, p-val = 0.4599

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 42.7143, p-val < .0001

Model Results:

                  estimate       se     zval    pval      ci.lb      ci.ub
intrcpt          -450.2186  93.9553  -4.7918  <.0001  -634.3675  -266.0696  ***
FU                 -0.1105   0.1346  -0.8213  0.4115    -0.3743     0.1532
Year                0.2263   0.0475   4.7680  <.0001     0.1333     0.3193  ***
Proportion_Male     2.2222   2.4267   0.9157  0.3598    -2.5340     6.9783
Mean_Age           -0.1005   0.0682  -1.4738  0.1405    -0.2342     0.0332
Complete            0.3519   1.0986   0.3203  0.7487    -1.8013     2.5052

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1


[1] "DopamineAgonists"
[1] 0

Mixed-Effects Model (k = 18; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     0.0022 (SE = 0.1692)
tau (square root of estimated tau^2 value):             0.0470
I^2 (residual heterogeneity / unaccounted variability): 0.46%
H^2 (unaccounted variability / sampling variability):   1.00
R^2 (amount of heterogeneity accounted for):            99.39%

Test for Residual Heterogeneity:
QE(df = 12) = 13.3007, p-val = 0.3476

Test of Moderators (coefficient(s) 2,3,4,5,6):
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```
QM(df = 5) = 18.8892, p-val = 0.0020

Model Results:

                 estimate       se     zval    pval      ci.lb     ci.ub
intrcpt          -211.1726  85.1506  -2.4800  0.0131  -378.0647  -44.2805   *
FU                  0.0491   0.0797   0.6164  0.5376    -0.1070    0.2052
Year                0.1063   0.0430   2.4747  0.0133     0.0221    0.1905   *
Proportion_Male    -4.0561   1.9347  -2.0965  0.0360    -7.8480   -0.2642   *
Mean_Age           -0.0587   0.0454  -1.2945  0.1955    -0.1476    0.0302
Complete            5.8243   2.0009   2.9108  0.0036     1.9026    9.7461  **

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1


[1] "Antidepressants"
[1] 0

Mixed-Effects Model (k = 15; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     0.7642 (SE = 0.8718)
tau (square root of estimated tau^2 value):             0.8742
I^2 (residual heterogeneity / unaccounted variability): 41.66%
H^2 (unaccounted variability / sampling variability):   1.71
R^2 (amount of heterogeneity accounted for):            58.42%

Test for Residual Heterogeneity:
QE(df = 9) = 15.0497, p-val = 0.0896

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 14.1740, p-val = 0.0145

Model Results:

                 estimate        se     zval    pval      ci.lb     ci.ub
intrcpt          -253.1938  193.7648  -1.3067  0.1913  -632.9658  126.5781
FU                 -0.6719    0.3315  -2.0268  0.0427    -1.3217   -0.0221  *
Year                0.1345    0.1005   1.3381  0.1809    -0.0625    0.3316
Proportion_Male     1.4309    1.3665   1.0471  0.2950    -1.2474    4.1091
Mean_Age           -0.2401    0.3421  -0.7016  0.4829    -0.9106    0.4305
Complete            3.3947    2.8201   1.2038  0.2287    -2.1325    8.9219

---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1


[1] "Antipsychotics"
[1] 0

Mixed-Effects Model (k = 11; tau^2 estimator: REML)

tau^2 (estimated amount of residual heterogeneity):     0.0409 (SE = 0.4647)
```

```
tau (square root of estimated tau^2 value):             0.2022
I^2 (residual heterogeneity / unaccounted variability): 5.14%
H^2 (unaccounted variability / sampling variability):   1.05
R^2 (amount of heterogeneity accounted for):            89.77%

Test for Residual Heterogeneity:
QE(df = 5) = 5.4069, p-val = 0.3683

Test of Moderators (coefficient(s) 2,3,4,5,6):
QM(df = 5) = 9.9983, p-val = 0.0753

Model Results:

                  estimate        se     zval    pval      ci.lb     ci.ub
intrcpt          -201.4559  275.3147  -0.7317  0.4643  -741.0628  338.1510
FU                  0.0087    0.0381   0.2286  0.8192    -0.0660    0.0834
Year                0.0998    0.1399   0.7132  0.4758    -0.1744    0.3740
Proportion_Male     3.9847    2.8952   1.3763  0.1687    -1.6897    9.6591
Mean_Age           -0.0911    0.1947  -0.4677  0.6400    -0.4727    0.2905
Complete            2.8446    2.1043   1.3518  0.1764    -1.2797    6.9689

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Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
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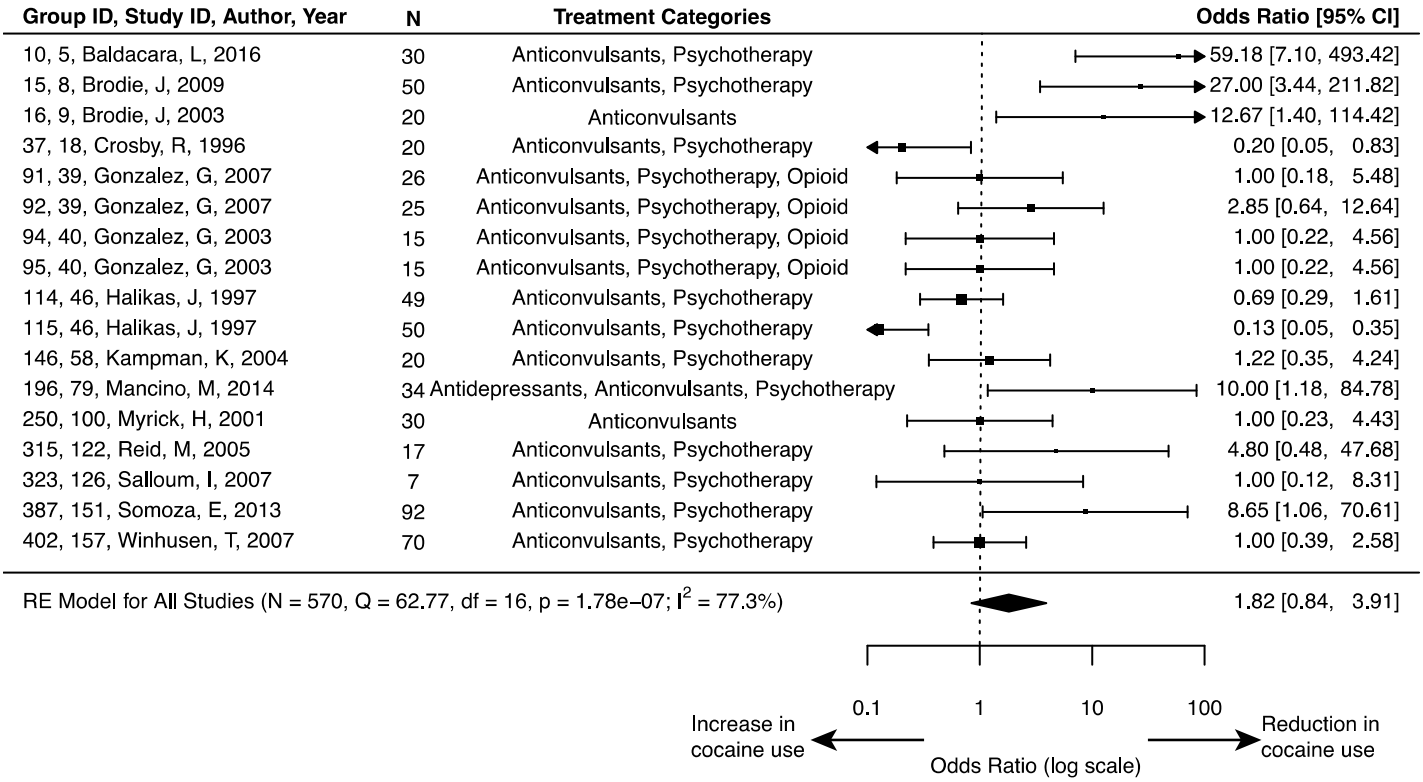
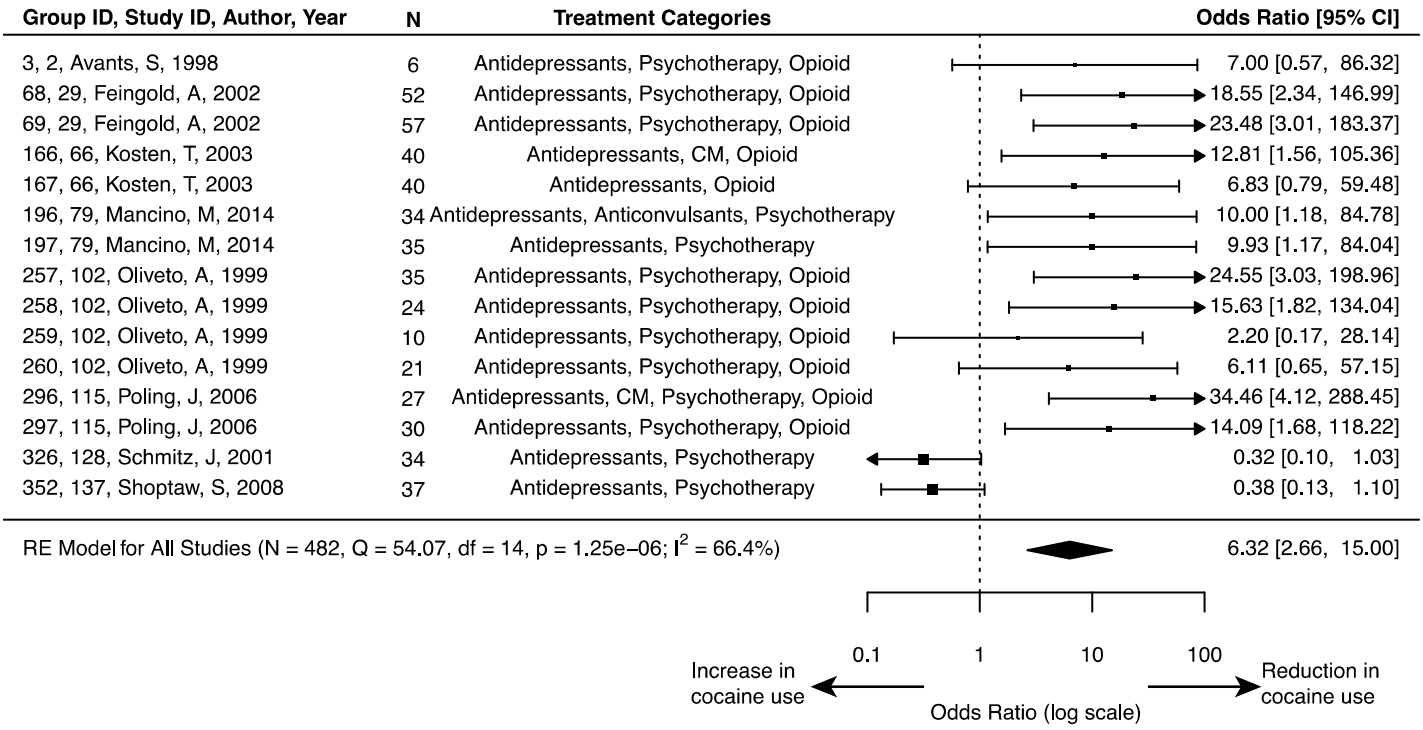
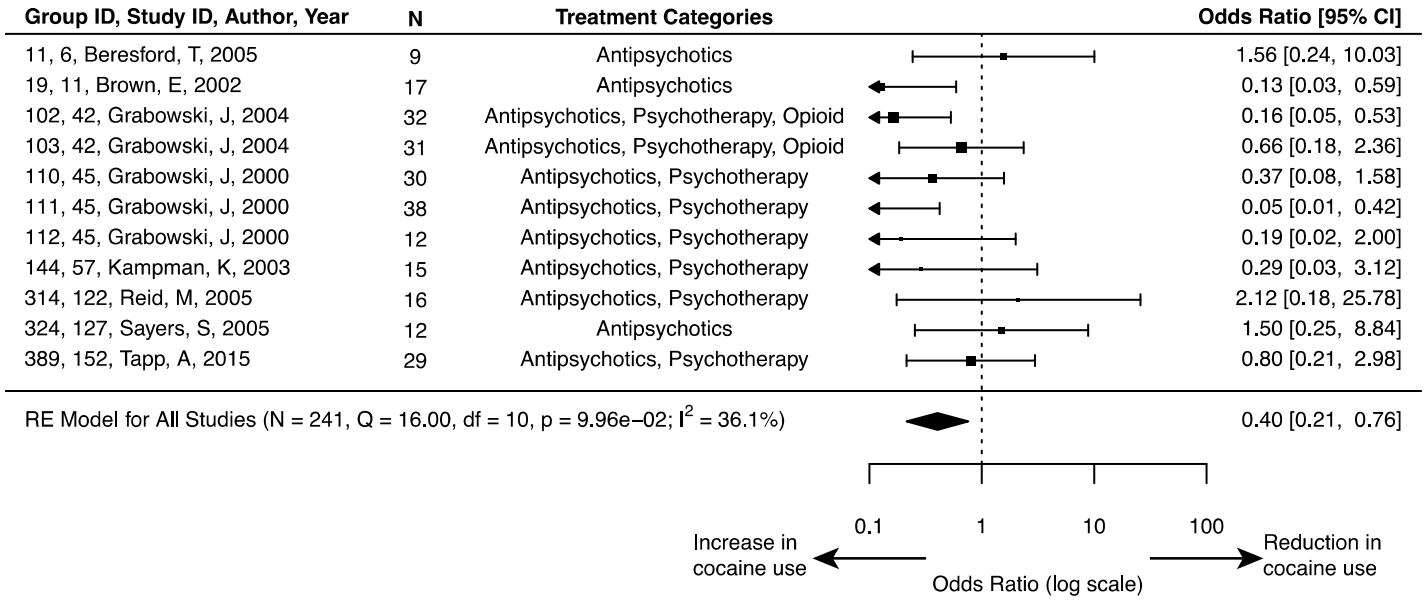
eFigure 1. Forest Plot Without Imputed Data: Anticonvulsants



