The Behavioral Model - Operant Conditioning

• **E.L. Thorndike** (1874 – 1949)
  – Law of effect: consequences shape behavior

• **Wolpe (1915-1990s)** and the beginnings of behavioral treatments: systematic desensitization

• **B.F. Skinner** (1904 - 1990)
  – Behavior “operates” on environment
    • **Operant conditioning**
    – Reinforcements
    – Punishments
  – Behavior “shaping”
The Behavioral Model

- Behaviorism
  - John B. Watson (1878 - 1958)
    - Scientific emphasis: “psychology can be just as scientific as physiology”
    - Objective
    - Radical empiricism

  - All of Watson’s exclamations were due to his belief that children should be treated as a young adult.

  - In his book, he warns against the inevitable dangers of a mother providing too much love and affection. Watson explains that love, along with everything else in the world, is conditioned.

  - Watson supports his warnings by mentioning invalidism, saying that society does not overly comfort children as they become young adults in the real world, so parents should not set up these unrealistic expectations.

  - Further emphasizing nurture, Watson said that nothing is instinctual; rather everything is built into a child through the interaction with their environment. Parents therefore hold complete responsibility since they choose what environment to allow their child to develop in.
The Behavioral Model

Lasting Outcome of Behaviorism: Psychology and Science became empirical and translational
Cognitive Influences

• The fall of behaviorism and rise of cognitive neuroscience...
Clinical Assessment and Diagnosis
Assessing Psychological Disorders

• Purpose
  – Understanding the individual
  – Predicting behavior
  – Treatment planning
  – Evaluating outcomes

• Funnel Analogy
  – Broad, multidimensional start
  – Narrows to specific problems
Assessing Psychological Disorders

• Clinical Assessment
  – Systematic evaluation and measurement
    • Psychological
    • Biological
    • Social

• Diagnosis
  – Degree of fit between symptoms and diagnostic criteria
Key Concepts in Assessment

• **Reliability**
  – Measurement consistency
  – “Agreement”
  – Several types:
    • **Test-retest**
    • **Inter-rater**
Key Concepts in Assessment

• **Validity**
  – Does the test measure what it’s supposed to?
  – Several types:
    • **Concurrent and discriminant**
    • **construct**
    • **predictive**
    • **face validity**
Key Concepts in Assessment

• **Standardization**
  – Consistent use of techniques
  – Provides normative population data

  – **Examples**
    • Administration procedures
      – Chunking
    • Scoring
    • Evaluation of data
The Clinical Interview

• Clinical Interview
  – Clinical core
  – Structured/Unstructured
  – Assesses multiple domains
    • Current and past behavior
    • Attitudes
    • Emotions
    • Detailed history
    • Presenting problem
### Mental Status Exam

<table>
<thead>
<tr>
<th>Mental status exam</th>
<th>Frank</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Appearance and behavior</td>
<td>• Persistent twitch</td>
</tr>
<tr>
<td>• Overt behavior</td>
<td>• Appearance appropriate</td>
</tr>
<tr>
<td>• Attire</td>
<td></td>
</tr>
<tr>
<td>• Appearance, posture, expressions</td>
<td></td>
</tr>
<tr>
<td>2. Thought processes</td>
<td>• Flow and content of speech reasonable</td>
</tr>
<tr>
<td>• Rate of speech</td>
<td></td>
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<tr>
<td>• Continuity of speech</td>
<td></td>
</tr>
<tr>
<td>• Content of speech</td>
<td></td>
</tr>
<tr>
<td>3. Mood and affect</td>
<td>• Anxious mood</td>
</tr>
<tr>
<td>• Predominant feeling state of the individual</td>
<td>• Affect appropriate</td>
</tr>
<tr>
<td>• Feeling state accompanying what individual says</td>
<td></td>
</tr>
<tr>
<td>4. Intellectual functioning</td>
<td>• Intelligence within normal limits</td>
</tr>
<tr>
<td>• Type of vocabulary</td>
<td></td>
</tr>
<tr>
<td>• Use of abstractions and metaphors</td>
<td></td>
</tr>
<tr>
<td>5. Sensorium</td>
<td>• Oriented times three</td>
</tr>
<tr>
<td>• Awareness of surroundings in terms of person (self and clinician), time, and place—“oriented times three”</td>
<td></td>
</tr>
</tbody>
</table>

