

10. Insight

In ordinary language the word insight is synonymous with understanding. In psychology and psychiatry the word has a number of different technical applications, all of which retain that element of understanding. In psychology the term has been used to describe a form of learning (configuration) in which there is the sudden grasping of a solution.

In psychiatry insight may be broadly defined as awareness of one's own mental condition. However, there are different shades of meaning, depending on the type of disorder present and the concepts employed.

Insight is an important factor in the development of the therapeutic relationship—generally, the less insight, the more difficult is the development of the therapeutic relationship (although insight is not an absolute requirement for a therapeutic relationship). Insight usually changes, at least to some extent, during the course of an episode of illness

At this point, it is necessary to introduce the term, 'psychosis', which has been defined as, 'a mental disorder in which a person's mental ability, affective response, and ability to recognize reality, to communicate, and to relate to others are impaired enough to interfere with the capacity to deal with the ordinary demands of life'.

Psychoses occur in schizophrenia, delusional disorder, and in some cases of mood disorder, organic mental disorder and psychoactive substance use disorder. When a patient is suffering a psychosis, it is assumed they are 'psychotic', by which is meant they have all, or most of, the symptoms of a psychotic disorder (including lack of insight).

Caution is necessary. For example, it is possible for an individual to have one, or more, of the so-called psychotic symptoms and not be suffering from a psychotic disorder (anorexia is an example). On the other hand, individuals may be suffering a psychotic disorder with some psychotic symptoms, but not be psychotic (for example, an individual who has schizophrenia with persistent hallucinations who has insight and is able to work and function as a partner and parent). Nevertheless, the above definition of psychosis allows for a working division of mental disorders into non-psychotic and psychotic groups. The caveat is that an individual may

be profoundly incapacitated by a mental disorder which is not a psychotic disorder, or be suffering a psychotic disorder, yet still able to meet the challenges of everyday life.

The non-psychotic disorders include anxiety, somatoform, dissociative, sexual, adjustment and personality disorders. Generally speaking, patients with non-psychotic disorders have 'insight' (meaning they are aware that they have a mental disorder). In fact, the presence of insight is sometimes taken as proof of non-psychotic status.

[An apparent contradiction arises from the use of the word insight in different groups of patients and different forms of therapy - that is, those patients who have insight (nonpsychotic) are often treated with 'insight-orientated psychotherapy' (the aim of which is to cure through the attainment of insight. Here the term 'insight' is used in the psychotherapeutic sense, where it is concerned with understanding the how certain symptoms came to be formed).]

Insight is not an all-or-none phenomenon. It is better regarded as a series of levels. As with other mental state phenomena, relevant information gathering continues throughout all interview, but is incomplete without direct (albeit subtle) questioning.

The following are schema for assessing insight, at a point in time, taking into account the differences between non-psychotic and psychotic disorder.

Assessing insight in non-psychotic disorders

When the non-psychotic patient is assessed, particularly one who has received insight-orientated psychotherapy, at least three levels of insight can be considered.

Minimal insight in non-psychotic disorder

When there is minimal insight in non-psychotic disorder, patients will explain their difficulties in terms of physical problems, or blame features of the external environment.

Intellectual insight in nonpsychotic disorder

When there is 'intellectual insight' in non-psychotic disorder, the patient has knowledge of the disorder and understands some of etiological factors, but this is insufficient to alter future behavior and experiences.

Emotional insight in non-psychotic disorder

When there is 'emotional insight' in non-psychotic disorder (which is usually achieved through psychotherapy) the patient has an awareness of motives and deeper feelings and this may lead to a positive change in personality or patterns of behavior.

Assessing insight in psychotic disorders

The following scheme may be applied in either non-psychotic or psychotic disorders, but it has greater application in the case of psychotic disorder. (Figures 75-81.) (Those with non-psychotic disorder are usually more aware of the presence of a disorder and the need for treatment.)

Aware/unaware of the phenomena

The first step is to determine whether the patient is aware of the phenomena other people have observed. Most psychotic people are aware of their phenomena. By definition, patients are aware of hallucinations. However, people with mood disorder may be unaware of phenomena (a manic patient may be unaware of over-activity).

If the patient does not volunteer the information, the clinician could ask, 'Have you noticed any change in yourself today, or in the last few days?'

If the patient denies or appears to be unaware of phenomena it will be necessary to make suggestions. In the case of a patient who is lacking insight, there may be confrontation if the examiner is precise in this matter.

Confrontation may be necessary at some point, but is better avoided in the early part of the assessment.

In the case of an over-active person, ask, 'The people who brought you in (or the nursing staff, etc.) are a bit concerned about you. Do you think you might be a bit over-active (or not getting enough sleep, etc.), at all?'

