Outline

- Diagnostic References (DSM vs. ICD)
- What is a Mental Disorder?
  - What makes it Clinically Significant?
  - Atypical Diagnoses (Not Otherwise Specified)
- Factors in Determining Causation
  - Pre-existing mental disorder
  - Medication side effects
  - Physiological effects of medical conditions
  - Malingering
  - Stressors not directly caused by injury
- Avoidance & non-compliance with treatment
- Alcohol & substance abuse
- Elements of a Good Disability Exam.
Outline

- Why use a test?
  - Advantages of Psychological Tests
- How do tests measure impairment severity?
  - What psychological test scores mean
  - How test scores distinguish normal distress from clinically significant symptoms
- What is a “good” test?
  - Reliability, Validity, and their relationship
- What is a Base Rate and why does it matter?
  - Base rates for
    - Mental Disorders
    - Medical Disorders
    - Malingering
    - Mental Disorders in Workers’ Comp. cases

Outline

- How Base Rates affect the probability of correct results
  - Positive & Negative Predictive Values
  - Sensitivity
  - Specificity
- How tests can be used to determine the cause(s) of a mental disorder
  - Use of tests with other sources of data
  - Measures of symptom distortion
  - How tests can tell if depression and anxiety are due to pain and functional limitations, or other stressors
  - How tests can tell if impairment is caused by cognitive problems, substance abuse, or PTSD
- Questionable and good testing practices
Outline

• AMA Guides to the Evaluation of Permanent Impairment
  • Areas of functioning evaluated
  • Levels of impairment (5 Classes)
  • Customary percentages assigned at each level
• The difference between impairment and disability
• Signs of feigned psychopathology
• Signs of feigned cognitive impairment
• Distinguishing malingering form defensiveness & irrelevant responding
• Empirically based techniques for detecting malingering

Diagnostic References for Mental Disorders

• *Diagnostic & Statistical Manual of Mental Disorders*, of the American psychiatric association (DSM-IV-TR & DSM-5)
What is a Mental Disorder?

• Ordinary Distress vs. Mental Disorder
  • Disruption of psychological functions:
    • Cognition
    • Emotion
    • Behavior
  • Clinically Significant symptoms – require treatment
  • If symptoms don’t match the criteria, then they are a normal reaction to a stressor
    • They may still be Clinically Significant

Atypical Diagnoses

• Diagnoses that are applied when symptoms do not match specific criteria:
  • Not Otherwise Specified
  • Unspecified
  • Other Specified
  • Symptoms are below the threshold for the diagnosis
  • There is significant distress or impairment
  • Uncertainty about the etiology
  • There is insufficient information
Factors in Determining Causation

- **Pre-existing Mental Disorder typically related to:**
  - Death
  - Divorce
  - Domestic violence
  - Marital & family problems
  - Previous injury or illness
  - Other traumatic events

Factors in Determining Causation

- Signs of Pre-existing Mental Disorder in medical records
  - Prescriptions for psychiatric medications
  - Presentation of psychiatric symptoms
  - Chronic mental disorders that begin early in life or are biologically caused:
    - Bipolar disorder
    - Major depressive disorder, recurrent
    - Schizophrenia
    - Attention deficit hyperactivity disorder (ADHD)
    - Eating disorders
    - Paraphilia's (Sexual perversions)
Factors in Determining Causation

**Medication side effects:**
- Hormones & corticosteroids: depression & psychosis
- Stimulants: anxiety & sleep disturbance
- Depressants: depression
- Anti-psychotics: anxiety
- Anti-anxiety: depression and fatigue
- Interactions, over and under - medication

Factors in Determining Causation

**Physiological Effects of Medical Conditions**
- Thyroid problems: depression & anxiety
- Unrelated injury or pain
- Cancer
- Organic brain syndrome & nervous disease (i.e., Stroke, Alzheimer’s, etc.)
- Toxic exposure
- Sleep apnea: Depression & cognitive impairment
- Uncontrolled Diabetes: Depression & anxiety
Factors in Determining Causation

