STANDARDIZED SCORES AND UNIVARIATE OUTLIERS

2024-01-01

STEP 1

#Create a dataframe with the composite variables you plan to include in your analyses

```
data <- read_csv("Cues to Infidelity - MEN ONLY 7.12.23.csv")
```

```
## Rows: 239 Columns: 554
## -- Column specification ----------------------------------------------------
## Delimiter: ","
## chr   (6): StartDate, EndDate, RecordedDate, M_SC_MRSI_1, M_SC_MRSI_4_2, M_S...
## dbl (462): USE, CUES, SEX_CUES, EMO_CUES, MISC_CUES, REACT, SUS, SOI, VAI_A_...
## lgl  (86): Q566_1, Q566_2, W_PDIS_A_1, W_PDIS_A_2, W_PDIS_A_3, W_PDIS_A_4, W...
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
df <- data.frame(data$REACT, data$SUS, data$SOI, data$SMIRB)
```

```
head(df, 10)
```

```
##    data.REACT data.SUS  data.SOI data.SMIRB
## 1       5.375 1.066667 0.8888889   1.000000
## 2       4.625 1.133333 2.4444444   1.857143
## 3       4.625 1.066667 1.8888889   2.428571
## 4       5.125 1.533333 1.7777778   1.000000
## 5       5.500 1.666667 1.5555556   4.142857
## 6       3.750 1.400000 1.1111111   1.000000
## 7       1.750 1.400000 1.0000000   1.285714
## 8       5.125 1.600000 2.1111111   2.000000
## 9       6.375 2.400000 3.4444444   2.428571
## 10      4.875 3.133333 4.5555556   3.000000
```

STEP 2

#Calculate z-scores for each composite variable

```
df$Z_REACT <- (df$data.REACT - mean(df$data.REACT)) / sd(df$data.REACT)
```

```
df$Z_SUS <- (df$data.SUS - mean(df$data.SUS)) / sd(df$data.SUS)
```

```
df$Z_SOI <- (df$data.SOI - mean(df$data.SOI)) / sd(df$data.SOI)
```

```
df$Z_SMIRB <- (df$data.SMIRB - mean(df$data.SMIRB)) / sd(df$data.SMIRB)
```

```
head(df, 10)
```

```
##    data.REACT data.SUS  data.SOI data.SMIRB    Z_REACT        Z_SUS
## 1       5.375 1.066667 0.8888889   1.000000  0.53573446 -0.906620006
## 2       4.625 1.133333 2.4444444   1.857143 -0.20581304 -0.793520665
```

```
## 3         4.625 1.066667 1.8888889    2.428571 -0.20581304 -0.906620006
## 4         5.125 1.533333 1.7777778    1.000000  0.28855196 -0.114924615
## 5         5.500 1.666667 1.5555556    4.142857  0.65932571  0.111274068
## 6         3.750 1.400000 1.1111111    1.000000 -1.07095179 -0.341123298
## 7         1.750 1.400000 1.0000000    1.285714 -3.04841179 -0.341123298
## 8         5.125 1.600000 2.1111111    2.000000  0.28855196 -0.001825273
## 9         6.375 2.400000 3.4444444    2.428571  1.52446445  1.355366826
## 10        4.875 3.133333 4.5555556    3.000000  0.04136946  2.599459584
##          Z_SOI      Z_SMIRB
## 1  -1.07914209 -1.10529065
## 2   0.47724129 -0.11970450
## 3  -0.07860992  0.53735293
## 4  -0.18978016 -1.10529065
## 5  -0.41212064  2.50852523
## 6  -0.85680161 -1.10529065
## 7  -0.96797185 -0.77676193
## 8   0.14373056  0.04455986
## 9   1.47777346  0.53735293
## 10  2.58947587  1.19441037
```

