

Mapping Statistical Suppression Situations Using Structural Equation Modeling

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Abstract

Statistical suppression situations play a major role in the (mis-)understanding of interrelated variables belonging to certain systems, or universes. These situations pertain to a pattern whereby the X-Y association changes dramatically when Variable S (the suppressor) is taken into account. Once deemed “statistical noise”, suppression situations are now considered as a phenomenon crucial to the way variables in science in general – and in behavioral and health sciences in particular – are conceptualized and measured, hence they are conducive to both basic and applied science.

The aim of this investigation was to demonstrate the feasibility (“proof of concept”) and utility (clinical validity) of utilizing a bivariate SEM approach for detecting suppression situations. To examine this approach, we utilized two data sets from BGU – on dissociation and heroic self-representations and one from NITE – on attention difficulties and anxiety. For each data set, a clear suppressor was identified and tested using SEM. Findings showed that our approach was successfully demonstrated for dissociation, partly demonstrated for heroic self-representations, and was not demonstrated for attention and anxiety.

From a psychometric point of view, our approach cautions against straightforward application of suppression situations to causal analysis whether done via multiple regression or via SEM. Our findings suggest that, prior to modeling causal (directional) relationships that include suppression effects, researchers should first make sure that the suppressor is indeed univariate rather than bivariate. If the latter is the case, that causality is irrelevant.