**Online Supplement 1: Search Strategy**

**DATABASE SEARCHED & TIME PERIOD COVERED:**

 PubMed – 1/1/2000-11/30/2015

**SEARCH STRATEGY:**

"mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp

AND

(“Substance-Related Disorders"[Mesh] OR cannabis OR marijuana OR marihuana OR cocaine OR heroin OR methamphetamin\* OR methadone\* OR street drug\* OR substance abus\* OR substance misus\* OR drug abus\* OR addict\* OR drinking behavior(SAMHSA) OR (chemical AND dependen\*) OR

((drug OR drugs OR substance\* OR alcohol\* OR tranquilizer\* OR tranquiliser\* OR chemical OR polydrug\* OR narcotic\* OR opiate\* OR opioid\* OR psychotropic\* OR intoxic\* OR non-prescri\*)

AND (misuse or abus\* or addict\* OR illegal OR illicit OR habit\* OR withdraw\* OR abstinen\* OR abstain\* OR rehabilitat\*))

**DATABASE SEARCHED & TIME PERIOD COVERED:**

PsycINFO – 1/1/2000-11/30/2015

**LANGUAGE:**

 English

**SEARCH STRATEGY:**

"mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp

AND

(cannabis or marijuana or marihuana or cocaine or heroin or methamphetamin\* or methadone OR street drug\* or substance abus\* or substance misus\* or drug abus\* or addict\* or (chemical and dependen\*) ) OR ((drug or drugs or substance\* or alcohol\* or tranquilizer\* or tranquiliser\* or chemical or polydrug\* or narcotic\* or opiate\* or opioid\* or psychotropic\* or intoxic\* or non-prescri\* ) AND (misuse or abus\* or addict\* or illegal or illicit or habit\* or withdraw\* or abstinen\* or abstain\* or rehab\*))

**DATABASE SEARCHED & TIME PERIOD COVERED:**

Web of Science Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH - 1/1/2000-11/30/2015

**LANGUAGE:**

 English

**SEARCH STRATEGY:**

ts=("mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp)

AND

(ts=(cannabis or marijuana or marihuana or cocaine or heroin or methamphetamin\* or methadone OR street drug\* or substance abus\* or substance misus\* or drug abus\* or addict\* or (chemical and dependen\*)) OR ((ts=(drug or drugs or substance\* or alcohol\* or tranquilizer\* or tranquiliser\* or chemical or polydrug\* or narcotic\* or opiate\* or opioid\* or psychotropic\* or intoxic\* or non-prescri\*)

AND ts=(misuse or abus\* or addict\* or illegal or illicit or habit\* or withdraw\* or abstinen\* or abstain\* or rehab\*))

**DATABASE SEARCHED & TIME PERIOD COVERED:**

 CINAHL – 1/1/2000-11/30/2015

**LANGUAGE:**

 English

**SEARCH STRATEGY:**

"mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp

AND

(cannabis or marijuana or marihuana or cocaine or heroin or methamphetamin\* or methadone OR street drug\* or substance abus\* or substance misus\* or drug abus\* or addict\* or (chemical and dependen\*)) OR (( drug or drugs or substance\* or alcohol\* or tranquilizer\* or tranquiliser\* or chemical or polydrug\* or narcotic\* or opiate\* or opioid\* or psychotropic\* or intoxic\* or non-prescri\* ) AND (misuse or abus\* or addict\* or illegal or illicit or habit\* or withdraw\* or abstinen\* or abstain\* or rehab\*))

**DATABASE SEARCHED & TIME PERIOD COVERED:**

Cochrane CENTRAL – 1/1/2000-11/30/2015

**LANGUAGE:**

 English

**SEARCH STRATEGY:**

"mindfulness based relapse prevention" or "mindfulness-based relapse prevention" or "mindful\* relapse prevention" or "mindfulness relapse prevention" or mbrp:ti,ab,kw

AND

(cannabis or marijuana or marihuana or cocaine or heroin or methamphetamin\* or methadone or street drug\* or substance abus\* or substance misus\* or drug abus\* or addict\* or (chemical and dependen\*)):ti,ab,kw OR ((drug or drugs or substance\* or alcohol\* or tranquilizer\* or tranquiliser\* or chemical or polydrug\* or narcotic\* or opiate\* or opioid\* or psychotropic\* or intoxic\* or non-prescri\*) AND (misuse or abus\* or addict\* or illegal or illicit or habit\* or withdraw\* or abstinen\* or abstain\* or rehab\*))

**DATABASE SEARCHED & TIME PERIOD COVERED:**

AMED – 1/1/2000-11/30/2015

**LANGUAGE:**

 English

**SEARCH STRATEGY:**

 ab("mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp) OR ti("mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp) OR su("mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp)

**DATABASE SEARCHED & TIME PERIOD COVERED:**

ClinicalTrias.gov – 1/1/2000-11/30/2015

**LANGUAGE:**

 English

**SEARCH STRATEGY:**

"mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp”

**DATABASE SEARCHED & TIME PERIOD COVERED:**

World Health Organization International Clinical Trials Registry Platform – 1/1/2000-11/30/2015

**LANGUAGE:**

 English

**SEARCH STRATEGY:**

mindfulness based relapse prevention OR mindfulness-based relapse prevention OR mindful\* relapse prevention OR mindfulness relapse prevention OR mbrp

**2016 UPDATE**

**DATABASE SEARCHED & TIME PERIOD COVERED:**

 PubMed – 1/1/2015-8/16/2016

**SEARCH STRATEGY:**

"mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp

AND

“Substance-Related Disorders"[Mesh] OR cannabis OR marijuana OR marihuana OR cocaine OR heroin OR methamphetamin\* OR methadone\* OR street drug\* OR substance abus\* OR substance misus\* OR drug abus\* OR addict\* OR drinking behavior[mh] OR (chemical AND dependen\*) OR ((drug OR drugs OR substance\* OR alcohol\* OR tranquilizer\* OR tranquiliser\* OR chemical OR polydrug\* OR narcotic\* OR opiate\* OR opioid\* OR psychotropic\* OR intoxic\* OR non-prescri\*) AND (misuse OR abus\* OR addict\* OR illegal OR illicit OR habit\* OR withdraw\* OR abstinen\* OR abstain\* OR rehabilitat\*))

**DATABASE SEARCHED & TIME PERIOD COVERED:**

 PsycINFO – 1/1/2015-8/16/2016

**SEARCH STRATEGY:**

TI ( "mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp ) OR SU ( "mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp ) OR AB ( "mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp **)**

**DATABASE SEARCHED & TIME PERIOD COVERED:**

CINAHL – 1/1/2015-8/16/2016

**SEARCH STRATEGY:**

TI ( "mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp ) OR SU ( "mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp ) OR AB ( "mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp )

**DATABASE SEARCHED & TIME PERIOD COVERED:**

Cochrane CENTRAL – 1/1/2015-8/16/2016

**SEARCH STRATEGY:**

"mindfulness based relapse prevention" or "mindfulness-based relapse prevention" or "mindful\* relapse prevention" or "mindfulness relapse prevention" or mbrp in Title, Abstract, Keywords

**DATABASE SEARCHED & TIME PERIOD COVERED:**

Web of Science – 1/1/2015-8/16/2016

**SEARCH STRATEGY:**

ts=("mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp)

**DATABASE SEARCHED & TIME PERIOD COVERED:**

ClinicalTrials.gov – 1/1/2015-8/16/2016

**SEARCH STRATEGY:**

"mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp | Studies received from 01/01/2015 to 08/16/2016

**DATABASE SEARCHED & TIME PERIOD COVERED:**

AMED – 1/1/2015-8/16/2016

**SEARCH STRATEGY:**

ab("mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp) OR ti("mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp) OR su("mindfulness based relapse prevention" OR "mindfulness-based relapse prevention" OR "mindful\* relapse prevention" OR "mindfulness relapse prevention" OR mbrp)

