

# Psychological science

Week 1

Reading: pp. 1-18



*"My physical therapist says this is the worst possible position you can lie in."*

# Methods of knowing

- Intuition: Relying on our 'gut feeling' (but how did our 'gut' come to that decision?)
- Authority: Going by the opinions of 'experts' (what about when experts disagree?)
- Rationality: Using logic to derive conclusions from earlier premises (what if the premises are wrong?)
- Empiricism: Observe and tabulate all that is experienced (how to discriminate from 'blue' and 'grey' elephants?).


The scientific method attempts to systematize the empirical method (controlled observation, replication, theory falsification)

# Understanding science

- Is Psychology a science?
- Three features of an acceptable science:
  - Susceptible to systemic empirical enquiry, is falsifiable, is available (in theory) as public knowledge
  - Lacking either of these operations is representative of a **pseudoscience** (claims which *sound* scientific but are non-replicable, not grounded in established theory, and/or is non-falsifiable)
  - Think of homeopathy, astrology, tarot-cards, faith-healing (etc.)
    - If a pseudoscientific technique produces results, the underlying mechanism might be driven by a strong belief (the **placebo** effect)



# Placebo Effect in the Treatment of Depression and Anxiety

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The aim of this review is to evaluate the placebo effect in the treatment of anxiety and depression. Antidepressants are supposed to work by fixing a chemical imbalance, specifically, a lack of serotonin or norepinephrine in the brain. However, analyses of the published and the unpublished clinical trial data are consistent in showing that most (if not all) of the benefits of antidepressants in the treatment of depression and anxiety are due to the placebo response, and the difference in improvement between drug and placebo is not clinically meaningful and may be due to breaking blind by both patients and clinicians. Although this conclusion has been the subject of intense controversy, the current article indicates that the data from all of the published meta-analyses report the same results. This is also true of recent meta-analysis of all of the antidepressant data submitted to the Food and Drug Administration (FDA) in the process of seeking drug approval. Also, contrary to previously published results, the new FDA analysis reveals that the placebo response has not increased over time. Other treatments (e.g., psychotherapy and physical exercise) produce the same benefits as antidepressants and do so without the side effects and health risks of the active drugs. Psychotherapy and placebo treatments also show a lower relapse rate than that reported for antidepressant medication.

# Goals of science

- Describe what you see
  - John throwing trash on the ground; Jim putting trash in a bin
- Predict what will happen
  - John and Jim just finished their meals at a BBQ. What can we expect from either of them?
- Explain why it happened
  - *Why* does John litter when Jim does not? [Basic research]
  - *How* can we prevent John from littering in the future? [Applied research]



# Psychosocial factors as determinants of littering prevention behavior

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## ABSTRACT

This study investigated psychosocial factors as determinants of littering prevention behavior among residents of Ilorin, Kwara state, Nigeria. The independent variables are; personality traits, gender, Residential characteristics, Educational level, Age and Organizational factors while dependent variable is littering prevention behavior. Descriptive survey was utilized for research design and accidental sampling technique to collect data from a total of 601 participants. The sample comprised of 263(43.8%) males and 338(56.2%) female respondents. Ten Item Personality Inventory (TIPI) was used to measure personality traits while Littering Prevention Behavior Scale (LPBS) was used to assess littering prevention behavior of respondents. The results revealed that there is significant positive relationship between littering prevention behavior and personality traits (extraversion, agreeableness, neuroticism, openness, conscientiousness) [R= (.260; P<.01), (R=.200; P<.01), R=(.144; P<.01), (R=.248; P<0.1), (R=.168 P<.01). Also, female participants scored significantly higher on littering prevention behavior than males [t (599) =-3.429; p<.01]. It further shows that personality factors predicted about % significant joint influence on littering prevention behavior {R= .327; R<sup>2</sup>=.107; F (5,595) =820.56; P<.05}. It was recommended that government should attract recycling companies to explore the country utilizing the rampant litters in our environs by monetizing the submission of litters to those companies to encourage the conformists; there should be public enlightenment on how to manage one's personality to prevent littering behavior also, government should engage law enforcement agents to implement specific policies guiding and restricting littering behaviors.

# Science & common sense

- Intuition and common sense may, or may not, be correct
  - Women speak more than men, anger can be “let off” like steam, torture is an effective means of extracting information
- What are the *roots* of such “folk psychology”? Is it different from “common sense”?

In *50 Great Myths of Popular Psychology*, psychologist Scott Lilienfeld and colleagues discuss several widely held commonsense beliefs about human behavior that scientific research has shown to be incorrect (Lilienfeld, Lynn, Ruscio, & Beyerstein, 2010)<sup>3</sup>. Here is a short list:

- “People use only 10% of their brain power.”
- “Most people experience a midlife crisis in their 40’s or 50’s.”
- “Students learn best when teaching styles are matched to their learning styles.”
- “Low self-esteem is a major cause of psychological problems.”
- “Psychiatric admissions and crimes increase during full moons.”

