

# **Simulation Result For Two-Level Intercept Model With High Prevalence**

**The mean prevalence for this simulation is 77 %**

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## Histograms for $\log(\widehat{MOR})$ When Number of Cluster is 10

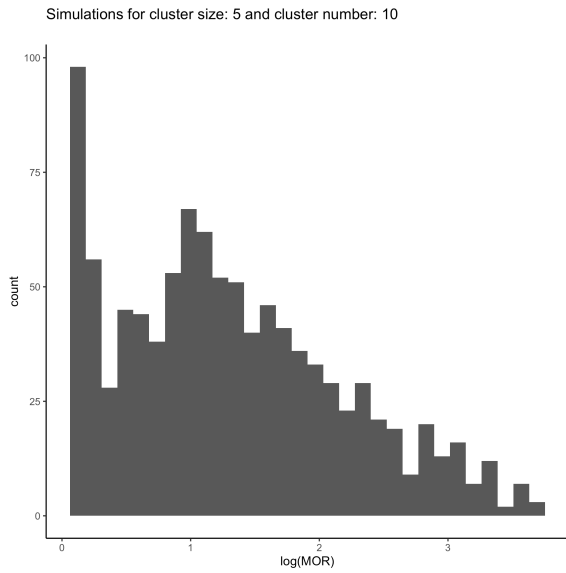


Figure 1: For cluster size 5

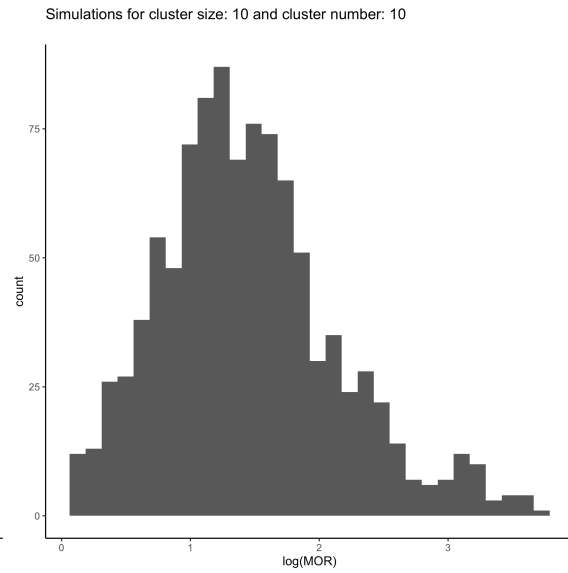


Figure 2: For cluster size 10

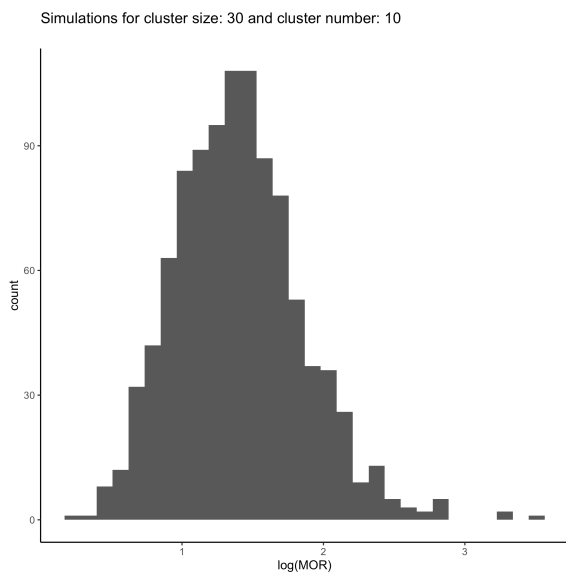


Figure 3: For cluster size 30

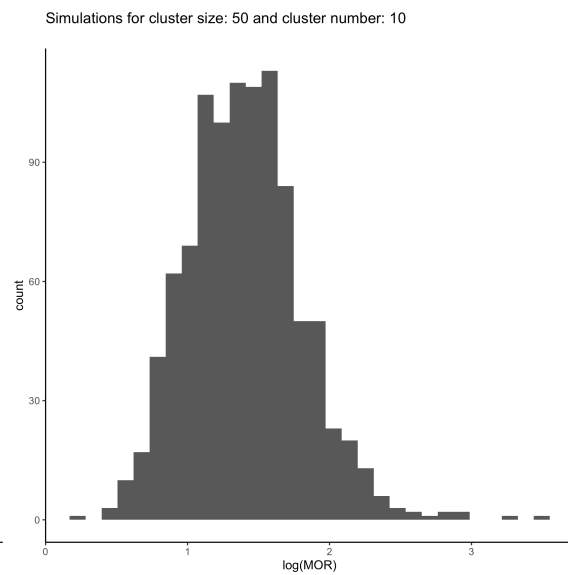


Figure 4: For cluster size 50

## Histograms for $\log(\widehat{MOR})$ When Number of Cluster is 30

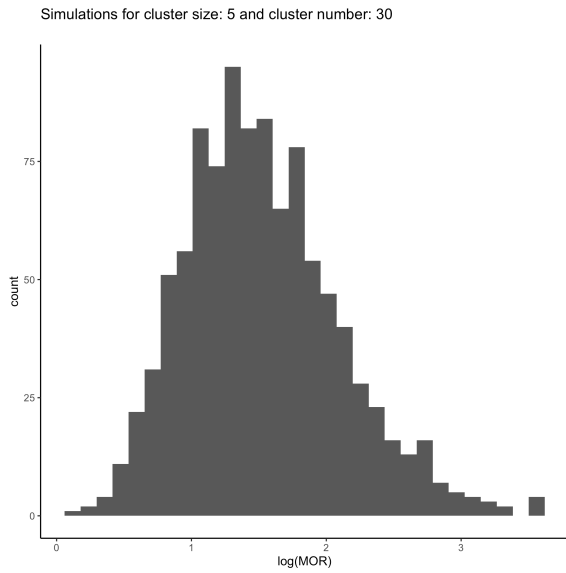


Figure 5: For cluster size 5

