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# PSYCHOLOGICAL HEALTH AND TESTING

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## OVERVIEW OF PSYCHOLOGICAL TESTING

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### A. Types of tests

1. Psychological tests are used to assess intelligence, achievement, personality, and psychopathology.
2. These tests are classified by the functional area evaluated.

### B. Individual versus group testing

1. Tests administered to one individual at a time allow careful observation and evaluation of that particular person; a test battery looks at functioning of an individual in a number of different functional areas.
  2. Tests given to a group of people simultaneously have the advantages of efficient administration, grading, and statistical analysis.
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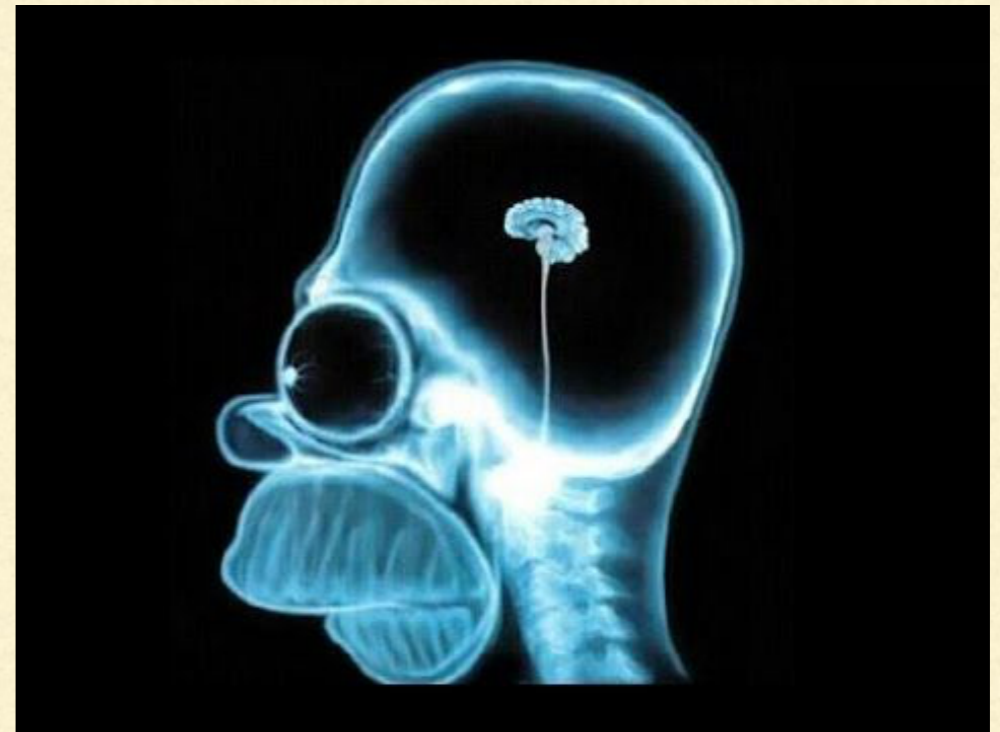


