Correlates between National Total Alcohol Consumption and Alcohol-related Harms
- *International Perspectives* -

Sungsoo Chun, Mieun Yun

Korean Institute on Alcohol Problems
Sahmyook University, Korea

Background

- The WHO Global Strategy to Reduce the Harmful Use of Alcohol endorsed by the World Health Assembly in May 2010 is the main policy framework.
- Usually industries tend to focus on Harm reduction model only, denying the Total Consumption Model.
- So on these days industries have tried to intend for setting self-regulatory models in advertising products by themselves denying total consumption model and National level of alcohol control policies.

Background

- The aims of this study are to
  - examine effectiveness of the Total Consumption Model which was introduced by Ketill Bruun *at al*,
  - analyze correlates between national total alcohol consumption and alcohol-related harms
  - and provide the evidence-based alcohol policy framework.

Data

- Data which was used in this presentation comes from 'World Health Statistics of 2013' published by WHO and ‘OECD Health Book of ' published by Korea Ministry of Health and Welfare.
- We have gotten the detail information of national total alcohol consumption, mortalities, and other alcohol-related harms from 34 OECD countries.

Analysis

- Correlation and multi regression were adopted to analyze.
- Gross National Income, Median age, and health expenditure (GDP ratio) were controlled when the data was analyzed in regression model.

Result

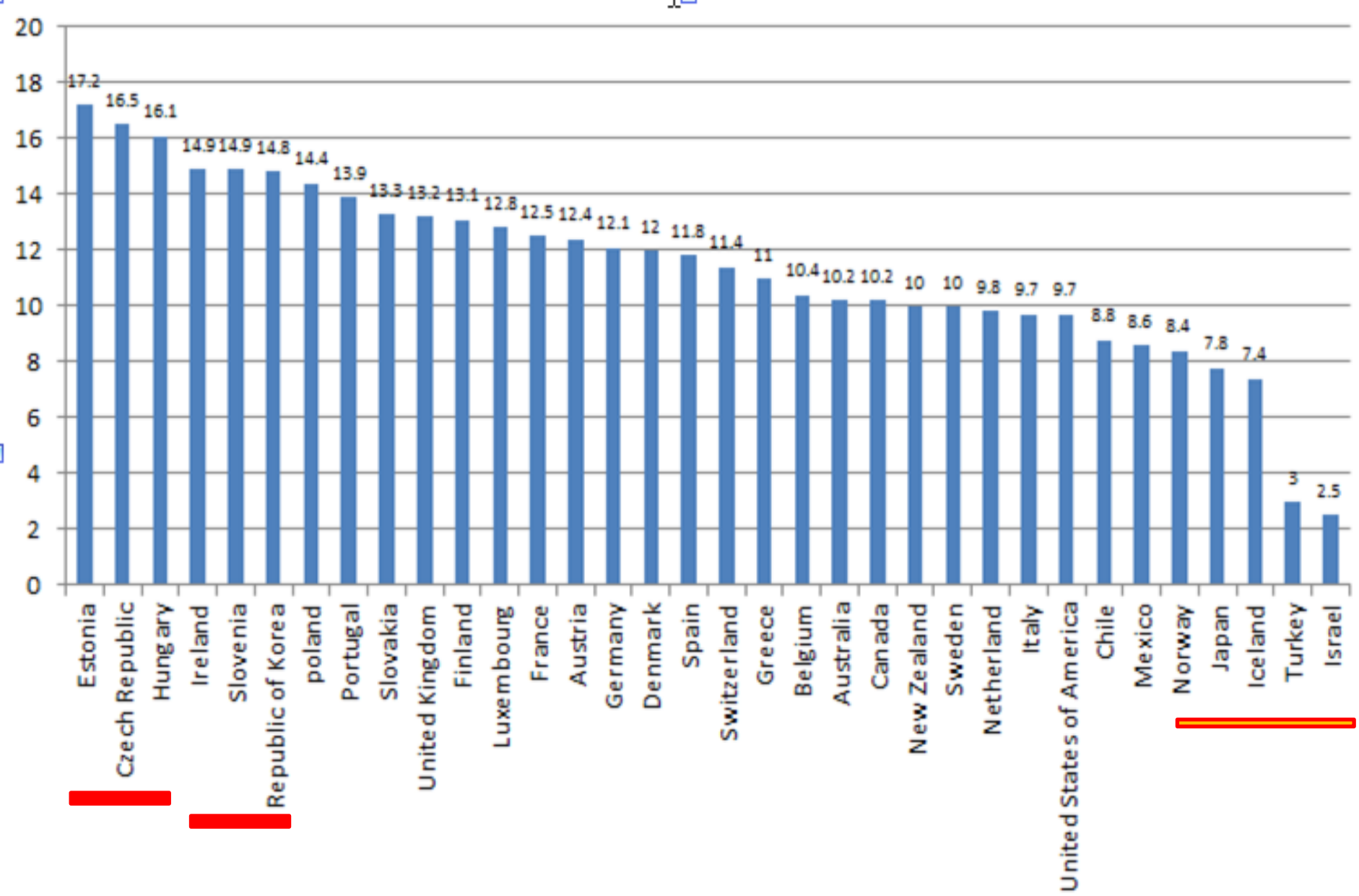

Figure 1. Alcohol consumption among adults aged >=15 years(liters of pure alcohol per person per year)

Table 2 Correlation coefficient between Alcohol consumption and health indicators

Health Indicators	Alcohol consumption among adults aged >=15 years (liters of pure alcohol per person per year)
• 2011 Life expectancy at birth (years):both sexes	-.242(.167)
• Age-standardized adult mortality rate (all causes)	.397(.020)
• Communicable. Age-standardized adult mortality rate by cause (per 100 000 population)	-.364(.045)
• Non-communicable. Age-standardized adult mortali ty rate by cause (per 100 000 population)	.308(.076)
• cerebrovascular mortality, age standardized adults (both sexes 2010)	.561(.001)
• ischemic heart disease mortality_age standardized a dults (both sexes 2010)	.437(.014)
• cancer mortality_age standardized adults (both sexe s 2010)	.551(.001)

Table 2 Correlation coefficient between Alcohol consumption and health indicators

Health Indicators	Alcohol consumption among adults aged >=15 years (liters of pure alcohol per person per year)
• respiratory mortality_age standardized adults (both sexes 2010)	-.193(.208)
• Suicide (both sexes 2010)	.417(.020)
• Injuries. Age-standardized adult mortality rate by cause (per 100 000 population)	.446(.008)
• Median age (years, 2011)	.479(.004)
• Gross national income per capita (pppint. $)	-.061(.738)
• health expenditure (GDP ratio 2010)	-.060(.734)

