

Research Methods In Clinical Psychology

What is research?

- Systematic, rigorous and careful consideration of relevant facts
- These can be obtained from:
 - Clinical experience (e.g. case studies)
 - Searches of historical literature (e.g. systematic review of literature)
 - Literature generally
 - Scientific research

Research in Clinical Psychology

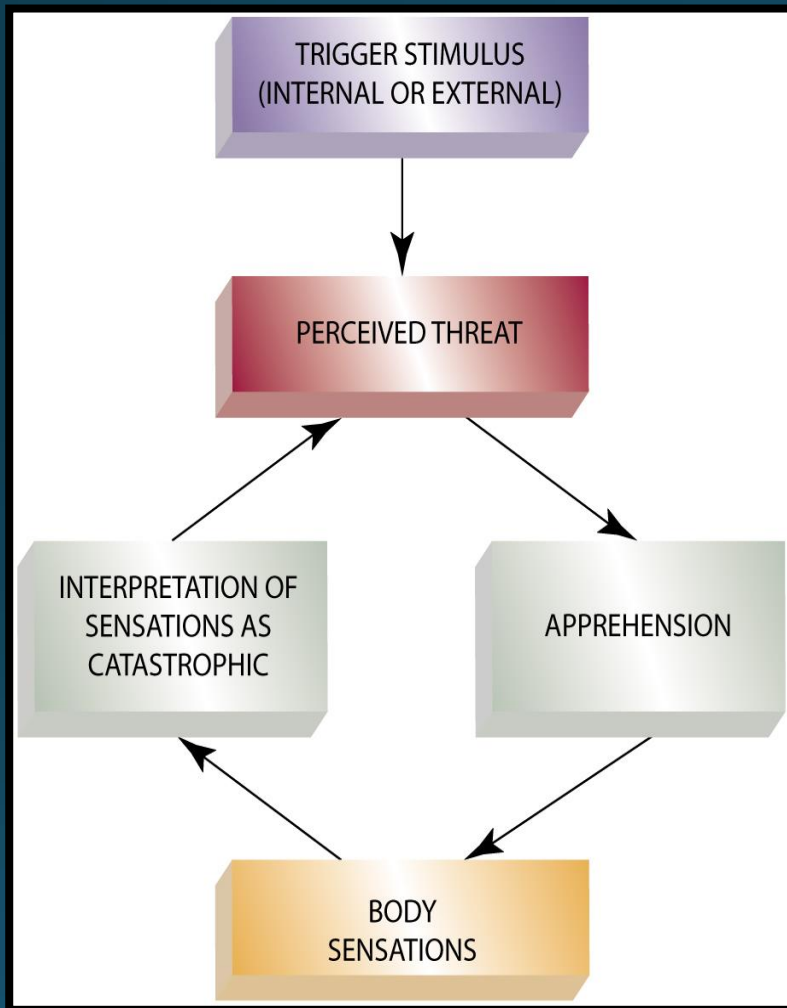
- Requires that research findings should:
 - Be *replicable*
 - Be *testable*
 - Be able to generate *theories* and *hypotheses*

Testing a theory of panic disorder

Testable hypotheses

In individuals diagnosed with panic disorder:

- 1) Perceiving a threat should lead to increased apprehension (as measured by increased levels of anxiety).
- 2) Perceiving a threat should eventually lead to enhanced discrimination of body sensations.
- 3) Increasing discrimination of body sensations should trigger catastrophizing.
- 4) Inducing catastrophic interpretations of bodily sensations should lead to increased perception of threat.



Clinical psychology research: what do we want to find out?

- How does clinical psychology research help us to understand psychopathology?
- What questions do clinical psychologists try to answer?

How does clinical psychology research help us to understand psychopathology?

- The main aims of research are (generally):
 - Description
 - Prediction
 - Control
 - Understanding

What questions do clinical psychologists try to answer?

- Aetiology
 - Description of the causes of psychopathology
- Analogue research
 - Research carried out on non-clinical populations
- Clinical audit or evaluation research
 - The use of research methods to determine whether existing clinical knowledge, skills and resources are effective and are being properly used.

