Dealing with Artificially Dichotomized Variables in Meta-Analytic Structural Equation Modeling

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Electronic Supplementary Material 4

QQ-plots comparing the theoretical chi-square distribution with $df = 1$ with the empirical chi-square distributions in simulation study 1 (full mediation)
bivariate

$es = 0.16$ cut-off $= 0.5$ prop.dich $= 1$

bivariate

$es = 0.23$ cut-off $= 0.1$ prop.dich $= 0.25$
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

biserial
es = 0.16 cut-off = 0.5 prop.dich = 0.25

biserial
es = 0.16 cut-off = 0.1 prop.dich = 1
ARTIFICIALLY DICHTOMIZED VARIABLES IN MASEM

\[
\text{b}iserial
\]
\[es = 0.23 \text{ cut-off} = 0.5 \text{ prop.dich} = 0.25\]

\[
\begin{array}{c}
\text{Observed} \\
0 & 5 & 10 & 15 \\
0 & 5 & 10 & 15
\end{array}
\]

\[
\text{Theoretical}
\]

\[
\text{b}iserial
\]
\[es = 0.16 \text{ cut-off} = 0.1 \text{ prop.dich} = 0.25\]

\[
\begin{array}{c}
\text{Observed} \\
0 & 5 & 10 & 15 \\
0 & 5 & 10 & 15
\end{array}
\]

\[
\text{Theoretical}
\]
biserial

$es = 0.33$ cut-off $= 0.1$ prop.dich $= 0.75$

Observed vs. Theoretical

biserial

$es = 0.23$ cut-off $= 0.5$ prop.dich $= 0.75$

Observed vs. Theoretical
ARTIFICIALLY DICHTOMIZED VARIABLES IN MASEM

biserial
es = 0.23 cut-off = 0.1 prop.dich = 1

biserial
es = 0.33 cut-off = 0.1 prop.dich = 0.25
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

**biserial**

\[ es = 0.16 \text{ cut-off} = 0.5 \text{ prop.dich} = 0.75 \]

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**biserial**

\[ es = 0.33 \text{ cut-off} = 0.5 \text{ prop.dich} = 1 \]
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

**biperal**

\[ es = 0.23 \text{ cut-off} = 0.1 \text{ prop.dich} = 0.75 \]

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**biperal**

\[ es = 0.33 \text{ cut-off} = 0.5 \text{ prop.dich} = 0.25 \]
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

biserial
es = 0.23 cut-off = 0.5 prop.dich = 1

biserial
es = 0.33 cut-off = 0.1 prop.dich = 1
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

**biserical**

$es = 0.16$ cut-off $= 0.1$ prop.dich $= 0.75$

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**biserical**

$es = 0.33$ cut-off $= 0.5$ prop.dich $= 0.75$
**Pearson's r**

*es = 0.23 cut-off = 0.5 prop.dich = 1*

**Pearson's r**

*es = 0.23 cut-off = 0.5 prop.dich = 0.25*
**Pearson’s r**

**es = 0.33 cut-off = 0.1 prop.dich = 0.25**

![Graph showing observed vs theoretical values for Pearson's r with es = 0.33, cut-off = 0.1, and prop.dich = 0.25.]

**Pearson’s r**

**es = 0.23 cut-off = 0.1 prop.dich = 0.25**

![Graph showing observed vs theoretical values for Pearson's r with es = 0.23, cut-off = 0.1, and prop.dich = 0.25.]

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**ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM**

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ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

Pearson's $r$

$es = 0.16$ cut-off = 0.5 prop.dich = 0.25

Pearson's $r$

$es = 0.16$ cut-off = 0.5 prop.dich = 0.75
Pearson's $r$

es = 0.16 cut-off = 0.1 prop.dich = 0.25

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Pearson's $r$

es = 0.33 cut-off = 0.5 prop.dich = 0.25
Pearson's $r$
$es = 0.16$ cut-off = 0.5 prop.dich = 1

Pearson's $r$
$es = 0.33$ cut-off = 0.5 prop.dich = 1
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

Pearson's $r$

$es = 0.33$ cut-off $= 0.1$ prop.dich $= 1$

Pearson's $r$

$es = 0.23$ cut-off $= 0.1$ prop.dich $= 1$
pointbiserial

es = 0.23 cut-off = 0.5 prop.dich = 0.25

pointbiserial

es = 0.16 cut-off = 0.5 prop.dich = 0.75
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

pointbiserial

es = 0.33 cut-off = 0.5 prop.dich = 0.25

pointbiserial

es = 0.16 cut-off = 0.1 prop.dich = 0.25
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

**Point Biserial**

- $es = 0.23$
- $cut-off = 0.5$
- $prop.dich = 0.75$

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**Point Biserial**

- $es = 0.33$
- $cut-off = 0.1$
- $prop.dich = 0.75$
pointbiserial
$es = 0.33$ cut-off = 0.5 prop.dich = 0.75

pointbiserial
$es = 0.16$ cut-off = 0.1 prop.dich = 0.75
pointbiserial
\[ es = 0.33 \text{ cut-off} = 0.1 \text{ prop.dich} = 0.25 \]

\begin{figure}
\centering
\includegraphics[width=\textwidth]{fig1}
\caption{Example plot showing a linear relationship between observed and theoretical values.}
\end{figure}

pointbiserial
\[ es = 0.23 \text{ cut-off} = 0.1 \text{ prop.dich} = 0.75 \]

\begin{figure}
\centering
\includegraphics[width=\textwidth]{fig2}
\caption{Another example plot showing a linear relationship between observed and theoretical values.}
\end{figure}
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

pointbiserial
es = 0.33 cut-off = 0.1 prop.dich = 1

---

pointbiserial
es = 0.23 cut-off = 0.5 prop.dich = 1
pointbiserial

\[ es = 0.33 \text{ cut-off} = 0.5 \text{ prop.dich} = 1 \]

- Observed vs. Theoretical

pointbiserial

\[ es = 0.16 \text{ cut-off} = 0.5 \text{ prop.dich} = 1 \]

- Observed vs. Theoretical
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

**pointbiserial**

\[ es = 0.23 \text{ cut-off} = 0.1 \text{ prop.dich} = 1 \]

![Graph](image1)

**pointbiserial**

\[ es = 0.16 \text{ cut-off} = 0.5 \text{ prop.dich} = 0.25 \]

![Graph](image2)
ARTIFICIALLY DICHOTOMIZED VARIABLES IN MASEM

**pointbiserial**

es = 0.23 cut-off = 0.1 prop.dich = 0.25

**pointbiserial**

es = 0.16 cut-off = 0.1 prop.dich = 1