eFigure 2. Forest Plot Without Imputed Data: Antidepressants

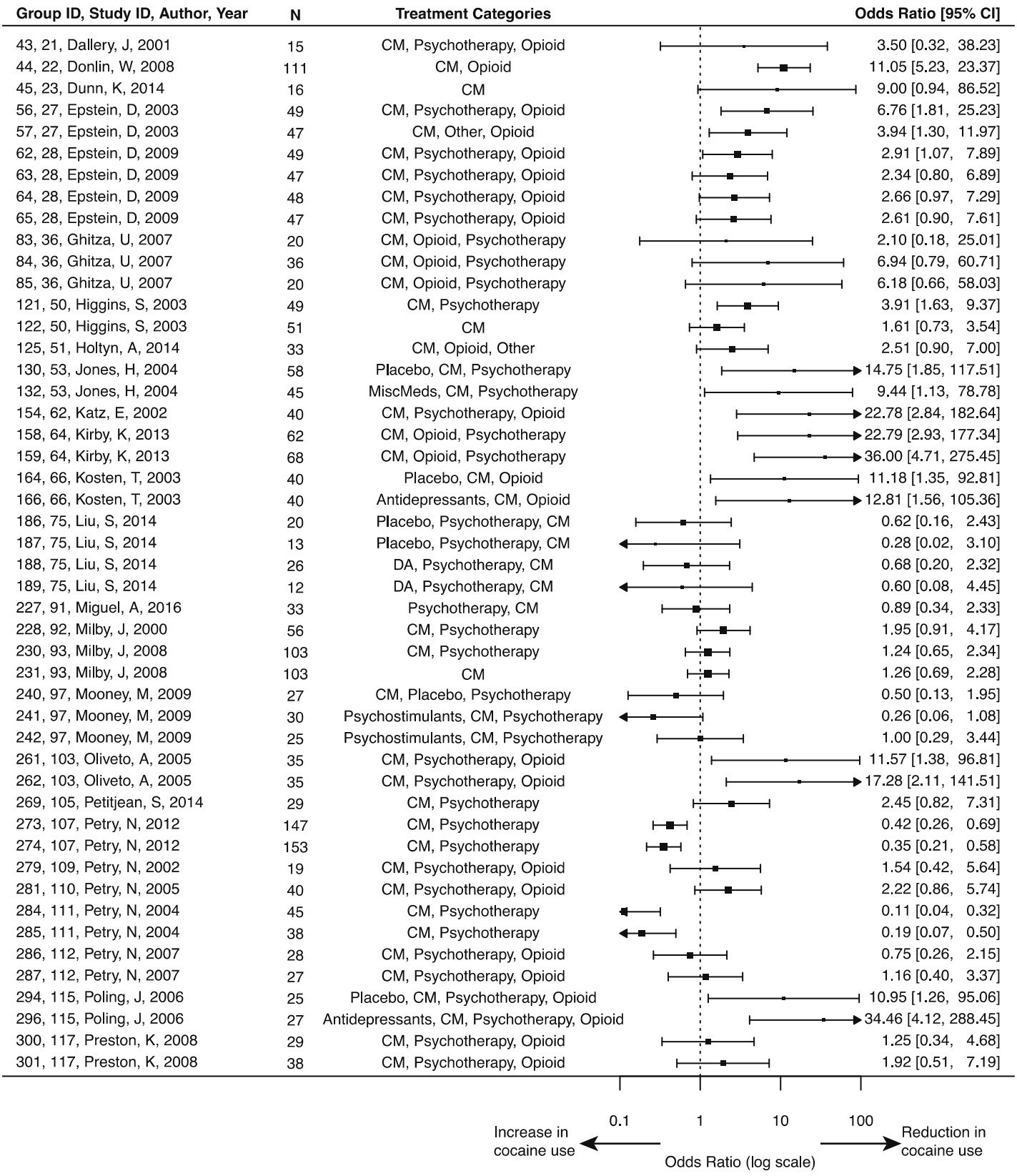


eFigure 3. Forest Plot Without Imputed Data: Antipsychotics

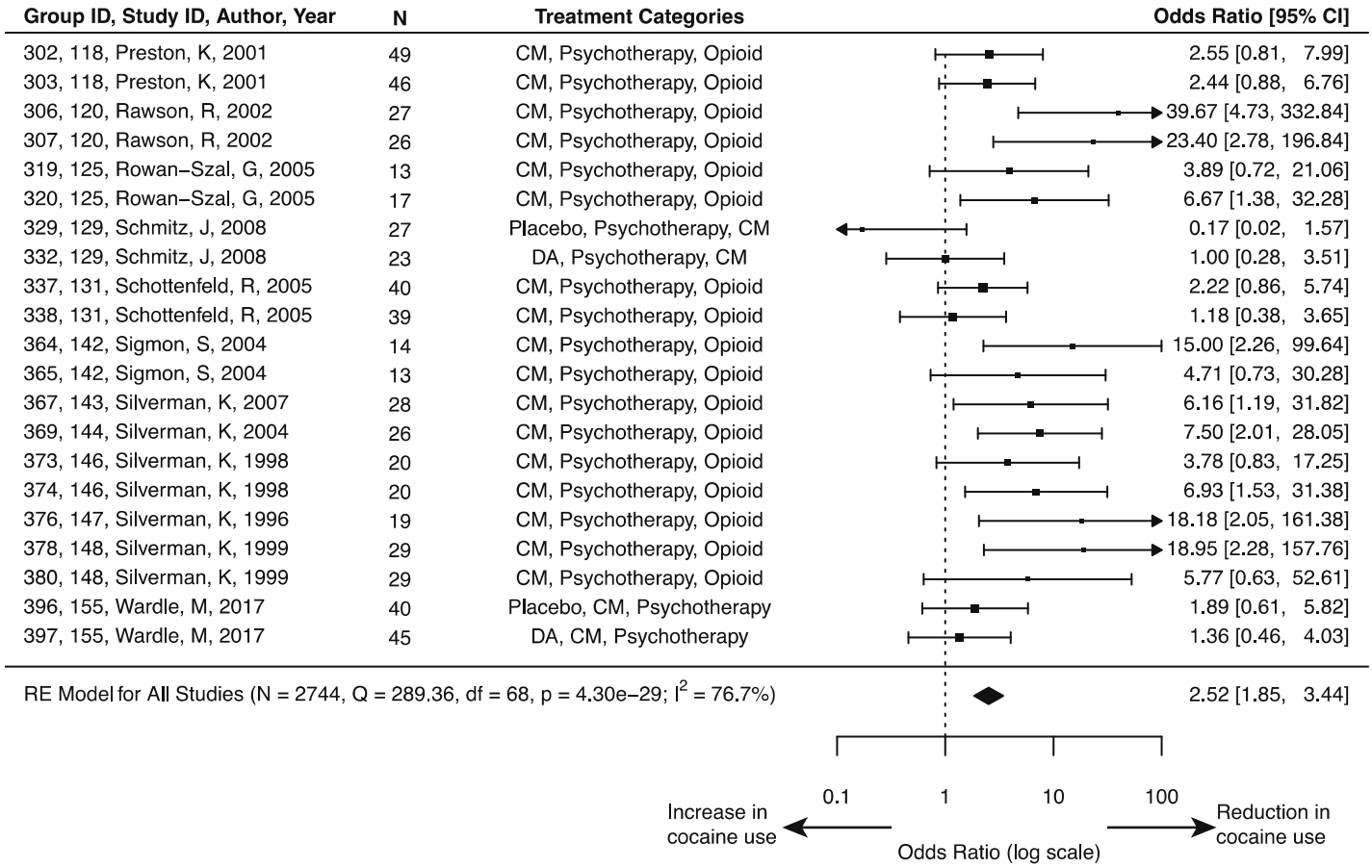


eFigure 4. Forest Plot Without Imputed Data: Contingency Management

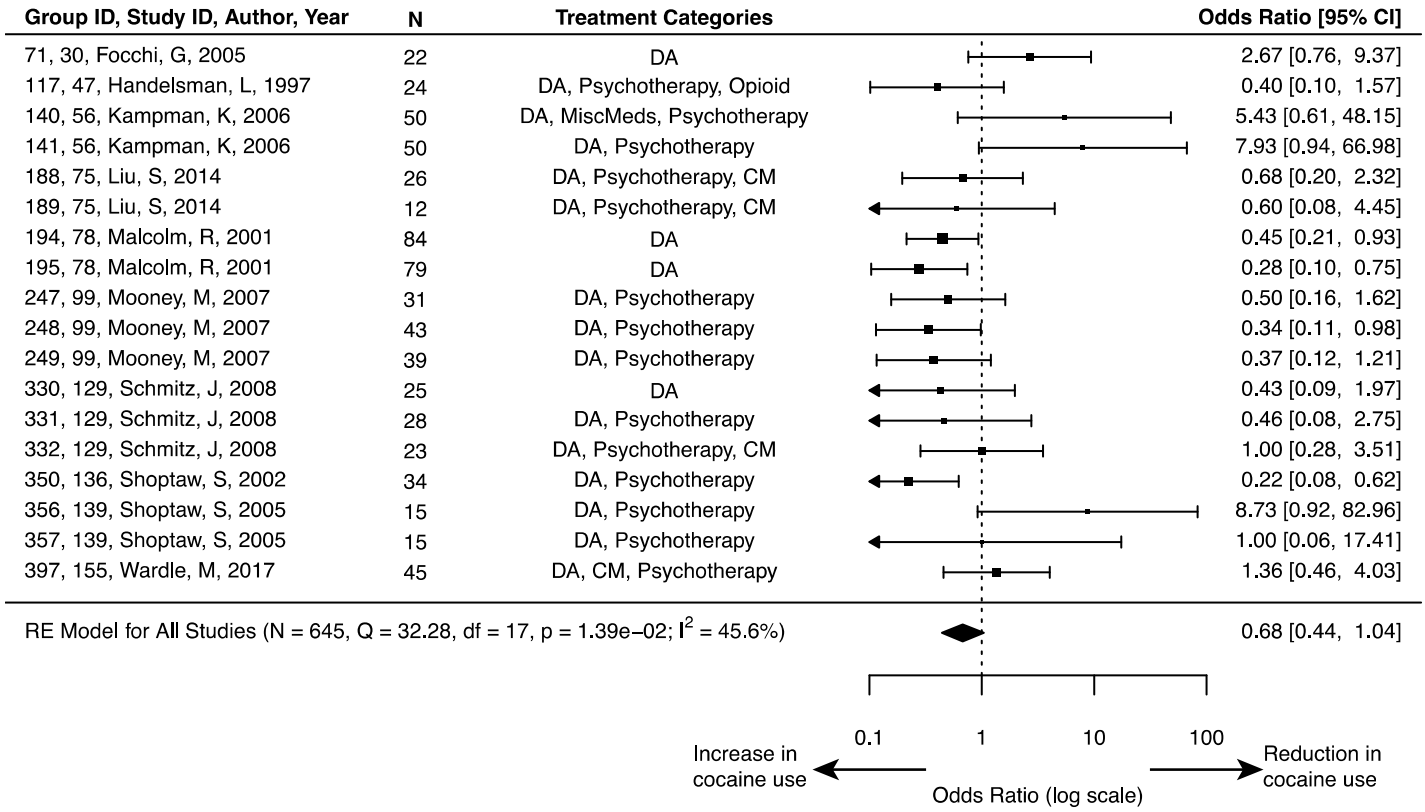
(1 of 2)



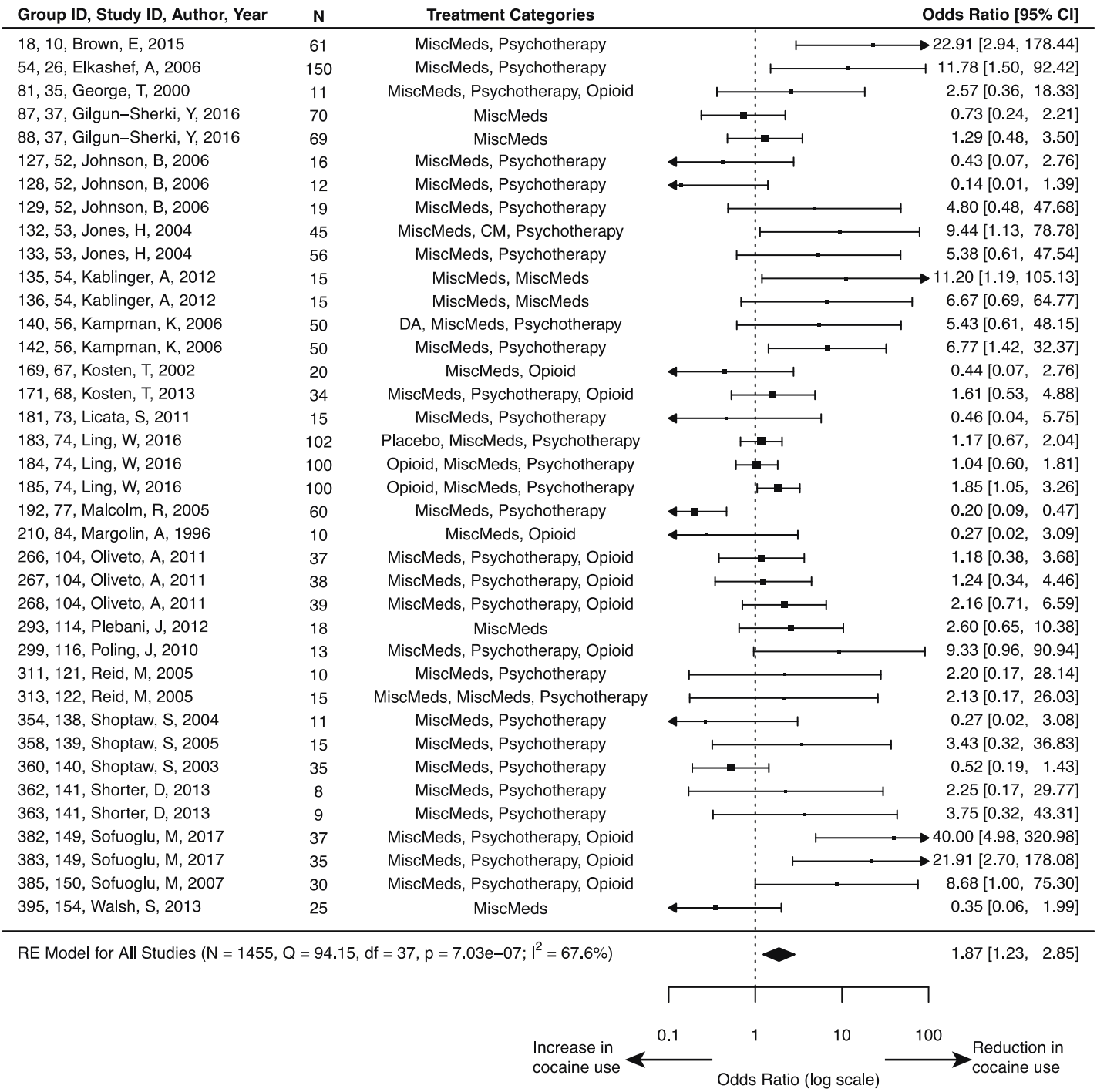
Contingency Management (2 of 2)