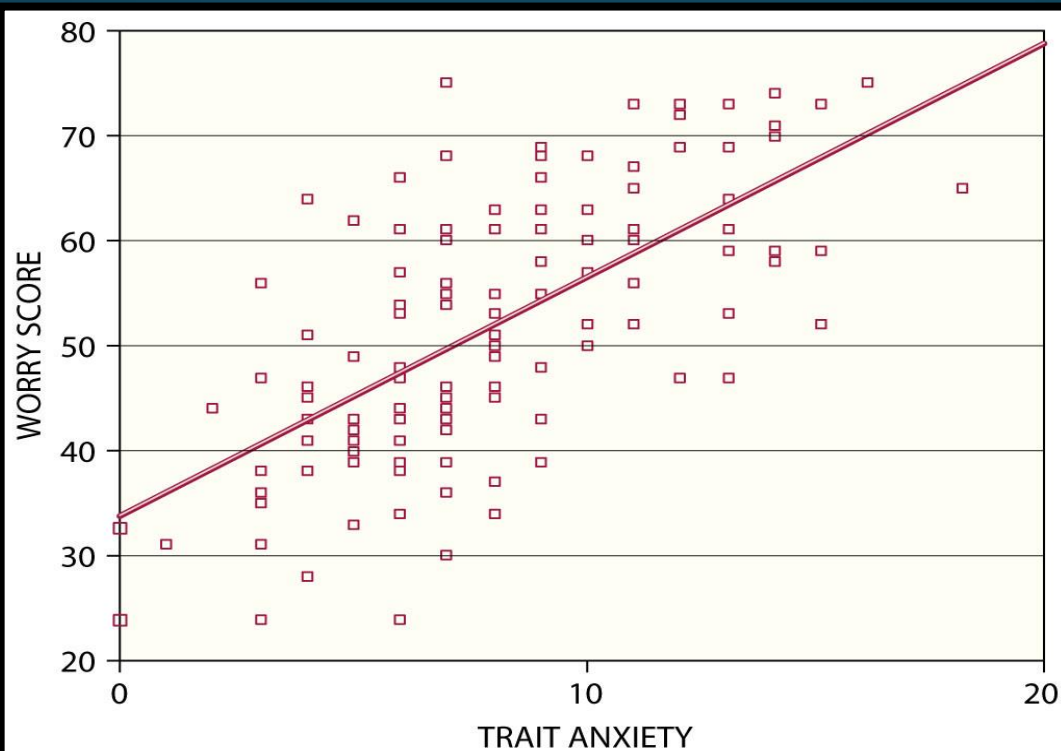
Research designs in clinical psychology

- Correlational designs
- Longitudinal studies & prospective designs
- Epidemiological designs
- Experimental designs
- Mixed designs
- Natural experiments
- Single case studies
- Meta-analyses and systematic reviews
- Qualitative research

Correlational designs

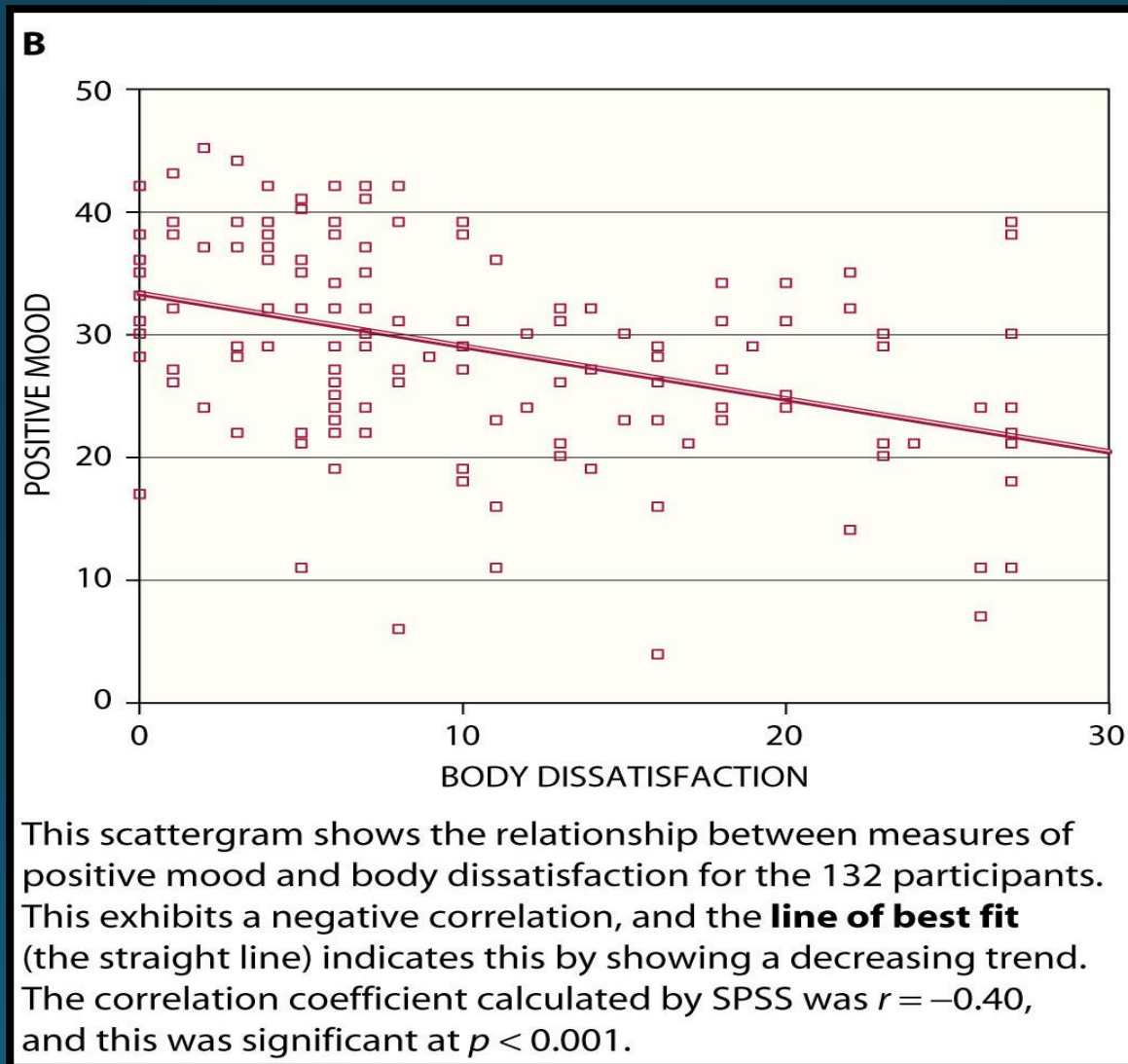
- Determines relationship between two or more variables
- Positive correlation
- Negative correlation
- Scattergram
- Line of best fit
- Statistical significance

