Behavioral models emphasize the role of learning

Behavioral models in psychology are those that emphasize the importance of *learning*, defined as the relatively permanent changes in behavior that result from the organism's interaction with its environment in accordance with a number of fundamental laws of behavior.

These laws are assumed to be sufficient to explain most forms of human behavior, including maladaptive behaviors such as addiction.

Common to all behavioral models are the following:

1. The focus is on observable behavior and on the environmental conditions associated with the initiation, maintenance, and cessation of behavior.

2. The emphasis is on empirical evidence through the experimental analysis of behavior.

3. "Mentalism" is dismissed as both unscientific and, to the "radical" behaviorists like B.F. Skinner, irrelevant: people behave in predictable ways as a function of how they have been "conditioned," not as a function of their personalities or any other inner force.

[Skinner used the law of gravity as an analogy. If I throw a rock into the air, it falls back to earth, but we would never argue that it falls back to earth because it's lonely or because it wants to return or because it suffers from separation anxiety! Such "mentalism" would be irrelevant - the rock returns because of a natural law. So, too, Skinner believes, behaving organisms behave as they do because they follow certain natural laws of behavior. Their needs and feelings are as irrelevant as the needs and feelings of the rock.]

Behaviorists have identified two major forms of conditioning:

<u>Respondent (classical) conditioning, also known as Pavlovian conditioning or associative learning</u>

- Start with a response automatically elicited by a certain stimulus (UCS>UCR)
- Pair the UCS with a neutral stimulus for a series of trials
- The neutral stimulus will now elicit the response (CS>CR)

<u>Operant (instrumental) conditioning, also known as Skinnerian conditioning</u>

- Begin with the naturally occurring level of a response (baseline)
- Add a consequence that now follows the response (contingency)
- Record the frequency of responding - if the rate increases, the consequence is said to *reinforce* the response

Reinforcers may be any consequence that is shown to increase the rate of responding, usually one that has clear 'value' to the organism.

Reinforcers may be *positive* (where something is added) or *negative* (where something is taken away).

Common positive reinforcers are money, food, praise: when these are given as a consequence of a specific response, that response is likely to occur again, so we say that the response has been positively reinforced. Thus, you can positively reinforce a child's table manners by promising him an extra helping of dessert; when he behaves properly, he gets the extra dessert, and that reinforces his behavior.

Common negative reinforcers are the removal or avoidance of pain, threats, anxiety: when these are diminished or taken away as a consequence of a specific response, that response is likely to occur again, so we say that the response has been negatively reinforced. Thus, you can negatively reinforce a child's table manners by threatening him with the loss of dessert unless he behaves properly; when he behaves properly, the threat is removed (no loss of dessert), and that reinforces his behavior.

Please don't confuse **negative reinforcement** with **punishment**. A negative reinforcement "reinforces;" that is, it *strengthens* the response. Punishment is the opposite - it works to *weaken* a response. Thus, if I tell my child to behave himself or else I will send him to his room, and he does indeed behave himself, then his good behavior has been strengthened, due to the negative reinforcement of my threat that I removed as a consequence of his improved behavior. If he misbehaves and I send him to his room, I am hoping that this will stop his misbehaving as a consequence of punishment.

Other behavioral concepts include:

- Generalization: responses learned under one specific set of circumstance tend to occur under other, similar circumstances (for example, an alcoholic who has learned to have fun drinking beer with his friends might also learn quickly to drink by himself)
- Discrimination: the opposite of generalization – a response learned under one set of circumstances might not occur under a somewhat different set of circumstances (for example, an alcoholic who has learned to have fun drinking beer with his friends might also learn quickly that drinking alone is no fun)
- Extinction: a response learned under a certain set of circumstances might not occur if those circumstances change (for example, an alcoholic who has learned to have fun drinking beer with his friends might not drink if his friends are no longer around)
- Spontaneous recovery: an extinguished response will often suddenly reappear after a period of time (for example, an alcoholic who has stopped drinking beer with his friends might start drinking again after a while)