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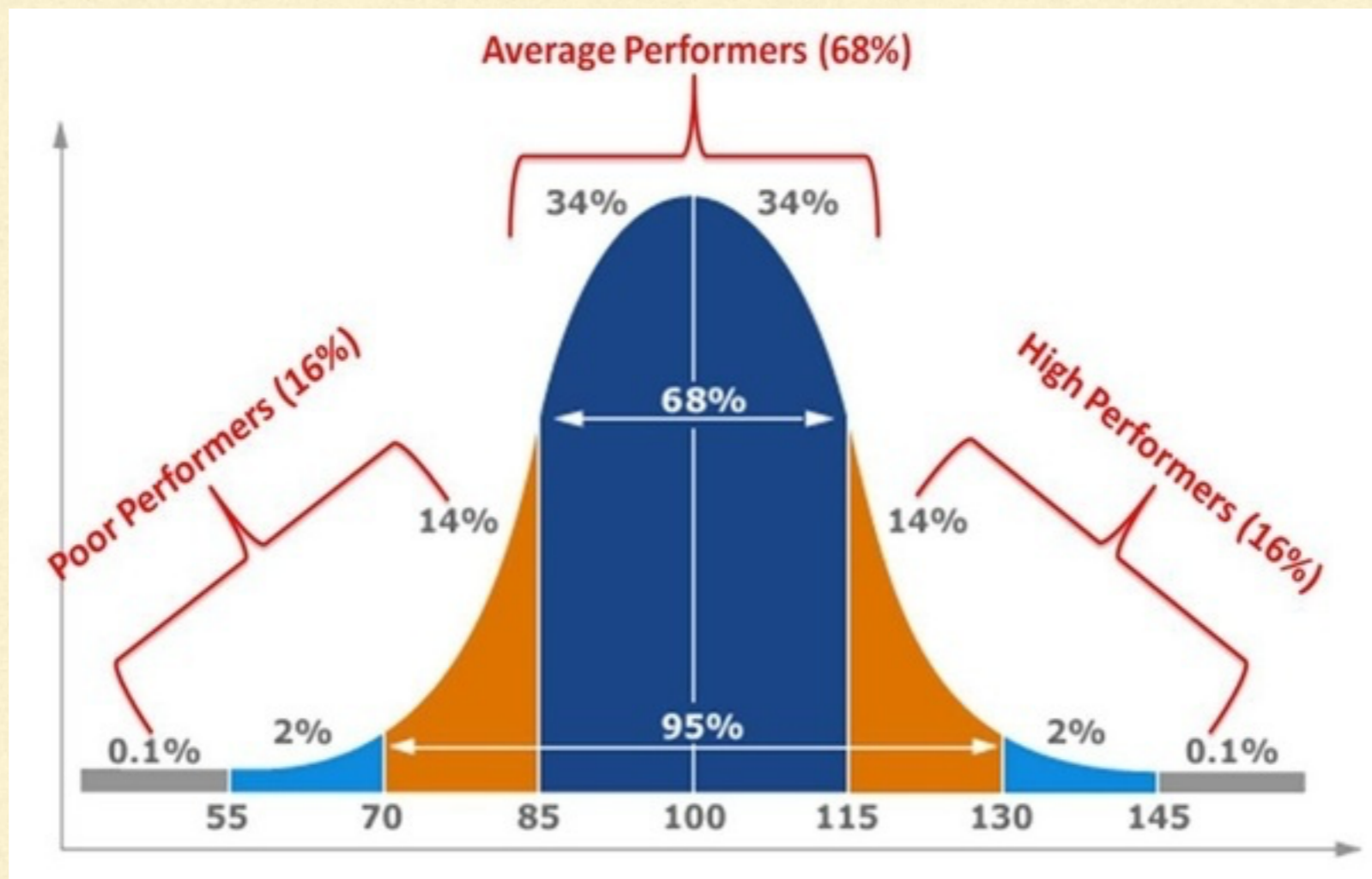
## INTELLIGENCE QUOTIENT (IQ)

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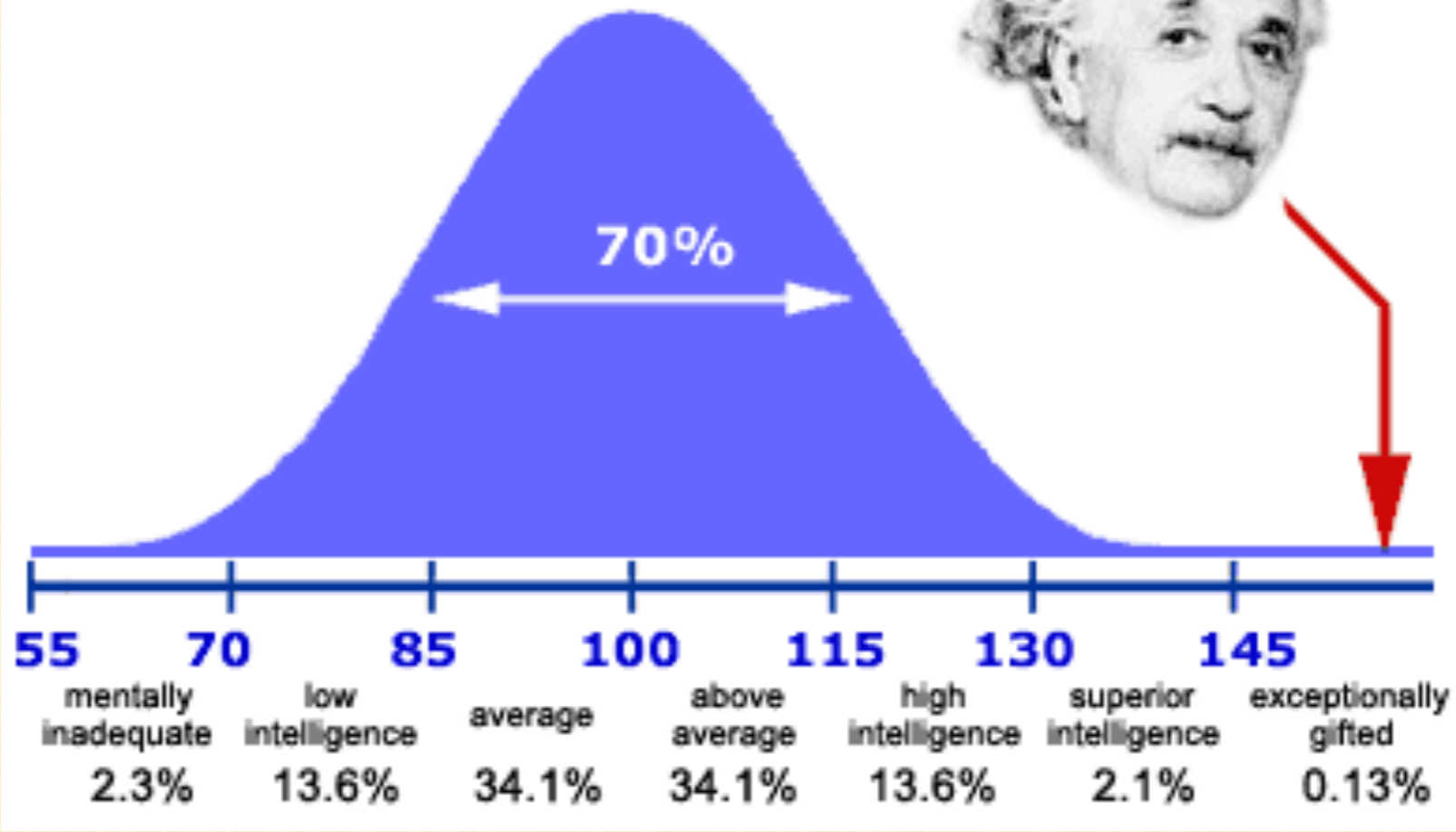
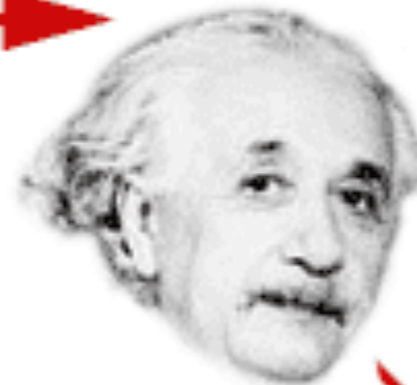
1. Definition: a general estimate of the functional capacities of the person
2. 70% inherited, recent studies suggest most from mother
3. IQ is not an absolute score but a comparison among people.
4. Distribution mean: 100; standard deviation: 15