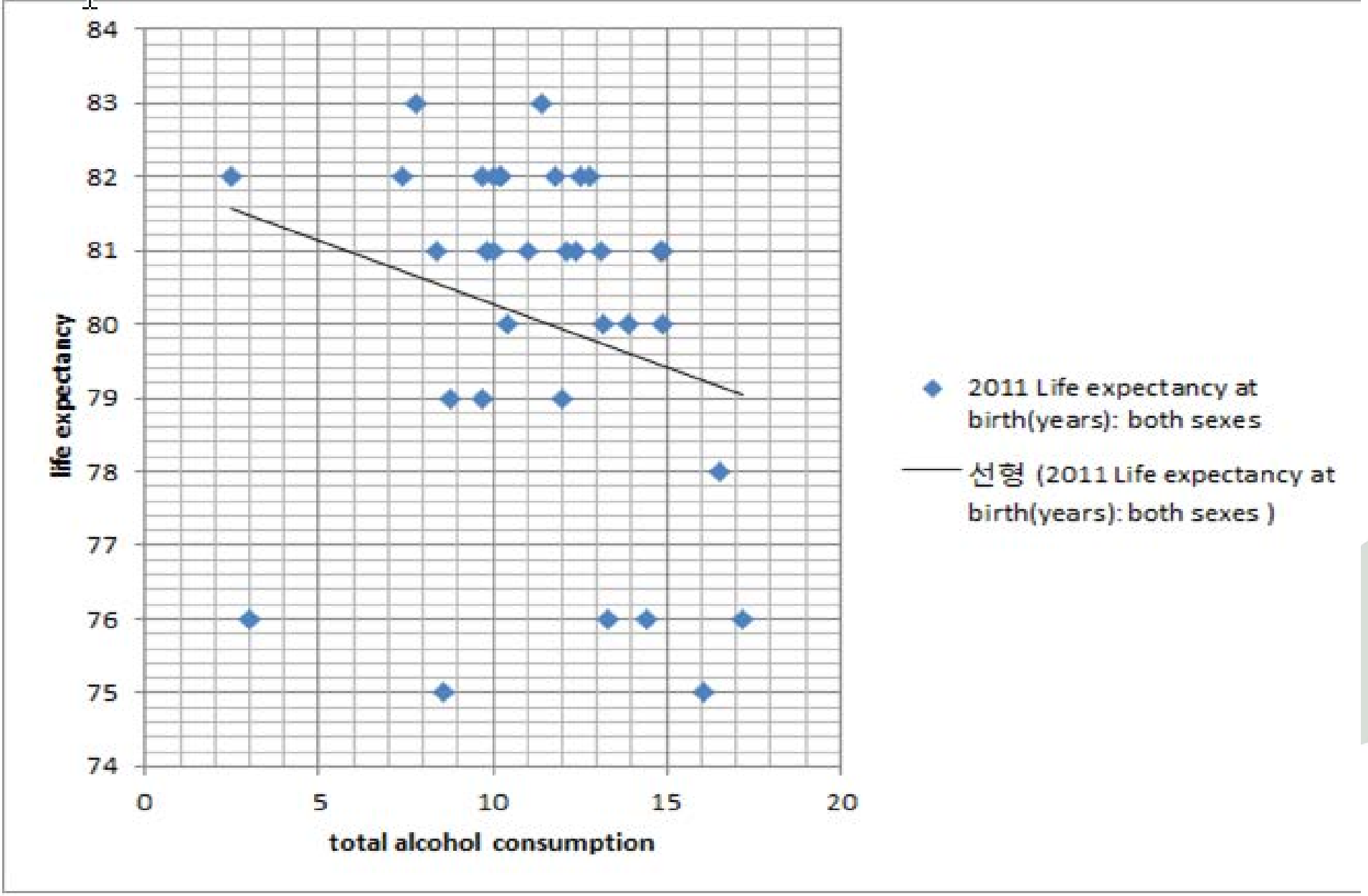

Figure 2 Correlation coefficient (-.242, p=.167)) between TAC and life expectancy

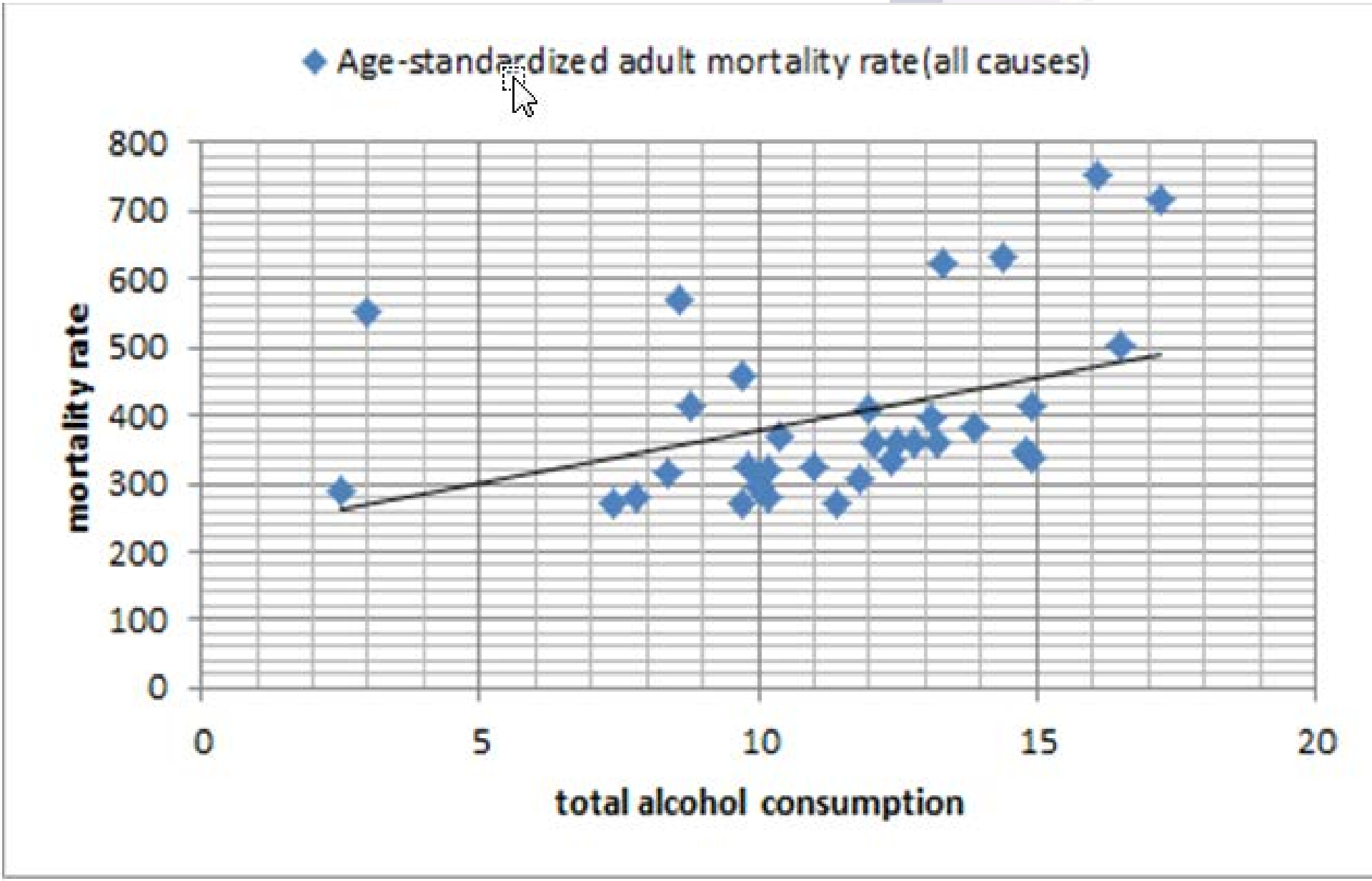

Figure 3 Correlation coefficient (.397, p=.020) between TAC and total mortality rate

