#==========================================================================================#

# R version 4.2.3

# Dietary indices and upper gastrointestinal tract tumors (esophageal and gastric cancers) were calculated for the relationship between dietary indices and cancer.

#==========================================================================================#

library(readxl)

P <- read\_excel("[YourPath]/diet.xlsx")

library(dplyr)

P1 <- subset(P, education < 99)

P2 <- subset(P1, age < 70)

##========================================== Modify the variable name ==============================================##

P2$Sex <- factor(P2$sex, levels=c(2,3),labels=c("Female","Male"))

P2$Age5\_G <- factor(P2$age5, levels=c(1,2),labels=c("<55","≥55"))

P2$Marriage <- factor(P2$marriage, levels=c(1,2),labels=c("Unmarried/living alone/divorced/widowed", "Married"))

P2$Education1 <- factor(P2$education, levels=c(1,2,3),labels=c("Primary school or below", "Above Junior school","Above Junior school"))

P2$Occupation1 <- factor(P2$occupation, levels=c(1,2,3,4,5,6),labels=c("Manual labor", "Manual labor","Non-manual labor & Other","Non-manual labor & Other","Non-manual labor & Other","Non-manual labor & Other"))

P2$Income1 <- factor(P2$income, levels=c(1,2,3,4),labels=c("<7.0", "<7.0","≥7.0","≥7.0"))

P2$Smoking <- factor(P2$smoking, levels=c(0,2),labels=c("No", "Yes"))

P2$Drinking <- factor(P2$drinking, levels=c(0,2),labels=c("No", "Yes"))

P2$Tea <- factor(P2$`dringk tea`, levels=c(0,2),labels=c("No", "Yes"))

P2$Water <- factor(P2$water, levels=c(3,4),labels=c("Other", "Piped water"))

P2$BMI <- factor(P2$BMI\_G, levels=c(1,2,3,4),labels=c("<18.5", "18.5-23.9","24.0-27.9","≥28.0"))

P2$BMI1 <- factor(P2$BMI\_G, levels=c(1,2,3,4),labels=c("<24.0", "<24.0","≥24.0","≥24.0"))

P2$PA41 <- factor(P2$PA, levels=c(1,2,3,4,5),labels=c("Less 1-3 times/month","Less 1-3 times/month", "Above 1-2 times/week","Above 1-2 times/week","Above 1-2 times/week"))

P2$Digestive <- factor(P2$digestivesd, levels=c(0,1),labels=c("No", "Yes"))

P2$Hypertension <- factor(P2$hypertension, levels=c(0,1),labels=c("No", "Yes"))

P2$Diabetes <- factor(P2$diabetes, levels=c(0,1),labels=c("No", "Yes"))

P2$Site2 <- factor(P2$diqu, levels=c(1,2,3),labels=c("1", "2", "2")) # 1=east; 2=other

P2$Site1 <- factor(P2$diqu, levels=c(1,2,3),labels=c("1", "2", "1")) # 1=other; 2=north

P2$Spicy <- factor(P2$E13, levels=c(1,2,3,4,5),labels=c("Never or almost never","Never or almost never", "Over 1-2 days/week", "Over 1-2 days/week", "Over 1-2 days/week"))

P2$Spicy1 <- factor(P2$E13, levels=c(1,2,3,4,5),labels=c("Never or almost never","Over 1 time/week", "Over 1 time/week", "Over 1 time/week", "Over 1 time/week"))

##========================================== Dietary index ==============================================##

P2$HBS\_G1 <- factor(P2$HBS\_G, levels=c(1,2,3,4),labels=c("No problem or almost no problem", "Low level", "Moderate level", "High level"))

P2$LBS\_G1 <- factor(P2$LBS\_G, levels=c(1,2,3,4),labels=c("No problem or almost no problem", "Low level", "Moderate level", "High level"))

P2$DQD\_G1 <- factor(P2$DQD\_G, levels=c(1,2,3,4),labels=c("No problem or almost no problem", "Low level", "Moderate level", "High level"))

P2$HBS\_G11 <- factor(P2$HBS\_G, levels=c(1,2,3,4),labels=c("Low level","Low level", "Moderate level", "High level"))

