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| Data Set 2 |

Scientists conducted a study to explore the relationship between fast food consumption and feeling tired the next day. They hypothesised that the more fast food people consumed the greater the problems of feeling unrested the next day.

**Design**

* Independent groups design
* Participants allocated to groups on the basis of self-reported consumption of fast food
  + Condition 1 - ~~No problems in not feeling rested~~ Never eats fast food
  + Condition 2 – ~~A few problems in not feeling rested~~ Eats fast food once a month
  + Condition 3 – ~~Some problems in not feeling rested~~ Eats fast food once a week
  + Condition 4 – ~~Large problems in not feeling rested~~ Eats fast food several days a week

**Methodology:**

Participants were asked two questions on a questionnaire

How often do you eat fast food from McDonalds, KFC, Hungry Jacks, Pizza Hut, or Red Rooster

Never Once a Month Once a Week Several days a Week Daily

1 2 3 4 5

How large a problem do you have not feeling rested in the morning?

No Problem A bit Some Large Very Large

1 2 3 4 5

Figure 2: The relationship between frequency of fast food consumption and the ratings of problems with felling unrested in the morning.

Researchers used Pearson’s correlation coefficient to analyse the data.

Table 2. Pearson’s correlation between frequency of fast food consumption and the ratings of problems with felling unrested in the morning

|  |  |  |
| --- | --- | --- |
|  | Coefficient | P |
| Pearson’s Correlation coefficient | r = -.97 | P < .0001 |

**Dataset 2**

1 – Apply understanding

Q1. **Determine** the rating of feeling unrested for participants in condition 2.

A. 2.7

Q2. **Determine** the condition number of the group with a fast food consumption rating of 2.5.

A. Condition 4.

Q3. **Identify** the independent variable (IV) on figure 2.

A. Frequency of fast food consumption.

Q4. **Identify** the dependent variable (DV) on figure 2.

A. Rating of feeling unrested.

Q5. **Determine** the number of levels for the independent variable (IV).

A. 4.

2 – Analyse evidence

Q1. What is the **relationship** between the frequency of fast food consumption and feeling unrested in the morning?

A. The relationship is linear and negative.

Q2. **Identify** the strength of the relationship based on Pearson’s Correlation coefficient.

A. The *r* value is greater than -.5 which is a large effect and therefore considered a strong relationship. OWTTE.

Q3. **Identify** whether or not the results are statistically significant. Explain why or why not.

A. The results are statistically significant. Results are accepted as significant when the P value is .05 or less. The P value for this study is less than .0001 thus making it significant. OWTTE.

Q4. **Identify** the error in Table 2. (If this question is used, Pearson’s correlation coefficient must be changed from a negative to a positive number)

A. Pearson’s correlation coefficient should be -.97 not .97 as the relationship of the data in Figure 2 is negative.

3 – Interpret evidence

Q1. **Infer** the results of Pearson’s correlation coefficient analysis. (If Q4 from previous batch is used, then this question will be: **Infer** the results of the corrected Pearson’s correlation coefficient analysis.)

A. The *r* value indicates there is a negative correlation between feeling unrested in the morning and the frequency of fast food consumption and the *p* value indicates it is statistically significant.

Q2. **Compare** the ratings of participants in condition1 with participants in condition 4.

A. Although participants in condition 1 have a higher rating of feeling unrested than participants in condition 4, there is very little real difference as both conditions fall between 2 (a bit) and 3 (some). OWTTE.

Q3. **Draw a conclusion** about the relationship between the frequency of fast food consumption and feeling unrested in the morning.

A. As the frequency of fast food consumption increases, feeling unrested in the morning decreases. OWTTE.