Positive correlation

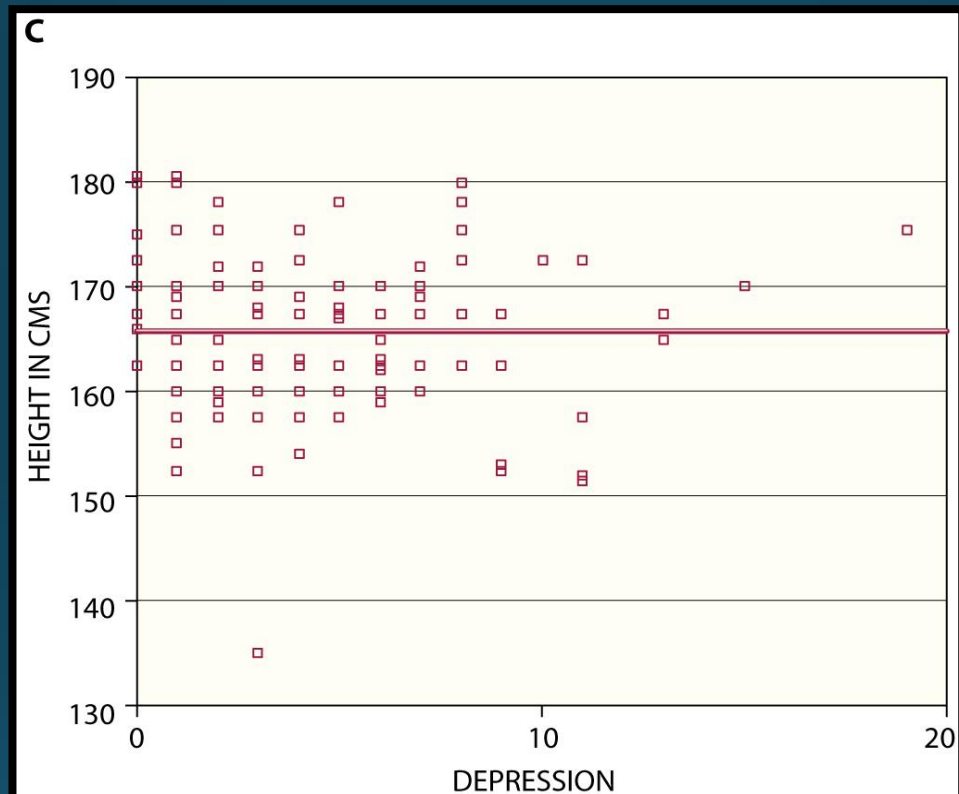


This scattergram shows the relationship between worry scores and trait anxiety scores for the 132 participants. This exhibits a positive correlation, and the **line of best fit** (the straight line) indicates this by showing an increasing trend. The correlation coefficient calculated by SPSS was $r = 0.66$, and this was significant at $p < 0.001$.

Negative correlation



No significant correlation



This scattergram shows the relationship between measures of height and depression for the 132 participants. This indicates that these variables are unrelated with the **line of best fit** (the straight line) showing neither an increasing nor decreasing trend. The correlation coefficient calculated by SPSS was $r = 0.01$, with $p > 0.80$, and this was non-significant.

Value of correlational studies for clinical researchers

- Help to understand which variables may be interrelated (as a first step to understanding)
- Useful in showing how individual differences and personality may relate to psychopathology
- Useful in showing whether certain experiences are related to psychopathology (*risk factors*)
- However – cannot infer causation from correlational studies

Longitudinal studies & prospective designs

- In traditional correlational designs all measures are taken at the same point in time (a *cross-sectional design*)
- Longitudinal or prospective designs take measures from the same participants at two or more different times
- Allows researchers to see if measure Y at Time 1 *predicts* changes in measure X between Time 1 and Time 2
- Enables researchers to determine whether a variable is a *risk factor* for psychopathology at some later time
- Example is the Dunedin Multidisciplinary Health & Development Study (Moffit, Caspi, Rutter & Silva, 2001)

Epidemiological studies

- Study of the frequency and distribution of disorders within a specific population
- Usually consist of large scale studies
- Provide details of *prevalence rates* for psychopathology
- Provide information that can be used for planning mental health care services

Prevalence rates

- Prevalence rates
 - The representation of incidence by duration of a particular disorder
- Lifetime prevalence
 - The frequency of a disorder in a lifetime
- One-month prevalence
 - The frequency of a disorder within the last month
- Point prevalence
 - The frequency of a disorder in the population at any one point in time

Experimental designs

- Basic features of the experimental method
- Example:

We may predict that if we increase negative mood, our participants will worry more, and this hypothesis can be derived from (1) an existing academic theory about worrying, (2) our observations of worrying in everyday life, (3) the existing research literature on worrying, or (4) the outcomes of other studies we have conducted on worrying.

