Fallacies & Pitfalls in Psychology

Common Logical Fallacies in Psychology: 26 Types & Examples

Kenneth S. Pope, Ph.D., ABPP (../kpope/index.php)

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Here are 26 logical fallacies. We've all probably fallen for them -- and perhaps used them -- from time to time.

Articles in other sections of this web site examine logical fallacies in more detail (e.g., the affirming the consequent fallacy discussed in the "Science As Careful Questioning" *American Psychologist* article (../memory/science.php); the ad hominem fallacy discussed in the "Pseudoscience, Cross-examination, & Scientific Evidence" *Psychology, Public Policy, & Law* article (../memory/repweb2a.php)). I thought it might be helpful to draw these fallacies together on one page.

This list is not, of course, comprehensive.

I've tried to choose those fallacies that seem to thrive and are unlikely to appear on the "endangered species" list in the psychological literature and in psychological discussions.

The fallacies are ad hoc rationalization, ad hominem or ad feminam, affirming the consequent, appeal to ignorance (ad ignorantium), argument to logic (argumentum ad logicam), begging the question (petitio principii), composition fallacy, denying the antecedent, disjunctive fallacy, division fallacy, existential fallacy, false analogy, false continuum, false dilemma, false equivalence, genetic fallacy, golden mean fallacy, ignoratio elenchi, mistaking deductive validity for truth, naturalistic fallacy, nominal fallacy, post hoc ergo propter hoc (after this, therefore because of this), red herring, slippery slope, straw person, and you too (tu quoque).

The name of each fallacy is followed by a brief description and an example from the field of psychology.

For those interested, other articles in this section include:

- 21 Ethical Fallacies (../ethics/ethicalstandards.php)
- 10 Fallacies & Pitfalls in Psychological Assessment (assessment.php)
- Ethics, Language, & Critical Thinking: Using Words to Deceive

(http://kspope.com/apologies.php)

Ad Hoc Rationalization

In this fallacy, an explanatory factor, condition, or reason is set forth without validity to counter a specific objection or argument in order to defend one's original assertion, hypothesis, findings, or conclusion.

Example: In the following example, Dr. A uses ad hoc rationalization when questioned by Dr. B:

Dr. A: My paper and pencil test of intelligence is better than any of the others.

Dr. B: But in that recent study, it showed no reliability or validity.

Dr. A: I'm sure they scored it incorrectly.

Dr. B: They brought in 2 other teams to make sure the scoring was done correctly.

Dr. A: The researcher was probably one of my rivals, someone who wanted to do me in.

Dr. B: Actually, it's your best friend who has been your biggest supporter for decades.

Dr. A: Well, no wonder! He had to lean over backwards to make my test look bad so that he wouldn't be accused of favoritism!

Ad Hominem or Ad Feminam

The argumentum ad hominem or ad feminam attempts to discredit an argument or position by drawing attention to characteristics of the person who is making the argument or who holds the position.

Example: "The research and reasoning that supposedly supports (or that supposedly discredits) this intervention are a joke. The researchers are people who are not methodologically sophisticated and there have been rumors--I have no idea whether they're true or not--that they faked some of the data. The advocates (or opponents) of this intervention are the worst kind of sloppy thinkers. They are fanatical adherents who already have their minds made up; they've become true believers

in their cause. They make arguments only a stupid person would accept, and mistakes in reasoning that would make an undergrad psych major blush. These are not the kind of people who deserve to be taken seriously."

Affirming the Consequent

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This fallacy takes the form of:
If x, then y.
y.
therefore: x.
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Example: "People who are psychotic act in a bizarre manner. This person acts in a bizarre manner. Therefore: This person is psychotic."

Alternate example: "If this client is competent to stand trial, she will certainly know the answers to at least 80% of the questions on this standardized test. She knows the answers to 87% of the test questions. Therefore she is competent to stand trial."

Appeal To Ignorance (Ad Ignorantium)

The appeal to ignorance fallacy takes the form of: There is no (or insufficient) evidence establishing that x is false. Therefore: x is true.

Example: "In the 6 years that I have been practicing my new and improved brand of cognitivehumanistic-dynamic-behavioral-deconstructive-metaregressive-deontological psychotherapy (now with biofeedback!), which I developed, there has not been one published study showing that it fails to work or that it has ever harmed a patient. It is clearly one of the safest and most effective interventions ever devised."

Argument to Logic (Argumentum ad Logicam)

The argument to logic fallacy takes the form of assuming that a proposition must be false because an argument offered in support of that proposition was fallacious.

