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Novometric Analysis *vs*. MANOVA: MMPI Codetype, Gender, Setting, and the MacAndrew Alcoholism Scale

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Prior research examined scores on the MacAndrew Alcoholism (MAC) scale for three Minnesota Multiphasic Personality Inventory (MMPI) codetypes within three samples: psychiatric inpatients and outpatients; medical outpatients referred for a psychiatric evaluation; and alcoholic inpatients.[1] Analysis via factorial MANOVA[2,3] revealed: "Mean MAC scores varied drastically as a function of MMPI codetype, gender, and the specific setting in which the MMPI was administered. These large variations in MAC scores suggest that the use of a single cutting score, typically a raw score of 24 or higher, may be inappropriate" (p. 39). These findings obtained by MANOVA are compared with the findings of novometric statistical analysis for this application.

Novometric analysis[4] treated MAC score (<24 *vs*. ≥24) as the class variable, and gender, setting, and codetype as categorical attributes. The globally-optimal (GO) model, that was stable in jackknife analysis was: if gender=female predict MAC<24; otherwise predict MAC≥24. This model accurately classified 56.4% of people with MAC<24, and 76.3% of people with MAC ≥24: moderate ESS=32.55, D=4.12, $p<0.001$. In contrast to the conclusion reached vis-à-vis MANOVA—that mean MAC scores varied drastically as a function of MMPI codetype, gender and setting, novometric analysis comparing entire score distributions identified a moderate effect attributable only to gender.

References

[1] Greene RL (1994). Relationships among MMPI codetype, gender, and setting and the MacAndrew Alcoholism Scale. *Assessment, 1*, 39-46.

[2]Grimm LG, Yarnold PR (1995). *Reading and understanding multivariate statistics*. Washington, DC: APA Books.

[3]Grimm LG, Yarnold PR (1995). *Reading and understanding more multivariate statistics*. Washington, DC: APA Books.

[4]Yarnold PR, Soltysik RC (2016). *Maximizing predictive accuracy*. Chicago, IL: ODA Books. DOI: 10.13140/RG.2.1.1368.3286

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Author Notes

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