Empirically-Determined Severity Levels for Binge-Eating Disorder Outperform Existing Severity Classification Schemes: Supplemental Material

Data used for this study were aggregated from *n* = 7 medication and psychological treatment studies for binge-eating disorder that were performed at one treatment facility and that used highly uniform recruitment and assessment methods with same level of trained and monitored doctoral research clinicians and measures. Nonetheless, we inspected whether structural equation model tree (SEM Tree) groups were associated with treatment study type (medication vs. psychological), as well as whether SEM Tree groups were associated with the individual studies. To answer these questions, we performed Pearson’s chi-square tests using the *stats* R package (R Core Team, 2013) and post-hoc comparisons using the *chisq.posthoc.test* R package (Ebbert, 2019), which included Bonferroni correction.

**Supplemental Table 1** shows the contingency table of SEM Tree groups and treatment study type. The global chi-square test yielded a significant result, $χ$2 (4) = 15.9, *p* = .003. However, post-hoc comparisons indicated only one significant finding out of the many possible exploratory comparisons: that SEM Tree group 5 included fewer participants from studies without medication than expected (*p*  = .01). No other significant differences were observed.

**Supplemental Table 2** shows the contingency table of SEM Tree groups and individual studies (*n* = 7). The global chi-square test yielded a significant result, $χ$2 (24) = 57.3, *p* < .001. However, post-hoc comparisons revealed only two statistically significant associations despite the large number of analyses. Specifically, SEM Tree group 4 included more participants from Study 3 (a medication trial) than expected (*p* < .001) and SEM Tree group 5 (a medication trial) included fewer participants from Study 2 than expected (*p* = .04). No other significant differences were observed.

Thus, the post-hoc statistical comparisons (consistent with careful clinical inspection of the distributions) indicate that neither study type nor individual studies were consistently or meaningfully associated with SEM Tree group status. This is assuring, given that consistent differences could indicate bias in the SEM Tree groupings.

References

Ebbert, D (2019). chisq.posthoc.test. R package. Retrieved from <https://cran.r-project.org/web/packages/chisq.posthoc.test/chisq.posthoc.test.pdf>

R Core Team (2013). R: A language and environment for statistical computing. R Foundation of Statistical Computing, Vienna, Austria. <http://www.R-project.org>.

Table 1

*Contingency table of SEM Tree groups and study type (psychological vs. medication)*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | SEM Tree 1*n* = 100 | SEM Tree 2*n* = 128 | SEM Tree 3*n* = 245 | SEM Tree 4*n* = 195 | SEM Tree 5*n* = 120 |
|  | *n* (%) | *n* (%) | *n* (%) | *n* (%) | *n* (%) |
| Psychological (*n* = 266) | 43 (43.0) | 52 (40.6) |  84 (34.3) |  62 (31.8) | 25 (20.8)\* |
| Medication (*n* = 522) | 57 (57.0) | 76 (59.4) | 161 (65.7) | 133 (68.2) | 95 (79.2) |

*Note.* SEM Tree = structural equation model tree.\* *p* < .05

Table 2

*Contingency table of SEM Tree groups and individual studies*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | SEM Tree 1*n* = 100 | SEM Tree 2*n* = 128 | SEM Tree 3*n* = 245 | SEM Tree 4*n* = 195 | SEM Tree 5*n* = 120 |
|  | *n* (%) | *n* (%) | *n* (%) | *n* (%) | *n* (%) |
| Study 1 (*n* = 135) | 15 (15.0) | 23(18.0) | 52 (21.2) | 21 (10.8) | 24 (20.0) |
| Study 2 (*n* = 88) | 16 (16.0) | 18 (14.1) | 31 (12.7) | 20 (10.3) |  3 (2.5)\* |
| Study 3 (*n* = 52) |  0 (0) |  5 (3.9) | 13 (5.3) | 27 (13.8)\* |  7 (5.8) |
| Study 4 (*n* = 145) | 23 (23.0) | 30 (23.4) | 44 (18.0) | 32 (16.4) | 16 (13.3) |
| Study 5 (*n* = 92) | 15 (15.0) | 10 (7.8) | 27 (11.0) | 22 (11.3) | 18 (15.0) |
| Study 6 (*n* = 33) |  4 (4.0) |  4 (3.1) |  9 (3.7) | 10 (5.1) |  6 (5.0) |
| Study 7 (*n* = 243) | 27 (27.0) | 38 (29.7) | 69 (28.2) | 63 (32.3) | 46 (38.3) |

*Note.* SEM Tree = structural equation model tree.Studies 1, 3, 5, and 7 were medication treatment studies. Studies 2, 4, and 6 were psychological treatment studies. \* *p* < .05