

Psychological Assessment

Intelligence

- Robert Sternberg (1985) defined intelligence in terms of three characteristics:
 1. the possession of knowledge
 2. the ability to efficiently use knowledge to reason about the world
 3. the ability to employ that reasoning adaptively in different environments

Factors affecting intelligence

- about 25% of the total variance in IQ of offspring is related to parental IQ
- IQ is directly proportional to the socioeconomic status of the family

IQ testing

- in 1904 the French Government employed Alfred Binet to look into special educational programs for children failing in school
- in 1916, Lewis Terman at Stanford University developed an English version known as the **Stanford-Binet**
- IQ was defined as:
$$\frac{\text{mental age}}{\text{Chronological age}} \times 100$$
- mental ability is measured by problem solving and reasoning
- 6 items are allocated to each year
- the highest attainable score of chronological age in the Stanford-Binet test is 15

Modern IQ testing

- the average score obtained by people at each age level is assigned the IQ value of 100
- your IQ score reflects your *relative* standing within a population of your age

Evaluating IQ tests

How reliable are IQ tests?

- IQ tests given before the age of 7 do not correlate very highly with scores on IQ tests given later for two main reasons:
 1. test items used for young children are different from those used with older children
 2. cognitive abilities change rapidly in the early years
- for teenagers and adults, the reliability of IQ tests is high - the split-half reliability is generally above +0.90

How valid are IQ tests?

- IQ tests appear to be most valid for assessing aspects of intelligence that are related to schoolwork, such as abstract reasoning, and verbal comprehension
- correlation between Raven's Progressive Matrices and the WAIS are about 0.75
- mental age gives a 68% chance of correctly answering a question for the corresponding chronological age
- their predictive validity (correlation between IQ scores and high school grades) is about +0.50
- the predictive validity of IQ scores is especially good in relation to success in managerial and other complex jobs
- IQ scores are also highly correlated with performance on 'real-life' tasks such as reading medicine labels, and using the phone book
- adult IQ is better at predicting adult educational attainment than childhood IQ is

How fair are IQ tests?

- IQ tests now include more than one scale, so that areas most influenced by culture, such as vocabulary, can be assessed separately
- non-cognitive factors such as motivation and trust influence performance
- many test items are still drawn from the vocabulary and experiences of the dominant middle-class culture in the USA
- IQ tests may reward those who interpret questions as expected by the test designer
- boys:
 - are better at skills involving spatial relations
 - have a greater range of IQ
 - are more gifted
- girls:
 - have better linguistic ability, but not necessarily vocabulary
 - have higher IQ scores in childhood

The Psychometric approach

- analyzes people's responses to questions and tasks in order to describe the structure of intelligence

Spearman's *g*

- Charles Spearman noted that scores on almost all tests of mental abilities was positively correlated
- he concluded that these correlations were created by general mental ability, which he called **g**, for general intelligence, and a group of special intelligences, which he collectively referred to as **s**
- the s-factors are the specific information and skills needed for particular tasks

Thurstone and factor analysis

- in 1938, L. L. Thurstone used **factor analysis** to analyze the correlations among IQ tests to identify the underlying factors, or abilities, being measured by those tests
- he found seven relatively independent **primary mental abilities**:

- numerical ability
- reasoning
- verbal fluency
- spatial visualization
- perceptual ability
- memory
- verbal comprehension

Cattell

- Raymond B. Cattell (1963) suggested that there are two kinds of *g* which he labelled fluid and crystallized
- **Fluid intelligence** is the basic power of reasoning and problem solving
 - it allows us to think critically about assertions, and to understand relationships between concepts
- **Crystallized intelligence** involves specific knowledge gained as a result of applying fluid intelligence
 - it produces a good vocabulary, and familiarity with the multiplication tables
- crystallized intelligence may continue to grow into old age, whereas fluid intelligence remains stable throughout adulthood, and then declines in later life