Example: "This new test seemed so promising, but the 3 studies that supported its validity turned out to have critical methodological flaws, so the test is probably not valid."

Begging the Question (Petitio Principii)

This fallacy, one of the fallacies of circularity, takes the form of arguments or other statements that simply assume or re-state their own truth rather than providing relevant evidence and logical arguments.

Examples: Sometimes this fallacy literally takes the form of a question, such as, "Has your psychology department stopped teaching that ineffective approach to therapy yet?" (The question assumes--and a "yes" or "no" response to the question affirms--that the approach is ineffective.) Or: "Why must you always take positions that are so unscientific?" (The question assumes that all of the person's positions are unscientific.) Sometimes this fallacy takes the form of a statement such as "No one can deny that [my theoretical orientation] is the only valid theoretical orientation" or "It must be acknowledged that [whatever psychological test battery I use] is the only legitimate test battery." Sometimes it takes the form of a logical argument, such as, "My new method of conducting meta-analyses is the most valid there is because it is the only one that is so completely valid."

Composition Fallacy

This fallacy takes the form of assuming that a group possesses the characteristics of its individual members.

Example: "Several years ago, a group of 10 psychologists started a psychology training program. Each of those psychologists is efficient, effective, and highly-regarded. Their training program must be efficient, effective, and highly-regarded."

Denying the Antecedent

This fallacy takes the form of: If x, then y. Not x. therefore: not y.

Example: "If this test were based on fraudulent norms, then it would be invalid. But the norms are not fraudulent. Therefore, this test is valid."

Disjunctive Fallacy

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This fallacy takes the form of:
Either x or y.
x.
Therefore: not y.
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Example: "These test results are clearly wrong, and it must be either because the client was malingering or because I bungled the test administration. Taking another look at the test manual, I see now that I bungled the test administration. Therefore the client was not malingering."

Division Fallacy

The division fallacy or decomposition fallacy takes the form of assuming that the members of a group posses the characteristics of the group.

Example: "This clinic sure makes a lot of money. Each of the psychologists who work there must earn a large income."

Existential Fallacy

The existential fallacy begins with two universal premises and draws a specific conclusion from them. The two premises may be true, but that does not logically establish the existence of any members in the categories they represent.

Example: I currently have as patients in my practice all the patients in this town who are willing and able to pay \$5,000 per session for long-term twice-weekly therapy. If you buy my practice, all my clients will be included. Therefore, if you buy my practice you will then have at least some patients willing and able to pay \$5,000 per session for long-term twice-weekly therapy.

False Analogy

The false or faulty analogy fallacy takes the form of argument by analogy in which the comparison is misleading in at least one important aspect.

Example: "There were wonderful psychologists who passed away several decades ago. If they could be effective in what they did without reading any of the studies or other articles that have been published in the last several decades, there's no need for me to read any of those works in order to be effective."

False Continuum

In this fallacy, the absence of a clear, definitive marker separating a continuum into two mutuallyexclusive groups proves that there is no difference between the two extremes on the continuum.

Example: "In many cases you can't really tell whether patients are improving because of what the therapist is doing or because of the placebo effect—there's a fuzzy line separating the two--so we must conclude that they are actually the same mechanism of improvement."

False Dilemma

Also known as the "either/or" fallacy or the fallacy of false choices, this fallacy takes the form of acknowledging only 2 (one of which is usually extreme) options from a continuum or other array of possibilities.

Example: "Either we accept the findings of this study demonstrating that this new intervention is the best to be used for this disorder, or we must no longer call ourselves scientists, psychologists, or reasonable people."

False Equivalence

In this fallacy, the fact that two items share a characteristic or are linked by some similarity demonstrates that they are equivalent.

Example: "Most of my testimony about the defendant was the opposite of what I actually believe but I'll bet there's no expert witness who has always told the truth from the time they were old enough to talk, so I'm no less honest than they are."

Genetic Fallacy

In this fallacy, whether a proposition is true or false is deduced or inferred from the proposition's origin.

Example: This theory originally occurred to a scientist in the form of a dream; therefore it cannot be valid.

Example: Since it was a deathbed confession, it must be true.

Golden Mean Fallacy

The fallacy of the Golden Mean (or fallacy of compromise, or fallacy of moderation) takes the form of assuming that the most valid conclusion is that which accepts the best compromise between two competing positions.

Example: "In our psychology department, half of the faculty believe that a behavioral approach is the only valid approach; the other half believe that the only valid approach is psychodynamic. Obviously the most valid approach must be one that incorporates both behavioral and psychodynamic elements."

