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с курсами медицинской реабилитации и психиатрии

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ОБЩАЯ ПСИХОПАТОЛОГИЯ

Учебно-методическое пособие
для студентов 4, 5 и 6 курсов
факультета иностранных студентов
учреждений высшего медицинского образования

GENERAL PSYCHOPATHOLOGY

Teaching workbook
for the 4, 5 and 6th year students
Faculty for International Students
of medical higher educational institutions

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INTRODUCTION

The study of psychiatry at the medical University is an important stage in the training of the future doctor. Any specialist should know the basic mental disorders, because many patients with them do not get to see a psychiatrist. The ability to diagnose these disorders will improve the efficiency of medical care.

Psychiatry is one of the rapidly developing branches of medical knowledge. In particular, significant progress has been made towards understanding of the role of neurochemistry and brain morphology, the bio- and psychosocial model of mental disorders origin has been formed.

Instruction in psychiatry and narcology in the Faculty of General Medicine for Overseas Students is an integral part of professional training due to significant medical, economic and social effects of mental disorders.

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TOPIC № 1
BASIC CONCEPTS IN PSYCHIATRY. THE CONCEPT OF SYMPTOM AND SYNDROME IN PSYCHIATRY. CLASSIFICATION OF MENTAL DISEASES. ORGANIZATION OF MENTAL HEALTH CARE. TECHNOLOGICAL ASPECTS OF INTERVIEWING PATIENTS WITH MENTAL AND BEHAVIORAL DISORDERS. PSYCHIATRIC ASSESSMENT. ETHICAL PRINCIPLES IN PSYCHIATRY

Psychiatry — the medical speciality concerned with the study, diagnosis, treatment and prevention of mental abnormalities and disorders. The word Psychiatry is derived from «psyche», the Greek word for soul or mind, and «iatros», which is Greek for healer.

Community psychiatry — the branch of psychiatry concerned with the provision and delivery of a coordinated program of mental health care to a specified population. Pediatric, juvenile and geriatric psychiatry study peculiarities in clinical manifestations of mental disorders depending upon the age.

Forensic psychiatry — psychiatry in its legal aspects, including criminology, penology, commitment of the mentally ill, the psychiatric role in compensation cases, the problems of releasing information to the court, of expert testimony.

Psychotherapy studies different methods of psychotherapeutic influence on patients.

The study of abnormal states of mind is known as **psychopathology**. The term embraces two distinct approaches to the subject — descriptive and experimental.

Descriptive psychopathology is the objective description of abnormal states of mind avoiding, as far as possible, preconceived ideas or theories, and limited to the description of conscious experiences and observable behaviour.

Experimental psychopathology — this approach seeks to explain abnormal mental phenomena, as well as to describe them.

Basic definitions of general psychopathology:

Symptom — a manifestation of a pathologic condition. Symptom must not only differ the patient from other individuals, but provoke the loss of adaptation.

Productive symptoms (plus-symptoms) — new additional functions and phenomena which are not known in healthy individuals, appearance of some surplus traits over a normal level of functioning. These symptoms are reversible, they usually occur in patients with acute disorders.

Negative symptoms (deficiency) — the loss of normal functions (for example the loss of willpower).

Syndrome — a group of signs and symptoms that occur together in a recognisable pattern. Since the true pathogenesis of psychiatric syndromes is not well known, the repetition of these symptoms in different patients is a feature of great significance for diagnostic. Syndrome is a base of psychopharmacological treatment (for example a good effect of antipsychotic drugs in all kinds of paranoid states or antidepressants in all kinds of depression). It is customary to divide mental disorder into severe (***psychoses***) and mild (***neuroses***).

Psychoses:

- construct a false environment which they cannot distinguish from the reality (hallucinations, delusions etc.);
- show absurd or even dangerous behaviour (aggression, suicide, excitement etc.) which cannot be interpreted as understandable development of the personality;
- have poor insight (no sense of illness).

Neuroses:

- apprehend the real environment and situation without significant mistakes;
- do not assume rash, dangerous or antisocial actions;
- realise that they are mentally ill, suffer, seek help (have good insight).

The classification of mental diseases is based on different principles: etiological, nosological and syndromological.

By the etiological principle, mental diseases are divided into the exogenous (the result of infections, injuries, intoxication), somatogenies (connected with vascular and endocrine diseases), psychogenies (connected with various unfavourable psychological influences) and endogenies.

The International Classification of Diseases (ICD), Chapter V (F)

ICD is produced by the World Health Organization (WHO) as an aid to the collection of international statistics about disease.

Chapter V is devoted to psychiatry. All of the diagnostic codes start with the letter F and, like the other chapters, it has 10 major divisions, each of which can be divided into 10 subdivisions, and so on.

Aetiology is a defining criterion in some of the main categories, notably organic (F0), substance use-related (F1), and stress-related (F4).

The main categories of ICD-10 Chapter V (F):

F0 Organic, including symptomatic, mental disorders.

F1 Mental and behavioural disorders due to psychoactive substance use (alcohol, opioids, cannabioids, sedative or hypnotics substances, cocaine, other stimulants, hallucinogens, tobacco, volatile solvents).

F2 Schizophrenia, schizotypal, and delusional disorders.

F3 Mood (affective) disorders (manic and depressive episodes, bipolar affective disorder, recurrent depressive disorder, persistent mood disorders).

F4 Neurotic, stress-related, and somatoform disorders (anxious-phobic disorders, obsessive-compulsive disorder, reaction to severe stress, dissociative (conversion) disorders, somatoform disorders and other neurotic disorders).

F5 Behavioural syndromes associated with physiological disturbances and physical factors (eating disorders, nonorganic sleep disorders, nonorganic sexual dysfunction, mental and behavioural disorders associated with the puerperium).

F6 Disorders of adult personality and behavior.

F7 Mental retardation.

F8 Disorders of psychological development.

F9 Behavioural and emotional disorders with onset usually occurring in childhood or adolescence.

Organization of mental health care На примере in the Republic of Belarus

In Belarus has adopted **the Law on Psychiatric Aid**. It regulates the rights of mental patients, the rules for giving them aid, as well as clearly determines indications for hospitalizing patients to psychiatric establishments.

The law describes the presumption of mental health, principles of giving the psychiatric aid, the state guarantees for providing mental patients with the psychiatric aid and social defence, determines confidence of the information on the state of mental health, etc.

The main principles of giving the psychiatric aid are as follows: *lawfulness, humanism, observance of the rights of the man and citizen, voluntariness, accessibility*.

Hospitalization or inpatient care is the most restrictive form of treatment for a psychiatric disorder, addictive disorder, or for someone with more than one diagnosis. Whether it is voluntary or involuntary, the patient relinquishes the freedom to move about and, once admitted, becomes subject to the rules and schedule of a treatment environment. Hospitalization is necessary in cases where an individual is in imminent danger of harming himself or others or has made a suicide attempt. Crisis stabilization, behavior modification, supervised substance abuse detoxification, and medication management are compelling reasons to consider hospitalization. Ideally, hospitalization is at one end of a comprehensive continuum of services for people needing treatment for behavioral problems. It is generally viewed as a last resort after other less restrictive forms of treatment have failed.

Involuntary hospitalization and outpatient services laws

Two institutions, that of legal justice and that of health care, together, came together about certain critical issues:

1. The capacity of a person to be responsible for his act(s) or act responsibly in certain settings.

2. The distinctions between deviant behavior due to biological, psychological, and social causes.

3. The prediction and treatment of dangerousness.

4. The rights of persons designated as patients.

A person may be admitted on a voluntary basis.

The terms of the directive: A person who is admitted voluntarily is free to leave the psychiatric hospital at any time after admission and within 16 hours of the patient's request to leave unless the hospital initiates an involuntary admission within that period.

Insanity

Insanity, in criminal law, condition of mental disorder or mental defect that relieves persons of criminal responsibility for their conduct. Tests of insanity used in law are not intended to be scientific definitions of mental disorder; rather, they are expected to identify persons whose incapacity is of such character and extent that criminal responsibility should be denied on grounds of social expediency and justice.

The major differences between the civil law of insanity and the common-law variant are procedural.

Insanity is justified as an exemption from responsibility on the grounds that responsibility assumes capacity to make elementary moral distinctions and power to adjust behaviour to the commands of the law. The insane should not be condemned, since they are not morally culpable and cannot be deterred by the threat of penal sanctions. Critics say that the issue of responsibility is less important than the problem of how to identify and treat the disturbed individual.

Diminished responsibility

Diminished responsibility, legal doctrine that absolves an accused person of part of the liability for his criminal act if he suffers from such abnormality of mind as to substantially impair his responsibility in committing or being a party to an alleged violation. The doctrine of diminished responsibility provides a mitigating defense in cases in which the mental disease or defect is not of such magnitude as to exclude criminal responsibility altogether.

It is most frequently asserted in connection with murder cases requiring proof of a particular mental state on the part of the accused. If a judge or jury concludes that the accused is incapable of premeditation yet has the capacity to appreciate the wrongfulness of his conduct or to conform his behaviour to the

requirements of the law, the court can bring a less serious penalty to bear. Generally, the defendant who successfully establishes his abnormal mental condition is found guilty of manslaughter instead of murder.

Few jurisdictions subscribe to the doctrine of diminished responsibility. Although long a part of Scottish homicide law, England and Wales did not adopt the defense until 1957. Most other countries recognize only mental disease or defect of sufficient degree to sustain a defense of insanity.

Incapacity

Incapacity refer to lack of sound mind or lack of maturity to enter into a binding agreement or make decisions on one's own behalf. In this situations a person with mental defects, need to have appointed a guardian to represent their interests in social matters. Incapacity may also refer to lack of ability to stand trial.

In law, a challenge to the validity of a will often involves a claim of lack of testamentary capacity. Testamentary incapacity refers to a lack of the ability to understand one's actions in making a will, knowing who the people are who stand to inherit, or the undue influence of another in making a will. Mental weakness may show lack of capacity to make a will, as can fear, intimidation or persistent drunkenness.

Technological aspects of interviewing patients with mental and behavioral disorders

Psychiatric assessment, also known as the **psychiatric interview**, has three main goals:

- ***to make a diagnosis***. Despite its limitations, diagnosis is central to the practice of psychiatry, since it provides the basis for rational, evidence-based approaches to treatment and prognosis (Craddock and Mynors-Wallis, 2014);
- ***to understand the context of the diagnosis***. The psychiatrist needs to have sufficient information about the patient's life history, current circumstances, and personality. This is necessary to try and understand why the disorder has occurred in this person at this time; it also has a major bearing on decisions about management and prognosis;
- ***to establish a therapeutic relationship***. The psychiatrist must ensure that the patient feels able and willing to give an accurate and full history. Without this skill, the necessary diagnostic information is unlikely to be obtained. Thus, establishment of a therapeutic relationship is essential if the patient is to engage fully in discussions about management, and to adhere to any treatment decisions which are agreed upon.

The following text provides an overview of the basic components and key concepts of the psychiatric interview

1. ***What are the primary aims of the first psychiatric interview?***

To make an initial differential diagnosis and to formulate a treatment plan. These goals are achieved by:

- gathering information;
- chief complaint: history of current and past suicidal and homicidal ideation, history of presenting problem(s);
- current and past history of victimization (e.g., domestic violence, child abuse);
- precipitating factors: history of psychiatric problems, including treatment and response;
- social and developmental history;
- family psychiatric and social history;
- mental history symptoms (Affective Cognitive Physical);
- medical history;
- substance use and abuse;
- changes in role and social functioning.

Arriving at an empathic understanding of how the patient feels. This understanding is a critical base for establishing rapport with the patient. When the clinician listens carefully and then communicates an appreciation of the patient's worries and concerns, the patient gains a sense of being understood. This sense of being understood is the bedrock of all subsequent treatment, and allows the clinician to initiate a relationship in which an alliance for treatment can be established.

2. ***That's a lot to focus on in the first meeting. What about helping the patient?***

The initial diagnosis and treatment plan may be rudimentary. Indeed, when patients present in a crisis, the history may be confused, incomplete, or narrowly focused. As a result, some interventions are started even when basic information about history, family relationships, and ongoing stressors is being gathered. It is critical to remember that emotional difficulties often are isolating. The experience of sharing one's problem with a concerned listener can be enormously relieving in and of itself. Thus, the initial interview is the start of treatment even before a formal treatment plan has been established.

3. ***How should the initial interview be organized?***

There is no single ideal, but it is useful to think of the initial interview as having three components:

Establish initial rapport with the patient, and ask about the presenting complaint or problems, i.e., what has brought the patient to the first meeting. Some patients tell their stories without much guidance from the interviewer, whereas others require explicit instructions in the form of specific questions to help them organize their thoughts. During this phase of the first interview, the patient should be allowed to follow his or her own thought patterns as much as possible.

Elicit specific information, including a history of the presenting problems, pertinent medical information, family background, social history, and specific symptom and behavioral patterns. Formally test mental status.

Ask if the patient has any questions or unmentioned concerns. Initial recommendations are then made to the patient for further evaluation and/or beginning treatment.

Although the three parts of the interview can be considered separately, they often weave together, e.g., mental status observations can be made from the moment the clinician meets the patient. Pertinent medical and family history may be brought up in the course of presenting other concerns, and patients may pose important questions about treatment recommendations as they present their initial history.

4. ***Is the initial assessment different for complex situations?***

The initial psychiatric assessment may require more than one session for complex situations — for example, when evaluating children or families, or when assessing a patient's suitability for a particular therapeutic approach, such as brief psychotherapy. The initial assessment also may require information gathering from other sources: parents, children, spouse, best friend, teacher, police officers, and/or other healthcare providers. These contacts may be incorporated into the first visit, or may occur later. The first step in making such arrangements is to explain the reason for them to the patient and to obtain explicit, written permission for the contact.

5. ***How should a referral source be approached?***

It is almost always appropriate to call the referral source to gather information and to explain the initial diagnostic impressions and treatment plans. Exceptions may occur when the referral comes from other patients, friends, or other nonprofessionals, whom the patient wishes to exclude from treatment.

6. ***Are there any variations on these guidelines for an initial assessment?***

Specific theoretical orientations may dictate important variations in the initial assessment. For example, a behavioral therapist guides discussion to specific analyses of current problems and spends little time on early childhood experiences. The psychopharmacologic evaluation emphasizes specific symptom patterns, responses to prior medication treatment, and family history of psychiatric illness. The approach presented in this chapter is a broadly applicable set of principles that can be used in evaluating most patients.

7. ***How is information gathered from an interview?***

The interviewer must discover as much as possible about how the patient thinks and feels. During the clinical interview, information is gathered from what the patient tells the interviewer; critically important clues also come from how the history unfolds. Thus, both the content of the interview (i.e., what the patient says) and the process of the interview (i.e., how the patient says it) are important routes to understanding the patient's problems. Consider the order of information, the degree of comfort in talking about it, the emotions associated with the discussion, the patient's reactions to questions and initial comments, the coherence of

the presentation, and the timing of the information. The full elaboration of such information may take one or several sessions over the course of days, weeks, or months, but in the first interview hints of deeper concerns may be suggested.

For example, a 35-year-old woman presented with worries about her son's recurrent asthma and associated difficulties in school. She talked freely about her worries and sought advice on how to help her son. When asked about her husband's thoughts, she became momentarily quiet. She then said that he shared her concern and switched the discussion back to her son. Her hesitancy hinted at other problems, which were left unaddressed in the initial session. Indeed, she began the next session by asking, «Can I talk about something else besides my son?» After being reassured, she described her husband's chronic anger at their son for his «weakness». His anger and her feelings in response became an important focus of subsequent treatment.

8. ***How should the interview be started?***

The here and now is the place to begin all interviews. Any one of a number of simple questions can be used: «What brings you to see me today? Can you tell me what has been troubling you? How is it that you decided to make this appointment?» For anxious patients, structure is useful: early inquiry about age, marital status, and living situation may give them time to become comfortable before embarking on a description of their problems. If the anxiety is evident, a simple comment about the anxiety may help patients to talk about their worries.

9. ***Is a highly structured format important?***

No. Patients must be given some opportunity to organize their information in the way that they feel most comfortable. The interviewer who prematurely subjects the patient to a stream of specific questions limits information about the patient's own thinking process, does not learn how the patient handles silences or sadness, and closes off the patient's opportunities to hint at or introduce new topics. Furthermore, the task of formulating one specific question after another may intrude on the clinician's ability to listen and to understand the patient. This does not mean that specific questions should be avoided. Often, patients provide elaborate answers to specific questions such as «When were you married?» Their responses may open new avenues to the inquiry. The key is to avoid a rapid-fire approach and to allow patients to elaborate their thoughts.

10. ***How should questions be asked?***

Questions should be phrased in a way that invites patients to talk. Open-ended questions that do not indicate an answer tend to allow people to elaborate more than specific or leading questions. In general, leading questions (e.g., «Did you feel sad when your girlfriend moved out?») can be conversation stoppers, because they may give the impression that the interviewer expects the patient to have certain feelings. Non-leading questions («How did you feel when your girlfriend moved out?») are as direct and more effective.

11. ***What is an effective way to deal with patient hesitancy?***

When patients need help in elaborating, a simple statement and/or request may elicit more information: «Tell me more about that». Repeating or reflecting what patients say also encourages them to open up (e.g., «You were talking about your girlfriend»). Sometimes comments that specifically reflect the clinician understands of the patient's feelings about events may help the patient to elaborate. This approach provides confirmation for both the interviewer and the patient that they are on the same wavelength. When the interviewer correctly responds to their feelings, patients frequently confirm the response by further discussion. The patient whose girlfriend left may feel understood and freer to discuss the loss after a comment such as «You seem discouraged about your girlfriend moving out».

12. ***Give an example of how comprehensive information gathering can pinpoint a problem.***

An elderly man was referred for increasing despondency. In the initial interview, he first described financial difficulties and then brought up the recent development of medical problems, culminating with the diagnosis of prostatic carcinoma. As be began talking about the cancer and his wish to give up, he fell silent. At this point in the interview, the clinician expressed his recognition that the patient seemed to feel overwhelmed by the build up of financial and, most of all, medical reversals. The patient nodded quietly and then elaborated his particular concerns about how his wife would get on after he died. He did not feel that his children would be helpful to her. It was not yet clear whether his pessimism reflected a depressive overreaction to the diagnosis of cancer or an accurate appraisal of the prognosis. Further assessment of his symptoms and mental state and a brief discussion with his wife later in the meeting revealed that the prognosis was quite good. The treatment then focused on his depressive reactions to the diagnosis.

13. ***How are questions best worded?***

The interviewer should use language that is not technical and not overly intellectual. When possible, the patient's own words should be used. This is particularly important in dealing with intimate matters such as sexual concerns. People describe their sexual experience in language that is quite varied. If a patient says that he or she is gay, use that exact term rather than an apparently equivalent term such as homosexual. People use some words and not others because of the specific connotations that different words carry for them; at first, such distinctions may not be apparent to the interviewer.

14. ***What about patients who are unable to communicate coherently?***

The interviewer must remain aware at all times of what is going on during the interview. If the patient is hallucinating or intensely upset, failure to acknowledge the upset or the disconcerting experience may elevate the patient's anxiety. Discussing the patient's current upset helps to alleviate tension and tells the patient that the clinician is listening. If the patient's story rambles or is confusing, acknowledge the difficulty of understanding the patient and evaluate the pos-

sible reasons (e.g., psychosis with loosened associations vs. anxiety about coming to the visit). When general questions (e.g., «Tell me something about your background») are ineffective, it may be necessary to ask specific questions about parents, schooling, and dates of events. Realize, however, that it can be tempting to ask endless questions to alleviate your own anxiety rather than the patient's.

15. ***Summarize key points to remember about the initial interview.***

Allowing the patient freedom to tell his or her own story must be balanced by attending to the patient's ability to focus on relevant topics. Some people require guidance from the interviewer to avoid getting lost in tangential themes. Others may need consistent structure because they have trouble ordering their thoughts, perhaps due to a high degree of anxiety. An empathic comment about the patient's anxiety may reduce it and thus lead to clearer communication.

Some interviewing guidelines:

- let the first part of the initial interview follow the patient's train of thought;
- provide structure to help patients who have trouble ordering their thoughts or to finish obtaining specific data;
- phrase questions to invite the patient to talk (e.g., openended, non-leading questions);
- use the patient's words;
- be alert to early signs of loss of behavioral control (e.g., standing up to pace);
- identify the patient's strengths as well as problem areas;
- avoid jargon and technical language;
- avoid questions that begin with «why»;
- avoid premature reassurance;
- do not allow patients to act inappropriately (e.g., break or throw an object);
- set limits on any threatening behavior, and summon help if necessary.

16. ***What specific pitfalls should be avoided during the initial interview?***

Avoid jargon or technical terms, unless clearly explained and necessary. Patients may use jargon, for example, «I was feeling paranoid». If patients use a technical word, ask about their meaning for the term. You may be quite surprised by the patient's understanding. For example, patients may use «paranoid» to suggest fear of social disapproval or pessimism about the future. Also, be careful about assigning a diagnostic label to the patient's problems during the interview. The patient may be frightened and confused by the label.

In general, avoid asking questions that begin with «why». Patients may not know why they have certain experiences or feelings, and can feel uncomfortable, even stupid, if they believe their answers aren't «good». Asking why also implies that you expect the patient to provide quick explanations. Patients discover more about the roots of their problems as they reflect on their lives during the interview and in subsequent sessions. When tempted to ask why, rephrase the question so that it elicits a more detailed response. Alternatives include «What happened?» «How did that come about?» or «What thoughts do you have about that?»