P2$LBS\_G11 <- factor(P2$LBS\_G, levels=c(1,2,3,4),labels=c("Low level","Low level", "Moderate level", "High level"))

P2$DQD\_G11 <- factor(P2$DQD\_G, levels=c(1,2,3,4),labels=c("Low level","Low level", "Moderate level", "High level"))

P2$bl2 <- factor(P2$ybl, levels=c(1,2,3,4),labels=c("Normal or Inflammation", "Normal or Inflammation","Precancerous lesion","Precancerous lesion"))

P2$BL1 <- factor(P2$BL, levels=c(0,1),labels=c("Normal", "Cancer"))

##========================================== Setting up labels ==============================================##

library(psych)

library(table1)

label(P2$Age5\_G) <- "Age"

label(P2$age) <- "Age years)"

label(P2$Energy1) <- "Energy (Kcal)"

label(P2$Water) <- "Water source"

label(P2$Marriage) <- "Marital Status"

label(P2$Income) <- "Household income (10,000RMB)"

label(P2$Tea) <- "Drinking tea"

label(P2$PA4) <- "Physical exercise"

label(P2$Digestive) <- "Digestive system diseases"

label(P2$HBS\_G1) <- "HBS (Excessive intake)"

label(P2$LBS\_G1) <- "LBS (Inadequate intake)"

label(P2$DQD\_G1) <- "DQD (Overall unbalance)"

label(P2$HBS\_G11) <- "HBS (Excessive intake)"

label(P2$LBS\_G11) <- "LBS (Inadequate intake)"

label(P2$DQD\_G11) <- "DQD (Overall unbalance)"

label(P2$Spicy) <- "Eat spicy food (within 1 month)"

label(P2$E1\_7) <- "Eating irregularly"

label(P2$E6\_7) <- "Eating outside"

label(P2$bl) <- "Pathology"

label(P2$bl1) <- "Pathology"

P2 <- P2 %>%

mutate\_if(is.numeric, round, digits = 2) #

P3 <- subset(P2, diet < 1)

P4 <- subset(P3, ybl < 4)

quantile(P4$tPDI, probs = seq(0,1,0.25), na.rm = FALSE)

quantile(P4$thPDI, probs = seq(0,1,0.25), na.rm = FALSE)

quantile(P4$tuPDI, probs = seq(0,1,0.25), na.rm = FALSE)

P4$tPDI\_G <- cut(P4$tPDI, breaks=c(23,42,45,49,66),include.lowest=T,labels = c(1,2,3,4))

P4$thPDI\_G <- cut(P4$thPDI, breaks=c(28,49,52,55,71),include.lowest=T,labels = c(1,2,3,4))

P4$tuPDI\_G <- cut(P4$tuPDI, breaks=c(21,38,44,50,65),include.lowest=T,labels = c(1,2,3,4))

##========================================== Baseline table ==============================================##

library(scitb)

library(stringi)

allVars <- c("Energy1","age", "Age5\_G","Sex", "diqu", "Marriage", "Education1", "Occupation1", "Income1", "Smoking", "Drinking", "Spicy", "BMI1", "PA41", "Digestive", "Hypertension", "Diabetes", "bl1", "bl2","HBS","LBS", "DQD", "tPDI", "tuPDI","thPDI", "EDII","inci\_U", "inci\_E","inci\_S")

fvars <- c("Age5\_G","Sex", "diqu", "Marriage", "Education1", "Occupation1", "Income1", "Smoking", "Drinking", "Spicy", "BMI1", "PA41", "Digestive", "Hypertension","Diabetes", "bl1", "bl2","inci\_U", "inci\_E","inci\_S")

strata1 <- "HBS\_G11"

out1 <- scitb1(vars=allVars, fvars=fvars, strata = strata1, data=P4, statistic=F, atotest=F, Overall=T, fisher=F, correct=T, nonnormal

=c("HBS","LBS", "DQD", "tPDI", "thPDI", "tuPDI", "EDII"))

strata2 <- "LBS\_G11"

out2 <- scitb1(vars=allVars, fvars=fvars, strata = strata2, data=P4, statistic=F, atotest=F, Overall=F, fisher=F, correct=T, nonnormal