• **Physiological Effects of Medical Conditions**
  • Heart disease: Depression
  • Liver disease: Depression
  • Flu and other infectious diseases: Depression
  • Pre-menstrual syndrome: Depression & anxiety
  • Menopause: Depression & anxiety
  • Allergies

Factors in Determining Causation

• **Malingering**
• **Stressors not directly related to injury:**
  • Termination of employment
  • Termination of benefits for physical injury
  • Litigation events (i.e. hearings, depositions, mediations, court conferences)
  • Conflicts with employers, claim reps. Family
  • Deaths
  • Divorce
  • **Time of onset (i.e. Immediate vs. delayed)**
Factors in Determining Causation

- **Avoidance and/or Non-compliance with treatment**
- **Can be caused by:**
  - Reluctance to deal with emotional pain
    - Post Traumatic Stress Disorder (PTSD)
    - Sexual harassment and assault
    - Discrimination
  - Cultural beliefs and stigma about mental health treatment
  - Financial limitations and lack of community resources

Factors to Consider in Causation

- **Alcohol & Substance Abuse**
  - Directly caused and/or aggravated by physiological effects of alcohol & substance abuse
  - Indirectly caused by legal, medical, family or marital problems due to alcohol & substance abuse
Elements of a Good Disability Exam.

- Interview should be structured
- Medical Tx of injury
- Work Hx following injury
  - Vocational rehabilitation
- Benefit Hx following injury
  - Financial problems

Elements of a Good Disability Exam.

- Pain Assessment
  - Ratings (including highest tolerable level)
  - Impairments due to pain
- Psychological symptoms
  - Treatment Hx
- Onset of psychological symptoms
- Unrelated stressors
Elements of a Good Disability Exam.

- Medical history
  - Psychiatric history
  - Substance abuse history
- Family history
- Personal & sexual history
- Education & work history
- Daily Activities (Big Four)
  - Self care
  - Household chores
  - Social activity
  - Hobbies & interests

Elements of a Good Disability Exam.

- Mental Status Examination
  - Appearance & behavior
  - Cooperation & pain behavior
  - Symptoms of depression & anxiety
  - Symptoms of trauma
  - Symptoms of psychosis
  - Malingering screening questions
  - Screening of cognitive functioning
Why use a test at all?

Advantages of Psychological Testing

Advantages of Psychological Tests

- They are objective - Standardized administration and scoring limits influence of examiner on subject
- 10 to 50% more accurate than clinical interview
  - Mental Health professionals, as well as law enforcement officers, do no better than chance at detecting lying from behavioral cues
- Just as accurate as medical tests
- More comprehensive and efficient
- Cost effective
Advantages of Psychological Tests

- Measure multiple personality and cognitive symptoms simultaneously
- Provide quantifiable measurement of symptoms
- Norming provides a common reference point of comparison
- Can have validity measures to gauge the accuracy of a subject’s reporting
- Batteries of tests can be used to verify each others results
- Have known rates of accuracy and error which can be statistically calculated

How do psychological tests measure impairment?

Distinguishing normal distress from real psychopathology (It’s done with statistics!)
There are three types of lies: Lies..., Damn Lies..., and Statistics!

Benjamin Disraeli, First Prime Minister of the Conservative Party

Facts are stubborn things, but statistics are pliable!

Mark Twain, Author

What is a Psychological Test?

- Standardized – The same items are administered to everyone in the same (or almost the same) way.
- Developed with representative samples of the population to be measured (The Norm)
- Scores are usually obtained by comparison to the average score (Mean) and Standard Deviation
  - Standard Deviation – Average distance each score is from the mean
  - 68.2% of all scores fall within 1 Standard Deviation from the mean (Between the 16th & 84th percentiles)
  - 95.4% of all scores fall within 2 Standard Deviations from the mean (Between the 2nd & 98th percentiles)
The Normal Distribution of Scores Around Any Given Mean

What Types of Scores are There?