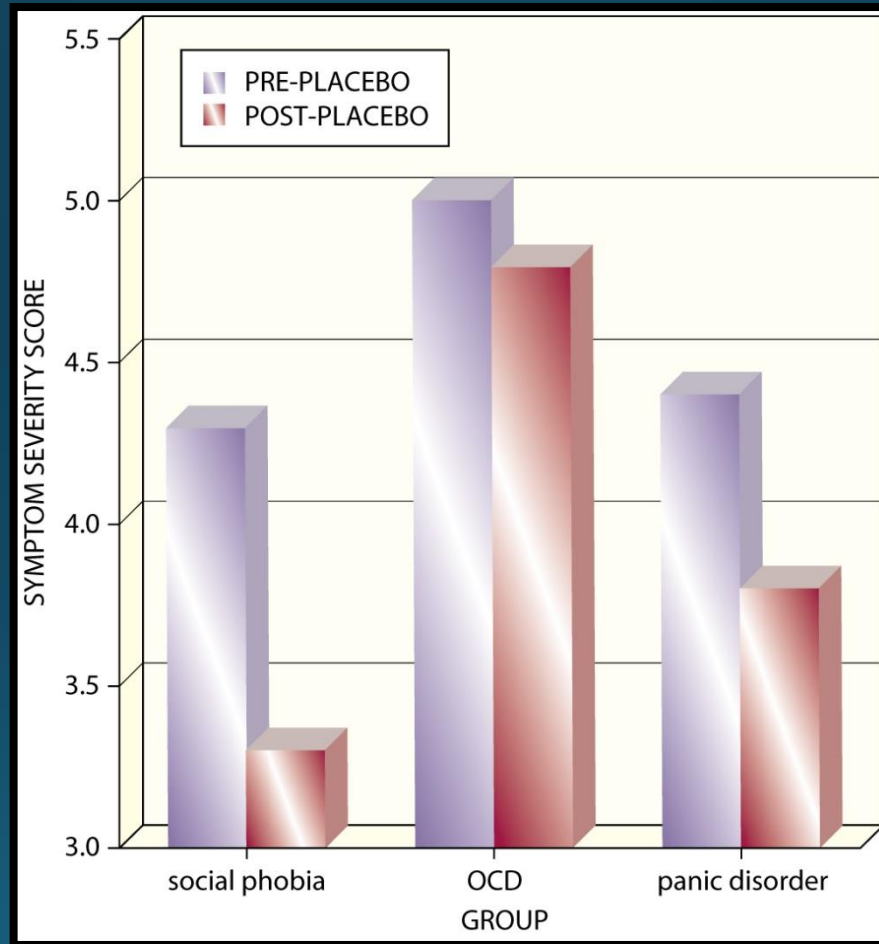
Uses of the experiment in clinical psychology research

- Use of non-clinical populations in analogue studies
- Use of animal models in clinical psychology research
- Clinical trials
 - Placebo effect

Mixed designs

- Research which uses the non-random assignment of participants to groups in an experiment
- Used to see if individuals with different psychopathologies will react differently to particular variables
- Frequently used in treatment outcome studies
- However, cannot infer a direct causal relationship between the diagnostic category and the effects of the manipulation.

Example of a mixed design



Natural experiments

- Nature may give us the opportunity to observe the effects on behaviour of a natural manipulation
- Such events include natural disasters such as earthquakes and floods, traumatic disasters or accidents, or terrorist attacks

Examples of natural experiments

Van Griensven, Chakkraband, Thienkrua, Pengjuntr et al. (2006) studied survivors of the 2004 tsunami in southern Thailand and found that the event had caused elevated rates of symptoms of PTSD, anxiety and depression in survivors. Other studies have used naturally occurring disasters as a tool to assess whether such events increase psychopathology only in individuals with particular characteristics. For instance, Weems, Pina, Costa, Watts et al. (2007) found that PTSD symptoms in children following the devastation caused by Hurricane Katrina in the southern USA in 2005 was highest in those children who had high levels of trait anxiety prior to the disaster.

Single case studies

- Clinical researchers may study just one individual and gather information from a single case
- Types of single case studies include:
 - Case studies
 - Single-case experiments

Case studies in psychology

- In-depth investigation of an individual participant
- Used by:
 - Harlow (e.g. Phineas Gage)
 - Sigmund Freud (e.g. Little Hans)
 - Piaget's studies
 - Clinical (medical) research

Benefits of case studies

- Useful when there are only a few instances of a psychopathology available for study
- Can provide new insights into existing psychopathologies
- Can provide detailed information that may *disprove* existing theories

Limitations of case studies

- Lack the objectivity and control found with quantitative methods
- Case studies are usually low on *external validity* (the extent to which the results of a study can be extrapolated to other situations)
- Because of the uncontrolled way in which case studies are collected, they do not provide useful evidence that can differentially support existing theories – **but useful for developing hypotheses.**

Single-case experiments

- Single-case experiments enable the researcher to:

Undertake an experiment (and so make some inferences about causal relationships)

Use one individual as both the experimental and control participant

Benefits of the single-case experiment

- In treatment studies, it means the researcher does not have to withhold treatment from a participant.
- Some psychopathologies are rare, and so experiments may only be possible on a single individual.