=c("HBS","LBS", "DQD", "tPDI", "thPDI", "tuPDI", "EDII"))

strata3 <- "DQD\_G11"

out3 <- scitb1(vars=allVars, fvars=fvars, strata = strata3, data=P4, statistic=F, atotest=F, Overall=F, fisher=F, correct=T, nonnormal

=c("HBS","LBS", "DQD", "tPDI", "thPDI", "tuPDI", "EDII"))

strata4 <- "tPDI\_5"

out4 <- scitb1(vars=allVars, fvars=fvars, strata = strata4, data=P4, statistic=F, atotest=F, Overall=F, fisher=F, correct=T, nonnormal

=c("HBS","LBS", "DQD", "tPDI", "thPDI", "tuPDI", "EDII"))

strata5 <- "tuPDI\_5"

out5 <- scitb1(vars=allVars, fvars=fvars, strata = strata5, data=P4, statistic=F, atotest=F, Overall=F, fisher=F, correct=T, nonnormal

=c("HBS","LBS", "DQD", "tPDI", "thPDI", "tuPDI", "EDII"))

strata6 <- "thPDI\_5"

out6 <- scitb1(vars=allVars, fvars=fvars, strata = strata6, data=P4, statistic=F, atotest=F, Overall=F, fisher=F, correct=T, nonnormal

=c("HBS","LBS", "DQD", "tPDI", "thPDI", "tuPDI", "EDII"))

strata7 <- "DII\_E4"

out7 <- scitb1(vars=allVars, fvars=fvars, strata = strata7, data=P4, statistic=F, atotest=F, Overall=F, fisher=F, correct=T, nonnormal

=c("HBS","LBS", "DQD", "tPDI", "thPDI", "tuPDI", "EDII"))

##========================================== Survival analysis\_Cox ==============================================##

library("survival")

library("survminer")

library(reportReg)

##========================================== Model 2 ==============================================##

#DBI

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension + Diabetes, data = P4) #UGI

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes, data = P4) #EC

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes, data = P4) #GC reportReg(res1\_1)

reportReg(res1\_2)

reportReg(res1\_3)

#PDI

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes, data = P4) #UGI

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes, data = P4)

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes, data = P4)

reportReg(res0\_1)

reportReg(res0\_2)

reportReg(res0\_3)

#P for trend

library(foreign)

library(dplyr)

P4$HBS\_g <- factor(P4$HBS\_G, levels=c(1,3,4), labels=c("10","19","26"))

P4$LBS\_g <- factor(P4$LBS\_G, levels=c(1,3,4), labels=c("22", "33","41"))

P4$DQD\_g <- factor(P4$DQD\_G, levels=c(1,3,4), labels=c("29", "40","51"))

P4$tPDI\_g <- factor(P4$tPDI\_G, levels=c(1,2,3,4), labels=c("40", "44","47","52"))

P4$tuPDI\_g <- factor(P4$tuPDI\_G, levels=c(1,2,3,4), labels=c("35", "42","48","53"))

P4$thPDI\_g <- factor(P4$thPDI\_G, levels=c(1,2,3,4), labels=c("47", "51","54","58"))

#Model 2\_P for trend

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes, data = P4) #UGI

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes, data = P4) #EC

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes, data = P4) #GC

reportReg(res0\_1)

reportReg(res0\_2)

reportReg(res0\_3)

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension + Diabetes, data = P4) #UGI

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension + Diabetes, data = P4) #EC

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension + Diabetes, data = P4) #GC

reportReg(res1\_1)

reportReg(res1\_2)

reportReg(res1\_3)

# Model2\_continuous variable

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI + tuPDI + thPDI + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes, data = P4) #UGI

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI + tuPDI + thPDI + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes, data = P4) #EC

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI + tuPDI + thPDI + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes, data = P4) #GC

reportReg(res0\_1)

reportReg(res0\_2)

reportReg(res0\_3)

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS + LBS + DQD + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension + Diabetes, data = P4) #UGI

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS + LBS + DQD + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension + Diabetes, data = P4) #EC