eFigure 5. Forest Plot Without Imputed Data: Dopamine Agonists

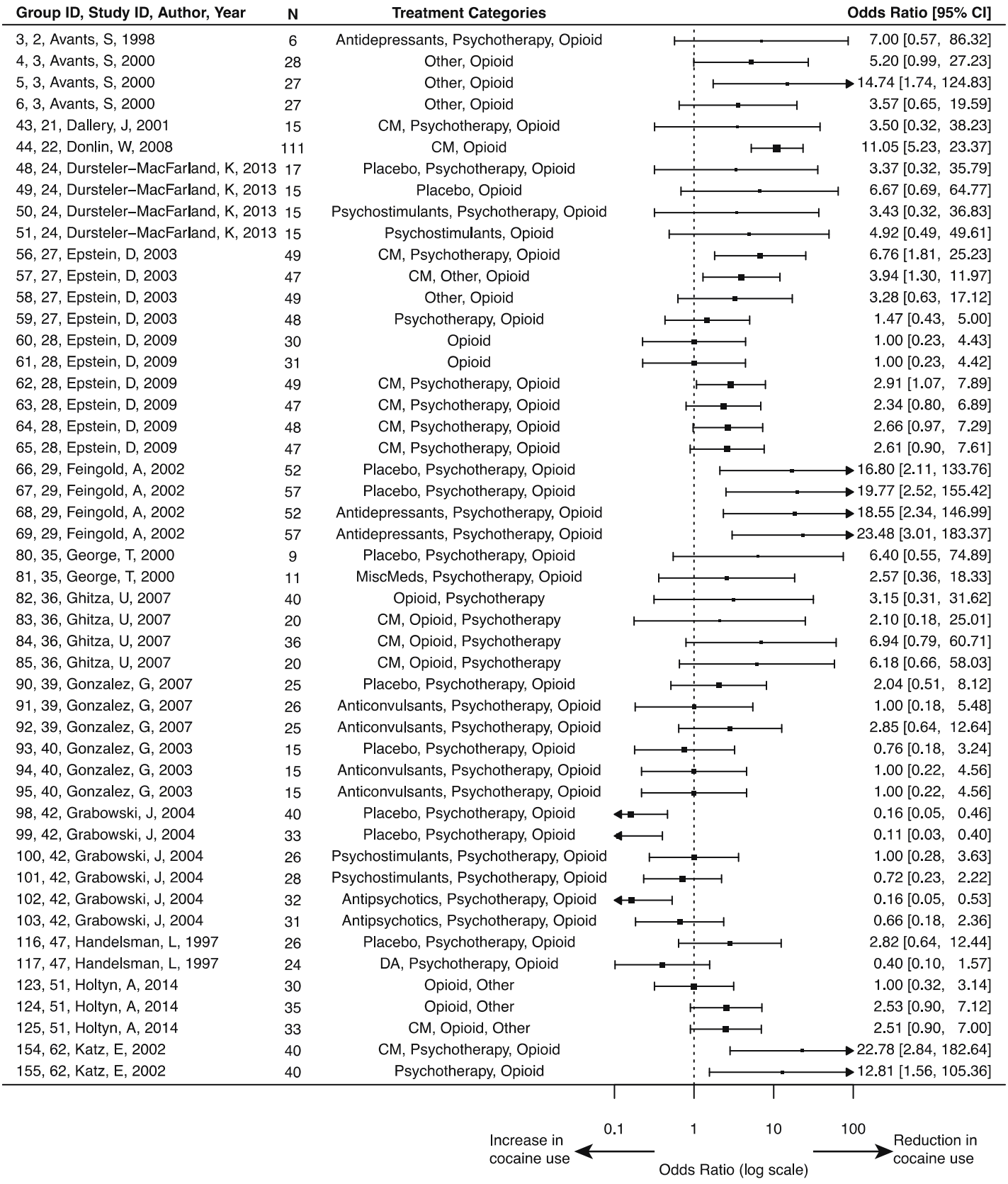


eFigure 6. Forest Plot Without Imputed Data: Miscellaneous Medications

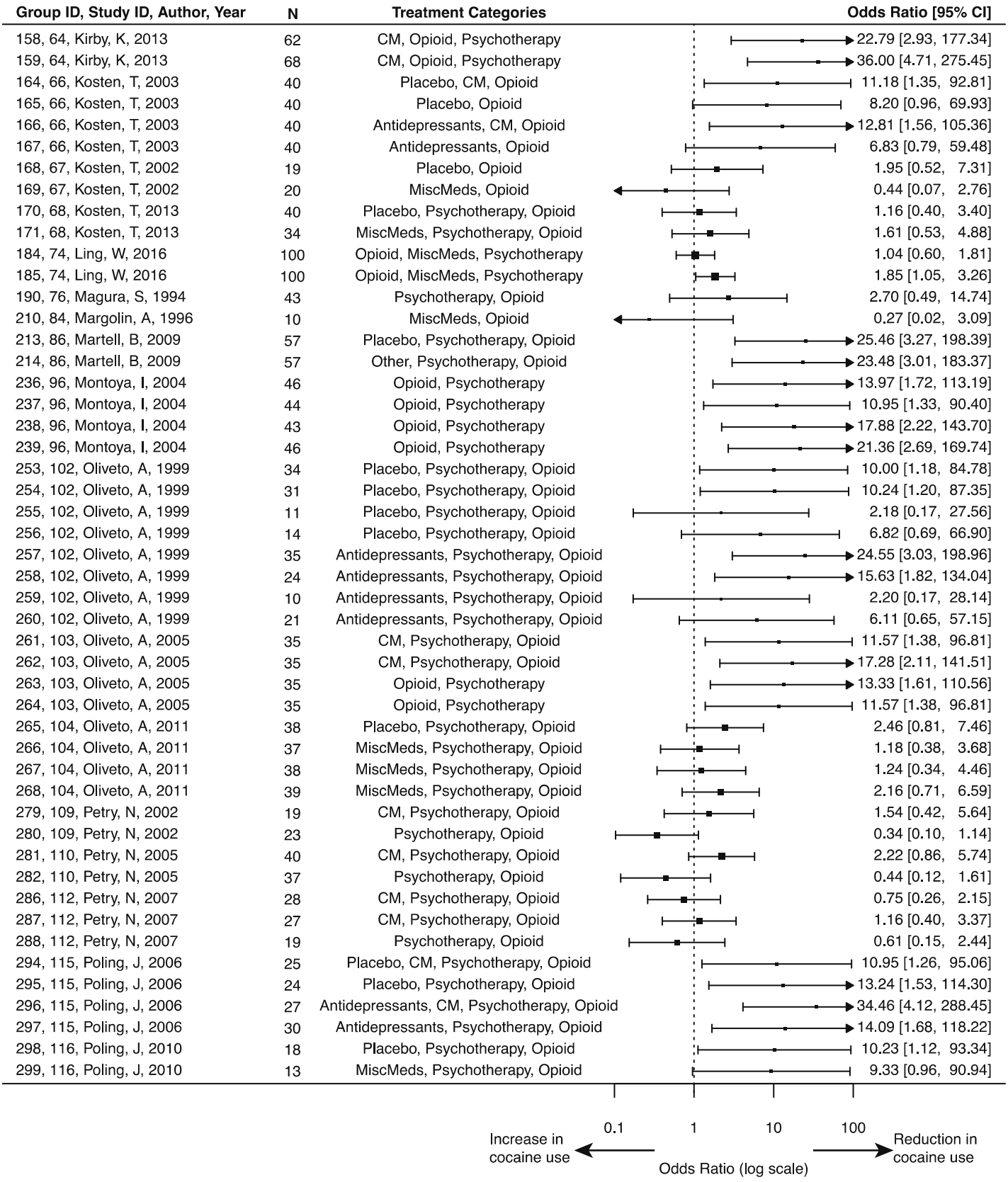