Subsequent focus: Possible existence of disorder characterized by intrusive, unwanted thoughts and resistance to them.
The Clinical Interview

- Pineal case!
- Physical Examinations
  - Diagnose or rule out physical etiologies
    - Toxicities
    - Medication side effects
    - Allergic reactions
    - Metabolic conditions
### Psychosis Associated with Medical Diseases

**Epilepsy**
- Head trauma (history of)

**Dementia**
- Alzheimer’s disease
- Pick’s disease
- Lewy body disease

**Stroke** (only rarely associated with psychosis)
- Space-occupying lesions and structural brain abnormalities
  - Primary brain tumors
  - Secondary brain metastases
  - Brain abscesses and cysts
  - Tubrous sclerosis
- Midline abnormalities (e.g., corpus callosum agenesis, cavum septi pellucidi)
- Cerebrovascular malformations (e.g., involving the temporal lobe)

**Hydrocephalus**
- Demyelinating diseases
  - Multiple sclerosis (not typically associated with psychosis)
  - Leukodystrophies (metachromatic leukodystrophy, X-linked adrenoleukodystrophy, Marchesani-Bignami disease)

**Neuropsychiatric diseases**
- Schilder’s disease
- Huntington’s disease
- Wilson’s disease
- Parkinson’s disease (not typically associated with psychosis unless treated)
- Familial basal ganglia calcification
- Friedreich’s ataxia

**Autoimmune diseases**
- Systemic lupus erythematosus
- Rheumatic fever (history of)
- Paraneoplastic syndrome
- Myasthenia gravis

**Infections**
- Viral encephalitis (e.g., herpes simplex, measles [including subacute sclerosing panencephalitis], cytomegalovirus, rubella, Epstein-Barr, varicella)
- Neuromyelitis
- Neuroborreliosis (Lyme disease)
- HIV infection or AIDS
- CNS-invasive parasitic infections (e.g., cerebral malaria, toxoplasmosis, neurocysticercosis)

**Tuberculosis**
- Sarcoidosis
- Cryptococcosis infection
- Pneumocystis (e.g., Pneumocystis-Jiroveci disease)

**Endocrinopathies**
- Hypothyroidism
- Addison’s disease
- Cushing’s syndrome
- Hyper- and hyperthyroidism
- Hyper- and hyperparathyroidism

**Hypopituitarism**
- Narcolepsy

**Nutritional deficiencies**
- Magnesium deficiency
- Vitamin A deficiency
- Vitamin D deficiency
- Zinc deficiency
- Niacin deficiency (pellagra)
- Vitamin B12 deficiency (pernicious anemia)

**Metabolic diseases (partial list)**
- Amino acid metabolism (Hartnup disease, homocystinuria, phenylketonuria)
- Porphyrias (acute intermittent porphyria, porphyria variegata, hereditary coproporphyria)
- GM 2 gangliosidosis
- Fabry’s disease
- Niemann-Pick type C disease
- Gaucher’s disease, adult type
- Chronic abnormalities
- Sex chromosomes (Klinefelter’s syndrome, XXX syndrome)
- Fragile X syndrome
- Velocardiofacial syndrome

Sources: Coleman & Gillberg (1996), Coleman & Gillberg (1997), Goff et al. (2004), and Hyde & Lewis (2002).
Psychological Testing

• **Projective Tests**
  – Presentation of ambiguous stimuli
  – Projection of personality and the unconscious
  – Psychoanalytic roots

– Examples
  • **Rorschach Inkblot Test**
  • **Thematic Apperception Test**
    – Show Cards!
Rorschach Test

Bring Cards!
Psychological Testing

• Projective Tests
  – Criticisms and controversies
    • Scoring and interpretation
    • Reliability and validity
  – Strengths
    • Qualitative data
    • “Icebreakers”
    • Standardization efforts
• **Personality Inventories**
  – Face vs. construct validity
  – Empirically-based

  – **Paul Meehl**, “If people with certain disorders tend to answer a variety of questions in a certain way (as a group), this pattern may predict who else has this disorder. The content of the questions becomes irrelevant”.

