
PSY1102

Introduction to Applied Psychology

Class 21

Therapy (concluded)

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Agenda for today

1. The biomedical therapies
 - a. Drug therapies
 - b. Brain stimulation
 - c. Psychosurgery
 - d. Therapeutic lifestyle change
2. Preventing psychological disorders

1. The biomedical therapies

- We have already considered the “mind” approach to the treatment of psychological disorders: psychotherapy.
- The other major approach – biomedical therapy – deals with the body, and involves the use of drugs, electricity, magnetic impulses, or psychosurgery.

1a. Drug therapies

What are the drug therapies? What criticisms have been leveled against drug therapies?

- Psychopharmacology is the study of the effects of drugs on the mind and behaviour.
- Because of progress in this discipline, the treatment of people with a variety of psychological disorders has changed radically.
- Specifically, many people who in previous times would have been confined to a hospital are now able to live in the community. (Check out Figure 15.5 on page 660.)
 - Figure 15.5 on page 660 shows the decline in mental hospital occupancy. Unfortunately, some (many?) of the “liberated” patients were released because of budget cuts, and have ended up as homeless people unable to care for themselves.

1a. Drug therapies: clinical trials

- The top paragraph on page 661 is one of the most important paragraphs in the textbook.
- Before a new drug can be approved for use, it must undergo a multi-stage clinical trial to demonstrate its safety and efficacy. In other words, is it safe to take, and does it do what it's supposed to do?
- Trials are typically double-blind, which means that neither the patient nor the physician knows whether the patient is taking the experimental drug or a dummy (placebo) that is identical to the drug except that it contains no drug.
- The “success rate” of the new drug must be tempered by subtracting from it the spontaneous recovery rate of persons who are untreated as well as those on the placebo.

1a. Drug therapies: antipsychotic drugs

- A major issue with antipsychotic drugs is that they are very powerful and can have significant side effects. Thus, when trying to develop a drug to treat a disorder as varied as schizophrenia, it is important to balance the side effects against the benefits of the drug.
- Antipsychotic drugs, as their name implies, are designed to treat a psychosis, a serious disorder marked by delusions and/or hallucinations.

1a. Drug therapies: antipsychotic drugs (continued)

- Historically, chlorpromazine (marketed as Thorazine) has been helpful in treating patients who show positive symptoms of schizophrenia (hallucinations, delusions) by muting the responsiveness to irrelevant stimuli by blocking receptor sites specific to dopamine.
 - However, side effects include symptoms typical of Parkinson's disease, which is caused by too little dopamine. Over a long time, the patient can develop tardive dyskinesia, marked by involuntary movements of the face, tongue, and limbs.
- By contrast, patients exhibiting negative symptoms of schizophrenia (apathy, withdrawal) fare less well, although newer drugs (atypical antipsychotics) that target receptors for both dopamine and serotonin can be helpful.
- Antipsychotic drugs and life-skills training in combination have helped many people lead near-normal lives.

1a. Drug therapies: antianxiety drugs

- Antianxiety drugs are used, as their name implies, to control anxiety and agitation.
- Common antianxiety drugs include Xanax and Ativan, which depress CNS activity.
- An on-going issue concerning antianxiety drugs is whether they do anything other than reduce symptoms; that is, do they help address the underlying causes of anxiety?
- A major concern about antianxiety drugs is dependence on them – psychological or physiological – to get through the day.

1a. Drug therapies: antidepressant drugs

- Since the turn of the century, the standard drug therapy for anxiety disorders has become antidepressants. These drugs also treat people with obsessive-compulsive disorder.
- How do these drugs work?
 - Antidepressants elevate the mood of someone with depression. They do this by making norepinephrine or serotonin more available, elevating the arousal level of the individual.
 - Prozac, Paxil, and Zoloft block the clearance of serotonin from synapses, and so are called SSRIs, or selective serotonin reuptake inhibitors.
 - Others do the same for norepinephrine and serotonin.
- Side effects include weight gain, dry mouth, hypertension, and reduced sexual desire.
- The drugs may take 4 weeks to have a noticeable effect.

1a. Drug therapies: antidepressant drugs (cont'd.)

- Before SSRIs, 70% of patients got medication for depression. With SSRIs, this has jumped to 89%.
- 11% of US women and 5% of US men take antidepressants.
- However, the evidence suggests that, except for people with severe depression, the effectiveness of antidepressants is not as large as commonly believed, because about 75% of the effectiveness is attributable to a placebo effect.
- Although much news has appeared about a link between Prozac and suicide, the evidence is not convincing.

Two musical comments:

www.youtube.com/watch?v=13olfeD026g

www.youtube.com/watch?v=_yIaelSVhyM

1a. Drug therapies: other antidepressant therapies

- Other therapies for depression include aerobic exercise and cognitive therapy.
 - Aerobic exercise has several positive side effects, also.
 - Cognitive therapy will be considered later. Briefly, cognitive therapy helps reverse a negative thinking style, which reduces the risk of relapse, also.
 - A combination of antidepressants and cognitive-behaviour therapy can increase the effectiveness of treatment.

1a. Drug therapies: mood-stabilising medication

- Mood-stabilising drugs are another tool in the pharmaceutical toolkit of psychiatrists.
- As an example, lithium – a common element in the same chemical family as sodium and potassium – can be effective in stabilising mood in persons with bipolar disorder. About 70% of patients with bipolar disorder respond well to lithium, and the suicide rate among these patients is one-sixth that of patients not taking lithium.

1b. Brain stimulation

How effective is electroconvulsive therapy, and what other brain-stimulation options may offer relief from severe depression?