A behavioral analysis of addiction applies several different principles

Behavioral concepts and principles can be applied in many ways to addiction:

- Psychoactive drugs (and many other activities) can be very potent reinforcers, both positive (euphoria, potency, sociability, peer acceptance) and negative (tension-reduction, escape from boredom, "drowning one's sorrows," etc.)
- Relief from withdrawal symptoms by resumed use of drugs can be a very potent negative reinforce
- The reinforcers of substance use might be stronger than their punishers (hangovers, arrests, social disapproval, getting fired), and the reinforcers are usually more immediate and certain while punishers are often delayed and uncertain
- The desire or craving can generalize to a variety of stimuli that prompt the behavior, and there might be a failure to discriminate (when to use or not use, or when one has had too much)
- With so many reinforcers and conditioned stimuli, extinction can be hard to achieve, and spontaneous recovery (relapse) is common

Behaviorists use these and other concepts to deal with four separate issues: the factors associated with *initiation* of use, *maintenance* of use, *cessation* of use, and *slip* or *relapse* (resumption of use).

For example, **initiation** is related to several factors:

(1) Availability
(2) Immediate reinforcement
(3) Insufficient reinforcement of alternative responses
(4) Insufficient punishment for use

Rather than viewing "addiction" as anything particularly mysterious, behaviorists see addictive behaviors as part of a larger class of "excess" behaviors: an operantly-conditioned response that, as a result of the individual's history of prior reinforcement and punishment, tends to occur at a high rate relative to other more socially desirable or productive responses, and thus is maladaptive.

To a behaviorist, the behavior of consuming alcohol or some other drug can be understood in terms of conditioning of specific associations, also known as **expectancies**:

1. the expectation of taking a drug (which to a "mentalist" would be understood in terms of "need" or "desire" or "craving," terms that behaviorists try to avoid)
2. the expectation of the type of effect that taking the drug will produce
3. the expectation of the consequences that will occur as a result of taking the drug

Behaviorists have also attempted to develop models to explain some of the phenomena that are so closely linked to addiction: dependence, withdrawal, tolerance, loss of control, relapse, and intoxication:

DEPENDENCE: physical dependence, if it even exists, is assumed to be mostly irrelevant, a process that may accompany addictive behavior but neither defines nor controls it.

- ☐ For example, people often become dependent on narcotic painkillers after surgery and go through withdrawal when they finish their prescription, but very few become addicted

- ☐ Even if one assumes that dependence is somehow physical, there is no physiological test that can verify that a person is dependent

WITHDRAWAL: though there may well be physical symptoms as part of withdrawal, and underlying physiological processes that contribute to it, withdrawal is clearly a conditioned response, and its severity is highly subjective and influenced by a range of non-physiological factors (expectations, emotional states, circumstances, etc.).

- ☐ Behaviorally, it makes just as much sense that withdrawal would function as a punisher, weakening future use, as it does that relief from withdrawal can be a negative reinforcer that strengthens future use; thus, behaviorists regard withdrawal as a relatively minor issue with minimal explanatory value

TOLERANCE: tolerance, too, may be physiologically related to some form of cellular adaptation, but it is clear that tolerance is influenced by learning.

- ☐ Repeated use of a drug produces what are called "anticipatory conditioned compensatory responses," linked to classically conditioned stimuli associated with use (e.g., the needle used to inject heroin)

- ☐ Use of the drug under novel conditions may overwhelm these compensatory responses, thus perhaps accounting for the so-called "heroin overdose puzzle"

- ☐ Experiments with rats also show that tolerance can be a learned operant by maintaining positive reinforcers and/or reducing aversives

LOSS OF CONTROL: the amount of control shown appears to be largely subject to learning.