Aware/unaware phenomena are abnormal

The second step is to determine whether the patient is aware that it is abnormal to experience such phenomena. The patient with schizophrenia who is experiencing auditory hallucinations may report them, but maintain that this is a normal experience which is available to anyone who accepts the possibility. The patient with mania may admit to being more than usually active, but maintain this is no more than normal high spirits.

In the case of an overactive person one may ask, 'So, let me understand, Mr. X. You have noticed that you are a bit more active than usual... But do you think you might be abnormally active, at all.....?'

In the case of an hallucinating person one may ask, 'Mr. Y, you've said you've been hearing a voice when there's no one nearby. Can I ask you, do you think it is normal to hear a voice when there's no one nearby?'

Aware/unaware of mental disorder

A third step is to determine whether the person is aware that they are suffering from a mental disorder. In some cases the distinction between awareness of abnormality and awareness of mental disorder is unclear, and in such circumstances there is little point pursuing the matter at length. However, a common finding is that psychotic patients are aware of the abnormality of their experiences, but believe these to be the result of causes other than mental disorder. Paranoid people may believe they are being poisoned (an abnormal event) by enemies, while mood-elevated persons may believe they have received a blessings given by God.

This is usually not a difficult question to frame—'Mr. Z, you have this problem of being over active. Do you think you could have some sort of mental problem, at the moment?'

In the case of a deluded person, it is still worth asking the question. Some psychotic people are able to hold two explanations simultaneously. In other cases, belief may swing backwards and forwards from one explanation to the other. Where there are delusions, it is appropriate to ask, 'Mr. X, I know you believe these troubles have been caused by the KGB... But could there be another explanation? Could it be that your suffering a mental problem, at the moment?'

Accepting/rejecting need for treatment

A further step in assessing insight is to determine whether the patient accepts the need for treatment. A final issue is whether the patient who accepts the need for treatment actually accepts the treatment.

In the acute stage, most, but not all, of those who accept that they have a mental disorder, accept the need for treatment. While acceptance of the presence of a mental disorder but non-acceptance of the need for treatment

may reflect a limitation of insight, religious and other previously held views will continue to influence thinking.

In chronic disorders, non-acceptance of treatment may reflect a choice between ineffective medication with unacceptable side effects and familiar symptoms.

Diagnostic considerations

Rarely does the presence or absence of insight determine a diagnosis—instead, it guides thinking in one general direction or the other (nonpsychotic or psychotic). The rest of the data from the examination of the patient are then brought into play and a precise diagnosis becomes possible.

People with personality disorder have little awareness of the contribution of their own personality to their distress or that of others. They deny responsibility and blame the failings of others and environmental factors. To this extent they lack insight.

Personality disorder may be associated with subjective distress for much of the time; alternatively, distress may only occur at times of loss. Whether or not the losses occur as a consequence of features of the personality disorder, loss is ubiquitous to the human animal and people with personality disorder are less well equipped to deal with loss than those with healthy personalities.

People with personality disorder are aware that they have distress and to this extent, they have insight. Insight, however, may be rudimentary. A person with borderline personality disorder, for example, may only be able identify their emotional experience as either ‘not distressed’ or ‘distressed’ (see entry on alexithymia). This may result in cutting to relieve distress. (The cutting referred to here is usually laceration of the outer aspect of the forearm.)

In certain non-psychotic disorders (those designated neurotic disorders in ICD-10) there is a symptom or group of symptoms that is distressing to the individual and is recognized by him/her as unacceptable; reality testing is intact. Thus, insight is present and the degree may be determined according to the schema described above.

In depressive episodes, insight has been described as ‘excessive’, highlighting the general tendency of depressed people to draw attention to their distress and their

problems. Depressed mood may influence thinking such that the patient becomes pessimistic (refuses effective treatments because of the belief that nothing will help) and in the extreme, suffers loss of insight and delusions of guilt. In manic episodes, judgment is poor and accordingly, the patient may engage in uncharacteristic behavior.

The degree of insight into recurrent thoughts can be an important clinical issue. Recurrent thoughts into which there is good insight and which are recognized by patients as the product of their own mind, are likely (depending on concurrent phenomena) to be features of the non-psychotic, obsessive-compulsive disorder; while recurrent thoughts believed to be inserted from outside are likely to be a feature of the psychotic disorder, schizophrenia.

It is important to know whether or not certain thoughts constitute a delusion. When a delusion is held, the patient lacks insight. Delusions about physical illness or defect indicate a psychotic disorder, whereas similar ideas which are not held with delusional conviction indicate a non-psychotic, somatoform disorder.