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS + LBS + DQD + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension + Diabetes, data = P4) #GC

reportReg(res1\_1)

reportReg(res1\_2)

reportReg(res1\_3)

##========================================== Model 1 ==============================================##

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1, data = P4) #UGI

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1, data = P4) #EC

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1, data = P4) #GC

reportReg(res0\_1)

reportReg(res0\_2)

reportReg(res0\_3)

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2, data = P4) #UGI

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2, data = P4) #EC

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2, data = P4) #GC

reportReg(res1\_1)

reportReg(res1\_2)

reportReg(res1\_3)

# Model 1\_P for trend

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1, data = P4) #UGI

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1, data = P4) #EC

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1, data = P4) #GC

reportReg(res0\_1)

reportReg(res0\_2)

reportReg(res0\_3)

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2, data = P4) #UGI

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2, data = P4) #EC

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2, data = P4) #GC

reportReg(res1\_1)

reportReg(res1\_2)

reportReg(res1\_3)

# Model1\_continuous variable

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI + tuPDI + thPDI + Age5\_G + Sex + bl2 + Site1, data = P4) #UGI

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI + tuPDI + thPDI + Age5\_G + Sex + bl2 + Site1, data = P4) #EC

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI + tuPDI + thPDI + Age5\_G + Sex + bl2 + Site1, data = P4) #GC

reportReg(res0\_1)

reportReg(res0\_2)

reportReg(res0\_3)

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS + LBS + DQD + Age5\_G + Sex + bl2 + Site2, data = P4) #UGI

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS + LBS + DQD + Age5\_G + Sex + bl2 + Site2, data = P4) #EC

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS + LBS + DQD + Age5\_G + Sex + bl2 + Site2, data = P4) #GC

reportReg(res1\_1)

reportReg(res1\_2)

reportReg(res1\_3)

##========================================== Subgroup analysis ==============================================##

P4$spicy <- factor(P4$E13, levels=c("1","2","3","4","5"),labels=c("1","1","2","2","2"))

P4$spicy1 <- factor(P4$E13, levels=c("1","2","3","4","5"),labels=c("1","2","2","2","2"))

P4$bmi1 <- factor(P4$BMI\_G, levels=c("1","2","3","4"),labels=c("1","1","2","2"))

P4$bl3 <- factor(P4$bl, levels=c(1,2,3),labels=c("1","1","2"))

# PDI\_UGI

# age (≤55 y; >55 y)

res01\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="1")) #UGI

res01\_2 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="2"))

reportReg(res01\_1)

reportReg(res01\_2)

# sex (female; male)

res01\_3 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="2"))

res01\_4 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="3"))

reportReg(res01\_3)

reportReg(res01\_4)

# residence district (Other; North)

res01\_5 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="1"))

res01\_6 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="2"))

reportReg(res01\_5)

reportReg(res01\_6)

# smoking (No; Yes)

res01\_8 <- coxph(Surv(T\_inci\_U,inci\_U) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="0")) #NO

res01\_9 <- coxph(Surv(T\_inci\_U,inci\_U) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="2")) #YES

reportReg(res01\_8)

reportReg(res01\_9)

# BMI (<24.0; ≥24.0)

res01\_10 <- coxph(Surv(T\_inci\_U,inci\_U) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="1")) #<24

res01\_11 <- coxph(Surv(T\_inci\_U,inci\_U) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="2")) #>24

reportReg(res01\_10)

reportReg(res01\_11)

# physiology (Normal & Inflammation; Precancerous lesion)

res01\_14 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="1"))

res01\_15 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="2"))

reportReg(res01\_14)

reportReg(res01\_15)

#PDI\_EC

#age (≤55 y; >55 y)

res02\_1 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="1"))

res02\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="2"))

reportReg(res02\_1)

reportReg(res02\_2)

# sex (female; male)

res02\_3 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="2"))

res02\_4 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="3"))

reportReg(res02\_3)

reportReg(res02\_4)

# residence district (Other; North)

res02\_5 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="1"))

res02\_6 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="2"))

reportReg(res02\_5)

reportReg(res02\_6)

