**Final Requirement**

**Task to do:***For each scenario,*

*1. Write a research question.*

*2. Write appropriate null and alternate hypotheses*

*3. Identify the independent variables*

*4. Identify the dependent variables*

*5. Recommend an appropriate statistical analysis (with reasons for choice)*

*6. Treat the data using SPSS with alpha at 5%.*

*7. Discuss and analyze results.*

*8. Draw conclusion and recommendation.*

***Scenario One***

A physiotherapist has experience of treating a large number of lower body injuries in athletes who have visited her clinic. The physiotherapist’s curiosity leads her toward attempting to discover whether the number of lower body injuries sustained is a function of the particular sport in which the athletes engage. She obtains a sample of elite athletes from four different sports (rugby, soccer, hockey, track and field) and examines the athletes’ injury records that have been supplied by sports medicine staff associated with each athlete’s home club. From this data, she is able to measure the number of lower body injuries each athlete has sustained over the last year. The data given was obtained.

Rugby Soccer Hockey Track and Field

3 5 2 4

0 7 3 4

5 3 2 2

3 1 3 5

5 8 0 3

4 6 4 5

4 4 2 3

***Scenario Two***

A smoker, sceptical about information that has been disseminated by the medical community warning against the dangers of smoking, decides to conduct a personal investigation to determine whether cigarette smoking influences longevity in his home town. He wrote to the local authority and obtained both the age of local residents at the time of death and the average number of cigarettes smoked per day over the course of a lifetime. The data given in the table was obtained.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Ave. Number of Cigarettes Smoked per Day | Age at Death |  | Ave. Number of Cigarettes Smoked per Day | Age at Death |
| 8 | 45 |  | 10 | 51 |
| 2 | 65 |  | 12 | 39 |
| 11 | 42 |  | 5 | 61 |
| 5 | 43 |  | 2 | 69 |
| 12 | 42 |  | 10 | 46 |
| 5 | 61 |  | 15 | 40 |
| 3 | 59 |  | 7 | 52 |
| 10 | 48 |  | 13 | 41 |
| 3 | 60 |  | 2 | 75 |
| 5 | 45 |  | 4 | 68 |
| 3 | 72 |  | 3 | 78 |
| 4 | 58 |  | 11 | 39 |

***Scenario Three***

A leisure researcher was interested in determining whether age and sex had any bearing upon the amount of time adults engaged in leisure activities. After obtaining data on the average amount of time individuals engaged in leisure activities each week from a representative sample of the population, she divided the sample according to sex, and further subdivided the sample into young adults, middle-aged adults and older adults. The data in the table was obtained.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Male** | | | **Female** | | |
| **Young** | **Mid-Age** | **Old** | **Young** | **Mid-Age** | **Old** |
| 24 | 12 | 16 | 26 | 4 | 8 |
| 20 | 10 | 14 | 20 | 2 | 2 |
| 16 | 6 | 20 | 16 | 8 | 11 |
| 12 | 6 | 22 | 20 | 6 | 4 |
| 28 | 4 | 20 | 15 | 4 | 12 |
| 24 | 8 | 18 | 18 | 6 | 16 |
| 22 | 8 | 12 | 24 | 8 | 2 |
| 18 | 6 | 16 | 22 | 2 | 8 |
| 19 | 12 | 24 | 19 | 2 | 6 |
| 22 | 2 | 22 | 18 | 8 | 8 |

***Scenario Four***

Dr. San Gabriel, a cardiologist, worried about the risks of coronary heart disease in his patients, decided to investigate the effects of putting the patients on a low-fat diet in conjunction with regular physical exercise. As the accumulation of cholesterol deposits in the arteries accounted for 30% of the deaths in the Philippines in 2015, he decided to measure the LDL/HDL ratio (low-density lipoproteins to high-density lipoproteins) in his patients before initiating a plan of diet and exercise, then again after six months of adherence to the diet and exercise regime. The cholesterol data in the table was obtained.

|  |  |
| --- | --- |
| LDL/HDL (Pre) | LDL/HDL (Post) |
| 6.5 | 5.3 |
| 5.6 | 4.1 |
| 4.7 | 4.2 |
| 4.9 | 3.5 |
| 6.7 | 5.3 |
| 6.5 | 5.6 |
| 5.8 | 4.8 |
| 6.7 | 6.2 |
| 6.6 | 6.0 |
| 6.5 | 5.2 |
| 6.4 | 5.8 |
| 7.8 | 5.7 |
| 5.4 | 4.8 |
| 4.8 | 4.1 |
| 5.3 | 5.0 |
| 4.9 | 3.8 |
| 5.7 | 4.1 |
| 6.3 | 5.3 |
| 5.3 | 5.0 |
| 4.8 | 3.9 |

***Scenario Five***

A researcher was interested in the influence of motivation on attentional breadth. He believed that as motivation increased, the attentional span of an individual would decrease. In addition, he argued that if participants were given a primary task and secondary task to complete at the same time, known as a dual-task paradigm, the influence of motivation would be most notable on the performance of the secondary task. To test this argument he first of all divided his participants into two groups according to whether they were experts or novices at performing the primary task. He then measured half of the participants’performance on both tasks over a 5 minute period when they displayed low levels of motivation. This situation was then repeated when these participants’ motivation levels had been experimentally manipulated to a high level. These two procedures were then reversed for the remaining half of the participants in an attempt to counterbalance for order effects. When comparing the results on the primary task, the researcher found no difference in performance across the two levels of motivation. He found the results reflected in the table below for the performance on the secondary task.

|  |  |  |  |
| --- | --- | --- | --- |
| **Low Motivtion** | | **High Motivation** | |
| **Novices** | **Experts** | **Novices** | **Experts** |
| 4 | 6 | 2 | 4 |
| 5 | 7 | 3 | 5 |
| 6 | 8 | 4 | 6 |
| 7 | 9 | 3 | 7 |
| 8 | 10 | 4 | 8 |
| 7 | 9 | 3 | 7 |
| 6 | 8 | 2 | 6 |
| 5 | 7 | 3 | 5 |
| 4 | 6 | 3 | 4 |
| 7 | 8 | 4 | 6 |