Avoid premature reassurance. When patients are upset, as they often are during first inter-views, the interviewer may be tempted to allay the patient's fear by saying «Everything will be fine» or «There is nothing really seriously wrong here». However, reassurance is genuine only when the clinician (1) has explored the precise nature and extent of the patient's problems and (2) is certain of what he or she is telling the patient. Premature reassurance can heighten the patient's anxiety by giving the impression that the clinician has jumped to a conclusion without a thorough evaluation or is just saying what the patient wants to hear. It also leaves patients alone with their fears about what is really wrong. Furthermore, premature reassurance tends to close off discussion rather than encourage further exploration of the problem. It may be more reassuring to ask what the patient is concerned about. The process (i.e., the nature of the interaction) comforts the patient more than any single thing the interviewer may say. Set limits on behavior. Because of their psychiatric problems, some patients may lose control in the session. Although the approach described here emphasizes letting the patient direct much of the verbal discussion, at times limits must be set on inappropriate behavior. Patients who are aroused and want to take off their clothes or threaten to throw an object need to be controlled. This goal is most often accomplished by commenting on the increasing arousal, discussing it, inquiring about sources of upset, and letting patients know the limits of acceptable behavior. On rare occasions outside help may be necessary (e.g., security guards in an emergency department), especially if the behavior is escalating, and if the interviewer senses danger. The interview should be stopped until the patient's behavior can be managed so that it is safe to proceed.

17. ***What is commonly forgotten in evaluating patients?***

The new patient initiates contact with the clinician because of problems and worries; these are the legitimate first topics of the interview. It also is helpful to gain an understanding of the patient's strengths, which are the foundation on which treatment will build. Strengths include ways in which the patient has coped successfully with past and current distress, accomplishments, sources of inner value, friendships, work accomplishments, and family support. Strengths also include hobbies and interests that patients use to battle their worries. Questions such as «What are you proud of?» or «What do you like about yourself?» may reveal such information. Often the information comes out as an afterthought in the course of conversation. For example, one patient took great pride in his volunteer work through the church. He mentioned it only in passing as he discussed his activities of the week before the meeting. Yet this volunteer work was his only current source of personal value. He turned to it when he became upset about his lack of success in his career.

18. ***What is the role of humor in the interview?***

Patients may use humor to deflect the conversation from anxiety-provoking or troubling topics. At times, it may be useful to allow such deviations to help patients maintain emotional equilibrium. However, probe further if the humor

seems to lead to a radical change in focus from a topic that seemed important and/or emotionally relevant. Humor also can direct the interviewer toward new areas for investigation. A light joke by the patient (e.g., about sex) may be the first step in introducing a topic that later takes on importance. On the part of the interviewer, humor may be protective and defensive. Just as the patient can feel anxious or uncomfortable, so can the inter-viewer. Be careful, because humor can backfire. It may be misunderstood as ridicule. It also can allow both patient and interviewer to avoid important topics. Sometimes humor is a wonderful way to show the human qualities of the interviewer and thus build a therapeutic alliance. Nonetheless, keep in mind the problematic aspects of humor, especially when you and your patient don't know each other well.

19. ***How is suicidal intent assessed?***

Because of the frequency of depressive disorders and their association with suicide, it always is necessary to address the possibility of suicidal intent in a first interview. Asking about suicide will not provoke the act. If the subject does not arise spontaneously, several questions can be used to draw out the patient's thoughts on suicide (listed in the order that they may be used for beginning a discussion):

- How badly have you been feeling?
- Have you thought of hurting yourself?
- Have you wanted to die?
- Have you thought of killing yourself?
- Have you tried?
- How, when, and what led up to your attempt?
- If you have not tried, what led you to hold back?
- Do you feel safe to go home?
- What arrangements can be made to increase your safety and to decrease your risk of acting on suicidal feelings?

Such discussion may need to be extended until it is clear whether the patient may safely leave or needs hospital admission).

20. ***What is the best way to bring a first evaluation interview to a close?***

One way is to ask the patient if he or she has any specific questions or concerns that have not been addressed. After addressing such issues, briefly summarize important impressions and diagnostic conclusions and then suggest the course of action. Be as clear as possible about the formulation of the problem, diagnosis, and next steps. This is the time to mention the need for any tests, including laboratory examinations and further psycho-logical assessments, and to obtain permission for meeting or talking with important others who may provide needed information or should be included in the treatment plan.

Both clinician and patient should recognize that the plan is tentative and may include alternatives that need further discussion. If medication is recommended, the clinician should describe the specific benefits and expected time course as well as inform the patient about potential side effects, adverse effects,

and alternative treatments. Often patients want to think over suggestions, get more information about medications, or talk with family members. In most instances, the clinical situation is not so clear that action must be taken in the first interview. However, be clear in presenting recommendations, even if they are tentative and primarily oriented to further diagnostic assessment.

At this point it is tempting to provide false reassurance, such as «I know everything is going to be okay». It is perfectly legitimate — and indeed better — to allow for uncertainty when uncertainty exists. Patients can tolerate uncertainty, if they see that the clinician has a plan to elucidate the problem further and to arrive at a sound plan for treatment.

Whenever possible, the patient's history should be supplemented by information from a close relative or another person who knows them well. This is much more important in psychiatry than in the rest of medicine, for several reasons. Some psychiatric patients are unaware of the extent or significance of their symptoms. Others are aware of their problems but do not wish to reveal them — for example, people who misuse alcohol often conceal the extent of their drinking. Patients and relatives may also give quite different accounts of personality characteristics, or have contrasting interpretations of recent events and symptoms.

Informants can either be seen separately from the patient, or invited to join the interview. The choice depends on both the assessor's and the patient's preference, but in both instances the patient must give consent. There are a few situations in which the patient's permission is not required before interviewing a relative or other informant — for example, if the patient is a child, or when adult patients are mute or confused. If any information needs to be given to a relative — for example, about treatment — the patient's permission should be obtained.

Some techniques for effective psychiatric assessments:

- Help the patient to talk freely. This can be done using open questions, and by non-verbal cues such as nodding, or saying «Go on» or «Tell me more about that».
- Keep the patient to relevant topics. Again, non-verbal cues are useful, as well as specific interventions such as «At this point I'd like to ask you more about how you've been feeling. We can return to your money worries later».
- Make systematic enquiries, but avoid asking so many questions that other, unanticipated issues are not volunteered.
- Check your understanding, and that you have enquired about all of the areas the patient thinks are important, by summarizing the key points of the history back to the patient.
- Be flexible in assessments, with regard to both their length and sequence. Select questions according to the emerging possibilities regarding diagnoses, causes, and plans of action.

The psychiatric history

The main parts of a psychiatric assessment are the psychiatric history and the mental state examination. The latter covers the symptoms and signs present during the interview, and the former deals with everything else.

Background to assessment:

- Basic demographics: name, age, gender, ethnic background, marital status, children, type of employment and if currently unemployed, for how long?
- Current treatment status: any established diagnosis; nature of current involvement with psychiatric services; if an inpatient, voluntary or involuntary admission.
- Context of your interview: who referred the patient, where you saw them.

Presenting complaint:

- In the patients own words (e.g. «There's nothing wrong with me. I've no idea why I'm in hospital»).

History of presenting complaint:

- What is the problem? When did it start? How did it develop: onset/progress/severity/consequent impairment (e.g. unable to work, end of a relationship).
- What makes it better or worse; relationship to other problems.
- Relevant negative findings.
- Collateral history from informants (e.g. friends, family, GP, work colleagues). Note any contradictions.

Family history:

- Family structure describes biological/adoptive/step-parents and siblings: age, state of health or cause and age of death, occupations, quality of relationships. Currently, who supports the patient and who exacerbates their problems?
- Family history of mental disorder includes substance misuse, suicide.

Personal history:

- Obstetric and birth: conception planned/unplanned, wanted/unwanted; maternal physical and mental health during pregnancy and postnatally, any prescribed medication or substance misuse; birth full-term/premature, obstetric events and complications, low birth weight, congenital abnormalities, neonatal illness, maternal separation and bonding.
- Development and milestones: delays in interaction with others, speech; motor control, walking, toilet training; sleep difficulties; emotional or behavioural difficulties, hyperactivity; physical illness.
- Family atmosphere and stability: e.g. warm and caring; abusive; emotionally impoverished or volatile; material circumstances; periods of separation from caregivers (e.g. in hospital due to childhood illness; in foster care due to parental difficulties).
- Social development: establishment of friendships, imaginative play, experience of bullying, any juvenile delinquency.
- Educational attainment: specific learning difficulties, school refusal, age left education and qualifications.
- Occupation: periods of employment, nature of work/skills.

• Psychosexual: age of first sexual experience, sexual orientation, number, length and quality of significant relationships, marriage(s), children from all previous relationships.

Social circumstances:

• Housing situation (e.g. renting, numbers of people in the house), employment, finances, benefits, debts.

• Daily activities.

• Sources of family and social support.

Substance misuse history:

• Alcohol use, amounts.

• Illicit substance use: type, pattern of use including frequency, dependency; associated problems — occupational, social, relationship, health and criminal activity.

• Abuse of any prescribed or over-the-counter medications.

Medical history:

• Past and current physical illness and treatment, allergies.

• Current medication, including any over-the-counter drugs taken regularly.

Past psychiatric history:

• Age of onset of symptoms and first contact with services (there is always a time gap); nature and progression of difficulties; diagnoses.

• Hospital admissions: when, length, voluntary or under section.

• Past treatment — medication, psychological, ECT: what has helped in the past, what has not, medication type, doses prescribed and actual doses taken (i.e. concordance with prescription); history of side-effects.

Risk history:

• Risk episodes: deliberate self-harm (DSH) and suicide attempts; self-neglect and exploitation by others (financial, sexual), thoughts of and actual harm to others.

• Context of episodes, worst harm resulting.

Forensic history:

• Arrests, charges and convictions: nature of offences, outcome (custodial sentence, community service, probation).

• Include criminal activities where patient was not arrested, crime not detected.

Premorbid personality:

• When did they last — or have they ever — felt «normal»: what is normal for them, how is that different to now?

• General: how would they describe themselves, how would friends/family describe them?

• Specific:

— Character traits (e.g. anxious, sensitive, suspicious, dramatic): «how would you describe yourself as a person?».

— Prevailing mood and stability of mood.

— Impulse control.

— Nature of relationships with others: partners, friends, colleagues (e.g. close and confiding, casual only).

— Leisure interests (hobbies).

— Spirituality and religious affiliation.

— Tolerance of stress and coping style, including use of substances to manage stress, modify mood or facilitate social interaction.

The mental state examination uses a standard series of headings under which the relevant phenomena, or their absence, are recorded:

- Appearance and behavior.
- Speech.
- Mood.
- Thoughts.
- Perceptions.
- Cognitive function.
- Insight.

In addition to collecting anamnestic information and assessing the mental state, ***physical assessment and laboratory examination*** are important for psychiatric examination.

Ethical principles in psychiatry

Three ethical principles are widely adopted in psychiatry (Beauchamp and Childress, 2013).

1. Beneficence: doing what is best for patients (and not doing harm).

2. Respect for autonomy: involving patients in health care decisions, informing them so that they can make the decisions, and respecting their views.

3. Justice: acting fairly.

Ethical principles can, and do, regularly conflict with each other. In psychiatry this most often occurs when beneficence is in conflict with respect for autonomy - for example, when a patient refuses treatment that professional opinion judges to be essential, and the **Law on Psychiatric Aid** has to be used.

TOPIC № 2.
DISTURBANCES OF SENSE AND PERCEPTION. MEMORY DISORDERS. PSYCHOPATHOLOGY OF EMOTIONS. DISTURBANCES OF SENSE AND PERCEPTION. ILLUSIONS AND HALLUCINATIONS. DIFFERENCE BETWEEN TRUE HALLUCINATIONS AND PSEUDOHALLUCINATIONS

Sensations and perception are the initial stage in the cognitive activity of man, the sensual cognition of the surrounding reality.

Senses

Sensation is the process by which our senses gather information that is then sent to the brain for processing. A large amount of information is being sensed at any one time (e.g., room temperature, the brightness of lights, the sounds from a conversation, or the smell of perfume).

There are sensations out of awareness. We don't notice radio waves, x-rays, or the microscopic parasites crawling on our skin. We don't sense all the odors around us or taste every individual spice in a gourmet dinner. Humans have different thresholds of sensation from each other and other animals. The first stage of processing is common to all sensory systems. The sensory receptor performs a translation of physical events into electrical signals that the brain can interpret, this is the process of sensory transduction (P. J. Corr, 2006, Understanding biological psychological). One of the main characteristics of sensation is the concept of threshold of sensation, a measure of stimulus that is able to raise sensation. There are absolute, differential and operative thresholds.

- ***The Absolute Threshold*** is the point where something becomes noticeable to our senses. It is the softest sound we can hear or the slightest touch we can feel. The absolute threshold varies among different people and within the same individual from time to time, depending upon fluctuations in mood and physiological conditions. The Absolute Lower Threshold of sensation is the minimal measure of stimuli provoking hardly noticed sensation.
- ***The Differential Threshold*** is the amount of change needed for us to recognize that a change has occurred. It is the minimal difference between stimuli or by two states of one stimulus, which provokes slight difference of sensation.

• ***The Absolute Upper Threshold*** of sensation is the maximal external stimulus that produces increasing intensity of awareness. The normal sensory response may change to pain with increasing intensity such as strong light, loud sound, or intense heat. Sensory Adaptation is the process of becoming less sensitive to constant stimuli, such as adapting to the smell of perfume or the ticking of a clock.

The following are types of sensations according to the mechanisms of their origin and are categorized as:

• ***Exteroseptive*** — they are conditioned by the influence of stimulants on receptors, for example nerve endings of the skin.

• ***Interoseptive*** — they are conditioned by the influence of stimulants on receptors of interior organs.

• ***Proprioreceptive*** — they are conditioned by the influence of stimulants on receptors situated in the muscles the tendons. The sensory organs include visual, auditory, olfactory, tactile, and gustatory.

Because the visual and auditory senses are so prevalent in daily life we tend to forget how important the other senses are. Other senses include smell, taste, kinesthetic and vestibular senses, skin senses and pain. Smell is activated by proteins produced in the nasal glands. Receptor cells in the nasal cavity send axons to the olfactory bulb, which then sends impulses to the temporal lobes where they are interpreted as smell. The sense of taste is detected by receptor cells housed within the taste buds located on the tongue. Kinesthetic and vestibular senses help our bodies to determine the speed and direction of movement and the orientation in space. Disruption to the vestibular sense results in motion sickness in some people. Sensitive nerve fibers in the skin convey information about the sensations of pressure, temperature, and pain to the brain. Pain is a complex sense not easily understood as scientists have great difficulty identifying pain receptors. Individuals vary widely in their thresholds for pain and for pain tolerance. Approaches to managing pain vary by culture and alternative treatments for pain are increasing. The coetaneous sense allows the individual to experience warmth, cold and pain. One pays less attention to the kinesthetic sense because balancing seems so automatic. The kinesthetic sense also permits awareness of internal pressure and movements to inform one of their position in space.

In contrast to vision and hearing, the senses of smell, taste, and touch are primitive senses. Taste and smell are sometimes called the chemical senses.

There are two types of changes in sensations: ***quantitative and qualitative***.

• Quantitative change is anesthesia – loss of feeling a stimulus. Hypoesthesia refers to a reduced sense of sensation and hyperesthesia reflects an increased sensitivity to a sensory stimulus.

• Qualitative changes are:

1. ***Paresthesia*** is an abnormal dermal sensation (e.g., a tingling, pricking, chilling, burning, or numb sensation on the skin) with no apparent physical cause.

The manifestation of a paresthesia may be transient or chronic, and may have any of dozens of possible underlying causes. Paresthesias are usually painless and can occur anywhere on the body, but commonly occur in the extremities (e.g., hands, feet, arms, or legs).

The most familiar kind of paresthesia is the sensation known as «pins and needles» or of a limb «falling asleep». A less well-known and uncommon but important paresthesia is formication, the sensation of bugs crawling underneath the skin.

2. ***Senestopathy*** is a depressing, uncomfortable sensation in the body that can be localized either in the internal organs or on the surface of the body. Sensations of senestopathy are devoid of objectivity. This is where their key difference from visceral hallucinations lies. Senestopathy is characterized by the absence in the place of its concentration of an objective pathological process. It is a violation of mental activity, manifested by various unusual bodily sensations and accompanying hypochondriac delusions, depressive states, mental automatism syndrome. The term «senestopathy» was first introduced by E. Dupré — a psychiatrist from France. Translated from the Greek, it means the feeling of suffering. Senestopathy can be both inside the body and on its surface. They may resemble twisting, squeezing, tightening, bursting, burning, pulsation, etc. Distinctive features of the violation described are considered to be a lack of objectivity, a feeling of unnaturalness, and the absence of a truly existing disease process explaining the subjects' sensations.

Sensation, perception and imagery:

The simple experiences, which arise from the stimulation of sense organs, have been called sensations. All our experiences of red, white, sound or pain are said to be sensations whereas, more complex experiences, such as house, warning etc. have been called perception.

In simple language, the distinction between sensation and perception is that simple ingredients of experience are regarded as sensations, and the experiences that involve several sensations and their interpretation are regarded as perceptions. A perception, therefore, is the interpretation or the meaning given to the sensation and individual experiences. Perception can be attended to or ignored, but it cannot be terminated by an effort of will.

Imagery is the awareness of a percept that has been generated within the mind. Imagery can be called up and terminated by an effort of will. Images are experienced as lacking the sense of reality that characterizes perception, so that a healthy person can distinguish between images and percepts.

Psycho-sensory disorders

Psycho-sensory disorders is a distorted perception of real-life objects, space or one's own body.

- Metamorphic perception of objects in a distorted form (macropsiae mean enlargement of objects, micropsiae are reduction of their size, dysmorphopsiae are a distortion of the form of objects).
- Autometamorphic disorders of the perception of his body — it is manifested in the sensation of elongation, shortening, bending of the extremities, head, internal organs, etc.

Division of symptoms of depersonalisation disorder into four major domains:

- ***Depersonalisation***: disturbing sense of being «separate from oneself», observing oneself as if from outside, feeling like a robot or automaton.
- ***Derealisation***: threatening sense of unfamiliarity or unreality in the environment, perceptual anomalies may be present; other people may feel like actors in a play.
- ***Desomatisation***: diminution, loss or alteration of bodily sensations, sense of disembodiment; there may be a raised pain threshold.
- ***De-affectualisation***: diminution or loss emotional reactivity: emotions seems to lack spontaneity and subjective validity; this may affect intimate relationships.

Different type of may occur as a transient phenomenon in healthy individuals, particularly in the context of fatigue, during or after intoxication with alcohol and/or drugs, or in situations involving serious danger (Noyes & Kletti, 1977). It may also occur as a chronic, disabling and clinically significant phenomenon, either as a primary disorder or secondarily in a range of neuropsychiatric settings (e.g. major depressive disorder, schizophrenia, temporal lobe epilepsy). Clinically significant depersonalisation may affect 1–2 % of the general population, with a gender ratio of about 1:1. Absence of other psychopathology it is features of depression, anxiety and panic disorders, and obsessive–compulsive disorder (OCD) should be sought. It is also important to explore depersonalisation-related phenomena to satisfy oneself that these are not, in fact, psychotic experiences. Patients with depersonalisation will frequently use the descriptor «as if» when attempting to explain their experiences — «as if I was an automaton», «as if I did not really exist», «as if the world is not real».

Aetiological considerations Mayer-Gross (1935) conceived of depersonalisation as a ‘pre-formed response of the brain’ — meaning that he believed it to be a normal response to threat which could become fixed and maladaptive in some individuals.

Neurological factors in depersonalisation, prefrontal cortical areas act to inhibit the neural circuits that normally form the substrate of emotional experience, but precise details of the underlying functional neuroanatomy await clarification.

Psychoanalytical models: Psychoanalytical theorists have presented various models for understanding the genesis and maintenance of depersonalisation.

These vary widely, but a common theme is the idea of depersonalization as a defense against, or result of, psychic conflicts that threaten the integrity of the self.

Illusions and hallucinations

Illusions are a distorted perception of a really existing object with a change of its contents, meaning.

Depending upon a disturbance in the activity of some or another analyzer, there are auditory (a distorted perception of the meaning of the real speech, hearing of voices in some noise, etc.), visual and other illusions.

By the mechanism of appearance, illusions are subdivided into:

- ***Physica***l — they appear as a result of the peculiarities of the physical properties of objects and substances (for example, refraction of objects on the border of two media).
- ***Physiological*** — they are associated with the physiological features of the functioning of the analyzers (for example, the sensation of movement after the train stops).
- ***Psychic*** illusions are associated with changes in mental activity. Among them are: ***affective*** (the result of strong emotions), ***verbal*** (when the patient hears reproaches in different sounds or conversations of other people) and ***pareidolic*** (fantastic misperception of reality in the case of sufficient information).

Hallucinations are percepts without any obvious stimulus to the sense organs; the patient is unable to distinguish them from reality. These sensory impressions are generated by the mind rather than by any external stimuli, and may be seen, heard, felt, and even smelled or tasted. A hallucination occurs when environmental, emotional, or physical factors such as stress, medication, extreme fatigue, or mental illness cause the mechanism within the brain that helps to distinguish conscious perceptions from internal, memory-based perceptions to misfire. As a result, hallucinations occur during periods of consciousness.

Hallucinations can be described in terms of their complexity and their sensory modality. The term elementary hallucination refers to experiences such as bangs, whistles, and flashes of light, whereas the term complex hallucination refers to experiences such as hearing voices or music, or seeing faces and scenes.

- ***Auditory*** hallucinations may be experienced as noises, music, or voices. Voices may be heard clearly or indistinctly; they may seem to speak words, phrases, or sentences.
- ***Visual*** hallucinations may also be elementary or complex. The content may appear normal or abnormal in size; hallucinations of dwarf figures are sometimes called lilliputian. Occasionally, patients describe the experience of visual hallucinations located outside the field of vision, usually behind the head (extracampine hallucinations). Visual hallucinations should always suggest the possibility of an organic disorder, although they also occur in severe affective disorders, schizophrenia, and dissociative disorder.

