

Meta-Analysis

Frequentist Random Effects Results

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Abstract

Using Bayesian hierarchical (random effects) models for the meta-analysis with various priors for the heterogeneity parameter τ , it was found that there was a significant treatment effect for depressive symptoms (mean = 0.97, 95% CI), anxiety (), and worry symptoms. However, there was substantial heterogeneity present specifically in the depressive symptoms subgroup where τ was estimated to be between 0.58-1.12 where $\tau > 0.5$ is considered substantial. In short, as with the frequentist meta-analysis results, the treatments did appear to have an effect but there is much uncertainty surrounding the treatment effect size though the 95% credible interval suggests that this effect might be at least what Cohen would indicate as medium (e.g. 0.39-0.41 found for Bayesian and Frequentist results), In terms of estimate shrinkage, there is Bevan et al. is most affected where their reweighted effect size is more than halved.

Contents

Statistical Analysis	3
Results	3
Depression	5
Anxiety	6
Worry / Stress	7
Diagnostics	8
Conclusion	9

List of Figures

1	Treatment effects on Depressive/Anxious/Worry symptoms - Forest Plot	3
2	Treatment effects on Depression - Forest Plot	5
3	Treatment effects on Anxiety - Forest Plot	6
4	Treatment effects on Worry - Forest Plot	7
5	Funnel Plot (overall)	9
6	Funnel Plot (Depression)	10
7	Funnel Plot (Anxiety)	11
8	Funnel Plot (Worry)	12

