

# Alternative health practices

- Billion dollar "alternative" health industry is a good example, because it is seldom clear-cut which practices are effective and which aren't.
- Thus, the considerations Gilovich presents do not guarantee that the "right" belief will be arrived at, but they do help us choose the *most justified* belief.
- Controversial practices: psychic diagnosis, psychic/faith healing, palmistry, colonic irrigation, iridology



# Alternative health practices

- Examples of bad/expensive/self-destructive beliefs:
  1. Laetrile clinics in Mexico
  2. psychic 'surgeons' in the Philippines (<http://youtube.com/watch?v=p3RC3M5VKAQ>)
  3. faith healers in the US
  4. AIDS treatments including: pounding the chest, sunlight for genitals, ozone gas rectally, hydrogen peroxide injections
  5. Hoxsey cancer treatment (Mexico)
- 10 billion per year spent on quack remedies in the US alone



# Alternative health – Desire to believe

- What is there about disease and about the way people think that makes them hold demonstrably false beliefs?
- Offered:
  - control what seems uncontrollable ('I have to try something', 'Why not?')
  - hope when 'conventional' medicine is unable to help
- Result:
  - critical faculties are suspended
  - 'kinder' to information that supports our hopes
  - 'pretending' to believe becomes real belief



# Post hoc ergo propter hoc

- The main fallacy in such causal reasoning.
- Literally this means "after this therefore because of this". Warns against concluding that just because something comes after a possible cause it is an effect of *that cause*.
- Because the body is so good at healing itself, it can provide an 'other cause' for this fallacy.
- Many who get medical help will get better even if the 'doctor' is decreasing the chances of getting better.



# Post hoc ergo propter hoc

- The base-rate of success is so high even terrible treatments will seem successful.
- The experience of one individual seldom has a contrast class; as a result there is missing data.
- Another source of error is regression:
  1. followed by improvement, the regression fallacy kicks in;
  2. followed by no improvement, the treatment stabilized the condition; and
  3. followed by deterioration, it was too late.



# Techniques to seem right

- There are a number of 'techniques' for providing rationalizations.
- Simply discount the failure (e.g. 'lack of spiritual purity', 'right state of mind')
  - Faith healer JJ Rogers: "If I can't heal them, there's something wrong with their souls"
- Discount failure by reference to the practitioner (it was not applied correctly)
- Notably, these are relevant for *any* kind of medical practice, so what's the difference?



# Techniques to seem right (cont.)

- No surprise: people tend to take positive evidence at face value, and reject contrary evidence (recall gamblers).
- This 'biasing' trap is even easier to fall into when failures are ambiguous:
  - unspecified improvements in a broad symptomology will likely appear.
  - many alternative health practices do not offer precise remedies for specific problems ('more energy', 'better memory', 'higher functioning')
  - such claims are hard to refute but have little content



# Plausibility

- Plausibility makes things more memorable and more likely to be repeated (e.g. magnet therapy).
- One problem with assessing plausibility are the effects of representativeness. We expect effects to resemble their causes.
- These problems most conspicuously arise for homeopathy.



# Plausibility (cont.)

- Samuel Hahneman, founder of homeopathy, believed the:
- ‘law of similia’: diseases can be cured by administering whatever produced the symptoms; and
- ‘law of infinitesimals’: the less concentrated the remedies were, the more they would help (since they produce less symptomology)
- Both of these are demonstrably false *in general*
  - although think about vaccination, so what’s the difference?



# Plausibility (cont.)

- Many dietary remedies are also influenced by representativeness (you are what you eat).
- E.g., Dr. Dan Dale Alexander: oil should be ingested to help arthritis ('grease the joints'), but not with water (oil and water don't mix).
- E.g. Dr. DeForest Jarvis: mild acid should be ingested (vinegar) because acid is used to destroy calcium (by plumbers).
- Such suggestions ignore the fact that the body transforms most food before it is used. Vinegar is turned in to an alkaline residue, for instance.
- Chiro: your body needs a tune-up



# Plausibility (cont.)

- All of these examples are by way of a warning:
- determine if beliefs stem from a sense of surface plausibility, if so,...





# An analysis of holistic medicine

- Difficulties in assessing the merit of holistic medicine:
  - Some holistic ideas are supported by some in the scientific communities (Chiro for short-term back problems; St. John's Wort; mind/body interaction)
  - What counts as 'holistic' health practices is ambiguous
- We'll take holistic medicine to be:
  - a rejection or deemphasizing of the (perceived) reductionist bias of 'Western' medicine
  - mostly 'whole person' treatments
  - mostly a balance between 'mind, body and spirit'



# An analysis of holistic medicine

- Uncontroversial holistic claims:
  - preventative health practices are good (proper diet, good exercise, vaccination\*)
  - taking responsibility for the direction of treatment (i.e. considering the doctor a wise consultant)
  - stress reduction helps decrease susceptibility to disease
- Some practices (e.g., meditation, yoga, imagery, prayer, etc.) may do nothing for disease, but help patients to cope with the disease.



# An analysis of holistic medicine

- The mind influences the body?
  - to what degree?
  - some positive evidence (but very general, almost any 'psychological' variable)
  - 'traditional' medicine studies this as 'psychoimmunology': the nervous system clearly interacts with the immune system
  - an immune system that is unaffected by our emotional states is better sometimes.
- The 'smart money' in evaluating such claims tends to be with the less extreme versions.



# An analysis of holistic medicine

- A central problem stems from an interpretation of the patient 'taking responsibility' for their well-being.
- Taken to an extreme (as it seems to be by some practitioners), the patient can feel terribly downtrodden just because she/he is sick!
- That is, the disease is seen as a result of his/her own personal inadequacies.
- This, of course, is no way to help someone heal, or deal with their disease.



# An analysis of holistic medicine

- Treatments have to be considered on a case by case basis
- Parts of a single 'method' can be useful while other parts aren't.
- Often, less extreme claims are most plausible (consistency with well established theories)
- 'On-the-face' plausibility is usually reason for caution.



# Question

- Describe two ethical barriers to performing controlled experiments.