eFigure 7. Forest Plot Without Imputed Data: Opioids

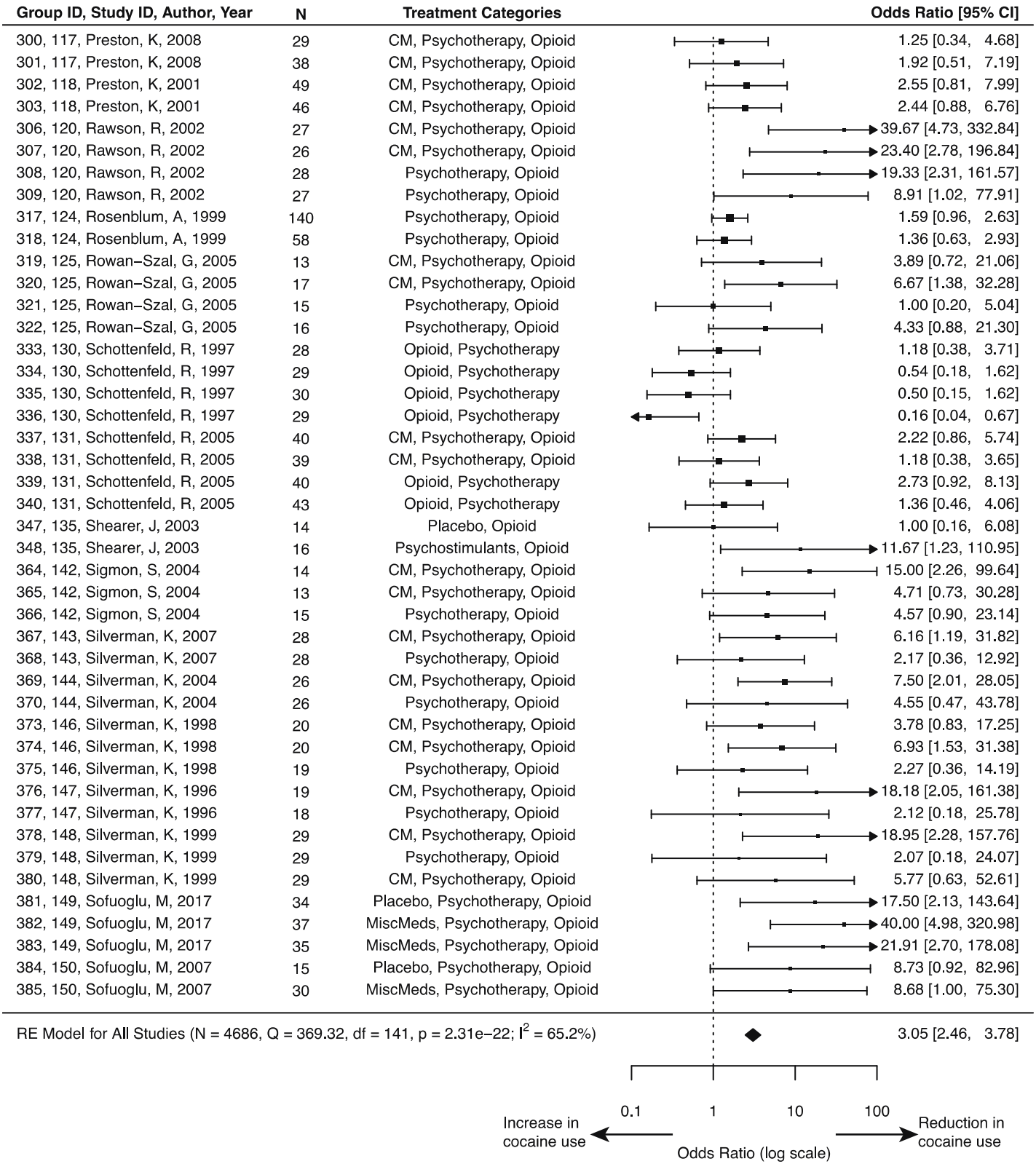
(1 of 3)



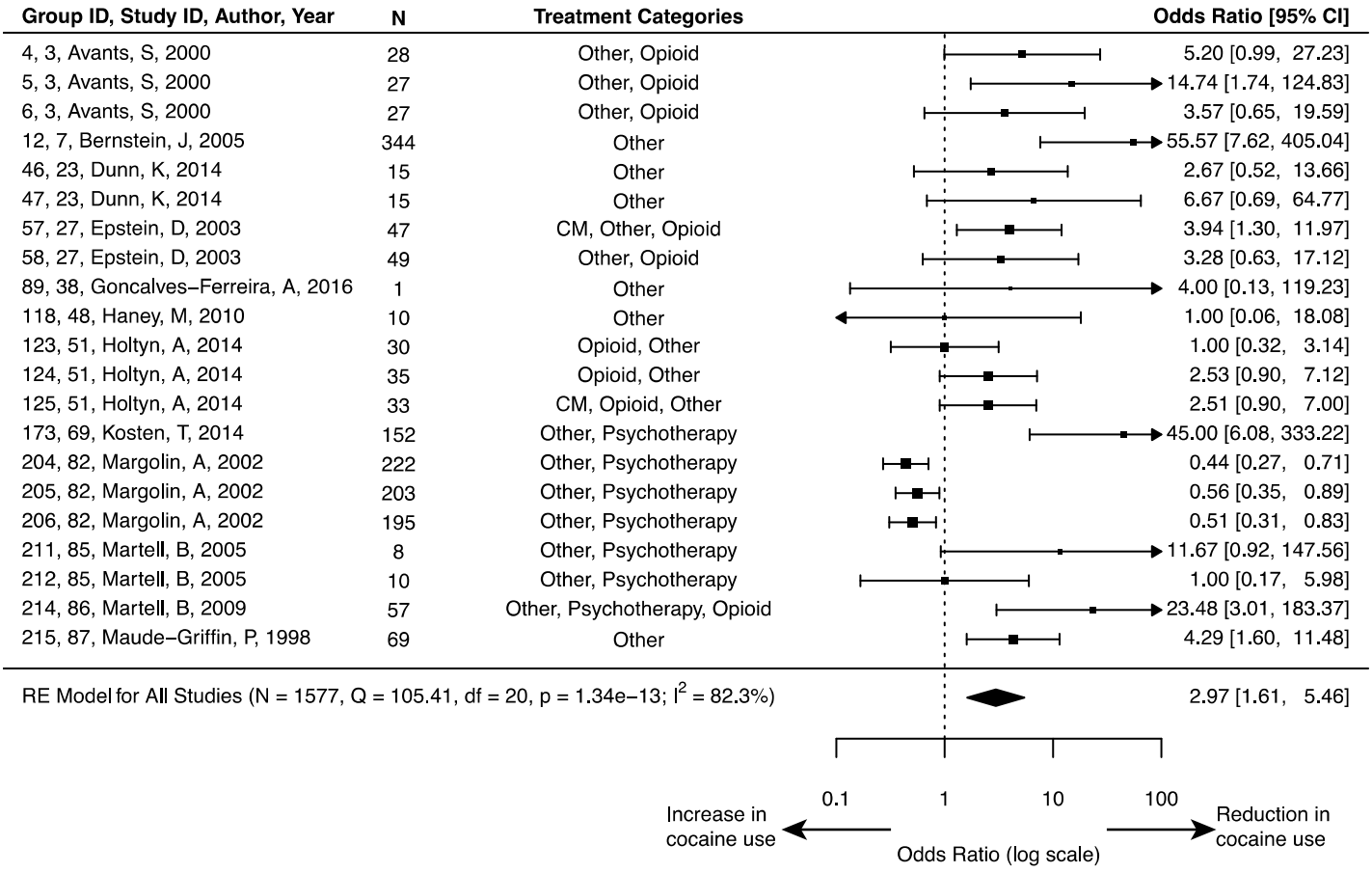
Opioids (2 of 3)



Opioids (3 of 3)