List of Tables

1	Subgroup Analysis	4
2	Trim and Fill Results	9

Statistical Analysis

Results

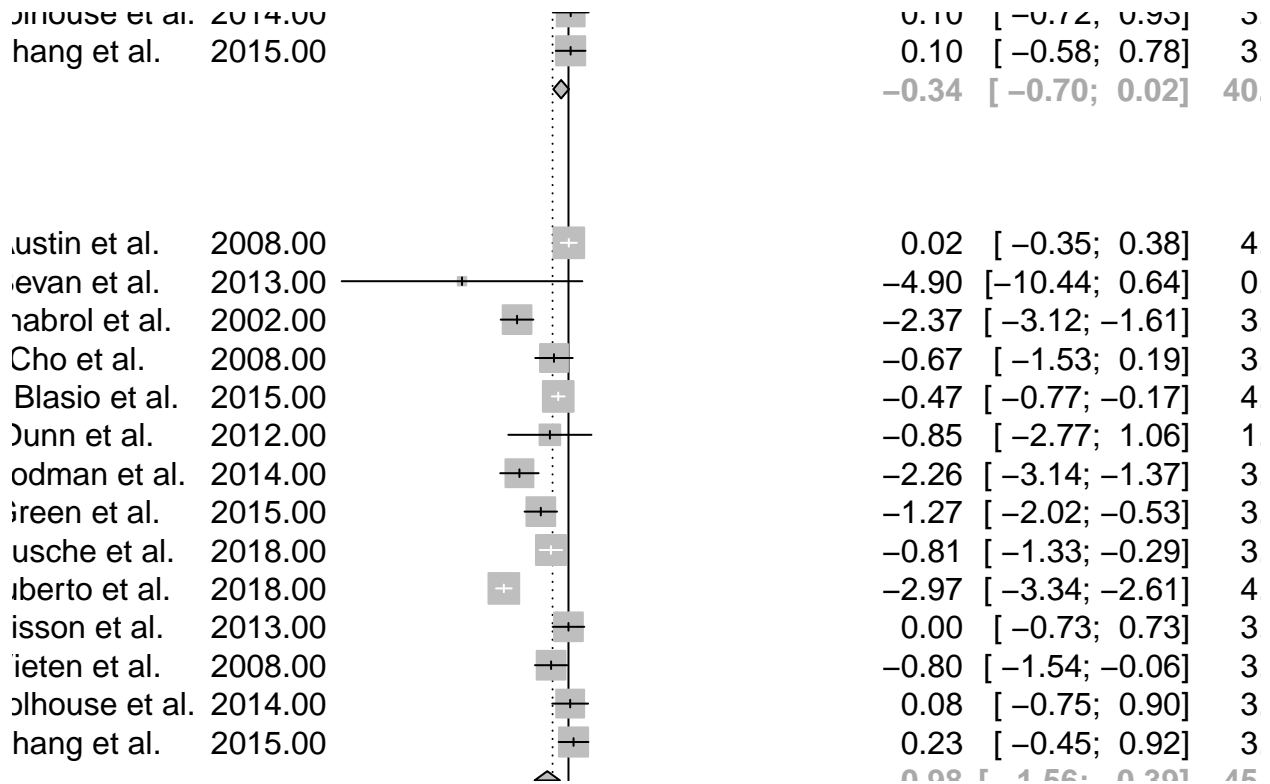


Figure 1: Treatment effects on Depressive/Anxious/Worry symptoms - Forest Plot

Table 1: Subgroup Analysis

groups	TE	lower	upper	z	p	I2
Anxiety	-0.3381365	-0.6993285	0.0230554	-1.834856	0.0665270	0.7164850
Depression	-0.9752620	-1.5581540	-0.3923700	-3.279301	0.0010406	0.9368828
Worry	-0.9817711	-1.7985413	-0.1650009	-2.355909	0.0184775	0.7921970