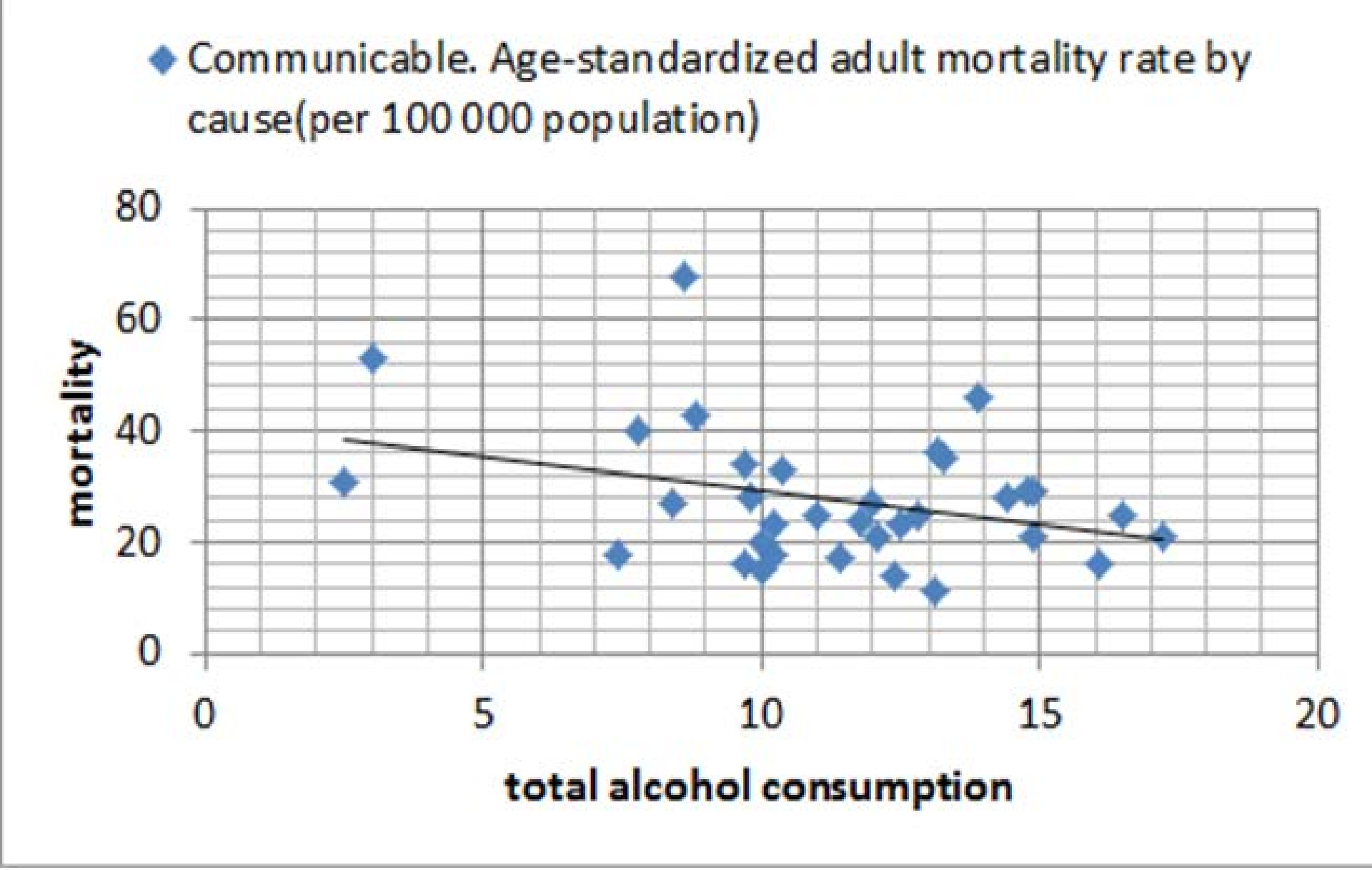

Figure Correlation coefficient (-.364, p=.045)) between TAC and communicable mortality rate

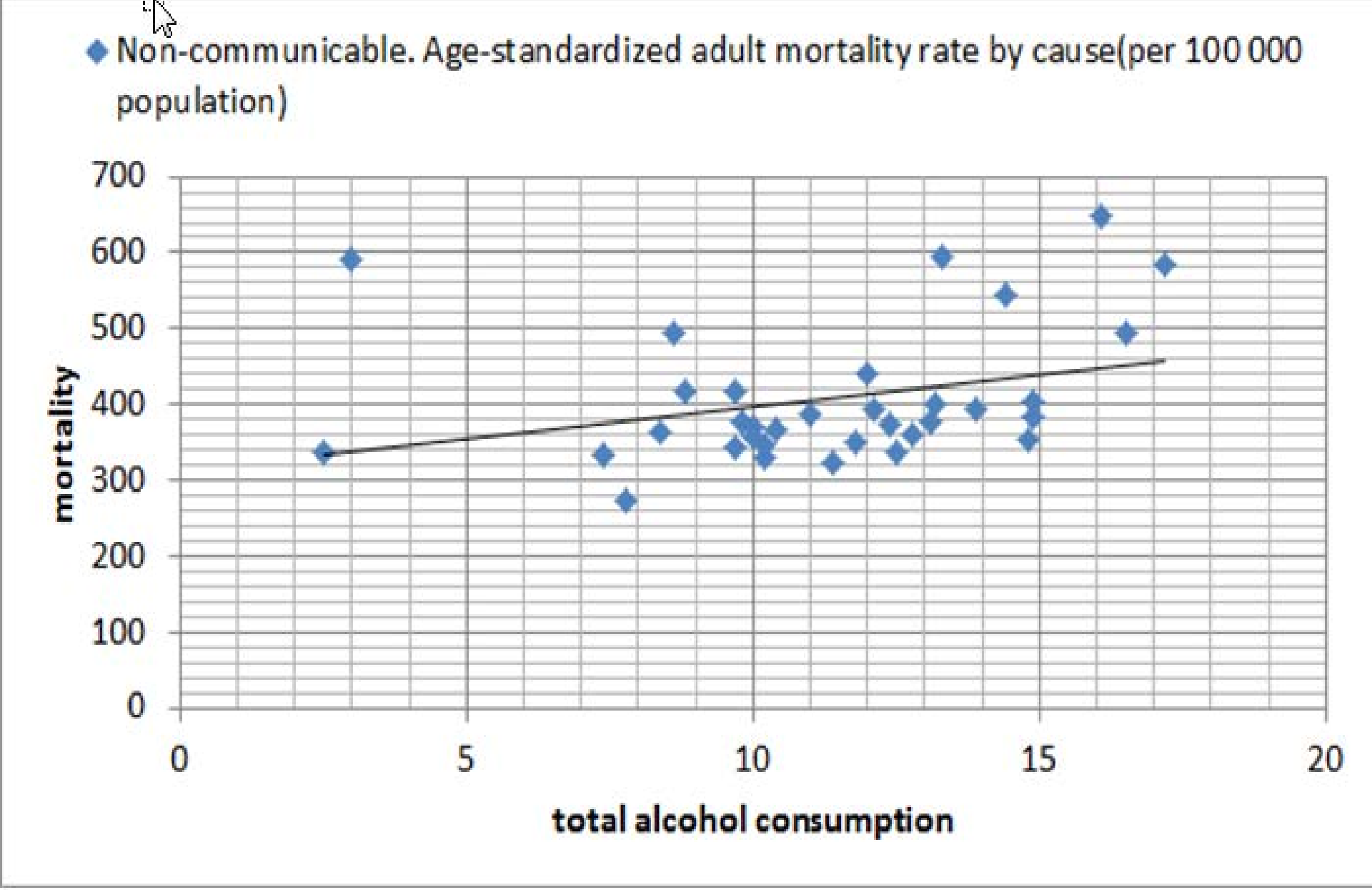

Figure Correlation coefficient (.308, p=.076) between TAC and non-communicable mortality rate