**Einstein's IQ = 160+**  
**What about yours ?**





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# INTELLIGENCE TESTS

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## A. Intelligence and mental age

1. Intelligence is defined as the ability to understand abstract concepts; reason; assimilate, recall, analyze, and organize information; and meet the special needs of new situations.

2. **Mental age (MA)**, as defined by Alfred Binet, reflects a person's level of intellectual functioning.

**Chronological age (CA)** is the person's actual age in years.

## B. Intelligence quotient (IQ)

1. IQ is the ratio of MA to CA multiplied by 100 :  $MA/CA \times 100 = IQ$  . An **IQ** of **100** means that the person's mental and chronological ages are equivalent.
  2. IQ is determined to a large extent by genetics. However, **poor nutrition** and **illness during development** can negatively affect IQ.
  3. The results of IQ tests are influenced by a person's cultural background and emotional response to testing situations.
  4. IQ is relatively stable throughout life. In the absence of brain pathology, an individual's **IQ is essentially the same in old age as in childhood.**
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### Example

A child is tested and found to have a mental age of 12 years. The child's chronological age is 10 years. What is the IQ of this child?

**(A)** 40 **(B)** 60 **(C)** 80 **(D)** 100 **(E)** 120

**Using the IQ formula, the IQ of the child is  $12/10 \times 100 = 120$ .**

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# Normal Intelligence

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1. As stated in the previous slide, an IQ of 100 means that the MA and CA are approximately the same. Normal or average IQ is in the range of 90–109.
2. The standard deviation in IQ scores is 15. A person with an IQ that is more than two standard deviations below the mean (IQ < 70) is usually considered mentally retarded. Classifications of mental retardation (the overlap or gap in categories is related to differences in testing instruments) are :
  - a. Mild (IQ 50–70)
  - b. Moderate (IQ 35–50)
  - c. Severe (IQ 20–35)
  - d. Profound (IQ < 20)
3. A score between 71 and 84 indicates borderline intellectual functioning.
4. A person with an IQ more than two standard deviations above the mean (IQ > 130) has superior intelligence.

