Alternative Medicine
&
Course Wrap-up

SOCIAL PSYCHOLOGY OF THE PARANORMAL
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What is “alternative medicine”?

A diagnostic practice, product, and/or treatment operating outside of evidence-based medicine.

Popular Quip

Q: What do you call an alternative medicine when it has been tested and proves to be safe and effective?

A: “Medicine”

Is it “Paranormal”?

- Would it violate physical laws if true?
  - Generally, yes
    - No known physical media or mechanisms for vital forces, Chi, meridian lines, energy flows, toxins, etc.
    - No evidence for alternative laws or principles, e.g., law of similars, law of infinitesimals

Is it “Paranormal”?

- Would it violate scientific precedent if true?
  - Generally, yes:
    - Lack of clinical evidence or standardized procedures for measures, treatments, energy blockages, indicators, etc.
- Alternative therapies frequently invoke…
  - magical thinking (e.g., examine mother to diagnose child)
  - made-up forces (e.g., vibrations, energy flows)
  - pseudoscientific claims (“magnets increase blood flow by attracting the iron molecules in hemoglobin”)

Overview

- Informal medical treatment dates to early hominids
  - Medicinal plants, splints, rudimentary surgery
- Relies on “observational” approaches, subjective validation, anecdotal evidence, folkways
- Relies on speculation and vague terms
  - Vitalism, holism, detox, energy, balance, natural, vibrations, cleanse, regenerative, “supports… (brain health, immune system, etc.)

Videos: Blurred Lines

Plausible or proven natural remedies (8 min)

vs.

Implausible & disproven remedies (13 min)

Overview

- Major growth in the 1970s
  - Counter-culture movement, distrust of science
  - Acupuncture opened doors;
    chiropractic on the rise
  - Legitimized in the 90s via gov't endorsement
    - Office of Alternative Medicine →
    - Nat'l Center for Complementary and Alternative Med. →
    - Nat'l Center for Complementary and Integrative Health

Blurring the Line

Video: Integrative Medicine
(4:30)

Problems

- Research & evidence
  - Often, there is little or none
  - When there is, it is typically small-sample, impressionistic, anecdotal, improperly analyzed, or explicitly inconclusive
  - Responses to informed critique:
    - Rare or contentious
    - Claims and treatments are virtually never modified
    - no evidence of forward progress in the treatments

Problems

- Theory?
  - Consumers don’t care, so not a priority
  - Highly speculative *at best*
  - Often invoke made-up forces and principles
  - Self-promote by denigrating conventional science & medicine
  - No signs of progress … ever

Problems

- Reliability: are clinical diagnoses consistent within and across practitioners?
- Validity: are claims about anatomy, physiology, and treatment function true?

Should we believe it?

Verdict:

Most alternative medical practices are non-sciences which don't benefit from methods for establishing validity.

If practitioners claim they are science-based, then they are *pseudo-sciences.*

Resources & Media

- Pediatric Chiropractic (19 min)
- Penn & Teller on Alternative Medicine (30 min)
  - "Bullshit!" series. Language warning!
- Quackwatch – Guide to Health Fraud

Chiro Reliability?

- Notoriously inconsistent
- Steven Barret test
  - Sent a healthy 4-year old to 5 chiro's for "check up"
- Diagnoses from the 5 "doctors":
  1. "shoulder blades out of place"
  2. "pelvis is twisted"
  3. "one hip is higher than the other"
  4. "left leg is shorter than right"
  5. "spine out of alignment"

Chiro Validity?

- Do subluxations inhibit “nerve flow”?
  - Garden hose analogy is false
  - “Pinched nerve” analogy is false
- Can doctors find subluxations?
  - NIH and AMA have never found any evidence at all for subluxations. None offered by chiropractors.
- Chiropractors don’t agree on subluxation locations

Perceived Validity

- Very few studies on non-back pain
- NIH research on respiratory function
  - Chronic obstructive lung disease
  - Treatment group sees a chiropractor
  - Control group does not see a chiropractor
- Results
  - 92% in treatment group experienced subjective improvement
  - no change in respiratory function compared to control group
  - likely **placebo effect** (“defined as perceived or actual improvement in a condition treated only by placebo”)

The Cycle of Chiropractic

- Back pain is VERY widespread: 80% of adults
- Standard treatment: rest, analgesics, heat, PT
- Many cannot do or afford standard treatments
- Common to seek treatment at peak of pain
- Regression to the mean & placebo effects “help”
  - If you get better, it worked!!
  - If you stay the same or get worse, must return for more treatments!!

Some skeptical voices

- Simon Singh Affair (18 min, 2 parts)
  - Part 1 Part 2

  The British Chiropractic Association dropped its case.

  In 2013 the Defamation Act became law in England. It required plaintiffs like the BCA to show that they suffer serious harm before the court will accept the case.

Quick Wrap-up

What makes people believe?

- logical fallacies
- rhetorical tricks
- “scientifical” language
- media
- false authorities, fraudsters, social influences
- lack of critical thinking
- fear
- lack of exposure to better explanations

10) Be skeptical of those who devalue skepticism

9) Speak up, educate others, even one at a time

8) Critical thinking enhances all aspects life

7) False beliefs cause avoidable harms

6) Consider social factors

- 5) Tap into the fabric of science
- 4) Seeking *real* explanations is *fun.*
- 3) Knowledge is power. (And fulfilling, and fun….)
- 2) The burden of support is on the claimant, not you.
- 1) Extraordinary claims require extraordinary evidence.

Final Thought

If Toto can be skeptical, then so can you.

End