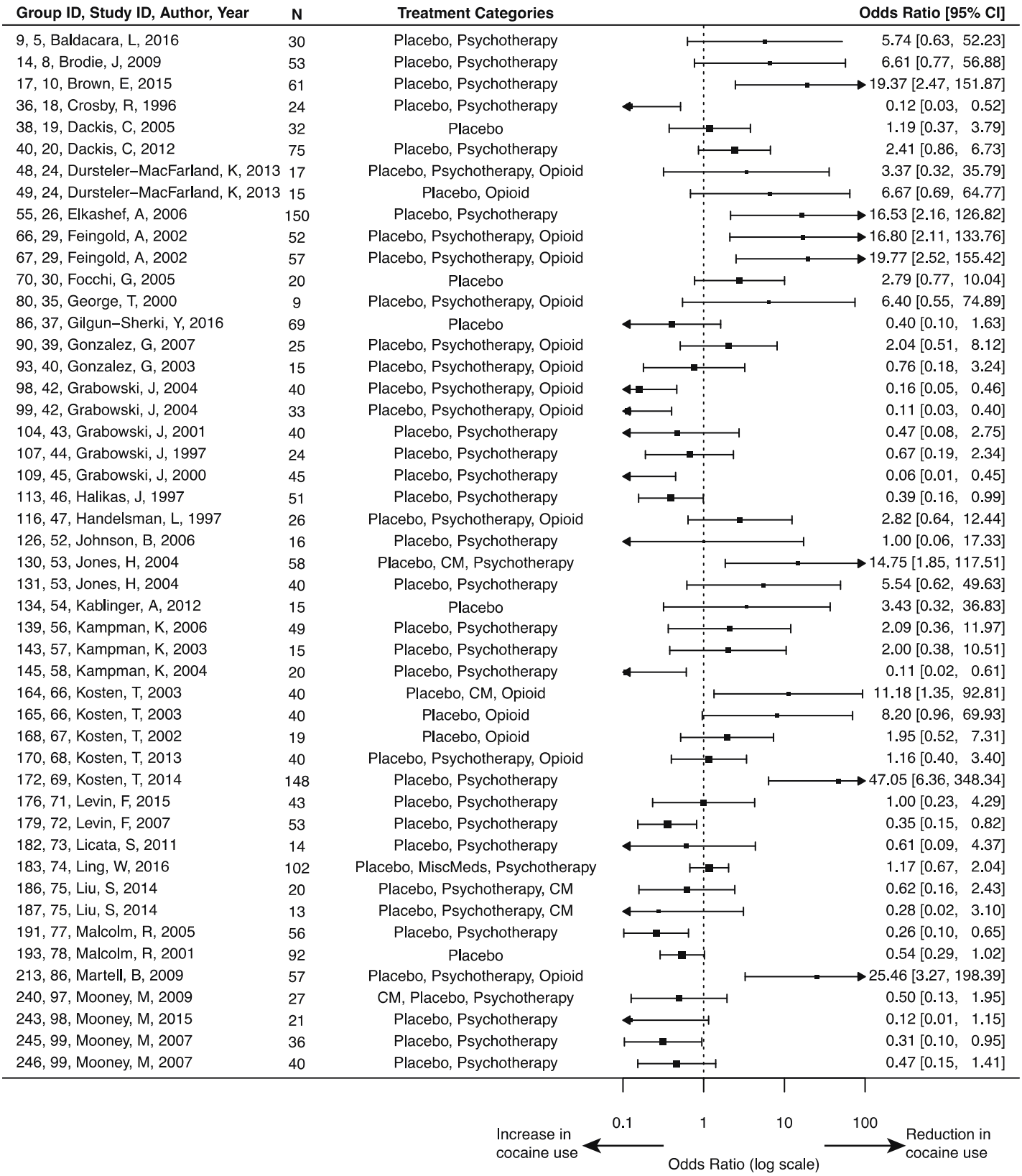


eFigure 8. Forest Plot Without Imputed Data: Other Interventions

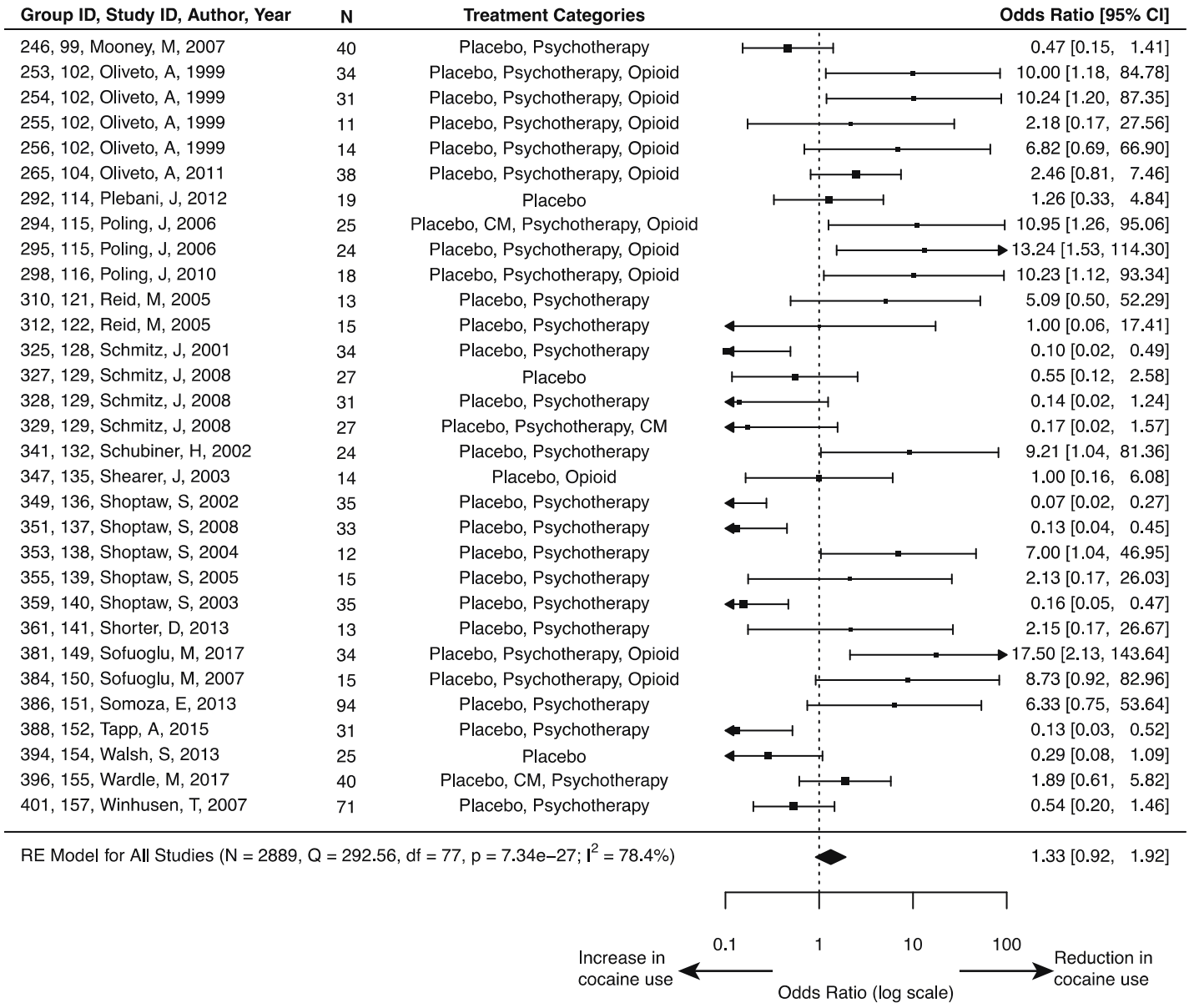


eFigure 9. Forest Plot Without Imputed Data: Placebo

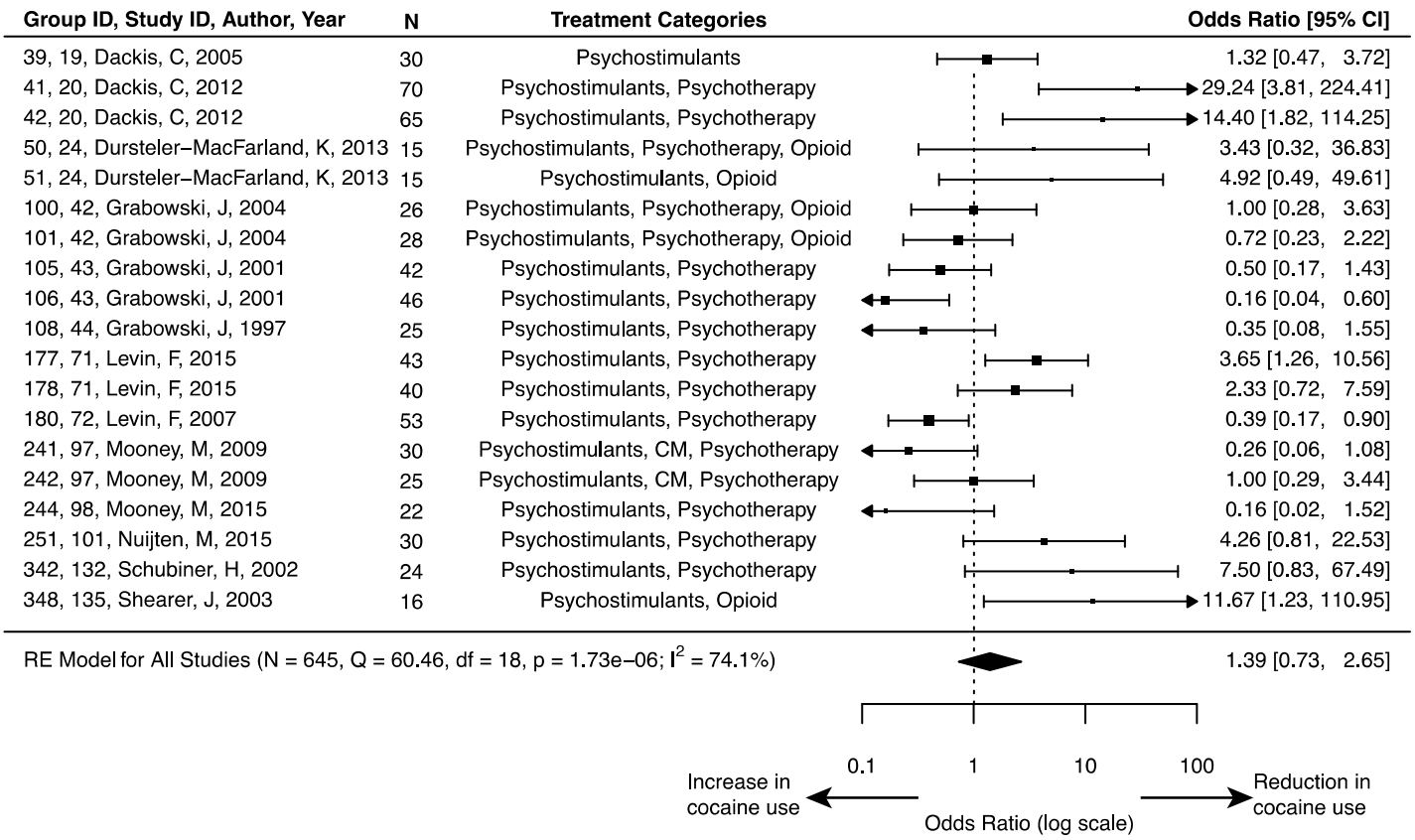
(1 of 2)



Placebo (2 of 2)