- ☐ Claiming loss of control might often help users to escape negative consequences ("you were drunk when you hit me and therefore were not in control of what you were doing, so I forgive you")

- ☐ Alcoholics in laboratory studies reinforced for slowing down their consumption learn to slow down as easily as non-alcoholics

- ☐ Cocaine addicts in treatment will cease use when paid a reasonable sum for weekly clean urine tests

- ☐ When punishers become sufficiently severe or immediate, use almost always decreases or stops altogether

- ☐ Users typically "mirror" the use of others, consuming roughly the same amount at the same rate as other users they are with

Here's a simple thought experiment. Picture a hard-core heroin addict who hasn't used for a while and is beginning to suffer the agony of withdrawal. He prepares his fix, but just before he can inject himself, there's a knock on the door and the shout, "Police!!" What does he do? Do you think he can control himself enough to get rid of the heroin and needle before opening the door, or does his loss of control force him to go ahead with the injection, despite the imminence of arrest? What do you think a behaviorist would say?

RECOVERY: the most common means by which addicts overcome the addiction is by simply stopping or reducing their use (“self-change”)

- ☐ The predictors of successful self-change involve environmental considerations: new or strengthened relationships with non-addicts are an especially powerful predictor

- ☐ Commitment to positive change is strongly influenced by reinforcers for change

RELAPSE: relapse also appears to be largely under the control of learning.

- ☐ Relapse becomes more or less likely as a predictable function of availability

- ☐ Relapse becomes more or less likely as a predictable function of the presence or absence of cues

- ☐ The punishers that might have led to cessation might also cease, thus allowing resumed use

- ☐ Reinforcers for abstinence are often delayed

- ☐ Addicts almost always report that their slips or relapses occur in response to external events and circumstances (being around others who are using, going to a restaurant for dinner where liquor is served)

INTOXICATION: assuming that addicts *can* control use, it is still obvious that they often don't, consuming excessive amounts that might lead to dangerous degrees of intoxication.

- ☐ Some studies suggest that alcoholics cannot easily determine their degree of intoxication on internal cues alone

- ☐ If given external cues, or feedback, they are much less likely to drink to intoxication ("blood alcohol discrimination")

- ☐ Increased use over time can lead to tolerance, and tolerance further impairs the capacity for accurate discrimination

Because some behaviorists do not attribute any great importance to physiological factors, they are also less likely to see anything unique about chemical addictions, and their theories are frequently applied to many other "excess" behaviors such as compulsive gambling, overeating, spending, and sexual activity.

However, many behavioral conditioning models do place great emphasis on the reinforcing power of psychoactive chemicals, the intense (and therefore "addicting") pleasure or euphoria drugs produce. Alternatively, the emphasis might be on the torments of hell associated with withdrawal, thus making relief from withdrawal into a powerful negative reinforcer. Solomon has combined the two factors - pleasure and torment - into his **opponent-process** conditioning model, which makes the euphoria and the torment into the two jaws of the deadly trap from which the addict cannot easily escape.

(Popular myth says that if rats are given the opportunity to self-inject drugs, they might literally starve themselves to death, but the actual results of the rat research lead to very different conclusions. Rats will tend to be more of what we might call "recreational" users unless they are confined in small cages and given no other form of activity to engage in, which points to the importance of environmental conditions.)

How real is Solomon's trap? Many studies indicate that the degree of pleasure associated with drugs is (a) much exaggerated, (b) enormously variable, and (c) largely unrelated to whether someone becomes addicted. For example, I assume most of you have used narcotics—no, not the street drugs, but the prescription pain-relievers that are almost always some form of natural or synthetic opiate percocet, vicodin, oxycontin, etc.). Did you enjoy the feeling? Did you become addicted? Best estimate is that over 95% of all users of narcotics (assuming we include the prescription pain-killers) stop using on their own when the prescription runs out (in fact, often even before the prescription runs out), and often say that they did not enjoy the feelings they experienced while using.

And the torments of withdrawal also suffer from popular exaggeration; for example, in an attempt to describe heroin withdrawal in objective terms, experts have said that it is roughly equivalent to a severe case of an intestinal or flu virus, with chills, shakes, cramps and nausea - unpleasant, yes, but life-altering? With respect to the widely-used narcotic pain-killers I just referred to, yes, most of those who use these prescriptions do report experiencing withdrawal when they stop, but they still stop.