# smoking (No; Yes)

res02\_8 <- coxph(Surv(T\_inci\_E,inci\_E) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="0")) #NO

res02\_9 <- coxph(Surv(T\_inci\_E,inci\_E) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="2")) #YES

reportReg(res02\_8)

reportReg(res02\_9)

# BMI (<24.0; ≥24.0)

res02\_10 <- coxph(Surv(T\_inci\_E,inci\_E) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="1")) #<24

res02\_11 <- coxph(Surv(T\_inci\_E,inci\_E) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="2")) #>24

reportReg(res02\_10)

reportReg(res02\_11)

# physiology (Normal & Inflammation; Precancerous lesion)

res02\_14 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="1"))

res02\_15 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="2"))

reportReg(res02\_14)

reportReg(res02\_15)

#GC\_PDI

# age (≤55 y; >55 y)

res03\_1 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="1"))

res03\_2 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="2"))

reportReg(res03\_1)

reportReg(res03\_2)

# sex (female; male)

res03\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="2"))

res03\_4 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="3"))

reportReg(res03\_3)

reportReg(res03\_4)

# residence district (Other; North)

res03\_5 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="1"))

res03\_6 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="2"))

reportReg(res03\_5)

reportReg(res03\_6)

# smoking (No; Yes)

res03\_8 <- coxph(Surv(T\_inci\_S,inci\_S) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="0")) #NO

res03\_9 <- coxph(Surv(T\_inci\_S,inci\_S) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="2")) #YES

reportReg(res03\_8)

reportReg(res03\_9)

# BMI (<24.0; ≥24.0)

res03\_10 <- coxph(Surv(T\_inci\_S,inci\_S) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="1")) #<24

res03\_11 <- coxph(Surv(T\_inci\_S,inci\_S) ~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="2")) #>24

reportReg(res03\_10)

reportReg(res03\_11)

# physiology (Normal & Inflammation; Precancerous lesion)

res03\_14 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="1"))

res03\_15 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="2"))

reportReg(res03\_14)

reportReg(res03\_15)

#UGI\_DBI

# age (≤55 y; >55 y)

res11\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="1"))

res11\_2 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="2"))

reportReg(res11\_1)

reportReg(res11\_2)

# sex (female; male)

res11\_3 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="2"))

res11\_4 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="3"))

reportReg(res11\_3)

reportReg(res11\_4)

# residence district (Other; North)

res11\_5 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="1"))

res11\_6 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="2"))

reportReg(res11\_5)

reportReg(res11\_6)

# smoking (No; Yes)

res11\_8 <- coxph(Surv(T\_inci\_U,inci\_U) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="0")) #NO

res11\_9 <- coxph(Surv(T\_inci\_U,inci\_U) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="2")) #YES

reportReg(res11\_8)

reportReg(res11\_9)

# BMI (<24.0; ≥24.0)

res11\_10 <- coxph(Surv(T\_inci\_U,inci\_U) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="1")) #<24

res11\_11 <- coxph(Surv(T\_inci\_U,inci\_U) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="2")) #>24

reportReg(res11\_10)

reportReg(res11\_11)

# physiology (Normal & Inflammation; Precancerous lesion)

res11\_14 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="1"))

res11\_15 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="2"))

reportReg(res11\_14)

reportReg(res11\_15)

#EC\_DBI

# age (≤55 y; >55 y)

res12\_1 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="1"))

res12\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="2"))

reportReg(res12\_1)

reportReg(res12\_2)

# sex (female; male)

res12\_3 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="2"))

res12\_4 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="3"))

reportReg(res12\_3)

reportReg(res12\_4)

# residence district (Other; North)

res12\_5 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="1"))

res12\_6 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="2"))

reportReg(res12\_5)

reportReg(res12\_6)

# smoking (No; Yes)

res12\_8 <- coxph(Surv(T\_inci\_E,inci\_E) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="0")) #NO

res12\_9 <- coxph(Surv(T\_inci\_E,inci\_E) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="2")) #YES

reportReg(res12\_8)

reportReg(res12\_9)