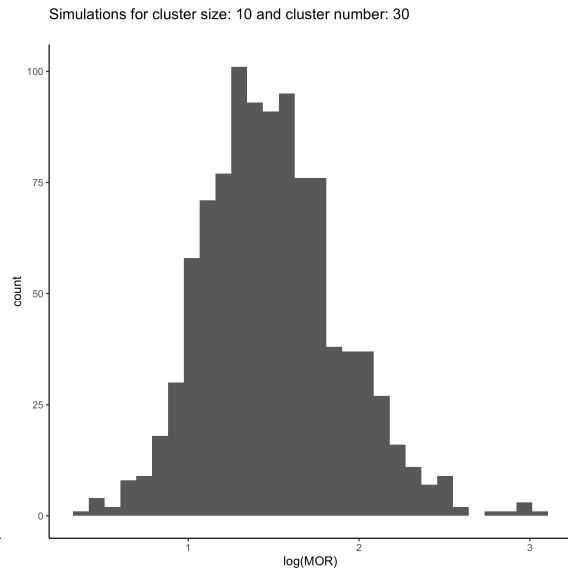


Figure 6: For cluster size 10

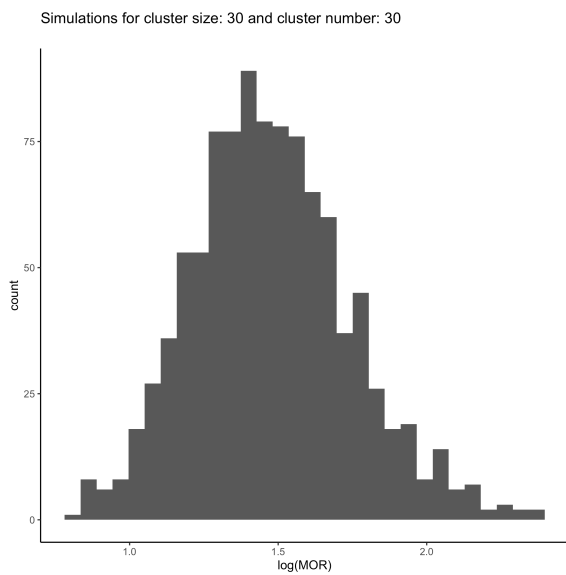


Figure 7: For cluster size 30

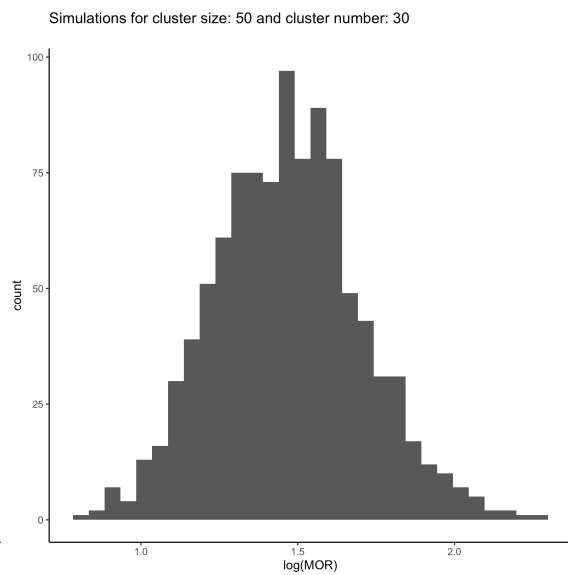


Figure 8: For cluster size 50

## Histograms for $\log(\widehat{MOR})$ When Number of Cluster is 50

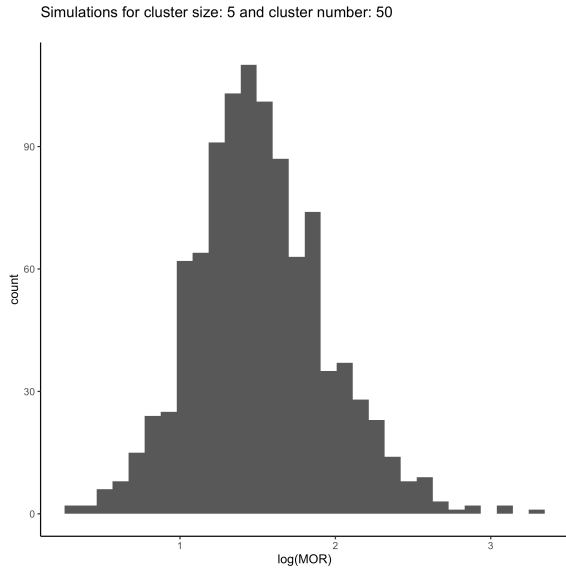


Figure 9: For cluster size 5

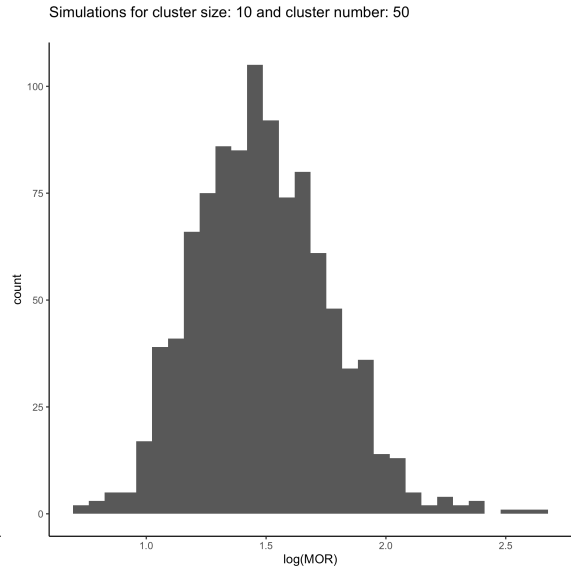


Figure 10: For cluster size 10

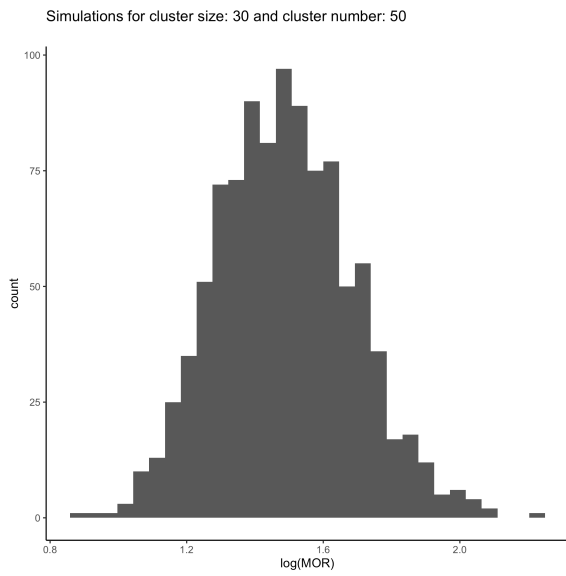


Figure 11: For cluster size 30

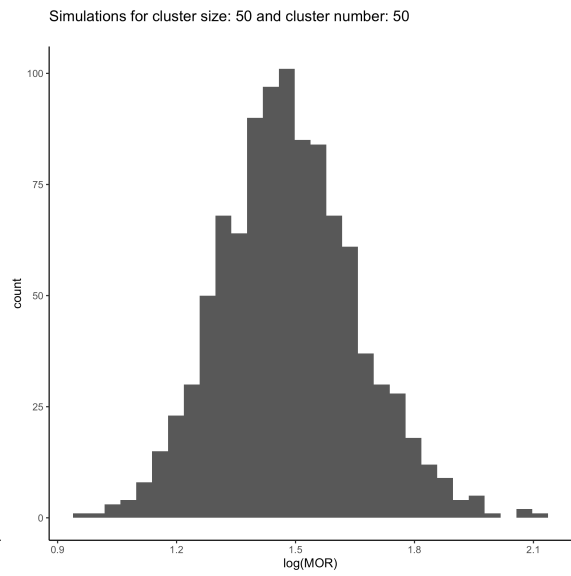


Figure 12: For cluster size 50

## Histograms for $\log(\widehat{MOR})$ When Number of Cluster is 100

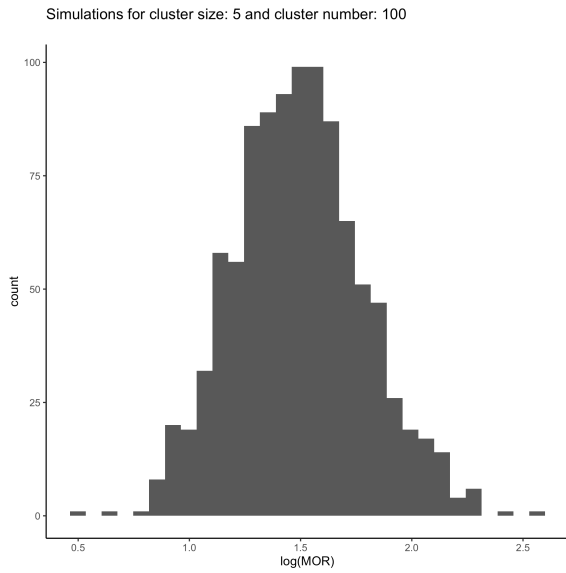