A special case is the delusion that the body is overweight when this is not so (a situation in which there is lack of insight). Anorexia nervosa, is considered a non-psychotic disorder, unless supported by additional psychotic symptoms. (This is a matter of convention, however, as it can be argued that anorexia nervosa with delusions and dangerous behavior should be classed as a psychotic disorder.)

While patients may recognize hallucinations for what they are, it is less common (and by some definitions, impossible) for there to be insight into delusions. Transient delusions may occur in drug-induced psychosis and mood disorder; more permanent delusions occur in schizophrenia and delusional disorder. Where there are prominent delusions and little insight, patients are often brought for assessment by the police, friends or family.

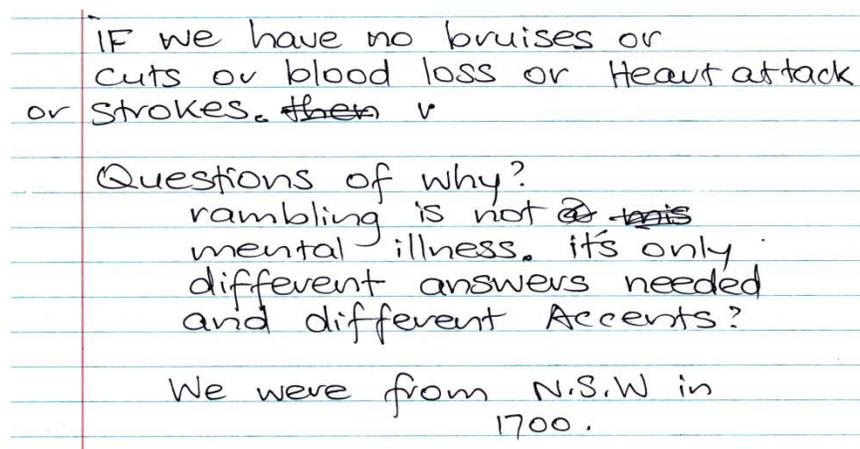
Over time, persistent delusions either become less troubling or patients learn that other people do not share their belief, and so, draw less attention to them. In real life, many people who have suffered psychotic illness, live and function in society while experiencing residual delusions.

Management is greatly influenced by the degree of insight. Insight is desirable. It allows the individual to function more effectively, with dignity and autonomy. Thus, where insight is lacking, in general, the patient is well

served by others if their activities lead to the gaining of insight.

There is a consideration that lack of insight may have a protective function, protecting the patient from the reality that they have a serious, unresponsive mental illness, and thereby, from depression. Caution may be necessary when working to increase insight. Curiously, insight is not essential for useful cooperation between the patient and the clinician. Patients, as well as people without mental disorder, can function in accordance with two sets of reality simultaneously.

The absence of insight may place the patient and other people in danger and is central to legislation which allows compulsory retention and treatment of patients suffering psychotic disorders.



IF we have no bruises or
cuts or blood loss or Heart attack
or strokes. ~~then~~ ✓

Questions of why?
rambling is not @ ~~this~~
mental illness. it's only
different answers needed
and different Accents?

We were from N.S.W in
1700.

Figure 75. This note indicates some lack of insight. The patient argues that he/she is not unwell because there are no signs of bruises etc. The last sentence "We were from NSW in 1700" strongly suggests formal thought disorder. It seems this has been pointed out to the patient, as he/she states, "rambling is not mental illness", followed by further thought disorder.

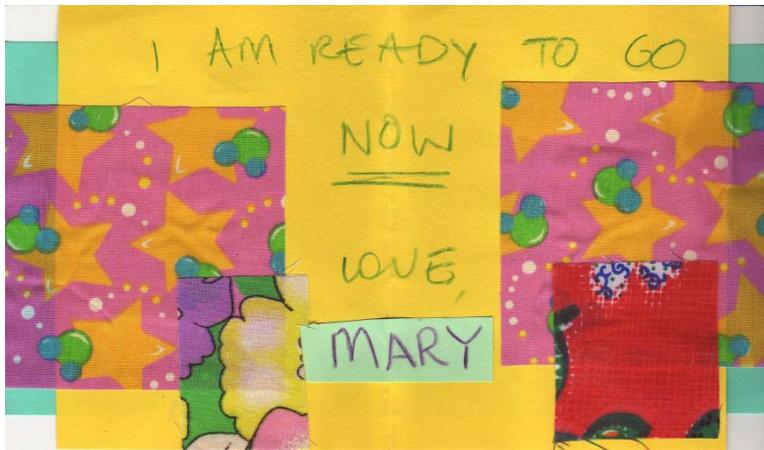


Figure 76. This card was made by woman suffering mania, during a hand-craft period. People with mania often feel very well, and naturally, lack insight. This person was in hospital for some time, had improved, and had some insight. The brightness of her creation suggest some mood elevation persists. Nevertheless, she still lacked some insight. She writes “I am ready to go now”. The underlining of ‘now’ suggests she is getting a little irritated by still being in hospital.