**Note that as CA goes up, if MA stays constant, IQ goes down.**

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## Normal Intelligence

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- a. IQ is highly correlated with education and is an excellent predictor of academic achievement.
  - b. Mental illness is distributed across all ranges of intelligence, although measured IQ may be lower when assessed because of interference of symptoms.
  - c. Longitudinal tests for intelligence show:
    - i. Very little decline in the elderly
    - ii. Verbal ability holds up best
    - iii. Perceptual and motor tests show some decline
  - d. IQ is very stable from age 5 onward.
  - e. Increased exposure to verbal behavior early in life leads to a higher IQ.
  - f. IQ tests contain elements of cultural bias, asking about words and objects more familiar in some cultures than in others.
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## Commonly used IQ tests

- a. Wechsler Adult Intelligence Scale, Revised (WAIS-R) is for **adults**, aged 17 and older.
  - b. Wechsler Intelligence Scale for Children, Revised (WISC-R) is for children aged 6 to 17.
  - c. Wechsler Preschool and Primary Scale of Intelligence (WPPSI) is for children aged 4 to 6.
  - d. Stanford-Binet Scale was the first formal IQ test (1905) and is used for children aged 2 to 18. Today, it is most useful with children younger than 6, the impaired, or the very bright.
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# The Wechsler intelligence tests and the Vineland Adaptive Behavior Scales

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1. The Wechsler Adult Intelligence Scale-Fourth Edition (**WAIS-IV**) is the most commonly used IQ test.
  2. The WAIS-R has four index scores: Verbal Comprehension Index (VCI), Working Memory Index (WMI), Perceptual Reasoning Index (PRI), and Processing Speed Index (PSI).
    - a. The VCI and WMI together make up the verbal IQ.
    - b. The PRI and PSI together make up the performance IQ.
    - c. The Full Scale IQ (FSIQ) is generated by all four index scores.
  3. The Wechsler Intelligence Scale for Children (WISC) is used to test intelligence in children 6– 16.5 years of age.
  4. The Wechsler Preschool and Primary Scale of Intelligence (WPPSI) is used to test intelligence in children 4– 6.5 years of age.
  5. The Vineland Adaptive Behavior Scales are used to evaluate skills for daily living (e.g., dressing, using the telephone) in people with mental retardation and other challenges (e.g., those with impaired vision or hearing).
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## Type A behavior pattern

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### **Type A behavior pattern (or the Coronary Prone Behavior Pattern)**

- A. The extreme Type A person is engaged in a chronic struggle to obtain an unlimited number of things from his environment in the shortest possible period of time.
  - B. Traits: impatient, competitive, preoccupied with deadlines, and highly involved with their jobs.
  - C. Recent data suggest that how people handle hostility is the key component of Type A behavior. People who get hostile and angry at everyday slights are more at risk.
  - D. One major prospective study has shown that the Type A behavior pattern is associated with a twofold increase in incidence of coronary heart disease, even after controlling for the major risk factors (systolic blood pressure, cigarette smoking, cholesterol).
  - E. Following a first heart attack, Type As who survived had a lower chance of a second attack than did Type Bs
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# PSYCHOLOGIC ADJUSTMENT AND PHYSICAL HEALTH

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1. A study of physically healthy men (Harvard sophomores between 1942 and 1944) followed for nearly 40 years showed that mentally healthy individuals do not deteriorate in physical health as quickly as do those in poor mental health. Chronic anxiety, depression, and emotional maladjustment predict negative health events later in life.
  2. Stressful life events: Holmes and Rahe scale used to quantify stressful life events
    - a. On this scale, different life events contribute different weightings to the total score.
    - b. The death of a spouse is weighed as the most stressful event .
    - c. Events with the highest scores require people to make the most social readjustment in their lives.
  - . The need for social readjustment is directly correlated with increased risk of medical and psychiatric illness; in studies by Holmes and Rahe, 80% of patients with a score of 300 points in a given year became ill during the next year.

The mortality rate is high for close relatives (especially widowed men) in the first year of **bereavement.**
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# PSYCHOLOGIC ADJUSTMENT AND PHYSICAL HEALTH

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## 3. Why individuals react differently to the same objective stressors

- a. The individual's appraisal of the meaning of the stressor
- b. Hardy personality type: clear sense of values, goals, and capabilities; an unshakable sense of the meaningfulness of life; and a strong sense of control over one's own fate
- c. Social support
  - i. Belief is more important than objective support.
  - ii. Having one significant person to turn to is key.
  - iii. Women use support more effectively than do men.
  - iv. Presence of a familiar person lowers blood pressure in a person under stress.
  - v. Widows and widowers have higher rates of heart attacks in the year just after a spouse dies.

## 4. Physiologic changes in response to stress

- a. Key stress response pathway: hypothalamic-pituitary-adrenal axis
  - b. Cortisol levels rise then fall within 24 hours after stressor.
  - c. Secondary spike in cortisol levels 48 to 72 hours after stressor
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# PERSONALITY TESTS

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Personality tests are used to evaluate psychopathology and personality characteristics and are categorized by whether information is gathered objectively or projectively.