  – Minimally ambiguous stimuli
  – Minimal inference
    • Scoring
    • Interpretation
Psychological Testing

• Minnesota Multiphasic Personality Inventory
  – 567 items (MMPI-2)
  – True/false responses
  – Adolescent version
  – Extensive normative data
    • Reliability and validity

  – Interpretation
    • Individual scales
    • Profiles
    • Lie (L)
    • Infrequency (F)
    • Defensiveness (K)
1. I like mechanics magazines
2. I have a good appetite
3. I wake up fresh & rested most mornings
4. I think I would like the work of a librarian
5. I am easily awakened by noise
6. I like to read newspaper articles on crime
7. My hands and feet are usually warm enough
8. My daily life is full of things that keep me interested
9. I am about as able to work as I ever was
10. There seems to be a lump in my throat much of the time
11. A person should try to understand his dreams and be guided by or take warning from them
12. I enjoy detective or mystery stories
13. I work under a great deal of tension
14. I have diarrhea once a month or more
15. Once in a while I think of things too bad to talk about
16. I am sure I get a raw deal from life
17. My father was a good man
18. I am very seldom troubled by constipation
19. When I take a new, I like to be tipped off on whom should be gotten next to
20. My sex life is satisfactory
21. At times I have very much wanted to leave home
22. At times I have fits of laughing & crying that I cannot control
23. I am troubled by attacks of nausea and vomiting
24. No one seems to understand me
25. I would like to be a singer
26. I feel that it is certainly best to keep my mouth shut when I’m in trouble
27. Evil spirits possess me at times
28. When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing.
29. I am bothered by acid stomach several times a week
30. At times I feel like swearing
31. I have nightmares every few nights
32. I find it hard to keep my mind on a task or job
33. I have had very peculiar and strange experiences
34. I have a cough most of the time
35. If people had not had it in for me I would have been much more successful
36. I seldom worry about my health
37. I have never been in trouble because of my sex behavior
38. During one period when I was a youngster I engaged in petty thievery
39. At times I feel like smashing things
A 3-1 “V” Pattern
• Misuse of MMPI
  – Jobs
  – Graduate school admissions
Assessment: Intelligence Testing

• Initial purpose: academic prediction

• **Intelligence quotient ("IQ")**
  – Mental vs. chronological age
  – Deviation IQ

• **Domains**
  – Verbal
  – Performance

• IQ versus intelligence

• **Definition of learning disability**
Psychological Testing and Neuropsychology

• Neuropsychological tests assess
  – Broad base of skills and abilities
  – Brain-behavior relations
  – Assets and deficits

• Methods
  – Fixed versus flexible

• Concerns
  – False Positives
  – False Negatives
Neuroimaging: Pictures of the Brain

- Images of Brain Structure
  - Computerized axial tomography (CAT/CT)
    - X-rays of brain
    - Pictures in slices
  - Magnetic resonance imaging (MRI)
    - Strong magnetic field
    - Improved resolution

- Utility: locating tumors, injuries, structural or anatomical abnormalities
Neuroimaging: Images of Brain Function

- **PET and SPECT**
  - Injection of radioactive isotopes
  - React with brain oxygen, blood, and glucose
  - Reveal metabolic deficiencies
  - Limitations (e.g., pediatrics), $$
Neuroimaging: Images of Brain Function