9.

The police put the doctors nurses at the Royal under hypnosis with the power through the screens, and they have them write down in police words what they want said while listening to them. They take them out of hypnosis then. That's how the police gave me a record of mental illness and they let take place from there. This all true

Figure 77. This is part of the 9th page of a letter sent to the current author, from an elderly woman who suffered complete lack of insight. She refused all treatment and lived a very distressed life. She had a complex delusional system, and believed that the Police had “screen” by which they interfered with peoples’ lives. Here she states that the police hypnotized medical staff and made them write down that the patient had a mental disorder – “That’s how the police gave me a record of mental illness”.

thanks 4 having me
Good wishes to the
babies from all of us
could I have my things
delivered to my house

Address and telephone number of relatives withheld.

Clothes blankets pillows
pillow mattress TV radio

Signature withheld.

Figure 78. This was written by the woman who wrote the incoherent example depicted in Figure 39. She had a severe delusional system and believed she gave birth to a baby (sometimes more than one) each night, and then people came and dismembered them. She did not find this particularly distressing. She improved with treatment, but left the hospital one day, leaving the above note in her room. She have been in many hospitals around the country. This was her usual practice, to stay until her functional level improved, then leave for another state. Apparently she never achieved full insight. Her improvement is clear, Figure 39 is incoherent, but here she gives clear instructions about where her belongings are to be sent. She refers to "my house", but the address was that of a relative. She was in another state by the time this note was read.

10.11.06

Professor S. Pidmore
c/o Royal Hobart
Hospital
HOBART.

Name
and
Address

Withheld

I wish to be considered
for healthy Smoking groups
within the hospital.

ideally one does not take Drs drugs at all.
Dear Sir, I don't even take diazepam in
20 yrs for choice. Lost medication
and ^{antipsychotic} forced

Dr ^{Name} cleared me in
in 1995. This letter was not placed on file.
Thanks for the apologies all the same
Pity you can't acknowledge them in writing.

Figure 79. This letter was sent to the current author by a middle aged woman who suffered schizoaffective disorder. In spite of periods of compulsory treatment, she never gained useful insight. The letter commenced stating that in 1995 (11 years previously) a named doctor (a junior resident) had indicated that she was clear of mental disorder. Although the patient refused all medical treatment, but believed that smoking was beneficial, and frequently offered her services as a leader for healthy smoking groups. In a supplementary note above the main letter, she again states she wishes to be “considered for healthy smoking groups within the hospital”.

Name
and
Address

Dear Professor Pidmore,

you gave me a taxi voucher this year,
for which I was very grateful. I lost it; I've
looked high + low for it + can't find it anywhere.
I was wondering whether you would be able to
issue me with another one; it would help
me a lot

yours sincerely

Signature withheld.

Figure 80. The note comes from a chronically disordered woman. At a recent discharge, the current author given her a taxi voucher to assist her returning to

her home. Here she writes that she did not use the taxi voucher on that occasion, but has now misplaced it, and wonders if she can have a replacement. This suggests insightlessness, not about the presence of mental disorder, but about the function of a health system.



Figure 81. This man suffered severe schizophrenia. His left arm was broken in an altercation. He was willing to remain in hospital, but he would not agree to internal fixation of his fracture, and did not co-operate with conservative treatment, removing casts and slings the day they were applied. Thus, he was insightless about his physical health (he was also insightless about his mental health) with the result that he developed a painless false joint (pseudoarthrosis).

ALCOHOL AND DRUG USE

A comprehensive alcohol and drug history would fill another volume. Here, the aim is to provide some basic reminders regarding Alcohol and Drug use, to supplement the standard psychiatric assessment.

There can be a reciprocal relationship with alcohol and most other drugs with mental disorder. Excessive alcohol use can lead to depressive disorder, hallucinogenic drugs can trigger psychotic episodes. Alternatively, the suffering and isolation of significant mental disorder can lead to excessive substance use, sometimes referred to as “self-medicating”. And, as is well known, the use of substances can worsen mental disorder such that it is unresponsive to treatment, and unless the mental disorder can be eased, the chances of modifying substance use may be slim.