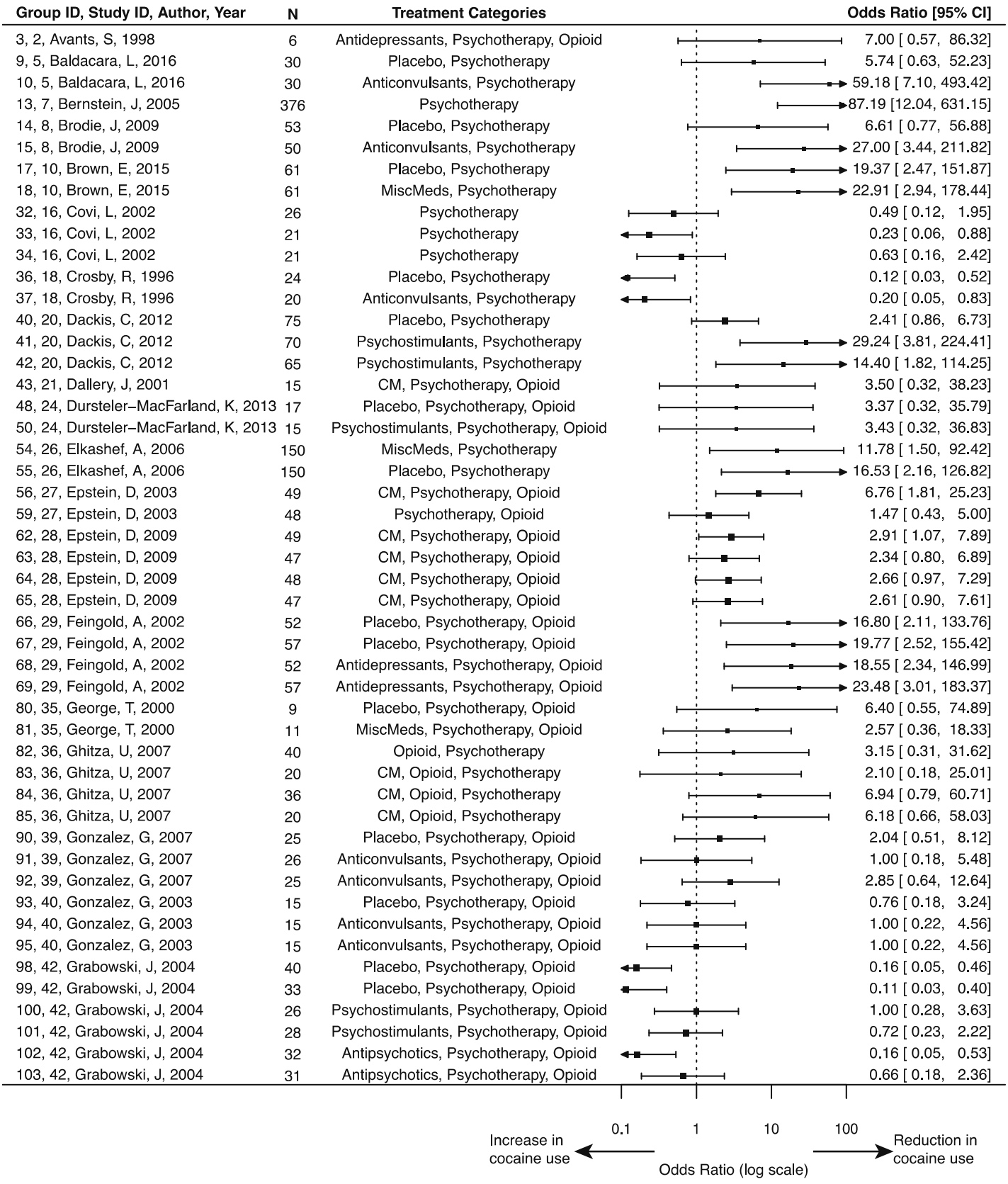


eFigure 10. Forest Plot Without Imputed Data: Psychostimulants

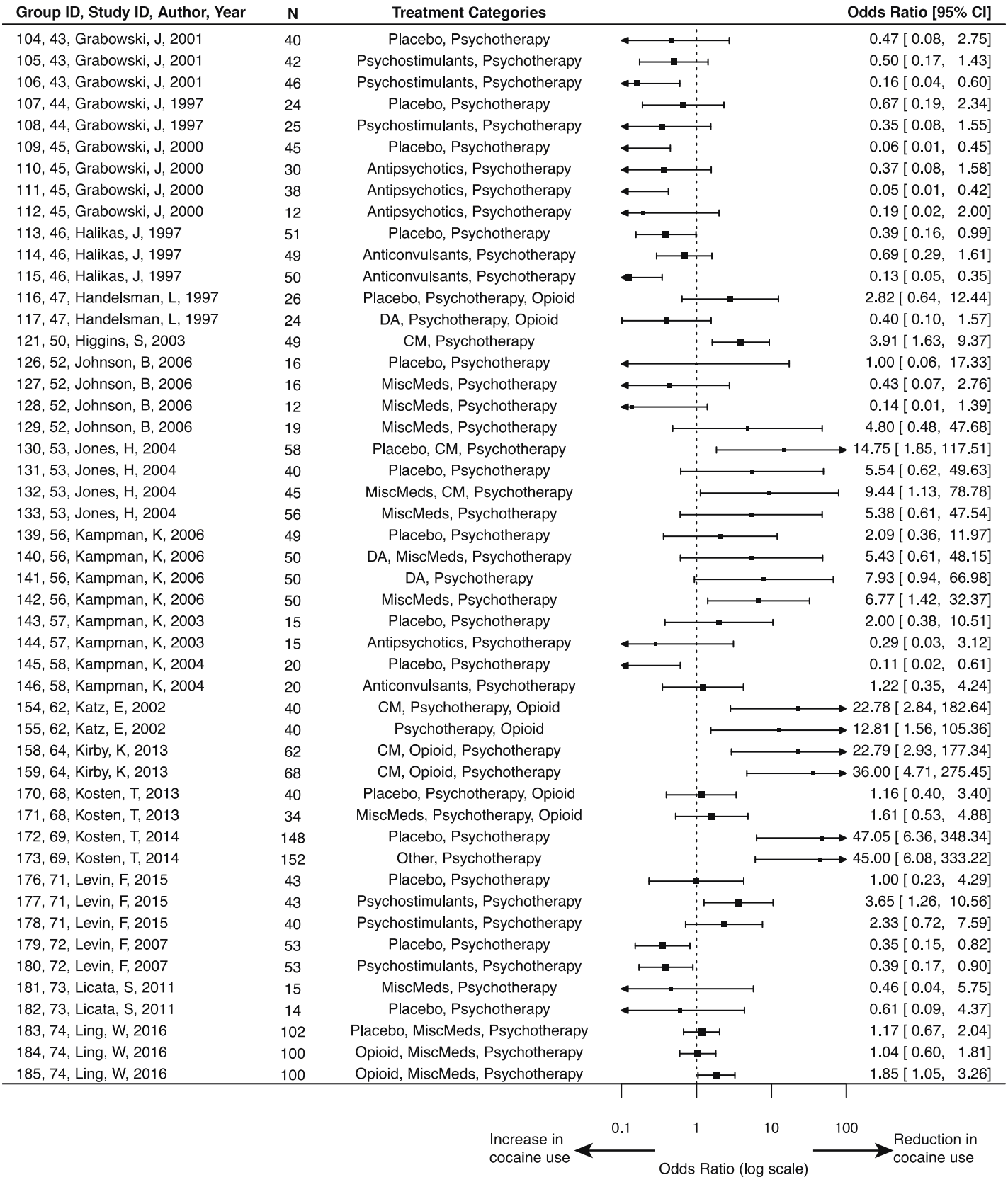


eFigure 11. Forest Plot Without Imputed Data: Psychotherapy

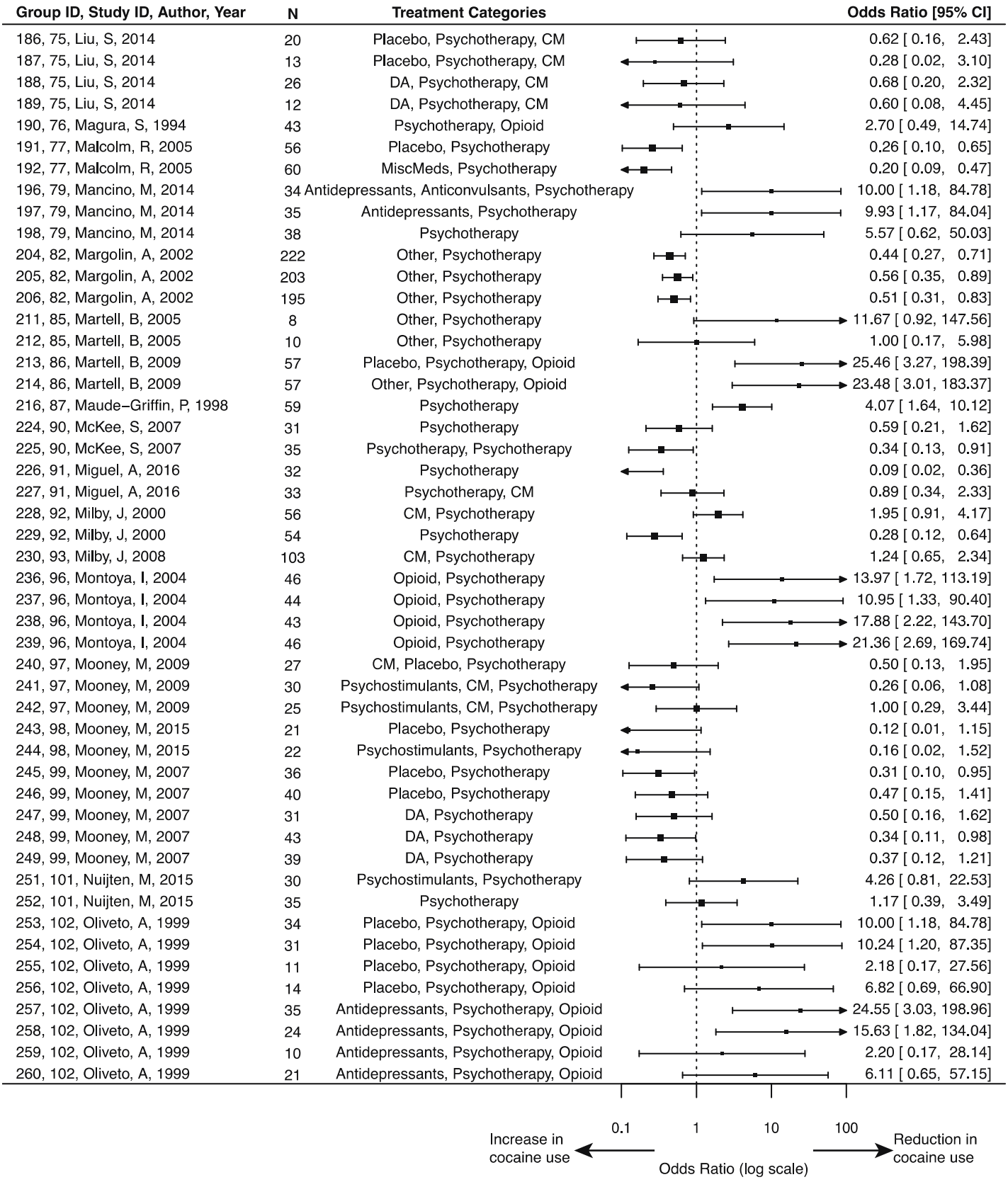
(1 of 6)