The Information-Processing Approach

- analyzes the *process* of intelligent behaviour, not the *products* of intelligence, such as test answers
- research suggests that only about 25 % of the variation seen in people's performance on general mental abilities tests can be accounted for by differences in their information-processing abilities, such as speed of access to long-term memory, or capacity of working memory

The Triarchial Theory of Intelligence

- proposed by Robert Sternberg (1988)
- there are three aspects of intelligence:
 1. its internal components
 2. the relation of these components to experience
 3. its external effects

Internal components

- there are three sets of internal processes or *components*:
 - performance components
 - knowledge-acquisition components
 - metacomponents
- **Performance components:**
 - perceiving stimuli
 - holding information in working memory

- calculating sums and differences
- **Knowledge-acquisition components:**
 - involve the selective application of the processes used in gaining and storing new information
- **Metacomponents:**
 - control the performance and knowledge-acquisition components
 - determine the problem-solving strategies people use

Relationship between the internal world and the external world

- amounts to the ability to profit from experience by altering how the components are applied
- involves being able to deal with novelty, and to make some processes automatic

Shaping environments

- intelligence is manifested in everyday life, by adapting to or shaping environments
- intelligence involves the use of all three types of components to achieve goals
- intelligent behaviour therefore varies with the context

Gardner's theory of Multiple Intelligences

- Howard Gardner (1983)
- proposed that biology provides the capacity for six different 'intelligences' valued by society:
 1. linguistic
 2. logical-mathematical
 3. spatial
 4. musical
 5. body-kinesthetic - the skills demonstrated by dancers, athletes, and surgeons
 6. personal - refers to knowledge and understanding of oneself and of one's relations to others
- these 'intelligences' normally interact, but they can function with some independence and people may develop certain intelligences further than others
- IQ tests normally only sample the first three of these intelligences

Changes with age

Working memory

- the ability to hold and organize material in working memory declines beyond age 50 or 60

Processing speed

- there is general slowing of all mental abilities

- ? due to reduced storage capacity / impaired processing efficiency / problems in coordinating simultaneous activities

Organization

- older people are less likely to solve problems by adopting specific strategies
- the tests carried out by older people tend to be more random and haphazard

Flexibility

- older people tend to be less flexible in problem solving
- they are less likely to consider alternative solutions
- they require more information before making a tentative decision
- older people are more likely to choose conservative, risk-free options

Control of attention

- the ability to direct or control attention declines with age

Commonly used psychiatric instruments

Diagnostic Instruments

NIMH Diagnostic Interview Schedule (DIS)

- Robbins (1981)
- highly structured interview
- generates a diagnosis by three systems:
 1. DSM-III
 2. the Feighner criteria
 3. Research Diagnostic Criteria (RDC)
- assesses symptoms which may have occurred at any time in the patient's life, and in more detail over the time periods of 2 weeks, the last month, 6 months, and a year
- takes 45-75 mins
- can be used for a range of disorders including alcoholism, drug abuse, and anorexia nervosa
- not suitable for mental handicap or organic disorders
- specificity is good, but sensitivity is not so good

Present State Examination (PSE)

- Wing *et al* 1974
- semi-structured interview schedule
- each symptom is rated on a 3-4 point scale
- covers symptoms in the last 4 weeks
- can also be used to determine caseness
- originally designed for hospital in-patients
- not suitable for alcoholism, personality disorder, mental retardation, or organic disorders
- the rules have been incorporated into a computer program, CATEGO
- more reliable than the SADS for identifying schizophrenia

Schedule for Affective Disorders and Schizophrenia (SADS)

- Endicott and Spitzer, 1978
- structured interview assessing symptoms on a 7-point scale
- three versions: SADS, SADS-L (for no current episode of illness), SADS-C (where change is being measured)
- mainly used for hospital patients
- covers most diagnoses including personality disorders, drug and alcohol misuse, and bipolar depression
- not suitable for anorexia nervosa or organic disorders
- gives a diagnosis on RDC
- it is able to measure change