Most people take some alcohol, and many, some other substances. The approach must be non-judgmental. An old clinical rule of thumb (cynical perhaps, but informed by experience) is that the clinician should assume the patient take twice the amount they admit to. It is recommended that, while preserving the patient’s dignity, some trivialization of intake quantity be anticipated. It was once common practice to goad the patient into bravado about how much they could consume, but this is no longer recommended (and probably led to exaggeration).

The best possible answers to the following questions should be sought:

1. What was the nature of the home in which the patient grew-up (supportive/happy or unsupportive/unhappy)?
2. What were the alcohol, tobacco and other drug practices in the home in which the patient grew up? (Parents/guardians, and siblings)
3. At what age did alcohol tobacco and other drug use begin?
4. What were the circumstances of early use (were these agents consumed in a group setting, or alone)?
5. What were the early effects (pleasant or unpleasant)? It is not uncommon for patients to report that their early experience of intoxication was unpleasant – yet they persisted – and this may well indicated that the intoxication, while unpleasant, removed some other form of unpleasantness (mental disorder or abuse, for example).
6. What is the current alcohol, tobacco and other substance use pattern? How many days a week are substances taken? What time of day does consumption commence?
7. Has the individual ever thought he/she should cut down the quantity used.

8. Have there been any attempts to cut down, and if so, with what success?
9. Has the patient experienced 'blackouts' (unable to remember events of the previous night)?
10. Does the patient suffer 'hangovers'?
11. Has the patient ever taken substances to help deal with the distress of a 'hangover'?
12. Has the patient had problems at work due to substance use (unable to get to work, employers remarked on alcohol on the breath, loss of employment)?
13. Has the patient has social problems due to substance use (fights, domestic violence, broken relationships)?
14. Has the patient ever had legal problems due to substance use (drunk and disorderly, driving under the influence of alcohol, other law breaking)?
15. Why does the patient believe he/she currently uses substances?
16. Does the patient believe he/she has a problem with substance use?
17. Does the patient want help with substance use? If so, what form of help would be acceptable?
18. Would the patient agree to complete cessation of substance use?

THEORY OF MIND

Theory of mind (ToM) is a new concept and field of study that promises to advance our understanding of psychopathology. It does not have a separate heading in the traditional psychiatric assessment as described in this book.

Possibly, ToM will earn its own heading sometime in the future. At present there are benefits in having some understanding of the field and adding observations where they best fit – possibly under personality, cognition or rapport.

Definition

ToM refers to the ability to attribute mental states (such as thoughts, beliefs, desires and intentions) to people (self and others). In lay terms it roughly means, “being able to tell what other people are thinking and feeling”. This is the first stage of empathy.

The term was first used in 1978, when primatologists (Premack and Woodruff) asked, “Does the chimpanzee have a theory of mind?”

ToM skills (along with other skills) are necessary for rewarding social functions and the maintenance of social relationships. The ability to “know” what other people are thinking and feeling has probably provided evolutionary advantage, as well as everyday life advantages (particularly to confidence tricksters).

Neurological underpinning

Recently, mirror neurons (MNs) have been discovered in the inferior frontal gyrus and parietal lobes, which may constitute at least some of the neurological underpinning of ToM (DiPellegrino et al, 1992; Gallese & Goldman, 1998). MNs activate when individuals perform actions, but fascinatingly, they are also activated when other individuals are observed doing actions. It is proposed that “motor simulation may be a trigger for the simulation of associated feeling states” (Bastiannsen et al, 2009).

ToM and psychopathology

With respect to relationship to psychopathology, ToM deficits were first described in children with developmental disorders (Baron-Cohen, 1988). Subsequently ToM deficits have been described in a range of psychiatric disorders, in particular, schizophrenia. A recent review strongly suggests that ToM deficits are a valid marker of schizophrenia (Biedermann et al, 2012).

Testing

At this point there is no special system of questions to be grafted onto the standard psychiatric assessment as a sure-fire measure of ToM. However, the clinician does gain some indicators of ToM functioning from the history, personality and mental state assessment. To a large extent having the name/concept of ToM allows us a new way of looking at and classifying phenomena of which we have always been aware, but, “not quite able to put our finger on”. It may be argued, of course, that most, if not all we now call ToM has formerly been recognized and placed under other headings.

Specialized test batteries continue to be developed.

A very early test was The Sally and Anne Test (Wimmer & Perner, 1983). (Figure 82.)

Very complex tests of ToM have been developed, extending into testing the ability to understand metaphor, sarcasm, humor and faux pas.