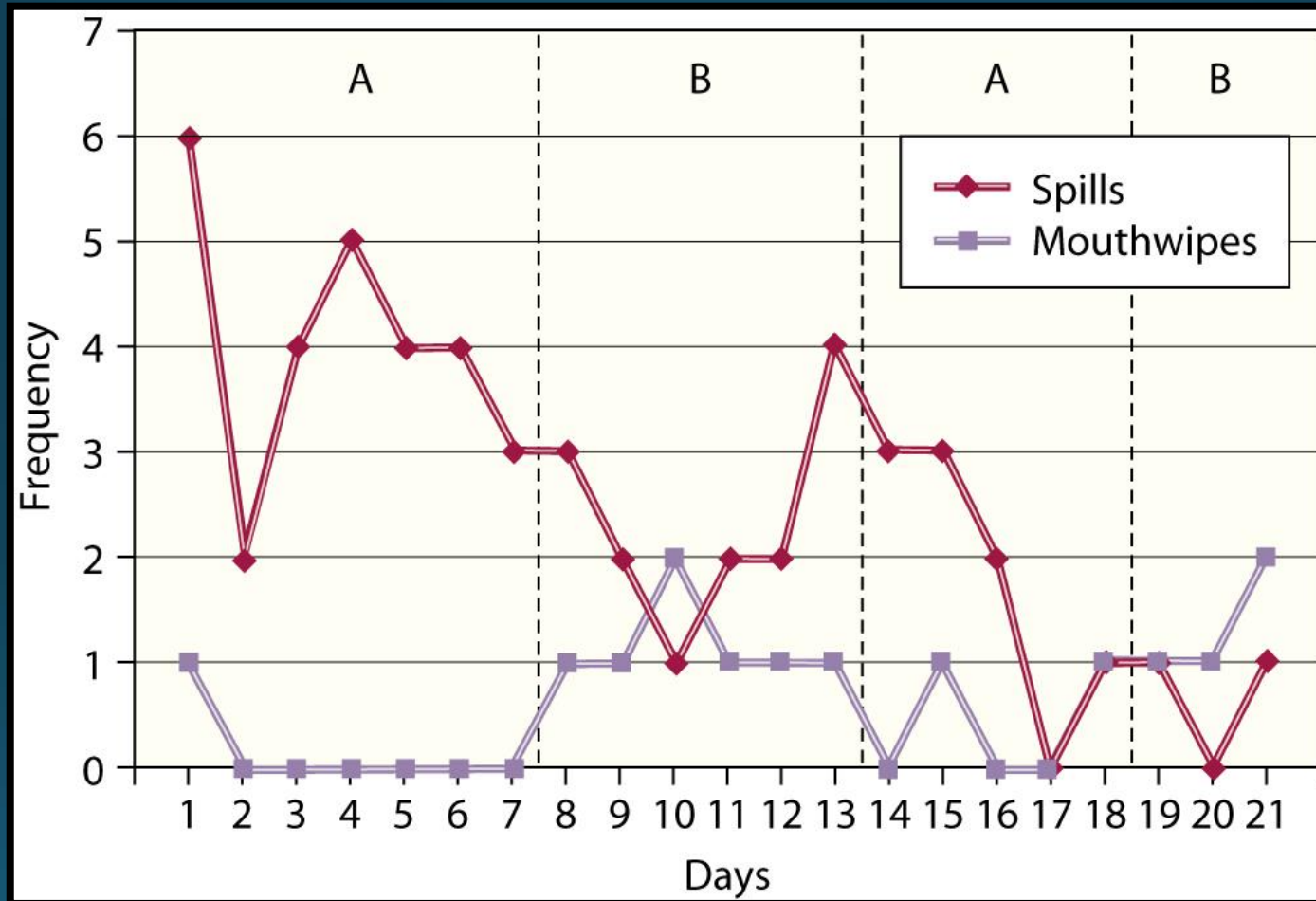
Types of single-case experiment

- The ABA design
- The ABAB design
- The multiple-baseline design

The ABA design

ABA design: A single-case experiment which involves an initial baseline stage of observation and measurement of behaviour without any intervention (A), followed by a treatment or manipulation stage where the experimental manipulation is introduced and its effect on behaviour observed and measured (B). A final return-to-baseline stage is then introduced (A) in which behaviour is once more observed in the absence of the treatment or manipulation.

