Supplemental Table 1

Annotated R code for Police and researcher use of the Ontario Domestic Assault Risk (ODARA): Interrater agreement and examination of Canadian norms

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Descriptives and group comparisons

```
ODARA <-c(0:13)

#New Brunswick 1 n = 72 and n = 71

s1r <- c(1,3,9,9,10,4,13,9,7,3,4,0,0,0)
s1p <-c(0,2,2,2,6,13,16,9,8,6,3,3,0,1)

#New Brunswick 2  n = 169 n = 90

s2r <-c(3,8,16,17,27,16,28,25,17,9,2,1,0,0)
s2p<-c(0,4,9,10,13,9,14,8,12,4,3,4,0,0)

#Alberta

s3r <-c(4,5,19,28,32,26,26,25,24,20,20,3,1,0)
s3p<-c(4,8,18,18,30,28,30,28,21,24,14,7,2,0)


#tab1.data <-data.frame(ODARA, s1r, s1p, s2r, s2p, s3r, s3p)

mean.s1r <- (sum(s1r*ODARA))/sum(s1r) #calculating means
mean.s1p <- (sum(s1p*ODARA))/sum(s1p)
mean.s2r <- (sum(s2r*ODARA))/sum(s2r)
mean.s2p <- (sum(s2p*ODARA))/sum(s2p)
mean.s3r <- (sum(s3r*ODARA))/sum(s3r)
mean.s3p <- (sum(s3p*ODARA))/sum(s3p)

O2 <- ODARA^2  #for calculating SD

sd1r <-((sum(s1r*O2)-(sum(s1r)*mean.s1r^2))/(sum(s1r)- 1))^(0.5)
sd1p <-((sum(s1p*O2)-(sum(s1p)*mean.s1p^2))/(sum(s1p)- 1))^(0.5)
sd2r <-((sum(s2r*O2)-(sum(s2r)*mean.s2r^2))/(sum(s2r)- 1))^(0.5)
sd2p <-((sum(s2p*O2)-(sum(s2p)*mean.s2p^2))/(sum(s2p)- 1))^(0.5)
sd3r <-((sum(s3r*O2)-(sum(s3r)*mean.s3r^2))/(sum(s3r)- 1))^(0.5)
sd3p <-((sum(s3p*O2)-(sum(s3p)*mean.s3p^2))/(sum(s3p)- 1))^(0.5)

se1r <- sd1r/sqrt(sum(s1r)) #SE of means
se1r71 <-(2.5578)/sqrt(71)
se1p <- sd1p/sqrt(sum(s1p))
se2r <- sd2r/sqrt(sum(s2r))
se2r90 <- (2.3610)/sqrt(90)
se2p <- sd2p/sqrt(sum(s2p))
se3r <- sd3r/sqrt(sum(s3r))
se3p <- sd3p/sqrt(sum(s3p))


#SD of differences

sd.1pr <-sqrt( (se1p^2) + (se1r71^2) - (2*(.543)*se1p*se1r71) )
sd.2pr <-sqrt( (se2p^2) + (se2r90^2) - (2*(.641)*se2p*se2r90) )
sd.3pr <-sqrt( (se3p^2) + (se3r^2) )
```

```
research=s1r+s2r+s3r  #distributions (counts)
police=s1p+s2p+s3p

r.percent = research/474
p.percent = police/393

mean.research <- (sum(research*ODARA))/sum(research)

sd.r <-((sum(research*O2)-(sum(research)*mean.research^2))/(sum(research)- 1))^(0.5)

mean.police <- (sum(police*ODARA))/sum(police)

sd.p <-((sum(police*O2)-(sum(police)*mean.police^2))/(sum(police)- 1))^(0.5)

se.p393 <-sd.p/sqrt(sum(police))
se.r474 <-sd.r/sqrt(sum(research))
sd.pr <-sqrt( (se.p393^2) + (se.r474^2) )


cumsum (s1r)  #cumulative sum
```

Meta-analysis

```
install.packages ('metafor')  #if using it for the first time
library ('metafor')
setting <-c("NB 1", "NB 2", "Alberta")
xp <- c(6.3944, 5.500, 5.8578)
se.p <-c(.28119,.27653,.1800)
xr <- c(5.16667, 5.1479, 5.7210) # full sample
se.r <-c (.29932, .18285, .17697)
xdiff <- c(1.2277, 0.066667, 0.1367)
se.diff <- c(.28021, .224, .25242)
var.p <-se.p*se.p
var.r <-se.r*se.r
var.diff <-se.diff*se.diff
O.data <- data.frame (setting, xp, var.p, xr, var.r, xdiff, var.diff)

p.data <- escalc (measure = "GEN", yi = xp, vi = var.p, data=O.data)
p.meta <-rma (yi, vi, data=p.data, method = "FE")

r.data <- escalc (measure = "GEN", yi = xr, vi = var.r, data=O.data)
r.meta <-rma (yi, vi, data=r.data, method = "FE")

diff.data <- escalc (measure = "GEN", yi = xdiff, vi = var.diff, data=O.data)
diff.meta <-rma (yi, vi, data=diff.data, method = "FE")

leave1out (diff.meta)
```

Pearson's Chi-squared test

```
pr.data <- data.frame(police, research) #data file with two count vectors of equal length
chisq.test (pr.data)


data:  pr.data

X-squared = 18.106, df = 13, p-value = 0.1535

Warning message:

In chisq.test(pr.data) : Chi-squared approximation may be incorrect

#checking chi-square calculation using Equations 9.37 and 9.38 from Fleiss et al.
```

```
pr <- research/(sum (research))   #n = 474
pp <-police/(sum(police))  #n =393   total = 867
p.x <- (sum(research)*pr + sum(police)*pp)/( sum(research) + sum (police) )
ch2 <- ((pr - pp)^2)/p.x
chi2 <- (sum(police)*sum(research))/ (sum (police) + sum (research) )*sum(ch2)
> chi2

[1] 18.10617   #same result

# perhaps a better test with small cell counts.

# p values will vary each time it is run

fisher.test(pr.data, simulate.p.value=TRUE)

        Fisher's Exact Test for Count Data with simulated p-value (based on 2000 replicates)

data:  pr.data

p-value = 0.1449

alternative hypothesis: two.sided

http://127.0.0.1:31424/library/stats/html/fisher.test.html


#this code produces the graphic used in the manuscript

plot (ODARA, p.percent*100, type="h", xlab="ODARA Score", ylab="Percentage")

lines (ODARA+.2, r.percent*100, type="h", cex=10, lty=2)

legend (7, 15, c("Police n = 393","Researcher n = 474"), lty =c(1, 2), bty = "n" )
```

Note. Regarding Fisher's exact test for count data, simulation is done conditional on the row and column marginals, and works only if the marginals are strictly positive. A C translation of the algorithm of Patefield (1981) is used. Note that the default number of replicates (B = 2000) implies a minimum p-value of about 0.0005 (1/(*B*+1)).

Patefield, W. M. (1981). Algorithm AS 159: An efficient method of generating r x c tables with given row and column totals. *Applied Statistics*, *30*, 91–97. https://doi.org/10.2307/2346669