Schedule for Clinical Assessment in Neuropsychiatry (SCAN)

- incorporates Present Status Examination (PSE) 10 with an updated Catego program
- generates both ICD-10 and DSM-III-R diagnoses

Structured Clinical Interview for DSM-III-R (SCID)

- generates DSM-III-R diagnosis

Instruments to define and identify psychiatric 'cases'

General Health Questionnaire (GHQ)

- self-rated questionnaire of 60 items
- each item has four possible responses (usual, no more than usual, rather more than usual, much more than usual)
- a score of 11 on the full version discriminates between 'cases' and 'non-cases'
- designed for use in a community setting – only takes 6-8 minutes
- it can predict short-term response to various treatments
- it has a scale version
- not suitable for the detection of psychoses

Instruments for measuring psychiatric symptoms

Brief Psychiatric Rating Scale (BPRS)

- widely used measure of psychotic symptoms (not just schizophrenia) and psychopathology
- structured interview schedule
- 16 items (11 items based via verbal report, and 5 items based on observed behaviour)
- each item is scored on a 7-point scale
- produces subscores for:
 - affective
 - psychotic
 - negative symptoms
- since it is observer rated, and the way that the symptoms are elicited is not standardized, reliability is reduced
- unsuitable for minor psychiatric illness

Symptom Rating Test (SRT)

- designed to measure distress
- most suitable for neurotic patients
- very reliable

Global Assessment/ Screening

- **Clinical Global Impression (CGI)**
 - global observation of severity of psychiatric illness
 - 7-point scale
- **Nurses Observation Scale for Inpatient Evaluation (NOSIE)**
 - mostly used for inpatients with psychosis
 - analysis produces three positive factors (personal neatness, social competence and social interaction) and three negative factors (manifest psychosis, retardation, and irritability)
- **Global Assessment Scale (GAS)**
 - evaluates social functioning and severity of symptoms
- **Hopkins Symptom Checklist (SCL-90)**
 - 90-item checklist of 9 symptom dimensions
 - 3 global indices of distress

Depression rating scales

Beck Depression Inventory (BDI)

- self rating scale
- 21 items
- maximum score of 60
- useful for measuring change
- criticisms:
 - it is prone to *halo effects* – the subject's general attitude can influence the response to many of the items
 - there is uncertainty to what is actually measured

Hamilton Rating Scale for Depression (HamD, HRSD)

- observer rating – designed to be filled in at the end of an unstructured interview
- 17 items, and severity dimension
- should only be used on patients with an established diagnosis of depression – it is not a diagnostic instrument but has been used as such by having a cut-off score to indicate the presence of depression
- assesses symptoms in the last seven days
- maximum score is 52, but a score of 30 indicates severe depression
- criticisms:
 - reliability is poor in some items
 - it has a heterogenous and unstable factor analytic structure
 - there is no general factor
 - behavioural symptoms and somatic complaints are preferred over self-reported distress

Zung Depression Scale

- self rating

- 20 items

Montgomery and Asberg Depression Rating Scale (MADRS)

- 10 items
- concerned exclusively with the psychological aspects of depression (no reference to somatic symptoms)
- particularly useful for depressed patients with concurrent physical illness
- can be used for assessing patients who are likely to experience side effects from medication
- suggested cut-offs are:
 - 0-6 recovered
 - 7-19 mild depression
 - 20-34 moderate depression
 - 35-60 severe depression

Hospital Anxiety and Depression Scale (HADS)

- 7 items concerned with anxiety, and 7 with depression
- designed specifically for use in non-psychiatric hospital departments
- concerned with the psychological symptoms of neurosis
- a score of 11 or more on both scales is used to distinguish cases

Anxiety rating scales

Hamilton Rating Scale for Anxiety (HRAS)

- observer scale
- designed for use with patients already diagnosed with an anxiety disorder
- 14 items
- covers psychic and somatic dimensions, but is somatically biased
- inter-rater reliability is good