Depression

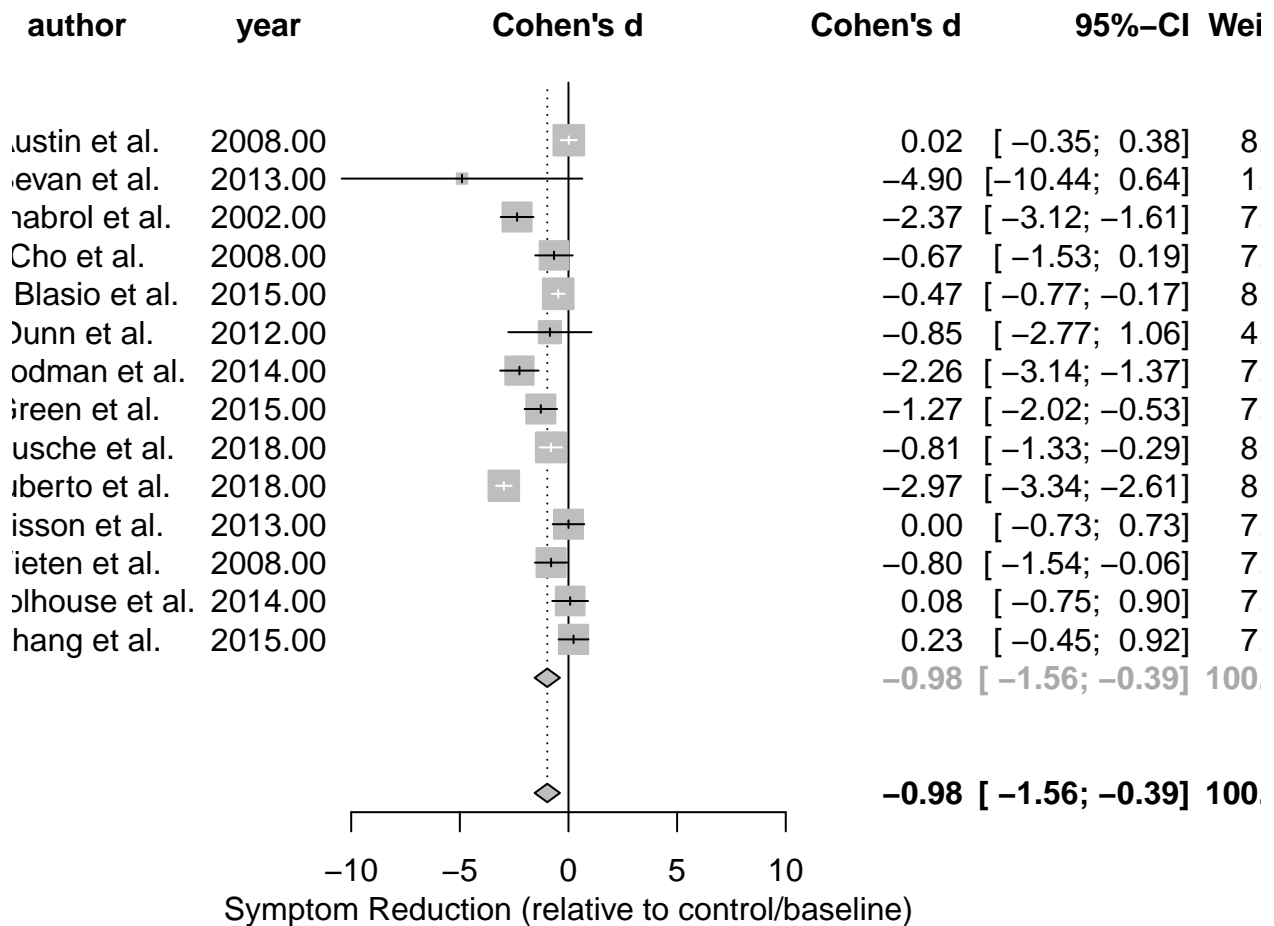


Figure 2: Treatment effects on Depression - Forest Plot

Anxiety

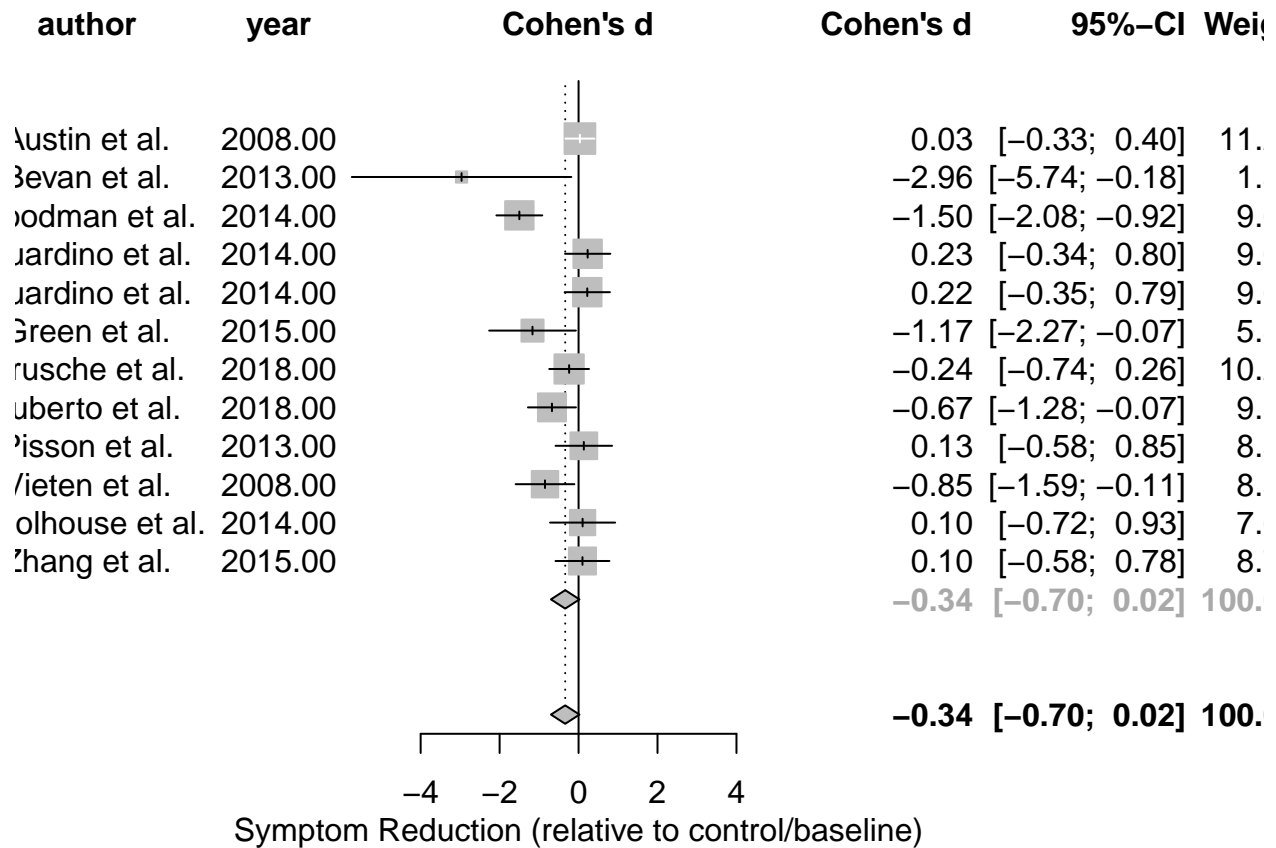


Figure 3: Treatment effects on Anxiety - Forest Plot