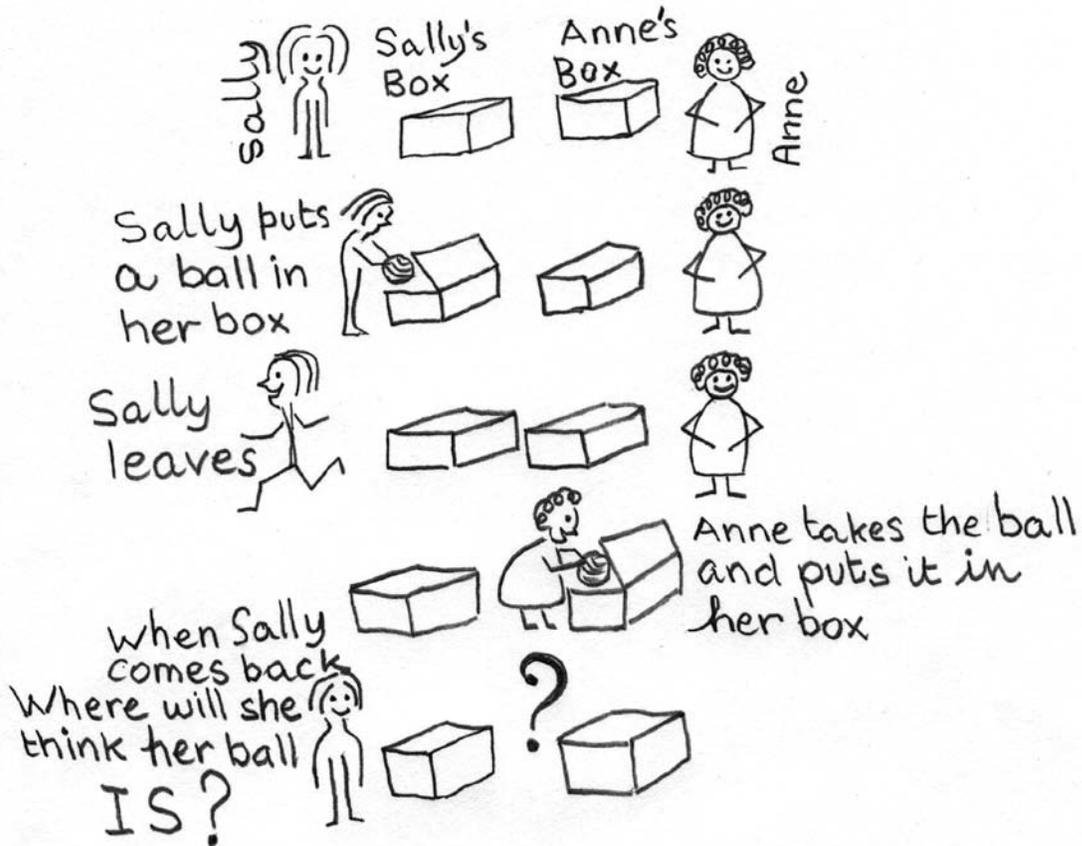


Figure 82. (Adapted from Wimmer & Perner, 1983). The test here is whether the participant understands that he/she knows something which Sally does not know.

THE FRONTAL LOBES

The frontal lobes are phylogenetically the youngest part of the brain, and are important in mental life.

The connections (Goldman-Rakic, 1987) and functions (Alvarez & Emory, 2006) of the frontal lobes are beginning to be understood. A strategy for examination of the frontal lobes during the psychiatric assessment is presented. The frontal lobe release signs (reflexes) are also listed. These give a rough guide to frontal lobe status, full examination requires special training and equipment.

The frontal lobe cortex forms a part of the frontal-subcortical circuits. These are 5 parallel, separate circuits (Alexander et al, 1986): 1) a motor circuit originating in the motor cortex and pre-motor cortex, 2) an oculomotor unit originating in the frontal eye fields, 3) the dorsolateral prefrontal circuit, which underpins executive functions, 4) the anterior cingulate circuit which underpins motivation, and 5) the orbitofrontal circuit which underpins impulse control and social behavior.

The dorsolateral prefrontal, anterior cingulate and orbitofrontal circuits are of great interest to psychiatry. These are important for the organism to learn from experience, organize current information and choose a course of action, summon drive to execute the action, and remain attentive and resist distraction.

Six functional regions of the frontal lobes

While there are only 5 frontal-subcortical circuits, there are 6 functional regions of the cortex, because in the latter, the primary motor and premotor regions are examined/considered separately. (Figure 83.)

