

## Dr Illan Dar-Nimrod's Lecture Series

- Social Psychology in Crisis
- Existential Psychology
  - Terror Management Theory
  - Meaning Maintenance Model
- Genes and the Psychosocial Environment
- Psychology of Religion

### Social Psychology in Crisis – Replicate

- No single scientific discipline had been spared from this crisis
- In science we are constant building and improving past work to develop ideas closer to how the universe works
- Ideas reflect beliefs in the current time, there should be no shame walking away from this

#### Being a Critical Consumer of Science

- We experience constant bombardment through the **media** regarding new break-thoughts, new findings, different findings
  - Media construe this information to be appealing and interesting to the wider audience – often inconsistencies between a media headline and the actual findings
- We also consume **peer-reviewed** journals
  - Peer-reviewing journals is an attempt to regulate the information being published
  - Need to be able to identify when this has been done effectively or not
- As a consumer of this scientific information we need to be able to critically assess the quality of this information – identify how the researchers have come to specific conclusions

#### Scientific Ideals

- Science requires a set of ideals to allow a dynamic objectivity
- Scientific ideas reflect the beliefs of the current time – if someone is able to provide a more updated and accurate way of thinking about a phenomenon/concept then this should be celebrated
- There should be no shame in the pursuit to find the most accurate information as we are constantly building on past work to develop ideas closer to how the universe works
- **Conformation of findings**
  - Because procedures and measurements used are objective – we should be able to repeat experiments and confirm the original results
  - Studies can constitute *replication with extension* – replicate findings whilst building on information
- **Self-correction**
  - Scientific findings are open to public scrutiny and replications – identification of errors and faulty should become apparent – new research to change previous conclusions made
  - We want to have a new explanation for old errors – becomes the basis of change
- **Scientific explanations are tentative**
  - Scientists may have confidence in their explanations, but should nevertheless be willing to entertain the possibility that their explanation is faulty reflect beliefs at the current time
  - Findings have the ability to change and be updated – use new techniques, fix methodological errors
- **Scientific explanations are rigorously evaluated**
  - Scientific explanations are constantly evaluated for consistency with the evidence and with known principles for generality
  - Attempts are made to extend the scope of the explanation – cover more areas and include more factors
  - Compared old explanations with new explanations - battle of the “survival of the fittest”
- **Replicability**
  - We need to make sure that the results across studies aimed at answering the same questions have consistent findings
  - Need to make sure that our findings are reliable

#### 1. History

- Where we fell short in achieving scientific ideals

#### Cohen

- Wanted to look at HOW we do our science in social psychology
  - *What is the probability that the findings reported result from an accurate statistical approach?*
- Reviewed an entire volume in the Journal of Abnormal and Social Psychology
- Completed the first **power analysis** using *Cohen's d*

- **Power analysis**: Given that there is a specific effect in a population (unknown - point of investigation), how likely are we to find that effect if we use a specific sample size
- **Cohen's d**: “tool” - to identify the size of an effect within a given study, independent of the scale used to make specific measurements
- **Effect**: the larger the effect, the greater the difference between the two populations as a result of one's experimental manipulation
  - Quantifies the effectiveness of a particular intervention relative to some comparison
  - “How well does this intervention work in a range of contexts?”

- The larger the sample size, the smaller the effect you can detect using that sample
  - This is because larger samples have more power
    - **Power**: the likelihood that a test will be able to detect an effect, when the effect truly exists

#### Results

- He estimated the likelihood that given the effect size reported (based on the N) the effect would have been found
- He found:
  - Very low power to detect small effects – 18% power
    - **If a small effect exists between your comparison groups – you have less than 18% chance of actually finding this effect**
    - **1 in 5 studies actually find statistically significant results to support the presence of a small effect**
  - Modest power to detect medium effects – 48% power
    - **If a medium effect exists between your comparison groups – you have less than 48% chance of actually finding this effect**
    - **1 in 2 studies actually find statistically significant results to support the presence of a small effect**
  - Good power to detect large effects – 83% power
    - Research with large effects had 83% power to correctly reject a null hypothesis
- These findings are **problematic** because **most effects** in social psychology are of a **small effect size**
- CONTRADICTION
  - Despite modest power, most articles reported significant results
  - In an ideal world – should be 50% significant and 50% not significant
  - We are getting significant results too often from what we should be getting, if the effect size reported in these articles is to be believed
- **Publication Bias**
  - Two fold
    - **Researchers are less likely to** submit for publication if their research is unsuccessful (not significant) – “file-draw effect”
    - **Publishers are more** likely to accept publications if the research was successful (significant)
  - Overrepresentation of significant findings in the literature
  - Prevents ability to develop a balanced knowledge/understanding
    - If there is a published study that has found a specific effect, there could be 10 studies that were not published that have not found that same effect – not knowing about them means that we believe the only one that has an effect
    - Even if there is no effect in the population,  $P < 0.05 = 1/20$  experiments will have an effect regardless if there is an effect
- **Wider implications**: as a scientific community we are ignorant to unsuccessful research
  - Does not help us see the big picture
  - Cannot develop findings to be as accurate as possible
  - Fundamental contradictions of scientific ideals

#### Classics: The Use of a Small Sample Size

- **Milgram (1963): Shock Experiment**
  - Very famous study
  - Had an  $N=40$ 
    - Smaller sample size = decreased statistical power
    - Less power = less likely that a test will be able to detect a true effect
    - Increased chance of Type-II error: rejecting a correct null hypothesis
  - He concluded that people obey authority out of fear, or as a desire to appear cooperative even when acting against their own better judgements and desires
  - This weighty conclusion could have been accepted over concluding no relationship because of limited sample size