Worry / Stress

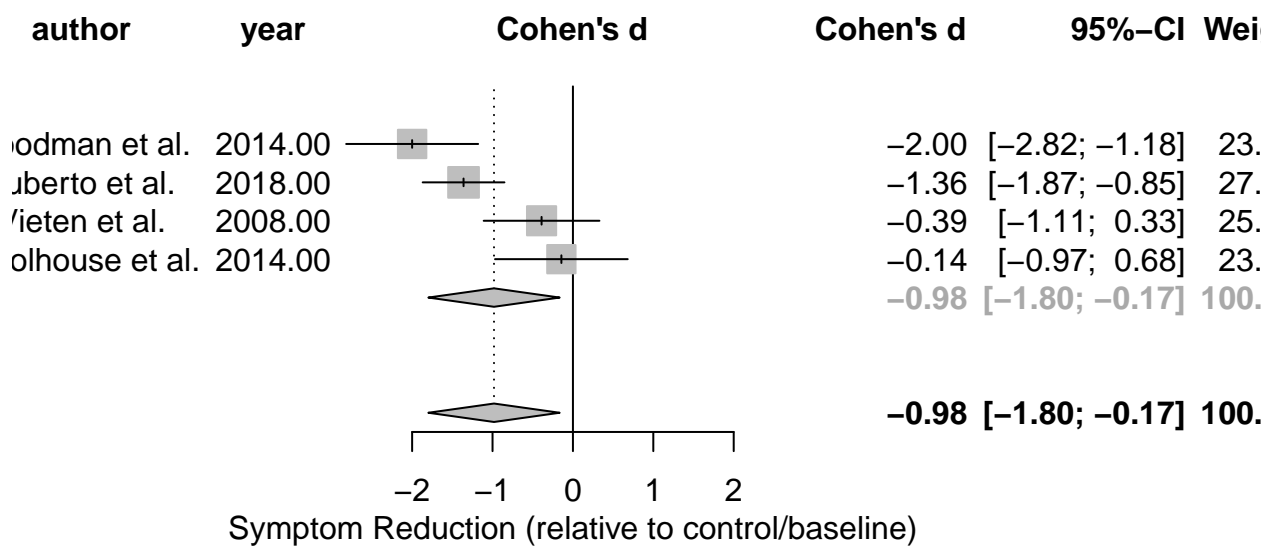


Figure 4: Treatment effects on Worry - Forest Plot

Diagnostics



Diagnostics

1. Funnel Plots

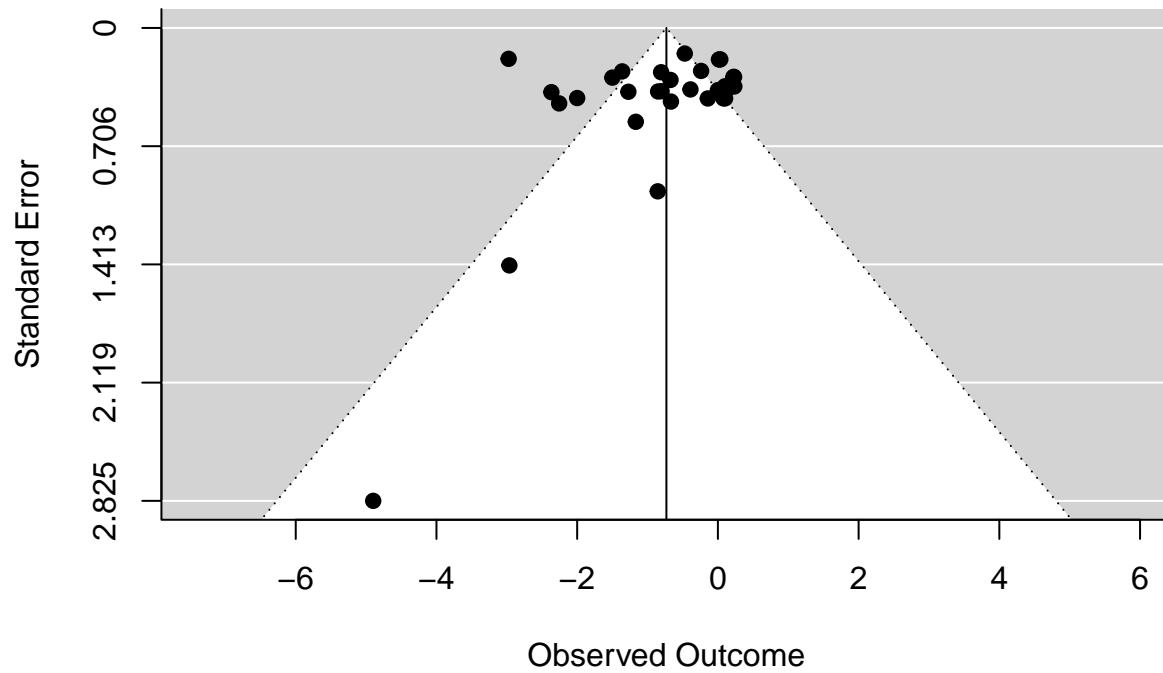


Figure 5: Funnel Plot (overall)