• **Raw Score** – The tabulated number of positive responses

• **Percentile** – Percent of population that scored lower than a certain point (Most academic and achievement tests)

• **Standard Score** – Mean set at 100 and Standard Deviation set at 15 (Most cognitive measures, i.e. IQ)

• **T-Score** – Mean set at 50 and Standard Deviation set at 10 (Most measures of psychopathology)

• **Base Rate Score** – Median set at 60. Maximum score set at 115.
  - Scores of 75 to 84 indicate presence of trait
  - Scores 85 & over indicate persistence of trait.
  - Takes into account Base Rates of different mental disorders
What is Normal Distress?

**ANSWER:** Any score within 1 Standard Deviation of the average score for the population norm (Mean)

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Std. Score</th>
<th>T-Score</th>
<th>Base Rate Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>50%ile</td>
<td>100</td>
<td>50</td>
</tr>
<tr>
<td>Std. Dev.</td>
<td>34%</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>1 Std. Dev. Above</td>
<td>84%ile</td>
<td>115</td>
<td>60</td>
</tr>
<tr>
<td>1 Std. Dev. Below</td>
<td>16%ile</td>
<td>85</td>
<td>40</td>
</tr>
</tbody>
</table>

*Base Rate Scores below 75 are considered normal*

What is Abnormal Distress?

**Cut-Off Scores** – A score level usually set around 1 Std. Dev. from the mean.

*Designed to minimize false-positives & false negatives*

**ANSWER:** Scores that exceed the Cut-Off Score are objective evidence of abnormality and impairment

*Scores that don’t exceed the Cut-Off score are objective evidence of normal distress associated with any injury*

*The further the score exceeds the Cut-Off score, the more severe will be the symptom severity and impairment*

*PTD cases should be 1.5-2 Std. Dev. from mean to approach base rates of PTD in most claims.*
The Relationship of Scores to Severity of Symptoms & Impairment

<table>
<thead>
<tr>
<th>Standard Deviation (Z-score)</th>
<th>T-Score</th>
<th>Percentile</th>
<th>Percentile Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>84</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>70</td>
<td>98</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>80</td>
<td>99.87</td>
<td>1.87</td>
</tr>
</tbody>
</table>

- There is not much difference in severity and impairment between the 2\textsuperscript{nd} and 3\textsuperscript{rd} Std. Deviations
- The difference between a T-Score of 60 and 70 is much greater than the difference between a T-Score of 70 and 80

Common Cut-Off Scores

- In general higher scores on tests of psychopathology indicate greater symptoms severity and impairment
- In general lower scores on tests of cognitive functioning indicate greater symptom severity and impairment
- Tests of Malingering set Cut-Off scores at 95\textsuperscript{th} percentile (About 2 std. deviations from the mean)
  - Minnesota Multiphasic Personality Inventory-2: T-score = 65
  - Personality Assessment Inventory: T-Score = 70
  - Millon Clinical Multiaxial Inventory-III: Base Rate Score of 75 = Presence, Base Rate Score of 85 = Persistence
  - Most tests of psychopathology: T-Score = 60-65
  - Most tests of cognitive functioning: Std. Score below 80-85
How do I know if a test is good?

Ways to measure the consistency and accuracy of test results

Reliability and Validity

- **Reliability** – The capacity of a test to give a consistent result under the same conditions
- **Validity** – How well the test measures what it is supposed to measure
What is the Relationship Between Reliability & Validity?

- A test is reliable if it gives the same answer, consistently, under the same conditions.
- A test is considered valid if it gives the right answer most of the time.

**ANSWER:** Validity depends upon reliability.

- You can’t know the right answer if you keep getting different results every time you give the test.
- Unfortunately, there is no perfect test but there are ways to measure reliability and validity.
- Tests with less than 70% consistency are considered unreliable (Reliability Coefficient > 0.70).
- Tests that give wrong results over 70% of the time are considered invalid (Validity Coefficient < 0.30).

What is a *Base Rate* & why does it matter?

*Hint:* The probability that a test result is correct depends on the Base Rate.
Concepts in Diagnostic Testing

The **Base Rate** is the percent of individuals with a particular characteristic in any given population.

Base Rate = 20% = 2 Depressed People in a Population of 10

![Population diagram]

The probability that a positive test result is correct is proportional to the Base Rate for what the test measures.

