**CMD 304 - COURSE**

**RESEARCH METHODOLOGY & BIOSTATISTICS**

Tutorial topic: Analyzing a data set using SPSS version 18.0

**Name of the data set** : Type 2 Diabetes patients

**Objective :** To find out the variables associated to mortality in Type2 Diabetic patients.

**Outcome variable**: Current status [alive/dead]

**Study variables**:

|  |  |
| --- | --- |
| Age | FBS |
| Gender | Insulin therapy |
| Age at diagnosis of diabetes | Cataract |
| Duration of diabetes | Retinopathy |
| BMI | Blindness |
| Obesity | Nephropathy |
| Family history of diabetes | Acute coronary syndrome |
| Diet therapy | Myocardial infarction |
| OHA(oral hypoglycemic agents) | Neuropathy |
| Serum creatinine | Stroke |
| GFR | Diabetic foot Amputation |
| cholesterol | Current status |

**Using SPSS, complete the following tables and provide appropriate inferences(for table-3, 4 & 5):**

**Table 1: Socio demographic and clinical characteristics of Type-2 diabetic patients (n=881)**

|  |  |
| --- | --- |
| **Variable** | **Mean (sd)** |
| Age, |  |
| Age at diagnosis of diabetes |  |
| Duration of diabetes |  |
| BMI |  |
| Serum creatinine |  |
| GFR |  |
| Cholesterol |  |
| FBS |  |
|  | N( % ) |
| Gender(male) |  |
| Family history of diabetes (yes) |  |
| Diet therapy (yes) |  |
| OHA(oral hypoglycemic agents)(yes) |  |
| Insulin therapy (yes) |  |
| Cataract (yes) |  |
| Retinopathy (yes) |  |
| Blindness (yes) |  |
| Hypertension(yes) |  |
| Nephropathy(yes) |  |
| Proteinuria (yes) |  |
| Acute coronary syndrome[ACE](yes) |  |
| Myocardial infarction (MI)(yes) |  |
| Neuropathy(yes) |  |
| Stroke(yes) |  |
| Diabetic foot amputation(yes) |  |
| Current status ( Dead) |  |

**Table 2. Find out which of the following variables are symmetrical (Normal) and skewed (+ve / -ve)**

|  |  |
| --- | --- |
| **variable** | **Shape of the distribution** |
| Age (in years) |  |
| Age at diagnosis of diabetes (in years) |  |
| Duration of diabetes (in years) |  |
| BMI |  |
| Serum creatinine (mg/dl) |  |
| GFR |  |
| Cholesterol |  |
| FBS (mg/dl) |  |

**Table 3: Comparison of Mean values of quantitative study variables in relation to current status of Type-2 Diabetic patients.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **variable** | **Current status** | | **Mean difference** | **t-value** | **p-value** | **95% CI of difference of mean** |
|  | **Dead** | **Alive** |
| Age (in years) |  |  |  |  |  |  |
| Age at diagnosis of diabetes (in years) |  |  |  |  |  |  |
| Duration of diabetes (in years) |  |  |  |  |  |  |
| BMI |  |  |  |  |  |  |
| Serum creatinine |  |  |  |  |  |  |
| GFR |  |  |  |  |  |  |
| Cholesterol |  |  |  |  |  |  |
| FBS |  |  |  |  |  |  |

**Inference:**

**Table 4: Correlation between duration of diabetes and clinical variables of Type -2 diabetic patients**

|  |  |  |  |
| --- | --- | --- | --- |
| **Clinical variable** | **Duration of diabetes** | **“r-value”** | **p-value** |
| Serum creatinine |  |  |  |
| GFR |  |  |  |
| Cholesterol |  |  |  |
| FBS |  |  |  |

**Inference:**

**Table 5. Association of categorical study variables with current status of Type-2 diabetic patients**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | **Current status (%)** | | **Χ2 value** | **p-value** | **OR** | **95% CI of OR** |
| Dead | Alive |
| **Gender**  male  female |  |  |  |  |  |  |
| **Obesity**  Yes  No |  |  |  |  |  |  |
| **Family history of diabetes**  Yes  No |  |  |  |  |  |  |
| **Diet therapy**  Yes  No |  |  |  |  |  |  |
| **OHA(oral hypoglycemic agents)**  Yes  No |  |  |  |  |  |  |
| **Insulin therapy**  Yes  No |  |  |  |  |  |  |
| **Cataract**  Yes  No |  |  |  |  |  |  |
| **Retinopathy**  Yes  No |  |  |  |  |  |  |
| **Blindness**  Yes  No |  |  |  |  |  |  |
| **Hypertension**  Yes  No |  |  |  |  |  |  |
| **Nephropathy**  Yes  No |  |  |  |  |  |  |
| **Proteinuria**  Yes  No |  |  |  |  |  |  |
| **Acute coronary syndrome[ACE]**  Yes  No |  |  |  |  |  |  |
| **Myocardial infarction (MI)**  Yes  No |  |  |  |  |  |  |
| **Neuropathy**  Yes  No |  |  |  |  |  |  |
| **Stroke**  Yes  No |  |  |  |  |  |  |
| **Diabetic foot**  Yes  No |  |  |  |  |  |  |
| **Amputation**  Yes  No |  |  |  |  |  |  |

**Inference:**

**Exercise:**

Develop a simple regression equation between GFR (dependent variable) and duration of diabetes (independent variable). Use the values of “regression coefficient” and “r-square” to explain the linear relationship between GFR and duration of diabetes.