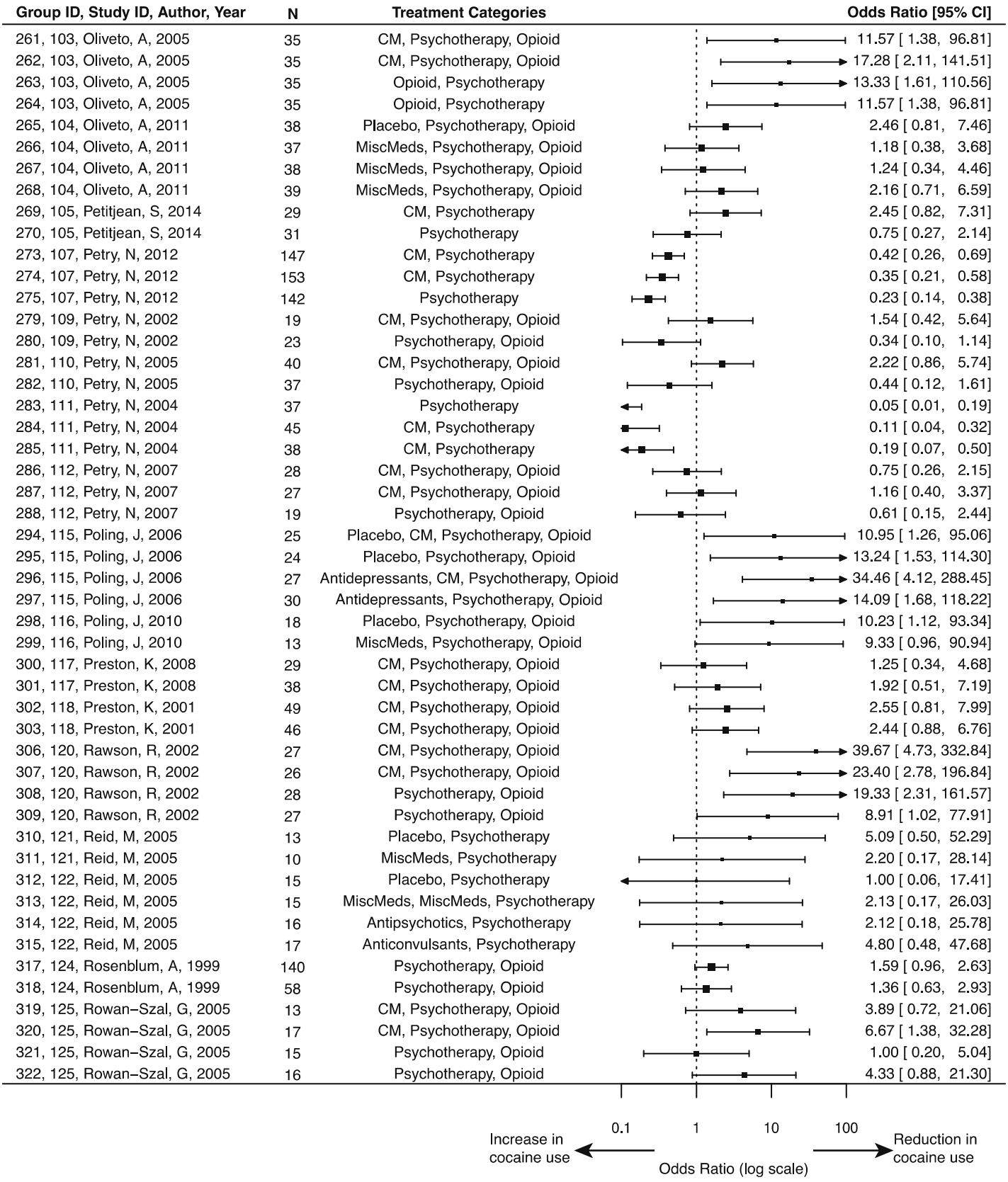
Psychotherapy (2 of 6)



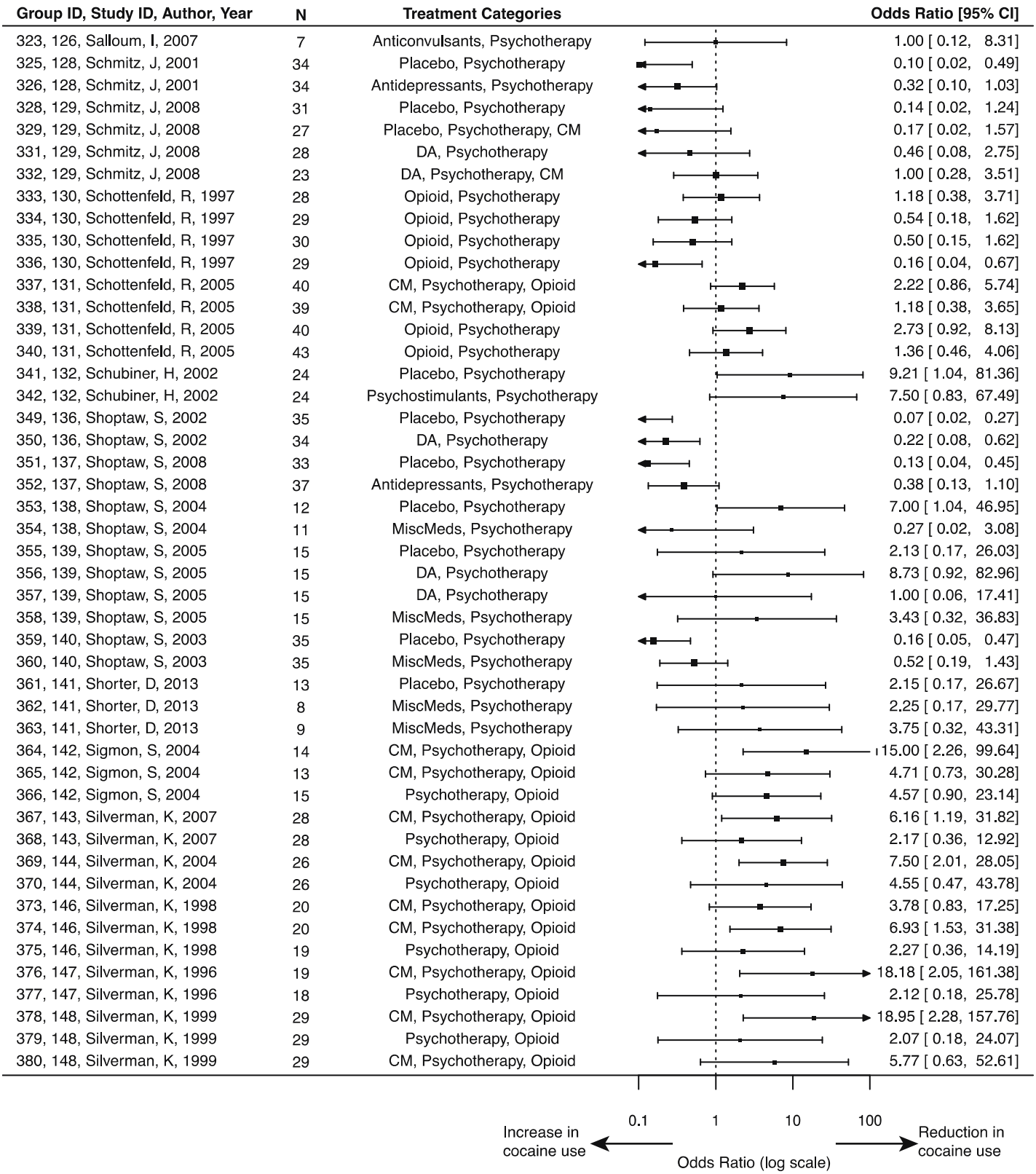
Psychotherapy (3 of 6)



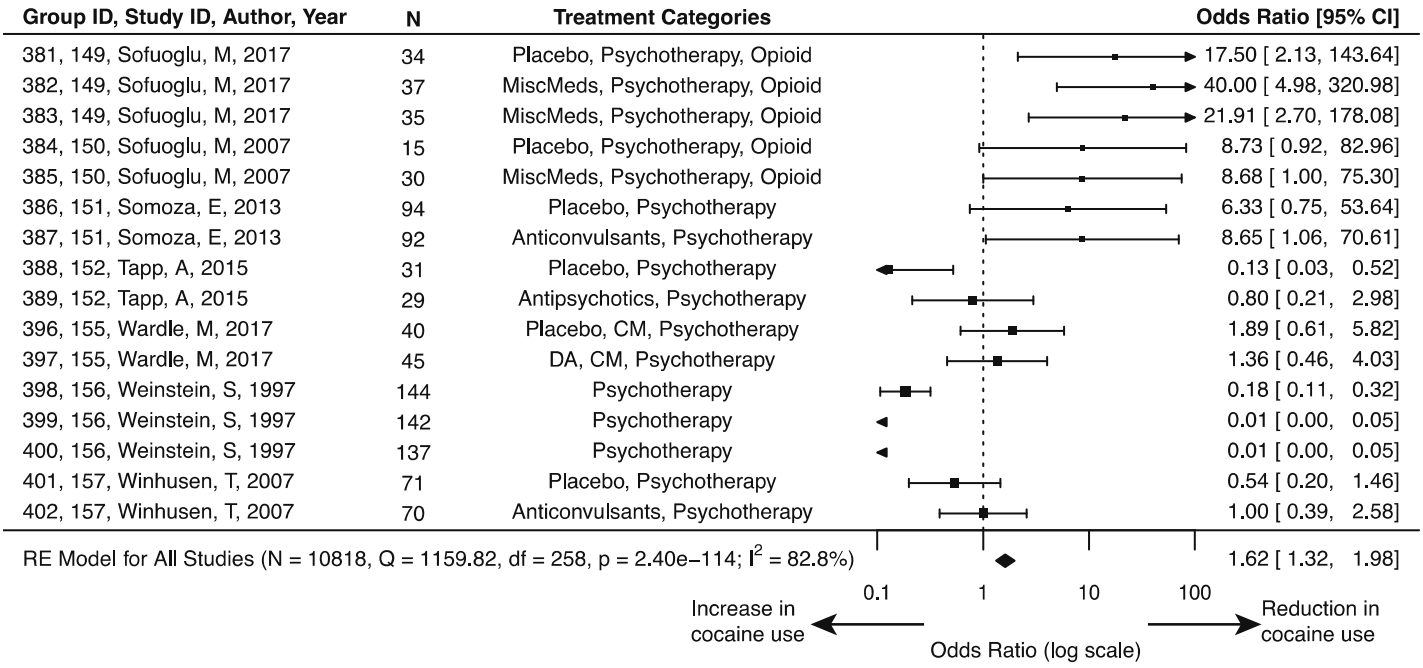
Psychotherapy (4 of 6)