# Confirmation bias

We tend to find evidence which confirms our intuitive beliefs and not on cases that dis-confirm them. Is this necessarily incorrect?

*"...many people believe that calorie-reducing diets are an effective long-term treatment for obesity, yet a thorough review of the scientific evidence has shown that they are not (Mann et al., 2007)"*

## Long-Term Effects of Dieting

Reviews of the scientific literature on dieting (e.g., Garner & Wooley, 1991; Jeffery et al., 2000; Perri & Fuller, 1995) generally draw two conclusions about diets. First, diets do lead to short-term weight loss. One summary of diet studies from the 1970s to the mid-1990s found that these weight loss programs consistently resulted in participants losing an average of 5%–10% of their weight (Perri & Fuller, 1995). Second, these losses are not maintained. As noted in one review, "It is only the rate of weight regain, not the fact of weight regain, that appears open to debate" (Garner & Wooley, 1991, p. 740).

The more time that elapses between the end of a diet and the follow-up, the more weight is regained. For example, in a study in which obese patients were starved in the hospital for an average of 38 days, patients were followed for varying lengths of time after the starvation period. Among patients who were followed for under two years, 23% gained back more weight than they had lost. Among patients who were followed for two or more years, 83% gained back more weight than they lost (Swanson & Dinello, 1970). Even in the studies with the longest follow-up times (of four or five years postdiet), the weight regain trajectories did not typically appear to level off (e.g., Hensrud, Weinsier, Darnell, & Hunter, 1994; Kramer, Jeffery, Forster, & Snell, 1989), suggesting that if participants were followed for even longer, their weight would continue to increase. It is important for policymakers to remember that weight regain does not necessarily end when researchers stop following study participants.

Source: [Mann et al 2007](#)



# Experimental & clinical approaches

- Experimental psychologists
  - Conduct research, publish results
  - Be familiar with a number of sub-fields, while specializing in a handful.
  - Neuroscience, cognitive psychology, learning theory, developmental psychology, personality psychology, social psychology.
- Clinical psychologists
  - Diagnose & treat psychological 'disorders'
    - What or, more importantly, *who* defines a 'disorder'?
  - Focus on empirically-supported treatments
  - "help people, organizations and communities' function better" (how do we define *better*?)

The Diagnostic and Statistical Manual of Mental Disorders (DSM) is considered the most important document for the diagnosis and the classification of mental disorders. Despite the existence of alternative diagnostic criteria and approaches [e.g., International Statistical Classification of Diseases (ICD), Psychodynamic Diagnostic Manual (PDM)], the DSM criteria remain the gold standard for mental health diagnosis. It is published by the American Psychiatric Association (APA), whose initial objective was to establish a nosology of mental disorders that can constitute a common language among clinicians, researchers, health insurance companies, and the pharmaceutical industry. Five versions and two revisions of the manual were published since 1952, the last one being its fifth edition published in May 18, 2013. Since its first draft, the DSM went through many modifications. For example the number of proclaimed mental disorders went from 108 in its first version (1952), to 182 in DSM-II published in 1968, to 265 in DSM-III published in 1980, followed by its revision DSM-III-R in 1987 with 292 diagnoses, to 354 categories in the DSM-IV published in 1994, followed by its revision DSM-IV-R in 2000 with no significant modifications, and lastly the DSM-5, which did not change significantly the number of disorders but rather the criteria (or thresholds) of diagnoses, leading to a potential inflation of some diagnosis up to 28% (Keely et al., 2008; Corcoran and Walsh, 2010; Millon et al., 2010; Frances, 2013; Greenberg, 2013). Along with the increasing number of disorders, the manual went from 130 pages in its first edition to 886 pages in its fourth and 991 in its current edition, this was accompanied with a substantial growth in the price, sales, and revenues of DSM for the APA reaching between \$5 and \$6 million annually, almost 10% of its global revenue (Greenberg, 2013, p. 110). The income from the DSM for the APA is very trivial in comparison with the income for the pharmaceutical industry, which exceeds \$18 billion a year in sales of psychotropic medication, with more than \$12 billion a year from antidepressants sales only (Frances, 2013, p. 89). Beyond the numbers and facts concerning the DSM, which were extensively addressed elsewhere (e.g., Frances, 2013; Greenberg, 2013), there is an ongoing debate inside the scientific and clinical communities about the DSM science and utility. This paper aims to shed more light on the science and utility of the DSM categories, while suggesting other possibilities and alternative approaches.