

# RoM

*NLP*

*7/18/2017*

This analysis was performed on Tue Jul 18 18:12:54 2017.

This analysis used the metafor package (list(title = "Conducting meta-analyses in {R} with the {metafor} package", author = list(list(given = "Wolfgang", family = "Viechtbauer", role = NULL, email = NULL, comment = NULL)), journal = "Journal of Statistical Software", year = "2010", volume = "36", number = "3", pages = "1-48", url = "http://www.jstatsoft.org/v36/i03/")).

This analysis used the R platform (list(title = "R: A Language and Environment for Statistical Computing", author = list(list(given = "R Core Team", family = NULL, role = NULL, email = NULL, comment = NULL)), organization = "R Foundation for Statistical Computing", address = "Vienna, Austria", year = "2017", url = "https://www.R-project.org/")).

# Dataset

## # A tibble: 25 x 7

##		studyName	meanExp	sdExp	nExp	meanCtl	sdCtl	nCtl
##		<chr>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
##	1	Arici 2009	35.73	5.24	27	62.93	8.67	27
##	2	Arslan 2011	4.25	2.03	20	11.25	5.03	20
##	3	Arslan 2013	5.15	4.29	100	9.10	4.68	100
##	4	Atef 2008	1.80	NA	38	8.20	NA	38
##	5	Aydogan 2008	0.27	0.08	40	0.35	0.09	40
##	6	Cakan 2008	11.00	2.00	20	12.00	2.00	20
##	7	Cobby 1999	35.00	20.40	24	54.90	28.30	21
##	8	Dahl 1997	21.20	7.88	22	18.70	5.90	21
##	9	Dilmen 2010	18.10	13.93	20	30.00	11.32	19
##	10	Durmus 2007	30.50	11.55	25	42.74	12.33	25
##	11	Emir 2010	7.65	0.78	30	13.80	2.26	30
##	12	Fayaz 2004	12.00	6.00	17	22.00	13.00	17
##	13	Jokela 2010	38.85	16.80	40	45.15	18.90	40
##	14	Khalili 2013	3.00	2.28	25	4.20	1.57	25
##	15	Kilieaslan 2010	20.56	0.40	25	28.60	0.35	25
##	16	Koppert 2006	17.00	22.00	25	38.00	22.00	25
##	17	Kvalsvik 2003	16.00	5.00	30	20.00	6.00	30
##	18	Montgomery 1996	27.10	27.00	19	34.50	15.10	20
##	19	Moon 2011	8.70	5.40	36	12.60	6.90	35
##	20	Munishankar 2008	33.80	23.80	25	44.10	24.40	25
##	21	Sinatra 2005	38.30	35.10	49	57.40	52.30	52
##	22	Syal 2010	9.53	1.88	30	10.19	2.08	30
##	23	Toygar 2008	16.50	11.10	30	34.30	11.80	30
##	24	Witjes 1992	7.25	NA	32	11.25	NA	32
##	25	Yalcin 2012	48.53	12.40	26	73.03	22.41	27

## # A tibble: 23 x 9

##		studyName	meanExp	sdExp	nExp	meanCtl	sdCtl	nCtl	RoM	SE
##		<chr>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>	<dbl>
##	1	Arici 2009	35.73	5.24	27	62.93	8.67	27	-0.56603233	0.038724567
##	2	Arslan 2011	4.25	2.03	20	11.25	5.03	20	-0.97344915	0.146296797
##	3	Arslan 2013	5.15	4.29	100	9.10	4.68	100	-0.56927770	0.097897649
##	4	Aydogan 2008	0.27	0.08	40	0.35	0.09	40	-0.25951120	0.062031029
##	5	Cakan 2008	11.00	2.00	20	12.00	2.00	20	-0.08701138	0.055152348
##	6	Cobby 1999	35.00	20.40	24	54.90	28.30	21	-0.45016529	0.163733167
##	7	Dahl 1997	21.20	7.88	22	18.70	5.90	21	0.12547766	0.104977281
##	8	Dilmen 2010	18.10	13.93	20	30.00	11.32	19	-0.50528544	0.192636798
##	9	Durmus 2007	30.50	11.55	25	42.74	12.33	25	-0.33740857	0.095211477
##	10	Emir 2010	7.65	0.78	30	13.80	2.26	30	-0.58996294	0.035221204
##	11	Fayaz 2004	12.00	6.00	17	22.00	13.00	17	-0.60613580	0.187737858
##	12	Jokela 2010	38.85	16.80	40	45.15	18.90	40	-0.15028220	0.095161397
##	13	Khalili 2013	3.00	2.28	25	4.20	1.57	25	-0.33647224	0.169391093
##	14	Kilieaslan 2010	20.56	0.40	25	28.60	0.35	25	-0.33005928	0.004596824
##	15	Koppert 2006	17.00	22.00	25	38.00	22.00	25	-0.80437282	0.283543333
##	16	Kvalsvik 2003	16.00	5.00	30	20.00	6.00	30	-0.22314355	0.079089875
##	17	Montgomery 1996	27.10	27.00	19	34.50	15.10	20	-0.24142560	0.248640525
##	18	Moon 2011	8.70	5.40	36	12.60	6.90	35	-0.37037379	0.138815471
##	19	Munishankar 2008	33.80	23.80	25	44.10	24.40	25	-0.26599898	0.179102603
##	20	Sinatra 2005	38.30	35.10	49	57.40	52.30	52	-0.40459441	0.181949596
##	21	Syal 2010	9.53	1.88	30	10.19	2.08	30	-0.06696213	0.051827218
##	22	Toygar 2008	16.50	11.10	30	34.30	11.80	30	-0.73178497	0.137950961
##	23	Yalcin 2012	48.53	12.40	26	73.03	22.41	27	-0.40868815	0.077450248