- ***Olfactory*** hallucinations and ***gustatory*** hallucinations are frequently experienced together. The smells and tastes are often unpleasant. Hallucinations of taste and smell are infrequent. They may occur in schizophrenia, severe depressive disorders, and temporal lobe epilepsy, and in tumours affecting the olfactory bulb or pathways.

Case example:

A 26-year-old woman comes to her outpatient physician with a chief com-plaint of «smelling bad smells». She reports that several times a week for the past month she suddenly smelled burning rubber. She also noticed a smell of "rotting flesh." During these episodes, she notices that no one else in the vicin-ity complains about the odors, which are very acrid and pungent.

- ***Tactile*** hallucinations, sometimes called haptic hallucinations, may be experienced as sensations of being touched, pricked, or strangled. Tactile and somatic hallucinations are suggestive of schizophrenia, especially if they are bizarre in content or interpretation. The sensation of insects moving under the skin (formication) occurs in people who abuse cocaine.

Case example:

A 37-year-old woman complained of a bad mood in the past 3 months, and in recent weeks the condition has worsened. She began to complain that she heard the voices of dead relatives talking to her, telling her that she would rather die, and that she was a useless wife and mother. She complains about the constant unpleasant smell, which, in her opinion, comes from her. She refuses to leave the house because she thinks that other people will feel it.

Clinical distinction of pseudo and true hallucinations

True hallucinations are often the symptoms of irritation of the cortical division of the analyzer (brain tumors, severe intoxication, traumatic brain injury, etc.). They more often than pseudohallucinations form critical attitude (especially if they occur on the background of full consciousness).

Pseudohallucinations — reflect endogenous disturbances on integrative processes in cognitive sphere.

Depending on the conditions of occurrence may be:

- ***Hypnagogic hallucinations***, that occur during the transition from wakefulness to sleep (when falling asleep).
- ***Hypnopompic hallucinations***, that occur on waking, that is, the transition from sleep to wakefulness. These variants of hallucinations disappear when the patient falls asleep or wakes up completely.
- ***Functional hallucinations*** — hallucinatory stimulus is perceived alongside, simultaneously with the real one (for example, in the noise of water, the sound of water and "voices" is heard.
- ***Reflex hallucinations*** — they are reflected when a real stimulus is hallucinatory perceived elsewhere.
- ***Suggested hallucinations*** are called forth during a session of hypnotherapy.

SYMPTOM	TRUE HALLUCINATIONS	PSEUDOHALLUCINATIONS
Realization of the hallucinatory image	Has a sense of objectivity and reality, pt. Perceives it as a reality	A patient perceives hallucination as something subjective and abnormal, hallucination are distinct from real images, phantasies and true hallucinations
Judgment on the means of perception hallucinatory image	Conviction in usual way of «perception» through one of the analyzers	Conviction in unusual «perception» through non-existing analyzer («inner ear/eye»)
Identification ща the hallucinatory image with a real one	Total identification with alienation of hallucinatory image	Absent, hallucinatory image holds special qualities allowing the subject to differentiate it from reality
Projection of the hallucinatory image	As a rule, projection is into material, physical world within the reach of the analyzer	As a rule, projection is into subjective world, frequently out of the analyzer's reach
«Feeling of madeness»	Always absent	Always present
Actual behavior (concordance of behavior to hallucinatory experience)	Observed most cases.	Behavior is almost always dissociated with the hallucinations content
Conviction that others see the same images	Present in most cases	Almost always absent
Hallucinatory image is dangerous	Commonly, hallucinatory images present danger to patients' and their relatives' lives, health	Commonly, hallucinatory images present danger to patient psychic
Daily fluctuation of the symptom	Usually, hallucinatory experiences increase and can reach twilight state at the evening, night time	Usually absent
Course	Frequently acute, relatively transient	Frequently chronic, subacute, lingering

Memory disorders. Korsakoff syndrome

Memory is a process of storing information and experiences. It is a main mechanism of adaptation which makes us able to hold psychological phenomena like, obtaining feelings, emotions, doing something, some actions for a long time in the brain. The work of memory is connected with the main elements of process of perception and thought, like representation and understanding. It is the basic ground of work of intellect.

Memory can be of three types:

1. Sensory memory.
2. Short term memory (also termed working memory).
3. Long term memory.

- ***Sensory memory*** refers to the information we receive through the senses. This memory is very brief lasting a few seconds. The sensory register contains only unprocessed information which can be transferred to the next stage, short-term memory, if the person chooses to do so.
- ***Short Term Memory*** (STM) occurs when the information in our sensory memory is transferred to our consciousness or our awareness Short term memory can definitely last longer than sensory memory (up to 30 seconds or so), but it still has a very limited capacity. According to research, we can remember approximately 5 to 9 (7 /- 2) bits of information in our short term memory at any given time (Miller, 1956).
- ***Long term memory*** (LTM) is similar to the permanent storage of a computer. Unlike the other two types, LTM is relatively permanent and is unlimited in terms of its storage capacity. When we process information, we attach significance to it and information deemed important is transferred to our long term memory. There are other reasons information is transferred. Sometimes our brains seem full of insignificant facts. Repetition plays a role in this, as we tend to remember things more the more they are rehearsed. Other times, information is transferred because it is somehow attached to some significant events. There is no doubt that those items which go into long term memory are those which we also have vivid associations. We remember both verbal terms and visual cues. Words are most useful for encoding abstract concepts, such as the meaning of words, whereas visual imagery is best for representing concrete event.

Forgetting

An important aspect of remembering is its counterpart-forgetting. Sometimes the information is not available and lost by the distractions in the environment. Another cause of forgetting is the phenomenon of repression which is facilitated by the unconscious process of avoiding unwanted thoughts and feelings. Repressed thoughts generally are not accessible to the individual except through special circumstances, such as psychoanalysis or some provocative event highly charged to the original event. Amnesia, loss of memory, can be psychological or physiological in origin.

Processes of Memory

Memory is dependent on the following stages:

- Acquisition.
- Retention.
- Retrieval.
- Recognition.
- Reproduction.

During acquisition the relevant experiences presumably leave some enduring record in the nervous system. Retention, during which the information is filed for retrieval. The final stage is retrieval, the point at which one tries to re-

member, to recall the particular memory trace from among all others. Many failures to remember are failures of retrieval and not of storage.

Types of Memory

Memory consists of following types: emotional, motivational, pictorial (imagery) and logical.

- ***Emotional memory*** — emotions reflect how our interests and needs are fulfilled. Feelings reflected in memory are signals inducing activity from actions which induces negative emotions.
- ***Motivational memory*** is acquisition, retention of different movements. Its serves basis for forming different practical and working skills.
- ***Pictorial memory*** is images, reflections of pictures, and tasks, smells and sounds. It can be visual, gustatory and auditory.
- ***Logical memory*** is thinking and requires normal syntax and semantics. Eidetic memory is the type of memory when a person can imagine a subject without seeing its details.

Acquisition in which there is no special aim to memorize is called non-arbitrary. Acquisition in which there is a special aim to memorize is called arbitrary.

Mnemonics

«Mnemonic» is another word for memory tool. Mnemonics are techniques for remembering information that is otherwise quite difficult to recall. The idea behind using mnemonics is to encode difficult-to-remember information in a way that is much easier to remember. The key idea is that by coding information using vivid mental images, you can reliably code both information and the structure of information. And because the images are vivid, they are easy to recall when you need them. There are many techniques that make learning easier and faster. One technique, known as the «loci memory system», involves picturing yourself in a familiar setting and associating it with something you need to learn. Let's assume that you needed to memorize the function and structure of a neuron. Begin by picturing yourself walking into the entry hall of your home. At the same time pretend that you are walking through a dendrite. As you walk down the hall toward the living room, imagine that you are traveling in the dendrite to the cell body. As you exit the living room and walk down the hall toward the bedrooms, think of traveling down an axon toward the terminal button that contains the neurotransmitter. In this example you are connecting new information with something very familiar. We recall information much better when we involve our imagination. An even better way to perform this exercise would be to actually walk through your home while you visualize the parts of a neuron. In this situation you would not only be using your imagination but at the same time doing something physically. It is important to realize that we have strong memories for what we do physically.

Types of memory and process conversion of one type of to another type.

Three main kinds of memory storage:

- sensory memory;
- short-term memory (also termed working memory);
- long-term memory.

Sensory memory describes the effects of stimulation on senses such as vision, hearing, touch, taste, and smell. Research shows that this type of memory might be available to us even when we aren't paying attention and after the stimulation is finished. Some researchers call this kind of memory echoic because it is as if the memory remains as an echo. When you pay attention to a stimulus-that is, when you become conscious of it-it becomes part of short-term memory.

Short-term memory is what we are immediately aware of at any given time. Keeping things in mind for a short period is necessary for thinking and understanding. That is why short-term memory is often known as working memory. For example, as we saw earlier, understanding this sentence requires remembering something about the beginning when you reach the end; it relies on working memory. Short-term memory is severely limited: Its effects last for seconds (usually fewer than 20), and in adults it is limited to about 7 items. «The lizard's name is Adolphus». If this sentence were very important to you and you desperately wanted to remember it, you might reread it and repeat it to yourself several times. This process is known as rehearsing. Alternatively, you might make a mental link between some Adolphus you know and this lizard, a process termed elaborating. Or you might think of some other meaningful way of remembering the sentence by organizing it with other items of information you possess. Rehearsing, elaborating, and organizing are the three most important strategies we have for bringing information form short-term to long term memory. Psychologists use the term encoding to describe how information is processed to become part of long-term memory.

Long-term memory contains our relatively permanent information about the world. It includes everything we know about ourselves, about others, and about things. It represents the relatively permanent or long-term effects of all the experiences we have had. Some of this information is explicit: It can be put into words. And some of it is implicit: It cannot be put into words. Implicit memory is also called nondeclarative memory because it consists of memories that are nonverbalizable , for example, skills such as walking or tying shoelaces. There are two types of explicit memory, and they seem to involve different parts of the brain. Semantic memory consists of abstract information like the facts you learn at school such as addition or multiplication. Episodic memory consists of the memories that make up your recollection of your personal experiences. Our long-term memories are extremely important to our sense of who we are. All of our skills, our habits, our competence, our very identity reside in long-term memory. Patients who suffer memory loss, as happens with Alzheimer's dis-

ease, for example, may eventually lose even the most basic competence required for the tasks of daily life. Studies on victims of road accidents with head damage or brain injury provide strong evidence that different parts of the brain produce different types of memory.

Imlicit and Explicit Memories

In everyday speech memory usually means two related things: having information in storage and being able to retrieve it. But, as psychologist Endel Tulving (born 1927) has pointed out, you cannot always find what you know you have.

	SENSORY MEMORY	**SHORT-TERM MEMORY**	**LONG MEMORY**
Alternate names	Echoic	Working	None
Duration	Less than one second	Less than 20 second	Permanent indefinite
Stability	Fleeting	Easily disrupted	Not easily disrupted
Capacity	Limited	Limited 7+2 items	Unlimited
General Characteristics	Momentary, unconscious, impression, a passing sensation or association	What we are actively paying attention to immediate unconsciousness	All of our knowledge explicit (can be put into words) and implicit skills

This table shows the three main types of memory storage. Short-term memory and long-term memory are relatively easy for researchers to measure. Sensory memory is of a more subjective and transitory nature and is, therefore, more difficult to quantify.

Short term memory in most of the cases is the first to be affected. As a rule, in case of memory loss patient tends to forget the most recent memories first. Like an old man can remember his acquired knowledge from university but can't remember if he ate his breakfast. In the next step, he may forget his knowledge that he obtained in university or at work, but remembers events in his childhood. In the end the childhood memory may also be lost but he knows his name, surname, street address (where he lived at his childhood). At the last stage he even can't remember his name. But in practice we seldom see this step. (even patients suffering from Alzheimer s, could tell their names). Disorder of memory in most of the cases is related to organic defect of brain. But sometimes it may also be secondary to other psychological disorder. Therefore it is important to include the attention, consciousness of the patient during grading his memory.

Disorders of memory:

Disorder of memory conditionally may be divided in ***dismnesia and paramnesia***.

Dismnesia contains hypermnesia, hypomnesia, and different types of amnesia.

- ***Hypermnesia*** is a nonproductive, some unfairly actualization of past experiences. A flood of memory about accidentally occurred situations which had negligible effect on life, doesn't improve productivity of thinking, but merely distracts the patient and disturbs him to obtain new information. Hypermnesia is seen in mania episodes or sometimes is seen in disorders of consciousness. It is also observed in case of intake of psychotropic drugs (marijuana, LSD, opioids, amphetamines etc.), or accompanied by epileptic paroxysm.
- ***Hypomnesia*** is general weakening of memory. In this case the patient remembers new names, dates, with difficulty and forgets details about events. The patients have to write the important information to remember them, without these notes they cannot remember. During reading a book, he has to return at previous pages to remember and connect what he is reading now. Hypomnesia is often accompanied by a symptom: anecphoria (greek word) i.e. when the patient cannot remember names, words, unless he is given a clue or hint. Hypomnesia is related to broad spectrum organic diseases of brain (basically vascular), sometimes it is seen in functional disorders of psychology e.g. in condition of fatigue (asthenic syndrome).
- ***Amnesia*** is a row of diseases characterized by loss of part of memory.

Retrograde amnesia is loss of memory till the beginning of the disease (in most of the cases it is connected with acute brain catastrophe with loss of consciousness). A part of memory of the past is lost in this case.

Case example:

Patient, age 42, was born at place A, well settled, married at place B and lived there for 15 years with his wife and 2 sons. After divorce went back to place and worked as driver. Married again and had a son from the 2nd marriage. One evening the patient did not return home from work. He was found senseless under the bridge on the next morning. He was sent to ICU for 10 days. When he was conscious again, couldn't remember anything about the trauma. After that it was found that he couldn't remember last few years, he didn't remember that he divorced his 1st wife, came back to place A to live, didn't know anything about his 2nd marriage. But clearly remember about his last life at place A, told about place A and how he lived there. While his 2nd wife came to visit him, he recognized her, but called her by the name of his 1st wife.

In case of brain trauma, the patient practically does not forget his name, age, memories of childhood etc. The loss of basic information about the personality of the patient is related to psychogenic sources, which is called hysterical amnesia. Hypnosis can cure this symptom.

Anterograde amnesia is loss of memory after the onset of disease (after restoring consciousness). In this case, the patient is available for contact, he answers the questions but cannot remember the fragments of the events occurred just beforehand. The cause of anterograde amnesia is obscured consciousness and twilight state. In this case the ability to fix the events in memory may be restored with

times. But in case of Korsakoff Syndrome (you will read about it later) anterograde amnesia comes as a complete loss of ability to fix events in memory.

PAST EVENTS	NOW	FUTURE EVENTS
↓		↓
Retrograde amnesia		Anterograde amnesia

If under unfavourable exogenous effects the same patient reveals a combination of anterograde and retrograde amnesia, in these cases the term ***anteroretrograde amnesia*** is used.

Fixation amnesia is sudden decrease or total loss of ability to store something for some-times in memory. These patients cannot remember anything that they just heard, or saw, or read (minute memory). As they remember events till the onset of disease, they may lead professional lives. Ability to intellectual actions is also preserved. Along with these the disorder of memory leads to very rough disorientation of patient in any new situation, that the patient himself cannot continue any labor function. It is seen in chronic vascular disorder of brain (atherosclerotic dementia) and in sudden brain catastrophes (intoxication, trauma, asphyxia, stroke).

Case example:

The patient is informed of today's date, is asked some inappropriate question, and immediately after that he is asked to repeat the name he has just heard. The impossibility of repetition indicates the presence of fixation of amnesia.

In case of ***progressive amnesia*** the loss of memory is due to progressive organic brain disorders. As a rule, here, at first the ability to memorizing is lost (hypomnesia). Then patient tends to forget recent events. Then the long term memory is affected. This includes organized (learned and abstract) memory. At last emotional experiences and practical acquired habits are lost from memory. Patient may have some fragments of childhood memory left. Progressive amnesia is seen in case of diseases like atherosclerosis of vessels in brain (in absence of stroke), Alzheimer s disease, Pick s disease, and senile dementia.

Paramnesia is distortion or perversion of contents of memory. It includes pseudoreminiszenz, cryptomnesia and confabulation.

- ***Pseudoreminiszenz****:* this is filling of gap of memory by real experience but of other time period from his past life.

Case example:

Patient, hospitalized for last 2 months, during conversation with a medical student says that on the previous day she made dinner, helped her grandson to do homework.

- ***Cryptomnesia*** a distortion of the memory manifested by disappearance of differences between the real events and those ones which were seen in sleep, heard or read by the patient.

- ***Confabulation*** is unintentionally or unconsciously filling of gap of memory by imagined or untrue experiences that patient believes but has no base in fact.

Case example:

Patient, age 55, hospitalized for last 6 months, during conversation with a health care provider says that she on the previous Sunday, president Putin declared war against U.S. she is afraid because she saw the war in 1944 and it was a horrible experience for her.

Korsakoff Syndrome

Before we learn about Korsakoff Syndrome (also called Korsakoff psychosis), we have to learn some basic things about how memory functions. There are 3 steps. The 1st step is called registration or fixation (give your patient 10 simple words and immediately ask them to see how he remembers). The 2nd step is retention. This is storage of information. The 3rd step is reproduction which is output of the information. Observing the level of reproduction a doctor can understand the severity of damage of retention and fixation.

This syndrome was written as a manifestation of specific alcoholic psychosis. But the clinical picture can be observed in different types of organic diseases of brain.

One of the main symptoms of Korsakoff syndrome is ***fixation amnesia***. The severity of fixation disorder disturbs patient in not only to remember the contents of consultation with the doctor but also the fact that there was a consultation. Even staying many days in hospital, patient cannot remember his doctor and the neighbor patients. Even if he writes the notes, he cannot remember, he even cannot remember that he wrote.

In this case, the patient cannot remember anything write from the onset of the disease, i.e. he has ***anterograde amnesia*** (2nd symptom). Korsakoff syndrome can be seen often after acute brain catastrophes, so retrograde amnesia (2nd symptom) can also be present along with anterograde amnesia. Together, this symptom is known as retroanterodrade amnesia. The patient mixes up the organization in memory blank gap. This is ***paramnesia*** (pseudoreminizsenz and confabulation as 3rd symptom).

The sudden disorder of memory leads to disturbance of orientation. This is called ***amnesic disorientation*** (the 4th symptom). Amnesic disorientation is different from obscured consciousness as here the patient has no difficulty with getting information from the surroundings, his intellect is preserved and the previous experiences helps him to interpret the situation correctly. The patient doesn't feel disoriented in familiar places. But in the hospital he is helpless. He cannot find his ward, his bed and toilet.

Case example:

Patient, age 49, with a positive history of alcoholism, after having a delirium tremens suffered from severe memory disorder. He could remember nothing

from the onset of the disease, and even many other facts like he was divorced for last 1 year. At the ward, he often became very aggressive and complained that his wife rarely visited him. When the ex-wife asked about some stuffs that she brought in her last visit, the patient told that they were brought by his colleagues. At first he couldn't orient himself in the hospital. Often he entered in other wards. After 2 months he adapted to the rules of the ward, memorized the name of his doctor, and even went for walks with other patients. Once he decided to walk alone. But he was lost on the street. For 3 hrs., he loitered on the streets and tried to find the way back to hospital. He asked the passers-by and then he understood that he was merely loitering in the hospital campus.

Psychopathology of emotions. The symptoms of emotional disorders. Depressive and manic syndromes

Emotion definition and differentiation

- ***Aristotle:*** People are THINKING ANIMAL. What makes people special is they can overcome their brutish emotions.
- ***Rousseau:*** Emotions are what makes people special and gives us reason for living.
- ***Hippocrates:*** Brain is the site of emotion.
- The word emotion is derived from the latin word *emovere* which means to stir up to get agitated. English word «emotion» dates back to 1579, when it was adapted from the French word émouvoir, which means «to stir up».

Emotion it is one of the most important mechanisms of psychological actions.

It is characterized by productive subjective feelings after input of signals, prosperity of internal condition of human beings and reaction at external situations. Emotions can be negative and positive. Positive emotions are happiness, enjoyment, relaxation, love, comfort etc. negative emotions are sadness, sorrow, fear, anxiety, hatred, discomfort, anger etc. In this case the quantitative characteristic of emotion should also be positive and negative, mild and severe. Affect is external expression of emotion, i.e. mimic, gesticulation, intonation, vegetative reaction. So in psychiatry emotional and affective, these two terms are used as synonyms. Emotion is also characterized by some dynamic signs. Prolonged emotional condition corresponds to mood.

There are three basic functions of emotions:

1. ***Signaling***. Signaling allows grading a situation faster than the logical analyzing.

2. ***Communicativeness***. It helps us to interact with other people and do an action accordingly. Collective action of people suggests emotions like sympathy, empathy, cruelty etc.

3. ***Formation of behavior***. Emotion basically allows grading noticeable demands of human beings and pushes for its realization. Like feeling of hunger ends in search of food.

Emotion usually conceptualized as a complex feeling state with psychic, somatic, autonomic and behavioral components. Emotions have been described as consistent responses to internal or external events which have a particular significance for the organism.

Emotions are brief in duration and consist of a coordinated set of responses, which may include:

- *verbal;*
- *physiological;*
- *behavioral;*
- *neural mechanisms.*

Emotion has two components: mental and physical.

Mental component:

- Cognition — Awareness of sensation and its cause.
- Affect — The feeling itself.
- Conation — urge to take action.

Physical components*:*

- Changes in viscera and skeletal muscle.
- Coordinated activity of autonomic and somatic nervous system.

