WINE CONSUMPTION AND HEART DISEASE

1. Problem Formulation

Since ancient ages there has been a strong belief in some cultures that wine has important benefits to human health. In particular, it is believed that moderate wine consumption has a protective effect against heart disease. Is there any scientific basis for these claims? More precisely, is there any association between wine consumption and death rate of heart disease?

Many studies over the past 20 years have shown that people who drink moderately reduce their risk of dying from heart disease by about 40%. As a result, some heart specialists have cautiously recommended moderate drinking for good health. Others, however, fear that alcohol's benefits for the heart could be offset by its other hazards, such as cancer.

One of the first studies in the area was conducted by A. Leger, A.L. Cochrane, and F. Moore and published in 1978 and published in the paper "Factors Associated with Cardiac Mortality in Developed Countries with Particular Reference to the Consumption of Wine", Lancet (May 12, 1979, pages 1017-1020).

The authors of the study studied the relationship between the average wine consumption and the mortality rate of ischemic heart disease for men aged 55 to 64 years old for 18 industrialized countries. In this case study we will use the simple linear regression and SPSS to examine the data from the study.

The data from the experiment are available in the SPSS file wine.sav located in the STAT 252 directory on the FTP server.

The following is a description of the variables in the data file:

Column	Name of Variable	Description of Variable
1	COUNTRY	Country Name
2	WINE	Average wine consumption (in liters per person)
3	MORTAL	Number of Ischemic Heart Disease Deaths (per 1,000 men aged 55 to 64 years old)

We will use SPSS to answer the following questions using the data:

1. Do these data suggest that the heart disease rate is associated with average wine consumption? If so, how can that relationship be described?

2. Is the simple linear regression model appropriate to describe the relationship between wine consumption and mortality of heart disease?

3. Do any countries have significantly higher or lower death rates than others with similar wine consumption rates?