STEP 3

#Check for values above or below +/-3 (which indicate 3 standard deviations away from the mean)

head(df[**order**(df**$**Z_REACT),], 10)

```
##      data.REACT data.SUS  data.SOI data.SMIRB   Z_REACT      Z_SUS        Z_SOI
## 16        1.000 1.066667 0.7777778   1.857143 -3.789959 -0.9066200 -1.19031233
## 79        1.000 1.066667 2.1111111   1.000000 -3.789959 -0.9066200  0.14373056
## 151       1.000 1.200000 1.0000000   2.000000 -3.789959 -0.6804213 -0.96797185
## 210       1.000 1.200000 1.2222222   1.000000 -3.789959 -0.6804213 -0.74563137
## 238       1.000 1.066667 1.5555556   2.714286 -3.789959 -0.9066200 -0.41212064
## 191       1.375 1.333333 2.4444444   1.000000 -3.419186 -0.4542226  0.47724129
## 11        1.625 1.200000 2.1111111   1.571429 -3.172003 -0.6804213  0.14373056
## 7         1.750 1.400000 1.0000000   1.285714 -3.048412 -0.3411233 -0.96797185
## 223       1.875 1.266667 1.8888889   1.571429 -2.924821 -0.5673220 -0.07860992
## 14        2.375 1.533333 2.8888889   3.142857 -2.430456 -0.1149246  0.92192225
##         Z_SMIRB
## 16  -0.11970450
## 79  -1.10529065
## 151  0.04455986
## 210 -1.10529065
## 238  0.86588165
## 191 -1.10529065
## 11  -0.44823322
## 7   -0.77676193
## 223 -0.44823322
## 14   1.35867472
```

head(df[**order**(df**$**Z_SUS),], 10)

```
##    data.REACT data.SUS  data.SOI data.SMIRB     Z_REACT    Z_SUS        Z_SOI
## 1       5.375 1.066667 0.8888889   1.000000  0.53573446 -0.90662 -1.07914209
## 3       4.625 1.066667 1.8888889   2.428571 -0.20581304 -0.90662 -0.07860992
## 15      5.125 1.066667 1.6666667   1.000000  0.28855196 -0.90662 -0.30095040
## 16      1.000 1.066667 0.7777778   1.857143 -3.78995929 -0.90662 -1.19031233
```

```
## 25       5.625 1.066667 1.4444444   2.000000  0.78291696 -0.90662 -0.52329089
## 30       6.000 1.066667 0.6666667   1.000000  1.15369070 -0.90662 -1.30148258
## 36       5.125 1.066667 0.8888889   1.000000  0.28855196 -0.90662 -1.07914209
## 45       4.875 1.066667 2.8888889   1.428571  0.04136946 -0.90662  0.92192225
## 47       5.000 1.066667 1.6666667   1.000000  0.16496071 -0.90662 -0.30095040
## 52       5.125 1.066667 0.7777778   2.142857  0.28855196 -0.90662 -1.19031233
##          Z_SMIRB
## 1  -1.10529065
## 3   0.53735293
## 15 -1.10529065
## 16 -0.11970450
## 25  0.04455986
## 30 -1.10529065
## 36 -1.10529065
## 45 -0.61249758
## 47 -1.10529065
## 52  0.20882422
```

```r
head(df[order(df$Z_SOI),], 10)
```

```
##      data.REACT data.SUS  data.SOI data.SMIRB    Z_REACT       Z_SUS     Z_SOI
## 17       5.625 1.333333 0.6666667   2.000000 0.78291696 -0.4542226 -1.301483
## 19       6.125 1.533333 0.6666667   1.142857 1.27728195 -0.1149246 -1.301483
## 30       6.000 1.066667 0.6666667   1.000000 1.15369070 -0.9066200 -1.301483
## 34       6.750 1.533333 0.6666667   1.857143 1.89523820 -0.1149246 -1.301483
## 66       5.875 1.066667 0.6666667   1.000000 1.03009945 -0.9066200 -1.301483
## 82       5.875 1.466667 0.6666667   2.571429 1.03009945 -0.2280240 -1.301483
## 128      4.875 1.133333 0.6666667   1.000000 0.04136946 -0.7935207 -1.301483
## 136      5.250 1.066667 0.6666667   1.000000 0.41214321 -0.9066200 -1.301483
## 150      5.250 1.066667 0.6666667   2.428571 0.41214321 -0.9066200 -1.301483
## 153      5.625 1.333333 0.6666667   1.142857 0.78291696 -0.4542226 -1.301483
##          Z_SMIRB
## 17   0.04455986
## 19  -0.94102629
## 30  -1.10529065
## 34  -0.11970450
## 66  -1.10529065
## 82   0.70161729
## 128 -1.10529065
## 136 -1.10529065
## 150  0.53735293
## 153 -0.94102629
```

```r
head(df[order(df$Z_SMIRB),], 10)
```

```
##     data.REACT data.SUS  data.SOI data.SMIRB    Z_REACT      Z_SUS      Z_SOI
## 1       5.375 1.066667 0.8888889          1  0.53573446 -0.9066200 -1.0791421
## 4       5.125 1.533333 1.7777778          1  0.28855196 -0.1149246 -0.1897802
## 6       3.750 1.400000 1.1111111          1 -1.07095179 -0.3411233 -0.8568016
## 12      4.750 1.266667 2.3333333          1 -0.08222179 -0.5673220  0.3660710
## 15      5.125 1.066667 1.6666667          1  0.28855196 -0.9066200 -0.3009504
## 20      4.875 1.200000 2.3333333          1  0.04136946 -0.6804213  0.3660710
## 30      6.000 1.066667 0.6666667          1  1.15369070 -0.9066200 -1.3014826
## 36      5.125 1.066667 0.8888889          1  0.28855196 -0.9066200 -1.0791421
## 46      5.750 1.266667 4.3333333          1  0.90650821 -0.5673220  2.3671354
```

```
## 47       5.000 1.066667 1.6666667              1  0.16496071 -0.9066200 -0.3009504
##        Z_SMIRB
## 1  -1.105291
## 4  -1.105291
## 6  -1.105291
## 12 -1.105291
## 15 -1.105291
## 20 -1.105291
## 30 -1.105291
## 36 -1.105291
## 46 -1.105291
## 47 -1.105291
```

