Biomedical Treatments: Crash Course Psychology #36

Crash Course: Psychology
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If you saw our last lesson on psychotherapy you might be wondering: What happened to Bernice? Has she found a way to manage her depression? Is she still wracked with anxiety? Well it's really nice of you to ask. And I'll tell her you said, "hi." But for our purposes as students of psychology, the bigger question arising from Bernice's case is "has psychotherapy helped?" and just as important, "how can we tell?" Well believe it or not, one of the main ways experts use is to simply ask the client, and see how they say they're doing. Is Bernice out of bed, and living her life? Did she make it through mid-terms without spiraling into a crisis? And did she take that plane trip to Baja to party with her girls? As a clinician, that would all be useful to know, right? But the key is that we want to ask these questions in a scientifically rigorous manner, so that we really know a treatment works, rather than just extrapolating from individual cases. And there's also a whole other category of treatment that's pretty different from the talking and listening that goes on in psychotherapy. These are as much medical intervention as they are psychological science; the biomedical treatments. These can be as common-place as medications like Zoloft or Lithium, or a bit more unusual and invasive like magnetic stimulation, neural implants, or even electroshock therapy. And YES, it's still a thing. Healing a troublesome mind isn't like healing a broken arm. So one of the challenges that psychologists face is simply knowing whether they're doing their job, and doing it well. The methods psychologists use to assess how effective treatments are mostly involve client and clinician perceptions along with outcome research. Client perceptions are just what they sound like, you see a therapist, and someone asks you how you feel after your treatment. It varies by treatment, but client perception tends to be pretty rosy. One study found that 89% of folks said that they were at least "fairly well satisfied" with their treatment. But of course, perceptions are inherently subjective, and some believe that the therapeutic relationship lends itself to a positive bias in client reviews. Basically, if you're sticking to your treatment, you probably like your therapist. Clinician perspectives can be similarly skewed, not only in terms of a self-serving bias, but also because they may not be around to see a client's future relapses or setbacks in mental health. A patient could see ten therapists over time, feel better at the end of each treatment, but keep struggling over the long term, even though each therapist thought the treatment was a success. So, can we objectively measure how well psychotherapy works? Well, we have treatment outcome research, a way of systematically measuring which therapies work best for which problems. And the gold standard of treatment outcome research is the randomized clinical trial, or RCT. If you will remember your research methods, you'll know that RCTs generally require randomly selected and assigned participants, a control group, and at least one experimental group that receives the treatment. This design accounts for individual differences between people and other extraneous factors, so that we know that if people in the experimental group get better and people in the control group don't, it was truly the therapeutic intervention that made the difference. And once enough researchers have run their own RCTs, you can gather data via meta analysis, measuring results across multiple trials to see basically whether a treatment works, and how well it does, across a variety of settings. Two important terms you should know here are effectiveness and efficacy. Effectiveness is whether or not a given therapy works in a "real-world setting," whereas efficacy is whether a therapy works better than some other, comparable intervention, or a control. Both terms matter, and you'll wanna get them straight, if you're tryin' to parse the research literature. Dozens of studies have confirmed that psychotherapy is both effective and efficacious. While controls, usually people who don't get any therapy, often do get better on their own, those in psychotherapy usually improve faster, and with a significantly lower risk of relapse. However, and try not to look too shocked when I tell you this, there is a lot of argument about which therapies work best. In some cases, like phobias, there are clear winners, behavior therapy for instance. In others, like major depressive disorder, there are cognitive, behavioral and psychodynamic interventions that have all been successful in RCTs. And while a lot of psychologists seem to get a kick out of arguing about which therapies are better than others, there do seem to be some common factors that unite the more effective ones. A big one is simply instilling hope, helping demoralized clients regain hope that things can, and will get better. There is also the value of getting a new perspective, learning that there is a plausible explanation for your troubles, and finding a new way of looking at yourself, the world around you, and what your future might look like. And across the board, any good therapist provides genuine empathy within a trusting, caring relationship. They seek to listen, and understand and not judge, and offer clear and positive communication. But psychotherapy, or talking it out, is just one way to treat psychological disorders. Quite often, biomedical therapies are an option, sometimes for the more severe disorders, but in many cases, in combination with psychotherapy. Biomedical therapies aim to physiologically change the brain's electrochemical state with psychotropic drugs, magnetic impulses, or even electrical currents and surgery. As you might expect, pharmacotherapy is by far the most widely used, that's the one where you just take drugs. Psychotropic drugs are just any pharmaceutical that affects your mental state, the most commonly used ones fall into four major categories; antipsychotics, anxiolytics, antidepressants, and mood stabilizers, each aimed at a specific family of problems. Antipsychotics are used to treat schizophrenia and other types of severe thought disorders. Most of these medications alter the effects of the neurotransmitter