QUANTITATIVE DATA ANALYSIS

Understanding the Data

Understanding the data involves:

1. Counting and grouping together answers that are given to each closed question.
2. Counting and grouping into categories similar types of answers given to open questions.
3. Counting and grouping participant observations.

Analyzing Quantitative data

1. **Nominal data** (classificatory scale)

- **What it involves**: Nominal data are given a numerical number to identify or code them e.g. characteristics like sex, ethnicity, place of birth etc.
- **Analysis**: You can categorise and then count up the frequencies of each category in the data.

Analyzing Quantitative Cont'd

2. **Ordinal data**: (ranking scales)

- **What it involves**: These data are assigned numbers to indicate that there is an order or rank between them. E.g. Strongly agree =5, agree= 4, no opinion=3, disagree =2, strongly disagree = 1. The data aren't naturally numerical.
- **Analysis**: You can use these to produce frequencies and simple descriptive statistics

Analyzing Quantitative Cont'd

3. Interval data:

- **What it involves**: these are recognized measurements, but there is no true zero. The start and end points of the measuring scale are arbitrary.
- The interval between the points on the scale is measurable. E.g. temperature recordings.
- **Analysis**: Some basic descriptive statistics can be derived from this data.

Analyzing Quantitative Cont'd

4. Ratio data:

- **What it involves**: these are recognized measurements and have a true zero. E.g. money, age, and measures of length and distance. E.g. a person who is 20 years old is numerically twice as old as a child who is 10.
- **Analysis**: You can produce a variety of statistics from this type of data.

Preparing your Quantitative Data

- Prepare the data to get an analysable form by:

1. Code the responses or observation categories
2. Collate them into a table of responses.

- Closed questions produce quantitative data and are easy to code.
- Open questions produce qualitative data.

Preparing your Quantitative Data Cont'd

Example: Attitudes to personal relationships

Question:	Code	Type of data
1. What sex are you		
male	(1)	Nominal data
Female	(2)	
2. How old are you?		
15	(1)	Ratio data
16	(2)	
17	(3)	

Preparing your Quantitative Data Cont'd

3. Personality is more important than physical appearance in attracting a boyfriend or girlfriend.

I Strongly agree (1) Ordinal data

I agree (2)

I neither agree or disagree (3)

I disagree (4)

4. Describe the characteristics of your **ideal** partner. (qualitative coding)

Preparing your Quantitative Data Cont'd

Person A	1	1	2
Person B	2	4	1
Person C	2	4	1
Person D	1	3	3
Person E	2	2	1

Making sense of Your Quantitative Data

- Analysis means separating something that is whole into its component parts so that it can be studied/ or to find meaningful patterns and the relationships in the mass of data that you have accumulated.
- You can analyze data using descriptive statistics techniques such as:

- Frequency distributions, percentages
- Mean, median and mode
- Standard deviation.

Making Sense of Your Quantitative Data Cont'd

1. **How to produce a frequency distribution**

- It is a tally of how often (frequently) certain data items occur within a data set.
- Total up the number of each type of response given to a particular questions.
- Use the numbers to produce a frequency table.

Making Sense of Your Quantitative Data Cont'd

2. **Calculating the mean, median, mode**.

- Mean= average (total divide by number of items)
- Median (middle)
- Mode (frequently occurring data item)

Making Sense of Your Quantitative Data Cont'd

3. Calculating the standard deviation

i. Calculate the mean of the data set.

ii. Calculate the difference, or deviation, between each individual response and the mean value. (+, or -)

iii. Calculate the square of each of these deviations

Making Sense of Your Quantitative Data Cont'd

iv. Add the squared figures together to get a sum of squares figure.

v. Divide the sum of squares by the number of data items to get a variance figure.

vi. Calculate square root of the variance figure to obtain standard deviation.

- If the deviation is low, it means the mean is a good representation of the average. If it is high, it means it is a poor representation of the average.

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