2. Normality Plots

3. Trim and fill

Table 2: Trim and Fill Results

Subgroup	estimate	z	p
Overall	-0.7319520	-4.237281	0.0000226
depression	-0.9752620	-3.279301	0.0010406
anxiety	-0.2990306	-1.611757	0.1070149
worry	-0.9817711	-2.355909	0.0184775

4. Permutation and bootstrapping

Conclusion

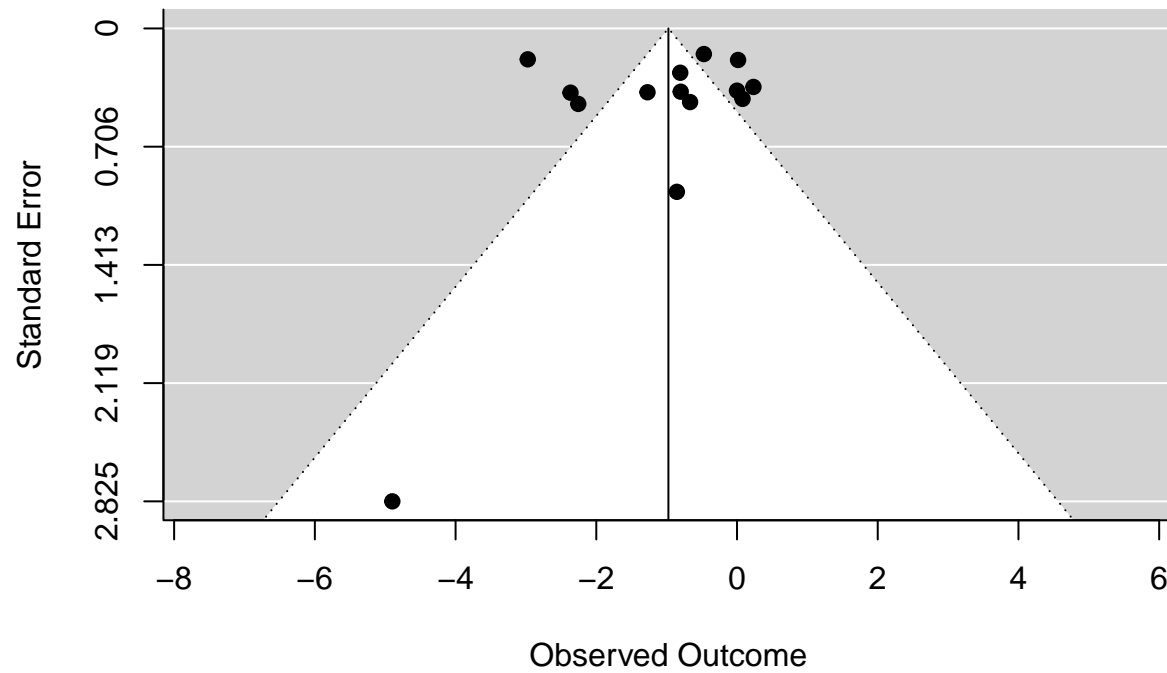


Figure 6: Funnel Plot (Depression)