- I. Primary motor area
- II. Premotor area
- III. Frontal eye fields
- IV. Dorsolateral prefrontal cortex
- V. Orbital and basal areas
- VI. Supplementary motor area and anterior cingulate gyrus area

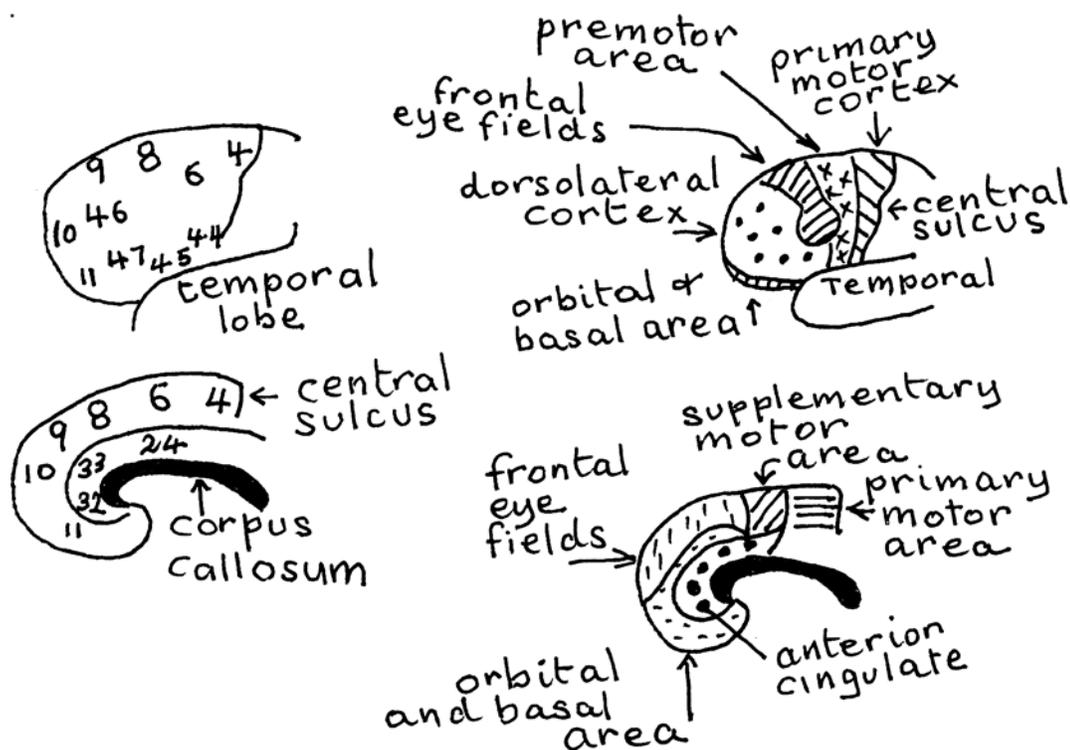


Figure 83. The frontal lobes. Top left: Brodmann areas of the left frontal lobe (lateral view); Top right: functional regions of the left frontal lobe (lateral view); Bottom left: Brodmann areas of the right frontal lobe (medial view); Bottom right: functional regions of the right frontal lobe (medial view).

Primary motor cortex

The primary motor cortex (bounded posteriorly by the central sulcus) is Brodmann area 4. Although designated a “motor” cortex, this area is also involved with somatosensory perception. Lesions in this area of cortex or the subcortical elements of the associated circuit result in weakness and incoordination.

Tests:

1. Motor strength of hand grip. The patient is asked to grip the examiners fingers. Strength should be roughly equal, with greater strength on the dominant side. It should be difficult for the examiner to free her/his fingers.
2. Motor speed as in finger tapping has also been listed as a useful test (Malloy & Richardson, 1994) but such tests do not discriminate from the premotor cortex.

Premotor cortex

The premotor cortex, a transverse strip, is Brodmann area 6. It is involved in sensorimotor integration. Lesions in this area or the subcortical elements of the associated circuit cause inability to make use of sensory feedback in the performance of smooth movements and or any requested movement. Apraxia may also be a result of lesions of other areas (parietal lobe).

Tests:

1. Sensorimotor abilities are tested by asking the patient touch each finger to the thumb in succession as rapidly as possible. Watch for speed and dexterity.
2. Apraxia can be tested by asking the patient to "blow a kiss" and to demonstrate the use of a shovel.

Frontal eye fields

The frontal eye fields are largely Brodmann area 8, with some area 9 and 6. Eye movement involves many structures, and a lesion in one may be compensated for by activity in another.

For present purposes, voluntary eye movements are of two types. Pursuit movement occurs when the eyes to follow moving objects. Saccadic eye movements are used to follow imaginary points. Note inability to move or jerky movement.

Test:

1. Ask the patient to follow the movement of a finger from left to right and up and down.
2. Ask the patient to look from left to right, up and down (with no finger to follow).

