Effect of a nonpharmacological psychological stress management intervention on major cardiovascular events and mortality in patients with coronary artery disease: a systematic review and meta-analysis of randomized clinical trials

Integrative Psychological and Behavioral Science

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Table 3. Main RStudio script

 # Stress (1) 05.06 all articles (cardiovascular mortality + events)

- library (readxl)
- Stress_1_05_06_all_articles_cardiovascular_mortality_events_ <- read_excel("Zip12/Stress (1) 05.06 all articles (cardiovascular mortality +events).xlsx")
- View (Stress_1_05_06_all_articles_cardiovascular_mortality_events_)

- Meta_7 = Stress_1_05_06_all_articles_cardiovascular_mortality_events_ <- metabin (evtto, ntto, evcont, ncont, Study, predict = TRUE, data = Stress_1_05_06_all_articles_cardiovascular_mortality_events_, method = "MH", method.tau = "DL", sm = "RR")
- Meta_7
- forest (Meta_7)
- forest(Meta_7, comb.fixed = FALSE , xlim = c(0.1, 10), digits.sd = 2, print.I2.ci = TRUE, digits.tau2 = 2, digits.pval.Q = 3, squaresize = 0.5, col.square = "grey", col.diamond = "black", col.predict = "grey", digits = 2,)
- baujat (Meta_7)
- metainf (Meta_7, pooled ="random")

- Age_tto <- (c(53.6, 59.0, 62.0, 59.9, 53.6, 61.8))
- qqnorm (Age_tto, pch = 1)
- qqline (Age_tto,col = "Black", lwd = 2)
- shapiro.test (Age_tto)
- plot (Age_tto, residuals (Meta_7))
- abline (h=0)
- metareg (Meta_7, ~Age_tto)
- Meta_7 <- metareg (Meta_7, ~Age_tto)
- bubble (Meta_7, xlim = c(40, 70.0), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

- Age_cont <- (c(53.1, 62.0, 61.0, 58.4, 53.4, 60.4))
- qqnorm (Age_cont, pch = 1)
- qqline (Age_cont,col = "Black", lwd = 2)
- shapiro.test (Age_cont)
- plot (Age_cont, residuals (Meta_7))
- abline (h=0)
- metareg (Meta_7, ~Age_cont)
- Meta_7 <- metareg (Meta_7, ~Age_cont)
- bubble (Meta_7, xlim = c(40, 70.0), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

- BMI_tto <- (c(26.3, 27.4, 32.2, 30.2))
- qqnorm (BMI_tto, pch = 1)
- qqline (BMI_tto,col = "Black", lwd = 2)
- shapiro.test (BMI_tto)
- plot (BMI_tto, residuals (Meta_7))
- abline (h=0)
- metareg (Meta_7, ~BMI_tto)
- Meta_7 <- metareg (Meta_7, ~BMI_tto)
- bubble (Meta_7, xlim = c(40, 70.0), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

- BMI_cont <- (c(26.8, 27.0, 32.7, 30.8))
- qqnorm (BMI_cont, pch = 1)
- qqline (BMI_cont,col = "Black", lwd = 2)
- shapiro.test (BMI_cont)
- plot (BMI_cont, residuals (Meta_7))
- abline (h=0)
- metareg (Meta_7, ~BMI_cont)
- Meta_7 <- metareg (Meta_7, ~BMI_cont)
- bubble (Meta_7, xlim = c(40, 70.0), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

- Woman_tto <- (c(17, 31, 41, 43, 72, 80))
- qqnorm (Woman_tto, pch = 1)
- qqline (Woman_tto,col = "Black", lwd = 2)
- shapiro.test (Woman_tto)
- plot (Woman_tto, residuals (Meta_7))
- abline (h=0)
- metareg (Meta_7, ~Woman_tto)
- Meta_7 <- metareg (Meta_7, ~Woman_tto)
- bubble (Meta_7, xlim = c(15, 100), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