Ignoratio Elenchi

This fallacy takes the form of assuming that an argument, whether or not internally valid, proves a particular point when in fact it misses the point at issue.

Example: "The is zero doubt that she has the condition. She scored high on two separate diagnostic tests for it and both test have shown extremely high validity. That proves she has it."

Example: "I don't see how you can believe he is not guilty of that crime. He's a terrible person and

I can prove it. In fact, several years ago he was convicted of that same kind of crime."

Mistaking Deductive Validity for Truth

This fallacy takes the form of assuming that because an argument is a logical syllogism, therefore the conclusion must be true. It ignores the possibility that the premises of the argument may be false.

Example: "I just read a book that proves that that book's author can do much better than any psychological test at finding out if someone is malingering. The book's author reviews the literature showing that no psychological test is perfect at identifying malingering. All have at least some false positives and false negatives. But the author has a new method of identifying malingerers. All he does is listen to the sound of their voice as they say a sentence or two. And he included in the book a chart showing that by using this method he has never been wrong in hundreds of cases. That proves his method is better than using psychological tests."

Naturalistic Fallacy

The naturalistic fallacy takes the form of logically deducing values (e.g., what is good, best, right, ethical, or moral) based only on statements of fact.

Example: "There is no intervention for victims of domestic violence that has more empirical support from controlled studies than this one. It is clear that this is the right way to address this problem and we should all be providing this therapy whenever victims of domestic violence come to us for help."

Nominal Fallacy

The nominal fallacy is the mistake of assuming that because we have given a name to something, therefore we have explained it.

Example:

Therapist A: "I just don't care about my patient anymore. I don't pay attention to what they say. I show up late for sessions. I don't care if they show up. I ask them if they'd rather we just use the session playing a game of tennis or sharing a cup of coffee. I don't keep records."

Therapist B: "You have a classic case of burn-out!"

Therapist A: "But why am I doing all these things?"

Therapist B: "Because you're burned out."

Post Hoc, Ergo Propter Hoc (After this, therefore on account of this)

The post hoc, ergo propter hoc fallacy takes the form of confusing correlation with causation and concluding that because Y follows X, then Y must be a result of X.

Example: "My new sport psychology intervention works! I chose the player with the lowest batting average based on the last game from each of the teams in our amateur baseball league. Then I gave each of them my 5-minute intervention. And almost all of them improved their batting average in the next game!" (Note: this example may also involve the statistical phenomenon of regression to the mean.)

Red Herring

This fallacy takes the form of introducing or focusing on irrelevant information with the specific intention of misleading the audience by distracting them from the valid evidence and reasoning. (It is this specific intention to mislead that sets it apart from the ignoratio elenchi fallacy.) It takes its name from the strategy of dragging a herring or other fish across the path to distract hounds and other tracking dogs and to throw them off the scent of whatever they were searching for.

Example: "Some of you have objected to the new test batteries that were purchased for our program, alleging that they have no demonstrable validity, were not adequately normed for the kind of clients we see, and are unusable for clients who are physically disabled. What you have conveniently failed to mention, however, is that they cost less than a third of the price for the other tests we had been using, are much easier to learn, and can be administered and scored in less than half the time of the tests we used to use."

Slippery Slope (also known as "The Camel's Nose Fallacy")

The slippery slope fallacy is a form of the Non Causa Pro Causa (mistaking a non-cause as a cause) and the non sequitur (it does not follow), which claims (without proof) that A inevitably must cause B, and B can have no other outcome than C, and C is sufficient cause for D, and D must lead to E, and E must produce F, and so on, and because the last link in the supposedly causal chain is undesirable, therefore the first step is undesirable.

Examples: "If the government allows psychologists to prescribe medications there will be no basis to block them from obtaining competence and legal authority to conduct other traditionally medical procedures such as diagnosing minor skin irritations, treating a sprained ankle, setting a broken bone, and performing neurosurgery." Or: "Never reduce a fee for any patient for any reason or else you'll find yourself constantly reducing fees for everyone, everyone will take advantage of you, your patients will lose respect for you and for therapy, and you'll loose money and go bankrupt."

Straw Person

The straw person, or straw man, or straw woman fallacy takes the form mischaracterizing someone else's position in a way that makes it weaker, false, or ridiculous.

Example: "Those who believe in behavior modification obviously want to try to control everyone by subjecting them to rewards and punishments."

You Too! (tu quoque)

This fallacy takes the form of distracting attention from error or weakness by claiming that an opposing argument, person, or position has the same error or weakness.

Example: "I have been accused of using an ad hominem approach in trying to defend my research. But those who attack me and my research are also using ad hominem. And they started it!"

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