Figure 13: For cluster size 5

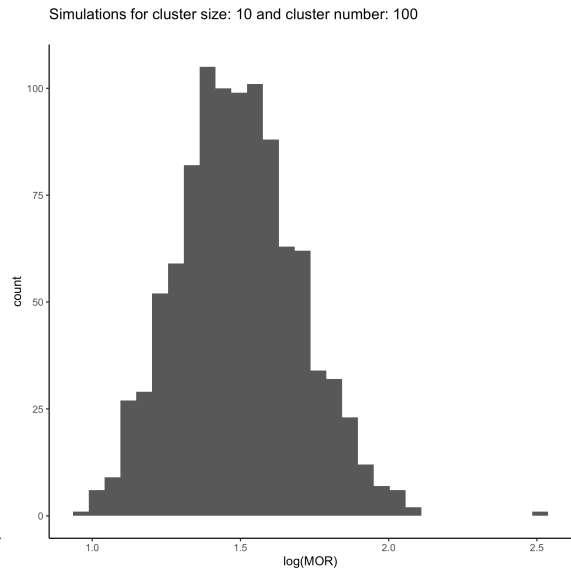


Figure 14: For cluster size 10

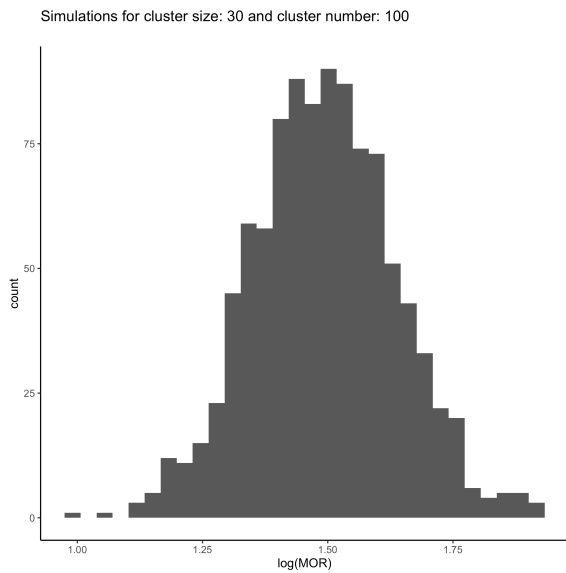


Figure 15: For cluster size 30

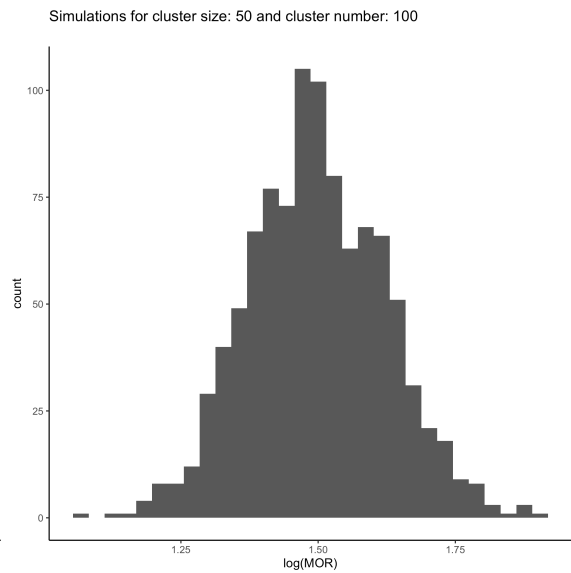


Figure 16: For cluster size 50

## Simulation Result Table

Number of Cluster	Cluster Size	$\widehat{\beta}_0$	$\widehat{\beta}_1$	$\widehat{\beta}_2$	$\widehat{\sigma}_u^2$	$\widehat{MOR}$	Relative Bias (%)	$\widehat{SE}_{MOR}$	Simulation $\widehat{SE}_{MOR}$	Ratio <sup>1</sup>	CI coverage (95%)	Runs used	Runs Required
10	5	2.17	2.01	0.76	2.74	5.68	25.65	3.19	2.39	1.34	0.91	1000	1255