**DATABASE SEARCHED & TIME PERIOD COVERED:**

World Health Organization ICTRP – 1/1/2015-8/16/2016

**SEARCH STRATEGY:**

MINDFULNESS BASED RELAPSE PREVENTION

**Online Supplement 2. Data Extraction Form**

| **Question Text** | **Question Type** | **Answer Text (for Radio/Checkbox)**  |
| --- | --- | --- |
| Do you need to discuss this article? [indicate in the comments section reason for discussion] | Radio |  |
|  |  | Yes |
|  |  | No |
| ReferencePlease list the first author and publication year in this format: author, year | Text |  |
| Parent StudyPlease list the first author and publication year in this format: author, year | Text |  |
| Aim/objective/purpose of study(Copy objective from abstract or from last sentence in introduction.)  | Text |  |
| Type of trial | Radio |  |
|  |  | Individually-randomized |
|  |  | Cluster-randomized |
| Geographic regionPlease provide the city/state, region, country where the trial took place | Text |  |
| Inclusion criteriaSeparate inclusion and exclusion criteria if possible. | Text |  |
| Exclusion criteriaPut "NA" if not reported. | Text |  |
| Power calculationIn most cases this will be done before recruiting patients but sometimes people do a posthoc power calculation and find out there wasn't enough power | Radio |  |
|  |  | Yes (and sufficient power) |
|  |  | No (no power calculation) |
|  |  | Power insufficient (posthoc test) |
| Power Calculation DetailsBrief details on any power calculations conducted | Text |  |
| Number of participantsTotal number of participants in the study | Text |  |
| Number randomized to MBRPTotal number randomized to condition with MBRP | Text |  |
| Number randomized to comparisonTotal number randomized to comparison condition | Text |  |
| Number randomized to comparison 2Total number randomized to second comparison condition if existent | Text |  |
| Gender% male (calculate if not reported).% based on numbers used for age demographics (if unclear, % based on # randomized to both groups total). | Text |  |
| AgeReport mean and SD using this format: "XX (xx)" for the entire group.Otherwise extract what's there, e.g., range.If it is only reported by group use that info, but generally try to describe the entire group.Preference is given to the initial sample, rather than per protocol (ITT analysis). | Text |  |
| Baseline substance useNote type of substance and data about use before randomization to intervention group | Text |  |
| Co-morbid ConditionsNote information about any co-morbid psychological/behavioral health conditions | Text |  |
| Content of MBRP sessionsDescribe the nature of MBRP in this trial | Text |  |
| Adaptation of MBRP protocolNote any described adaptations to MBRP manual | Text |  |
| Intervention SitesNote the number of sites where the intervention took place | Text |  |
| Type of Health Care SettingNote the type of health care setting where MBRP was delivered | Checkbox |  |
|  |  | Primary care |
|  |  | Specialty SUD care |
| Co-InterventionNote whether anything is provided in addition to MBRP | Radio |  |
|  |  | Yes - Adjunctive Therapy |
|  |  | No - Monotherapy |
|  |  | Unclear |
| Co-Intervention DetailsIf there are any co-interventions provided along with MBRP, please provide brief details on the nature of the co-intervention | Text |  |
| Timing of Intervention AdministrationNote when the intervention was administered | Radio |  |
|  |  | During inpatient/residential care |
|  |  | After inpatient/residential care |
| IntensityNote average length of each session in minutes | Text |  |
| FrequencyNote how often sessions occur by number of sessions per week | Text |  |
| DurationNote how long MBRP lasted in number of weeks of program (e.g., took place over 8 weeks) | Text |  |
| ComparatorThe labels will appear in the evidence table and we also need the categories for the subgroup analysis | Radio |  |
|  |  | Passive (no treatment, wait list) |
|  |  | Treatment as usual/standard care |
|  |  | Active comparator |
| Comparator DetailsBrief details about nature of comparison group | Text |  |
| Outcomes MeasuredPlease check all outcomes that were measured | Checkbox |  |
|  |  | Frequency of substance use |
|  |  | Quantity of substance use |
|  |  | Withdrawal or craving symptoms |
|  |  | Treatment drop-out |
|  |  | Relapse |
|  |  | Functional status |
|  |  | Health-related quality of life |
|  |  | Adverse events |
| Longest Follow-upPlease note (in months from the end of the intervention) the longest follow-up  for outcome assessment | Text |  |
| Primary OutcomeChoose the primary outcome | Checkbox |  |
|  |  | Frequency of substance use |
|  |  | Quantity of substance use |
|  |  | Withdrawal or craving symptoms |
|  |  | Treatment drop-out |
|  |  | Relapse |
|  |  | Functional status |
|  |  | Health-related quality of life |
|  |  | Adverse events |
| Primary TimepointNote in the months the primary follow-up point for the primary outcomePut "N/A" if not specified or reported | Text |  |
| Random sequence generation (selection bias) Low risk:  The investigators describe a random component in the sequence generation process such as: referring to a random number table; using a computer random number generator; coin tossing; shuffling cards or envelopes; throwing dice; drawing of lots; minimization (minimization may be implemented without a random element, and this is considered to be equivalent to being random.). High risk:  The investigators describe a non-random component in the sequence generation process. Usually, the description would involve some systematic, non-random approach, for example: sequence generated by odd or even date of birth; sequence generated by some rule based on date (or day) of admission; sequence generated by some rule based on hospital or clinic record number.   Other non-random approaches happen much less frequently than the systematic approaches mentioned above and tend to be obvious. They usually involve judgement or some method of non-random categorization of participants, for example: allocation by judgement of the clinician; allocation by preference of the participant; allocation based on the results of a laboratory test or a series of tests;allocation by availability of the intervention.Unclear risk:  Insufficient information about the sequence generation process to permit judgement of ‘Low risk’ or ‘High risk’. | Radio |  |
|  |  | Low risk |
|  |  | High risk |
|  |  | Unclear risk |
| Comments/QuotationsPlease provide comments or quotations to support your judgment  | Text |  |
| Allocation concealmentUse of a third party and opaque envelopes of their equivalent are low risk; any other method is high risk. Unclear method or no description is unclear risk. Low risk:  Participants and investigators enrolling participants could not foresee assignment because one of the following, or an equivalent method, was used to conceal allocation: central allocation (including telephone, web-based and pharmacy-controlled randomization); sequentially numbered drug containers of identical appearance; sequentially numbered, opaque, sealed envelopes. High risk:  Participants or investigators enrolling participants could possibly foresee assignments and thus introduce selection bias, such as allocation based on: using an open random allocation schedule (e.g. a list of random numbers); assignment envelopes were used without appropriate safeguards (e.g. if envelopes were unsealed or non­opaque or not sequentially numbered); alternation or rotation; date of birth; case record number; any other explicitly unconcealed procedure.Unclear risk:  Insufficient information to permit judgement of ‘Low risk’ or ‘High risk’. This is usually the case if the method of concealment is not described or not described in sufficient detail to allow a definite judgement – for example if the use of assignment envelopes is described, but it remains unclear whether envelopes were sequentially numbered, opaque and sealed.  | Radio |  |
|  |  | Low risk |
|  |  | High risk |
|  |  | Unclear risk |
| Comments/QuotationsPlease provide comments or quotations to support your judgment | Text |  |
| Blinding of participants and personnelLow risk:  Any one of the following: no blinding or incomplete blinding, but the review authors judge that the outcome is not likely to be influenced by lack of blinding; blinding of participants and key study personnel ensured, and unlikely that the blinding could have been broken.(double dummy, "matching" placebo) High risk:  Any one of the following: no blinding or incomplete blinding, and the outcome is likely to be influenced by lack of blinding; blinding of key study participants and personnel attempted, but likely that the blinding could have been broken, and the outcome is likely to be influenced by lack of blinding. Unclear risk:  Any one of the following: insufficient information to permit judgement of ‘Low risk’ or ‘High risk’; the study did not address this outcome.just metioning "placebo" = unclear | Radio |  |
|  |  | Low risk |
|  |  | High risk |
|  |  | Unclear risk |
| Comments/QuotationsPlease provide comments or quotations to support your judgmention | Text |  |
| Blinding of outcome assessment Low risk:  Any one of the following: no blinding of outcome assessment, but the review authors judge that the outcome measurement is not likely to be influenced by lack of blinding; blinding of outcome assessment ensured, and unlikely that the blinding could have been broken.apply same criteria as for patients High risk:  Any one of the following: no blinding of outcome assessment, and the outcome measurement is likely to be influenced by lack of blinding; blinding of outcome assessment, but likely that the blinding could have been broken, and the outcome measurement is likely to be influenced by lack of blinding. Unclear risk:  Any one of the following: insufficient information to permit judgement of ‘Low risk’ or ‘High risk’; the study did not address this outcome."double blind" and no further info on assessor (e.g., external assessor) | Radio |  |
|  |  | Low risk |
|  |  | High risk |
|  |  | Unclear risk |
| Comments/QuotationsPlease provide comments or quotations to support your judgment | Text |  |
| Incomplete outcome dataLow risk:  Any one of the following: no missing outcome data; reasons for missing outcome data unlikely to be related to true outcome (for survival data, censoring unlikely to be introducing bias); missing outcome data balanced in numbers across intervention groups, with similar reasons for missing data across groups; for dichotomous outcome data, the proportion of missing outcomes compared with observed event risk not enough to have a clinically relevant impact on the intervention effect estimate; for continuous outcome data, plausible effect size (difference in means or standardized difference in means) among missing outcomes not enough to have a clinically relevant impact on observed effect size; missing data have been imputed using appropriate methods."ITT" High risk:  Any one of the following: reason for missing outcome data likely to be related to true outcome, with either imbalance in numbers or reasons for missing data across intervention groups; for dichotomous outcome data, the proportion of missing outcomes compared with observed event risk enough to induce clinically relevant bias in intervention effect estimate; for continuous outcome data, plausible effect size (difference in means or standardized difference in means) among missing outcomes enough to induce clinically relevant bias in observed effect size; ‘as-treated’ analysis done with substantial departure of the intervention received from that assigned at randomization; potentially inappropriate application of simple imputation.look for red flags Unclear risk:  Any one of the following: insufficient reporting of attrition/exclusions to permit judgement of ‘Low risk’ or ‘High risk’ (e.g. number randomized not stated, no reasons for missing data provided); the study did not address this outcome.per protocol | Radio |  |
|  |  | Low risk |
|  |  | High risk |
|  |  | Unclear risk |
| Comments/QuotationsPlease provide comments or quotations to support your judgment | Text |  |
| Selective reporting of outcome data Low risk: Any of the following: the study protocol is available and all of the study’s pre-specified (primary and secondary) outcomes that are of interest in the review have been reported in the pre-specified way; the study protocol is not available but it is clear that the published reports include all expected outcomes, including those that were pre-specified (convincing text of this nature may be uncommon). High risk:  Any one of the following: not all of the study’s pre-specified primary outcomes have been reported; one or more primary outcomes is reported using measurements, analysis methods or subsets of the data (e.g. subscales) that were not pre-specified; one or more reported primary outcomes were not pre-specified (unless clear justification for their reporting is provided, such as an unexpected adverse effect); one or more outcomes of interest in the review are reported incompletely so that they cannot be entered in a meta-analysis; the study report fails to include results for a key outcome that would be expected to have been reported for such a study. Unclear risk:  Insufficient information to permit judgement of ‘Low risk’ or ‘High risk’. It is likely that the majority of studies will fall into this category. | Radio |  |
|  |  | Low risk |
|  |  | High risk |
|  |  | Unclear risk |
| Comments/QuotationsPlease provide comments or quotations to support your judgment | Text |  |
| Other: Involvement of program developer in trialNote whether any of the following developers of the program are involved in the trial:Sarah BowenNeha ChawlaG. Alan Marlatt | Radio |  |
|  |  | Yes |
|  |  | No |
|  |  | Unclear |
| Comments/QuotationsPlease provide comments or quotations to support your judgment | Text |  |
| CommentsAny final comments | Text |  |
| Has this form been reconciled? Indicate yes if this is the form to be used for the evidence table (programmer will pull the data just from this form) | Radio |  |
|  |  | Yes |
|  |  | No |

**Online Supplement 3. Excluded Full-Text Articles**

*Reason Excluded: Ongoing RCT*

Brady, K. T. *Mindfulness-Based Recovery in Veterans (MBR-Veterans) (NCT02326363).*

Dakwar, E. *The Effect of Brief Potent Glutamatergic Modulation on Cocaine Dependence (NCT01535937)*

Gilliam, W., Vowles, K. *Pilot Study of Combined Treatment for Veterans With Chronic Pain & Opiate Misuse (NCT02423772)*

Noto, A. R. *Effectiveness of Mindfulness Based Relapse Prevention for Chronic Users of Benzodiazepines (MBRP) (NCT02127411).*

Penberthy, J. K. *Mindfulness-Based Relapse Prevention for Alcohol Use Disorders in Remission (MBRP) (NCT02147483).*

*Reason Excluded: Not a Parallel RCT*

Amaro, H., “Implementing Mindfulness-Based Relapse Prevention in Diverse Populations: Challenges and Future Directions,” *Substance Use and Misuse*, Vol. 49, No. 5, 2014, pp. 612–616.

Carpentier, D., Romo, L., Bouthillon-Heitzmann, P., & Limosin, F. (2015). [Mindfulness-based-relapse prevention (MBRP): Evaluation of the impact of a group of Mindfulness Therapy in alcohol relapse prevention for alcohol use disorders]. *L'Encephale*, *41*(6), 521-526.

Florida, D., “Pilot Evaluation of ‘Third Wave’ Modular Group Psychotherapy for Comorbid Clients,” *Australian and New Zealand Journal of Psychiatry*, Vol. 48, 2014, pp. 78–79.

Vieten, C., J. A. Astin, R. Buscemi, and G. P. Galloway, “Development of an Acceptance-Based Coping Intervention for Alcohol Dependence Relapse Prevention,” Substance Abuse, Vol. 31, No. 2, April 2010, pp. 108–116.

Witkiewitz, K., G. A. Marlatt, and D. Walker, “Mindfulness-Based Relapse Prevention for Alcohol and Substance Use Disorders,” *Journal of Cognitive Psychotherapy*, Vol. 19, No. 3, Fall 2005, pp. 211–228.

*Reason Excluded: No MBRP*

Garland, E. L., S. A. Gaylord, C. A. Boettiger, and M. O. Howard, “Mindfulness Training Modifies Cognitive, Affective, and Physiological Mechanisms Implicated in Alcohol Dependence: Results of a Randomized Controlled Pilot Trial,” *Journal of Psychoactive Drugs*, Vol. 42, No. 2, June 2010, pp. 177–192.

Vallejo, Z., and H. Amaro, “Adaptation of Mindfulness-Based Stress Reduction Program for Addiction Relapse Prevention,” *The Humanistic Psychologist*, Vol. 37, No. 2, 2009, pp. 192–206.

Witkiewitz, K., S. Bowen, and D. M. Donovan, “Moderating Effects of a Craving Intervention on the Relation Between Negative Mood and Heavy Drinking Following Treatment for Alcohol Dependence,” *Journal of Consulting and Clinical Psychology*, Vol. 79, No. 1, 2011, p. 54.

*Reason Excluded: No Eligible SUD Diagnosis*

Davis, J. *Study Two on the Effectiveness of Mindfulness Training for Smokers (MTS2) (NCT01299909).*

Noto, A. R. *Effectiveness of Mindfulness Based Relapse Prevention for Tobacco Dependents (NCT02327104).*

*Reason Excluded: Terminated RCT*

Lee, C. *Comparing the efficacy of Eye Movement Desensitization Reprocessing (EMDR) and Mindfulness-Based Relapse Prevention (MBRP) to reduce craving for substances in individuals with substance dependency (ACTRN12612000248864).*

Lee, C. *The efficacy of Mindfulness training on cognitive, affective, and physiological mechanisms implicated in alcohol dependence. A randomized control trial (ACTRN12613000193774).*

**Online Supplement 4**

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### Load "Meta-Analysis Package for R"
library(metafor)

### Load "General Package for Meta-Analysis"
library(meta)

### Load "Read Excel Files" package
library(readxl)

### Upload data from Excel file
d <- read\_excel("Online Supplement 5.xlsx")

# Random Effects Meta-Analyses

## Relapse to Substance Use at Longest Follow-Up

### Output

#### Subset Dataset to Relapse, Longest Follow-Up (Reference Case)
relapse\_longest\_ref <- subset(d, outcome == "Relapse" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
relapse\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="OR", data=relapse\_longest\_ref)
relapse\_meta

##
## Random-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.1112)
## tau (square root of estimated tau^2 value): 0.0017
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 6) = 6.5328, p-val = 0.3662
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3334 0.1854 -1.7988 0.1221 -0.7870 0.1201
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

predict(relapse\_meta, transf=exp)

## pred ci.lb ci.ub cr.lb cr.ub
## 0.7165 0.4552 1.1276 0.4552 1.1277

### Forest Plot

###Forest Plot showing weights
forest(relapse\_meta, slab=relapse\_longest\_ref$ID, showweights=TRUE, refline=1, xlab = "Odds Ratio", mlab = "Summary Estimate", transf = exp, alim = c(0,2), xlim = c(-5,5))



## Frequency of Substance Use at Longest Follow-Up

### Output

#### Subset Dataset to Frequency, Longest Follow-Up (Reference Case)
frequency\_longest\_ref <- subset(d, outcome == "Frequency" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_longest\_ref)
frequency\_meta

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0331 (SE = 0.0566)
## tau (square root of estimated tau^2 value): 0.1820
## I^2 (total heterogeneity / total variability): 42.01%
## H^2 (total variability / sampling variability): 1.72
##
## Test for Heterogeneity:
## Q(df = 4) = 8.1627, p-val = 0.0858
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## 0.0190 0.1522 0.1248 0.9067 -0.4036 0.4416
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Forest Plot

###Forest Plot showing weights
forest(frequency\_meta, slab=frequency\_longest\_ref$ID, showweights=TRUE, refline=0, xlab = "Hedge's g", mlab = "Summary Estimate")



## Quantity of Substance Use at Longest Follow-Up

### Output

#### Subset Dataset to Quantity, Longest Follow-Up (Reference Case)
quantity\_longest\_ref <- subset(d, outcome == "Quantity" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
quantity\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=quantity\_longest\_ref)
quantity\_meta

##
## Fixed-Effects Model (k = 1)
##
## Test for Heterogeneity:
## Q(df = 0) = 0.0000, p-val = 1.0000
##
## Model Results:
##
## estimate se zval pval ci.lb ci.ub
## 0.2580 0.1960 1.3166 0.1880 -0.1261 0.6421
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Forest Plot

###Forest Plot showing weights
forest(quantity\_meta, slab=quantity\_longest\_ref$ID, showweights=TRUE, refline=0, xlab = "Hedge's g", mlab = "Summary Estimate")



## Withdrawal/Craving at Longest Follow-Up

### Output

#### Subset Dataset to Withdrawal/Craving, Longest Follow-Up (Reference Case)
withdrawal\_longest\_ref <- subset(d, outcome == "Withdrawal" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
withdrawal\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=withdrawal\_longest\_ref)
withdrawal\_meta

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0259)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 0.2152, p-val = 0.9946
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.1308 0.0200 -6.5353 0.0028 -0.1864 -0.0752 \*\*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Forest Plot

###Forest Plot showing weights
forest(withdrawal\_meta, slab=withdrawal\_longest\_ref$ID, showweights=TRUE, refline=0, xlab = "Hedge's g", mlab = "Summary Estimate")



## Treatment Dropout at Longest Follow-Up

### Output

#### Subset Dataset to Treatment Dropout, Longest Follow-Up (Reference Case)
dropout\_longest\_ref <- subset(d, outcome == "Dropout" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
dropout\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="OR", data=dropout\_longest\_ref)
dropout\_meta