• Diffusion Tensor Imaging (DTI)
• Functional MRI (fMRI)
  – Brief changes in brain activity
Neuroimaging

• Differences between actually being able to diagnose vs. using imaging in a research context

• Advantages and Limitations
  – Yield detailed information
  – Expense
  – Lack adequate norms
  – Limited clinical utility
  – Taking advantage of desperate people
• What are the differences between MRI, DTI, CAT, and PET?
• What are the strengths and limitations of these tools?
Assessing Psychological Disorders

• Psychophysiological Assessment
  – Emotional or psychological events reflected by changes in the nervous system

• Eye tracking

• Electroencephalogram: EEG
  – Brain wave activity
  – Alpha and delta waves
  • Ex. Nocturnal panic attacks
  • Event Related Potential
    – Short eeg focusing on a Pts reaction to a stimulus
Psychophysiological Assessment

- Other bodily responses
  - Cardiorespiratory
    - Heart rate and respiration
  - Electrodermal
    - Galvanic skin response
  - Electromyography
    - Muscle tension
Ethics

• Sterilization

• Abortion

• Scanning anomalies

• Heredity forces us to be worried about disorders even if we do not want to know— even if we don’t get tested, if our relatives have a disorder, we have to confront the possibility it may be present in us

• 23 and me (monetization and mainstreaming of genetic testing).
  – New baby
  – FDA says its not tested

• How safe is your genetic information?
  – Facebook study (Elrich et al., 2013)
  – Art Study
Good and Bad Things About the 
Diagnostic and Statistical Manual of Mental Disorders
The dangers of a diagnostic system

During the repressive 1950's, Dr. Evelyn Hooker undertook groundbreaking research that led to a radical discovery: homosexuals were not, by definition, "sick." Dr. Hooker's finding sent shock waves through the psychiatric community and culminated in a major victory for gay rights - in 1974 the weight of her studies, along with gay activism, forced the American Psychiatric Association to remove homosexuality from its official manual of mental disorders.
Diagnosis **categorical** *vs.* **dimensional** *vs.* **prototypical**.

- **Classical (or pure) categorical approach** - assumes that each disorder is unique (i.e., different) with its own unique underlying pathophysiological cause. Only one set of criteria is needed for a given disorder and all must meet all of the criteria to receive a diagnosis. Common in medicine, but not in psychopathology.

- **Dimensional approach** - places symptoms on several dimensional ratings; a view that is problematic when theorists cannot agree on the number and types of required dimensions.

- **Prototypical approach** - categorical approach that combines features of the other approaches. Identifies essential features of a psychological disorder so that it can be classified, but allows for nonessential variations that do not necessarily change the classification (e.g., there are several ways one could meet criteria for major depression or panic disorder, but still get the diagnosis). The **DSM-IV-TR** is based on this approach.

The **DSM-IV-TR** is based on this approach.
Qualities of a good diagnostic system

• Inter-rater reliability

• Validity:
  – Construct validity
  – Predictive validity (sometimes called criterion validity)
DSM-IV

• 60 new diagnoses (nearly 400 total!)
• well-specified diagnostic criteria
• Five clinical axes used to describe a person
  I. Clinical Disorder
  II. Personality Disorders and Mental Retardation
  III. General Medical Conditions
  IV. Psychosocial / environmental problems
  V. Global Assessment of Functioning
• Improved reliability and validity
• 5 continuing criticisms
Criteria for Major Depressive Episode

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either
   (1) depressed mood or
   (2) loss of interest or pleasure.

   Note: Do not include symptoms that are clearly due to a general medical condition, or mood-incongruent delusions or hallucinations.

   (1) depressed mood most of the day, nearly every day, as indicated by either subjective report (e.g., feels sad or empty) or observation made by others (e.g., appears tearful). Note: In children and adolescents, can be irritable mood.
   (2) markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by either subjective account or observation made by others)
   (3) significant weight loss when not dieting or weight gain (e.g., a change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. Note: In children, consider failure to make expected weight gains.
   (4) Insomnia or Hypersomnia nearly every day
   (5) psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down)
   (6) fatigue or loss of energy nearly every day
   (7) feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)
   (8) diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others)
   (9) recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide

B. The symptoms do not meet criteria for a Mixed Episode (see p. 335).

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition (e.g., hypothyroidism).