1. **Objective personality tests** (e.g., the Minnesota Multiphasic Personality Inventory [MMPI] and the Million Clinical Multiaxial Inventory [MCMI]) are based on questions that are easily scored and statistically analyzed.
  2. **Projective personality tests** (e.g., the Rorschach Test, the Thematic Apperception Test [TAT], and the Sentence Completion Test) require the subject to **interpret the questions**. Responses are assumed to be based on the subject's motivational state and defense mechanisms.
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# PERSONALITY TESTS

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**Objective personality tests** simple stimuli (usually questions), restricted range of responses possible (select between choices given), scored mechanically using scoring key; no clinical experience required to score. There are two types of objective personality tests:

a. Criterion referenced

- i. Results are given meaning by comparing them with a preset standard.
- ii. E.g., USMLE Steps 1, 2, and 3
- iii. “Every student who scores above 75% will pass.”

b. Norm referenced

- i. Results are given meaning by comparing them with a normative group.
  - ii. Classic example: Minnesota Multiphasic Personality Inventory (MMPI) revised 1989
- >550 statements to which respondent answers true or false
  - Most widely used (and misused) personality test. Serves as criterion for newly developed tests
  - Yields 10 primary clinical dimensions and 3 validity scales
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The Minnesota Multiphasic Personality Inventory, an objective self-report test to assess personality, is one of the most widely used tests for clinical and research purposes. It provides scores on 10 clinical scales: hypochondriasis (Hs), depression (D), hysteria (Hy), psychopathic deviation (Pd), masculinity-femininity (Mf), paranoia (Pa), psychasthenia (Pt), schizophrenia (Sc), hypomania (Ma), and social distance (Si); plus 3 additional scales: a lie scale (L) to detect attempts to present oneself in a good light, a frequency scale (F) of unconventional beliefs and attitudes, and a correction scale (K) for guardedness or defensiveness in test-taking.

The MMPI, like all tests, is most effectively used in conjunction with other information about the patient. It is currently being restandardized based on a contemporary sample of normal people.

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**Projective personality tests:** ambiguous stimuli; wide range of responses possible, scored by experienced clinician using consensual standards

a. Meaning of responses found by clinical correlation between collected cases of responses and personal characteristics, psychopathologies

b. Classic examples:

i. Rorschach Inkblot Test : Patients are asked to look at an inkblot and report what they see.

ii. Thematic Aperception Test (TAT) : Patients are asked to tell a story about what is going on in the pictures.

iii. Sentence Completion Test : Patient is asked to complete a set of sentence stems with the first thing that comes to mind

iv. Projective drawings: Patient is given a sheet of paper and asked to draw a house, a tree, a person, a family, or some other subject

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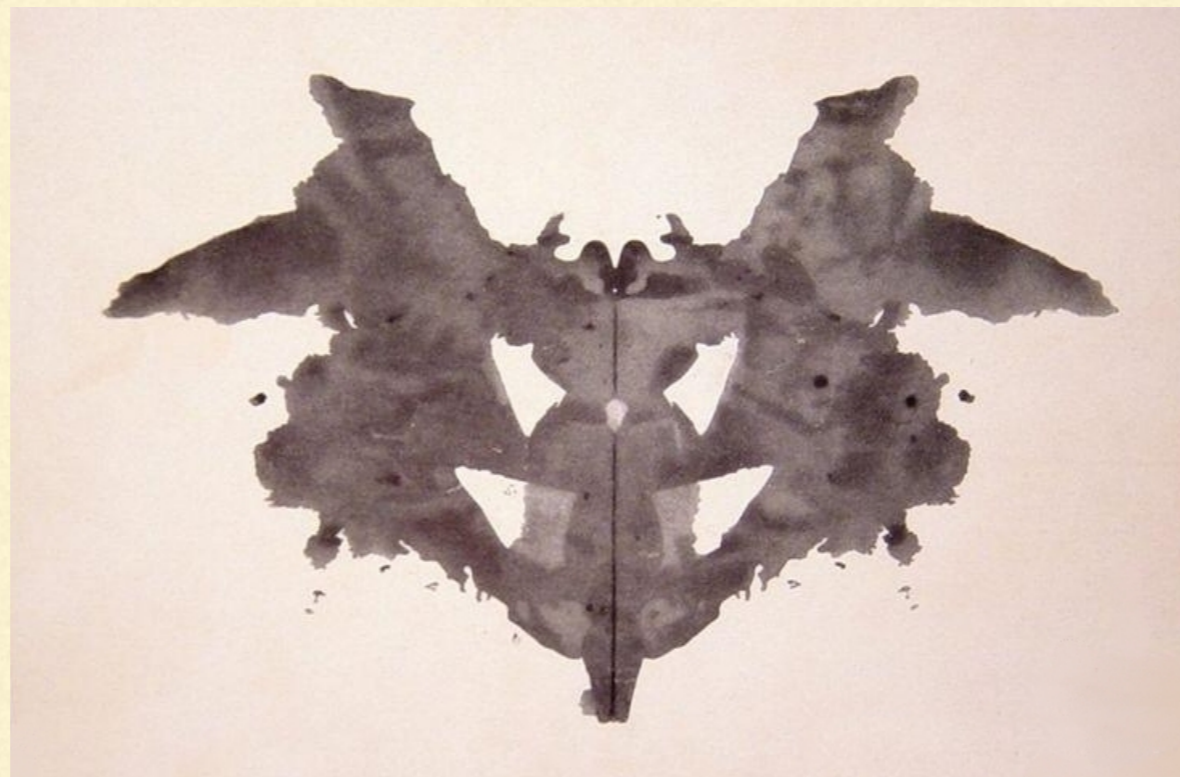