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.1421 (SE = 0.2340)
## tau (square root of estimated tau^2 value): 0.3769
## I^2 (total heterogeneity / total variability): 44.04%
## H^2 (total variability / sampling variability): 1.79
##
## Test for Heterogeneity:
## Q(df = 4) = 6.7345, p-val = 0.1506
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2116 0.2505 -0.8450 0.4457 -0.9070 0.4838
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

predict(dropout\_meta, transf=exp)

## pred ci.lb ci.ub cr.lb cr.ub
## 0.8093 0.4037 1.6222 0.2304 2.8428

### Forest Plot

###Forest Plot showing weights
forest(dropout\_meta, slab=dropout\_longest\_ref$ID, showweights=TRUE, refline=1, xlab = "Odds Ratio", mlab = "Summary Estimate", transf = exp)



## Health-Related Quality of Life at Longest Follow-Up

### Output

#### Subset Dataset to Health-Related Quality of Life, Longest Follow-Up (Reference Case)
QoL\_longest\_ref <- subset(d, outcome == "QoL" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
QoL\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=QoL\_longest\_ref)
QoL\_meta

##
## Fixed-Effects Model (k = 1)
##
## Test for Heterogeneity:
## Q(df = 0) = 0.0000, p-val = 1.0000
##
## Model Results:
##
## estimate se zval pval ci.lb ci.ub
## -0.6403 0.2792 -2.2930 0.0218 -1.1876 -0.0930 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Forest Plot

###Forest Plot showing weights
forest(QoL\_meta, slab=QoL\_longest\_ref$ID, showweights=TRUE, refline=0, xlab = "Hedge's g", mlab = "Summary Estimate")



## Negative Consequences at Longest Follow-Up

### Output

#### Subset Dataset to Withdrawal/Craving, Longest Follow-Up (Reference Case)
consequences\_longest\_ref <- subset(d, outcome == "Consequences" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=consequences\_longest\_ref)
consequences\_meta

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0255)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 1.0274, p-val = 0.7946
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2313 0.0508 -4.5568 0.0198 -0.3929 -0.0698 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Forest Plot

###Forest Plot showing weights
forest(consequences\_meta, slab=consequences\_longest\_ref$ID, showweights=TRUE, refline=0, xlab = "Hedge's g", mlab = "Summary Estimate")



## Depressive Symptoms at Longest Follow-Up

### Output

#### Subset Dataset to Withdrawal/Craving, Longest Follow-Up (Reference Case)
depressive\_longest\_ref <- subset(d, outcome == "Depressive" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
depressive\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=depressive\_longest\_ref)
depressive\_meta

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.0314)
## tau (square root of estimated tau^2 value): 0.0011
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 3.0608, p-val = 0.3823
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0864 0.0943 -0.9168 0.4269 -0.3864 0.2136
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Forest Plot

###Forest Plot showing weights
forest(depressive\_meta, slab=depressive\_longest\_ref$ID, showweights=TRUE, refline=0, xlab = "Hedge's g", mlab = "Summary Estimate")



## Anxiety Symptoms at Longest Follow-Up

### Output

#### Subset Dataset to Withdrawal/Craving, Longest Follow-Up (Reference Case)
anxiety\_longest\_ref <- subset(d, outcome == "Anxiety" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
anxiety\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=anxiety\_longest\_ref)
anxiety\_meta

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.1588 (SE = 0.1868)
## tau (square root of estimated tau^2 value): 0.3985
## I^2 (total heterogeneity / total variability): 77.50%
## H^2 (total variability / sampling variability): 4.44
##
## Test for Heterogeneity:
## Q(df = 3) = 11.1065, p-val = 0.0112
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3168 0.2635 -1.2025 0.3154 -1.1553 0.5217
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Forest Plot

###Forest Plot showing weights
forest(anxiety\_meta, slab=anxiety\_longest\_ref$ID, showweights=TRUE, refline=0, xlab = "Hedge's g", mlab = "Summary Estimate")



## Mindfulness at Longest Follow-Up

### Output

#### Subset Dataset to Withdrawal/Craving, Longest Follow-Up (Reference Case)
mindfulness\_longest\_ref <- subset(d, outcome == "Mindfulness" & longest == "yes" & ref == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
mindfulness\_meta <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=mindfulness\_longest\_ref)
mindfulness\_meta

##
## Random-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.1189 (SE = 0.1365)
## tau (square root of estimated tau^2 value): 0.3449
## I^2 (total heterogeneity / total variability): 58.44%
## H^2 (total variability / sampling variability): 2.41
##
## Test for Heterogeneity:
## Q(df = 5) = 12.8273, p-val = 0.0251
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2843 0.1710 -1.6625 0.1573 -0.7240 0.1553
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Forest Plot

###Forest Plot showing weights
forest(mindfulness\_meta, slab=mindfulness\_longest\_ref$ID, showweights=TRUE, refline=0, xlab = "Hedge's g", mlab = "Summary Estimate")



# Publication Bias

## Relapse to Substance Use at Longest Follow-Up

### Begg's rank correlation test for funnel plot asymmetry

### Begg's rank correlation test for funnel plot asymmetry
ranktest(relapse\_meta)

##
## Rank Correlation Test for Funnel Plot Asymmetry
##
## Kendall's tau = -0.1429, p = 0.7726

### Egger's regression test for funnel plot asymmetry

#### Egger's regression test for funnel plot asymmetry
### Random effects model, variance as independent variable, return full results from the fitted model
regtest(relapse\_meta, model="rma", predictor="vi", ret.fit=TRUE)

##
## Regression Test for Funnel Plot Asymmetry
##
## model: mixed-effects meta-regression model
## predictor: sampling variance
##
## Mixed-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0000 (SE = 0.1130)
## tau (square root of estimated tau^2 value): 0.0010
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): 64.25%
##
## Test for Residual Heterogeneity:
## QE(df = 5) = 6.5164, p-val = 0.2592
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 5) = 0.0126, p-val = 0.9150
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.3490 0.2459 -1.4194 0.2150 -0.9811 0.2831
## vi 0.0707 0.6297 0.1122 0.9150 -1.5479 1.6893
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1
##
## test for funnel plot asymmetry: t = 0.1122, df = 5, p = 0.9150

### Trim and Fill Analysis

#### Trim and Fill Analysis
tm <- trimfill(relapse\_meta)
tm

##
## Estimated number of missing studies on the right side: 1 (SE = 1.9037)
##
## Random-Effects Model (k = 8; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.1108)
## tau (square root of estimated tau^2 value): 0.0026
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 7) = 8.4881, p-val = 0.2915
##
## Model Results:
##
## estimate se zval pval ci.lb ci.ub
## -0.2950 0.1755 -1.6808 0.0928 -0.6389 0.0490 .
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

predict(tm, transf=exp)

## pred ci.lb ci.ub cr.lb cr.ub
## 0.7446 0.5279 1.0502 0.5278 1.0503

### Funnel Plot

#### Funnel Plot
funnel(relapse\_meta)



### Funnel Plot for Trim and Fill

#### Funnel Plot for Trim and Fill
funnel(tm)



## Frequency of Substance Use at Longest Follow-Up

### Begg's rank correlation test for funnel plot asymmetry

### Begg's rank correlation test for funnel plot asymmetry
ranktest(frequency\_meta)

##
## Rank Correlation Test for Funnel Plot Asymmetry
##
## Kendall's tau = 0.2000, p = 0.8167

### Egger's regression test for funnel plot asymmetry

#### Egger's regression test for funnel plot asymmetry
### Random effects model, variance as independent variable, return full results from the fitted model
regtest(frequency\_meta, model="rma", predictor="vi", ret.fit=TRUE)

##
## Regression Test for Funnel Plot Asymmetry
##
## model: mixed-effects meta-regression model
## predictor: sampling variance
##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0318 (SE = 0.0573)
## tau (square root of estimated tau^2 value): 0.1782
## I^2 (residual heterogeneity / unaccounted variability): 45.87%
## H^2 (unaccounted variability / sampling variability): 1.85
## R^2 (amount of heterogeneity accounted for): 4.07%
##
## Test for Residual Heterogeneity:
## QE(df = 3) = 5.8222, p-val = 0.1206
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 3) = 1.6864, p-val = 0.2849
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.1208 0.1763 -0.6854 0.5423 -0.6819 0.4402
## vi 2.7684 2.1318 1.2986 0.2849 -4.0160 9.5528
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1
##
## test for funnel plot asymmetry: t = 1.2986, df = 3, p = 0.2849

### Trim and Fill Analysis

#### Trim and Fill Analysis
tm <- trimfill(frequency\_meta)
tm

##
## Estimated number of missing studies on the left side: 0 (SE = 1.6829)
##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0331 (SE = 0.0566)
## tau (square root of estimated tau^2 value): 0.1820
## I^2 (total heterogeneity / total variability): 42.01%
## H^2 (total variability / sampling variability): 1.72
##
## Test for Heterogeneity:
## Q(df = 4) = 8.1627, p-val = 0.0858
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## 0.0190 0.1522 0.1248 0.9067 -0.4036 0.4416
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Funnel Plot

#### Funnel Plot
funnel(frequency\_meta)



### Funnel Plot for Trim and Fill

#### Funnel Plot for Trim and Fill
funnel(tm)



## Withdrawal/Craving at Longest Follow-Up

### Begg's rank correlation test for funnel plot asymmetry

### Begg's rank correlation test for funnel plot asymmetry
ranktest(withdrawal\_meta)

##
## Rank Correlation Test for Funnel Plot Asymmetry
##
## Kendall's tau = -0.4000, p = 0.4833

### Egger's regression test for funnel plot asymmetry

#### Egger's regression test for funnel plot asymmetry
### Random effects model, variance as independent variable, return full results from the fitted model
regtest(withdrawal\_meta, model="rma", predictor="vi", ret.fit=TRUE)

##
## Regression Test for Funnel Plot Asymmetry
##
## model: mixed-effects meta-regression model
## predictor: sampling variance
##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0284)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 3) = 0.1540, p-val = 0.9847
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 3) = 1.1930, p-val = 0.3546
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.1139 0.0250 -4.5582 0.0198 -0.1933 -0.0344 \*
## vi -0.4558 0.4174 -1.0922 0.3546 -1.7840 0.8723
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1
##
## test for funnel plot asymmetry: t = -1.0922, df = 3, p = 0.3546

### Trim and Fill Analysis

#### Trim and Fill Analysis
tm <- trimfill(withdrawal\_meta)
tm

##
## Estimated number of missing studies on the right side: 1 (SE = 1.7009)
##
## Random-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0257)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 5) = 0.2560, p-val = 0.9984
##
## Model Results:
##
## estimate se zval pval ci.lb ci.ub
## -0.1282 0.0853 -1.5027 0.1329 -0.2953 0.0390
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Funnel Plot

#### Funnel Plot
funnel(withdrawal\_meta)



### Funnel Plot for Trim and Fill

#### Funnel Plot for Trim and Fill
funnel(tm)



## Treatment Dropout at Longest Follow-Up

### Begg's rank correlation test for funnel plot asymmetry

### Begg's rank correlation test for funnel plot asymmetry
ranktest(dropout\_meta)

##
## Rank Correlation Test for Funnel Plot Asymmetry
##
## Kendall's tau = -0.4000, p = 0.4833

### Egger's regression test for funnel plot asymmetry

#### Egger's regression test for funnel plot asymmetry
### Random effects model, variance as independent variable, return full results from the fitted model
regtest(dropout\_meta, model="rma", predictor="vi", ret.fit=TRUE)

##
## Regression Test for Funnel Plot Asymmetry
##
## model: mixed-effects meta-regression model
## predictor: sampling variance
##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.1743 (SE = 0.3047)
## tau (square root of estimated tau^2 value): 0.4175
## I^2 (residual heterogeneity / unaccounted variability): 46.99%
## H^2 (unaccounted variability / sampling variability): 1.89
## R^2 (amount of heterogeneity accounted for): 0.00%
##
## Test for Residual Heterogeneity:
## QE(df = 3) = 5.5927, p-val = 0.1332
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 3) = 0.4220, p-val = 0.5622
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt 0.0518 0.4970 0.1042 0.9236 -1.5298 1.6333
## vi -1.3748 2.1163 -0.6496 0.5622 -8.1098 5.3601
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1
##
## test for funnel plot asymmetry: t = -0.6496, df = 3, p = 0.5622

### Trim and Fill Analysis

#### Trim and Fill Analysis
tm <- trimfill(dropout\_meta)
tm

##
## Estimated number of missing studies on the right side: 0 (SE = 1.6829)
##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.1421 (SE = 0.2340)
## tau (square root of estimated tau^2 value): 0.3769
## I^2 (total heterogeneity / total variability): 44.04%
## H^2 (total variability / sampling variability): 1.79
##
## Test for Heterogeneity:
## Q(df = 4) = 6.7345, p-val = 0.1506
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2116 0.2505 -0.8450 0.4457 -0.9070 0.4838
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

predict(tm, transf=exp)

## pred ci.lb ci.ub cr.lb cr.ub
## 0.8093 0.4037 1.6222 0.2304 2.8428

### Funnel Plot

#### Funnel Plot
funnel(dropout\_meta)



### Funnel Plot for Trim and Fill

#### Funnel Plot for Trim and Fill
funnel(tm)



## Negative Consequences at Longest Follow-Up

### Begg's rank correlation test for funnel plot asymmetry

### Begg's rank correlation test for funnel plot asymmetry
ranktest(consequences\_meta)

##
## Rank Correlation Test for Funnel Plot Asymmetry
##
## Kendall's tau = -0.6667, p = 0.3333

### Egger's regression test for funnel plot asymmetry

#### Egger's regression test for funnel plot asymmetry
### Random effects model, variance as independent variable, return full results from the fitted model
regtest(consequences\_meta, model="rma", predictor="vi", ret.fit=TRUE)