# BMI (<24.0; ≥24.0)

res12\_10 <- coxph(Surv(T\_inci\_E,inci\_E) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="1")) #<24

res12\_11 <- coxph(Surv(T\_inci\_E,inci\_E) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="2")) #>24

reportReg(res12\_10)

reportReg(res12\_11)

# physiology (Normal & Inflammation; Precancerous lesion)

res12\_14 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="1"))

res12\_15 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="2"))

reportReg(res12\_14)

reportReg(res12\_15)

#GC\_DBI

# age (≤55 y; >55 y)

res13\_1 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="1"))

res13\_2 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (age5 =="2"))

reportReg(res13\_1)

reportReg(res13\_2)

# sex (female; male)

res13\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="2"))

res13\_4 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (sex =="3"))

reportReg(res13\_3)

reportReg(res13\_4)

# residence district (Other; North)

res13\_5 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="1"))

res13\_6 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (Site1 =="2"))

reportReg(res13\_5)

reportReg(res13\_6)

# smoking

res13\_8 <- coxph(Surv(T\_inci\_S,inci\_S) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="0")) #NO

res13\_9 <- coxph(Surv(T\_inci\_S,inci\_S) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (smoking =="2")) #YES

reportReg(res13\_8)

reportReg(res13\_9)

# BMI (<24.0; ≥24.0)

res13\_10 <- coxph(Surv(T\_inci\_S,inci\_S) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="1")) #<24

res13\_11 <- coxph(Surv(T\_inci\_S,inci\_S) ~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bmi1 =="2")) #>24

reportReg(res13\_10)

reportReg(res13\_11)

# physiology (Normal & Inflammation; Precancerous lesion)

res13\_14 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="1"))

res13\_15 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI1 + PA4 + Digestive + Hypertension + Diabetes,

data = P4, subset = (bl3 =="2"))

reportReg(res13\_14)

reportReg(res13\_15)

##========================================== Sensitivity analysis ==============================================##

# Exclusion of patients with digestive disorders

P5 <- subset(P4, digestivesd == 0)

#DBI & DBI\_P for trend

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Hypertension + Diabetes, data = P5) #UGI

reportReg(res1\_1)

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Hypertension + Diabetes, data = P5) #EC

reportReg(res1\_2)

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Hypertension + Diabetes, data = P5) #GC

reportReg(res1\_3)

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Hypertension + Diabetes, data = P5) #UGI\_P for trend

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Hypertension + Diabetes, data = P5) #UGI\_P for trend

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Hypertension + Diabetes, data = P5) #UGI\_P for trend

reportReg(res1\_2)

reportReg(res1\_2)

reportReg(res1\_3)

#PDI & PDI\_P for trend

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Hypertension + Diabetes, data = P5) #UGI

reportReg(res0\_1)

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Hypertension + Diabetes, data = P5) #EC

reportReg(res0\_2)

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Hypertension + Diabetes, data = P5) #GC

reportReg(res0\_3)

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Hypertension + Diabetes, data = P5) #UGI\_P for trend

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Hypertension + Diabetes, data = P5) #EC\_P for trend

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Hypertension + Diabetes, data = P5) #GC\_P for trend

reportReg(res0\_1)

reportReg(res0\_2)

reportReg(res0\_3)

# Exclusion of diabetic patients

P7 <- subset(P4, diabetes == 0)

#DBI & DBI\_P for trend

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension, data = P7) #UGI

reportReg(res1\_1)

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension, data = P7) #EC

reportReg(res1\_2)

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension, data = P7) #GC

reportReg(res1\_3)

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension, data = P7) #UGI\_P for trend

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension, data = P7) #EC\_P for trend

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4 + Digestive + Hypertension, data = P7) #GC\_P for trend

reportReg(res1\_2)

reportReg(res1\_2)

reportReg(res1\_3)

#PDI & PDI\_P for trend

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension, data = P7) #UGI

reportReg(res0\_1)

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension, data = P7) #EC

reportReg(res0\_2)

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension, data = P7) #GC

reportReg(res0\_3)

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension, data = P7) #UGI\_P for trend

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension, data = P7) #EC\_P for trend