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## The Rorschach Test

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**The Rorschach Test** was developed in 1921 by Hermann Rorschach. It consists of showing a subject a set of 10 inkblot stimuli in a sequential manner while noting (1) the responses in relationship to the content of the perception, (2) the area of the blot that forms the basis of the response, and (3) the aspects of the area that are used to form the response





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## The Thematic Apperception Test

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**The Thematic Apperception Test (TAT)**, designed by Henry Murray and Christiana Morgan in 1943, has 30 pictures with ambiguity in each picture. The subject creates a story about each picture that reveals approach to organization, sequence, vocabulary, style, preconceptions, assumptions, **underlying concerns , motives**, and outcome. It is especially useful for inferring motivational aspects of behavior rather than as a diagnostic test.

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# NEUROPSYCHOLOGICAL TESTS

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## **1. Halstead-Reitan Battery**

- a. Tests for presence and localization of brain dysfunction
- b. Consists of five basic tests: category test, tactual performance test, rhythm test, speech sounds perception test, finger oscillation test. these are combined to provide an impairment index.

## **2. Luria Nebraska Battery**

- a. Tests level of impairment and functioning & Cerebral dominance
- b. Subscales: motor, rhythm, tactile, visual–spatial, receptive speech, expressive speech, writing, reading, arithmetic, amnesic, intellectual, right and left hemisphere function

## **3. Bender Visual Motor Gestalt Test**

- a. Screens for brain dysfunction
  - b. Nine designs are presented to the patient and copied by him. The patient is then asked to recall as many designs as he or she can
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# NEUROPSYCHOLOGICAL TESTS

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## 4. Wechsler Memory Scale

- a. Assess memory impairment
- b. Subcomponents: recall of current and past information, orientation, attention, concentration, memory for story details, memory designs, and learning
- c. Yields a memory quotient

## 5. Wisconsin Card Sorting Test (WCST)

Tests executive functioning; problem solving and abstract thinking

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**The Halstead-Reitan Battery** of neurologic tests was developed in the early 1940s to determine the location and effects of specific brain lesions. It is composed of 10 tests: category test (to identify common elements in a set of pictures for concept function, abstraction, and visual acuity), tactual performance test, rhythm test, finger-oscillation test, speech-sounds perception test, trial-making test, critical flicker frequency, time sense test, aphasia screening test, and sensory-perception test. The usefulness of the Halstead-Reitan battery can be enhanced by using it in conjunction with the MMPI and the Wechsler Adult Intelligence Scale.

### **The Bender Visual Motor Gestalt Test**

Bender-Gestalt Test is a test of visual motor coordination and is useful in both children and adults. Initially it was used as a measure of a child's maturational level, according to how many of the nine designs a child could reproduce at various levels of accuracy. It is now used most frequently with adults as a screening device for signs of organic brain dysfunction. It can also be used in assessing mental retardation, aphasias, psychoses, neuroses, and malingering << Visual and motor ability through the reproduction of designs

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## **Wisconsin Card Sorting Test (WCST)**

In the Wisconsin Card Sorting Test (WCST), examinees are asked to sort cards depicting various pictures and symbols according to a variety of different criteria that change over time without the subject knowing. The *WCST* assesses a person's ability to switch sets, reason abstractly, and solve problems. These capacities are also known as *executive functions* and are thought to be localized in the frontal lobes.

In short, in the *WCST*, people have to classify cards according to different criteria. There are four different ways to classify each card, and the only feedback is whether the classification is correct or not. One can classify cards according to the color of its symbols, the shape of the symbols, or the number of the shapes on each card. The classification rule changes every 10 cards, and this implies that once the participant has figured out the rule, the participant will start making one or more mistakes when the rule changes. The task measures how well people can adapt to the changing rules.