dopamine in the brain by blocking its receptor sites, and blocking its uptake. This is based on the assumption that an overactive dopamine system contributes to schizophrenia, but, like many psychotropic drugs, antipsychotics come with nasty side effects. Anxiolytics, or anti-anxiety meds, usually work by depressing activity in the central nervous system, much like a stiff drink might. For this reason, and others, it can be super dangerous to mix certain anxiety meds with booze. Also, letting your nerves mellow out can feel so good that patients may risk becoming addicted to some anxiolytics. Antidepressants are used to treat depression, as you might expect, but also a number of anxiety disorders. Each type is thought to work a bit differently, mainly by altering the availability of various neurotransmitters, like serotonin and norepinephrine in the brain, which in turn appears to help with mood and anxiety problems. Some of the most common are selective serotonin re-uptake inhibitors, or SSRIs, like Zoloft, Paxil, and Prozac, which partially block the normal re-uptake of serotonin. This makes it more available to the synapses, which, hypothetically at least, allows its mood-enhancing effects to kick in. Current research suggests that the use of antidepressant medication is most effective when combined with psychotherapy, which makes a lot of sense, and the same goes for a number of other psychological disorders. It's worth pointing out here that some meta-analyses suggest that antidepressants aren't any more effective than psychotherapy when symptoms are mild to moderate. One meta analysis that riled people up in recent years even suggested that antidepressants are no better than a placebo in those cases. So psychotropic drugs can help, but sometimes you also need to start exploring the root causes of your issues and reevaluate how you deal with them, which is what psychotherapy is perfect for. Bernice, for example, probably would have benefited from both talk therapy and a dose of anxiolytic or antidepressant meds. The last big psychotropic drug group is the mood-stabilizers. They can be extremely effective in smoothing out the highs and lows of bipolar disorder. Simple salts of Lithium were the first of these drugs used, and they remain in widespread use today. Dr. Kay Redfield Jamison, who we talked about a few weeks ago has said that Lithium "prevents my disastrous highs, diminishes my depressions, gentles me out, keeps me from ruining my career and relationships, keeps me out of a hospital, and alive." And while drugs are the most popular biomedical treatment, they aren't the only kind. For one, there's

electro-shock therapy. Now, hear me out, this does carry a long history of negative connotations, like of people being strapped down and shocked into mental oblivion, but the technology has made a comeback, and can actually be quite effective in treating severe, treatment-resistant depression. It's properly called electroconvulsive therapy, or ECT, and it involves sending a brief electrical current through the brain of an anesthetized patient. This excites the neurons, causing them to fire rapidly, until the patient goes through a small, controlled seizure that lasts about two minutes. And we're not exactly sure why this helps to relieve negative symptoms, but there are several theories that are being pursued. One suggests that the resulting seizure beneficially alters neurotransmitter activity in areas of the brain associated with moods and emotions, effectively jumpstarting a severely depressed brain. Another theory suggests that these electrical impulses modify stress hormone activity in the brain, which we know could play a role in sleep, energy, appetite, and mood. ECT may also re-activate previously dormant or suppressed neurons, or possibly stimulate the growth of new ones in key brain regions, helping the brain regain some level of lost functioning. There are a couple of other brain-stimulation treatments, too, that are more gentle. One is repetitive transcranial magnetic stimulation, rTMS, which involves the painless application of repeated electromagnetic pulses. Another, deep-brain stimulation, DBS, is more invasive, and calls for surgically implanting a kind of "brain pacemaker" that sends out electrical impulses to specific parts of the brain. Despite all the new research and often positive results around rTMS and DBS, we're still sorting out how these treatments work to heal the brain and mind, but they're hypothesized to jump-start the neural circuitry in a depressed brain, similarly to ECT. So you'll notice that all these options come with certain risks, and really no treatment is entirely risk free, perhaps not even psychotherapy. But we should also note that some of the less severe manifestations of psychological disorders may be improved with pretty simple lifestyle changes. Thirty to sixty minutes of daily aerobic exercise has been shown to be as effective as antidepressant medications in research on mild depression. Just remember those words; "daily" and "aerobic." Adequate sleep, social interaction, and good nutrition also all play a part in managing moods. In other words, general healthy living helps. There's an Old English proverb that says "different sores have different salves" and the same is true here. What works for one person may not work for another, and sometimes a few different kinds of intervention might be needed all at once. Today you learned how client and clinician perceptions, outcome research, and meta-analytic reviews work together to determine the efficacy and effectiveness of psychological treatments. You also learned how biomedical therapies work, including the four major families of drug therapies, along with electro-convulsive therapy, repetitive transcranial magnetic stimulation, and deep brain stimulation. And also how lifestyle changes and general healthy living can improve mental health. Thanks for watching, especially to all our Subbable subscribers who make Crash Course available to not just themselves but also to all of all people. To find out how you can become a supporter just go to subbable.com. This episode was written by Kathleen Yale, edited by Blake de Pastino, and our consultant is Dr. Ranjit Bhagwat. Our director and editor is Nicholas Jenkins, the script supervisor and sound designer is Michael Aranda, and the graphics team is Thought Cafe.