Comparing two groups or measures

<table>
<thead>
<tr>
<th></th>
<th>Non-parametric (Ordinal/ranked data)</th>
<th>Parametric (Mean and SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparing different groups</td>
<td>Mann-Whitney U</td>
<td>Independent t (two sample/unpaired/unrelated)</td>
</tr>
<tr>
<td>Comparing variables (Repeted measures)</td>
<td>Wilcoxon’s T</td>
<td>Paired t (repeated measures/matched sample/related)</td>
</tr>
</tbody>
</table>

T-tests
- Differences in means.
- How likely is it that two means come from the same sampling distribution of means?
- The sampling distribution of differences between means is a t difference.
- One-Sample SPSS: Analyse/Compare Mean/One-Sample T Test.
- Paired-Samples SPSS: Analyse/Compare Means/ Paired-Samples T Test.
- Independent-Samples SPSS: Analyse/Compare Means/Independent-Samples T Test.

Assumptions and Corrections
- Interval or ratio scale data: use parametric tests if data is on an ordinal scale (Mann-Whitney U, Wilcoxon’s T) or on a nominal scale (Pearson’s Chi-squared test).
- Roughly normal distribution of differences.
- Homogeneity of variance between samples.

Statistical Testing
Choice of tests
- Parametric tests:
  1. Distributional assumptions of parametric tests are met.
  2. Parameters are known.
  3. Sample is large enough.
  4. Continuous variables.
- Non-parametric tests:
  1. Distributional assumptions of parametric tests are violated.
  2. Small sample size.
  3. Uses ranks of categories.

Ordinal Data
- Data originally on an ordinal scale such as league tables.
- Data converted to an ordinal scale due to it being poorly distributed and unsuitable for parametric tests.

Ranking data
- Some tests require ranks or sums of ranks e.g. Mann-Whitney U, Wilcoxon’s T.
- Too many tied ranks are problematic.
- Usually ranks are assigned regardless of group because you want to compare them later on.

Mann-Whitney U
- A distribution-free test for unrelated designs comparing two sub-samples or conditions.
- Reject null hypothesis if U is no larger than the critical value.

Wilcoxon’s T
- Use for distribution-free tests of related designs.
- You can also use it to test against an expected value.
- Reject null hypothesis if T is smaller than the critical value.
Interviews and Qualitative Data

Social Construction

- “The terms and forms by which we achieve an understanding of the world and ourselves are social artifacts, products of historically and culturally situated interchanges among people” (Gergen, 1994: p. 49).
- “The degree to which a given account of the world or self is sustained across time is not dependent on the objective validity of the account but on the vicissitudes of social process” (Gergen, 1994: p. 51).
- Objectivity or reality is irrelevant. 
- Context is what’s important.

Phenomenology

- Realist approaches try to discover reality.
- Idealist approaches try to examine intersubjectivity (the primacy of communication).
- Phenomenological approaches try to examine subjective lived experience.

Epistemological controversies

- A “hardcore traditional” position: we need to measure, generalise and predict in order to be useful.
- A “hardcore critical” position: if we reduce psychology to numbers and take it out of context, we lose sight of what is important.
- A “pragmatic” position: we can use qualitative and quantitative methods depending on our research aims and questions.

Qualitative data collection

- Focus groups: collective discussion, multi-way conversation and interaction.
- One-to-one interviewing: private, in-depth conversation, which will be more or less structured.
- Text analysis: journalistic articles, political speeches, diaries, etc.
- Analysis of non-textual sources: photographs, drawings, films, mind maps, etc.

Types of interview

- Structured: pre-conceived questions, little deviation from the schedule, highly specific, often quantitative elements (verbal questionnaire).
- Semi-structured: pre-conceived questions and probes, invitation to elaborate, flexible, addresses research question but no test.
- Unstructured: few if any pre-conceived elements, free-style conversation, highly variable, highly natural but unfocused.

Ethical implications

- Rapport: encouraging self-disclosure without being manipulative.
- Trust and confidentiality: could include unpopular views, welfare of participant needs to be observed.
- Neutrality and respect: non-judgemental interaction, observing boundaries, letting interviewee take the lead.
- Language: avoid disagreement or trivialisation humour.
- Respondent distress: care and encouragement, allow participant a break and debrief them at the end.

Running focus groups

- Design challenges: capturing important data in fewer questions.
- Recruitment challenges: existing groups have the potential for controversy.
- Operational challenges: logistics.
- Data challenges: limitations on confidentiality, deciding if you are more interested in individual contributions or group interactions.
Clinical interviews

- A conversation with a purpose – diagnoses, assessment of needs and decisions on treatment.
- Similar to research interviews; unequal power relationship, degrees of structure, safe setting and confidentiality and safe keeping of data.

Differences between clinical and research interviews

<table>
<thead>
<tr>
<th>Clinical Interviews</th>
<th>Research Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aim for diagnosis/assessment.</td>
<td>Aim for knowledge generation.</td>
</tr>
<tr>
<td>Judgement often immediate or soon after.</td>
<td>Final conclusion is a longer-term project.</td>
</tr>
<tr>
<td>Assessment of individuals against clinical criteria.</td>
<td>Usually consideration of several cases for psychological insight.</td>
</tr>
<tr>
<td>Often more structured.</td>
<td>Often less structured.</td>
</tr>
<tr>
<td>Consideration of non-verbal information is actively encouraged.</td>
<td>Methods of analysis focus on verbal communication.</td>
</tr>
</tbody>
</table>

The Right Tools for the Right Job

Data collection methods

- Observation – naturalistic or in experiments.
- Questionnaires – as surveys or experiments.
- Experiments – between and within participants designs.
- Interviews/focus groups – structured, semi-structured or unstructured.
- Archival data/documents.

Epistemologies in psychology

- Epistemology – philosophical position on what we can know and how.
- Realist approaches (e.g. positivism) – reality exists and can be discovered using scientific methods.
- Idealist approaches (e.g. social constructionism) – humanly knowable reality is socially constructed and intersubjective.
- Phenomenological approach – a focus on meaning and lived experience, everyone’s reality is different, but can tell us something about the essential qualities of the phenomenon.

Conclusions

- Methods of data collection and analysis are linked to particular ways of doing research. This can be due to epistemological positions or tradition.
- The methods we use are never ideologically neutral or free of assumptions.
- Within these constraints, they are flexible tools that can be modified and mixed.
- The aim is to achieve a good fit between research questions and researcher expertise.

Effect Size and Meta-Analysis

<table>
<thead>
<tr>
<th>Association</th>
<th>Compare 2 groups</th>
<th>Compare 2 measures</th>
<th>Compare more than 2 groups</th>
<th>Compare more than 2 measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous variables</td>
<td>Pearson’s r</td>
<td>Unpaired t test</td>
<td>Paired t test</td>
<td>Between-groups ANOVA</td>
</tr>
<tr>
<td>Ranked variables</td>
<td>Spearman’s p</td>
<td>Mann-Whitney U</td>
<td>Wilcoxon’s T</td>
<td>Kruskal Wallis</td>
</tr>
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Categorical variables – association/fit – Pearson’s x² test.