##
## Regression Test for Funnel Plot Asymmetry
##
## model: mixed-effects meta-regression model
## predictor: sampling variance
##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0344)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 0.3989, p-val = 0.8192
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 2) = 3.1518, p-val = 0.2178
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.1196 0.0739 -1.6182 0.2470 -0.4376 0.1984
## vi -3.7119 2.0908 -1.7753 0.2178 -12.7079 5.2841
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1
##
## test for funnel plot asymmetry: t = -1.7753, df = 2, p = 0.2178

### Trim and Fill Analysis

#### Trim and Fill Analysis
tm <- trimfill(consequences\_meta)
tm

##
## Estimated number of missing studies on the right side: 1 (SE = 1.5779)
##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0242)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 1.8798, p-val = 0.7579
##
## Model Results:
##
## estimate se zval pval ci.lb ci.ub
## -0.2073 0.0828 -2.5051 0.0122 -0.3695 -0.0451 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Funnel Plot

#### Funnel Plot
funnel(consequences\_meta)



### Funnel Plot for Trim and Fill

#### Funnel Plot for Trim and Fill
funnel(tm)



## Depressive Symptoms at Longest Follow-Up

### Begg's rank correlation test for funnel plot asymmetry

### Begg's rank correlation test for funnel plot asymmetry
ranktest(depressive\_meta)

##
## Rank Correlation Test for Funnel Plot Asymmetry
##
## Kendall's tau = -0.6667, p = 0.3333

### Egger's regression test for funnel plot asymmetry

#### Egger's regression test for funnel plot asymmetry
### Random effects model, variance as independent variable, return full results from the fitted model
regtest(depressive\_meta, model="rma", predictor="vi", ret.fit=TRUE)

##
## Regression Test for Funnel Plot Asymmetry
##
## model: mixed-effects meta-regression model
## predictor: sampling variance
##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0460)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): 100.00%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 1.0378, p-val = 0.5952
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 2) = 3.8985, p-val = 0.1870
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt 0.0847 0.1097 0.7724 0.5206 -0.3873 0.5567
## vi -4.9127 2.4881 -1.9745 0.1870 -15.6182 5.7928
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1
##
## test for funnel plot asymmetry: t = -1.9745, df = 2, p = 0.1870

### Trim and Fill Analysis

#### Trim and Fill Analysis
tm <- trimfill(depressive\_meta)
tm

##
## Estimated number of missing studies on the right side: 2 (SE = 1.4663)
##
## Random-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.0247)
## tau (square root of estimated tau^2 value): 0.0025
## I^2 (total heterogeneity / total variability): 0.01%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 5) = 7.7055, p-val = 0.1732
##
## Model Results:
##
## estimate se zval pval ci.lb ci.ub
## -0.0022 0.0817 -0.0274 0.9782 -0.1623 0.1578
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Funnel Plot

#### Funnel Plot
funnel(depressive\_meta)



### Funnel Plot for Trim and Fill

#### Funnel Plot for Trim and Fill
funnel(tm)



## Anxiety Symptoms at Longest Follow-Up

### Begg's rank correlation test for funnel plot asymmetry

### Begg's rank correlation test for funnel plot asymmetry
ranktest(anxiety\_meta)

##
## Rank Correlation Test for Funnel Plot Asymmetry
##
## Kendall's tau = -0.6667, p = 0.3333

### Egger's regression test for funnel plot asymmetry

#### Egger's regression test for funnel plot asymmetry
### Random effects model, variance as independent variable, return full results from the fitted model
regtest(anxiety\_meta, model="rma", predictor="vi", ret.fit=TRUE)

##
## Regression Test for Funnel Plot Asymmetry
##
## model: mixed-effects meta-regression model
## predictor: sampling variance
##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0208 (SE = 0.0562)
## tau (square root of estimated tau^2 value): 0.1443
## I^2 (residual heterogeneity / unaccounted variability): 37.28%
## H^2 (unaccounted variability / sampling variability): 1.59
## R^2 (amount of heterogeneity accounted for): 86.88%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 3.4593, p-val = 0.1773
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 2) = 4.7400, p-val = 0.1614
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt 0.0235 0.1673 0.1404 0.9012 -0.6962 0.7432
## vi -4.2901 1.9705 -2.1771 0.1614 -12.7686 4.1883
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1
##
## test for funnel plot asymmetry: t = -2.1771, df = 2, p = 0.1614

### Trim and Fill Analysis

#### Trim and Fill Analysis
tm <- trimfill(anxiety\_meta)
tm

##
## Estimated number of missing studies on the right side: 1 (SE = 1.5779)
##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.2219 (SE = 0.2314)
## tau (square root of estimated tau^2 value): 0.4710
## I^2 (total heterogeneity / total variability): 79.24%
## H^2 (total variability / sampling variability): 4.82
##
## Test for Heterogeneity:
## Q(df = 4) = 14.0990, p-val = 0.0070
##
## Model Results:
##
## estimate se zval pval ci.lb ci.ub
## -0.1955 0.2586 -0.7559 0.4497 -0.7024 0.3114
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Funnel Plot

#### Funnel Plot
funnel(anxiety\_meta)



### Funnel Plot for Trim and Fill

#### Funnel Plot for Trim and Fill
funnel(tm)



## Mindfulness at Longest Follow-Up

### Begg's rank correlation test for funnel plot asymmetry

### Begg's rank correlation test for funnel plot asymmetry
ranktest(mindfulness\_meta)

##
## Rank Correlation Test for Funnel Plot Asymmetry
##
## Kendall's tau = -0.2000, p = 0.7194

### Egger's regression test for funnel plot asymmetry

#### Egger's regression test for funnel plot asymmetry
### Random effects model, variance as independent variable, return full results from the fitted model
regtest(mindfulness\_meta, model="rma", predictor="vi", ret.fit=TRUE)

##
## Regression Test for Funnel Plot Asymmetry
##
## model: mixed-effects meta-regression model
## predictor: sampling variance
##
## Mixed-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0855 (SE = 0.1218)
## tau (square root of estimated tau^2 value): 0.2925
## I^2 (residual heterogeneity / unaccounted variability): 51.86%
## H^2 (unaccounted variability / sampling variability): 2.08
## R^2 (amount of heterogeneity accounted for): 28.10%
##
## Test for Residual Heterogeneity:
## QE(df = 4) = 8.7003, p-val = 0.0690
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 4) = 2.0480, p-val = 0.2257
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt 0.0146 0.2533 0.0578 0.9567 -0.6887 0.7179
## vi -2.9134 2.0358 -1.4311 0.2257 -8.5658 2.7389
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1
##
## test for funnel plot asymmetry: t = -1.4311, df = 4, p = 0.2257

### Trim and Fill Analysis

#### Trim and Fill Analysis
tm <- trimfill(mindfulness\_meta)
tm

##
## Estimated number of missing studies on the right side: 2 (SE = 1.7837)
##
## Random-Effects Model (k = 8; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.1045 (SE = 0.1158)
## tau (square root of estimated tau^2 value): 0.3233
## I^2 (total heterogeneity / total variability): 51.20%
## H^2 (total variability / sampling variability): 2.05
##
## Test for Heterogeneity:
## Q(df = 7) = 14.8094, p-val = 0.0385
##
## Model Results:
##
## estimate se zval pval ci.lb ci.ub
## -0.1783 0.1677 -1.0637 0.2875 -0.5069 0.1503
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Funnel Plot

#### Funnel Plot
funnel(mindfulness\_meta)



### Funnel Plot for Trim and Fill

#### Funnel Plot for Trim and Fill
funnel(tm)



# Meta-Regressions

## Relapse to Substance Use at Longest Follow-Up

### Meta-Regression for Type of Substance

#### Subset Dataset to Relapse, Longest Follow-Up (Reference Case)
relapse\_metareg <- subset(d, outcome == "Relapse" & metareg == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
#### Meta-Regression for Type of Substance
m1 <- rma(yi=yi, vi=vi, mods = ~ substance, data=relapse\_metareg, knha=TRUE)
m1

##
## Mixed-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0497 (SE = 0.2381)
## tau (square root of estimated tau^2 value): 0.2228
## I^2 (residual heterogeneity / unaccounted variability): 15.90%
## H^2 (unaccounted variability / sampling variability): 1.19
## R^2 (amount of heterogeneity accounted for): 0.00%
##
## Test for Residual Heterogeneity:
## QE(df = 3) = 3.6405, p-val = 0.3030
##
## Test of Moderators (coefficient(s) 2,3,4):
## F(df1 = 3, df2 = 3) = 1.2241, p-val = 0.4360
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt 2.0236 1.5584 1.2985 0.2849 -2.9360 6.9833
## substanceMultiple -2.6025 1.5831 -1.6439 0.1987 -7.6405 2.4356
## substanceOpioids -2.9684 1.7672 -1.6797 0.1916 -8.5924 2.6556
## substanceStimulants -2.1709 1.6063 -1.3515 0.2694 -7.2829 2.9410
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Co-Intervention Status

#### Meta-Regression for Co-Intervention Status
m2 <- rma(yi=yi, vi=vi, mods = ~ co\_intervention, data=relapse\_metareg, knha=TRUE)
m2

##
## Mixed-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.1805 (SE = 0.4101)
## tau (square root of estimated tau^2 value): 0.4249
## I^2 (residual heterogeneity / unaccounted variability): 30.73%
## H^2 (unaccounted variability / sampling variability): 1.44
## R^2 (amount of heterogeneity accounted for): 0.00%
##
## Test for Residual Heterogeneity:
## QE(df = 4) = 7.2319, p-val = 0.1241
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 4) = 0.0119, p-val = 0.9882
##
## Model Results:
##
## estimate se tval pval
## intrcpt -0.5249 0.5723 -0.9172 0.4109
## co\_interventionMono-Therapy 0.1072 0.7630 0.1405 0.8951
## co\_interventionShared with Comparator 0.1036 0.8080 0.1282 0.9042
## ci.lb ci.ub
## intrcpt -2.1139 1.0641
## co\_interventionMono-Therapy -2.0111 2.2255
## co\_interventionShared with Comparator -2.1398 2.3470
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Type of Comparator

#### Meta-Regression for Type of Comparator
m3 <- rma(yi=yi, vi=vi, mods = ~ comparator, data=relapse\_metareg, knha=TRUE)
m3

##
## Mixed-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0119 (SE = 0.2473)
## tau (square root of estimated tau^2 value): 0.1090
## I^2 (residual heterogeneity / unaccounted variability): 2.73%
## H^2 (unaccounted variability / sampling variability): 1.03
## R^2 (amount of heterogeneity accounted for): 0.00%
##
## Test for Residual Heterogeneity:
## QE(df = 4) = 4.9493, p-val = 0.2925
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 4) = 1.0796, p-val = 0.4218
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.1473 0.3652 -0.4034 0.7073 -1.1611 0.8665
## comparatorRP -0.8667 0.6038 -1.4354 0.2245 -2.5432 0.8097
## comparatorTAU -0.1828 0.4809 -0.3800 0.7232 -1.5179 1.1524
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Frequency of Substance Use at Longest Follow-Up

### Meta-Regression for Type of Substance

#### Subset Dataset to Frequency of Use, Longest Follow-Up (Reference Case)
frequency\_metareg <- subset(d, outcome == "Frequency" & metareg == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
#### Meta-Regression for Type of Substance
m1 <- rma(yi=yi, vi=vi, mods = ~ substance, data=frequency\_metareg, knha=TRUE)
m1

##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0000 (SE = 0.0392)
## tau (square root of estimated tau^2 value): 0.0008
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): 100.00%
##
## Test for Residual Heterogeneity:
## QE(df = 3) = 2.4248, p-val = 0.4890
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 3) = 7.2519, p-val = 0.0742
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt 0.3862 0.1675 2.3051 0.1045 -0.1470 0.9194
## substanceMultiple -0.5287 0.1963 -2.6929 0.0742 -1.1536 0.0961 .
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Co-Intervention Status

#### Meta-Regression for Co-Intervention Status
m2 <- rma(yi=yi, vi=vi, mods = ~ co\_intervention, data=frequency\_metareg, knha=TRUE)
m2

##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0000 (SE = 0.0444)
## tau (square root of estimated tau^2 value): 0.0014
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): 100.00%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 3.7960, p-val = 0.1499
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 2) = 1.1829, p-val = 0.4581
##
## Model Results:
##
## estimate se tval pval
## intrcpt 0.3184 0.2707 1.1763 0.3605
## co\_interventionMono-Therapy -0.3691 0.3189 -1.1574 0.3667
## co\_interventionShared with Comparator -0.6755 0.4651 -1.4525 0.2835
## ci.lb ci.ub
## intrcpt -0.8462 1.4830
## co\_interventionMono-Therapy -1.7412 1.0030
## co\_interventionShared with Comparator -2.6766 1.3255
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Type of Comparator

#### Meta-Regression for Type of Comparator
m3 <- rma(yi=yi, vi=vi, mods = ~ comparator, data=frequency\_metareg, knha=TRUE)
m3

##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0424)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): 100.00%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 1.6899, p-val = 0.4296
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 2) = 3.9033, p-val = 0.2039
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt 0.9948 0.5411 1.8387 0.2073 -1.3332 3.3228
## comparatorRP -1.2216 0.5569 -2.1934 0.1596 -3.6178 1.1747
## comparatorTAU -0.8436 0.5552 -1.5195 0.2680 -3.2324 1.5451
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Withdrawal/Craving at Longest Follow-Up

### Meta-Regression for Type of Substance

#### Subset Dataset to Withdrawal/Craving, Longest Follow-Up (Reference Case)
withdrawal\_metareg <- subset(d, outcome == "Withdrawal" & metareg == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
#### Meta-Regression for Type of Substance
m1 <- rma(yi=yi, vi=vi, mods = ~ substance, data=withdrawal\_metareg, knha=TRUE)
m1