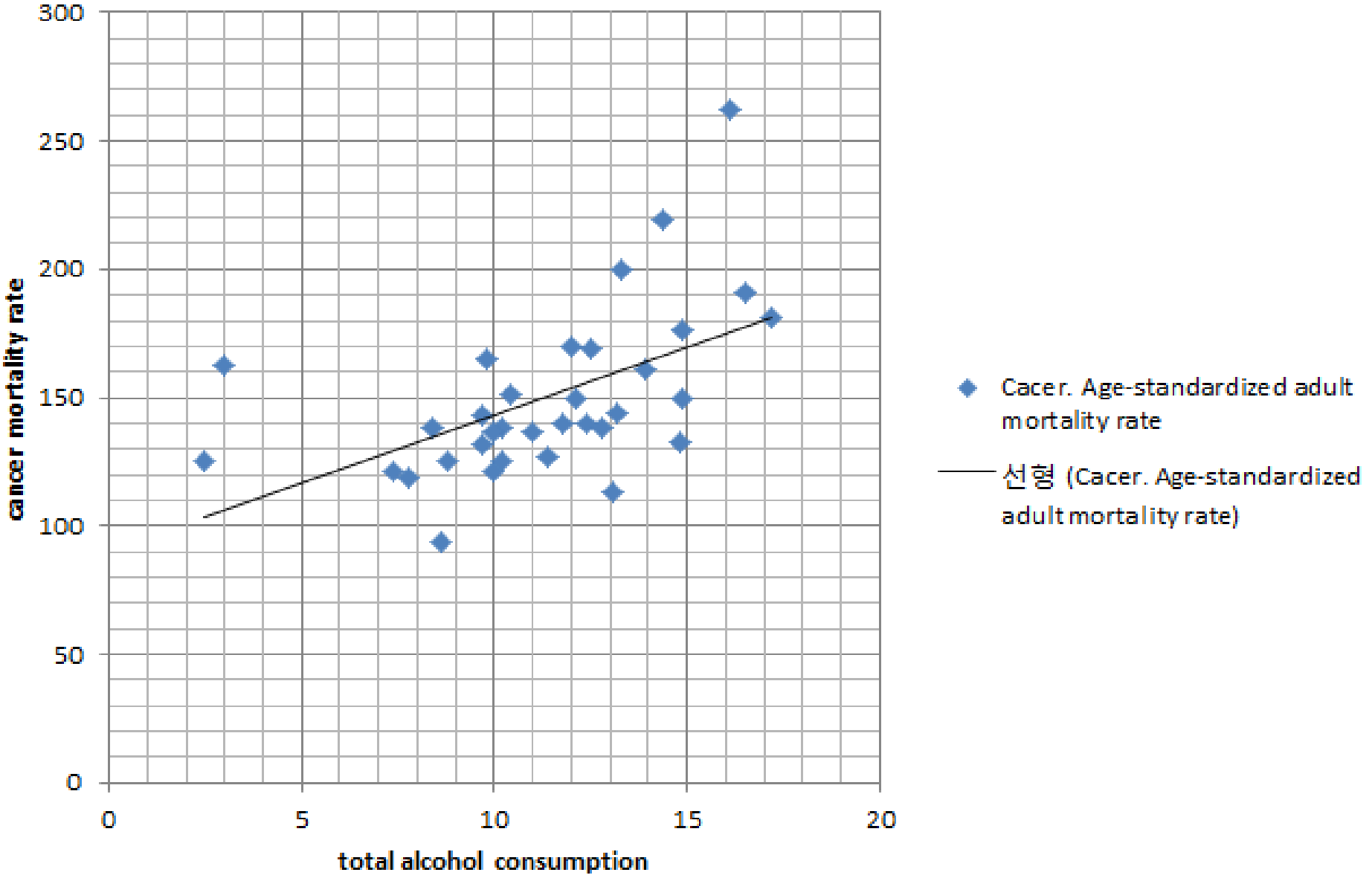

Figure 7 Correlation coefficient (.551 p=.001) between TAC and Cancer mortality rate

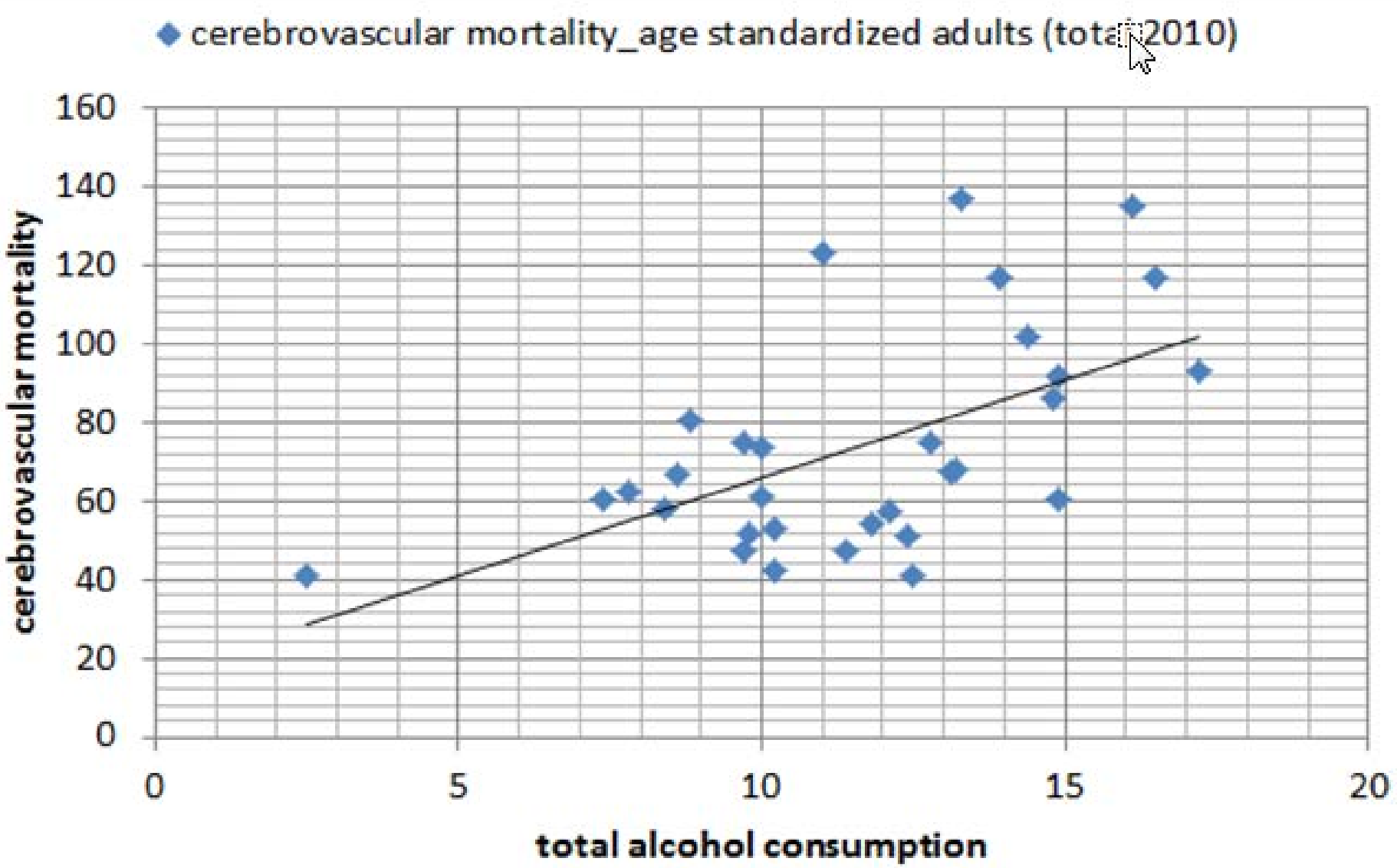

Figure 4 Correlation coefficient (.561, p=.001) between TAC and cerebrovascular mortality rate