Real World Base Rates

- **Mental Disorders**
  - Adjustment Dis. = 5-50%
  - Alcohol Use Dis. = 8.5%
  - Major Depressive Dis. = 7%
  - Phobia = 7-9%
  - Som. Symptom Dis. = 5-7%
  - PTSD = 3.5%
  - Panic Disorder = 2-3%
  - Gen. Anx. Dis. = 0.4-3.6%
  - Dysthymic Dis. = 0.5%

- **Medical Disorders**
  - Low Back Pain = 80%
  - Tension Headaches = 60%
  - High Cholesterol = 39%
  - HBP = 28.6%
  - Chronic Pain = 11.5-55.2%
  - Diabetes = 8.3%
  - Asthma = 6.6%
  - Occ. Inj./Illness = 3.5%
  - Cancer = 1.8-2.2%
Base Rates for Mental Disorders in Workers’ Comp. & Chronic Conditions

- Incidence of psychological symptoms following injury ranges from 1 - 50%
- 15% of WC claims are for stress
  - 5,970 Temporarily Disabling Mental & Nervous Disorder occupational claims out of 1,181,290 Temporarily Disabling Claims
  - 2,880 of those claims arose in California
- Prevalence of Major Depressive Disorder for Chronic Conditions
  - Any chronic condition = 7%
  - Back problems = 9.8%
  - Emphysema = 10.1%
  - Cancer = 12.3%
  - Migraine headaches = 15.1%

Base Rates for Malingering

- Atypical psychological test results occur in 64% of PI cases and 47% of Workers’ Comp cases
- 2002 Member Survey of the American Board of Clinical Neuropsychology of 33,531 cases:
  - Personal Injury – 29%
  - Disability – 30%
  - Criminal – 19%
  - Medical Cases – 8%
  - Mild Head Injury – 39%
  - Fibromyalgia/Chronic Fatigue - 35%
  - Chronic Pain - 31%
  - Neurotoxic Exposure - 27%
  - Electrical Injury - 22%
Inferring Causation from Psychological Tests

• **Retrospective Validity** is rarely achieved
  
  • Positive test results, in and of themselves do not prove causation (i.e. False Memories)
  
  • Negative test results, in and of themselves, do not disprove causation
  
  • When base rates are low, the probability that a negative test result is correct (**Negative Predictive Value**) is greater than the probability that a positive test result is correct (**Positive Predictive Value**)
  
  • When base rates are high, the probability that a positive result is correct is greater than the probability that a negative result is correct.

Relationship of Accuracy to Probability of a Correct Result

• **Positive Predictive Value (PPV)** – The probability that someone with a positive test result is depressed

\[
\frac{\text{All Depressed Persons with a Positive Test Result}}{\text{All Persons with a Positive Test Result}}
\]
Relationship of Accuracy to Probability of a Correct Result

• **Negative Predictive Value (NPV)** – The probability that someone with a negative test result is not depressed.

\[
\frac{\text{All Non Depressed Persons with a Negative Test Result}}{\text{All Persons with a Negative Test Result}}
\]

Relationship of Accuracy to Probability of a Correct Result

• A highly sensitive test has few false negative results
  • Sensitivity = Percent of True Positive cases a test finds

• A highly specific test has few false positive results
  • Specificity = Percent of True Negatives cases a test finds

• As Sensitivity and Specificity increase, the probability of a correct result increases

• *How does the Base Rate affect the probability of a correct result?*
How can tests be used to determine the cause of a mental disorder?