##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0342)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 3) = 0.0417, p-val = 0.9978
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 3) = 12.0350, p-val = 0.0404
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.2064 0.0236 -8.7500 0.0031 -0.2815 -0.1313 \*\*
## substanceMultiple 0.0924 0.0266 3.4691 0.0404 0.0076 0.1772 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Co-Intervention Status

#### Meta-Regression for Co-Intervention Status
m2 <- rma(yi=yi, vi=vi, mods = ~ co\_intervention, data=withdrawal\_metareg, knha=TRUE)
m2

##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0383)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 0.0818, p-val = 0.9599
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 2) = 1.5545, p-val = 0.3915
##
## Model Results:
##
## estimate se tval pval
## intrcpt -0.2015 0.0433 -4.6502 0.0433
## co\_interventionMono-Therapy 0.0803 0.0489 1.6440 0.2419
## co\_interventionShared with Comparator 0.1003 0.0698 1.4378 0.2871
## ci.lb ci.ub
## intrcpt -0.3879 -0.0151 \*
## co\_interventionMono-Therapy -0.1299 0.2905
## co\_interventionShared with Comparator -0.1998 0.4004
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Type of Comparator

#### Meta-Regression for Type of Comparator
m3 <- rma(yi=yi, vi=vi, mods = ~ comparator, data=withdrawal\_metareg, knha=TRUE)
m3

##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0429)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 0.0429, p-val = 0.9788
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 2) = 3.8736, p-val = 0.2052
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.2399 0.0819 -2.9275 0.0996 -0.5925 0.1127 .
## comparatorRP 0.1401 0.0841 1.6664 0.2375 -0.2216 0.5017
## comparatorTAU 0.0721 0.0844 0.8537 0.4832 -0.2912 0.4354
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Treatment Dropout at Longest Follow-Up

### Meta-Regression for Type of Substance

#### Subset Dataset to Treatment Dropout, Longest Follow-Up (Reference Case)
dropout\_metareg <- subset(d, outcome == "Dropout" & metareg == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
#### Meta-Regression for Type of Substance
m1 <- rma(yi=yi, vi=vi, mods = ~ substance, data=dropout\_metareg, knha=TRUE)
m1

##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.3888 (SE = 0.5420)
## tau (square root of estimated tau^2 value): 0.6235
## I^2 (residual heterogeneity / unaccounted variability): 72.42%
## H^2 (unaccounted variability / sampling variability): 3.63
## R^2 (amount of heterogeneity accounted for): 0.00%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 6.5321, p-val = 0.0382
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 2) = 0.0298, p-val = 0.9711
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.4055 0.9700 -0.4180 0.7166 -4.5791 3.7682
## substanceMultiple 0.2310 1.0643 0.2171 0.8483 -4.3484 4.8105
## substanceStimulants 0.0888 1.2790 0.0694 0.9510 -5.4145 5.5920
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Co-Intervention Status

#### Meta-Regression for Co-Intervention Status
m2 <- rma(yi=yi, vi=vi, mods = ~ co\_intervention, data=dropout\_metareg, knha=TRUE)
m2

##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.2482)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): 100.00%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 1.5402, p-val = 0.4630
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 2) = 3.4445, p-val = 0.2250
##
## Model Results:
##
## estimate se tval pval
## intrcpt -1.0987 0.4008 -2.7412 0.1113
## co\_interventionMono-Therapy 1.1170 0.4650 2.4021 0.1383
## co\_interventionShared with Comparator 1.2010 0.4924 2.4392 0.1349
## ci.lb ci.ub
## intrcpt -2.8234 0.6259
## co\_interventionMono-Therapy -0.8838 3.1178
## co\_interventionShared with Comparator -0.9175 3.3195
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Type of Comparator

#### Meta-Regression for Type of Comparator
m3 <- rma(yi=yi, vi=vi, mods = ~ comparator, data=dropout\_metareg, knha=TRUE)
m3

##
## Mixed-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.1855)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): 100.00%
##
## Test for Residual Heterogeneity:
## QE(df = 1) = 0.3300, p-val = 0.5657
##
## Test of Moderators (coefficient(s) 2,3,4):
## F(df1 = 3, df2 = 1) = 6.5822, p-val = 0.2773
##
## Model Results:
##
## estimate se tval pval ci.lb
## intrcpt -0.4055 0.4039 -1.0038 0.4988 -5.5377
## comparatorHealth Education 0.0888 0.5001 0.1775 0.8882 -6.2659
## comparatorRP 0.5909 0.4267 1.3849 0.3981 -4.8304
## comparatorTAU -0.6933 0.4816 -1.4394 0.3865 -6.8132
## ci.ub
## intrcpt 4.7268
## comparatorHealth Education 6.4435
## comparatorRP 6.0122
## comparatorTAU 5.4267
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Negative Consequences at Longest Follow-Up

### Meta-Regression for Type of Substance

#### Subset Dataset to Negative Consequences, Longest Follow-Up (Reference Case)
consequences\_metareg <- subset(d, outcome == "Consequences" & metareg == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
#### Meta-Regression for Type of Substance
m1 <- rma(yi=yi, vi=vi, mods = ~ substance, data=consequences\_metareg, knha=TRUE)
m1

##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0347)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 1.4351, p-val = 0.4879
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 2) = 0.5639, p-val = 0.5310
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.2988 0.1722 -1.7347 0.2249 -1.0398 0.4423
## substanceMultiple 0.1456 0.1939 0.7510 0.5310 -0.6886 0.9798
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Co-Intervention Status

#### Meta-Regression for Co-Intervention Status
m2 <- rma(yi=yi, vi=vi, mods = ~ co\_intervention, data=consequences\_metareg, knha=TRUE)
m2

##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0385)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 1) = 0.0781, p-val = 0.7799
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 1) = 11.2783, p-val = 0.2060
##
## Model Results:
##
## estimate se tval pval
## intrcpt -0.2988 0.0568 -5.2582 0.1196
## co\_interventionMono-Therapy 0.1961 0.0651 3.0119 0.2041
## co\_interventionShared with Comparator -0.1514 0.0958 -1.5812 0.3590
## ci.lb ci.ub
## intrcpt -1.0208 0.4232
## co\_interventionMono-Therapy -0.6311 1.0233
## co\_interventionShared with Comparator -1.3680 1.0652
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Type of Comparator

#### Meta-Regression for Type of Comparator
m3 <- rma(yi=yi, vi=vi, mods = ~ comparator, data=consequences\_metareg, knha=TRUE)
m3

##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0419)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 1.7562, p-val = 0.4156
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 2) = 0.0952, p-val = 0.7869
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.1584 0.1204 -1.3153 0.3190 -0.6764 0.3597
## comparatorTAU -0.0541 0.1753 -0.3085 0.7869 -0.8082 0.7000
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Depressive Symptoms at Longest Follow-Up

### Meta-Regression for Type of Substance

#### Subset Dataset to Depressive Symptoms, Longest Follow-Up (Reference Case)
depressive\_metareg <- subset(d, outcome == "Depressive" & metareg == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
#### Meta-Regression for Type of Substance
m1 <- rma(yi=yi, vi=vi, mods = ~ substance, data=depressive\_metareg, knha=TRUE)
m1

##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0372)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 0.1240, p-val = 0.9399
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 2) = 31.7781, p-val = 0.0301
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.0989 0.0266 -3.7177 0.0653 -0.2133 0.0156
## substanceStimulants -0.4566 0.0810 -5.6372 0.0301 -0.8052 -0.1081
##
## intrcpt .
## substanceStimulants \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Co-Intervention Status

#### Meta-Regression for Co-Intervention Status
m2 <- rma(yi=yi, vi=vi, mods = ~ co\_intervention, data=depressive\_metareg, knha=TRUE)
m2

##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0000 (SE = 0.0405)
## tau (square root of estimated tau^2 value): 0.0016
## I^2 (residual heterogeneity / unaccounted variability): 0.01%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 1.5960, p-val = 0.4502
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 2) = 0.6250, p-val = 0.5120
##
## Model Results:
##
## estimate se tval pval
## intrcpt -0.1073 0.1039 -1.0327 0.4103
## co\_interventionShared with Comparator -0.1651 0.2089 -0.7906 0.5120
## ci.lb ci.ub
## intrcpt -0.5541 0.3396
## co\_interventionShared with Comparator -1.0639 0.7336
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Type of Comparator

#### Meta-Regression for Type of Comparator
m3 <- rma(yi=yi, vi=vi, mods = ~ comparator, data=depressive\_metareg, knha=TRUE)
m3

##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0 (SE = 0.0431)
## tau (square root of estimated tau^2 value): 0
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): NA%
##
## Test for Residual Heterogeneity:
## QE(df = 1) = 0.0907, p-val = 0.7633
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 1) = 11.0496, p-val = 0.2081
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.5555 0.0925 -6.0038 0.1051 -1.7311 0.6201
## comparatorRP 0.5019 0.1232 4.0742 0.1532 -1.0635 2.0673
## comparatorTAU 0.4482 0.0989 4.5310 0.1383 -0.8087 1.7052
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Anxiety Symptoms at Longest Follow-Up

### Meta-Regression for Type of Substance

#### Subset Dataset to Anxiety Symptoms, Longest Follow-Up (Reference Case)
anxiety\_metareg <- subset(d, outcome == "Anxiety" & metareg == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
#### Meta-Regression for Type of Substance
m1 <- rma(yi=yi, vi=vi, mods = ~ substance, data=anxiety\_metareg, knha=TRUE)
m1

##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0120 (SE = 0.0556)
## tau (square root of estimated tau^2 value): 0.1093
## I^2 (residual heterogeneity / unaccounted variability): 30.41%
## H^2 (unaccounted variability / sampling variability): 1.44
## R^2 (amount of heterogeneity accounted for): 93.57%
##
## Test for Residual Heterogeneity:
## QE(df = 1) = 1.4369, p-val = 0.2306
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 1) = 4.3091, p-val = 0.3224
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -1.3312 0.6216 -2.1417 0.2781 -9.2290 6.5666
## substanceMultiple 1.3694 0.6368 2.1504 0.2771 -6.7220 9.4607
## substanceStimulants 0.6819 0.6821 0.9998 0.5001 -7.9845 9.3483
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Co-Intervention Status

#### Meta-Regression for Co-Intervention Status
m2 <- rma(yi=yi, vi=vi, mods = ~ co\_intervention, data=anxiety\_metareg, knha=TRUE)
m2

##
## Mixed-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.2039 (SE = 0.2925)
## tau (square root of estimated tau^2 value): 0.4516
## I^2 (residual heterogeneity / unaccounted variability): 80.50%
## H^2 (unaccounted variability / sampling variability): 5.13
## R^2 (amount of heterogeneity accounted for): 0.00%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 6.3467, p-val = 0.0419
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 2) = 0.3836, p-val = 0.5988
##
## Model Results:
##
## estimate se tval pval
## intrcpt -0.2052 0.3672 -0.5588 0.6325
## co\_interventionShared with Comparator -0.4441 0.7170 -0.6194 0.5988
## ci.lb ci.ub
## intrcpt -1.7852 1.3748
## co\_interventionShared with Comparator -3.5290 2.6408
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Mindfulness at Longest Follow-Up

#### Subset Dataset to Depressive Symptoms, Longest Follow-Up (Reference Case)
mindfulness\_metareg <- subset(d, outcome == "Mindfulness" & metareg == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))

### Meta-Regression for Type of Substance

#### Meta-Regression for Type of Substance
m1 <- rma(yi=yi, vi=vi, mods = ~ substance, data=mindfulness\_metareg, knha=TRUE)
m1

##
## Mixed-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.1474 (SE = 0.2681)
## tau (square root of estimated tau^2 value): 0.3839
## I^2 (residual heterogeneity / unaccounted variability): 56.10%
## H^2 (unaccounted variability / sampling variability): 2.28
## R^2 (amount of heterogeneity accounted for): 0.00%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 4.6713, p-val = 0.0967
##
## Test of Moderators (coefficient(s) 2,3,4):
## F(df1 = 3, df2 = 2) = 0.6651, p-val = 0.6471
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## intrcpt -0.4278 0.3406 -1.2561 0.3359 -1.8930 1.0375
## substanceMultiple 0.4564 0.4601 0.9921 0.4257 -1.5232 2.4360
## substanceOpioids -0.2862 0.6117 -0.4679 0.6859 -2.9182 2.3457
## substanceStimulants 0.0129 0.5698 0.0226 0.9840 -2.4386 2.4643
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Co-Intervention Status

#### Meta-Regression for Co-Intervention Status
m2 <- rma(yi=yi, vi=vi, mods = ~ co\_intervention, data=mindfulness\_metareg, knha=TRUE)
m2

##
## Mixed-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0000 (SE = 0.0964)
## tau (square root of estimated tau^2 value): 0.0003
## I^2 (residual heterogeneity / unaccounted variability): 0.00%
## H^2 (unaccounted variability / sampling variability): 1.00
## R^2 (amount of heterogeneity accounted for): 100.00%
##
## Test for Residual Heterogeneity:
## QE(df = 3) = 3.1247, p-val = 0.3728
##
## Test of Moderators (coefficient(s) 2,3):
## F(df1 = 2, df2 = 3) = 4.6577, p-val = 0.1202
##
## Model Results:
##
## estimate se tval pval
## intrcpt -0.4448 0.1845 -2.4102 0.0950
## co\_interventionMono-Therapy 0.7247 0.2634 2.7516 0.0706
## co\_interventionShared with Comparator -0.0052 0.3024 -0.0173 0.9873
## ci.lb ci.ub
## intrcpt -1.0320 0.1425 .
## co\_interventionMono-Therapy -0.1135 1.5629 .
## co\_interventionShared with Comparator -0.9675 0.9570
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Meta-Regression for Type of Comparator

#### Meta-Regression for Type of Comparator
m3 <- rma(yi=yi, vi=vi, mods = ~ comparator, data=mindfulness\_metareg, knha=TRUE)
m3