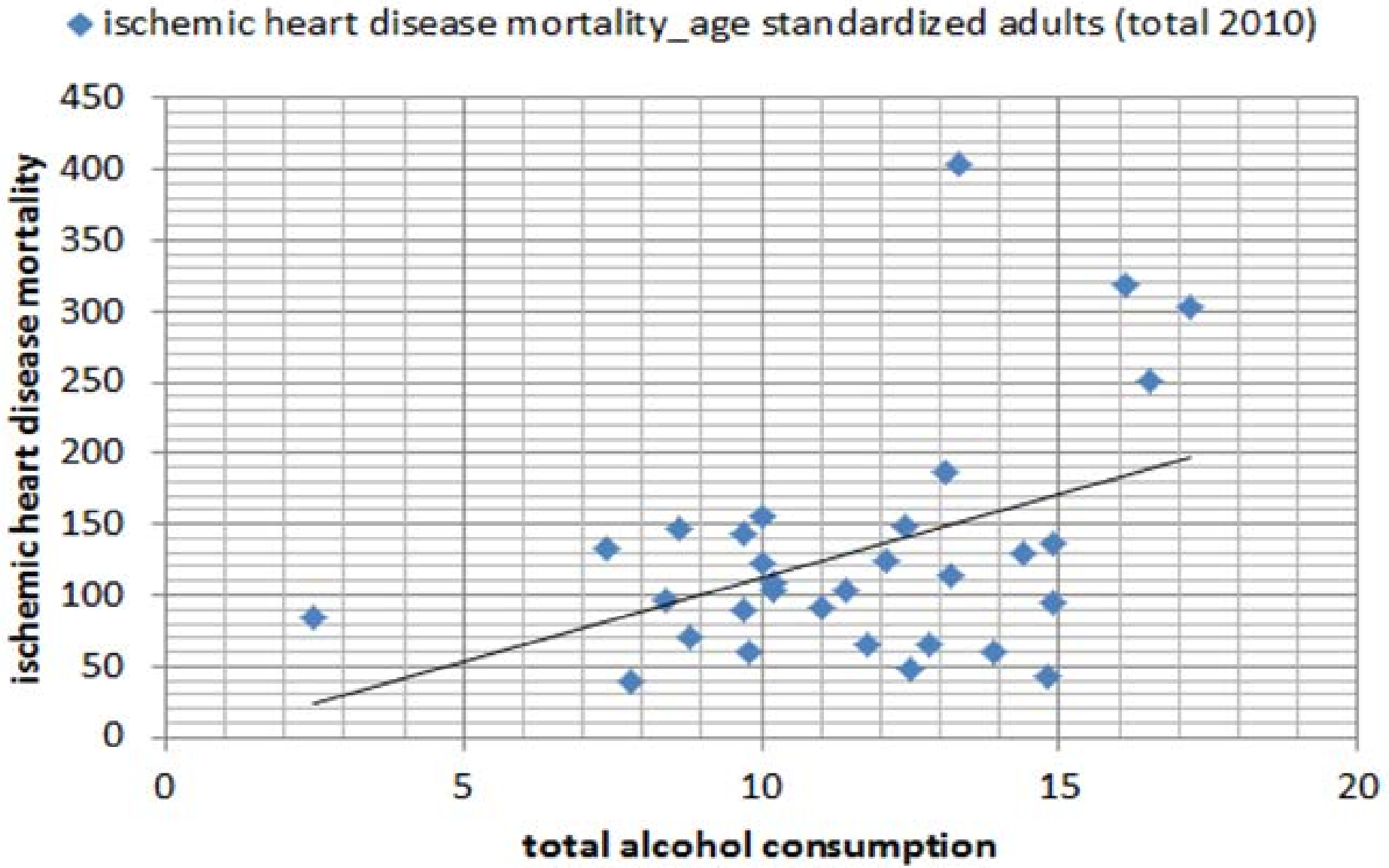

Figure 5 Correlation coefficient (.437, p.014) between TAC and ischemic heart disease mortality rate

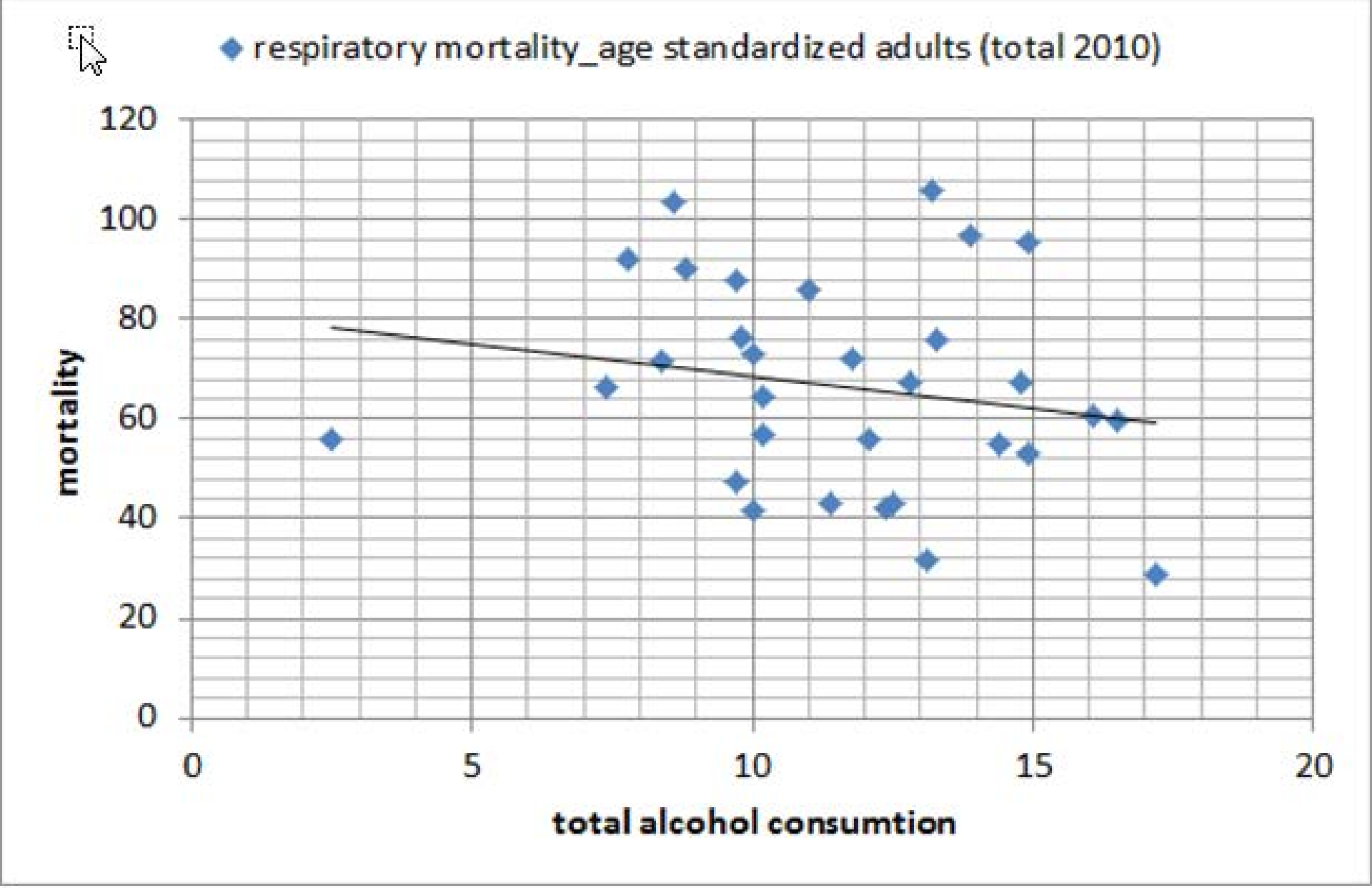

Figure 6 Correlation coefficient (.437, p=.014) between TAC and respiratory mortality rate