Zung Anxiety Scale

- combined observer and brief report formats
- 20 items

SADS-L (Anxiety)

- based on the SADS
- used for rating a wide range of phobias

HAS

- Snaith
- is an adaptation of the CAS

Mania

Young Mania Scale

- observer scale
- 11 items

Manic Rating Scale (MS)

- based on observations over an 8 hour period
- designed for objective measurement by nurses
- measures the frequency of manic behaviour
- not sensitive to change

Modified Manic Rating Scale (MMS)

- more sensitive to change than the MS

Schizophrenia rating scales

Comprehensive Assessment of Symptoms and History (CASH)

- evaluates major psychoses

Schedule for the Assessment of Positive Symptoms (SAPS)

- details hallucinations, delusions, bizarre behaviour, formal thought disorder

Schedule for the Assessment of Negative Symptoms (SANS)

- details alogia, affective blunting, avolition, asociality, attentional impairment

Positive and Negative Symptoms Scale (PANSS)

- developed from BPRS
- more structured
- includes general psychopathology section

Camberwell Family Interview (CFI)

- five scales:
 - critical comments
 - hostility

- emotional over-involvement
- warmth
- positive remarks
- only the first three are associated with high expressed emotion and predict relapse

Obsessive Compulsive Disorder

Maudsley Obsessional-Compulsive Inventory (MOCI)

- self-rating
- 30 items – ‘true-false’
- fairly sensitive to change

Yale-Brown Obsessive-Compulsive Scale (YBOCS)

- observer scale
- 19 items
- measures only symptoms

Leyton Obsessional Inventory

- four main components (being clean and tidy, feeling of incompleteness, checking, and ruminating)
- uses a card sorting process
- can produce scores for resistance, interference, and traits
- specific and sensitive test, but less sensitive to change

Psychosomatic/ Eating disorders

Eating Attitudes Test (EAT)

- self report on eating behaviour

McGill Pain Questionnaire

- detailed self report

Psychosocial Adjustment to Illness Scale (PAIS)

- self report and interview
- based on adjustment to chronic illness

Personality

Type of Test	Characteristics	Advantages	Disadvantages
Objective	<ul style="list-style-type: none">• Paper-and-pencil format• quantitatively scored	<ul style="list-style-type: none">• efficiency• standardization	<ul style="list-style-type: none">• subject to deliberate distortion
Projective	<ul style="list-style-type: none">• unstructured stimuli create maximum freedom of response• scoring is subjective	<ul style="list-style-type: none">• 'correct' answers not obvious• designed to tap unconscious impulses• flexible use	<ul style="list-style-type: none">• reliability and validity lower than those of objective tests

Minnesota Multiphasic Personality Inventory (MMPI-2)

- for assessment of personality and psychopathology
- 566-item true-false test
- ten clinical scales:
 - hypochondriasis
 - depression
 - hysteria
 - psychopathic deviate
 - masculinity-femininity
 - paranoia
 - psychasthenia (obsessive compulsive)
 - schizophrenia
 - hypomania
 - social introversion
- four validity scales
- focuses on the overall pattern in the clinical scales

Personality Assessment Schedule (PAS)

- Tyrer, Alexander & Ferguson 1987
- 24 personality variables which are rated by the observer
- after 3 interviews with the patient, the observer makes a separate assessment
- has to be an interview with an informant who has known the patient for 10 years
- results can be expressed graphically

Structured Clinic Interview for DSM-III-R Personality Disorders (SCID-II)

- provides a series of questions on each aspect of DSM-III-R personality disorders
- 1=absent or false, 2=subthreshold, 3=threshold or true
- it then states how many '3's have to be present for that personality disorder to be present

The Million Clinical Multiaxial Inventory IV 1994 (MCMI IV)

- based on DSM IV
- 175 question self-administered questionnaire
- takes 30 mins to complete
- can be computer assessed

Neuroticism Extraversion Openness Personality Inventory, Revised (NEO-PI-R)