##
## Mixed-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.2391 (SE = 0.3098)
## tau (square root of estimated tau^2 value): 0.4890
## I^2 (residual heterogeneity / unaccounted variability): 80.19%
## H^2 (unaccounted variability / sampling variability): 5.05
## R^2 (amount of heterogeneity accounted for): 0.00%
##
## Test for Residual Heterogeneity:
## QE(df = 2) = 10.2301, p-val = 0.0060
##
## Test of Moderators (coefficient(s) 2,3,4):
## F(df1 = 3, df2 = 2) = 0.1358, p-val = 0.9304
##
## Model Results:
##
## estimate se tval pval ci.lb
## intrcpt -0.5679 0.7473 -0.7599 0.5267 -3.7834
## comparatorHealth Education 0.1530 0.9438 0.1621 0.8861 -3.9078
## comparatorRP 0.0696 0.9625 0.0723 0.9489 -4.0716
## comparatorTAU 0.3854 0.8128 0.4741 0.6821 -3.1120
## ci.ub
## intrcpt 2.6475
## comparatorHealth Education 4.2139
## comparatorRP 4.2108
## comparatorTAU 3.8828
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

# Sensitivity Analyses

## Relapse to Substance Use - Sensitivity Analyses

### Sensitivity Analysis 1

#### Subset Dataset to Relapse
relapse\_sensitivity\_1 <- subset(d, outcome == "Relapse" & sensitivity\_1 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
relapse\_meta\_1 <- rma(yi=yi, vi=vi, knha=TRUE, measure="OR", data=relapse\_sensitivity\_1)
relapse\_meta\_1

##
## Random-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.1102)
## tau (square root of estimated tau^2 value): 0.0013
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 6) = 6.5314, p-val = 0.3664
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3336 0.1845 -1.8078 0.1206 -0.7852 0.1179
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

predict(relapse\_meta\_1, transf=exp)

## pred ci.lb ci.ub cr.lb cr.ub
## 0.7163 0.4560 1.1252 0.4560 1.1252

### Sensitivity Analysis 2

#### Subset Dataset to Relapse
relapse\_sensitivity\_2 <- subset(d, outcome == "Relapse" & sensitivity\_2 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
relapse\_meta\_2 <- rma(yi=yi, vi=vi, knha=TRUE, measure="OR", data=relapse\_sensitivity\_2)
relapse\_meta\_2

##
## Random-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.1114)
## tau (square root of estimated tau^2 value): 0.0010
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 6) = 6.4462, p-val = 0.3751
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3127 0.1843 -1.6971 0.1406 -0.7636 0.1382
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

predict(relapse\_meta\_2, transf=exp)

## pred ci.lb ci.ub cr.lb cr.ub
## 0.7315 0.4660 1.1482 0.4660 1.1482

### Sensitivity Analysis 3

#### Subset Dataset to Relapse
relapse\_sensitivity\_3 <- subset(d, outcome == "Relapse" & sensitivity\_3 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
relapse\_meta\_3 <- rma(yi=yi, vi=vi, knha=TRUE, measure="OR", data=relapse\_sensitivity\_3)
relapse\_meta\_3

##
## Random-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.1090)
## tau (square root of estimated tau^2 value): 0.0020
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 6) = 7.2306, p-val = 0.3001
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3941 0.1932 -2.0394 0.0875 -0.8669 0.0787 .
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

predict(relapse\_meta\_3, transf=exp)

## pred ci.lb ci.ub cr.lb cr.ub
## 0.6743 0.4202 1.0819 0.4202 1.0819

### Sensitivity Analysis 4

#### Subset Dataset to Relapse
relapse\_sensitivity\_4 <- subset(d, outcome == "Relapse" & sensitivity\_4 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
relapse\_meta\_4 <- rma(yi=yi, vi=vi, knha=TRUE, measure="OR", data=relapse\_sensitivity\_4)
relapse\_meta\_4

##
## Random-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.1128)
## tau (square root of estimated tau^2 value): 0.0008
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 6) = 6.5657, p-val = 0.3629
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2663 0.1870 -1.4241 0.2043 -0.7238 0.1912
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

predict(relapse\_meta\_4, transf=exp)

## pred ci.lb ci.ub cr.lb cr.ub
## 0.7662 0.4849 1.2107 0.4849 1.2107

### Sensitivity Analysis 5

#### Subset Dataset to Relapse
relapse\_sensitivity\_5 <- subset(d, outcome == "Relapse" & sensitivity\_5 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
relapse\_meta\_5 <- rma(yi=yi, vi=vi, knha=TRUE, measure="OR", data=relapse\_sensitivity\_5)
relapse\_meta\_5

##
## Random-Effects Model (k = 7; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0102 (SE = 0.1180)
## tau (square root of estimated tau^2 value): 0.1008
## I^2 (total heterogeneity / total variability): 4.04%
## H^2 (total variability / sampling variability): 1.04
##
## Test for Heterogeneity:
## Q(df = 6) = 7.7447, p-val = 0.2574
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.4227 0.2042 -2.0698 0.0839 -0.9224 0.0770 .
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

predict(relapse\_meta\_5, transf=exp)

## pred ci.lb ci.ub cr.lb cr.ub
## 0.6553 0.3975 1.0801 0.3753 1.1440

## Frequency of Substance Use - Sensitivity Analyses

### Sensitivity Analysis 1

#### Subset Dataset to Frequency
frequency\_sensitivity\_1 <- subset(d, outcome == "Frequency" & sensitivity\_1 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_1 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_1)
frequency\_meta\_1

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0975 (SE = 0.1084)
## tau (square root of estimated tau^2 value): 0.3122
## I^2 (total heterogeneity / total variability): 68.68%
## H^2 (total variability / sampling variability): 3.19
##
## Test for Heterogeneity:
## Q(df = 4) = 12.1999, p-val = 0.0159
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0607 0.2011 -0.3021 0.7776 -0.6190 0.4975
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 2

#### Subset Dataset to Frequency
frequency\_sensitivity\_2 <- subset(d, outcome == "Frequency" & sensitivity\_2 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_2 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_2)
frequency\_meta\_2

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0642 (SE = 0.0817)
## tau (square root of estimated tau^2 value): 0.2534
## I^2 (total heterogeneity / total variability): 59.05%
## H^2 (total variability / sampling variability): 2.44
##
## Test for Heterogeneity:
## Q(df = 4) = 10.1152, p-val = 0.0385
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0426 0.1793 -0.2373 0.8241 -0.5404 0.4553
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 3

#### Subset Dataset to Frequency
frequency\_sensitivity\_3 <- subset(d, outcome == "Frequency" & sensitivity\_3 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_3 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_3)
frequency\_meta\_3

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0273 (SE = 0.0517)
## tau (square root of estimated tau^2 value): 0.1653
## I^2 (total heterogeneity / total variability): 37.45%
## H^2 (total variability / sampling variability): 1.60
##
## Test for Heterogeneity:
## Q(df = 4) = 7.0967, p-val = 0.1309
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## 0.0082 0.1361 0.0605 0.9547 -0.3696 0.3860
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 4

#### Subset Dataset to Frequency
frequency\_sensitivity\_4 <- subset(d, outcome == "Frequency" & sensitivity\_4 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_4 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_4)
frequency\_meta\_4

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0033 (SE = 0.0300)
## tau (square root of estimated tau^2 value): 0.0575
## I^2 (total heterogeneity / total variability): 6.82%
## H^2 (total variability / sampling variability): 1.07
##
## Test for Heterogeneity:
## Q(df = 4) = 6.7819, p-val = 0.1479
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## 0.0582 0.1202 0.4840 0.6537 -0.2755 0.3919
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 5

#### Subset Dataset to Frequency
frequency\_sensitivity\_5 <- subset(d, outcome == "Frequency" & sensitivity\_5 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_5 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_5)
frequency\_meta\_5

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0206 (SE = 0.0458)
## tau (square root of estimated tau^2 value): 0.1435
## I^2 (total heterogeneity / total variability): 31.13%
## H^2 (total variability / sampling variability): 1.45
##
## Test for Heterogeneity:
## Q(df = 4) = 7.4544, p-val = 0.1137
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## 0.0326 0.1405 0.2322 0.8277 -0.3575 0.4227
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 6

#### Subset Dataset to Frequency
frequency\_sensitivity\_6 <- subset(d, outcome == "Frequency" & sensitivity\_6 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_6 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_6)
frequency\_meta\_6

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0143 (SE = 0.0400)
## tau (square root of estimated tau^2 value): 0.1198
## I^2 (total heterogeneity / total variability): 24.09%
## H^2 (total variability / sampling variability): 1.32
##
## Test for Heterogeneity:
## Q(df = 4) = 7.1724, p-val = 0.1271
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## 0.0403 0.1337 0.3013 0.7782 -0.3310 0.4115
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 7

#### Subset Dataset to Frequency
frequency\_sensitivity\_7 <- subset(d, outcome == "Frequency" & sensitivity\_7 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_7 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_7)
frequency\_meta\_7

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0119 (SE = 0.0381)
## tau (square root of estimated tau^2 value): 0.1091
## I^2 (total heterogeneity / total variability): 20.73%
## H^2 (total variability / sampling variability): 1.26
##
## Test for Heterogeneity:
## Q(df = 4) = 7.0558, p-val = 0.1330
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## 0.0447 0.1313 0.3400 0.7509 -0.3200 0.4093
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 8

#### Subset Dataset to Frequency
frequency\_sensitivity\_8 <- subset(d, outcome == "Frequency" & sensitivity\_8 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_8 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_8)
frequency\_meta\_8

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0595 (SE = 0.0786)
## tau (square root of estimated tau^2 value): 0.2439
## I^2 (total heterogeneity / total variability): 56.50%
## H^2 (total variability / sampling variability): 2.30
##
## Test for Heterogeneity:
## Q(df = 4) = 10.0087, p-val = 0.0403
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0019 0.1728 -0.0111 0.9917 -0.4817 0.4778
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 9

#### Subset Dataset to Frequency
frequency\_sensitivity\_9 <- subset(d, outcome == "Frequency" & sensitivity\_9 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_9 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_9)
frequency\_meta\_9

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.0267)
## tau (square root of estimated tau^2 value): 0.0008
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 6.1351, p-val = 0.1893
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0360 0.1104 -0.3264 0.7605 -0.3426 0.2705
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 10

#### Subset Dataset to Frequency
frequency\_sensitivity\_10 <- subset(d, outcome == "Frequency" & sensitivity\_10 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_10 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_10)
frequency\_meta\_10

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0126 (SE = 0.0383)
## tau (square root of estimated tau^2 value): 0.1124
## I^2 (total heterogeneity / total variability): 21.97%
## H^2 (total variability / sampling variability): 1.28
##
## Test for Heterogeneity:
## Q(df = 4) = 6.9860, p-val = 0.1366
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0098 0.1299 -0.0753 0.9436 -0.3703 0.3508
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 11

#### Subset Dataset to Frequency
frequency\_sensitivity\_11 <- subset(d, outcome == "Frequency" & sensitivity\_11 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_11 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_11)
frequency\_meta\_11

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.0272)
## tau (square root of estimated tau^2 value): 0.0009
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 5.4206, p-val = 0.2468
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0536 0.1045 -0.5128 0.6351 -0.3437 0.2366
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 12

#### Subset Dataset to Frequency
frequency\_sensitivity\_12 <- subset(d, outcome == "Frequency" & sensitivity\_12 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta\_12 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=frequency\_sensitivity\_12)
frequency\_meta\_12

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.0272)
## tau (square root of estimated tau^2 value): 0.0028
## I^2 (total heterogeneity / total variability): 0.02%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 5.7806, p-val = 0.2161
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0448 0.1079 -0.4150 0.6994 -0.3445 0.2549
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Quantity of Substance Use - Sensitivity Analyses

### Sensitivity Analysis 1

#### Subset Dataset to Quantity
quantity\_sensitivity\_1 <- subset(d, outcome == "Quantity" & sensitivity\_1 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
quantity\_meta\_1 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=quantity\_sensitivity\_1)
quantity\_meta\_1

##
## Fixed-Effects Model (k = 1)
##
## Test for Heterogeneity:
## Q(df = 0) = 0.0000, p-val = 1.0000
##
## Model Results:
##
## estimate se zval pval ci.lb ci.ub
## 0.2580 0.1960 1.3166 0.1880 -0.1261 0.6421
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Withdrawal/Craving Symptoms - Sensitivity Analyses

### Sensitivity Analysis 1

#### Subset Dataset to Withdrawal
withdrawal\_sensitivity\_1 <- subset(d, outcome == "Withdrawal" & sensitivity\_1 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
withdrawal\_meta\_1 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=withdrawal\_sensitivity\_1)
withdrawal\_meta\_1

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0005 (SE = 0.0281)
## tau (square root of estimated tau^2 value): 0.0213
## I^2 (total heterogeneity / total variability): 0.95%
## H^2 (total variability / sampling variability): 1.01
##
## Test for Heterogeneity:
## Q(df = 4) = 2.7082, p-val = 0.6078
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.1950 0.0728 -2.6796 0.0553 -0.3970 0.0070 .
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 2

#### Subset Dataset to Withdrawal
withdrawal\_sensitivity\_2 <- subset(d, outcome == "Withdrawal" & sensitivity\_2 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
withdrawal\_meta\_2 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=withdrawal\_sensitivity\_2)
withdrawal\_meta\_2

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0280)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 0.9024, p-val = 0.9242
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.1620 0.0420 -3.8533 0.0183 -0.2787 -0.0453 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 3

#### Subset Dataset to Withdrawal
withdrawal\_sensitivity\_3 <- subset(d, outcome == "Withdrawal" & sensitivity\_2 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
withdrawal\_meta\_3 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=withdrawal\_sensitivity\_3)
withdrawal\_meta\_3

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0280)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 0.9024, p-val = 0.9242
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.1620 0.0420 -3.8533 0.0183 -0.2787 -0.0453 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 4