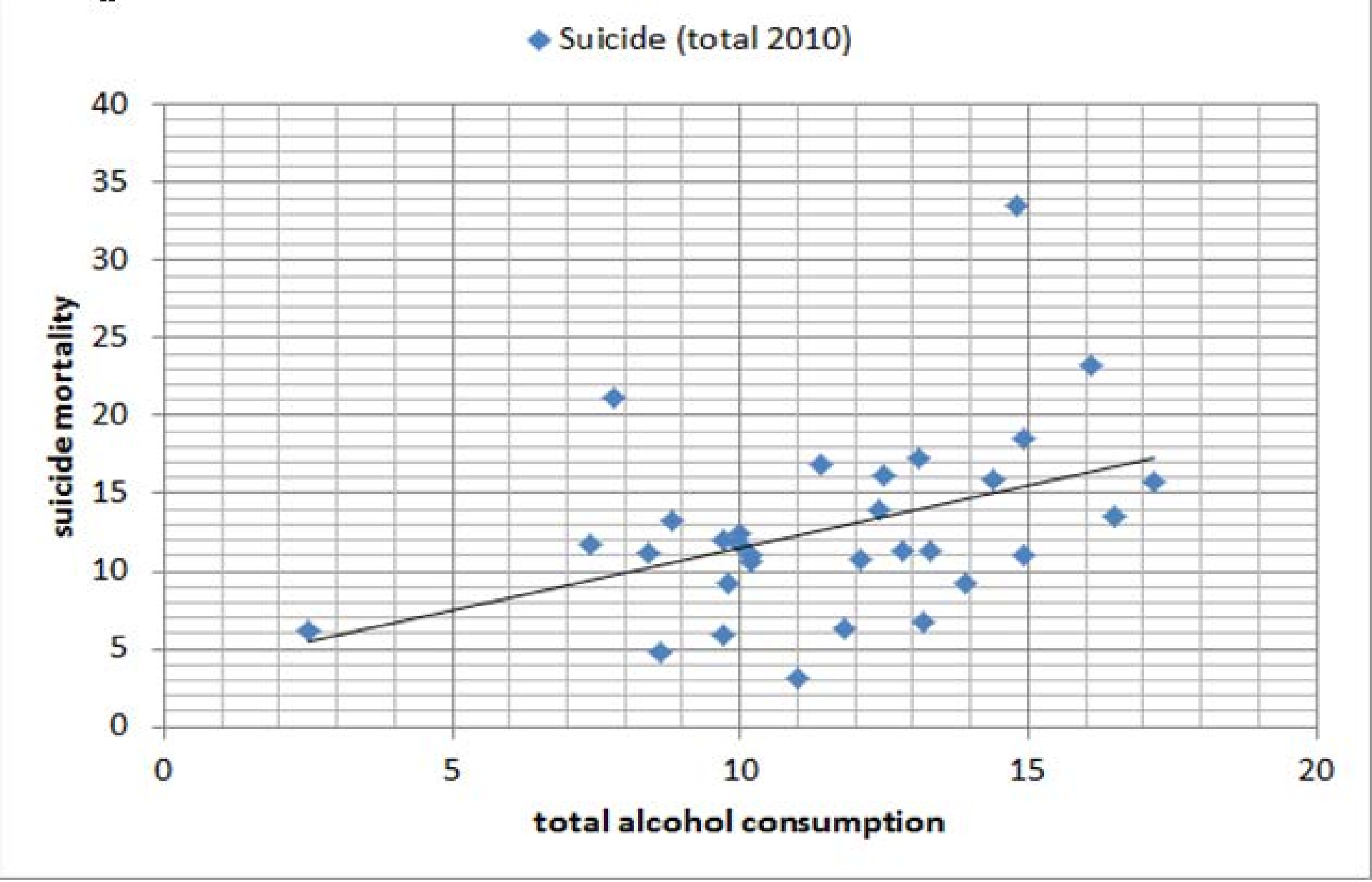

Figure Correlation coefficient (.437, p=.014) between TAC and suicide mortality rate

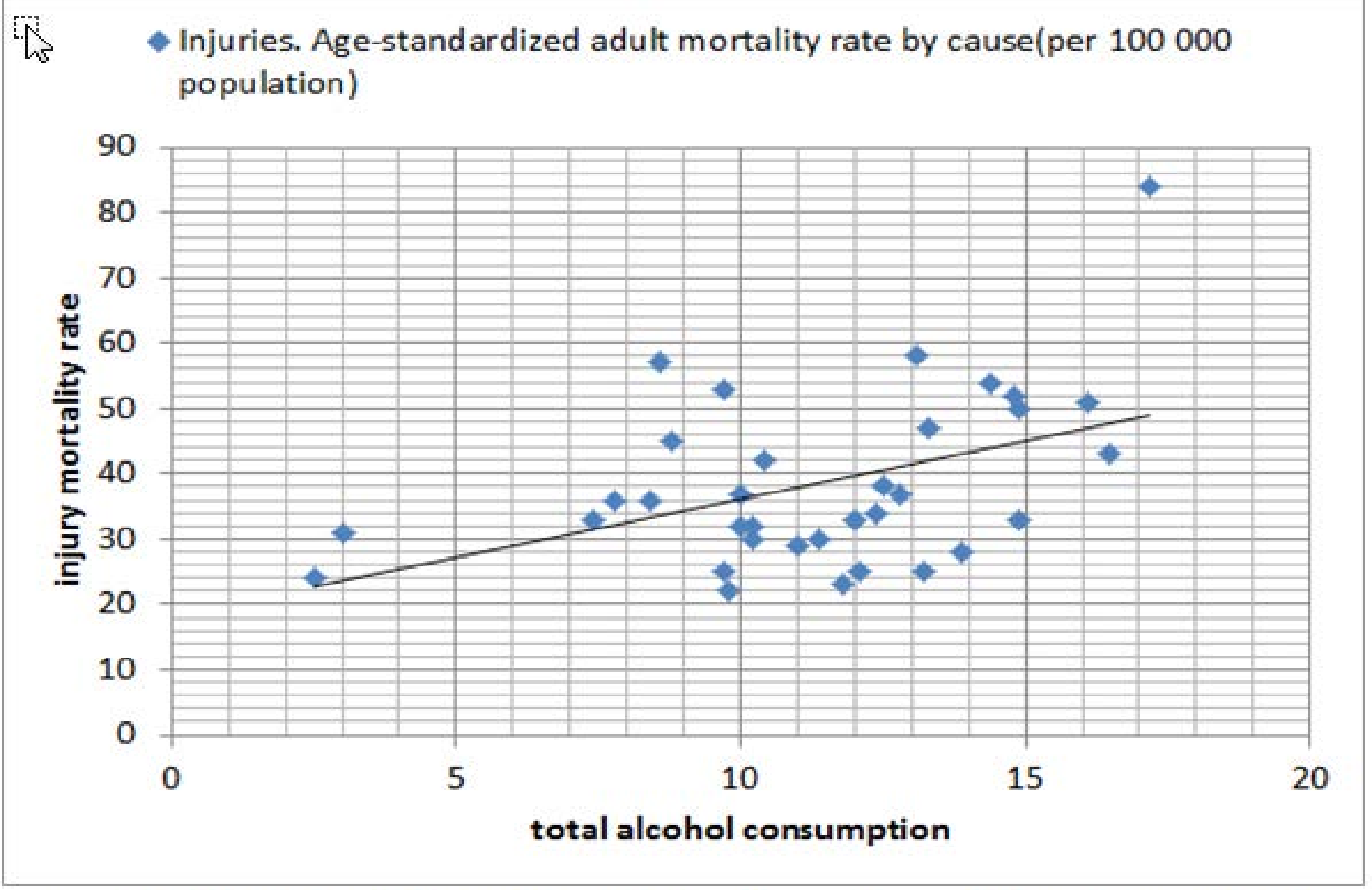

Figure 5 Correlation coefficient (.446, p=.008) between TAC and injuries mortality rate