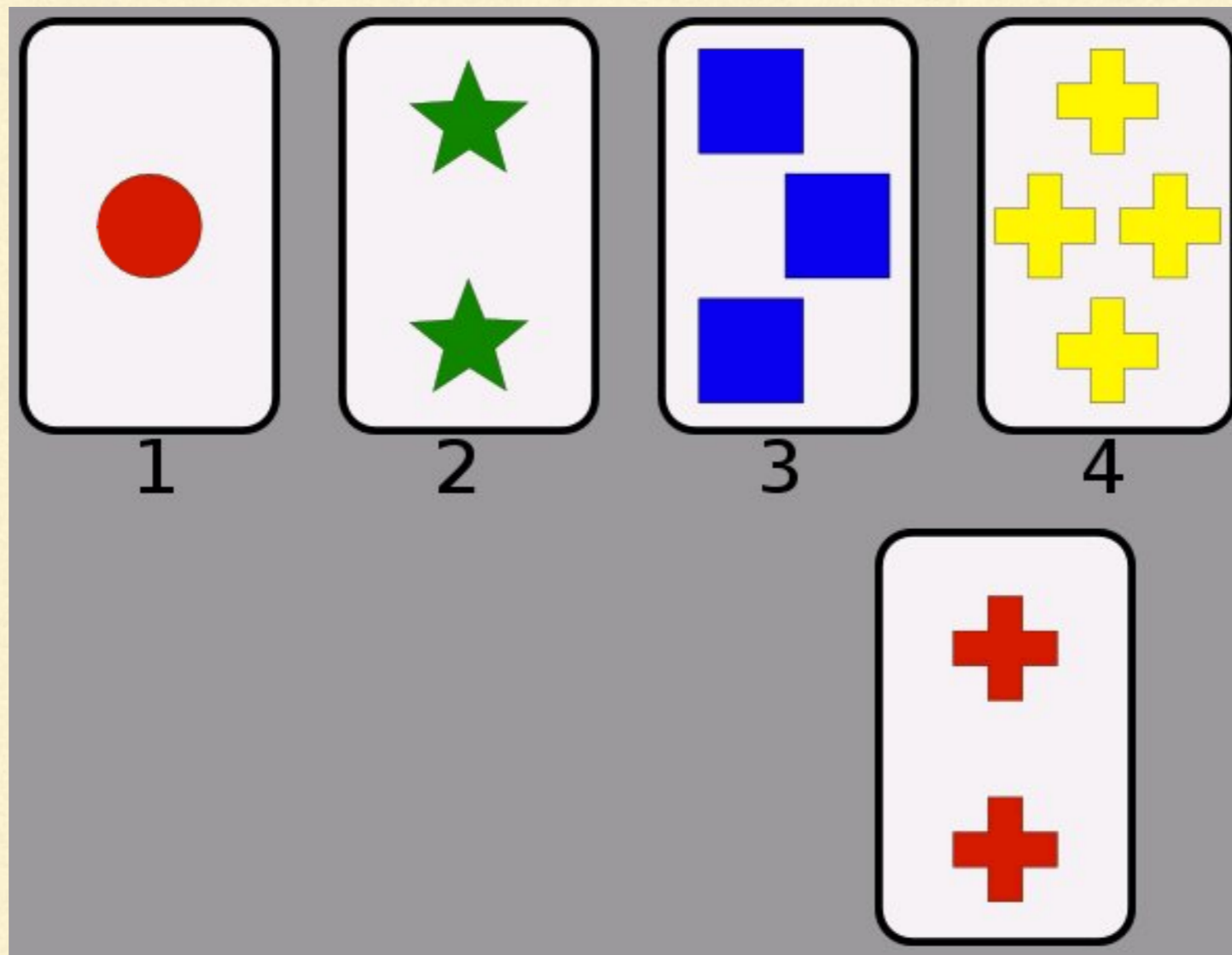
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## Wisconsin Card Sorting Test (WCST)

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## PSYCHIATRIC EVALUATION OF THE PATIENT WITH EMOTIONAL SYMPTOMS

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### A. Psychiatric history

The patient's psychiatric history is taken as part of the medical history. The psychiatric history includes questions about mental illness, drug and alcohol use, sexual activity, current living situation, and sources of stress.

### B. The mental status examination (MSE) and related instruments

1. The MSE is a structured interview that is used to evaluate an individual's current state of mental functioning .
2. Objective rating scales of depression that are commonly used include the **Hamilton, Raskin, Zung**, and **Beck** scales.
  - a. In the Hamilton and Raskin scales, an examiner rates the patient.
  - b. In the Zung and Beck scales, the patient rates himself (e.g., measures include sadness, guilt, social withdrawal, and self blame).