In other words, there is good reason to believe that the behavior of addicts might be nothing more complicated than a **habit** - they engage in the behavior because that's what they are in the habit of doing, that's how they have been conditioned to behave.

The debate over controlled drinking has been one of the most bitter in the whole history of addictions theory and research

Consistent with the treatment culture that has prevailed in the U.S. for the past 50 years, most "rehab" programs are designed to promote abstinence. Given the dominance of the disease models, with the belief that addiction is an incurable disease, it is widely assumed that the only way to control the disease is through total abstinence.

There has also been some effort to develop treatment methods designed to promote controlled (sometimes called responsible, or moderate) use, which behaviorists believe is a far more realistic objective than total extinction (abstinence).

Considerable behavioral evidence exists to suggest that efforts to move rapidly from one extreme (addiction) to the other (abstinence) are typically associated with spontaneous recovery (relapse), whereas more gradual and moderate reductions are not. Behaviorists also believe in setting realistic, attainable goals, and for many addicts, the goal of total and lifetime abstinence can be frighteningly unrealistic and can steer them away from any effort at meaningful change.

[This is one reason why behaviorists tend to believe that dieting for weight loss is largely ineffective—extreme deprivation is almost always associated with return to the opposite extreme, just as a pendulum swings from one extreme to the other.]

Vaillant, an eminent proponent of the disease model, has nonetheless published data showing a sizeable number (15-30%) of alcoholics who eventually reach a point of moderate or social drinking.

Controlled-drinking programs are widely available in Canada, Great Britain, and most Scandinavian countries, but are rare in the U.S. European countries also place more emphasis on what is called the **harm-reduction** approach, where the focus is more on reducing the harm associated with addiction rather than on eliminating the addiction itself. Thus, for someone who drinks and drives, the focus would be on reducing the harm of driving under the influence rather than on trying to convince the drinker to stop drinking altogether.

Controlled-drinking strategies offer some advantages to abstinence, which for many users is too distasteful or painful, and might be more acceptable to drinkers who are younger and who do not want to accept the stigmatizing label of "alcoholic."

[Do you remember Thombs's point about "denial" in Chapter 2 (page 49–50) where he suggested that the alcoholic's denial might be less a form of self-deception than an understandable rejection of a label that most people find to be objectionable?]

The most widely applied controlled drinking method is known as *Behavioral self-control training*, which in some studies has had reported success rates of over 60%.

Unfortunately, the predominance of the disease models in the U.S. has created a climate of intense hostility.

Stanton Peele cites two examples:

1) the almost universal rejection of the Rand reports, extensive (though not methodologically perfect) studies of hundreds of alcoholics, which reported that as many as 40% of alcoholics were able to reach a point of non-problem drinking

2) the attack by Pendery against the Sobells' study, an attack widely endorsed by treatment professionals, even though Pendery looked only at the controlled drinking group to find evidence of their failures

Rather than forcing a choice between controlled-drinking and abstinence approaches, many now argue that both can be helpful, but for different populations: controlled-drinking for problem drinkers, abstinence for those who are truly alcoholic or for whom controlled-drinking approaches have proved unworkable.

Peele, however, challenges even this compromise:

1) there is no clear distinction between "problem drinker" and "alcoholic," and the same person might at times be a problem drinker and at other times an alcoholic

2) longitudinal studies suggest that even among the most chronic of heavy drinkers, as many achieve non-problem drinking (5-10%) as achieve total abstinence

Even within AA, there is now a tendency to regard alcoholics who "slip" occasionally as essentially abstinent (in which case the distinction between "abstinence" and "moderation" blurs).

Peele and others point to the danger that the concept of "powerlessness" can become self-fulfilling, an issue we will explore further in our next Lesson.

He also points out that while, on paper, many disease advocates have expressed grudging acceptance of controlled drinking for non-dependent problem drinkers, in reality few such treatment programs actually exist in the U.S.

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