- We consider two types of brain stimulation:
 - Electroconvulsive therapy (ECT)
 - Alternative neurostimulation therapies

1b. Electroconvulsive therapy (ECT)

- Electroconvulsive therapy (ECT), first introduced in 1938, is a biomedical therapy for severely depressed patients in which a brief electric current is sent through the brain of an anaesthetised patient.
- The treatment involves:
 - Administration of a general anaesthetic and muscle relaxant;
 - Delivery of stimulation to the brain lasting 30-60 seconds.
- Sessions occur three times per week for 2-4 weeks.
- About 80% of these patients show some memory loss but relief from severe depression.
- No one understands the mechanism by which this treatment is effective.

1b. Alternative neurostimulation therapies

- The vagus nerve derives its name from the Latin word for “wanderer” because it wanders through the body. (Check out www.youtube.com/watch?v=AzdigxCIuOE for fun.)
- A chest implant that stimulates the vagus nerve intermittently has provided some relief for chronic depression.
- Other alternative neurostimulation therapies include:
 - Magnetic stimulation, and
 - Deep brain stimulation.

1b. Alternative neurostimulation therapies

- Magnetic stimulation seems to relieve depression by providing repeated pulses through a magnetic coil near a person's skull.
 - This stimulation, more formally called rTMS or repetitive transcranial magnetic stimulation, only affects the surface of the brain.
 - Tests of effectiveness show mixed results.
- Deep-brain stimulation is targeted at a brain structure between the frontal lobes and the limbic system that is believed to be related to depression.
 - This technique is also new, and needs further research.

1c. Psychosurgery

- Psychosurgery is surgery that removes or destroys brain tissue in an effort to change behaviour.
- Because the effects of psychosurgery are irreversible, psychosurgery is the most drastic intervention for changing behaviour, and is the least used biomedical therapy.

The frog story is relevant here.

1c. Psychosurgery (continued)

- In the 1930s, Moniz developed the frontal lobotomy, a procedure in which the pathways connecting the frontal lobes to the limbic system were severed surgically.
- This technique had great success in calming patients exhibiting uncontrollable emotions and violent outbursts.
- The technique is relatively crude, but quick (10 minutes) and easy. (But for heaven's sake, don't try this at home!)
 - Render the patient unconscious;
 - Drive an ice pick-like tool through the top of each eye socket into the brain;
 - Move it back and forth to cut the pathways.

www.youtube.com/watch?v=_0aNILW6ILk

1c. Psychosurgery (continued)

- Frontal lobotomies were performed on tens of thousands of patients from 1936 to 1954.
- The effects of the lobotomy were often unpredictable, because it was not possible to know the path of the tool cutting the connections.
- In many cases, the patient became lethargic and unmotivated, lacked creativity and insight, and seemed to be devoid of the qualities that make someone a bright, inquisitive human being.
- For a popular treatment of lobotomies, check out the book (or film, with Jack Nicholson) *One Flew Over the Cuckoo's Nest*, by Ken Kesey.

1c. Psychosurgery (concluded)

- Other types of psychosurgery have been used to treat severe cases of epilepsy and other disorders.
- The case of HM is especially famous. HM suffered from intractable epilepsy, with frequent seizures that disrupted his life severely. At age 27, parts of his temporal lobes, including much of the hippocampus, was removed.
- As a result of the surgery, HM was unable to form new memories. Until he died in 2008, when his identity was revealed, HM served as a research subject.
- Finally, in other severe cases of epilepsy the corpus callosum, which connects the two halves of the cerebrum, is severed. In general, life is improved, although specific deficits can be observed following this split-brain procedure.

1d. Therapeutic lifestyle change

How, by caring for their bodies with a healthy lifestyle, might people find some relief from depression?

- We have discussed several times the mind-body issue. There is certainly evidence that biological changes can affect psychological processes, and evidence from PET scans that psychotherapy can affect biological processes.
- These interactions support the view that the human being is an integrated biopsychosocial system.
- Therapeutic lifestyle change uses a small-group approach to promote the beneficial effects of aerobic exercise, adequate sleep, exposure to light, social connection, enhanced positive thinking, and nutritional supplements.

2. Preventing psychological disorders

Two reasons for working to prevent psychological disorders:

- a. In the long run, prevention is more effective for society than is treatment.

“An ounce of prevention is worth a pound of cure.”

- b. Also, the psychological disorders we observe may in some cases be a rational and adaptive response to an irrational society.

2a. Preventing psychological disorders

Why should we spend tax dollars on programmes designed to prevent psychological disorders?

- Clearly, it is necessary to have therapies to treat psychological disorders, but it is equally important to prevent psychological disorders.
- Treatment is a “catch-up” game. By the time someone gets treatment, they have already experienced the disorder.
- Think of a medical analogy: is it better to spend a small amount of money and time to vaccinate people against a contagious disease, or to fill the hospitals at great time and expense and treat them once ill, with the attendant death rate?
 - Vaccines: smallpox, polio, yellow fever, measles, etc.
 - Other preventions: goiter, salmonella, E. coli, etc.

2b. Preventing psychological disorders: society

- Once again, we encounter the labelling issue in which the individual is stigmatised as someone who, for whatever reason, is not “normal”.
- However, through this course we have identified societal factors that can contribute to psychological disorders, including:
 - Childhood poverty
 - Racism, sexism, and other forms of intolerance
 - Lack of meaningful work
 - Constant criticism, attacks on self-esteem
- Given this state of knowledge, there is a need for effective policy makers who have a solid grasp of the conditions that contribute to a dysfunctional society and are motivated to correct these conditions.

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