#### Subset Dataset to Withdrawal
withdrawal\_sensitivity\_4 <- subset(d, outcome == "Withdrawal" & sensitivity\_4 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
withdrawal\_meta\_4 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=withdrawal\_sensitivity\_4)
withdrawal\_meta\_4

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0010 (SE = 0.0269)
## tau (square root of estimated tau^2 value): 0.0314
## I^2 (total heterogeneity / total variability): 2.18%
## H^2 (total variability / sampling variability): 1.02
##
## Test for Heterogeneity:
## Q(df = 4) = 2.2204, p-val = 0.6953
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0375 0.0643 -0.5838 0.5907 -0.2161 0.1410
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 5

#### Subset Dataset to Withdrawal
withdrawal\_sensitivity\_5 <- subset(d, outcome == "Withdrawal" & sensitivity\_5 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
withdrawal\_meta\_5 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=withdrawal\_sensitivity\_5)
withdrawal\_meta\_5

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0259)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 0.1326, p-val = 0.9979
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.1696 0.0157 -10.7837 0.0004 -0.2133 -0.1259 \*\*\*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 6

#### Subset Dataset to Withdrawal
withdrawal\_sensitivity\_6 <- subset(d, outcome == "Withdrawal" & sensitivity\_6 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
withdrawal\_meta\_6 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=withdrawal\_sensitivity\_6)
withdrawal\_meta\_6

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0259)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 0.1523, p-val = 0.9972
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.1411 0.0168 -8.3809 0.0011 -0.1879 -0.0944 \*\*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 7

#### Subset Dataset to Withdrawal
withdrawal\_sensitivity\_7 <- subset(d, outcome == "Withdrawal" & sensitivity\_7 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
withdrawal\_meta\_7 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=withdrawal\_sensitivity\_7)
withdrawal\_meta\_7

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0247)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 4) = 0.6393, p-val = 0.9586
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.1478 0.0339 -4.3585 0.0121 -0.2419 -0.0536 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Negative Consequences - Sensitivity Analyses

### Sensitivity Analysis 1

#### Subset Dataset to Negative Consequences
consequences\_sensitivity\_1 <- subset(d, outcome == "Consequences" & sensitivity\_1 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta\_1 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=consequences\_sensitivity\_1)
consequences\_meta\_1

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0270)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 0.7518, p-val = 0.8610
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2498 0.0443 -5.6425 0.0110 -0.3907 -0.1089 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 2

#### Subset Dataset to Negative Consequences
consequences\_sensitivity\_2 <- subset(d, outcome == "Consequences" & sensitivity\_2 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta\_2 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=consequences\_sensitivity\_2)
consequences\_meta\_2

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0275)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 0.8975, p-val = 0.8260
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2395 0.0487 -4.9198 0.0161 -0.3944 -0.0846 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 3

#### Subset Dataset to Negative Consequences
consequences\_sensitivity\_3 <- subset(d, outcome == "Consequences" & sensitivity\_3 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta\_3 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=consequences\_sensitivity\_3)
consequences\_meta\_3

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0256)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 0.9324, p-val = 0.8176
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2510 0.0484 -5.1875 0.0139 -0.4050 -0.0970 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 4

#### Subset Dataset to Negative Consequences
consequences\_sensitivity\_4 <- subset(d, outcome == "Consequences" & sensitivity\_4 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta\_4 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=consequences\_sensitivity\_4)
consequences\_meta\_4

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0255)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 1.2989, p-val = 0.7294
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2064 0.0571 -3.6180 0.0363 -0.3880 -0.0249 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 5

#### Subset Dataset to Negative Consequences
consequences\_sensitivity\_5 <- subset(d, outcome == "Consequences" & sensitivity\_5 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta\_5 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=consequences\_sensitivity\_5)
consequences\_meta\_5

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0255)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 1.1873, p-val = 0.7560
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2149 0.0546 -3.9394 0.0291 -0.3885 -0.0413 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 6

#### Subset Dataset to Negative Consequences
consequences\_sensitivity\_6 <- subset(d, outcome == "Consequences" & sensitivity\_6 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta\_6 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=consequences\_sensitivity\_6)
consequences\_meta\_6

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0256)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 0.9314, p-val = 0.8178
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2515 0.0484 -5.2006 0.0138 -0.4054 -0.0976 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 7

#### Subset Dataset to Negative Consequences
consequences\_sensitivity\_7 <- subset(d, outcome == "Consequences" & sensitivity\_7 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta\_7 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=consequences\_sensitivity\_7)
consequences\_meta\_7

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0250)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 1.3694, p-val = 0.7127
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2456 0.0581 -4.2231 0.0243 -0.4306 -0.0605 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 8

#### Subset Dataset to Negative Consequences
consequences\_sensitivity\_8 <- subset(d, outcome == "Consequences" & sensitivity\_8 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta\_8 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=consequences\_sensitivity\_8)
consequences\_meta\_8

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0255)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 1.0369, p-val = 0.7923
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2319 0.0510 -4.5466 0.0199 -0.3942 -0.0696 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Depressive Symptoms - Sensitivity Analyses

### Sensitivity Analysis 1

#### Subset Dataset to Depressive Symptoms
depressive\_sensitivity\_1 <- subset(d, outcome == "Depressive" & sensitivity\_1 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
depressive\_meta\_1 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=depressive\_sensitivity\_1)
depressive\_meta\_1

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0315)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 1.7229, p-val = 0.6319
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2395 0.0709 -3.3786 0.0431 -0.4651 -0.0139 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 2

#### Subset Dataset to Depressive Symptoms
depressive\_sensitivity\_2 <- subset(d, outcome == "Depressive" & sensitivity\_2 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
depressive\_meta\_2 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=depressive\_sensitivity\_2)
depressive\_meta\_2

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.0314)
## tau (square root of estimated tau^2 value): 0.0019
## I^2 (total heterogeneity / total variability): 0.01%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 2.8384, p-val = 0.4172
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0971 0.0908 -1.0694 0.3633 -0.3860 0.1918
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 3

#### Subset Dataset to Depressive Symptoms
depressive\_sensitivity\_3 <- subset(d, outcome == "Depressive" & sensitivity\_3 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
depressive\_meta\_3 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=depressive\_sensitivity\_3)
depressive\_meta\_3

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0000 (SE = 0.0314)
## tau (square root of estimated tau^2 value): 0.0022
## I^2 (total heterogeneity / total variability): 0.01%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 3) = 2.7631, p-val = 0.4296
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.1009 0.0896 -1.1267 0.3419 -0.3860 0.1841
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 4

#### Subset Dataset to Depressive Symptoms
depressive\_sensitivity\_4 <- subset(d, outcome == "Depressive" & sensitivity\_4 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
depressive\_meta\_4 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=depressive\_sensitivity\_4)
depressive\_meta\_4

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0005 (SE = 0.0319)
## tau (square root of estimated tau^2 value): 0.0220
## I^2 (total heterogeneity / total variability): 1.10%
## H^2 (total variability / sampling variability): 1.01
##
## Test for Heterogeneity:
## Q(df = 3) = 3.1476, p-val = 0.3694
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0839 0.0961 -0.8726 0.4471 -0.3898 0.2220
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 5

#### Subset Dataset to Depressive Symptoms
depressive\_sensitivity\_5 <- subset(d, outcome == "Depressive" & sensitivity\_5 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
depressive\_meta\_5 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=depressive\_sensitivity\_5)
depressive\_meta\_5

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0034 (SE = 0.0351)
## tau (square root of estimated tau^2 value): 0.0579
## I^2 (total heterogeneity / total variability): 7.13%
## H^2 (total variability / sampling variability): 1.08
##
## Test for Heterogeneity:
## Q(df = 3) = 3.6337, p-val = 0.3038
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.0997 0.1067 -0.9350 0.4187 -0.4392 0.2397
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Anxiety Symptoms - Sensitivity Analyses

### Sensitivity Analysis 1

#### Subset Dataset to Anxiety Symptoms
anxiety\_sensitivity\_1 <- subset(d, outcome == "Anxiety" & sensitivity\_1 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
anxiety\_meta\_1 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=anxiety\_sensitivity\_1)
anxiety\_meta\_1

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.1579 (SE = 0.1881)
## tau (square root of estimated tau^2 value): 0.3974
## I^2 (total heterogeneity / total variability): 76.02%
## H^2 (total variability / sampling variability): 4.17
##
## Test for Heterogeneity:
## Q(df = 3) = 11.1655, p-val = 0.0109
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3273 0.2624 -1.2471 0.3009 -1.1625 0.5079
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 2

#### Subset Dataset to Anxiety Symptoms
anxiety\_sensitivity\_2 <- subset(d, outcome == "Anxiety" & sensitivity\_2 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
anxiety\_meta\_2 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=anxiety\_sensitivity\_2)
anxiety\_meta\_2

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.2097 (SE = 0.2356)
## tau (square root of estimated tau^2 value): 0.4579
## I^2 (total heterogeneity / total variability): 80.49%
## H^2 (total variability / sampling variability): 5.13
##
## Test for Heterogeneity:
## Q(df = 3) = 11.6338, p-val = 0.0087
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2789 0.2941 -0.9484 0.4129 -1.2150 0.6571
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 3

#### Subset Dataset to Anxiety Symptoms
anxiety\_sensitivity\_3 <- subset(d, outcome == "Anxiety" & sensitivity\_3 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
anxiety\_meta\_3 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=anxiety\_sensitivity\_3)
anxiety\_meta\_3

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0413 (SE = 0.0746)
## tau (square root of estimated tau^2 value): 0.2033
## I^2 (total heterogeneity / total variability): 47.26%
## H^2 (total variability / sampling variability): 1.90
##
## Test for Heterogeneity:
## Q(df = 3) = 6.3051, p-val = 0.0977
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3287 0.1837 -1.7890 0.1716 -0.9133 0.2560
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 4

#### Subset Dataset to Anxiety Symptoms
anxiety\_sensitivity\_4 <- subset(d, outcome == "Anxiety" & sensitivity\_4 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
anxiety\_meta\_4 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=anxiety\_sensitivity\_4)
anxiety\_meta\_4

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0509 (SE = 0.0843)
## tau (square root of estimated tau^2 value): 0.2257
## I^2 (total heterogeneity / total variability): 52.49%
## H^2 (total variability / sampling variability): 2.10
##
## Test for Heterogeneity:
## Q(df = 3) = 6.6070, p-val = 0.0855
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3278 0.1927 -1.7014 0.1874 -0.9411 0.2854
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 5

#### Subset Dataset to Anxiety Symptoms
anxiety\_sensitivity\_5 <- subset(d, outcome == "Anxiety" & sensitivity\_5 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
anxiety\_meta\_5 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=anxiety\_sensitivity\_5)
anxiety\_meta\_5

##
## Random-Effects Model (k = 5; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0081 (SE = 0.0369)
## tau (square root of estimated tau^2 value): 0.0901
## I^2 (total heterogeneity / total variability): 13.80%
## H^2 (total variability / sampling variability): 1.16
##
## Test for Heterogeneity:
## Q(df = 4) = 6.3860, p-val = 0.1721
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2702 0.1251 -2.1610 0.0968 -0.6174 0.0770 .
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 6

#### Subset Dataset to Anxiety Symptoms
anxiety\_sensitivity\_6 <- subset(d, outcome == "Anxiety" & sensitivity\_6 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
anxiety\_meta\_6 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=anxiety\_sensitivity\_6)
anxiety\_meta\_6

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.1229 (SE = 0.1536)
## tau (square root of estimated tau^2 value): 0.3506
## I^2 (total heterogeneity / total variability): 72.74%
## H^2 (total variability / sampling variability): 3.67
##
## Test for Heterogeneity:
## Q(df = 3) = 9.4327, p-val = 0.0241
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3215 0.2437 -1.3189 0.2788 -1.0971 0.4542
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 7

#### Subset Dataset to Anxiety Symptoms
anxiety\_sensitivity\_7 <- subset(d, outcome == "Anxiety" & sensitivity\_7 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
anxiety\_meta\_7 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=anxiety\_sensitivity\_7)
anxiety\_meta\_7

##
## Random-Effects Model (k = 4; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0504 (SE = 0.0907)
## tau (square root of estimated tau^2 value): 0.2245
## I^2 (total heterogeneity / total variability): 47.79%
## H^2 (total variability / sampling variability): 1.92
##
## Test for Heterogeneity:
## Q(df = 3) = 6.9990, p-val = 0.0719
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.1206 0.2101 -0.5741 0.6061 -0.7894 0.5481
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

## Mindfulness - Sensitivity Analyses

### Sensitivity Analysis 1

#### Subset Dataset to Mindfulness
mindfulness\_sensitivity\_1 <- subset(d, outcome == "Mindfulness" & sensitivity\_1 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
mindfulness\_meta\_1 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=mindfulness\_sensitivity\_1)
mindfulness\_meta\_1

##
## Random-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0472)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 5) = 2.8675, p-val = 0.7204
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.3398 0.0875 -3.8852 0.0116 -0.5646 -0.1150 \*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 2

#### Subset Dataset to Mindfulness
mindfulness\_sensitivity\_2 <- subset(d, outcome == "Mindfulness" & sensitivity\_2 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
mindfulness\_meta\_2 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=mindfulness\_sensitivity\_2)
mindfulness\_meta\_2

##
## Random-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0 (SE = 0.0486)
## tau (square root of estimated tau^2 value): 0
## I^2 (total heterogeneity / total variability): 0.00%
## H^2 (total variability / sampling variability): 1.00
##
## Test for Heterogeneity:
## Q(df = 5) = 0.7487, p-val = 0.9802
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.4340 0.0453 -9.5886 0.0002 -0.5504 -0.3177 \*\*\*
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 3

#### Subset Dataset to Mindfulness
mindfulness\_sensitivity\_3 <- subset(d, outcome == "Mindfulness" & sensitivity\_3 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
mindfulness\_meta\_3 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=mindfulness\_sensitivity\_3)
mindfulness\_meta\_3