Comparing test results with each other and with other sources of data to determine causation.
Psychological Tests Can’t Do it Alone

- Must be done in the context of other information
  - History
  - Nature of injury
  - Records (Medical, Work, Accident, Legal, etc.)
  - Other tests (Pain measures, Drug testing, CT & MRI scans, etc.)
  - Interviews with family, witnesses, coworkers, supervisors, etc.
  - Surveillance
  - Background checks
  - Testimony of subject and others
  - Consistence of data across sources

Psychological Tests Can Detect Symptom Distortion

- Validity measures
  - Tests with good validity measures:
    - MMPI-2
    - PAI
    - MCMI-III
  - Indicate accuracy of symptom reporting
    - Exaggeration & Fabrication
    - Minimization
    - Malingering

- Normal Test Results
  - Indicate that normal distress is being presented as psychopathology
Psychological Tests Can Measure Subjective Pain & Functional Impairment

- Specialized testing for pain and disability
  - Battery for Health Improvement -2
  - Brief Battery for Health Improvement-2
  - Have validity measures
  - Have separate scales for pain, functional impairment, depression, & anxiety
- Account for symptoms of depression that overlap with chronic pain
  - Impaired energy
  - Impaired concentration
  - Appetite disturbance
  - Sleep disturbance

Psychological Tests Can Determine if Impairment & Distress are Proportional to Subjective Pain

- Proportion of impairment measure to pain measure
  - If impairment much greater than pain, then it is either exaggerated or caused by other stressors
- Proportion of anxiety & depression measures to pain measure
  - If anxiety and depression are much greater than pain then they are either being exaggerated or caused by other stressors
- BBHI-2 & BHI-2 identify primary source of pain
  - Indicate if source of pain is consistent with allowed condition
Tests Can Differentiate Diagnoses

- Cognitive impairment measures
  - Support or refute symptom validity
  - Support presence or absence of brain injury
- Focal impairment more likely to be injury caused than global impairment, unless there was a systemic agent (i.e. poisoning)
- PTSD Measures
  - Trauma Symptom Inventory -2
  - Detailed Assessment of Posttraumatic Stress (DAPS)
  - Confirm or refute presence of PTSD
- Positive substance abuse measures
  - Substance Abuse Subtle Screening Inventory-3 (SASSI-3)
  - Indicate substance abuse as a possible cause of psych. symptoms

What are questionable ways to use tests?
What are good ways?

The Good, the Bad & the Ugly
Questionable Testing Practices in Disability Cases

- Using tests without validity measures
  - BDI-II - Beck Depression Inventory - II
  - Burns Depression Scale
  - Zung Self-Rating Depression Scale
- Using tests with high sensitivity to confirm other tests with high sensitivity
- Using tests of symptom validity to validate tests without validity measures
  - Word Memory Test
  - CARB - Computerized Assessment of Response Bias
  - TOMM - Test of Memory Malingering

Questionable Testing Practices in Disability Cases

- Over-reliance on computer-generated test interpretations
- Undue weight given to marginally significant results
- “Cherry-picking” – Disregarding results that contradict opinion
- Using tests with weak validity measures
  - SCL-90-R - Symptom Checklist 90 – Revised
  - P-3 - Pain Patient Profile
Questionable Testing Practices in Disability Cases

- Over-reliance on tests of Malingering
  - False-positive rates discounted
    - Structured Interview of Reported Symptoms (SIMS) has a higher false-positive rate in cases with severe mental illness
- Malingering can be confounded with:
  - Severe psychopathology
  - Lack of effort/cooperation with exam. process
  - Fatigue

Good Testing Practices in Disability Claims

- Use of tests with good validity measures (Recommended by BWC)
  - MMPI-2 - Minnesota Multiphasic Personality Inventory
  - Personality Assessment Inventory
  - MCMI-III - Millon Clinical Multiaxial Inventory – III
- Consideration of test results in context with base rates
- Consideration of test results in context of other information
Good Testing Practices in Disability Claims.

• Not placing much weight on marginally significant results
• Integrating contradictory results in formulation of opinion
• Use of additional specialized tests for different conditions
  • SASSI-3 Substance Abuse Screening Inventory – 3
  • TSI-2 – Trauma Symptoms Inventory - 2
  • BBHI-2 – Brief Battery for Health Improvement
  • Neuropsychological Tests

Good Testing Practices in Disability Claims.