E. The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor
Critique #1: Heterogeneity within each diagnosis

DSM-IV Criteria for Conduct Disorder: 3 or more of the following in the last twelve months.

1. Bullies, threatens, or intimidates others.
2. Initiates physical fights.
3. Used a weapon that could cause serious physical harm.
4. Has been physically cruel to people.
5. Has been physically cruel to animals.
6. Stolen while confronting victim.
7. Forced someone into sexual activity.
8. Deliberately engaged in fire setting.
9. Deliberately destroyed others’ property.
10. Has broken into someone else’s house, building, or car.
11. Often lies to obtain goods or favors.
12. Has stolen items of nontrivial value.
13. Often stays out at night despite parental prohibitions.
14. Has run away from home overnight.
15. Is often truant from school.
Five Different Children with CD
Child 1, Child 2, Child 3, Child 4, Child 5

Example: DSM-IV Criteria for Conduct Disorder: 3 or more of the following in the last twelve months.

1. Bullies, threatens, or intimidates others.
2. Initiates physical fights.
3. Used a weapon that could cause serious physical harm to others.
4. Has been physically cruel to people.
5. Has been physically cruel to animals.
6. Stolen while confronting victim.
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11. Often lies to obtain goods or favors.
12. Has stolen items of nontrivial value.
13. Often stays out at night despite parental prohibitions.
14. Has run away from home overnight.
15. Is often truant from school.
Critique #2
Symptom Overlap Between Disorders

Symptoms of ADHD
Talks excessively
Easily distracted
Often “on the go” or acts as if “driven by a motor”
Engages in dangerous activities without considering potential consequences

Symptoms of Mania
More talkative than usual or pressure to keep talking
Distractibility
Increased goal-directed activity or psychomotor agitation
Excessive involvement in pleasurable activities that have potential for painful consequences
Critique #3: High Rates of Comorbidity

- Borderline Personality (Widiger et al., 1993)
- ADHD (Willcutt et al., 1999)
- Depression (Newman et al., 1998)
- Panic Disorder (Newman et al., 1998)
- Psychosis (Newman et al., 1998)

Legend:
- "Pure" Disorder
- 1+ comorbid diagnoses
Critique #4:
DSM-IV diagnoses are assumed to be categorical

Categorical model:
- Dichotomous yes/no diagnosis
- Major Depression vs. not depressed

Dimensional model:
- Individual differences without diagnostic categories
- More vs. less depressed
Individuals with 4 or more positive symptoms receive the diagnosis of “Generalized Anxiety Disorder”.
Pros and Cons of the Dimensional Model

Positive Aspects
• Probably the way the world works
• Uses all available information about a person
• Better description of each individual

Drawbacks
• Many practical decisions are categorical
  ▪ Therapy
  ▪ Medication
  ▪ Insurance
• Less user friendly
Pros and Cons of the Categorical Model

**Positive Aspects**
- Clearly defined diagnoses
- Easy to remember
- Easy to think about
- Useful for many real-life decisions

**Drawbacks**
- Lose information
- Less reliable
- Labeling
Pros and Cons of Diagnostic Labels

**Drawbacks**
- Most labels have negative connotations
- May lose sense of individual
  - Autistic vs. person with symptoms of autism
- Self-fulfilling prophecy
  - Influence behavior
  - Influence opinion of others

**Benefits**
- Makes communication easier
- Gives name to condition that is leading to distress
- Support from others with similar difficulties
Critique #5: Vague, non-specific criteria in Histrionic Personality Disorder

• A pervasive pattern of excessive emotionality and attention seeking, beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