The Beck Depression Inventory is a 21-item test with 3 responses per item that is an easily used screening tool to evaluate for depression.

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# Items in the Beck Depression Inventory-II (BDI-II)

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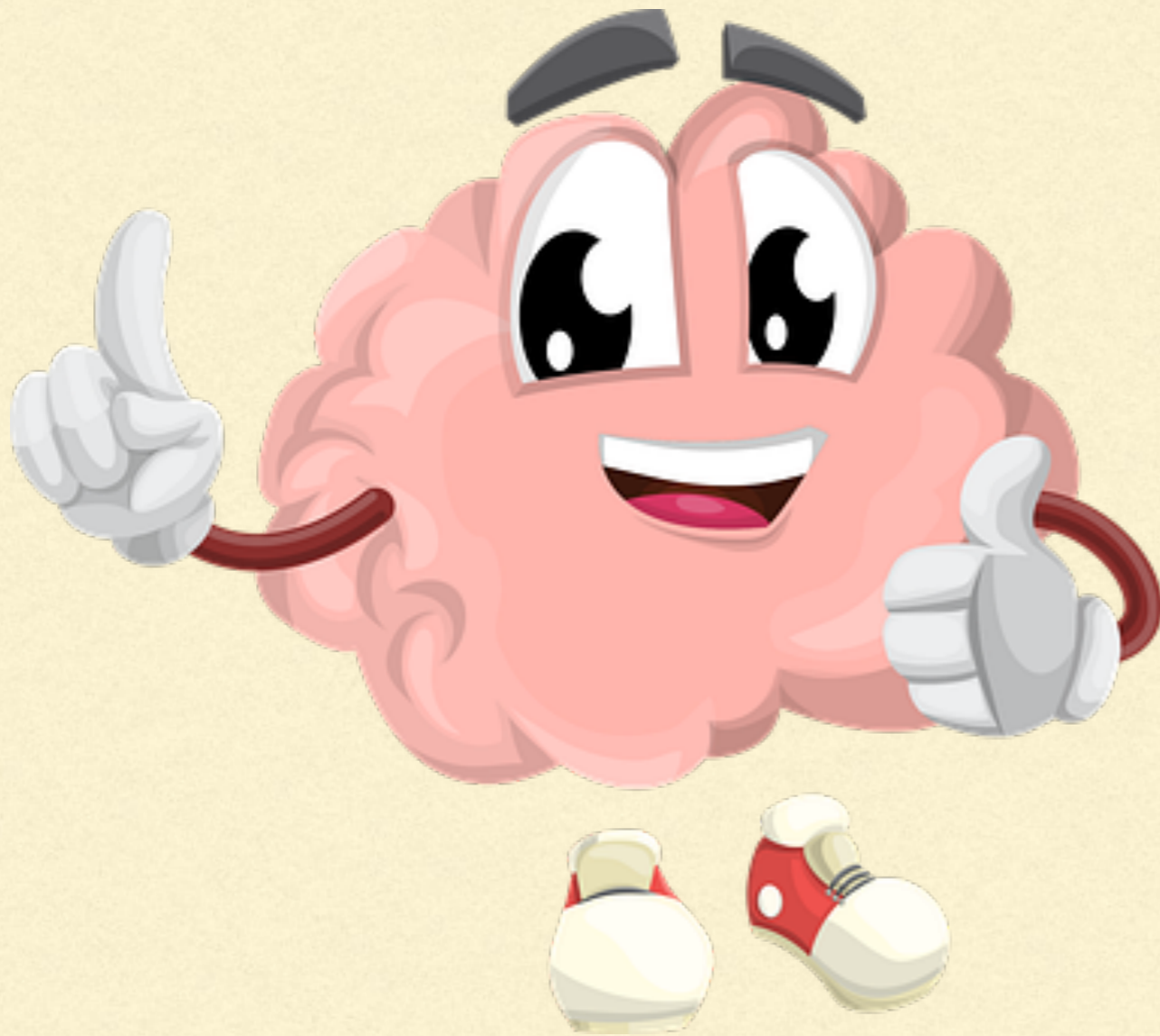
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1. Sadness
2. Pessimism
3. Sense of failure
4. Dissatisfaction
5. Guilt
6. Expectation of punishment
7. Dislike of self
8. Self-blame
9. Suicidal ideation
10. Episodes of crying
11. Irritability
12. Social withdrawal
13. Indecisiveness
14. Negative body image
15. Inability to work
16. Insomnia
17. Fatigability
18. Loss of appetite
19. Loss of weight
20. Preoccupation with health
21. Low level of sexual interest

**Each item can be scored from 0 to 3. Total scores of 30–63 indicate severe depression; scores of 5–9 indicate little or no depression.**

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Good Luck

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