Example: *tachycardia, tachypnoea, cutaneous vasoconstriction etc. in fear.*

Description of emotions often accompanied by terms:

Feelings are best understood as a subjective representation of emotions, private to the individual experiencing them.

Moods are diffuse affective states that generally last for much longer durations than emotions and are also usually less intense than emotions.

Affect is an encompassing term, used to describe the topics of emotion, feelings, and moods together, even though it is commonly used interchangeably with emotion.

Five components of emotion according Scherer's processing model of emotion:

- ***Cognitive appraisal:*** provides an evaluation of events and objects.
- ***Bodily symptoms:*** the physiological component of emotional experience.
- ***Action tendencies:*** a motivational component for the preparation and direction of motor responses.
- ***Expression:*** facial and vocal expression almost always accompanies an emotional state to communicate reaction and intention of actions.
- ***Feelings:*** the subjective experience of emotional state once it has occurred.

Current theory:

- No single neural system produces emotions.

• Different emotions may depend on different neural circuits, but many of these circuits converge in the same parts of the brain.

• The limbic system may be involved in some emotional experiences, but it is not the sole neural system underlying emotion.

• Feelings (emotion) result from the interplay between: The amygdala, hypothalamus, brain stem & autonomic nervous system.

• Current overall approach to emotion is human emotions are biological, psychological and sociological in nature. Past historical accounts of emotions have been discourteous and avoidant. The contemporary neuroscience believes that emotions are not trivial indulgences or invaders that interfere with logical thinking, but they are prime organizing methods where awareness, understanding, and memory are established.

• If the message people sense in a situation fails to evoke an emotional reaction, it will also fail to be regarded as significant and will have little likelihood of being selected into long-term memory.

• Investigations are also confirming that for someone to learn new ways of adapting they must possess a desire about what they are attempting to learn.

• Appraisals that lead to emotions, attitudes toward emotions, emotion labels, emotion concepts, and emotion expressions vary across cultures.

• As early as infancy, individuals begin to develop a characteristic style of expressing emotions, and the frequency of expression of various discrete emotions tends to remain stable over time.

Additional research on emotions and psychopathology:

The functions of emotions in persons with psychopathology remain comparable to these functions in normal individuals Davidson, 1992; Davidson & Tomarken, 1989; Gray, 1979, 1982, 1995. Disturbance in any one of these components («perception, experience, intensity, or display») can impair a person's «ability to achieve one or more emotion functions in an adaptive fashion». Kring and Bachorowski (1999) discussed the relations of depression, anxiety disorders, psychopathy, and Schizophrenia to various disturbances in emotion processing and, in particular, to the hypothesized behavior activation and behavioral inhibition systems (Gray, 1978, 1995) and the conceptually similar approach and withdrawal motivation systems (Davidson, 1994).

Depression relates to deficits in the approach motivation system (Depue, Krauss, & Spoont, 1987), anxiety disorders to disturbances in the withdrawal motivation system (Barlow, 1988; Gray, 1978), psychopathy to dysfunction in both the approach/behavioral activation system (strong) and withdrawal/inhibition system (weak), and schizophrenia to problems in both the activation/approach systems and the inhibition/withdrawal systems (Fowles, 1994).

Kring and Bachorowski note that a number of pathological conditions cannot be explained in terms of dysfunction in a single motivation system, a single di-

mension of emotionality, or a single component of emotion processes. For example, depression may include a combination of high negative affect and low positive affect, schizophrenia a diminished emotion expression and possibly diminished emotion experience as well (Earnst & Kring, 1999), and psychopathy a discordance between emotion experience and its verbal articulation (Cleckley, 1941) as well as disjunction between components of the emotion process. These reviews document the complex and highly significant role of emotions in psychopathology.

Emotions, Culture, and Socialization Processes

Appraisals that lead to emotions, attitudes toward emotions, emotion labels, emotion concepts, and emotion expressions vary across cultures (Izard, 1971; Markus & Kitayama, 1991; Matsumoto, 1990), and these differences may cause variations in the relations between emotions and psychopathology.

Expressing Emotion and psychopathology

As early as infancy, individuals begin to develop a characteristic style of expressing emotions, and the frequency of expression of various discrete emotions tends to remain stable over time (Hyson & Izard, 1985; Izard, Hembree, & Huebner, 1987). In later development, some aspects of emotion expression relate to many forms of psychopathology for example, attenuated or discordant expression in people at risk for Schizophrenia (Simons et al., 1993), prolonged expression of negative emotions (particularly sadness and anger) in depression (Blumberg & Izard, 1986), dampened or developmentally delayed expression in Down Syndrome Disorder (Cicchetti & Sroufe, 1976; Emde, Katz, & Thorpe, 1978), inappropriate or incongruous expression in Autism (Sigman & Capps, 1997), and deceptive expression in psychopathy (Cleckley, 1941;Patrick, 1994). Furthermore, expressions of particular emotions in certain conditions characterize aggressive rejected children (Hubbard, 2001) and delinquent youth (Keltner, Moffitt, & Stouthamer-Loeber, 1995) and may reveal the type of abuse that leads to a Posttraumatic Stress Disorder (Bonanno et al., 2002).

The biological regulators of emotions:

The immune and endocrine systems aid in processing emotions, two integral brain systems share in the regulating duty (Edelman, 2001).

1. The cerebral cortex governs higher functions and manages communications with the outside world.

2. The brain stem which is located at the base of the brain plus the limbic system formations encompassing it directs people internally, focusing on the emotional, nurturing and survival needs. The brain stem also monitors spontaneous activity, such as heart rate.

The Cerebral Cortex

While investigations are not precise on the roles the hemispheres play in emotion, a few common patterns are obvious (Corballis, 1991). The right hemi-

sphere appears to represent processing the emotional content of gestures, faces, speech intonation and volume associated with how something is communicated, while the left hemisphere processes the actual content of language or what is spoken. The right hemisphere also processes information that point to withdrawal reactions, for instance, fear and revulsion whereas the left hemisphere processes the aspects of emotion that point to advancing reactions like laughter and joy. Tomasi and Dardo (2011) have implied that the average male brain seems to follow a left design of hemisphere specialization; however, the average female brain may disperse more emotional processing across the two hemispheres. If accurate, these organizational variations may serve to clarify regularly seen gender discrepancies.

The Limbic System and Brain Stem

Consist of limbic lobe and related subcortical nuclei.

- The limbic system and brain stem react slower, from seconds to months as it governs fundamental body functions, cycles, and defenses that broadly connect to organs and systems. The reticular formation at the tip of the brain stem integrates the volume, and kind of incoming sensory data into a common level of awareness.
- The limbic system is formed from many small interconnected networks and is the brain's primary manager of emotion that plays a significant role in processing memory. This system may reveal why emotion is a significant element in memory formation as it is strong enough to reverse both rational thinking and innate brain stem reply patterns, meaning people tend to follow their emotions (Rolls, 2013).

The limbic systems structures that process memory and emotion are:

- the amygdala;
- the hippocampus;
- the thalamus;
- the hypothalamus.

The amygdala is the key limbic system structure implicated in processing the emotional content of memory and behavior. It is composed of two little almond-shaped structures that link the sensory-motor systems and autonomic nervous system, which governs survival faculties such as breathing and heart rate. The amygdala also communicates with nearly all other brain regions. Its primary responsibility is to refine and translate advanced incoming sensory data in connection with survival and emotional demands, and then assists in launching relevant actions.

Physiology of special emotion

Fear:

- ***Site:*** The hypothalamus and amygdaloid nuclei.

• ***Effects of lesion:*** After destruction of amygdala the fear reaction and its autonomic and endocrine manifestation are absent.eg monkeys are normally terrified of snakes but after bilateral lobectomy they approach snake pick them n eat them.

• In humans amygdala damage causes deficient fear response to visual and auditory stimulus.

The classical and curious case of Phineus Gage

Phineas P. Gage (July 9, 1823 — May 21, 1860) was an American railroad construction foreman now remembered for his improbable survival of an accident in which a large iron rod was driven completely through his head, destroying much of his brain's left frontal lobe. The damage to Gage's frontal cortex had resulted in a **complete loss of social inhibitions**, which often **led to inappropriate behaviour**.

Anxiety:

It is normal emotion in appropriate situation but excessive anxiety & anxiety in inappropriate situation is disabling.

• ***Site:*** associated with bilateral increase in blood flow in discreet portion of anterior end of each temporal lobe.

• ***Facts:*** Anxiety is relieved by benzodiazepine which binds to GABA receptors and increase conductance of these ion channels.

Rage and placidity:

• Rage — extreme form of anger.

• Placidity — calm and peaceful.

• ***Site:*** Neocortex, ventromedial hypothalamic nuclei.

• ***Facts:*** Human maintains a balance between rage and placidity. Major irritation makes normal individual loose temper but minor stimuli are ignored.

Physiology of addiction:

A kind of dependence which manifests as:

• compulsive non-medical use of a substance.

• loss of control over its use despite negative consequences.

Despite many differences, virtually all substances with the potential for addiction affect dopamine levels in the pleasure / reward pathway of the brain.

Emotions and mood may be abnormal in three ways:

• Their nature may be altered.

• They may fluctuate more or less than usual.

• They may be inconsistent with the patient's thoughts or actions, or with his current circumstances.

Before we start syndromes of depression and mania which are the main syndromes in emotional and will disorder, we must discuss some symptoms related to them.

Symptoms of emotional disorders are as follows:

Hypothymia: it is sickly decrease of one's mood. It includes sadness, sorrow, and suppression. The difference between hypothymia and actual feeling of sorrow is that in hypothymia, the person is not only feeling sorrow but cannot experience happiness even in the presence of stimulation. So a patient with hypothymia will not praise his son if he gets a job, if he becomes a grandfather. Depending on the severity of the disease hypothymia can be from a mild feeling of bores, pessimism till profound physical (vital) feelings worrying as spiritual pain, discomfort or shyness in heart. These types of feeling called vital sorrow and are accompanied by the senses of catastrophe, hopelessness and failure. Hypothymia is considered as positive symptom. It is not a specific symptom and can be seen in many mental diseases as well as somatic diseases (brain tumor). It is one of the main symptoms of depression.

Hyperthymia: it is sickly increase in one's mood. It is connected with bright positive emotions, i.e. happiness, joy, enthusiasm etc. from situational happiness, hyperthymia differs by its duration. For a week or even a month the person can keep extra optimism, happiness, enthusiasm in case of hyperthymia. These patients are very energetic, show initiative everywhere, and have interest in everything. Even some sad events cannot change their good mood. Hyperthymia is the main characteristic of mania. Most acute case of hyperthymia is expressed as oneiroid. One of the basic variants of hyperthymia is euphoria. It not only expression of happiness, joy but and also of kindliness and light-heartedness. The patient doesn't show initiative but talks continuously and the content of his speech is empty. Euphoria is seen in exogenous and somatic diseases (intoxication, hypoxia, brain tumor, liver and renal failure, MI and etc.) and can be accompanied by grandiose delusions (in paraphrenic syndrome in patient with progressive paralysis). The term moria refers to foolish, carelessness odd behaviour. Laugh unproductive excitation in profound dementia.

Euphoria: pathologically good mood, often appearing without any connection with the surrounding reality and physical condition of the patient. Usually observed in manic states, as well as in some somatic diseases (tuberculosis, heart disease).

Moria: it is characterized by a combination of pep with disinhibited attraction, stupidity, stupid and inappropriate jokes, sometimes against the background of decay of consciousness. It is more often observed with lesions of the frontal lobes of the brain.

Dysphoria: it is characterized by sudden occurrence of anger, spite, irritation and discontent surroundings. In this condition the patient is able to be aggressive, cruel. He can end up with antisocial action, rude sarcasm, mockery and cynical insult. Paroxysmal character of the symptom says epileptic characteristic of the disorder. In epilepsy it is seen as a separate fit or as aura and obscured and twilight state. Dysphoria is one of the main symptoms of psychoorganic syn-

drome. It is also seen in explosive psychopathy, alcohol intoxication and drug addiction during their abstinent phase.

Anxiety: It is an important emotion of human beings which is connected with the demand in unsafe situations and is expressed as the feeling of undefined threat, internal worry. Anxiety is sthenic emotion and is accompanied by throwing, restlessness, involuntary movement of muscles. As an important signal anxiety can occur in the initial period of any mental disease.

Case example:

A 40-year-old school teacher visits his doctor complaining of constant fears. These feelings have been present on most days during the past 3 years and are not limited to specific situations or individual periods. He also experiences poor concentration, irritability, tremor, palpitations, dizziness, and dry mouth. He continued to work, but his symptoms cause stress at work and at home. He denies any problems with his mood and says that his energy level is in order.

Ambivalence: it is characterized by simultaneously working of two completely opposite emotions for the same object or subject or situation (like love and hatred for mother). In psychiatry ambivalence plays an important role which makes the patient suffers, disorganizes his behaviour, and is accompanied by contradictory speeches and actions. It is basically not a specific symptom and can be seen in schizophrenia, introvert psychopathy and in older people.

Apathy: it is absence or severely decreased expression of emotion. The patient is indifferent to everything. He also has no interest in anything. Their speech is monotonous, and boring. They keep silent in any conversation. They don't show love to parents. Cannot answer simple question like, which is your favorite food?

Apathy is a negative symptom. As a rule it is seen in the last stage of schizophrenia. Other causes of apathy are brain injury, brain tumor, atrophic paralysis. It is important to differentiate apathy from ***«anaesthesia psychica dolorosa»***. The later one is characterized by an indifferent feeling for others but himself. It is an egoistic worrying which is most of the time containing delusion of guilt. Patient complains of: «I have become like tree, I don t have a heart, it is just an empty can, I don't feel anxiety for my teenage daughter». Anaesthesia psychica dorosa is a typical symptom of depression.

Anhedonia: loss of a subjective sense of pleasure. It is a subset of the diminution of the intensity of emotions. In anhedonia, there is a total inability to enjoy anything in life or even get the accustomed satisfaction from everyday events or objects; a «loss of ability to experience pleasure» (Snaith, 1993).

Emotional lability: it is a condition when the patient cannot hold his emotion and fluctuate to another emotion easily e.g. from cry to laugh, from severe anxiety to complete relaxation. It is one of the important characteristics in hysteric neurosis and hysteric psychopathy. Similar condition can also be seen in twilight states. One of the variants of emotional lability is emotional fatigue

which is characterized not only by fast changing of emotions but also by disability to control the external presentation of emotions. Emotional lability is a typical symptom for vascular diseases of brain (cerebral atherosclerosis), but it can be present in a person as personality specialty.

Emotional rigidity: patient is very rigid, emotionally strong and doesn't show emotions and holds the same emotion for a long time. Generally he remembers only the sad memories. The speech shows circumstantiality. The patient cannot go to other topic and continue talking about how he suffered. Emotional rigidity is often seen in patients suffering from epilepsy.

Paralysis of emotions: a feeling of an absolute spiritual bankruptcy and indifference developing under the effect of sudden severe psychic traumas.

Depressive syndrome:

The experience of depression has plagued humans since the earliest documentation of human experience. Ancient Greek descriptions of depression referred to a syndrome of melancholia, which translated from the Greek means black bile. In humoral theory, black bile was considered an etiologic factor in melancholia. This Greek tradition referred to melancholic temperament which is comparable to our understanding of early onset dysthymic conditions or depressive personality. During the late 19th and early 20th centuries, phenomenologists increasingly used the term depression or mental depression to refer to the clinical syndrome of melancholia. Emil Kraepelin distinguished mood which was dejected, gloomy, and hopeless in the depressive phase in manic-depressive insanity from the mood which was withdrawn and irritable in paranoia. In addition, Kraepelin distinguished depression which represented one pole of manic-depressive insanity from melancholia, which involves depression associated with fear, agitation, self-accusation and hypochondriacal symptoms.

The depressive syndrome is characterized by a ***depressive triad***: a depressed, sad and melancholic mood, a delayed thinking and a motor inhibition.

In typical depressive syndrome the individual usually suffers from depressed mood, loss of interest and enjoyment, and reduced energy leading to increased fatiguability and diminished activity. Marked tiredness after only slight effort is common.

Other common symptoms are:

1. Reduced concentration and attention.
2. Reduced self-esteem and self-confidence.
3. Ideas of guilt and unworthiness (even in mild type of episode).
4. Bleak and pessimistic views of the future.
5. Ideas or acts of self-harm or suicide.
6. Disturbed sleep.
7. Diminished appetite.

The lowered mood varies little from day to day, and is often unresponsive to circumstances, yet may show a characteristic diurnal variation as the day goes

on. In some cases, anxiety, distress, and motor agitation may be more prominent at times than the depression, and the mood change may also be masked by added features such as irritability, excessive consumption of alcohol, histrionic behaviour, and exacerbation of pre-existing phobic or obsessional symptoms.

Depression with anxiety up to agitation — depression associated with severe anxiety, excitement and motor restlessness, more common for patients of involution age. Special observation is strongly recommended because of a high suicidal risk.

Masked depression — depression manifested by somatic symptoms (heartache, headache, stomachache, arterial hypertension, constipation, tachycardia, arrhythmia).

Differentiation between mild, moderate, and severe depressive syndromes rests upon a complicated clinical judgement that involves the number, type, and severity of symptoms present. The extent of ordinary social and work activities is often a useful general guide to the likely degree of severity of the syndrome. Some difficulty in continuing with ordinary work and social activities, but will probably not cease to function completely in mild depressive syndrome; considerable difficulty in continuing with social, work or domestic activities in moderate depressive syndrome; considerable distress or agitation, and unlikely to continue with social, work, or domestic activities, except to a very limited extent in severe depressive syndrome.

Case example:

A 45-year-old man complains to the doctor about feelings of hopelessness, sadness and helplessness. He says that he cries for no reason and does not sleep well. He noticed that the problems started about 6 weeks ago, and he did not feel able to dismiss them. He drank more alcohol than usual and stopped going to work. When he himself admitted that he was thinking about driving in his car to the local lake.

Severe depressive syndrome may be accompanied by delusions or hallucinations.

Case example:

The 17-year-old woman had a depressed mood with anhedonia, anergy, insomnia, and decreased appetite for weight loss, as her boyfriend left her 6 weeks ago. Her energy has decreased, has ceased to look after herself, eat. She says that there are thoughts of suicide and congruent auditory hallucinations (voices telling her to kill herself with a knife).

Maniacal syndrome:

The word «mania» derives from the Greek μανία (mania), «madness, frenzy» and the verb μαίνομαι, «to be mad, to rage, to be furious».

Mania is the mood of an abnormally elevated arousal energy level, or «a state of» heightened overall activation with enhanced affective expression to-

gether with lability of affect. Although it is often thought of as a "mirror image" to depression, the heightened mood can be either euphoric or irritable and, indeed, as the mania progresses, irritability becomes more prominent and can eventuate in violence. Mania may be caused by drug intoxication (notably stimulants, such as cocaine and methamphetamine), medication side effects (notably SSRIs), and malignancy (the worsening of a condition), to name but a few. Mania, however, is most commonly associated with bipolar disorder, a serious mental illness in which episodes of mania may alternate unpredictably with episodes of depression or periods of euthymia. Gelder, Mayou, and Geddes (2005) suggest that it is vital that mania be predicted in the early stages because otherwise the patient becomes reluctant to comply with the treatment.

The ***triad*** of maniacal syndrome includes:

1. Elation of mood (happiness, joy, delight etc).
2. Pressure of thought and talk.
3. Psychomotor excitation.

The cardinal symptoms of mania are the following: heightened mood (either euphoric or irritable); flight of ideas and pressure of speech; and increased energy, decreased need for sleep; and hyperactivity. These cardinal symptoms are often accompanied by the likes of distractibility, disinhibited behaviour, and poor judgement, and, as the mania progresses, become less and less apparent, often obscured by symptoms of psychosis and an overall picture of disorganized and fragmented behaviour.

In mania all types of inclinations are increased. Abruptly increases appetite. He cannot be alone and continuously seeks conversation. Attraction at the opposite sex (or same sex) is increased too, which ends up in proposals, sudden marriages, presenting gifts, sudden sexual acts (may be even without protection). The patient is ready to help anybody. He wastes money, does unnecessary shopping. Due to over activity he cannot finish any of his works, and distracts himself to other work as every time he gets new ideas. In order to fulfill his drives, the patient can be irritative, angry (wrathful mania) and may does antisocial acts (rape, robbery, fighting, taking drugs etc).

Mania varies in intensity, from mild mania (hypomania) to delirious mania, marked by such symptoms as a dreamlike clouding of consciousness, florid psychotic disorganization, and incoherent speech.

Case example:

A 27-year-old woman was brought to a local hospital by her relatives. She seems restless, walking around the reception room, and her parents say that recently she was asked to leave work. She did not sleep for several nights, and her speech is quick and quickly deviates from the topic. She recently acquired an expensive car and makes mention of a new job offer as a director of a large company. She does not want to stay in the hospital because she has too much to do and she considers it a waste of everyone's time.

Differential diagnosis:

DEPRESSIVE SYNDROME	MANIACAL SYNDROME
• hypothymia (up to anguish) • inhibition of thought • motor retardation (except when agitated)	• hyperthymia • pressure of talk • pressure of activity
• self-concerned • painful thoughts • mood-congruent delusion (ideas of guilt)	• self-over-rating • mood-congruent delusion (ideas of granduer)
• loss of appetite • hyposexuality • loss of interests • anhedonia	• bulimia, abuse of alcohol, spending money • hypersexuality • distractibility
• insomnia (early wake up, the loss of the sense of sleep)	• insomnia (sleeps shortly but without sense of tiredness)
• dry skin • arterial hypertension • constipation • tachycardia • mydriasis	• well healthy, no somatic complaints

TOPIC № 3.
DISTURBANCES OF THINKING AND INTELLECT. KANDINSKY-CLÉRAMBAULT SYNDROME. ATTENTION

Disturbances of thinking

Thinking is the basic and specific to the human cognitive process in which dialectically established internal (semantic) connection, describing the structure of objects of reality, their relationship to each other and to the subject of cognitive activity.