- Woman_cont <- (c(15, 24, 45, 42, 88, 86))
- qqnorm (Woman_cont, pch = 1)
- qqline (Woman_cont,col = "Black", lwd = 2)
- shapiro.test (Woman_cont)
- plot (Woman_cont, residuals (Meta_7))
- abline (h=0)
- metareg (Meta_7, ~Woman_cont)
- Meta_7 <- metareg (Meta_7, ~Woman_cont)
- bubble (Meta_7, xlim = c(15, 100), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

- Man_tto <- (c(24, 45, 58, 149, 294, 0,0))
- qqnorm (Man_tto, pch = 1)
- qqline (Man_tto,col = "Black", lwd = 2)
- shapiro.test (Man_tto)
- plot (Man_tto, residuals (Meta_7))
- abline (h=0)
- metareg (Meta_7, ~Man_tto)
- Meta_7 <- metareg (Meta_7, ~Man_tto)
- bubble (Meta_7, xlim = c(-50, 200), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

- Man_cont <- (c(25, 51, 57, 128, 256, 0,0))
- qqnorm (Man_cont, pch = 1)
- qqline (Man_cont,col = "Black", lwd = 2)
- shapiro.test (Man_cont)
- plot (Man_cont, residuals (Meta_7))
- abline (h=0)
- metareg (Meta_7, ~Man_cont)
- Meta_7 <- metareg (Meta_7, ~Man_cont)
- bubble (Meta_7, xlim = c(-50, 200), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

- year_publication <- (c(05, 05, 11, 12, 15, 16))
- qqnorm (year_publication, pch = 1)
- qqline (year_publication,col = "Black", lwd = 2)
- shapiro.test (year_publication)
- plot (year_publication, residuals (Meta_7))
- abline (h=0)
- metareg (Meta_7, ~year_publication)
- Meta_7 <- metareg (Meta_7, ~year_publication)
- bubble (Meta_7, xlim = c(2003, 2017), ylim = c(-4.0, 4.0), col.line = "black",col = "black", studlab = TRUE)

 # Stress (1) 05.06.22 all articles (total mortality only)

- library (readxl)
- Stress_1_05_06_22_all_articles_total_mortality_only_ <- read_excel("Zip12/Stress (1) 05.06.22 all articles (total mortality only).xlsx")
- View(Stress_1_05_06_22_todos_os_artigos_só_mortalidade_total_)

- Meta_12 = Stress_1_05_06_22_all_articles_only_total_ mortality_ <- metabin (evtto, ntto, evcont, ncont, Study, predict = TRUE, data = Stress_1_05_06_22_all_articles_only_total_ mortality_, method = "MH", method.tau = "DL", sm = "RR")
- Meta_12
- forest (Meta_12)
- forest(Meta_12, comb.fixed = FALSE , xlim = c(0.05, 10), digits.sd = 2, print.I2.ci = TRUE, digits.tau2 = 2, digits.pval.Q = 3, squaresize = 0.5, col.square = "grey", col.diamond = "black", col.predict = "grey", digits = 2,)
- baujat (Meta_12)
- metainf (Meta_12, pooled ="random")

 # Stress_1_05_06_todos_os_artigos_avc_

- library (readxl)
- Stress_1_05_06_all_articles_avc_ <- read_excel ("By event type/Stress (1) 05.06 all articles (avc).xlsx")
- View (Stress_1_05_06_todos_os_artigos_avc_)
- Meta_13 = Stress_1_05_06_all_articles_avc_ <- metabin (evtto, ntto, evcont, ncont, Study, predict = TRUE, data = Stress_1_05_06_all_articles_avc_, method = "MH", method.tau = "DL", sm = "RR")
- Meta_13
- forest (Meta_13)
- forest (Meta_13, comb.fixed = FALSE , xlim = c(0.1, 10), digits.sd = 2, print.I2.ci = TRUE, digits.tau2 = 2, digits.pval.Q = 3, squaresize = 0.5, col.square = "grey", col.diamond = "black", col.predict = "grey", digits = 2,)
- baujat (Meta_13)
- metainf (Meta_13, pooled ="random")