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41 + Digestive + Hypertension, data = P7) #GC\_P for trend

reportReg(res0\_1)

reportReg(res0\_2)

reportReg(res0\_3)

# Exclusion of patients with digestive disorders, diabetes

P9 <- subset(P5, diabetes == 0)

#DBI & DBI\_P for trend

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4, data = P9) #UGI

reportReg(res1\_1)

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4, data = P9) #EC

reportReg(res1\_2)

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ HBS\_G11 + LBS\_G11 + DQD\_G11 + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4, data = P9) #GC

reportReg(res1\_3)

res1\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4, data = P9) #UGI\_P for trend

res1\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4, data = P9) #EC\_P for trend

res1\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(HBS\_g) + as.numeric(LBS\_g) + as.numeric(DQD\_g) + Age5\_G + Sex + bl2 + Site2 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Spicy1 + BMI + PA4, data = P9) #GC\_P for trend

reportReg(res1\_2)

reportReg(res1\_2)

reportReg(res1\_3)

#PDI & PDI\_P for trend

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41, data = P9) #UGI

reportReg(res0\_1)

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41, data = P9) #EC

reportReg(res0\_2)

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ tPDI\_G + tuPDI\_G + thPDI\_G + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41, data = P9) #GC

reportReg(res0\_3)

res0\_1 <- coxph(Surv(T\_inci\_U,inci\_U)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41, data = P9) #UGI\_P for trend

res0\_2 <- coxph(Surv(T\_inci\_E,inci\_E)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41, data = P9) #EC\_P for trend

res0\_3 <- coxph(Surv(T\_inci\_S,inci\_S)~ as.numeric(tPDI\_g) + as.numeric(tuPDI\_g) + as.numeric(thPDI\_g) + Age5\_G + Sex + bl2 + Site1 + Marriage + Education1 + Occupation1 + Income1 + Smoking + Drinking + Spicy + Energy1 + BMI1 + PA41, data = P9) #GC\_P for trend

reportReg(res0\_1)

reportReg(res0\_2)

reportReg(res0\_3)

##========================================== Survival Analysis Subgroup Interaction Functions（P for interaction） ==============================================##

load("[YourPath]/scitb5coxph16.R") # scitb5.coxph

library(foreign)

library(survival)

P4$HBS\_G <- as.factor(P4$HBS\_G)

P4$LBS\_G <- as.factor(P4$LBS\_G)

P4$DQD\_G <- as.factor(P4$DQD\_G)

P4$tPDI\_G <- as.factor(P4$tPDI\_G)

P4$tuPDI\_G <- as.factor(P4$tuPDI\_G)

P4$thPDI\_G <- as.factor(P4$thPDI\_G)

P4$DII\_E4 <- as.factor(P4$DII\_E4)

P4$age5 <- as.factor(P4$age5)

P4$sex <- as.factor(P4$sex)

P4$Site2 <- as.factor(P4$Site2)

P4$marriage <- as.factor(P4$marriage)

P4$smoking <- as.factor(P4$smoking)

P4$Drinking <- as.factor(P4$Drinking)

P4$BMI\_G <- as.factor(P4$BMI\_G)

P4$digestivesd <- as.factor(P4$digestivesd)

P4$hypertension <- as.factor(P4$hypertension)

P4$diabetes <- as.factor(P4$diabetes)

P4$Site0 <- factor(P4$diqu, levels=c("1","2","3"),labels=c("1","2","3"))

P4$Site1 <- factor(P4$diqu, levels=c("1","2","3"),labels=c("1","2","1"))

P4$Site2 <- factor(P4$diqu, levels=c("1","2","3"),labels=c("1","2","2"))

P4$spicy <- factor(P4$E13, levels=c("1","2","3","4","5"),labels=c("1","1","2","2","2"))

P4$spicy1 <- factor(P4$E13, levels=c("1","2","3","4","5"),labels=c("1","2","2","2","2"))

P4$bmi1 <- factor(P4$BMI\_G, levels=c("1","2","3","4"),labels=c("1","1","2","2"))