Thinking — goal-directed flow of ideas and associations initiated by a problem and leading toward a reality-oriented conclusion. Thinking is a very complex and complicated psychic function. It is closely associated with speech.

We also can say: Thinking is mental behavior wherein ideas, pictures, cognitive symbolizations, or other hypothetical components of thought are experienced or manipulated. In this sense, thinking is inclusive of imagining, recalling, solving problems, free association, daydreaming, concept formation, and a variety of other procedures.

In other words, thinking is a mental process knowledge associated with the opening of a new subjective knowledge to solving problems with the creative transformation of reality.

Normal human thinking has three characteristics:

- ***Stream:*** how it is being thought about — the amount and speed of thinking.
- ***Form:*** in what manner, or shape, is the thought about; abnormalities of the way thoughts are linked together.
- ***Content:*** what is being thought about — this would include delusions and obsessional thoughts.

Disorders of the form and the stream of thought

Disturbances of speed of thinking:

1) slowed thoughts:

- slowing of the flow of associations, slowed and diminished verbal production (bradypsychism)
- blocking of thoughts — cessation of the flow of associations (patient stops the verbal production without any recognizable impulse from surroundings)

Occurrence: *depression, schizophrenia.*

2) flight of thoughts:

- excessive rapidity of thinking manifested as extreme rapidity in speech (logorrhoea).

Occurrence: *mania.*

Disturbance of structure of thinking:

• perseverative thinking: involuntary persistence of response to some question or topic, verbigeration — a meaningless repetition of specific word or phrase;

• verbigeration: rhythmical repetition of words or meaningless sound combinations, often associated with «clang association» (association of words similar in sound but not in meaning; words have no logical connection, may include rhyming and punning);

• circumstantiality: indirect speech that is delayed in a reaching the point, characterized by an overinclusion of details;

• tangentiality: patient never gets from desired point to desired goal.

Occurrence: *fatigue, organic mental disorders.*

• illogical thinking: thinking containing erroneous conclusions or internal contradiction;

• neologism: new word created by the patient often by combining syllables or other words;

• incoherent thinking: thought that is not understandable;

• word salade: incoherent mixture of words and phrases;

• autistic thinking: preoccupation with inner, private world;

• poverty of content: thought that gives little information because of vagueness, empty repetitions, or obscure phrases;

• symbolic and magical thinking: real objects have other, symbolic meaning, in magical thinking words, situations, action have special power and meaning;

• thought blocking (german — sperrung) — abrupt interruption in train of thinking be-fore a thought or idea is finished; after a brief pause, the person indicates no recall of what was being said or was going to be said; the feeling of distant influence is usual. (symptom of mental automatism).

Disorders of the possession and the content of thought

Three main pathologies of thoughts: ***delusions, obsessions and overvalued ideas.***

Delusions:

Delusion — false belief of great value to a patient, based on incorrect inference about external reality, which arises from internal morbid process (not consistent with patient's intelligence and cultural background) and cannot be corrected by reasoning.

The English word «delude» comes from Latin and implies playing or mocking, defrauding or cheating. Since time immemorial, delusion has been taken as the basic characteristic of madness. To be mad was to be deluded. What is delusion is indeed one of the basic questions of psychopathology. It would be a superficial and wrong answer to this question just to call a delusion a false belief which is held with incorrigible certainty. We may not hope to resolve this issue quickly with a definition. Delusion is a basic phenomenon. It is the primary

task to get this into view. The subjective dimension within which delusion exists is to experience and think our reality (Jaspers, 1973). Whether we like it or not, this is the unavoidable field of tension in which research on delusions is situated: A tight, objectivity-oriented conceptualization on the one hand and the basic anthropological dimensions of subjectivity and interpersonally (i.e. human interdependence or «universal fraternity») on the other hand. Even if one is skeptical about these «basic» aspects, Jaspers central idea should be kept in mind: Delusion is never a mere object which can be objectively detected and described, because it evolves and exists within subjective and interpersonal dimensions only, however «pathological» these dimensions may be. A person with a delusion will hold firmly to the belief regardless of evidence to the contrary. Delusions can be difficult to distinguish from overvalued ideas, which are unreasonable ideas that a person holds, but the affected person has at least some level of doubt as to its truthfulness. A person with a delusion is absolutely convinced that the delusion is real. Delusions are a symptom of either a medical, neurological, or mental disorder.

According to Jaspers, the main characteristics of delusions are:

1. They are false judgements.

2. They are held with extraordinary conviction and incomparable subjective certainty.

3. They are impervious to other experiences and to compelling counterargument.

4. Their content is impossible.

A delusion, unlike an overvalued idea, «is not understandable» in terms of the patient's cultural and educational background although the secondary delusion (or delusion-like idea) is understandable with the addition of some other psychopathological event such as hallucination or abnormal mood.

Five stages in the development of delusional psychosis (Conrad):

- *Trema*: delusional mood representing a total change in perception of the world.
- *Apophany*: a search for, and the finding of, new meaning for psychological events.
- *Anastrophy*: heightening of the psychosis.
- *Consolidation*: forming of a new world or psychological set based on new meanings.
- *Residuum*: eventual autistic state.

Factors involved in the germination of delusions:

- Disorder of brain functioning.
- Background influences of temperament and personality.
- Maintenance of self-esteem.
- The role of affect.
- As a response to perceptual disturbance.

• As a response to depersonalization.
• Associated with cognitive overload.

Delusions may be present in any of the following mental disorders:

1. Psychotic disorders, or disorders in which the affected person has a diminished or distorted sense of reality and cannot distinguish the real from the unreal, including schizophrenia, schizoaffective disorder, delusional disorder, schizophreniform disorder, shared psychotic disorder, brief psychotic disorder, and substance-induced psychotic disorder;
2. Bipolar disorder.
3. Major depressive disorder with psychotic features.
4. Delirium.
5. Dementia.

Delusions are false beliefs based on incorrect inference about external reality, not consistent with patient's intelligence and cultural background that cannot be corrected by reasoning.

Characteristics:

• belief firmly held on inadequate grounds may influence on behavior;
• not affected by rational arguments/ not corrected by reasoning;
• not a conventional belief/ bizarre content.

Division of delusions.

According to onset:

1. Primary (delusion mood, perception) — independent disorder of thought which are not associated with other mental dysfunction. This delusion is systematized, stable, expanding and complicating.
2. Secondary (systematized) — disorder of thought, which represent the disturbance of other mental functions (affect, perception, memory, consciousness etc.).
3. Induced — delusion originate in a mentally healthy person as a result of adoption of delusions from a mental patient with whom the induced subject contacts.

In accordance with the systematization:

1. Systematised delusion – false ideas confirmed with some logic associations (in case of persecution patient can in details describe the persecutors, their aims and methods, so he can answer the questions «Who?», «Why?», How?») (symptom of chronic delusional states).
2. Non-systematised delusion – fragmentary, not associated false ideas (symptom of either acute delusional states or of late stages of chronic processes).

Delusions — classification according to the content.

Depressive (melancholic) delusions:

• delusion of self-accusation (false interpretation of real past event resulting in feeling of guilt);
• hypochondriac delusion (false belief of having a fatal physical illness);

• nihilistic delusions (false feeling that self, others or the world is non-existent or ending);

• delusions of failure (false belief that one is unable to do anything useful);

• delusion of property (false belief that one lost all property).

Delusions of grandeur:

• delusion of importance (exaggerated conception of one's importance);

• delusion of power, (exaggerated conception of one's abilities/possibilities);

• delusion of identity (false belief of being the offspring of member of an important family).

Persecutory delusions — these are the most common type of delusions and involve the theme of being followed, harassed, cheated, poisoned or drugged, conspired against, spied on, attacked, or obstructed in the pursuit of goals. A person with a set of persecutory delusions may be believe, for example, that he or she is being followed by government organizations because the "persecuted" person has been falsely identified as a spy. These systems of beliefs can be so broad and complex that they can explain everything that happens to the person:

• delusion of persecution (false belief that one is being persecuted);

• delusion of infidelity (false belief that one's lover is unfaithful);

• erotomanic delusion (false belief, that someone is deeply in love with them).

Delusion of control — this is a false belief that another person, group of people, or external force controls one's thoughts, feelings, impulses, or behavior. A person may describe, for instance, the experience that aliens actually make him or her move in certain ways and that the person affected has no control over the bodily movements. Thought broadcasting (the false belief that the affected person's thoughts are heard aloud), thought insertion, and thought withdrawal (the belief that an outside force, person, or group of people is removing or extracting a person's thoughts) are also examples of delusions of control:

• thought withdrawal (false belief that one's thoughts are being removed from one's mind by other people of forces);

• thought insertion (false belief that thoughts are being implanted in one's mind by other people or force);

• thought broadcasting (false belief that one's thoughts can be heard by others);

• thought control (false belief that one's thoughts are being controlled by other people of forces).

Case example:

A 24-year-old man. When asked about his concerns he says that over the last few months he has been carefully monitored by government agencies. He has been hearing a voice out loud giving a running commentary on his thoughts and these are being broadcast to the government. Any machine enables the government to get inside his head and the voice is telling him it would be unwise to face the X-ray machine. The voice is not one that he recognizes and it is sometimes de-

rogatory telling him he is stupid for giving his thoughts away for free. Initially the voice came and went but over the last few weeks it is present almost constantly and he cannot always sleep because even when he sleeps the voice comments on what he is thinking. He is exhausted.

The man is absolutely convinced that the government is after him but he cannot explain why. There is no previous history and he denies any substance use. Until a few weeks ago he had been working as a kitchen assistant but was sacked for leaving jobs unfinished.

Delusional syndromes:

Paranoiac syndrome. His clinical exhausted systematic delusions of interpretation of different content (delirium invention, persecution, jealousy, hypochondriac, etc.). This delusional syndrome characteristic of the slow development of the plot with the gradual expansion of delirium, and in time formed the complicated system of reasoning, until the development in some cases delusional worldview. Note the content of delusions resistance, the complexity of the evidence with delusional interpretation of the smallest details. Hallucinations and phenomena psychic automatism are missing. Behavior of patients with the development of the syndrome are more and more determined by delusions (delusional activity), it is different at thoroughness, lost flexibility of thinking dominates delusional content, all the facts and events that are contrary raving concept, rejected or, in turn, are delusional interpretation. Relationships with others also become distorted, delusional character (friend — enemies). Emotional reactions are concentrated around the delusional system with their strong delineated from all other events. Mood patients often slightly elevated, but periodically become maliciously tense, and then patients can make socially dangerous acts. The slow development of a paranoid syndrome, mainly interpretative nature of delirium with its detailed logical development, the use of the sick in their argument of real facts often make it difficult early diagnosis. However, in the very logical constructs a patient can reveal signs of «logic of the curve».

Paranoiac syndrome almost fully expresses clinical paranoia, often observed with paranoid schizophrenia as a stage of development (paranoid schizophrenia), is less common in other psychiatric disorders (organic brain damage, alcohol delusion of jealousy, etc.). This syndrome may manifest as dysmorphophobia (delusions physical disability), when patients believe in ugliness of the body, its parts, or in violation of its duties.

Paranoid syndrome characterized by secondary delusions. There are several paranoid syndromes such as hallucination-delusion syndrome, depressive-delusional, catatonic-delusional and other.

Paraphrenic syndrome is combination of fantastic and grandeur ideas with expansive affect, possible mental automatisms, delusions of influence and pseudohallucinations. Paranoid schizophrenia has paraphrenic syndrome as a concluding stage of psychotic course.

Kandinsky-Clérambault syndrome is occurring frequent for schizophrenia. Kandinsky-Clérambault syndrome consist of 3 symptoms: ***pseudohallucination*** (hallucination like), ***mental automatism***, ***delusions of influenced by external forces***. In a monograph published posthumously in 1890, Kandinsky described a condition which involved being alienated from one's personal mental processes, combined with delusions of being physically and mentally influenced by external forces. The syndrome he described is now known as Kandinsky-Clérambault syndrome, named along with French psychiatrist Gaëtan Gatian de Clérambault.

Described independently by 2 psychiatrists — Victor Kandinsky and de Clerambault, is less known and is used mainly by French and Russian psychiatrists.

Kandinsky's classic German-language book on pseudohallucinations was published in 1885. In a monograph written in Russian and published posthumously in 1890, he described a syndrome of mental automatism that, as mentioned above, was largely based on his self-observation. The syndrome involved alienation from or loss of one's own mental processes (cognitive, sensory and motor), which are attributed to somebody else, combined with delusions of physical or mental influences, such as stealing or insertion of thoughts.

Gaëtan Gatian de Clerambault (1872–1934) was born at la Bourges, not far from Paris. After finishing high school in 1888, he studied at the School for Decorative Art. After that, at his father's request and in accordance with family tradition, he studied law, and only after graduation did he begin to study medicine. He dedicated his doctorate to pilot health after aircraft accidents (4). Starting in 1898, he worked as an internist. From 1905 until his death in 1934, de Clerambault worked in different fields of medicine.

Mental automatism types:

1) ***ideatoric*** (associative/cognitive) automatism — feelings if alien interference in person stream of thoughts, thoughts are being «put it», or thoughts being taking away, sensation that person thoughts are opened to others ощущение, «echo of thoughts», forced inner speech, verbal pseudohallucinations;

2) ***sensory*** automatism. Feelings of uncomfortable sensation, burning sensation, sexual excitement all of the above forced by external forces;

3) ***motor*** automatism, feelings of forced some of the acts, behaviors which are forced on person by external forces.

Case example:

A 22-year-old man complains that in the past few months he was carefully monitored by the special services. He heard a voice out loud, commenting on his thoughts, and they are broadcast to the government. Any car allows the government to penetrate his head. This is not the voice that he learned, and sometimes it is humiliating to tell him that he is stupid, that he gives his thoughts for free. Initially, the voice came and went, but over the past few weeks he has been pre-

sent almost constantly, and he cannot always sleep, because even when he is sleeping, the voice comments on what he thinks. Periodically, he feels control over his feelings and movements.

The **Cotard delusion** (also Cotard's syndrome and walking corpse syndrome) is a rare condition, in which an afflicted person holds the delusion that they are dead, either figuratively or literally; yet said delusion of negation is not a symptom essential to the syndrome proper. Statistical analysis of a hundred-patient cohort indicates that the denial of self-existence is a symptom present in 69 percent of the cases of Cotard's syndrome; yet, paradoxically, 55 percent of the patients might present delusion of immortality.

Cotard's syndrome is named after Jules Cotard (1840–1889), a French neurologist who described this condition for the first time in 1880, in a case report of a 43-year-old woman:

«Mss X, affirms she has no brain, no nerves, no chest, no stomach, no intestines; there's only skin and bones of a decomposing body. ...She has no soul, God does not exist, neither the devil. She's nothing more than a decomposing body, and has no need to eat for living, she cannot die a natural death, she exists eternally if she's not burned, the fire will be the only solution for her».

As a mental illness, Cotard's syndrome also includes the patient's delusion that they do not exist as a person and has lost blood, internal organs, or both. In the tenth edition of the (ICD-10), of the WHO, code F 22 identifies the Cotard delusion as a disease of human health.

Obsessions as pathology of thinking

In these definitions, the idea that obsessive thoughts are unrealistic is implicit, and they are tacitly compared with delusions, from which they are distinguished by epistemological criteria (e.g. insight into their origin in one's own mind, etc.)

Obsessions are persistent ideas, thoughts, impulses, or images that are experienced as intrusive and inappropriate and that cause marked anxiety or distress. They are «ego-dystonic». This refers to the individual's sense that the content of the obsession is alien, not within his or her own control, and not the kind of thought that he or she would expect to have. However, the individual is able to recognize that the obsessions are the product of his or her own mind and are not imposed from without (as in thought insertion).

The most common obsessions are repeated thoughts about contamination (e.g., becoming contaminated by shaking hands), repeated doubts (e.g. wondering whether one has performed some act such as having hurt someone in a traffic accident), a need to have things in a particular order (e.g. intense distress when objects are disordered or asymmetrical), aggressive or horrific impulses (e.g. to hurt one's child), and sexual imagery (e.g. a recurrent pornographic image). Obsessions are not simply excessive worries about real-life problems and are unlikely to be related to a real-life problem.

Obsessions can take various forms:

• Obsessional thoughts are repeated and intrusive words or phrases that are upsetting to the patient — for example, repeated obscenities or blasphemous phrases coming into the awareness of a religious person.

• Obsessional ruminations are repeated worrying themes of a more complex kind — for example, about the ending of the world.

• Obsessional doubts are repeated themes expressing uncertainty about previous actions — for example, whether or not the person turned off an electrical appliance that might cause a fire. Whatever the nature of the doubt, the person realizes that the degree of uncertainty and consequent distress is unreasonable.

• Obsessional impulses are repeated urges to carry out actions, usually ones that are aggressive, dangerous, or socially embarrassing — for example, the urge to pick up a knife and stab another person, to jump in front of a train, or to shout obscenities in church. Whatever the urge, the person has no wish to carry it out, resists it strongly, and does not act on it.

• Obsessional phobias. This term denotes an obsessional symptom associated with avoidance as well as anxiety — for example, the obsessional impulse to injure another person with a knife may lead to consequent avoidance of knives. Sometimes obsessional fears of illness are called illness phobias.

• Obsessional slowness. Many obsessional patients perform actions slowly because their compulsive rituals or repeated doubts take time and distract them from their main purpose. Occasionally, however, the slowness does not seem to be secondary to these other problems, but appears to be a primary feature of unknown origin.

The individual with obsessions usually attempts to ignore or suppress or neutralize them with some other thought or action (i.e., a compulsion). For example, an individual plagued by doubts about having turned off the stove attempts to neutralize them by repeatedly checking to ensure that it is off DSM-IV.

Obsessional thoughts are ideas, images, or impulses that enter the patient's mind again and again in a stereotyped form. They are almost invariably distressing and the patient often tries, unsuccessfully, to resist them. They are, however, recognized as his or her own thoughts, even though they are involuntary and often repugnant. (ICD–10 International Statistical Classification of Diseases and Related Health Problems.)

Case example:

A 37-year-old pharmacy assistant attends the hospital with a skin rash on his forearms and his palms. He seems rather reluctant to talk much and is visibly tense. When asked about allergies he says that he may have soap allergy. On direct questioning about symptoms of anxiety he acknowledges feeling anxious. He says that he worries a lot at work, specifically whether he has accidentally packed the wrong medicines. He works in a supermarket pharmacy and has to regularly check if he has dispensed the correct medicine in the correct dose. There are times when he has checked as often as 10 times before handing the

medicines over to the customer. When really anxious he experiences palpitations, sweating and butterflies in his stomach. He feels better in himself after 'checking it all out', but the worry and fear that he has made a mistake returns a few hours later in relation to another customer. This makes him very slow at work and he has received two warnings from his boss. He frequently worries about handing the wrong medicines to his customers and in the past week has called his boss at home to check this.

He admits that he washes his hands at least three times an hour when at work but often more so at home where he uses undiluted washing up liquid to «make sure they are really clean». He started doing this two years ago when he was worried that he may have picked up an infection visiting a friend in hospital. He continues to worry about the risk of passing infection to his clients and 'does not want to take any chances'. He admits it is bizarre that he has such irrational thoughts, but says he cannot help worrying about it.

Overvalued idea

The overvalued idea, first described by Wernicke in 1900, refers to a solitary, abnormal belief that is neither delusional nor obsessional in nature, but which is preoccupying to the extent of dominating the sufferer's life. Disorders conforming to his definition are well documented, though their recognition as such has been variable, and they may not be as rare as is often thought. As well as sharing a distinctive phenomenology, the conditions develop in similar settings and carry a uniformly poor prognosis. Their pathogenesis is obscure and difficult to account for in conventional terms.

An unreasonable and sustained belief that is maintained with less than delusional intensity (i.e., the person is able to acknowledge the possibility that the belief may not be true). The belief is not one that is ordinarily accepted by other members of the person's culture or subculture.

Overvalued ideas differ from delusions in two main ways:

- The content of, and basis for, the overvalued idea is usually understandable when the person's background is known, whereas delusions and the person's explanation of them tend to be bizarre. For example, a person whose mother and sister suffered from cancer one after the other may understandably become convinced that cancer is contagious.
- The theme also tends to be culturally common and acceptable, as in the overvalued ideas about body shape that characterize anorexia nervosa.

It is obvious, that the degree of conviction is not a safe basis for distinguishing between delusions and overvalued ideas. A safer approach is to regard overvalued as comprehensible in the context of the patient's history and life.

Overvalued ideas must also be distinguished from obsessions. This is usually easier than the distinction from delusions, since there is no sense of intrusiveness or senselessness of the thought, nor is there resistance to it.

Dagnostically significant differences between delusional, obsessive and overvalued ideas:

	DELUSION	OBSESSION	OVERVALUED IDEA
Truthfulness	–	+/–	+
Insight	–	+	–
Behaviour control	–	+	+/–

Examples of thinking impairments *(delusions of grenadier, derailment, paralogic conclusions etc.):*

Dr. Pavlov: Hi, Jake. How are you?

Jake: I'm fine.

Dr. Pavlov: Good. My name is, Dr. Pavlov.

Jake: Okay, my name is, Jake and you can call me, Jake.

Dr. Pavlov: Nice to meet you.

Dr. Pavlov: So I'm going to be asking you some questions about how you've been feeling, different experiences you might have had in the past week.

Jake: Okay.

Dr. Pavlov: Okay. So why don't we start out with you telling me a little bit about yourself and your background?

Jake: Okay, I'm an actor, a musician/singer.

Dr. Pavlov: An actor, a musician, and a singer, okay. And how long have you been doing that?

Jake: For a while.