 # Stress_1_05_06_todos_os_artigos_iam_nao_fatal_

- library (readxl)
- Stress_1_05_06_all_articles_iam_non-fatal_ <- read_excel("By event type/Stress (1) 05.06 all articles (iam non-fatal).xlsx")
- View(Stress_1_05_06_todos_os_artigos_iam_nao_fatal_)
- Meta_15 = Stress_1_05_06_all_articles_iam_nao_fatal_ <- metabin (evtto, ntto, evcont, ncont, Study, predict = TRUE, data = Stress_1_05_06_all_articles_iam_nao_fatal_, method = "MH", method.tau = "DL", sm = "RR")
- Meta_15
- forest (Meta_15)
- forest(Meta_15, comb.fixed = FALSE , xlim = c(0.02, 25.0), digits.sd = 2, print.I2.ci = TRUE, digits.tau2 = 2, digits.pval.Q = 3, squaresize = 0.5, col.square = "grey", col.diamond = "black", col.predict = "grey", digits = 2,)
- baujat (Meta_15)
- metainf (Meta_15, pooled ="random")

- Age_tto <- (c(53.6, 59.0, 62.0, 59.9, 53.6, 61.8))
- qqnorm (Age_tto, pch = 1)
- qqline (Age_tto,col = "Black", lwd = 2)
- shapiro.test (Age_tto)
- plot (Age_tto, residuals (Meta_15))
- abline (h=0)
- metareg (Meta_15, ~Age_tto)
- Meta_15 <- metareg (Meta_15, ~Age_tto)
- bubble (Meta_15, xlim = c(40, 70.0), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

- Age_cont <- (c(53.1, 62.0, 61.0, 58.4, 53.4, 60.4))
- qqnorm (Age_cont, pch = 1)
- qqline (Age_cont,col = "Black", lwd = 2)
- shapiro.test (Age_cont)
- plot (Age_cont, residuals (Meta_15))
- abline (h=0)
- metareg (Meta_15, ~Age_cont)
- Meta_15 <- metareg (Meta_15, ~Age_cont)
- bubble (Meta_15, xlim = c(40, 70.0), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

```
BMI_tto <- (c(26.3, 27.4, 32.2, 30.2))
qqnorm (BMI_tto, pch = 1)
qqline (BMI_tto,col = "Black", lwd = 2)
shapiro.test (BMI_tto)
plot (BMI_tto, residuals (Meta_15))
abline (h=0)
metareg (Meta_15, ~BMI_tto)
Meta_15 <- metareg (Meta_15, ~BMI_tto)
bubble (Meta_15, xlim = c(40, 70.0), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)
```

```
BMI_cont <- (c(26.8, 27.0, 32.7, 30.8))
qqnorm (BMI_cont, pch = 1)
qqline (BMI_cont,col = "Black", lwd = 2)
shapiro.test (BMI_cont)
plot (BMI_cont, residuals (Meta_15))
abline (h=0)
metareg (Meta_15, ~BMI_cont)
Meta_15 <- metareg (Meta_15, ~BMI_cont)
bubble (Meta_15, xlim = c(40, 70.0), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)
```

```
Woman_tto <- (c(17, 31, 41, 43, 72, 80))
qqnorm (Woman_tto, pch = 1)
qqline (Woman_tto,col = "Black", lwd = 2)
shapiro.test (Woman_tto)
plot (Woman_tto, residuals (Meta_15))
abline (h=0)
metareg (Meta_15, ~Woman_tto)
Meta_15 <- metareg (Meta_15, ~Woman_tto)
bubble (Meta_15, xlim = c(15, 100), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)
```

```
Woman_cont <- (c(15, 24, 45, 42, 88, 86))
qqnorm (Woman_cont, pch = 1)
qqline (Woman_cont,col = "Black", lwd = 2)
shapiro.test (Woman_cont)
plot (Woman_cont, residuals (Meta_15))
abline (h=0)
metareg (Meta_15, ~Woman_cont)
Meta_15 <- metareg (Meta_15, ~Woman_cont)
bubble (Meta_15, xlim = c(15, 100), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)
```

```
Man_tto <- (c(24, 45, 58, 149, 294, 0,0))
qqnorm (Man_tto, pch = 1)
qqline (Man_tto,col = "Black", lwd = 2)
shapiro.test (Man_tto)
plot (Man_tto, residuals (Meta_15))
abline (h=0)
metareg (Meta_15, ~Man_tto)
Meta_15 <- metareg (Meta_15, ~Man_tto)
bubble (Meta_15, xlim = c(0.0, 300), ylim = c(-4.0, 4.0), col.line = "black",col = "black", studlab = TRUE)
```

```
Man_cont <- (c(25, 51, 57, 128, 256, 0,0))
qqnorm (Man_cont, pch = 1)
qqline (Man_cont,col = "Black", lwd = 2)
shapiro.test (Man_cont)
plot (Man_cont, residuals (Meta_15))
abline (h=0)
metareg (Meta_15, ~Man_cont)
Meta_15 <- metareg (Meta_15, ~Man_cont)
bubble (Meta_15, xlim = c(0.0, 300), ylim = c(-4.0, 4.0), col.line = "black",col = "black", studlab = TRUE)
```

```
year_publication <- (c(05, 05, 11, 12, 15, 16))
qqnorm (year_publication, pch = 1)
```