Dorsolateral prefrontal cortex (DLPC)

The Brodmann areas for the DLPC are a matter of some disagreement. All agree that area 9 is a large part of the DLPC. Other areas named are 10 and 46.

The DLPC and the subcortical elements of the associated circuit are responsible for executive functions. The executive functions include the integration of sensory information, the generation of a range of response alternatives to environmental challenges, the selection of the most appropriate response, maintenance of task set, sequential ordering of data, self-evaluation of performance and the selection of a

replacement responses if the first applied response fails. However, executive functions may not solely reside in the frontal lobe (Alvarez & Emory, 2006.)

Tests:

1. Is the patient able to make an appointment and arrive on time?
2. Is the patient able to give a coherent account of current problems and the reason for the interview? Is there evidence of thought disorder?
3. Digit span, days of the week or months of the year backwards.
4. Ask the patient to produce as many words as possible, in one minute, starting with F, then A, then S. Or ask the patient to name animals, fruit and vegetables. Formal methods are available for such tests (Benton, 1968; Monsch et al, 1992) and referral is appropriate in the case of doubt. But some useful information can come from informal testing. Generally, a healthy individual will be able to name 10 animals, fruit and vegetables. There should be no repetition or passing from one category to one asked earlier.
5. Alternating hand sequences. These can be devised by the examiner. One example is that one hand is placed palm upwards and the other is place palm downwards, and the patient is then asked to reverse these positions as rapidly as possible. Another is that the backs of the hands are both placed downwards, but one hand is clenched and the other is open, then the patients is asked to close the open hand and open the closed hand, and keep reversing the posture of the hands as rapidly as possible.

Orbital and basal area (Orbitofrontal cortex)

The orbitofrontal cortex is Brodmann areas 10 and 11. It mediates empathic, civil and socially appropriate behavior (Mega and Cummings, 1994).

Increased concern about social behavior and contamination has been associated with increased orbitofrontal and caudate metabolism. This has been reported with lesions of the globus pallidus and in obsessive compulsive disorder.

Tests:

1. Does the patient dress or behave in a way which suggests lack of concern with the feelings of others or without concern to accepted social customs.
2. Go/no-go Test. The patient is asked to make a response to one signal (the Go signal) and not to respond to another signal (the no-go signal). The most basic is to ask the patient to tap their knee when the examiner says, "Go" and to make no response when the examiner says, "Stop". The task may be made more demanding by reversing the customary meaning of signals. An

example is to ask the patient to tap the knee when the examiner says "Stop" and not to tap when the examiner says "Go" (Malloy and Richardson, 1994).

Supplementary motor area and anterior cingulate cortex

The supplementary motor area is the medial aspect of Brodmann area 6 (Barker & Barasi, 1999) and the anterior cingulate gyrus is Brodmann area 24. These areas are involved in motivated behavior (Mega and Cummings, 1994), initiation and goal-directed behavior (Devinsky et al, 1995).

At present there are no office or neuropsychological tests to measure the functional status of these areas

Frontal Release Reflexes

As the CNS matures, frontal lobe cells develop which inhibit the primitive reflexes which are present in normal babies. These may reappear with brain damage or disease. However, they may also reappear with normal aging. Their significance is greater when they appear unilaterally and in young individuals (Ross, 1985).

Grasp

The hand is stroked across the palm toward the thumb by the examiners fingers or the handle of the patella hammer. When the reflex is present the fingers grasp or the thumb strongly adducts. The patient may be unable to release the grip. Presence suggests contralateral frontal lobe disease.

Sucking (pout, snout, rooting)

The sucking reflex is elicited by stroking the lips of the patient with a finger or a spatula from side to middle and back again. The pouting reflex is elicited by the examiner placing the index finger of the patient's closed lips and tapping the finger with a patella hammer. Sucking or pouting movements of the lips suggest frontal lobe damage or bilateral lesions above the mid-pons.

Palmar-mental

The palm is scratched firmly with a key or the handle of the patella hammer, from the fingers, toward the wrist. The positive response is a flicker in the skin on the ipsilateral side of the point of the chin. Presence suggests contralateral frontal lobe damage, however, the true value of the reflex is yet to be clearly determined.

Glabella Tap

The patient is asked to close the eyes and the examiner repeatedly taps (finger tip or patella hammer) the supraorbital ridge. In the normal individual the orbicularis oris contracts in response to the first two or three taps and then ceases. In pathological conditions the orbicularis oris continues to contract with every tap. This reflex is used in the diagnosis of Parkinson's disease, but it may also occur with frontal damage of other etiologies.

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