Dr. Pavlov: For a while. And how is it going for you?

Jake: It's great.

Dr. Pavlov: It's great? Tell me a little bit more about that.

Jake: Well it's good; I like music, I like singing, I like performing.

Dr. Pavlov: Okay, where do you perform?

Jake: In movie theaters… not movie theaters, in movies.

Dr. Pavlov: In movies, okay. And are you in movies that people would know about and recognize?

Jake: Yes.

Dr. Pavlov: Okay, can you give me an example?

Jake: Most likely one movie I played. I'm training to become an actor.

Dr. Pavlov: You're what?

Jake: One of the Fantastic Four movies.

Dr. Pavlov: I'm sorry I couldn't hear you.

Jake: It's like I'm training to become an actor.

Dr. Pavlov: You're training to become an actor, I see. Anything else about yourself background that you'd like to share with me?

Jake: I'm Spanish, I'm Puerto Rican and Cuban.

Dr. Pavlov: You're Spanish, Puerto Rican, and Cuban.

Jake: Yeah.

Dr. Pavlov: Okay, where are you from?

Jake: I'm from… I'm from America, but my family is Puerto Rican and Cuban.

Dr. Pavlov: You're American but your family is…

Jake: Yeah, born in New York City.

Dr. Pavlov: Okay. Has anything been bothering you lately?

Jake: No.

Dr. Pavlov: No, okay. Could you tell me a little something about your thoughts on life and its purpose?

Jake: I want to go to New Zealand.

Dr. Pavlov: What's that?

Jake: I want to go to New Zealand.

Dr. Pavlov: To New Zealand, and why is that?

Jake: It's a very beautiful place. It's where the Lord of the Rings movies were at, were made.

Dr. Pavlov: You're right. You like that movie?

Jake: Yeah.

Dr. Pavlov: So you want to go to New Zealand. Anything else about life and it is purpose?

Jake: I'm going to New Zealand to live there.

Dr. Pavlov: You want to live there?

Jake: I have families that are in New Zealand too.

Dr. Pavlov: You have family in New Zealand?

Jake: Members who are in New Zealand too. That's where they live.

Dr. Pavlov: Okay. Are you in touch with them?

Jake: (yes). I have a brother… I have some brothers who were born in New Zealand too.

Dr. Pavlov: You have brothers?

Jake: They were born in New Zealand too.

Dr. Pavlov: He was born in New Zealand.

Jake: (yes).

Dr. Pavlov: And what were the circumstances that he was born in New Zealand?

Jake: He was born in New Zealand because my parents were traveling and they had a baby there.

Dr. Pavlov: And where are your parents now?

Jake: My father is… my father is in Manhattan. My aunt… I live with my aunt, and my father lives in Manhattan. My grandmother lives in Manhattan. And what do you call it? What do you call it? And my mother… my mother is… my mother most likely lives with my father, so I live with my aunt, they live in Manhattan.

Dr. Pavlov: So your family is in the New York area too?
Jake: (yes).
Dr. Pavlov: Okay. Jake, do you follow any particular religion or philosophy?
Jake: I'm Christian Pentecost.
Dr. Pavlov: Christian Pentecostal, okay.
Jake: Oh, I'm performing plays.
Dr. Pavlov: I'm sorry?
Jake: I'm performing plays.
Dr. Pavlov: You do.
Jake: Yeah.
Dr. Pavlov: What plays are you performing?
Jake: I played an Ed Tierney at the center.
Dr. Pavlov: How did that go?
Jake: It's good, but I'm trying to get to the movies so.
Dr. Pavlov: Right, okay. So you said that you're Christian Pentecostal. Sometimes people tell me that they think there's a devil, what do you think about that?
Jake: I'm religious, but it's like, I'm not saying, well, I think so, yeah. There's one or two other God's, so…
Dr. Pavlov: So there's a devil also.
Jake: (yes).
Dr. Pavlov: Have you ever had any personal experiences that involved the devil in any way?
Jake: Any personal… oh, no. My brothers in New Zealand are also Puerto Rican, Cuban, and New Zealand too.
Dr. Pavlov: Also Puerto Rican…
Jake: Cuban and New Zealand too. That makes me a Puerto Rican, Cuban, and New Zealand too.
Dr. Pavlov: Okay. Jake, can you read other people's minds?
Jake: No, I can't read other people's minds.
Dr. Pavlov: Can others read your mind?
Jake: No, others can't read my mind.
Dr. Pavlov: Okay. Who controls your thoughts?
Jake: Me, I control my thoughts.
Dr. Pavlov: How have you been spending your time?
Jake: In the past week?
Dr. Pavlov: (yes).
Jake: Great. Most likely, I did play in the one I did. I'm a singer, I danced, and I already played in a movie. I played in a movie and it was in New Zealand. It was in New Zealand it was a movie I played, and it's showing in the movie theater and I played in the Fantastic Four.
Dr. Pavlov: In New Zealand?
Jake: Yeah, I'm the Human Torch.

Dr. Pavlov: Okay, so this past week, what kinds of things have you been doing with your time?

Jake: Most like relaxing.

Dr. Pavlov: Do you prefer to be alone?

Jake: No.

Dr. Pavlov: Do you like to be with others?

Jake: Yeah, some of my brothers, it's a lot, I have a lot of brothers. Some of them I wish to see them all, but I can't see them all, like all the time that's how many brothers I have.

Dr. Pavlov: How many brothers do you have?

Jake: I have, I have a lot of brothers, I have no sisters. I have around 17 brothers.

Dr. Pavlov: 17 brothers, that's a lot.

Jake: Yeah, it's a lot. Wait a minute, excuse me it was 19 brothers.

Dr. Pavlov: 19 brothers, okay. This past week, Jake, have you joined in activities with other people?

Jake: What's that?

Dr. Pavlov: Have you done things with others – the other patients here?

Jake: I went to Yankee Stadium.

Dr. Pavlov: You went to Yankee Stadium, really? How was that?

Jake: Good.

Dr. Pavlov: Yeah.

Jake: I like going out. I like telling my other lovers… I told my other love, I said, «I'll take you out to eat». Saying, «We could go together, we could go together, and the movies are not all we can see, und we could go together. We'll go out to anything you want, we'll go to this, and we'll go to wonderful places». I was like, «Okay, okay – I love you, I love you». Stuff like that.

Dr. Pavlov: Okay, when you're here at the hospital, do you interact with the other patients or do you keep to yourself?

Jake: I talk to other people.

Dr. Pavlov: You talk to other people, okay. Do you have many friends?

Jake: Yes. Matters of fact, my brothers are my friends too.

Dr. Pavlov: And your brothers also, okay. How about here in the hospital, do you have any friends?

Jake: No.

Dr. Pavlov: No, why not?

Jake: I don't have no friends… how do you find friends in a hospital?

Dr. Pavlov: Okay, so you have friends outside of the hospital.

Jake: (yes).

Dr. Pavlov: Okay, do you have any friends that you consider close friends?

Jake: The only close friends I have is brothers, because I have many parents. And they have… I have many parents, I don't have just one parent. I have many parents.

Dr. Pavlov: Tell me about that. How do you have many parents?

Jake: I have many parents because my father… my father did not fall in love with one woman, he fell in love with many people. If not my father would be a lesbian, would be a lesbian. He's a male. He's had male lovers and female lovers and he had children and had children and he had children. So my parents aren't together, so I have many parents. So I have more than just 19 brothers too.

Dr. Pavlov: Okay. Do you have any close friends?

Jake: Close friends would be my lovers. I have male lovers that I have. I have male lovers because my male lovers, male lovers are my male… I have male lovers are my close friends.

Dr. Pavlov: Okay, do you have many lovers?

Jake: Yes, a lot.

Dr. Pavlov: Okay.

Jake: That would make me a lesbian too.

Dr. Pavlov: Okay. Jake, do you feel that you can trust most people?

Jake: I trust most people.

Dr. Pavlov: Are there any people in particular that you don't trust?

Jake: Enemies.

Dr. Pavlov: Enemies, okay. Who are your enemies?

Jake: People who hate me, and hate my family.

Dr. Pavlov: Who hates you?

Jake: Have you ever run across someone who is very bad? Someone like that.

Dr. Pavlov: And is there anybody that hates your family?

Jake: (yes). People, who don't like me, you know, drug addicts and who do drugs, like that.

Dr. Pavlov: Okay. Other than people who are your enemies, is there anybody else that you don't trust?

Jake: Strangers.

Dr. Pavlov: Strangers, okay. And why don't you trust strangers?

Jake: Because strangers do a lot of terrible things to you.

Dr. Pavlov: Okay. Do you have a good reason not to trust strangers?

Jake: Huh?

Dr. Pavlov: Do you have a good reason not to trust strangers?

Jake: Because strangers go in your house and steal things.

Dr. Pavlov: Okay. Jake, do you get along well with others?

Jake: Yes.

Dr. Pavlov: Do you have a quick temper?

Jake: Yes. Oh, no I'm sorry, I'm sorry, I'm sorry. I meant no on that. I was thinking about something, that I forgot about.

Dr. Pavlov: I'm sorry, do you have a quick temper?

Jake: No I don't have a quick…I do have my mother's temper, sorry.

Dr. Pavlov: Okay, this past week have you had any arguments or fights with anyone?

Jake: No, I didn't.

Dr. Pavlov: Are there may be some people who don't like you?

Jake: No.

Dr. Pavlov: No, okay. Do other people talk about you behind your back?

Jake: No.

Dr. Pavlov: You just nodded as if to say yes though.

Jake: I know I was nodding, I'm sorry, no. Some people talk behind my back, I take that back. Some people talk… talk behind my back.

Dr. Pavlov: Okay, I'm just trying to make sure. What do you… what do you think they're saying about you?

Jake: «I hate you» and stuff like that.

Dr. Pavlov: Why do you think they'd be saying those things?

Dr. Pavlov: Alright. Okay, Jake, if you were to compare yourself to the average person, how would you come out? A little better, a little worse, or about the same?

Jake: Okay.

Dr. Pavlov: Okay? Are you special in some ways?

Jake: (no).

Dr. Pavlov: Would you consider yourself gifted?

Jake: (yes).

Dr. Pavlov: How are you gifted? What are your gifts?

Jake: I'm just talented in my things. Like being a musician… singing.

Dr. Pavlov: In the music.

Jake: Singing.

Dr. Pavlov: And singing, okay. And you said that you are training to be an actor right now, is that correct?

Jake: Yeah, I just played in one movie. It was Fantastic Four.

Dr. Pavlov: You were in Fantastic Four?

Jake: Yeah, it was shown in New Zealand.

Dr. Pavlov: Okay, and how about your music and your singing? Tell me about that.

Jake: It's good, it's good.

Dr. Pavlov: And how are you pursuing that?

Jake: Huh?

Dr. Pavlov: When you say that you are a musician and a singer, do you perform to people?

Jake: I'm performing to people.

Dr. Pavlov: Okay. Do you have… are you just practicing now or do you have a record deal, or…?

Jake: It takes time for performing doing things like in performing arts — especially musician/singing.

Dr. Pavlov: What kind of music do you like?

Jake: I like, one of my favorite singers is Celine Dion, and with my other song I sing is Mariah Carrey, the one that she sung, «Hero» song. That's her song. I think that my favorite song is «My Heart Will Go On».

Dr. Pavlov: You like those two songs?

Jake: (yes).

Dr. Pavlov: Okay. Other than your acting and musical talents, do you have any other talents that most people don't have?

Jake: No, just acting and singing.

Dr. Pavlov: Okay. Do you have any special powers?

Jake: No.

Dr. Pavlov: Do you have ESP — Extra Sensory Perception?

Jake: What does that mean?

Dr. Pavlov: Like reading other people's minds or being able to see what's going to happen in the future?

Jake: No.

Dr. Pavlov: No, okay. Are you very wealthy?

Jake: Yes.

Dr. Pavlov: Yes. Tell me about your wealth. How did you become wealthy?

Jake: Because I work hard.

Dr. Pavlov: Because you work hard. How long have you been wealthy?

Jake: A long time, my aunt too for a long time.

Dr. Pavlov: From your art?

Jake: My aunt.

Dr. Pavlov: Oh, from your aunt, sorry. And how did your aunt become wealthy?

Jake: Because she works hard.

Dr. Pavlov: What kind of work does she do?

Jake: She takes care of people and works at daycare centers.

Dr. Pavlov: Daycare centers?

Jake: Daycare centers.

Dr. Pavlov: Okay, can you be considered to be very bright or intelligent?

Jake: Yeah.

Dr. Pavlov: More so than other people?

Jake: Yeah.

Dr. Pavlov: And why would you say so?

Jake: What'd you say… say what you said again?

Dr. Pavlov: Would you consider yourself to be more intelligent than other people?

Jake: Yes, because other people don't know a lot of stuff.

Dr. Pavlov: And why would you say you're more intelligent?

Jake: Because some people don't know a lot of things. I may not know a lot of things. 19:05

Dr. Pavlov: And what kinds of things do you know?

Jake: I know art, acting, music and singing.

Dr. Pavlov: Okay, would you describe yourself as famous?

Jake: Yes.

Dr. Pavlov: And would some people recognize you from being on TV, the radio, movies, newspaper?

Jake: (yes).

Dr. Pavlov: Okay, so you mentioned earlier that you were in the movie Fantastic Four.

Jake: (yes).

Dr. Pavlov: Is there any other way that people would recognize you?

Jake: If they go to New Zealand.

Dr. Pavlov: And why would they recognize you in New Zealand?

Jake: Because they show, I'm playing in movies there.

Dr. Pavlov: What's that?

Jake: I play in the movies there.

Dr. Pavlov: You're playing in movies?

Jake: I played movies in there.

Dr. Pavlov: Okay. Alright, Jake, I'm going to say a pair of words and I'm going to ask you to tell me how these two things are similar or alike, okay? So, for an example, apple and banana – how are those two things alike?

Jake: They're fruits.

Dr. Pavlov: They're fruits, exactly. How about a pencil and a pen?

Jake: Materials to write with.

Dr. Pavlov: A hat and a shirt.

Jake: Something to wear.

Dr. Pavlov: An arm and a leg.

Jake: They're part of the human body.

Dr. Pavlov: Okay, and how about a painting and a poem?

Jake: Performing arts.

Dr. Pavlov: Okay. Now I'm going to tell you some expressions that people use sometimes, and ask you to tell me what you think they mean. Okay?

Jake: Okay.

Dr. Pavlov: So, for example, if somebody says, «Carrying a chip on your shoulder» – what do you think they mean when they say that?

Jake: Carry a chip on the shoulder… is strong?

Dr. Pavlov: What's that?

Jake: Be strong.

Dr. Pavlov: Be strong, okay. How about, «Two heads are better than one».

Jake: Work together with someone.

Dr. Pavlov: Okay. «All that glitters is not gold».

Jake: Don't do wrong.

Dr. Pavlov: Don't do wrong, okay. How about, «Don't keep all your eggs in one basket?»

Jake: Share with people.

Dr. Pavlov: Okay. And, how about, «The acorn never falls far from the tree?»

Jake: Okay, be strong.

Dr. Pavlov: Be strong. Let me try just one more. «People who live in glass houses shouldn't throw stones at others».

Jake: Don't lie.

Dr. Pavlov: Don't lie, okay.

Dr. Pavlov: Do you think that you have a psychiatric or mental health problem right now?

Jake: Most likely I do not have problem. I just realized that I have fathers, my fathers had reproduction system, and they have children. So my fathers, I don't have no mother, I have fathers. Fathers have reproduction system. It's something where men… men can have babies and they have reproduction system and they have children. I don't have any mothers.

Dr. Pavlov: No mothers.

Jake: No mothers, just fathers.

Jake: Most likely it is medicine to be better. I also dropped out of high school in a love relationship.

Dr. Pavlov: A love relationship, okay. How serious are the problems that you've had, would you say – that brought you to the hospital.

Jake: Well, I fell in love in high school. I've had a relation… I had sex freshman year and out of school my senior year. And so the teacher that's found that, there was something those parents have to know.

Dr. Pavlov: what are your future plans?

Jake: My future plans — keep acting, musician, singing too… performing too.

Dr. Pavlov: Okay, and any other longer range goals?

Jake: I already appeared in a Broadway play.

Dr. Pavlov: A Broadway play?

Jake: I was on the cover.

Dr. Pavlov: You were already in a couple Broadway plays?

Jake: I was the cover. I was in the cover.

Dr. Pavlov: On the cover of like the Broadway program.

Jake: Yeah, program.

Dr. Pavlov: So where do you see yourself in 10 years from now?

Jake: Singing and performing and acting.

Dr. Pavlov: Okay, any other long range goals that you have for yourself?

Jake: No, to go to New Zealand. Back to New Zealand, back to New Zealand.

Dr. Pavlov: That's right.

Jake: I wasn't born in America I was born in… I was born in New Zealand. I wasn't born in America; I was born in New Zealand. Sorry for saying that, but I was born in New Zealand.

Dr. Pavlov: Okay, but you've been in New York for a while?

Jake: I've been in New York for a while. I was born in New Zealand though.

Intelligence: the official educational level of the patient, the general level of knowledge. Intellectual disability and acquired dementia, degrees of the dementia

On the other hand understanding intellect is very complex to define and to examine. It is suggested that it is the understanding that signifies the total potential of a person, complex of his ability and the way of its realization for adaptation in life.

Intellect can be categorized in 3 types

Vision — action thinking: a baby till his ability to deliver a speech looks at the surrounding and copies the action of adults, which leads to formation of action out of own interest like take the toys, eating with spoon without the help of adults.

After formation of speech, from the experience, the baby starts selection of things. This basic representation of thinking is called concrete form of thinking.

When the baby starts going school, he gradually meets the world with abstract understanding and symbols, which sometimes is not representable, like mathematical actions, laws of physics etc. Brain-operations of these understandings are called abstract thinking. So the intellect of an adult suggests coexistence and interaction of practical experiences, concrete-situational representation and ability to abstract thinking.

Level of intellect may be characterized quantitatively with the help of I.Q. i.e. mental age*100/ chronical age. Mental age of a person develops till the age of 16. After that it's all experiences, that is developed and make a person mature.

Abstract thinking cannot be given grades by simply asking questions, which patients already solved many times in their lives. Even a patient with severe disorder of intellect may answer the months of the year one by one.

Intelligence includes:

- abstract;
- practical;
- social.

Disorders of intellect:

- intellectual disability;
- dementia.

Disorder of intellect can be represented by syndrome of intellectual disability, i.e. oligophrenia and decreased intellect, i.e. dementia.

Oligophrenia: it is undeveloped psychological functions due to several reasons which were present till the birth or during the 1st year of life. Oligophrenia is expressed when the formation of most of the nerve functions develops considerably slow. In this case many important functions for adaptation do not form at all.

Causes of oligophrenia:

1. Genetic (chromosomal and inherited);
2. Embryopathy (intoxication, ru-bella, other infections);
3. Fetopathy and perinatal pathology (hypoxia, trauma, infection, Rhesus-conflict etc.)

There are four options for oligophrenia, depending on the degree of intellectual deficiency:

Mild mental retardation (IQ 50–70)

People with mild learning disability account for about 85 % of those with learning disability. Usually their appearance is unremarkable and any sensory or motor deficits are slight. Most people in this group develop more or less normal language abilities and social behaviour during the preschool years, and their learning disability may never be formally identified. In adulthood, most people with mild learning disability can live independently in ordinary surroundings, although they may need help in parenting and coping with family responsibilities, housing, and employment, or when under unusual stress.

Moderate mental retardation (IQ 35–49)

People in this group account for about 10 % of those with learning disability. Many have better receptive than expressive language skills, which is a potent cause of frustration and behaviour problems. Speech is usually relatively simple, and is often better understood by people who know the patient well. Many make use of simplified signing systems such as Makaton sign language. Activities of daily living such as dressing, feeding, and attention to hygiene can be acquired over time, but other activities of daily living, such as the use of money and road sense, generally require support. Similarly, supported employment and residential provision are the rule.

Severe mental retardation (IQ 20–34)

It is difficult to estimate IQ accurately when the score is below 34 because of the difficulty in administering the tests in a valid manner to individuals in this group. Estimates suggest that people with severe learning disability account for about 3–4% of the learning disabled. In the preschool years their development is usually greatly slowed. Eventually many people can be helped to look after themselves under close supervision, and to communicate in a simple way — for example, by using objects of reference. As adults they can undertake simple tasks and engage in limited social activities, but they need supervision and a clear structure to their lives.

Profound mental retardation (IQ below 20)

People in this group account for 1–2 % of those with intellectual disability. Development across a range of domains tends to be around the level expected of a 12-month- old infant. Accordingly, people with profound intellectual disability are a highly vulnerable group who require considerable support and supervision, even for simple activities of daily living.

Diagnosis

If mental retardation is suspected, a comprehensive physical examination and medical history should be done immediately to discover any organic cause of symptoms. Such conditions as hyperthyroidism and PKU are treatable. If these conditions are discovered early, the progression of retardation can be stopped and, in some cases, partially reversed. If a neurological cause such as brain injury is suspected, the child may be referred to a neurologist or neuropsychologist for testing.

A complete medical, family, social, and educational history is compiled from existing medical and school records (if applicable) and from interviews with parents. Children are given intelligence tests to measure their learning abilities and intellectual functioning. Such tests include the Stanford-Binet Intelligence Scale, the Wechsler Intelligence Scales, the Wechsler Preschool and Primary Scale of Intelligence, and the Kaufman Assessment Battery for Children. For infants, the Bayley Scales of Infant Development may be used to assess motor, language, and problem-solving skills. Interviews with parents or other caregivers are used to assess the child's daily living, muscle control, communication, and social skills. The Woodcock-Johnson Scales of Independent Behavior and the Vineland Adaptive Behavior Scale (VABS) are frequently used to evaluate these skills.