10	10	2.17	1.90	0.78	2.83	5.59	23.63	2.09	1.98	1.05	0.95	1000	1033
10	30	2.04	1.79	0.71	2.37	4.53	0.23	1.55	1.56	0.99	0.88	1000	1001
10	50	2.01	1.76	0.66	2.35	4.45	-1.41	1.48	1.50	0.99	0.86	1000	1000
30	5	2.08	1.86	0.76	2.92	5.52	22.11	1.80	1.77	1.02	0.98	1000	1015
30	10	2.05	1.79	0.70	2.63	4.85	7.26	1.45	1.49	0.98	0.93	1000	1000
30	30	2.01	1.76	0.68	2.47	4.54	0.50	1.29	1.30	0.99	0.92	1000	1000
30	50	2.01	1.76	0.67	2.43	4.47	-1.18	1.26	1.26	1.00	0.92	1000	1000
50	5	2.07	1.82	0.70	2.72	5.01	10.82	1.53	1.54	1.00	0.96	1000	1000
50	10	2.01	1.77	0.69	2.51	4.59	1.64	1.32	1.32	1.00	0.94	1000	1000
50	30	2.00	1.76	0.68	2.48	4.52	-0.06	1.22	1.22	1.00	0.94	1000	1000
50	50	1.99	1.75	0.67	2.45	4.47	-0.99	1.20	1.19	1.01	0.94	1000	1000
100	5	2.01	1.77	0.68	2.54	4.64	2.76	1.33	1.34	1.00	0.94	1000	1000
100	10	2.00	1.76	0.67	2.50	4.55	0.59	1.22	1.23	0.99	0.93	1000	1000
100	30	2.00	1.75	0.68	2.47	4.49	-0.54	1.15	1.15	1.00	0.93	1000	1000
100	50	1.99	1.75	0.67	2.48	4.51	-0.30	1.14	1.13	1.00	0.95	1000	1000

*Note:*

The mean prevalence for this simulation is 77%

$$^1 \text{ Ratio} = \frac{\widehat{SE}_{MOR}}{\text{Simulation } \widehat{SE}_{MOR}}$$

Here,

- True  $MOR$  is 4.52
- True  $\sigma_u^2$  is 2.5
- True Values of  $\beta_0 = 2$ ,  $\beta_1 = 1.75$ ,  $\beta_2 = 0.67$
- “Runs used” column represent how many simulation runs were used to calculate the numbers in the corresponding row.