Appendix 6. Statistical codes

Statistical codes have presented in following text.
Also, this information is available from the corresponding author at foadseidi@ut.ac.ir.

```
rm(list = ls())
setwd("F:\\meta k")
library(haven)
library(estmeansd)
library(meta)
library(dmetar)
library(metafor)

Data <- read_dta("")
Data <- transform(Data, Gender = ifelse(gender == 1, "Female", "Both genders"))
Data$Age[Data$Age == "1"] = "Adult"
Data$Age[Data$Age == "2"] = "Adolescent"
Data$Age[Data$Age == "4"] = "Child and Adolescent"
Data$Age[Data$Age == "5"] = "Adult and Adolescent"

Data$Sport = NA
Data$Sport[Data$sport == "1"] = "Ballet dance"
Data$Sport[Data$sport == "2"] = "Swiming"
Data$Sport[Data$sport == "3"] = "Tennis"
Data$Sport[Data$sport == "4"] = "Gymnastic"
Data$Sport[Data$sport == "5"] = "Basketball"
Data$Sport[Data$sport == "6"] = "Volleyball"
Data$Sport[Data$sport == "7"] = "Badminton"
Data$Sport[Data$sport == "8"] = "Different sports"

Data$Level = NA
Data$Level[Data$level == "1"] = "Recreational"
Data$Level[Data$level == "2"] = "Competitive"
Data$Level[Data$level == "4"] = "Elite"

# Arcsine transformation (sm = "PAS")
m1 = metaprop(event = scolioa, n = nathlete, data = Data, studlab = Authore,
            sm = "PAS", method = "Inverse", method.tau = "REML")
pdf("Begg test.pdf")
metabias(m1,
  method.bias = "Begg",
  plotit = T,
  correct = T
)
title("Begg test")
text("P-value = 0.4298", x = -15, y = 0.015)
dev.off()

# Egger test for Bias, Results are in Funnel plot
eg = eggers.test(x = m1)
Pubtext = paste0("Eggers test: Coefficient = ", round(eg$intercept,2),
```

```
            "(", round(eg$llci,2), ",", round(eg$ulci,2), "), P-value = ", round(eg$p,2) )
pdf("Funnel plot.pdf")
par(mar = c(8,4,4,4))
metafor::funnel(m1,  studlab = F, level = 0.95,col.random = "white",
            pch = 16, cex =2, yaxis="invse")
mtext(Pubtext, 1, 5)
dev.off()

pdf("Funnel plot type 2.pdf")
metafor::funnel(m1,  studlab = F, level = 0.95,col.random = "white",
            pch = 16, cex =2, yaxis="invse")
dev.off()


pdf("Forest plot.pdf", width = 12, height = 7)
forest(m1, xlab = "",   digits.se = 2,
      col.diamond.fixed = "deepskyblue3", col.diamond.random = "dodgerblue4",
      col.square = "forestgreen", col.by = "blue4",
      prediction = T, just = "center"
)
dev.off()

inf.analysis <- InfluenceAnalysis(x = m1, random = T)
pdf("Leave One Out Analyses.pdf", width = 12, height = 7)
plot(inf.analysis, "es", "REML")
dev.off()



m2 = metaprop(event = scolioa, n = nathlete, data = Data, studlab = Authore,
            sm = "PAS", method = "Inverse", method.tau = "REML", subgroup = Gender)

pdf("Forest plot gender.pdf", width = 12, height = 14)
par(mar = c(2,2,2,2), oma = c(2,2,2,2))
forest(m2, xlab = "",   digits.se = 2,
      col.diamond.fixed = "deepskyblue3", col.diamond.random = "dodgerblue4",
      col.square = "forestgreen", col.by = "blue4", just = "center",
      prediction = T,fs.axis = 7, spacing = 1, addrows.below.overall = 3)
dev.off()


m3 = metaprop(event = scolioa, n = nathlete, data = Data, studlab = Authore,
            sm = "PAS", method = "Inverse", method.tau = "REML", subgroup = Age)

pdf("Forest plot age.pdf", width = 12, height = 14)
par(mar = c(2,2,2,2), oma = c(2,2,2,2))
forest(m3, xlab = "",   digits.se = 2,
      col.diamond.fixed = "deepskyblue3", col.diamond.random = "dodgerblue4",
      col.square = "forestgreen", col.by = "blue4", just = "center",
      prediction = T,fs.axis = 7, spacing = 1, addrows.below.overall = 3)
dev.off()
```

```
m33 = metaprop(event = scolioa, n = nathlete, data = subset(Data, Age != "Adult and Adolescent"),
            studlab = Authore,
           sm = "PAS", method = "Inverse", method.tau = "REML", subgroup = Age)

pdf("Forest plot age 2.pdf", width = 12, height = 14)
par(mar = c(2,2,2,2), oma = c(2,2,2,2))
forest(m33, xlab = "",   digits.se = 2,
      col.diamond.fixed = "deepskyblue3", col.diamond.random = "dodgerblue4",
      col.square = "forestgreen", col.by = "blue4", just = "center",
      prediction = T,fs.axis = 7, spacing = 1, addrows.below.overall = 3)
dev.off()

m4 = metaprop(event = scolioa, n = nathlete, data = Data, studlab = Authore,
           sm = "PAS", method = "Inverse", method.tau = "REML", subgroup = Sport)

pdf("Forest plot sporst.pdf", width = 12, height = 16)
par(mar = c(2,2,2,2), oma = c(2,2,2,2))
forest(m4, xlab = "",   digits.se = 2,
      col.diamond.fixed = "deepskyblue3", col.diamond.random = "dodgerblue4",
      col.square = "forestgreen", col.by = "blue4", just = "center",
      prediction = T,fs.axis = 7, spacing = 1, addrows.below.overall = 3)
dev.off()


m44 = metaprop(event = scolioa, n = nathlete, data = subset(Data,sport != 7), studlab = Authore,
           sm = "PAS", method = "Inverse", method.tau = "REML", subgroup = Sport)

pdf("Forest plot sporst 2.pdf", width = 12, height = 16)
par(mar = c(2,2,2,2), oma = c(2,2,2,2))
forest(m44, xlab = "",   digits.se = 2,
      col.diamond.fixed = "deepskyblue3", col.diamond.random = "dodgerblue4",
      col.square = "forestgreen", col.by = "blue4", just = "center",
      prediction = T,fs.axis = 7, spacing = 1, addrows.below.overall = 3)
dev.off()


m5 = metaprop(event = scolioa, n = nathlete, data = Data, studlab = Authore,
           sm = "PAS", method = "Inverse", method.tau = "REML", subgroup = Level)

pdf("Forest plot level.pdf", width = 12, height = 16)
par(mar = c(2,2,2,2), oma = c(2,2,2,2))
forest(m5, xlab = "",   digits.se = 2,
      col.diamond.fixed = "deepskyblue3", col.diamond.random = "dodgerblue4",
      col.square = "forestgreen", col.by = "blue4", just = "center",
      prediction = T,fs.axis = 7, spacing = 1, addrows.below.overall = 3)
dev.off()
```