Executive functions

Executive functions (collectively referred to as executive function and cognitive control) are a set of cognitive processes that are necessary for the cognitive control of behavior: selecting and successfully monitoring behaviors that facilitate the attainment of chosen goals. Executive functions include basic cognitive processes such as attentional control, cognitive inhibition, inhibitory control, working memory, and cognitive flexibility. Higher order executive functions require the simultaneous use of multiple basic executive functions and include planning and fluid intelligence (e.g., reasoning and problem solving).

Executive functions gradually develop and change across the lifespan of an individual and can be improved at any time over the course of a person's life. Similarly, these cognitive processes can be adversely affected by a variety of events which affect an individual. Both neuropsychological tests (e.g., the Stroop test) and rating scales (e.g., the Behavior Rating Inventory of Executive Function) are used to measure executive functions. They are usually performed as part of a more comprehensive assessment to diagnose neurological and psychiatric disorders.

Cognitive control and stimulus control, which is associated with operant and classical conditioning, represent opposite processes (internal vs external or environmental, respectively) that compete over the control of an individual's elicited behaviors; in particular, inhibitory control is necessary for overriding stimulus-driven behavioral responses (stimulus control of behavior). The prefrontal cortex is necessary but not solely sufficient for executive functions; for example, the caudate nucleus and subthalamic nucleus also have a role in mediating inhibitory control.

Cognitive control is impaired in addiction, attention deficit hyperactivity disorder, autism, and a number of other central nervous system disorders. Stimulus-driven behavioral responses that are associated with a particular rewarding stimulus tend to dominate one's behavior in an addiction.

Neuroanatomy

Historically, the executive functions have been seen as regulated by the prefrontal regions of the frontal lobes, but it is still a matter of ongoing debate if that really is the case. Even though articles on prefrontal lobe lesions commonly refer to disturbances of executive functions and vice versa, a review found indications for the sensitivity but not for the specificity of executive function measures to frontal lobe functioning. This means that both frontal and non-frontal brain regions are necessary for intact executive functions. Probably the frontal lobes need to participate in basically all of the executive functions, but it is not the only brain structure involved.

Neuroimaging and lesion studies have identified the functions which are most often associated with the particular regions of the prefrontal cortex.

The dorsolateral prefrontal cortex (DLPFC) is involved with "on-line" processing of information such as integrating different dimensions of cognition and behavior. As such, this area has been found to be associated with verbal and design fluency, ability to maintain and shift set, planning, response inhibition, working memory, organisational skills, reasoning, problem solving and abstract thinking.

Side view of the brain, illustrating dorsolateral prefrontal and orbitofrontal cortex.

The anterior cingulate cortex (ACC) is involved in emotional drives, experience and integration. Associated cognitive functions include inhibition of inappropriate responses, decision making and motivated behaviors. Lesions in this area can lead to low drive states such as apathy, abulia or akinetic mutism and may also result in low drive states for such basic needs as food or drink and possibly decreased interest in social or vocational activities and sex.

The orbitofrontal cortex (OFC) plays a key role in impulse control, maintenance of set, monitoring ongoing behavior and socially appropriate behaviors. The orbitofrontal cortex also has roles in representing the value of rewards based on sensory stimuli and evaluating subjective emotional experiences. Lesions can cause disinhibition, impulsivity, aggressive outbursts, sexual promiscuity and antisocial behavior.

Furthermore, in their review, Alvarez and Emory state that: «The frontal lobes have multiple connections to cortical, subcortical and brain stem sites. The basis of 'higher-level' cognitive functions such as inhibition, flexibility of thinking, problem solving, planning, impulse control, concept formation, abstract thinking, and creativity often arise from much simpler, 'lower-level' forms of cognition and behavior. Thus, the concept of executive function must be broad enough to include anatomical structures that represent a diverse and diffuse portion of the central nervous system».

The cerebellum also appears to be involved in mediating certain executive functions.

Hypothesized role

The executive system is thought to be heavily involved in handling novel situations outside the domain of some of our 'automatic' psychological processes that could be explained by the reproduction of learned schemas or set behaviors. Psychologists Don Norman and Tim Shallice have outlined five types of situations in which routine activation of behavior would not be sufficient for optimal performance:

Those that involve planning or decision makin.

Those that involve error correction or troubleshooting.

Situations where responses are not well-rehearsed or contain novel sequences of actions.

Dangerous or technically difficult situations.

Situations that require the overcoming of a strong habitual response or resisting temptation.

A prepotent response is a response for which immediate reinforcement (positive or negative) is available or has been previously associated with that response.

Executive functions are often invoked when it is necessary to override prepotent responses that might otherwise be automatically elicited by stimuli in the external environment. For example, on being presented with a potentially rewarding stimulus, such as a tasty piece of chocolate cake, a person might have the automatic response to take a bite. However, where such behavior conflicts with internal plans (such as having decided not to eat chocolate cake while on a diet), the executive functions might be engaged to inhibit that response.

Although suppression of these prepotent responses is ordinarily considered adaptive, problems for the development of the individual and the culture arise when feelings of right and wrong are overridden by cultural expectations or when creative impulses are overridden by executive inhibitions.

Development

The executive functions are among the last mental functions to reach maturity. This is due to the delayed maturation of the prefrontal cortex, which is not completely myelinated until well into a person's third decade of life. Development of executive functions tends to occur in spurts, when new skills, strategies,

and forms of awareness emerge. These spurts are thought to reflect maturational events in the frontal areas of the brain. Attentional control appears to emerge in infancy and develop rapidly in early childhood. Cognitive flexibility, goal setting, and information processing usually develop rapidly during ages 7–9 and mature by age 12. Executive control typically emerges shortly after a transition period at the beginning of adolescence. It's not yet clear whether there is a single sequence of stages in which executive functions appear, or whether different environments and early life experiences can lead people to develop them in different sequences.

Early childhood

Inhibitory control and working memory act as basic executive functions that makes it possible for more complex executive functions like problem-solving to develop. Inhibitory control and working memory are among the earliest executive functions to appear, with initial signs observed in infants, 7 to 12-months old. Then in the preschool years, children display a spurt in performance on tasks of inhibition and working memory, usually between the ages of 3 to 5 years. Also during this time, cognitive flexibility, goal-directed behavior, and planning begin to develop. Nevertheless, preschool children do not have fully mature executive functions and continue to make errors related to these emerging abilities – often not due to the absence of the abilities, but rather because they lack the awareness to know when and how to use particular strategies in particular contexts.

Preadolescence

Preadolescent children continue to exhibit certain growth spurts in executive functions, suggesting that this development does not necessarily occur in a linear manner, along with the preliminary maturing of particular functions as well. During preadolescence, children display major increases in verbal working memory; goal-directed behavior (with a potential spurt around 12 years of age); response inhibition and selective attention; and strategic planning and organizational skills. Additionally, between the ages of 8 to 10, cognitive flexibility in particular begins to match adult levels. However, similar to patterns in childhood development, executive functioning in preadolescents is limited because they do not reliably apply these executive functions across multiple contexts as a result of ongoing development of inhibitory control.

Adolescence

Many executive functions may begin in childhood and preadolescence, such as inhibitory control. Yet, it is during adolescence when the different brain systems become better integrated. At this time, youth implement executive functions, such as inhibitory control, more efficiently and effectively and improve throughout this time period. Just as inhibitory control emerges in childhood and improves over time, planning and goal-directed behavior also demonstrate an

extended time course with ongoing growth over adolescence. Likewise, functions such as attentional control, with a potential spurt at age 15, along with working memory, continue developing at this stage.

Adulthood

The major change that occurs in the brain in adulthood is the constant myelination of neurons in the prefrontal cortex. At age 20–29, executive functioning skills are at their peak, which allows people of this age to participate in some of the most challenging mental tasks. These skills begin to decline in later adulthood. Working memory and spatial span are areas where decline is most readily noted. Cognitive flexibility, however, has a late onset of impairment and does not usually start declining until around age 70 in normally functioning adults. Impaired executive functioning has been found to be the best predictor of functional decline in the elderly.

Models

Top-down inhibitory control.

Aside from facilitatory or amplificatory mechanisms of control, many authors have argued for inhibitory mechanisms in the domain of response control, memory, selective attention, theory of mind, emotion regulation, as well as social emotions such as empathy. A recent review on this topic argues that active inhibition is a valid concept in some domains of psychology/cognitive control.

Working memory model

One influential model is Baddeley's multicomponent model of working memory, which is composed of a central executive system that regulates three other subsystems: the phonological loop, which maintains verbal information; the visuospatial sketchpad, which maintains visual and spatial information; and the more recently developed episodic buffer that integrates short-term and long-term memory, holding and manipulating a limited amount of information from multiple domains in temporal and spatially sequenced episodes.

Supervisory attentional system (SAS)

Another conceptual model is the supervisory attentional system (SAS). In this model, contention scheduling is the process where an individual's well-established schemas automatically respond to routine situations while executive functions are used when faced with novel situations. In these new situations, attentional control will be a crucial element to help generate new schema, implement these schema, and then assess their accuracy.

Self-regulatory model

Russell Barkley proposed a widely known model of executive functioning that is based on self-regulation. Primarily derived from work examining behavioral inhibition, it views executive functions as composed of four main abilities. One element is working memory that allows individuals to resist interfering in-

formation. A second component is the management of emotional responses in order to achieve goal-directed behaviors. Thirdly, internalization of self-directed speech is used to control and sustain rule-governed behavior and to generate plans for problem-solving. Lastly, information is analyzed and synthesized into new behavioral responses to meet one's goals. Changing one's behavioral response to meet a new goal or modify an objective is a higher level skill that requires a fusion of executive functions including self-regulation, and accessing prior knowledge and experiences.

According to this model, the executive system of the human brain provides for the cross-temporal organization of behavior towards goals and the future and coordinates actions and strategies for everyday goal-directed tasks. Essentially, this system permits humans to self-regulate their behavior so as to sustain action and problem solving toward goals specifically and the future more generally. Thus, executive function deficits pose serious problems for a person's ability to engage in self-regulation over time to attain their goals and anticipate and prepare for the future.

Problem-solving model

Yet another model of executive functions is a problem-solving framework where executive functions is considered a macroconstruct composed of subfunctions working in different phases to (a) represent a problem, (b) plan for a solution by selecting and ordering strategies, (c) maintain the strategies in short-term memory in order to perform them by certain rules, and then (d) evaluate the results with error detection and error correction.

Lezak's conceptual model

One of the most widespread conceptual models on executive functions is Lezak's model. This framework proposes four broad domains of volition, planning, purposive action, and effective performance as working together to accomplish global executive functioning needs. While this model may broadly appeal to clinicians and researchers to help identify and assess certain executive functioning components, it lacks a distinct theoretical basis and relatively few attempts at validation.

Miller & Cohen's model

In 2001, Earl Miller and Jonathan Cohen published their article «An integrative theory of prefrontal cortex function», in which they argue that cognitive control is the primary function of the prefrontal cortex (PFC), and that control is implemented by increasing the gain of sensory or motor neurons that are engaged by task- or goal-relevant elements of the external environment. In a key paragraph, they argue:

We assume that the PFC serves a specific function in cognitive control: the active maintenance of patterns of activity that represent goals and the means to achieve them. They provide bias signals throughout much of the rest of the

brain, affecting not only visual processes but also other sensory modalities, as well as systems responsible for response execution, memory retrieval, emotional evaluation, etc. The aggregate effect of these bias signals is to guide the flow of neural activity along pathways that establish the proper mappings between inputs, internal states, and outputs needed to perform a given task.

Miller and Cohen draw explicitly upon an earlier theory of visual attention that conceptualises perception of visual scenes in terms of competition among multiple representations – such as colors, individuals, or objects. Selective visual attention acts to 'bias' this competition in favour of certain selected features or representations. For example, imagine that you are waiting at a busy train station for a friend who is wearing a red coat. You are able to selectively narrow the focus of your attention to search for red objects, in the hope of identifying your friend. Desimone and Duncan argue that the brain achieves this by selectively increasing the gain of neurons responsive to the color red, such that output from these neurons is more likely to reach a downstream processing stage, and, as a consequence, to guide behaviour. According to Miller and Cohen, this selective attention mechanism is in fact just a special case of cognitive control — one in which the biasing occurs in the sensory domain. According to Miller and Cohen's model, the PFC can exert control over input (sensory) or output (response) neurons, as well as over assemblies involved in memory, or emotion. Cognitive control is mediated by reciprocal PFC connectivity with the sensory and motor cortices, and with the limbic system. Within their approach, thus, the term 'cognitive control' is applied to any situation where a biasing signal is used to promote task-appropriate responding, and control thus becomes a crucial component of a wide range of psychological constructs such as selective attention, error monitoring, decision-making, memory inhibition, and response inhibition.

Miyake and Friedman's model

Miyake and Friedman's theory of executive functions proposes that there are three aspects of executive functions: updating, inhibition, and shifting. A cornerstone of this theoretical framework is the understanding that individual differences in executive functions reflect both unity (i.e., common EF skills) and diversity of each component (e.g., shifting-specific). In other words, aspects of updating, inhibition, and shifting are related, yet each remains a distinct entity. First, updating is defined as the continuous monitoring and quick addition or deletion of contents within one's working memory. Second, inhibition is one's capacity to supersede responses that are prepotent in a given situation. Third, shifting is one's cognitive flexibility to switch between different tasks or mental states.

Miyake and Friedman also suggest that the current body of research in executive functions suggest four general conclusions about these skills. The first conclusion is the unity and diversity aspects of executive functions. Second, recent studies suggest that much of one's EF skills are inherited genetically, as demonstrated in twin studies. Third, clean measures of executive functions can

differentiate between normal and clinical or regulatory behaviors, such as ADHD. Last, longitudinal studies demonstrate that EF skills are relatively stable throughout development.

Banich's «Cascade of control» model

This model from 2009 integrates theories from other models, and involves a sequential cascade of brain regions involved in maintaining attentional sets in order to arrive at a goal. In sequence, the model assumes the involvement of the posterior dorsolateral prefrontal cortex (DLPFC), the mid-DLPFC, and the posterior and anterior dorsal ACC.

The cognitive task used in the article is selecting a response in the Stroop task, among conflicting color and word responses, specifically a stimulus where the word «green» is printed in red ink. The posterior DLPFC creates an appropriate attentional set, or rules for the brain to accomplish the current goal. For the Stroop task, this involves activating the areas of the brain involved in color perception, and not those involved in word comprehension. It counteracts biases and irrelevant information, like the fact that the semantic perception of the word is more salient to most people than the color in which it is printed.

Next, the mid-DLPFC selects the representation that will fulfill the goal. The task-relevant information must be separated from other sources of information in the task. In the example, this means focusing on the ink color and not the word.

The posterior dorsal anterior cingulate cortex (ACC) is next in the cascade, and it is responsible for response selection. This is where the decision is made whether you will say green (the written word and the incorrect answer) or red (the font color and correct answer).

Following the response, the anterior dorsal ACC is involved in response evaluation, deciding whether you were correct or incorrect. Activity in this region increases when the probability of an error is higher.

The activity of any of the areas involved in this model depends on the efficiency of the areas that came before it. If the DLPFC imposes a lot of control on the response, the ACC will require less activity.

Recent work using individual differences in cognitive style has shown exciting support for this model. Researchers had participants complete an auditory version of the Stroop task, in which either the location or semantic meaning of a directional word had to be attended to. Participants that either had a strong bias toward spatial or semantic information (different cognitive styles) were then recruited to participate in the task. As predicted, participants that had a strong bias toward spatial information had more difficulty paying attention to the semantic information and elicited increased electrophysiological activity from the ACC. A similar activity pattern was also found for participants that had a strong bias toward verbal information when they tried to attend to spatial information.

Assessment

Assessment of executive functions involves gathering data from several sources and synthesizing the information to look for trends and patterns across time and settings. Apart from standardized neuropsychological tests, other measures can and should be used, such as behaviour checklists, observations, interviews, and work samples. From these, conclusions may be drawn on the use of executive functions.

There are several different kinds of instruments (e.g., performance based, self-report) that measure executive functions across development. These assessments can serve a diagnostic purpose for a number of clinical populations:

Behavioural Assessment of Dysexecutive Syndrome (BADS)

Behavior Rating Inventory of Executive Function (BRIEF). Ages 2–90 covered by different versions of the scale.

Barkley Deficits in Executive Functioning Scales (BDEFS)

Behavioral Dyscontrol Scale (BDS)

Comprehensive Executive Function Inventory (CEFI)

CogScreen

Continuous Performance Task (CPT)

Controlled Oral Word Association Test (COWAT)

d2 Test of Attention

Delis-Kaplan Executive Function System (D-KEFS)

Digit Vigilance Test

Figural Fluency Test

Halstead Category Test

Hayling and Brixton tests

Iowa gambling task

Kaplan Baycrest Neurocognitive Assessment (KBNA)

Kaufman Short Neuropsychological Assessment

Paced Auditory Serial Addition Test (PASAT)

Pediatric Attention Disorders Diagnostic Screener (PADDS)

Rey-Osterrieth Complex Figure

Ruff Figural Fluency Test

Stroop task

Tasks of Executive Control

Test of Variables of Attention (T.O.V.A.)

Tower of London Test

Trail-Making Test (TMT) or Trails A & B

Wisconsin Card Sorting Test (WCST)

Symbol Digit Modalities Test

Experimental evidence

The executive system has been traditionally quite hard to define, mainly due to what psychologist Paul W. Burgess calls a lack of «process-behaviour

correspondence». That is, there is no single behavior that can in itself be tied to executive function, or indeed executive dysfunction. For example, it is quite obvious what reading-impaired patients cannot do, but it is not so obvious what exactly executive-impaired patients might be incapable of.

This is largely due to the nature of the executive system itself. It is mainly concerned with the dynamic, "online" co-ordination of cognitive resources, and, hence, its effect can be observed only by measuring other cognitive processes. In similar manner, it does not always fully engage outside of real-world situations. As neurologist Antonio Damasio has reported, a patient with severe day-to-day executive problems may still pass paper-and-pencil or lab-based tests of executive function.

Theories of the executive system were largely driven by observations of patients having suffered frontal lobe damage. They exhibited disorganized actions and strategies for everyday tasks (a group of behaviors now known as dysexecutive syndrome) although they seemed to perform normally when clinical or lab-based tests were used to assess more fundamental cognitive functions such as memory, learning, language, and reasoning. It was hypothesized that, to explain this unusual behaviour, there must be an overarching system that co-ordinates other cognitive resources.

Much of the experimental evidence for the neural structures involved in executive functions comes from laboratory tasks such as the Stroop task or the Wisconsin Card Sorting Task (WCST). In the Stroop task, for example, human subjects are asked to name the color that color words are printed in when the ink color and word meaning often conflict (for example, the word "RED" in green ink). Executive functions are needed to perform this task, as the relatively overlearned and automatic behaviour (word reading) has to be inhibited in favour of a less practiced task — naming the ink color. Recent functional neuroimaging studies have shown that two parts of the PFC, the anterior cingulate cortex (ACC) and the dorsolateral prefrontal cortex (DLPFC), are thought to be particularly important for performing this task.

Context-sensitivity of PFC neurons

Other evidence for the involvement of the PFC in executive functions comes from single-cell electrophysiology studies in non-human primates, such as the macaque monkey, which have shown that (in contrast to cells in the posterior brain) many PFC neurons are sensitive to a conjunction of a stimulus and a context. For example, PFC cells might respond to a green cue in a condition where that cue signals that a leftwards fast movement of the eyes and the head should be made, but not to a green cue in another experimental context. This is important, because the optimal deployment of executive functions is invariably context-dependent.

One example from Miller & Cohen involves a pedestrian crossing the street. In the United States, where cars drive on the right side of the road, an

American learns to look left when crossing the street. However, if that American visits a country where cars drive on the left, such as the United Kingdom, then the opposite behavior would be required (looking to the right). In this case, the automatic response needs to be suppressed (or augmented) and executive functions must make the American look to the right while in the UK.

Neurologically, this behavioural repertoire clearly requires a neural system that is able to integrate the stimulus (the road) with a context (US or UK) to cue a behaviour (look left or look right). Current evidence suggests that neurons in the PFC appear to represent precisely this sort of information. Other evidence from single-cell electrophysiology in monkeys implicates ventrolateral PFC (inferior prefrontal convexity) in the control of motor responses. For example, cells that increase their firing rate to NoGo signals as well as a signal that says «don't look there!» have been identified.

Attentional biasing in sensory regions

Electrophysiology and functional neuroimaging studies involving human subjects have been used to describe the neural mechanisms underlying attentional biasing. Most studies have looked for activation at the 'sites' of biasing, such as in the visual or auditory cortices. Early studies employed event-related potentials to reveal that electrical brain responses recorded over left and right visual cortex are enhanced when the subject is instructed to attend to the appropriate (contralateral) side of space.

The advent of bloodflow-based neuroimaging techniques such as functional magnetic resonance imaging (fMRI) and positron emission tomography (PET) has more recently permitted the demonstration that neural activity in a number of sensory regions, including color-, motion-, and face-responsive regions of visual cortex, is enhanced when subjects are directed to attend to that dimension of a stimulus, suggestive of gain control in sensory neocortex. For example, in a typical study, Liu and coworkers presented subjects with arrays of dots moving to the left or right, presented in either red or green. Preceding each stimulus, an instruction cue indicated whether subjects should respond on the basis of the colour or the direction of the dots. Even though colour and motion were present in all stimulus arrays, fMRI activity in colour-sensitive regions (V4) was enhanced when subjects were instructed to attend to the colour, and activity in motion-sensitive regions was increased when subjects were cued to attend to the direction of motion. Several studies have also reported evidence for the biasing signal prior to stimulus onset, with the observation that regions of the frontal cortex tend to come active prior to the onset of an expected stimulus.