- qqline (year_publication,col = "Black", lwd = 2)
- shapiro.test (year_publication)
- plot (year_publication, residuals (Meta_15))
- abline (h=0)
- metareg (Meta_15, ~year_publication)
- Meta_15 <- metareg (Meta_15, ~year_publication)
- bubble (Meta_15, xlim = c(2003, 2017), ylim = c(-10.0, 10.0), col.line = "black",col = "black", studlab = TRUE)

 # Stress (1) 05.06 all articles (revascularization)

- library (readxl)
- Stress_1_05_06_all_articles_revascularization_ <- read_excel("By event type/Stress (1) 05.06 all articles (revascularization).xlsx")
- View(Stress_1_05_06_all_articles_revascularization_)
- Meta_16 = Stress_1_05_06_methods_the_articles_revascularization_ <- metabin (evtto, ntto, evcont, ncont, Study, predict = TRUE, data = Stress_1_05_06_methods_the_articles_revascularization_, method = "MH", method.tau = "DL", sm = "RR")
- Meta_16
- forest (Meta_16)
- forest(Meta_16, comb.fixed = FALSE , xlim = c(0.1, 10.0), digits.sd = 2, print.I2.ci = TRUE, digits.tau2 = 2, digits.pval.Q = 3, squaresize = 0.5, col.square = "grey", col.diamond = "black", col.predict = "grey", digits = 2,)
- baujat (Meta_16)
- metainf (Meta_16, pooled ="random")

 # Stress_1_05_06_22_all_articles_cardiovascular_hospitalization_

- library (readxl)
- Stress_1_05_06_22_all_articles_cardiovascular_hospitalization_ <- read_excel("By event type/Stress (1) 05.06.22 all articles (cardiovascular hospitalization).xlsx")
- View (Stress_1_05_06_22_all_articles_cardiovascular_hospitalization_)
- Meta_17 = Stress_1_05_06_22_methods_the_articles_cardiovascular_hospitalization_ <- metabin (evtto, ntto, evcont, ncont, Study, predict = TRUE, data = Stress_1_05_06_22_methods_the_articles_cardiovascular_hospitalization_, method = "MH", method.tau = "DL", sm = "RR")
- Meta_17
- forest (Meta_17)
- forest(Meta_17, comb.fixed = FALSE , xlim = c(0.10, 10.0), digits.sd = 2, print.I2.ci = TRUE, digits.tau2 = 2, digits.pval.Q = 3, squaresize = 0.5, col.square = "grey", col.diamond = "black", col.predict = "grey", digits = 2,)
- baujat (Meta_17)
- metainf (Meta_17, pooled ="random")