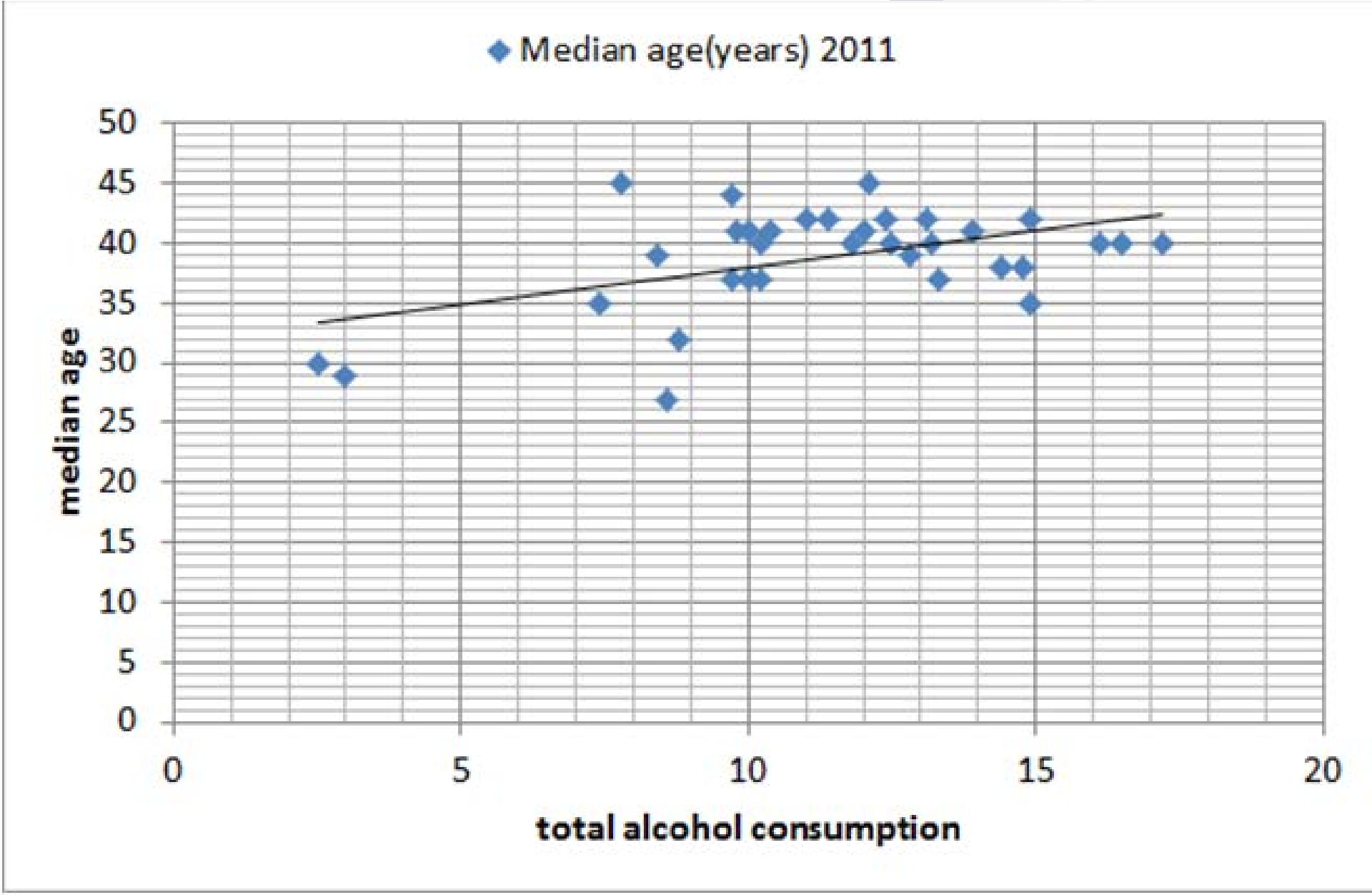

Figure Correlation coefficient (.479, p=.004) between TAC and median age

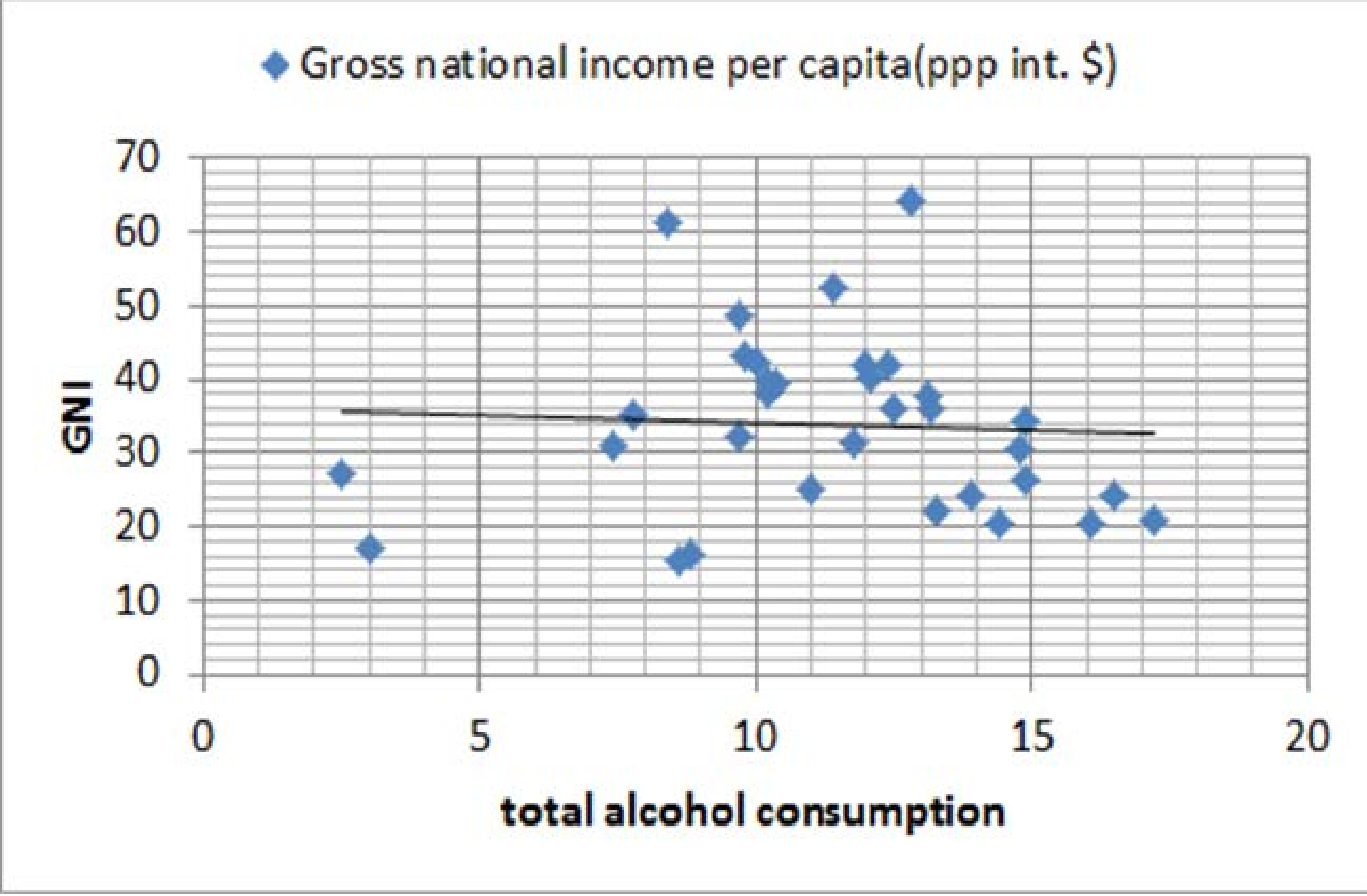

Figure Correlation coefficient (-.061, p=.738) between TAC and GNI

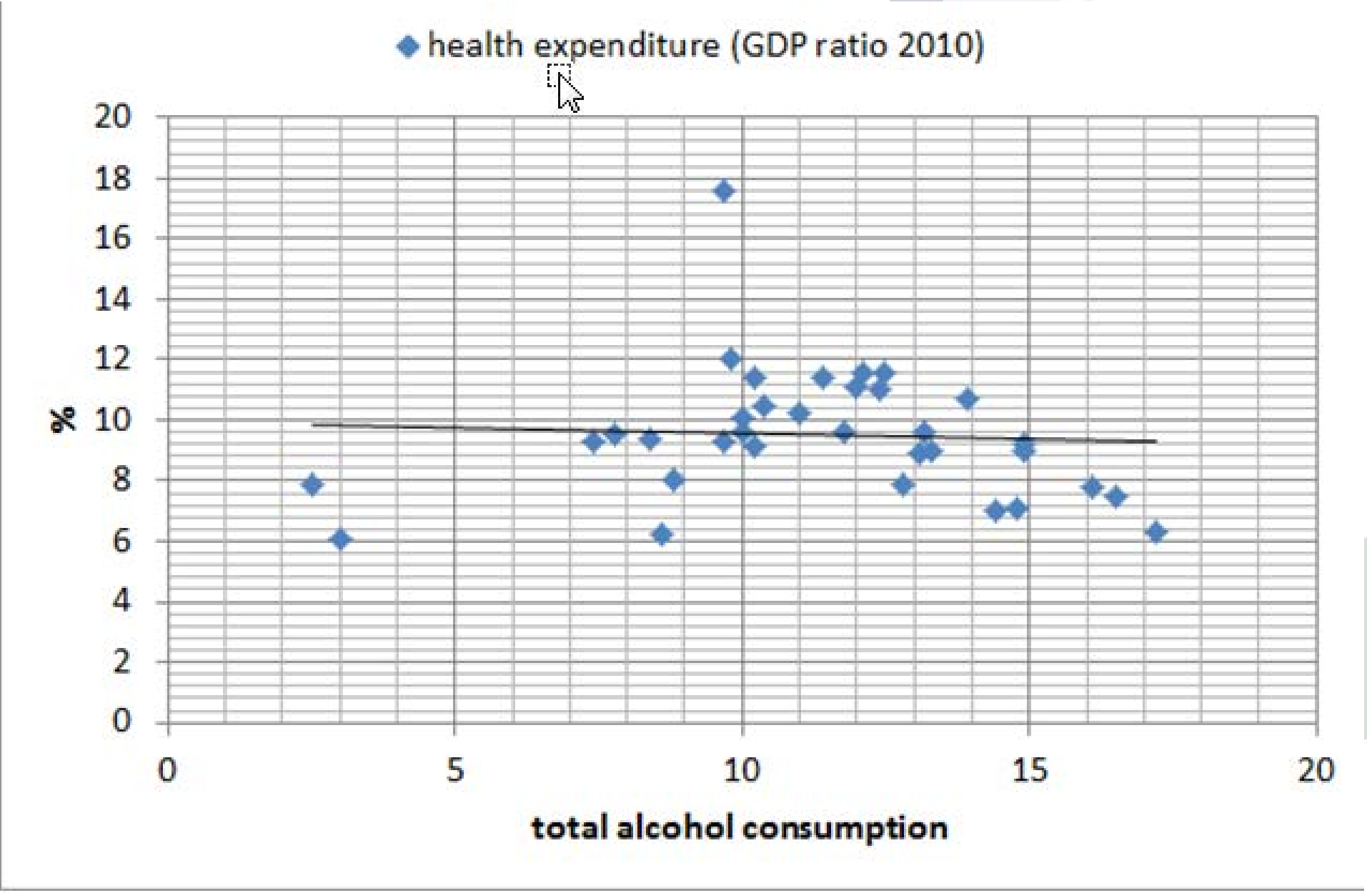

Figure Correlation coefficient (.437, p=.014) between TAC and health expenditure (GDP ratio)

Table 3 Beta-value (Multi regression results)

Dependent variables	Independent variable Alcohol consumption among adults aged >=15 years (liters of pure alcohol per person per year) *Beta* (*p*-value)
• Life expectancy at birth (years, bothsexes 2011)	-.438 (.009)
• Age-standardized adult mortality rate(all causes 2011)	.542 (.002)
• Non-communicable. Age-standardized adult mortality rate by cause(per 100 000 population, 2011)	.444 (.013)
• Communicable. Age-standardized adult mortality rate by cause(per 100 000 population, 2011)	-.138 (.431)
• cancer mortality_ age standardized adults (both sexes 2010)	.500 (.016)

note: controlled by Median age, GNI, and health expenditure

Table 3 Beta-value (Multi regression results)

Dependent variables	Independent variable Alcohol consumption among adults aged >=15 years (liters of pure alcohol per person per year) Beta (*p*-value)
• cerebrovascular mortality_age standardized adults (both sexes 2010)	.385 (.024)
• ischemic heart disease mortality, age standardized adults (both sexes 2010)	.477 (.026)
• respiratory mortality, age standardized adults (both sexes 2010)	-.013 (.952)
• Suicide (both sexes 2010)	.358 (.106)
• Injuries. Age-standardized adult mortality rate by cause(per 100 000 population, 2011)	.606 (.003)

note: controlled by Median age, GNI, and health expenditure

Summary & Conclusion

- We have found strong positive correlation between national total alcohol consumption and Non-communicable Disease
  - Cancer
  - Cerebrovascular
  - ischemic heart
  - Suicide
  - Injuries
- We couldn't find negative correlations between total alcohol consumption and any other disease or mortality in statistically significance, even in communicable and respiratory disease mortalities.

Summary & Conclusion

- There are strong correlates between national total alcohol consumption and alcohol-related harms.
- When total alcohol consumption is decrease, alcohol-related harms are decrease significantly.
- Most of all, Life expectancy at birth is highly correlated with total consumption level.

Summary & Conclusion

- Total consumption model is still effective and helpful to reduce alcohol-related harms even in highly developed countries.
- This study support the evidence-based logic to set-up the National Alcohol Control Policy according to the Total Alcohol Consumption Model for making safe, healthy and happy societies.

Thank you