The ABAB Design



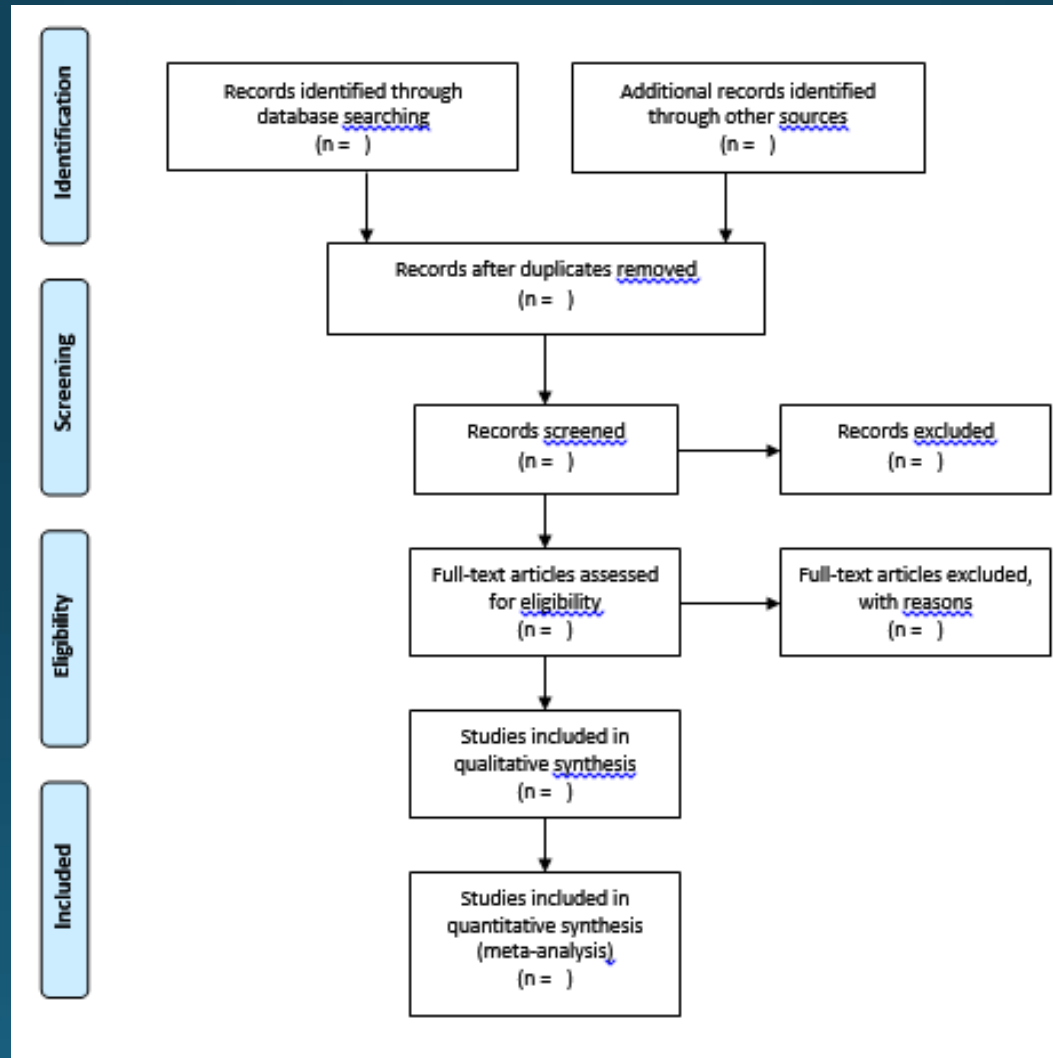
The multiple-baseline design

- The researcher can select two or more behaviours to measure and can target the treatment or manipulation of one behaviour but allow the other to act as a control.
- Allows a participant to receive treatment for a maximum amount of time without compromising the experimental design (e.g. Thompson, Kearns & Edmonds, 2006).

Meta-analyses & systematic reviews

- Provides an objective way of reviewing and summarizing the outcomes of a range of studies investigating the same phenomenon.
- Attempts to detect trends across studies that have used different procedures, participants and forms of measurement.
- Compares studies by comparing *effect sizes* across these studies.

PRISMA (2009)



Qualitative methods

- The raw material for qualitative studies is ordinary language rather than mathematical analysis.
- Uses the participant's own descriptions of themselves, their experiences, their feelings and thoughts.
- Enables researchers to gain an insight into the full experience of psychopathology.