STEP 4

#If necessary/appropriate for your analyses, remove these cases from the dataframe

```
df_no_uni_outliers <- df[-(which(df$Z_REACT < -3 | df$Z_REACT > 3)),]
```

```
head(df_no_uni_outliers, 10)
```

```
##    data.REACT data.SUS  data.SOI data.SMIRB     Z_REACT          Z_SUS
## 1       5.375 1.066667 0.8888889   1.000000  0.53573446 -0.906620006
## 2       4.625 1.133333 2.4444444   1.857143 -0.20581304 -0.793520665
## 3       4.625 1.066667 1.8888889   2.428571 -0.20581304 -0.906620006
## 4       5.125 1.533333 1.7777778   1.000000  0.28855196 -0.114924615
## 5       5.500 1.666667 1.5555556   4.142857  0.65932571  0.111274068
## 6       3.750 1.400000 1.1111111   1.000000 -1.07095179 -0.341123298
## 8       5.125 1.600000 2.1111111   2.000000  0.28855196 -0.001825273
## 9       6.375 2.400000 3.4444444   2.428571  1.52446445  1.355366826
## 10      4.875 3.133333 4.5555556   3.000000  0.04136946  2.599459584
## 12      4.750 1.266667 2.3333333   1.000000 -0.08222179 -0.567321981
##          Z_SOI     Z_SMIRB
## 1  -1.07914209 -1.10529065
## 2   0.47724129 -0.11970450
## 3  -0.07860992  0.53735293
## 4  -0.18978016 -1.10529065
## 5  -0.41212064  2.50852523
## 6  -0.85680161 -1.10529065
## 8   0.14373056  0.04455986
## 9   1.47777346  0.53735293
## 10  2.58947587  1.19441037
## 12  0.36607105 -1.10529065
```