• Use of appropriate norms (i.e. SCL-90-R)
  • Use of norms that are developed from the U.S. general population
  • Use of Malingering measures when Malingering is suspected
• Administration of tests under standard conditions
• Completion of tests in the examiner’s office
AMA Guides to the Evaluation of Permanent Impairment

- The Guides should be used in determining percentages of impairment/disability (Currently in Sixth Edition)
- Similar to the guidelines used by the Social Security Administration and other federal agencies such as the Veterans Administration

Areas of functioning that are evaluated in the 5th Edition:

- Activities of daily living (bathing, dressing, feeding, etc.)
- Social functioning
- Concentration, persistence and pace (intellect)
- Adaptation (executive functioning, judgment & stress tolerance)
Levels of Impairment

- **Class I:** No impairment
- **Class II:** Mild Impairment (compatible with *most* useful functioning)
- **Class III:** Moderate Impairment (compatible with *some* but not all useful functioning)
- **Class IV:** Marked Impairment (*significantly impede* useful functioning)
- **Class V:** Extreme Impairment (*precludes* useful functioning)

Customary Percentages of Impairment

- The Guides assign no percentages of impairment for psychiatric disorders. However, other sections and custom have suggested the following ranges:
  - **Mild impairment:** 0 - 14% (10-20%)*
  - **Moderate impairment:** 15 - 29% (25-50%)*
  - **Severe impairment:** 30 - 49% (55-75%)*
  - **Severe limitation of all daily functions:** 50 – 70% (>75%)*

*Industrial Commission of Oh. Percentages found in the 2nd Edition of the Guides
The Difference Between Disability & Impairment

- Disability vs. impairment: They are not the same:
- Impairment is a clinical/medical concept
- Disability is an administrative/legal concept
- Impairment must be related to work activities in order to determine disability (i.e. depression may disable an individual for one occupation but not another)

Malingering & Deception
Forms of Feigned Psychopathology

- Rare symptoms
- Indiscriminant symptom endorsement
- Over-endorsement of obvious symptoms
- Improbable symptoms
- Unusual symptom combinations
- Unusual number of symptoms with extreme severity
- Discrepancy between reported & observed symptoms
- Absence of any socially desirable responses
- Highly bizarre responses to neutral stimuli
- Reported symptoms following misconceptions or stereotypes about mental disorders

Feigned Cognitive Impairment

- Symptom validity testing: comparisons of forced choice performance to chance probability
- Performance consistency: similar success on items of comparable difficulty
- Performance curve: Increasing success with items of decreased difficulty
- Floor effect: failure on very simple items that most impaired persons get correct
- Magnitude of error: wrong answers that are atypical (gross errors)
- Memory deficits inconsistent with learning principles (i.e., better recall than recognition performance)
- Increased latency on feigned protocols
Defensiveness

- Highly desirable but rare human qualities
- Denial of common shortcomings & problems
- Many socially desirable responses
- Physiological markers inconsistent with denied behaviors (i.e. RIAH, PPG)

Irrelevant Responding

- Inconsistency in response to identical items
- Inconsistency in response to opposite or similar items
- Use of infrequent items unrelated to psychopathology
- Reaction time (too quick)
How to Spot Malingering

Telling Bonafide from Bogus

- Malingering and true mental disorder can co-exist
- Most malingerers experience genuine distress
- Don’t confuse genuineness of distress with genuineness of symptom presentation
- Augment interviews with standardized testing
- Incorporate bogus symptoms into traditional interview
- Estimate likelihood of malingering from external incentives and motivation exhibited
Telling Bonafide from Bogus

- Malingerers do not present more blatant than subtle symptoms. They present more blatant symptoms than expected in clinical populations
- Try to test limits by asking for details of feigned symptoms
- Try to ascertain the motive for deception

Telling Bonafide from Bogus

- Non-verbal cues are not well researched and not recommended
- Look for inconsistency:
  - Across time (different answers to identical questions at different times)
  - Across records and informants
  - Across subject’s statements
- Suspect sudden emergence of many sx’s
- Suspect sudden cessation of long-standing or severe symptoms
- PI cases typically are defensive about past and exaggerate or malinger the present
Questions & Discussion

References

- Patten, S., Long-Term Medical Conditions and Major Depression in the Canadian Population Can J. Psychiatry, 1999, 44, 151–157