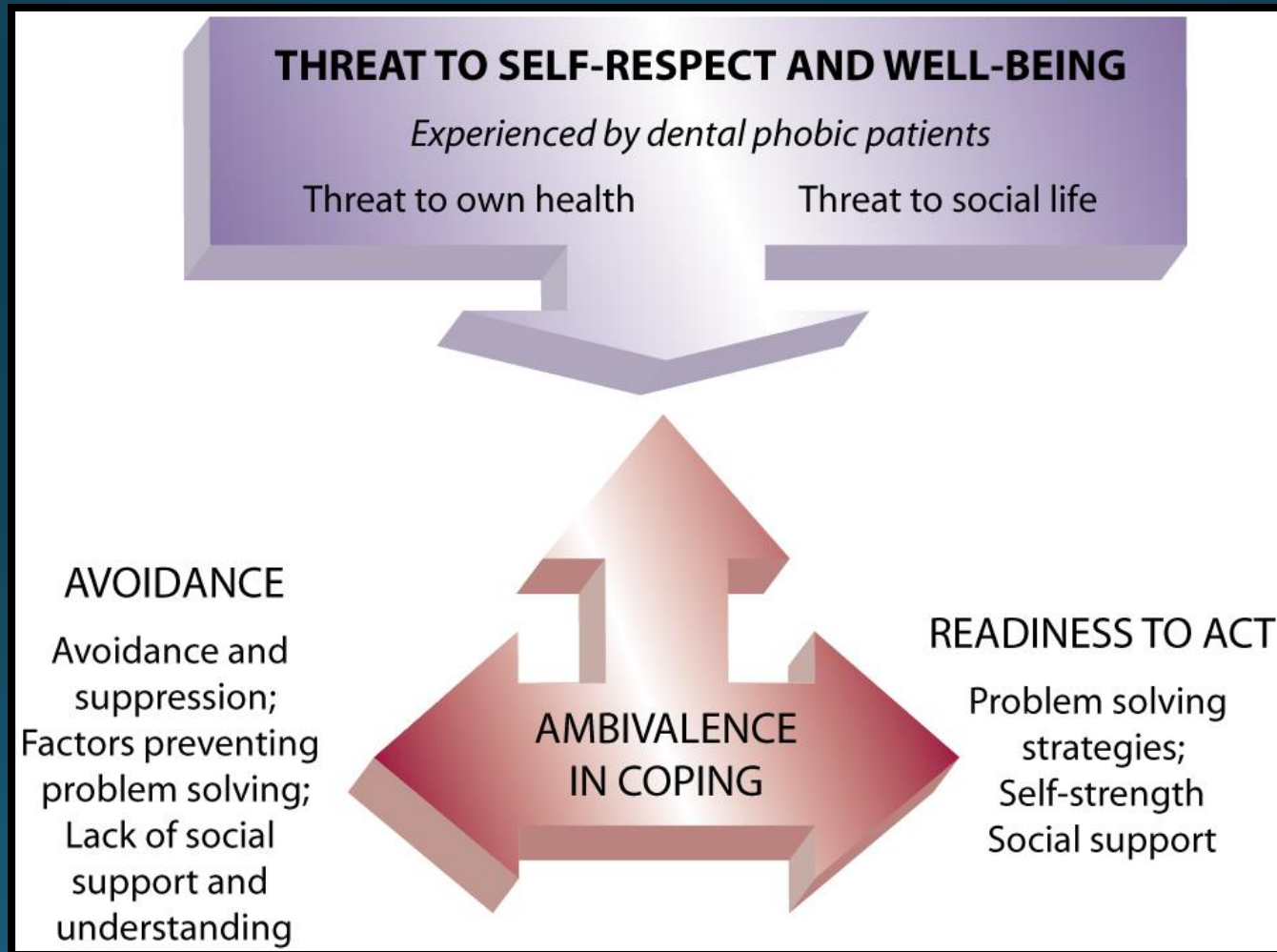
Advantages of qualitative methods

- Some aspects of psychopathology are difficult to express numerically (e.g. the phenomenology).
- Permit intensive and in-depth study of individuals and small groups.
- Researchers may discover interesting things about a psychopathology that they were not originally looking for.
- Provide useful information at the outset of a research programme.

Conducting & analysing qualitative studies

- Interviews may be open-ended or semi-structured.
- Interviews start with general questions leading to more specific questions.
- Interview transcripts can be analysed using methods such as *grounded theory* (Glaser & Strauss, 1967).
 - An approach to qualitative analysis which involves identifying consistent categories or themes within the data, then building on these to provide more abstract theoretical insights into the phenomenon being studied.

A qualitative study of dental phobia



Ethical issues in clinical psychology research

- Informed consent (e.g. enhanced informed processes)
- Causing distress or withholding benefits
- Privacy and confidentiality

Informed consent

- Informed consent forms such contain:
 - Details of the purpose of the study
 - A description of the procedures
 - The duration of the study
 - Who will know about the participants involvement and will confidentiality be maintained
 - Whether participation is voluntary or a payment is offered
 - Clear indication to participants that they can withdraw from the study at any time

Issues with informed consent

- Participants who have existing mental health problems need to know how participation might affect their treatment.
- Informed consent is problematic when an individual's understanding of consent is limited (e.g. children or individual's with intellectual difficulties).
- Informed consent is problematic when a study involves some form of deception.
- All efforts should be made to ensure an individual's participation in a study is *truly* voluntary.

Causing distress or withholding benefits

- Clinical psychology research can often involve distress for participants:
 - By asking them to relate distressing experiences
 - Subjecting them to experimental conditions that may cause stress
 - Requiring them to reveal information that may be embarrassing
 - Presenting physically aversive stimuli
 - Presenting information or situations that may be threatening to the individual's self-image or self-esteem

Dealing with participant distress

- Researchers should be vigilant for participant distress throughout a study
- Participants should leave the study in no worse a condition than when they began:
 - Offer relaxation or mood-enhancing tapes at the end of the study
 - Provide information about counselling services that may be immediately available for the participant
 - Making people distressed in a research study is not an acceptable end in itself

Research and the withholding of participant benefits

- May occur in studies attempting to assess the benefits of treatments.
- If an individual with mental health problems is allocated to a control group, they are effectively being denied treatment.
- Researchers try to overcome this by using *waiting-list controls* (patients who are on waiting lists for treatment).

Privacy & confidentiality

- Privacy
 - Participants can decide not to provide some forms of information to the researcher (e.g. age or sexual orientation)
- Confidentiality
 - Participants have the right to expect that information they provide will be treated confidentially

Issues concerning confidentiality

- All information about participants should be destroyed after a specified period of time.
- Confidentiality is problematic when a participant discloses information about illegal activities or potentially harmful intentions (e.g. suicidal intentions).
- However, confidentiality is not the same as secrecy and is not absolute.
- Psychologists have a moral responsibility to provide some support or help to those who reveal serious distress or self-harmful intentions during a study.

Research methods in clinical psychology reviewed

- Research is an important feature of clinical psychology
- Different research methods may be based on different theories of knowledge
- The individual research methods adopted will depend on the nature of the research question being asked
- Discussion of ethical issues is a central and critical part of a discussion of research methods in clinical psychology

Evaluating treatment

- Factors affecting the evaluation of treatments
- Methods of assessing the effectiveness of treatments
- What treatments are effective?