## Analysis

```
##
## Random-Effects Model (k = 23; tau^2 estimator: REML)
##
## tau^2 (estimated amount of total heterogeneity): 0.0479 (SE = 0.0187)
## tau (square root of estimated tau^2 value):      0.2189
## I^2 (total heterogeneity / total variability):    93.69%
## H^2 (total variability / sampling variability):   15.84
##
## Test for Heterogeneity:
## Q(df = 22) = 203.1205, p-val < .0001
##
## Model Results:
##
## estimate      se      tval      pval      ci.lb      ci.ub
## -0.3785  0.0519  -7.2926  <.0001  -0.4862  -0.2709  ***
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##
## Mixed-Effects Model (k = 23; tau^2 estimator: REML)
##
## tau^2 (estimated amount of residual heterogeneity): 0.0492 (SE = 0.0197)
## tau (square root of estimated tau^2 value):      0.2219
## I^2 (residual heterogeneity / unaccounted variability): 93.72%
## H^2 (unaccounted variability / sampling variability): 15.92
## R^2 (amount of heterogeneity accounted for):      0.00%
##
## Test for Residual Heterogeneity:
## QE(df = 21) = 184.5257, p-val < .0001
##
## Test of Moderators (coefficient(s) 2):
## F(df1 = 1, df2 = 21) = 0.4075, p-val = 0.5301
##
## Model Results:
##
##           estimate      se      tval      pval      ci.lb      ci.ub
## intrcpt  -0.3312  0.0913  -3.6276  0.0016  -0.5211  -0.1413  **
## mods      -0.0016  0.0026  -0.6384  0.5301  -0.0070   0.0037
##
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

##           df      AIC      BIC      AICc  logLik      LRT      pval      QE  tau^2
## Full        3  6.5752  9.9817  7.8383 -0.2876                184.5257  0.0434
## Reduced     2  5.0298  7.3008  5.6298 -0.5149  0.4547  0.5001  203.1205  0.0452
##           R^2
## Full
## Reduced 3.97%
```

## Predictions

### Model without Moderator

#### Morphine doses 5 to 75 by 5

```
##      pred ci.lb ci.ub cr.lb cr.ub
## 0.6849 0.6150 0.7627 0.4295 1.0920
```

```
##      pred ci.lb ci.ub cr.lb cr.ub
## 1 0.71 0.60 0.84 0.44 1.16
## 2 0.71 0.61 0.82 0.43 1.15
## 3 0.70 0.61 0.80 0.43 1.13
## 4 0.69 0.62 0.78 0.43 1.12
## 5 0.69 0.62 0.77 0.43 1.11
## 6 0.68 0.61 0.76 0.43 1.10
## 7 0.68 0.60 0.76 0.42 1.09
## 8 0.67 0.59 0.76 0.42 1.08
## 9 0.67 0.58 0.77 0.41 1.08
## 10 0.66 0.56 0.77 0.41 1.08
## 11 0.66 0.55 0.78 0.40 1.08
## 12 0.65 0.53 0.79 0.39 1.08
## 13 0.65 0.52 0.81 0.39 1.08
## 14 0.64 0.50 0.82 0.38 1.08
## 15 0.63 0.48 0.83 0.37 1.08
```

# Forest Plot