• (1) is uncomfortable in situations in which he or she is not the center of attention

• (2) interaction with others is often characterized by inappropriate sexually seductive or provocative behavior

• (3) displays rapidly shifting and shallow expression of emotions

• (4) consistently uses physical appearance to draw attention to self

• (5) has a style of speech that is excessively impressionistic and lacking in detail

• (6) shows self-dramatization, theatricality, and exaggerated expression of emotion

• (7) is suggestible, i.e., easily influenced by others or circumstances

• (8) considers relationships to be more intimate than they actually are
• With the exception of knowing that the Axis System has been removed the following information about DSM V is not necessary for the test—its just to provide more information for those of you who are curious.
DSM V

- We will present disorders with DSM V criteria (very similar to DSM IV) and highlight any changes between the new version and the old when this is useful for understanding a disorder or highlighting changing conceptions. The purpose of this class is to focus on disorders and not get caught up in the manuals.

- Three Sections:
  - 1) How to use it
  - 2) The disorders
  - 3) Misc.
    - dimensional scales, global functioning, culture, and disorders that will be in DSM VI maybe (e.g., persistent complex bereavement disorder)
• DSM IV had a large number of narrow diagnostic categories (to promote reliable assessment) and this led to comorbidity and “not otherwise specified” (NOS) being the rule rather than the exception.

• Solutions:
  – added more specifiers (e.g., in early remission, in full remission; how severe) and provided two new categories for previous NOS:
    • other specified disorder (now with a list of possibilities). This is tailored to each disorder (e.g., other specified obsessive-compulsive and related disorder)
    • unspecified.
  – Also added an experimental dimensional system (later)
  – Added a new section entitled “other conditions that may be a focus of clinical attention” at the end of section 2 to cover conditions that may be a focus of clinical attention or otherwise affect diagnosis, course, prognosis, treatment etc. These used to be lumped into NOS or adjustment. **They are technically not mental disorders**

• The goal of revising minor points and adding the ability for clinicians to add more details to each disorder was to make the categories less narrow but still reliable.- it’s a balancing act.
• DSM IV treated culture and gender in a clunky fashion

• Solutions:
  – new section 3 attention to rating this in greater detail and more systematically
    • Cultural syndrome
    • Cultural idiom of distress
    • Cultural explanation of perceived cause
  – Attention to gender on multiple levels
    • Specific symptoms have been added to various pertinent classifications,
    • Specifiers -perinatal onset of mood episode-
    • Disorders such as PMDD
    • A new gender related diagnostic issues section.

• For this class we will address gender as it pertains to each of the individual disorders.
• DSM IV considered each diagnosis as categorically separate from health and from other diagnoses (the multi axis system) and missed the widespread sharing of symptoms and risk factors across many disorders that is apparent in real life. Axis 4 was rarely used and Axis 5 had questionable validity and reliability (or utility).

• There was a poor separation between disorders and disability and this has been a long-term goal of APA for several editions.

• Solution:
  – Combine Axes 1-3 so that each disorder had relevant information tied to it specifically rather than a more global approach (provide example of Axes).
  – Use ICD-9-CM V and new Z ICD-10 Z codes to cover related psychosocial and environmental problems (previous Axis IV) (contained in “Other conditioned That May be a Focus of Clinical Attention” at the end of section 2).
  – Use the World Health Organization Disability Assessment Schedule (WHODAS) instead (section 3).
• DSM IV had issues with categorization

• However, a pure dimensional approach was not practical (APA decided at the very very last minute!)

• Solution:
  – An experimental (section 3) non-diagnostic measure “Cross-Cutting Symptom Measures” that rates various problems such as anxiety across disorders: for the purposes of Abnormal, we will ignore this.
  
  – put in more dimensional specifier and ratings throughout the disorders (tailored to each disorder)
  
  – For personality disorders (PDs), which had the most complaints about dimensions, they also added a special dimensional section in section 3 (to supplement what is in the main section 2).