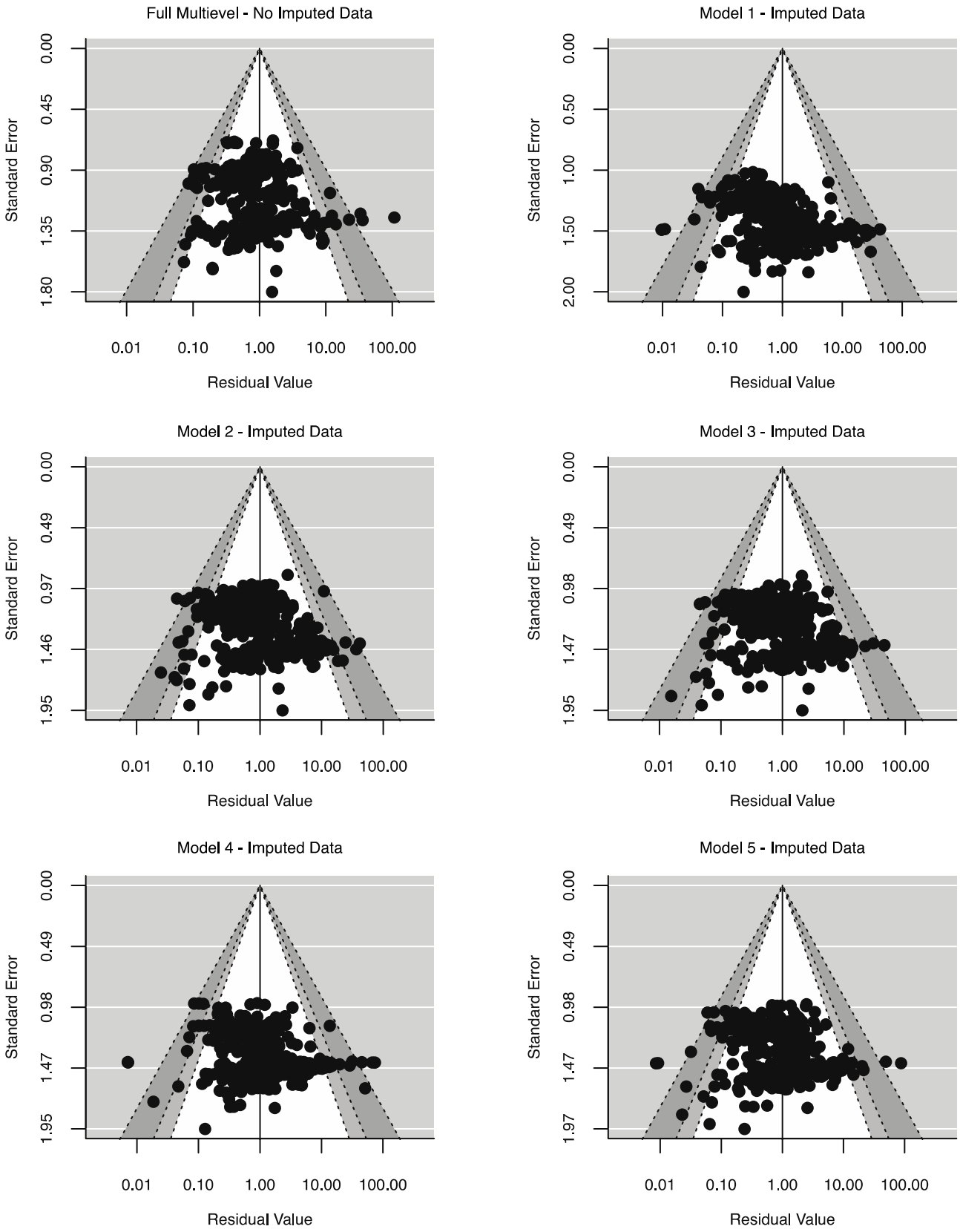
Psychotherapy (5 of 6)



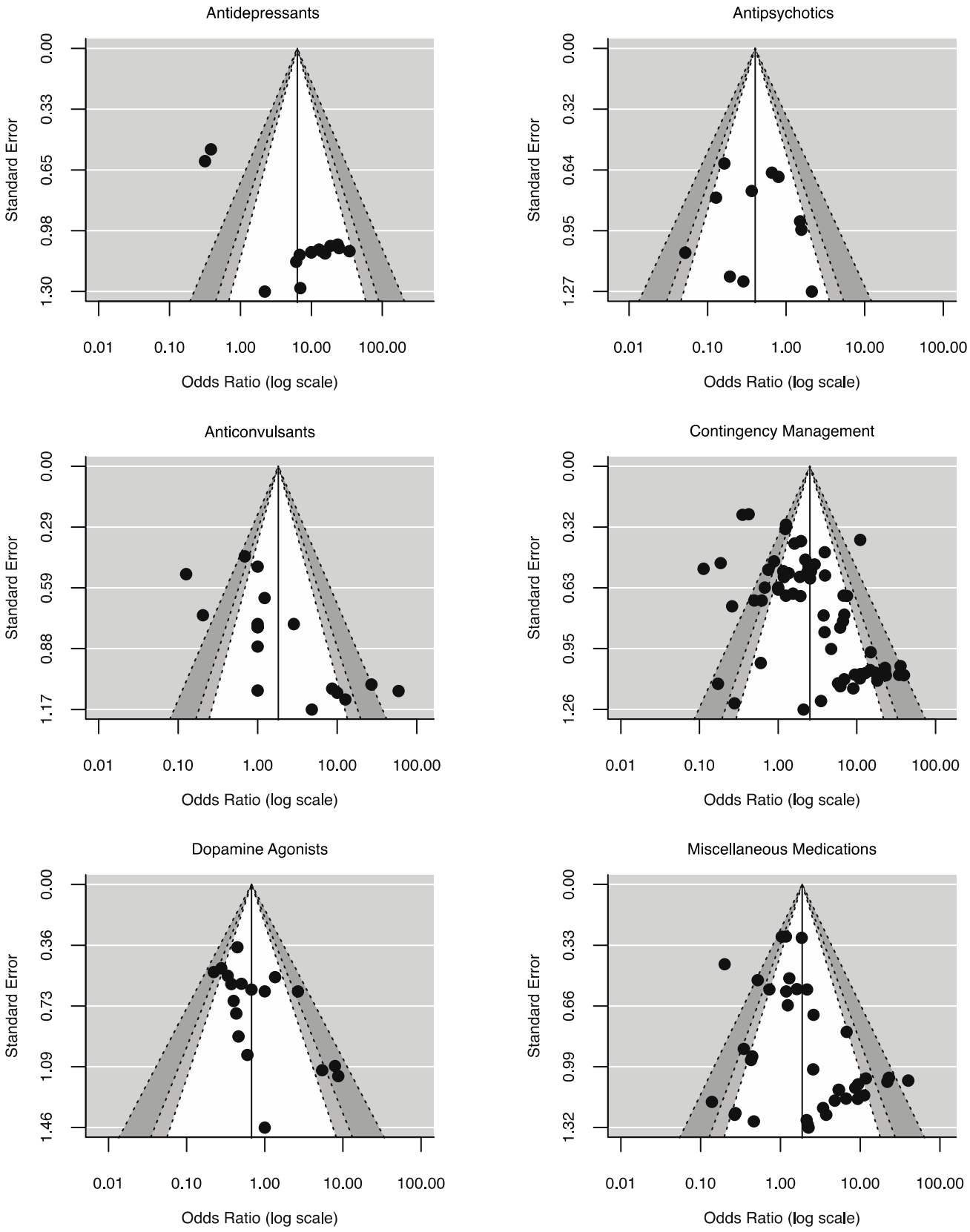
Psychotherapy (6 of 6)



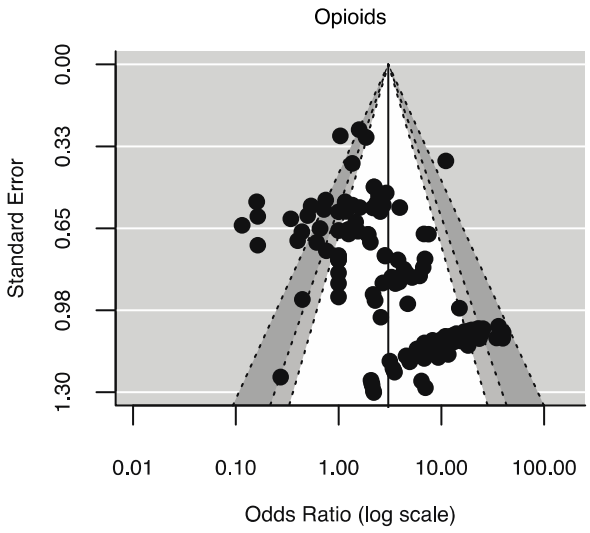
eFigure 12. Funnel Plots (Full Models)

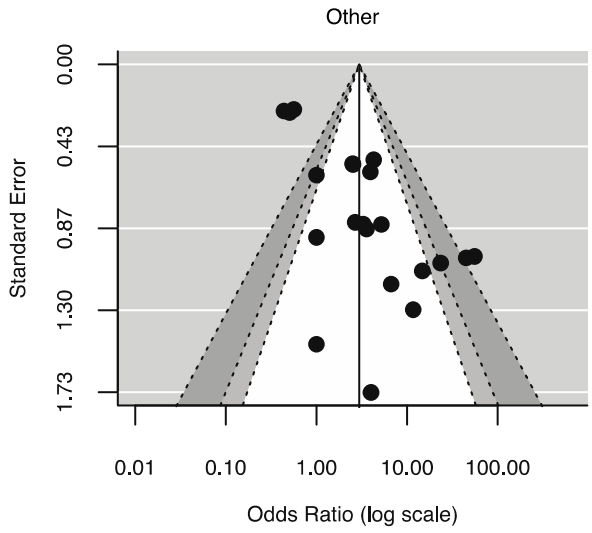


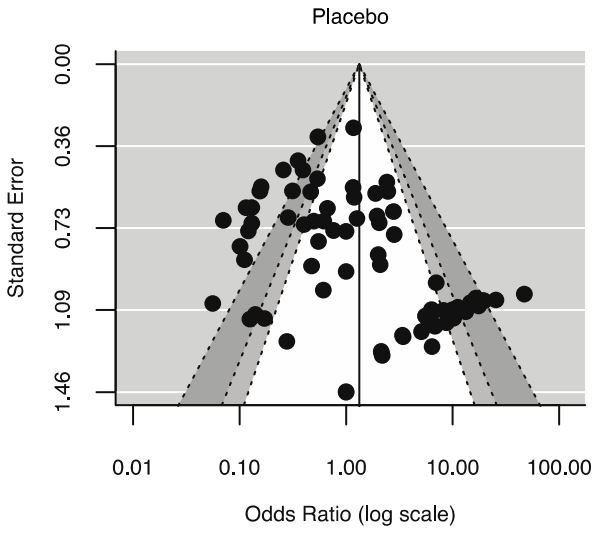
eFigure 13. Funnel Plots (By Treatment Category)

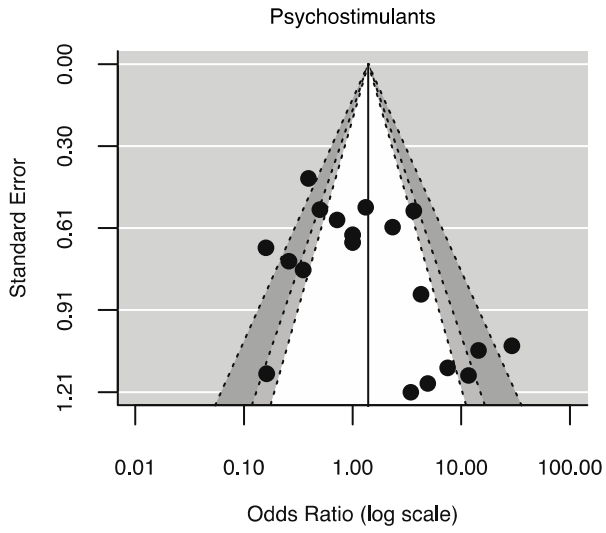


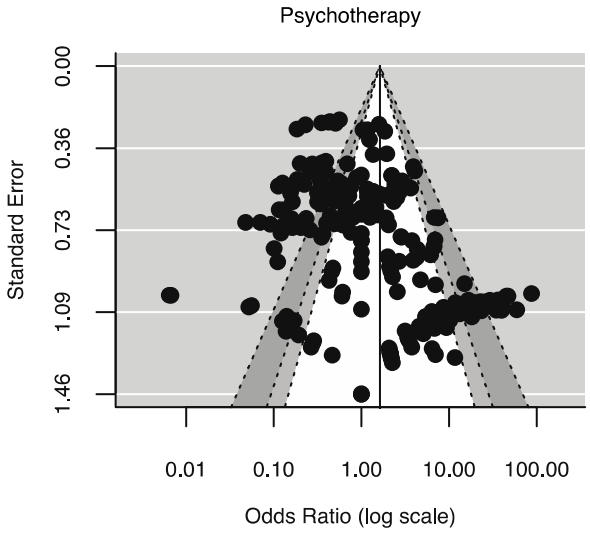
Funnel Plots (By Treatment Category)











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