##
## Random-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.1106 (SE = 0.1297)
## tau (square root of estimated tau^2 value): 0.3326
## I^2 (total heterogeneity / total variability): 57.31%
## H^2 (total variability / sampling variability): 2.34
##
## Test for Heterogeneity:
## Q(df = 5) = 11.8392, p-val = 0.0371
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2485 0.1696 -1.4656 0.2027 -0.6843 0.1874
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

### Sensitivity Analysis 4

#### Subset Dataset to Mindfulness
mindfulness\_sensitivity\_4 <- subset(d, outcome == "Mindfulness" & sensitivity\_4 == "yes", select = c(ID, yi, vi, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
mindfulness\_meta\_4 <- rma(yi=yi, vi=vi, knha=TRUE, measure="SMD", data=mindfulness\_sensitivity\_4)
mindfulness\_meta\_4

##
## Random-Effects Model (k = 6; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.1016 (SE = 0.1177)
## tau (square root of estimated tau^2 value): 0.3188
## I^2 (total heterogeneity / total variability): 57.35%
## H^2 (total variability / sampling variability): 2.34
##
## Test for Heterogeneity:
## Q(df = 5) = 12.0458, p-val = 0.0342
##
## Model Results:
##
## estimate se tval pval ci.lb ci.ub
## -0.2025 0.1664 -1.2169 0.2779 -0.6302 0.2252
##
## ---
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

# Prediction Intervals

## Relapse to Substance Use

####Subset Dataset to Relapse, Longest Follow-Up (Reference Case)
relapse\_longest\_ref <- subset(d, outcome == "Relapse" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
relapse\_meta <- metagen(TE=yi, seTE=sei, data=relapse\_longest\_ref, sm="OR",comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE, backtransf=TRUE)
relapse\_meta

## OR 95%-CI %W(fixed) %W(random)
## 1 0.3888 [0.0821; 1.8399] 5.0 5.0
## 2 0.4885 [0.2019; 1.1823] 15.5 15.5
## 3 0.9759 [0.4422; 2.1540] 19.3 19.3
## 4 0.6494 [0.3202; 1.3169] 24.2 24.2
## 5 0.8630 [0.4667; 1.5960] 32.1 32.1
## 6 0.1556 [0.0169; 1.4344] 2.5 2.5
## 7 7.5657 [0.3811; 150.1914] 1.4 1.4
##
## Number of studies combined: k = 7
##
## OR 95%-CI z|t p-value
## Fixed effect model 0.7165 [0.5058; 1.0148] -1.88 0.0605
## Random effects model 0.7165 [0.4552; 1.1276] -1.80 0.1221
## Prediction interval [0.4449; 1.1538]
##
## Quantifying heterogeneity:
## tau^2 < 0.0001; H = 1.04 [1.00; 1.93]; I^2 = 8.2% [0.0%; 73.2%]
##
## Test of heterogeneity:
## Q d.f. p-value
## 6.53 6 0.3662
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model

## Frequency of Substance Use

####Subset Dataset to Frequency, Longest Follow-Up (Reference Case)
frequency\_longest\_ref <- subset(d, outcome == "Frequency" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
frequency\_meta <- metagen(TE=yi, seTE=sei, data=frequency\_longest\_ref, sm="SMD", comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE)
frequency\_meta

## SMD 95%-CI %W(fixed) %W(random)
## 1 0.9948 [-0.1588; 2.1485] 2.3 4.4
## 2 0.0000 [-0.3662; 0.3662] 23.1 24.6
## 3 -0.1368 [-0.4059; 0.1322] 42.9 32.2
## 4 -0.3571 [-0.8952; 0.1809] 10.7 15.4
## 5 0.3184 [-0.0667; 0.7035] 20.9 23.3
##
## Number of studies combined: k = 5
##
## SMD 95%-CI z|t p-value
## Fixed effect model -0.0071 [-0.1833; 0.1691] -0.08 0.9369
## Random effects model 0.0190 [-0.4036; 0.4416] 0.12 0.9067
## Prediction interval [-0.7360; 0.7740]
##
## Quantifying heterogeneity:
## tau^2 = 0.0331; H = 1.43 [1.00; 2.36]; I^2 = 51.0% [0.0%; 82.0%]
##
## Test of heterogeneity:
## Q d.f. p-value
## 8.16 4 0.0858
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model

## Quantity of Substance Use

####Subset Dataset to Frequency, Longest Follow-Up (Reference Case)
quantity\_longest\_ref <- subset(d, outcome == "Quantity" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
quantity\_meta <- metagen(TE=yi, seTE=sei, data=quantity\_longest\_ref, sm="SMD", comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE)
quantity\_meta

## SMD 95%-CI z p-value
## 0.2580 [-0.1261; 0.6421] 1.32 0.1880
##
## Details:
## - Inverse variance method

## Withdrawal/Craving Symptoms

####Subset Dataset to Withdrawal, Longest Follow-Up (Reference Case)
withdrawal\_longest\_ref <- subset(d, outcome == "Withdrawal" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
withdrawal\_meta <- metagen(TE=yi, seTE=sei, data=withdrawal\_longest\_ref, sm="SMD", comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE)
withdrawal\_meta

## SMD 95%-CI %W(fixed) %W(random)
## 1 -0.2399 [-1.3367; 0.8569] 2.4 2.4
## 2 -0.1431 [-0.5024; 0.2161] 22.2 22.2
## 3 -0.1027 [-0.3443; 0.1388] 49.0 49.0
## 4 -0.1012 [-0.6309; 0.4285] 10.2 10.2
## 5 -0.2015 [-0.6214; 0.2184] 16.2 16.2
##
## Number of studies combined: k = 5
##
## SMD 95%-CI z|t p-value
## Fixed effect model -0.1308 [-0.3000; 0.0383] -1.52 0.1295
## Random effects model -0.1308 [-0.1864; -0.0752] -6.54 0.0028
## Prediction interval [-0.1945; -0.0671]
##
## Quantifying heterogeneity:
## tau^2 = 0; H = 1.00 [1.00; 1.00]; I^2 = 0.0% [0.0%; 0.0%]
##
## Test of heterogeneity:
## Q d.f. p-value
## 0.22 4 0.9946
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model

## Treamtent Dropout

####Subset Dataset to Treatment Dropout, Longest Follow-Up (Reference Case)
dropout\_longest\_ref <- subset(d, outcome == "Dropout" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
dropout\_meta <- metagen(TE=yi, seTE=sei, data=dropout\_longest\_ref, sm="OR",comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE, backtransf=TRUE)
dropout\_meta

## OR 95%-CI %W(fixed) %W(random)
## 1 1.0384 [0.6401; 1.6845] 50.3 33.0
## 2 0.6667 [0.1680; 2.6451] 6.2 10.5
## 3 0.7285 [0.2663; 1.9929] 11.6 16.5
## 4 0.3333 [0.1362; 0.8159] 14.7 19.1
## 5 1.4694 [0.6430; 3.3576] 17.2 20.9
##
## Number of studies combined: k = 5
##
## OR 95%-CI z|t p-value
## Fixed effect model 0.8711 [0.6182; 1.2276] -0.79 0.4305
## Random effects model 0.8093 [0.4037; 1.6222] -0.84 0.4457
## Prediction interval [0.1917; 3.4162]
##
## Quantifying heterogeneity:
## tau^2 = 0.1421; H = 1.30 [1.00; 2.14]; I^2 = 40.6% [0.0%; 78.1%]
##
## Test of heterogeneity:
## Q d.f. p-value
## 6.73 4 0.1506
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model

## Health-Related Quality of Life

####Subset Dataset to QoL, Longest Follow-Up (Reference Case)
QoL\_longest\_ref <- subset(d, outcome == "QoL" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
QoL\_meta <- metagen(TE=yi, seTE=sei, data=QoL\_longest\_ref, sm="SMD", comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE)
QoL\_meta

## SMD 95%-CI z p-value
## -0.6403 [-1.1876; -0.0930] -2.29 0.0218
##
## Details:
## - Inverse variance method

## Negative Consequences

####Subset Dataset to Consequences, Longest Follow-Up (Reference Case)
consequences\_longest\_ref <- subset(d, outcome == "Consequences" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
consequences\_meta <- metagen(TE=yi, seTE=sei, data=consequences\_longest\_ref, sm="SMD", comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE)
consequences\_meta

## SMD 95%-CI %W(fixed) %W(random)
## 1 -0.1427 [-0.5009; 0.2155] 22.5 22.5
## 2 -0.2031 [-0.4451; 0.0389] 49.4 49.4
## 3 -0.4502 [-0.9907; 0.0903] 9.9 9.9
## 4 -0.2988 [-0.6973; 0.0997] 18.2 18.2
##
## Number of studies combined: k = 4
##
## SMD 95%-CI z|t p-value
## Fixed effect model -0.2313 [-0.4014; -0.0613] -2.67 0.0077
## Random effects model -0.2313 [-0.3929; -0.0698] -4.56 0.0198
## Prediction interval [-0.4498; -0.0129]
##
## Quantifying heterogeneity:
## tau^2 = 0; H = 1.00 [1.00; 1.50]; I^2 = 0.0% [0.0%; 55.3%]
##
## Test of heterogeneity:
## Q d.f. p-value
## 1.03 3 0.7946
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model

## Depressive Symptoms

####Subset Dataset to Depressive, Longest Follow-Up (Reference Case)
depressive\_longest\_ref <- subset(d, outcome == "Depressive" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
depressive\_meta <- metagen(TE=yi, seTE=sei, data=depressive\_longest\_ref, sm="SMD", comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE)
depressive\_meta

## SMD 95%-CI %W(fixed) %W(random)
## 1 -0.1569 [-0.5520; 0.2383] 21.4 21.4
## 2 -0.5555 [-1.1577; 0.0467] 9.2 9.2
## 3 0.0084 [-0.2330; 0.2499] 57.4 57.4
## 4 -0.0536 [-0.5830; 0.4759] 11.9 11.9
##
## Number of studies combined: k = 4
##
## SMD 95%-CI z|t p-value
## Fixed effect model -0.0864 [-0.2693; 0.0965] -0.93 0.3544
## Random effects model -0.0864 [-0.3864; 0.2136] -0.92 0.4269
## Prediction interval [-0.4921; 0.3192]
##
## Quantifying heterogeneity:
## tau^2 < 0.0001; H = 1.01 [1.00; 2.58]; I^2 = 2.0% [0.0%; 85.0%]
##
## Test of heterogeneity:
## Q d.f. p-value
## 3.06 3 0.3823
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model

## Anxiety Symptoms

####Subset Dataset to Anxiety, Longest Follow-Up (Reference Case)
anxiety\_longest\_ref <- subset(d, outcome == "Anxiety" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
anxiety\_meta <- metagen(TE=yi, seTE=sei, data=anxiety\_longest\_ref, sm="SMD", comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE)
anxiety\_meta

## SMD 95%-CI %W(fixed) %W(random)
## 1 -1.3312 [-2.5305; -0.1319] 2.4 10.9
## 2 -0.6493 [-1.1562; -0.1424] 13.2 25.7
## 3 -0.1242 [-0.4834; 0.2350] 26.3 30.1
## 4 0.0962 [-0.1453; 0.3378] 58.1 33.3
##
## Number of studies combined: k = 4
##
## SMD 95%-CI z|t p-value
## Fixed effect model -0.0938 [-0.2780; 0.0903] -1.00 0.3180
## Random effects model -0.3168 [-1.1553; 0.5217] -1.20 0.3154
## Prediction interval [-2.3722; 1.7385]
##
## Quantifying heterogeneity:
## tau^2 = 0.1588; H = 1.92 [1.15; 3.23]; I^2 = 73.0% [23.9%; 90.4%]
##
## Test of heterogeneity:
## Q d.f. p-value
## 11.11 3 0.0112
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model

## Mindfulness

####Subset Dataset to Anxiety, Longest Follow-Up (Reference Case)
mindfulness\_longest\_ref <- subset(d, outcome == "Mindfulness" & longest == "yes" & ref == "yes", select = c(ID, yi, sei, outcome, timepoint, substance, co\_intervention, comparator))
### Meta-Analysis Output
### Random Effects Meta-Analysis, REML model, Hartung-Knapp-Sidik-Jonkman adjustment, Hedges' g
mindfulness\_meta <- metagen(TE=yi, seTE=sei, data=mindfulness\_longest\_ref, sm="SMD", comb.random=TRUE, method.tau="REML", prediction = TRUE,level.predict = 0.95, hakn=TRUE)
mindfulness\_meta

## SMD 95%-CI %W(fixed) %W(random)
## 1 -0.5679 [-1.6812; 0.5454] 4.0 8.3
## 2 -0.7140 [-1.4799; 0.0519] 8.4 13.5
## 3 -0.4149 [-1.0193; 0.1895] 13.4 17.2
## 4 -0.4983 [-1.2074; 0.2108] 9.8 14.7
## 5 -0.3714 [-0.7712; 0.0284] 30.7 22.9
## 6 0.3795 [-0.0020; 0.7610] 33.7 23.4
##
## Number of studies combined: k = 6
##
## SMD 95%-CI z|t p-value
## Fixed effect model -0.1728 [-0.3944; 0.0488] -1.53 0.1265
## Random effects model -0.2843 [-0.7240; 0.1553] -1.66 0.1573
## Prediction interval [-1.3532; 0.7845]
##
## Quantifying heterogeneity:
## tau^2 = 0.1189; H = 1.60 [1.02; 2.50]; I^2 = 61.0% [4.7%; 84.1%]
##
## Test of heterogeneity:
## Q d.f. p-value
## 12.83 5 0.0251
##
## Details on meta-analytical method:
## - Inverse variance method
## - Restricted maximum-likelihood estimator for tau^2
## - Hartung-Knapp adjustment for random effects model