- measures personality variables in normal populations
- measures the “big five” personality traits
- can be used in the diagnosis of personality disorders

Eysenck Personality Questionnaire

- incorporates a lie scale
- high scores on the psychoticism scale are claimed to resemble stereotyped psychopaths

California Psychological Inventory

- measures 18 traits believed to be part of normal personality, such as achievement, dominance, self-acceptance and sociability

Projective tests

- **Thematic Apperception Test (TAT)**
 - measures need for achievement, and motivational factors
- **Rorschach Inkblot Test**
- **Sentence Completion Test**
- **Draw-A-Person Test**

Intelligence Tests

The Wechsler Adult Intelligence Scale (WAIS)

- 6 **verbal** subtests
 - general information
 - comprehension
 - vocabulary
 - arithmetic
 - digit span
 - similarities
- 5 **performance** subtests
 - block design

- object assembly
- picture completion
- digit symbol
- picture arrangements
- the WAIS allows computation of a *verbal IQ*, a *performance IQ*, and an *overall IQ*

(Ravens) Progressive Matrices

- measures non-verbal IQ
- consists of a diagram-completion test which exists in three versions:
 - Standard, for average ability
 - Coloured, for children and those of lower ability
 - Advanced, for those of above average ability

Mill Hill Scale

- measures verbal IQ

Brain Injury

Halstead-Reitan Battery

- consists of 10 tests
- allows measurement of the location and effects of brain lesions

Organic Brain Dysfunction

Bender-Gestalt Test

- can be used in the assessment of:
 - mental retardation
 - aphasias
 - psychoses
 - neuroses
 - malingering

Cognitive Impairment in the Elderly

- **Mini Mental State Examination**
 - dementia is suggested with scores less than 24-27
- **CAMDEX**
- **Mental Test Score**
- **Crichton Behaviour Rating Scale**
 - includes a cognitive measure

- **GERRI**
- **Clifton Assessment Procedures for the Elderly (CAPE)**
 - can be used to predict survival, placement, level of disability, and decline in elderly subjects
- **Geriatric Mental State Schedule**
- **The Kew Cognitive Map**
 - assesses parietal lobe function and language functions in patients with dementia
- **Kendrick Battery**
 - distinguishes between normal, functionally impaired, and demented elderly groups

Dementia Rating Scale (Mattis, 1976)

- covers five areas:
 - 1) *Attention*
 - a) Digits forwards & backwards up to four
 - b) Follow two successive commands, e.g., “Open your mouth and close your eyes”
 - 2) *Initiation and perseveration*
 - a) name articles in supermarket
 - b) repeat series of one-syllable rhymes
 - c) perform double alternating hand movements
 - d) copy a row of alternating O’s and X’s)
 - 3) *Construction*
 - a) Copy a diamond in square
 - b) Copy a set of parallel lines
 - c) Write name
 - 4) *Conceptual*
 - a) Four WAIS-type Similarities items, identify which of three items is different
 - 5) *Memory*
 - a) Delayed recall of five-word sentence
 - b) Personal orientation
 - c) Design recall

Stockton Geriatric Rating Scale

- For use by “nonprofessional ward staff” to rate patients’ behaviour in such areas as eating, toileting, self-direction, and sociability
- Each item is scored as, “often”, “sometimes”, “almost never”

Substance Abuse

CAGE

- cut down on drinking, annoyed by others criticizing, guilty over drinking, eye-opener

Michigan Alcohol Screening Test (MAST)

- 25 item interview or 10 item self-report

Severity of Alcohol Dependency Questionnaire (Stockwell Questionnaire)

- measures impact of alcoholism

Social Stress

Social Readjustment Rating Scale (Holmes and Rahe)

- self-report questionnaire containing 43 classes of life event
- includes death of spouse (100) to minor legal violation (11)

Life Events and Difficulties Schedule (LEDS)

- Brown and Harris
- semistructured interview schedule
- 38 areas probed
- high reliability
- high validity