Difficulties with evaluating treatments

- Different therapies have different assumptions about what 'successful therapy' is.
- How do we decide what constitutes a therapeutic gain?

Reasons for objectively evaluating treatments

- We have a moral and professional obligation to find effective ways of alleviating distress.
- We need to be sure that therapies have long-lasting rather than just short-term gains.
- We need to ensure that vulnerable people with mental health problems are not exploited by bogus or ineffective therapies.

Factors affecting the evaluation of treatments

- Spontaneous remission
- Placebo effects
- Unstructured attention, understanding & caring

Methods of assessing the effectiveness of treatments

- Randomized Controlled Trials (RCTs)
- Meta-analyses

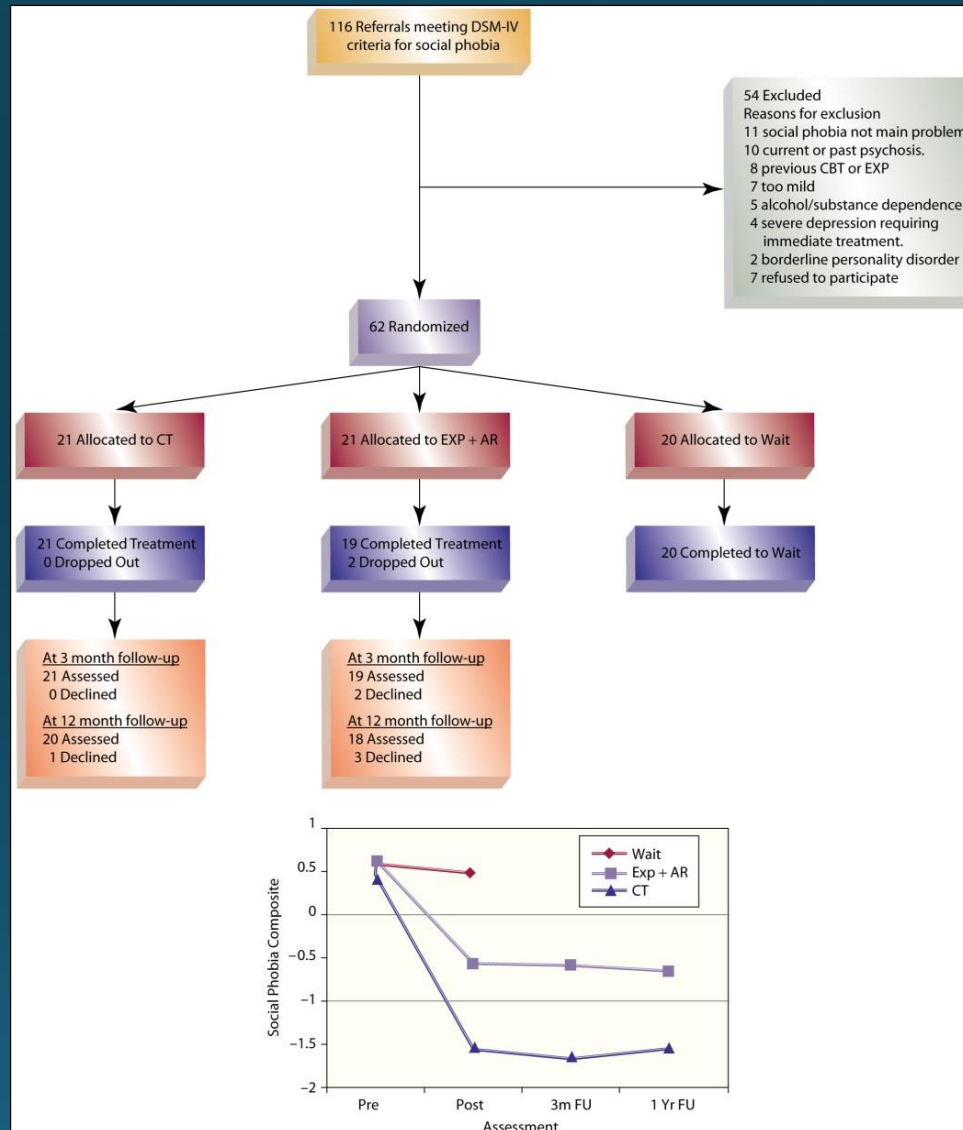
Randomised Controlled Trials (RCTs)

- Compares the effectiveness of treatment with a variety of control conditions and with other forms of known effective therapy (Barker, Pistrang & Elliott, 2002).

Control conditions for RCTs

- No Treatment or a Waiting-List Control Group
- An Expectancy and Relationship Control Group (e.g. *Befriending*)
- A Comparative Treatment Group (A Plausible Alternative Therapy that is known to have beneficial effects)
- To be deemed effective the treatment must show better improvement than control groups, and improvement that is at least equivalent to the comparative treatment

Schematic representation of an RCT



Clark DM, Ehlers A, Hackmann A, McManus F et al. (2006) Cognitive therapy versus exposure and applied relaxation in social phobia: A randomised controlled trial. *Journal of Consulting and Clinical Psychology*, 74, 568-578.

Problems with RCTs

- Attrition
- Costly
- Time consuming
- Random assignment has some costs
- Implicit bias
- Clinical significance and recovery rates