P4$bl3 <- factor(P4$bl, levels=c(1,2,3),labels=c("1","1","2"))

cov1 <- c("age5","sex", "Site2", "Variety\_12", "Marriage", "Education1", "Occupation1", "Income1", "smoking", "spicy1", "BMI\_G", "PA4", "digestivesd", "hypertension", "diabetes", "bl3")

interaction <- c("age5","sex", "Site1", "smoking", "bmi1", "bl3") #hierarchical variable

res11 <- scitb5.coxph(data = P4, x = "HBS\_G", y = "inci\_U", time = "T\_inci\_U", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res11

res12 <- scitb5.coxph(data = P4, x = "HBS\_G", y = "inci\_E", time = "T\_inci\_E", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res12

res13 <- scitb5.coxph(data = P4, x = "HBS\_G", y = "inci\_S", time = "T\_inci\_S", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res13

res14 <- scitb5.coxph(data = P4, x = "LBS\_G", y = "inci\_U", time = "T\_inci\_U", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res14

res15 <- scitb5.coxph(data = P4, x = "LBS\_G", y = "inci\_E", time = "T\_inci\_E", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res15

res16 <- scitb5.coxph(data = P4, x = "LBS\_G", y = "inci\_S", time = "T\_inci\_S", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res16

res17 <- scitb5.coxph(data = P4, x = "DQD\_G", y = "inci\_U", time = "T\_inci\_U", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res17

res18 <- scitb5.coxph(data = P4, x = "DQD\_G", y = "inci\_E", time = "T\_inci\_E", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res18

res19 <- scitb5.coxph(data = P4, x = "DQD\_G", y = "inci\_S", time = "T\_inci\_S", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res19

cov1 <- c("age5","sex", "Site1", "Marriage", "Education1", "Occupation1", "Income1", "smoking", "drinking", "spicy", "BMI1", "PA41", "digestivesd", "hypertension", "diabetes", "bl3")

interaction <- c("age5","sex", "Site1", "smoking", "bmi1", "bl3") #hierarchical variable

res01 <- scitb5.coxph(data = P4, x = "tPDI\_G", y = "inci\_U", time = "T\_inci\_U", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res01

res02 <- scitb5.coxph(data = P4, x = "tPDI\_G", y = "inci\_E", time = "T\_inci\_E", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res02

res03 <- scitb5.coxph(data = P4, x = "tPDI\_G", y = "inci\_S", time = "T\_inci\_S", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res03

res04 <- scitb5.coxph(data = P4, x = "tuPDI\_G", y = "inci\_U", time = "T\_inci\_U", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res04

res05 <- scitb5.coxph(data = P4, x = "tuPDI\_G", y = "inci\_E", time = "T\_inci\_E", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res05

res06 <- scitb5.coxph(data = P4, x = "tuPDI\_G", y = "inci\_S", time = "T\_inci\_S", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res06

res07 <- scitb5.coxph(data = P4, x = "thPDI\_G", y = "inci\_U", time = "T\_inci\_U", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res07

res08 <- scitb5.coxph(data = P4, x = "thPDI\_G", y = "inci\_E", time = "T\_inci\_E", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res08

res09 <- scitb5.coxph(data = P4, x = "thPDI\_G", y = "inci\_S", time = "T\_inci\_S", Interaction = interaction, cov = cov1, family = "cox", dec = 2, pdec = 3, p.intervaue = 3, contain = F)

res09

##========================================== Food group intake ==============================================##

P4$Cereal\_G <- as.factor(P4$Cereal\_G)

P4$Meat\_G <- as.factor(P4$Meat\_G)

P4$Fish\_G <- as.factor(P4$Fish\_G)

P4$Egg\_G <- as.factor(P4$Egg\_G)

P4$Vege\_G <- as.factor(P4$Vege\_G)

P4$YFruit\_G <- as.factor(P4$YFruit\_G)

P4$Fruit\_G <- as.factor(P4$Fruit\_G)

P4$Soybean\_G <- as.factor(P4$Soybean\_G)

P4$Dairy\_G <- as.factor(P4$Dairy\_G)

P4$Salt\_G <- as.factor(P4$Salt\_G)

P4$Oil\_G <- as.factor(P4$Oil\_G)

P4$Alcohol\_G <- as.factor(P4$Alcohol\_G)