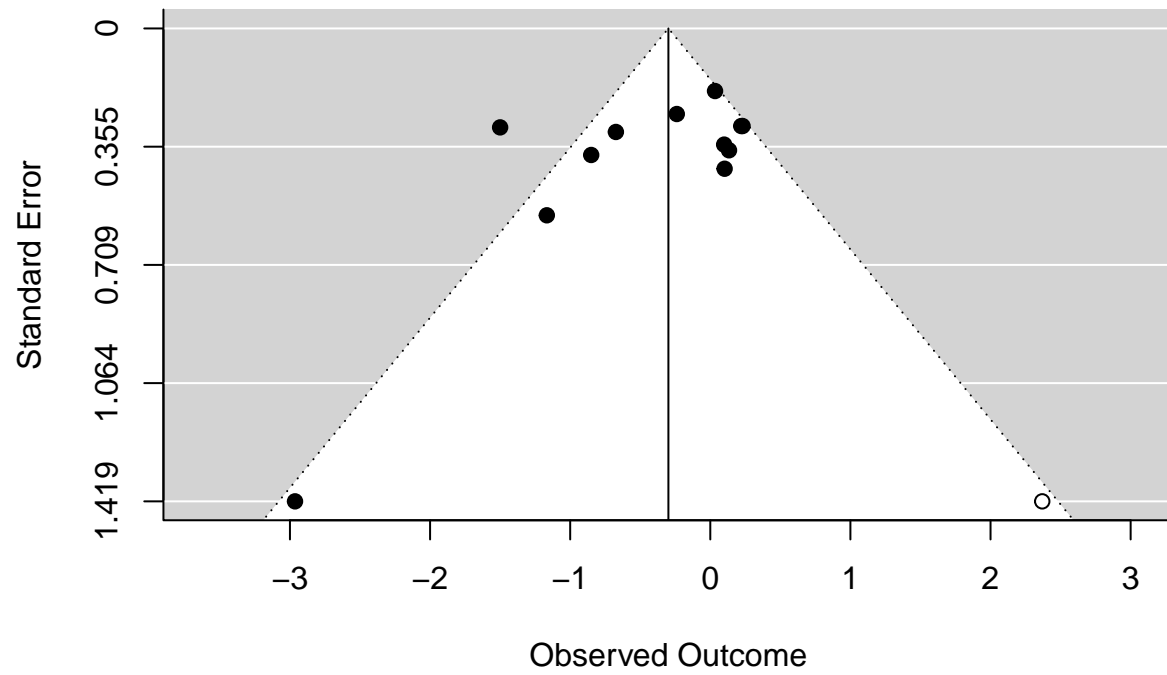


Figure 7: Funnel Plot (Anxiety)

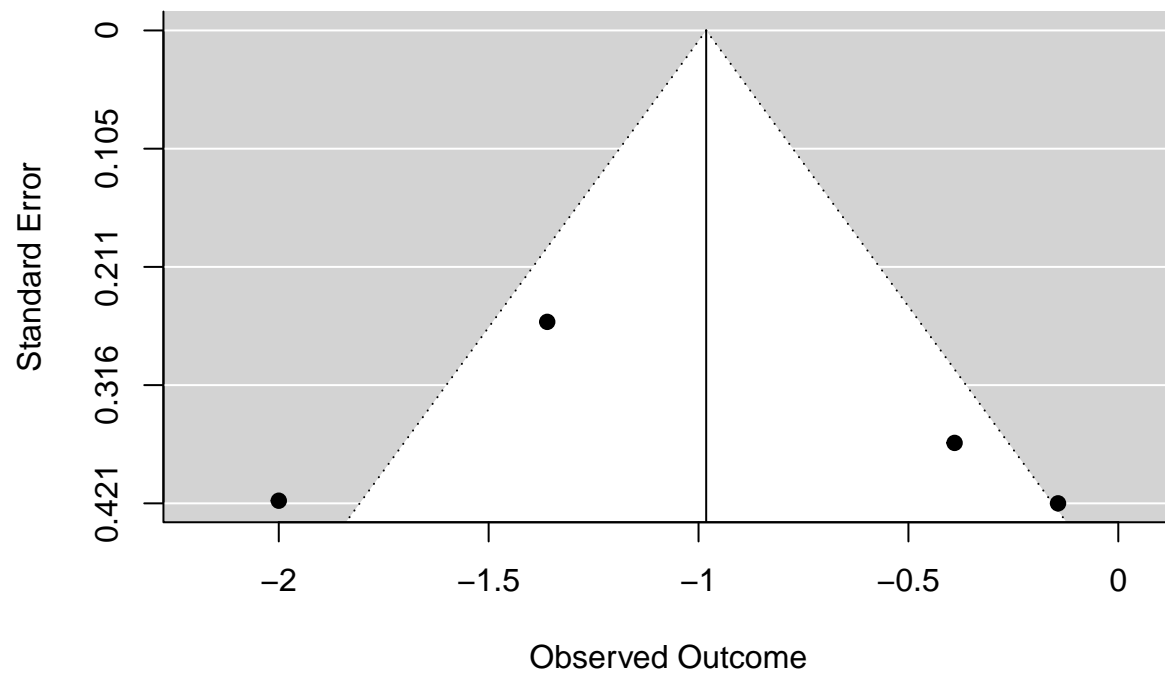


Figure 8: Funnel Plot (Worry)