Connectivity between the PFC and sensory regions

Despite the growing currency of the 'biasing' model of executive functions, direct evidence for functional connectivity between the PFC and sensory regions when executive functions are used, is to date rather sparse. Indeed, the only di-

rect evidence comes from studies in which a portion of frontal cortex is damaged, and a corresponding effect is observed far from the lesion site, in the responses of sensory neurons. However, few studies have explored whether this effect is specific to situations where executive functions are required. Other methods for measuring connectivity between distant brain regions, such as correlation in the fMRI response, have yielded indirect evidence that the frontal cortex and sensory regions communicate during a variety of processes thought to engage executive functions, such as working memory, but more research is required to establish how information flows between the PFC and the rest of the brain when executive functions are used. As an early step in this direction, an fMRI study on the flow of information processing during visuospatial reasoning has provided evidence for causal associations (inferred from the temporal order of activity) between sensory-related activity in occipital and parietal cortices and activity in posterior and anterior PFC. Such approaches can further elucidate the distribution of processing between executive functions in PFC and the rest of the brain.

Bilingualism and executive functions

A growing body of research demonstrates that bilinguals show advantages in executive functions, specifically inhibitory control and task switching. A possible explanation for this is that speaking two languages requires controlling one's attention and choosing the correct language to speak. Across development, bilingual infants, children, and elderly show a bilingual advantage when it comes to executive functioning. Bimodal bilinguals, or people who speak one oral language and one sign language, do not demonstrate this bilingual advantage in executive functioning tasks. This may be because one is not required to actively inhibit one language in order to speak the other. Bilingual individuals also seem to have an advantage in an area known as conflict processing, which occurs when there are multiple representations of one particular response (for example, a word in one language and its translation in the individual's other language). Specifically, the lateral prefrontal cortex has been shown to be involved with conflict processing. However, there are still some doubts. In a meta-analytic review, researchers concluded that bilingualism did not enhance executive functioning in adults.

Dementia

This is loss of intelligence after a period of its normal development. This is more or less psychological defect with a disorder of intellectual function. The signs of dementia are loss of ability and knowledge, general decrease of productivity of psychological action and change in personality. Dementia can be seen in brain tumor, atrophic diseases of brain, and vascular diseases of brain.

Clinical picture of dementia differs in different types of psychological diseases. According to clinical pictures, dementia can be due to organic disorders, epilepsy and schizophrenia.

Dementia produces an appreciable decline in intellectual functioning, and usually some interference with personal activities of daily living, such as washing, dressing, eating, personal hygiene, excretory and toilet activities. How such a decline manifests itself will depend largely on the social and cultural setting in which the patient lives.

Consciousness is not clouded. Impairments of cognitive function are commonly accompanied, and occasionally preceded, by deterioration in emotional control, social behaviour, or motivation. This syndrome occurs in Alzheimer's disease, in cerebrovascular disease, and in other conditions primarily or secondarily affecting the brain.

Case example:

A 69-year-old man is brought to his primary care physician by his wife, who complains that his memory has been failing for the past year. The patient states that he forgets the names of friends and family members and loses his way back home from the grocery store, and that in general he is unable to remember much of the information he acquired earlier. Previously, the man was «meticulous» about remembering his appointments and taking his medication. Now, he has to be reminded each and every time by his wife. The wife also reports that the patient's behavior is much more disorganized — he recently put his cell phone in the freezer and his shoes in the bathtub.

On a mental status examination, the patient is alert but oriented only to per-son and place. He does not remember his physician's name, although he has seen the same physician for more than 12 years for treatment of mild hyper-tension (well-controlled). Some mild aphasia is noted, and the patient can recall only two out of three objects at 5 minutes.

Organic dementia occurs due to disturbed structure of brain and massive death of neurons in the brain. Clinical picture shows the severe disorder of memory and decreased ability to abstract thinking.

Organic dementia can be of two types:

1. ***Lacunar dementia****:* this is also called atherosclerotic dementia. Clinical picture shows primary marked disorder of memory, slight deficiency in understanding, mild personality changes (expression of personality traits), and a good insight about the disease, i.e. patient understands his disease and seeks for help and feels sad about his condition. Causes of this dementia are atherosclerosis of arteries of brain, hypertension, diabetic microangiopathy, disorder.

2. ***Total dementia***: this is characterized by primary loss of understanding, severe disorder of memory, poor or very formal insight about the disease, and severe changes in personality. Causes of total dementia are atrophic diseases of brain. This may be a deffuse process like degenerative diseases, (e.g. Alzheimer’s disease, Pick s disease), meningoencephalitis (e.g. syphilitic meningoencephalitis, progressive paralysis), severe brain injury. Division of organic dementia is not pathoanatomical, but syndromal.

***Epileptic dementia**:* this is one of the variations of organic dementia which occurs at the final stage of epilepsy with the manifestation of loss of memory and ability to understanding ' action (cognition). This is also characterized by disorder of thought (circumstantiality, oligophasia). Personality of the person also changes severely. Patient becomes egocentric. Disorder of memory in the patient has a special character. He can remember about anything that is related to him (name of doctor, name and number and doses of each medicine, amount of his pension, and date of pension) but he cannot remember that his wife is ill or the name of the president of the country.

Schizophrenic dementia (nowadays called apathico-abulia syndrome): this is not an organic disease. In case of schizophrenia, memory is not lost. There is also no loss of ability of abstract thinking. There becomes a disorder of the structure of abstract thinking and its aim. There develops a passivity and indifference. Disorder of thought (schizophasia) is seen. The patient cannot fulfill any work. This leads to more indifference. Patient may lie on his bed the whole day. He ' may not like to read, watch television, doesn't do any household work. In any question asked to him, his answer will be «I don't know». He stops taking care of himself, doesn't change clothes, stops taking shower and brushing teeth.

Differential diagnosis of dementia and depression:

	DEMENTIA	**DEPRESSION**
Onset	hidden	variable
Duration	months to years	variable
Course	slowly progressive	diurnal variation (worse in morning, improves during day)
Consciousness	clear until late in the course of the illness	unimpaired
Attention and memory	poor memory without marked inattention	difficulty concentrating; memory intact / minimally impaired
Affect	variable	depressed; loss of interest and pleasure in usual activites

Attention

Attention is the ability to choose and concentrate on relevant stimuli. Attention is the cognitive process that makes it possible to position ourselves towards relevant stimuli and consequently respond to it. This cognitive ability is very important and is an essential function in our daily lives.

Types of Attention

Attention is a complex process that we use in almost all of our daily activities. Over time, scientists and researchers have found out that attention is not a single process, but rather a group of attention sub-processes. The most accepted model for the attention sub-components is currently the hierarchical model from Sohlberg and Mateer (1987, 1989), which is based on clinical cases of experi-

mental neuropsychology. According to this model, attention can be divided into the following parts:

• *Arousal:* refers to our activation level and level of alertness, whether we are tired or energized.

• *Focused Attention*: refers to our ability to focus attention on a stimulus.

• *Sustained Attention*: the ability to attend to a stimulus or activity over a long period of time.

• *Selective Attention*: the ability to attend to a specific stimulus or activity in the presence of other distracting stimuli.

• *Alternating Attention*: the ability to change focus attention between two or more stimuli.

• *Divided Attention*: the ability to attend different stimuli or attention at the same time.

TYPES OF ATTENTION				
FOCUSED ATTENTION *(process only one input)*		DIVIDED ATTENTION *(process all inputs)*		
AUDITORY *(e.g. shadowing; fate of unattended stimuli)*	VISUAL *(e.g. variable beam spotlight; fate of unattended stimuli)*	TASK SIMILARITY	TASK DIFICULTY	PRACTICE *(e.g. effects on automaticity)*

Attention is limited. There has been a tremendous amount of research looking at exactly how many things we can attend to and for how long. Researchers have found that key variables that impact our ability to stay on task include how interested we are in the stimulus and how many distractors we experience. Studies have demonstrated that attention is limited in terms of both capacity and duration. The illusion that attention is limitless has led many people to practice multitasking. It's only in recent years that research has pointed out how multitasking seldom works well because our attention is, in reality, limited.

Attention is selective. Since attention is a limited resource, we have to be selective about what we decide to focus on. Not only must we focus our attention on a specific item in our environment, but we must also filter out an enormous number of other items. We must be selective in what we attend to, a process that often occurs so quickly that we don't even notice that we have ignored certain stimuli in favor of others.

Attention is a basic part of the cognitive system. Attention is a basic component of our biology, present even at birth. Our orienting reflexes help us determine which events in our environment need to be attended to, a process that aids in our ability to survive.

Attentional systems and neuroanatomy

According to the neuroanatomical model from Posner and Petersen (1990), there are three different attentional systems. They are the following:

Reticular Activating System (RAS) or Alert System: This system is mainly in charge of Arousal and Sustained Attention. It is closely related to the reticular

formation and some of its connections, like the frontal areas, limbic systems, the thalamus, and the basal ganglia.

Posterior Attentional System (PAS) or Orientation System: This system is in charge of Focused Attention and Selective Attention of visual stimuli. The brain areas related to this system are the posterior parietal cortex, the lateral pulvinar nucleus of the thalamus, and the superior colliculus.

Anterior Attentional System (AAS) or Execution System: This system is in charge of Selective Attention, Sustained Attention, and Divided Attention. It's closely related to the prefrontal dorsolateral cortex, the orbitofrontal cortex, the anterior cingulate cortex, the supplementary motor area, and with the neostriatum (striate nucleus).

Attention is decreased in normalpeople in sleep, dreams, hypnotic states, fatigue and boredom.

It may be pathologically decreased in organic states, usually with lowering of consciousness,for instance with headinjury, acute toxic confusional states such as drug-andalcohol-inducedconditions, epilepsy, raised intracranial pressure and brainstem lesions.In psychogenic states, attention may be altered, for example diminished in hysterical dissociation. Narrowing of attention is also prominent in depressive illness,in which the morbid mood state results in attention being limited to a restricted number of themes — mostly unhappy.

Impairmentof focused attention and concentration denotesan inabilityto exercise attention onan object ina purposeful way, implying weakening of the determining tendency. This is a feature of mania and hypomania and also occurs in organic states. These features combine to show the symptoms of distractibility, which is prominent in mania and some organic states.

TOPIC № 4. PSYCHOPATHOLOGY WILLPOWER AND CONSCIOUSNESS. CATATONIC SYNDROME. PSYCHOPATHOLOGY WILLPOWER: STAGES OF THE ACT OF WILL. SYMPTOMS OF THE WILLPOWER DISORDER

Volition or **will** is the cognitive process by which an individual decides on and commits to a particular course of action. It is defined as purposive striving and is one of the primary human psychological functions. Others include affect (feeling or emotion), motivation (goals and expectations), and cognition (thinking). Volitional processes can be applied consciously or they can be automatized as habits over time.

Most modern conceptions of volition address it as a process of conscious action control which becomes automatized (e.g. see Heckhausen and Kuhl; Gollwitzer; Boekaerts and Corno).

Functions of will:

- ***Incentive*** and guide to achieve this goal in overcoming difficulties.
- ***Brake*** function will manifest in deterring unwanted activity, motives and actions that do not comply worldview, ideals and beliefs of the individual.
- ***Regulatory*** function is expressed in arbitrary regulation action, mental processes and behavior, to overcome barriers.
- ***Developmental*** function is that the volitional regulation aimed at improving the subject of his behavior.

Structure of volitional action:

1. Motivational motivator link (target motifs);
2. Performing unit (modes of action and behavior as external proposed by someone, and internal, developed itself;
3. Assessment and efficient link (results of actions).

Disturbances of will motives:

Hyperbulia: it is characterized by increase in will and drive (inclination). It can be presented as increased appetite, hyper sexuality, talkativeness, etc. The patient can steal food from other patients in the ward due to increase appetite. Hyper sexuality can expressed by talking to opposite or same sex more, giving them more attention, frequently using of bright cosmetics to draw the attention,

buying presents, inviting for dates. To be remembered that simultaneously increase of will and inclination doesn't lead to danger for the patient and surroundings. Only the patient disturbs other people by his behaviour (he can call 20 times a day to a girl and asks for date). Hyperbulia is characteristic symptom for mania.

Hypobulia: this is just the opposite of hyperbulia. The patient doesn't show any will and inclination including physiological drives. Like, he may refuse to eat for days or eating minimal quantity saying that he doesn't have appetite, he may complain of sleeplessness. Opposite sex or same sex will not attract him. The patient will not like to talk with anybody even with his doctor. He won't understand the necessities of conversation, and wants to be left alone. Suppression of self defense mechanism leads to attempt of suicide. This is characteristic for the feeling shame for his disability and helplessness. Hyperbulia is characteristic symptom for depression.

Abulia: this disorder is characterized by abrupt decrease of will. Lying whole day on the bed and doing nothing is the normal conduct to abulia but this patient shows the need of food, sex, and other things but not socially accepted way. So the patient instead of going to grocery when he feels hungry, calls his neighbour and asks to feed him. Sexual drive is fulfilled by continuous masturbation. The patient loses the higher social demands, he doesn't need contacts, and can sit at home for days. He doesn't show interest in the events in family or in the world. In the ward, he doesn't talk with other patients, doesn't know their names, names of doctors and nurses. ***Abulia is a negative symptom***, sometimes with apathy they present apathia-abulia syndrome, characteristic for schizophrenia. In progredient disease presentation of abulia varies from mild laziness, to disability with severe passivity.

Case example: *A 24-year-old man's parents bring him to doctor. Up until a few months ago he seemed to be doing well and there were no concerns. He was in the second year of his PhD, but then apparently quite suddenly lost interest in his academic work and also stopped socializing with his friends. He returned to live at home and has been increasingly more withdrawn at home. He is speaking less and less and is becoming apathetic and rarely shows any emotion or engagement with anyone including his family members with whom he had been reasonably close. When asked how he is, the man insists he is fine and he cannot understand his parents' concern. When asked about what they think is wrong, his parents cannot say what concerns them but they are sure something is not right.*

Ambivalence: it is characterized by simultaneously working of two completely opposite emotions for the same object or subject or situation (like love and hatred for mother). In psychiatry ambivalence plays an important role which makes the patient suffers, disorganizes his behaviour, and is accompanied by contra indicatory speeches and actions. It is basically not a specific symptom and can be seen in schizophrenia, introvert psychopathy and in older people.

Parabulia: perversion of the will, as when an individual intends to perform a particular action but halts and substitutes either an opposite action or an unrelated alternative. It is often seen in schizophrenics.

Psychopathology consciousness

Consciousness — the highest integrative mental process, the highest form of reflection of objective reality, peculiar to the person. It provides a cognitive reflection of the world and of itself promotes the adaptation of the individual in a social environment and allows you to modify it to suit your needs. Consciousness — is not an independent process, and the human psyche as a whole — a product of a gradual development of the individual.

The man has the ability to be conscious of the world and aware of your body, thoughts, actions, feelings, interests and position in society.

Disorders of consciousness

Understanding of consciousness greatly differs by its multiple meanings, and is used in different ways in psychology, physiology and philosophy. In most of the cases this term indicates the ability to perceive oneself and outside world in all safe events. Consciousness intends at first possibility of objects, or senses, cognition and understanding the links amongst phenomena (abstract cognition). From the above mentioned definition it is understood that practically any psychiatric disorder (hallucination, delusion, dementia etc.) is accompanied by disturbance of consciousness.

For definition of upset consciousness condition we use some criteria *(Karl Theodor Jaspers, 1923)*:

1. Distraction from real outside world. This is expressed by the fact that the patient fragmentarily, unclearly, perceives reality.
2. Disturbance of orientation of time, place, situation, and rarely of own personality.
3. Disturbance of framing thought right up to incoherence.
4. Amnesia disorder of ability to store the ongoing events in memory during the disturbance of consciousness.

One should remember that all the above mentioned criteria must be present to diagnose disturbance of consciousness. It is also very important for the diagnosis of upset consciousness condition to monitor specific dynamics of same criteria. This condition is acute transient disorder.

Jaspers divided disturbances of consciousness in 3 groups:

1. Condition of clouding of consciousness or deterioration consciousness;
2. Obscured consciousness;
3. Condition of changed consciousness.

But actual understanding of these terms differs from author to author.

We may define them as following:

Deterioration of consciousness doesn't contain psychological process. It is an unlimited row between clear consciousness and completely absence of consciousness (coma). It is devoid of any positive symptom.

Obscured consciousness presents own rows of acute psychosis with bright positive symptoms: hallucination, delusion, psychomotor excitement etc. In this condition the patient doesn't perceive the reality in the 1st order, because he is filled with fantasy and fictions. Fantastic events may coincide with reality and it is transformed in accordance with imagination and fantasy. In obscured consciousness the patient is active and can commit dangerous acts.

Changed consciousness condition is seen in healthy people. It actually demonstrates the connection of consciousness with function of attention. Concentration or attention in any subject or object makes a person distract from the surrounding world. Thus he cannot get information from the outside world but gets information from the object he is concentrating at the moment. The abnormal conditions categorized as disorders of consciousness are those in which the perception of external objects and spatial and temporal orientation are disrupted, thinking is disordered, events are not fixed in the memory, and alienation from the real world sets in (K. Jaspers). Each of these symptoms is observed in various psychic disorders, but in combination they are characteristic of clouded consciousness. As a result, disorders of consciousness are characterized by the disruption of abstract, logical and visual, sensory and cognition.

In clinical practice, stupor is the most frequently encountered disorder of consciousness, manifested in retardation, somnolence, impoverished psychic life, and elevated threshold for external irritants. Cases range from mild (clouding of consciousness) to extremely severe, characterized by sopor and coma. Delirious clouding of consciousness, or delirium, is characterized by illusions, hallucinations, affective disorders, acute delirium, and motor excitation, in combination with symptoms common to all forms of disruption of consciousness.

Characteristic of oneiric (dreamlike) clouding of consciousness are fantastic, sensual, day dream-like experiences, acute affective and motor disorders and disruption of self-consciousness. The dominant symptom in amentia is gross disorder of the flow of associative processes (incoherent, fragmentary thinking), accompanied by motor excitation, incoherent talkativeness, and continual changes of mood.

Unlike the above mentioned syndromes, the twilight state develops suddenly, is generally brief (minutes or hours), and has a distinct onset and termination. The patient' outward behaviour often seems purposeful and logical, but malicious depressed affect, acute delirium, and vivid hallucinations may bring on outbursts of furious excitation, with senseless aggression.

Disorders of consciousness:

- qualitative;
- quantitative;

- short-term;
- long-term.

Hypnosis — artificially incited change of consciousness

Syncope — short-term unconsciousness

Quantitative changes of consciousness mean reduced alertness:

- somnolence;
- spoor;
- coma.

Qualitative changes of consciousness mean disturbed perception, thinking, affectivity and memory.

Classification of disturbances of consciousness:

1. Non-psychotic (non-productive) forms:

- Obnubilation
- Torpor
- Somnolence
- Sopor
- Coma

2. Psychotic (productive) forms accompanied by delirium, hallucinations, a disturbance in behavior:

- Delirious syndrome
- Oneiroid syndrome
- Syndrome of asthenic confusion
- Syndrome of perplexity
- Amentia
- Twilight state of consciousness

Delirium (confusional state) — is an acute or subacute, usually reversible syndrome of impaired higher cortical functions hallmarked by generalized cognitive disturbance and caused by one or more aetiologies. It is most common in medical-surgical patients, especially in intensive care units, and those in hospice and nursing homes. Characterized by disorientation, distorted perception, enhanced suggestibility, misinterpretations and mood disorders. Delirium (delirium syndrome) is characterized by impaired orientation in place and time at safety orientation in the self, the influx frightening visual and less auditory hallucinations fear. Hallucinations tend to zoopsychic (animals, especially reptiles often devils). The patient's behavior is determined by the content of hallucinatory images. After exiting delirium amnesia is absent. Occurs when organic disorders and intoxications, is considered exogenous syndrome.

Case example:

A psychiatrist is called to see a 64-year-old man after he began screaming that there were strange men in his hospital room. The patient underwent a coronary artery bypass graft 3 days previously and appeared to be recovering with-

out complications. He claims that the previous evening he had seen several men standing in his room by the windows. The patient states that they did not say anything to him but that he was "sure that they were going to hurt him. He has never seen anything unusual before, and has no prior history of psychiatric difficulties. The nurses' notes from the late shift indicate that the patient became agitated and restless, although at times during the evening he was also noted to be disoriented and stuporous.

Symptoms of delirium:

Diffuse cognitive deficits

- Attention.
- Orientation (time, place, person).
- Memory (short- and long-term; verbal and visual).
- Visuoconstructional ability.
- Executive functions.

Temporal course

- Acute/abrupt onset.
- Fluctuating severity of symptoms over 24-hr period.
- Usually reversible.
- Subclinical syndrome may precede and/or follow the episode.

Psychosis

- Perceptual disturbances (especially visual), including illusions, hallucinations, metamorphosias.
- Delusions (usually paranoid and poorly formed).
- Thought disorder (tangentiality, circumstantiality, loose associations).

Sleep-wake disturbance

- Fragmented throughout 24-hr period.
- Reversal of normal cycle.
- Sleeplessness.

Psychomotor behavior

- Hyperactive.
- Hypoactive.
- Mixed.

Language impairment

- Word-finding difficulty/dysnomia/paraphasia.
- Dysgraphia.
- Altered semantic content.
- Severe forms can mimic expressive or receptive aphasia.

Altered or labile affect

- Any mood can occur, usually incongruent to context.
- Anger or increased irritability common.
- Hypoactive delirium often mislabeled as depression.

- Lability (rapid shifts) common.
- Unrelated to mood preceding delirium.

Case example:

Patient K., aged 68, after the interruption of alcoholic binge began to see the wall crumbling castles, he was surrounded by people with terrible faces and tried to strangle to him. At the same time saw the series flying UFO. He ran away from home, hid in the woods. During hospitalization insisted that is his friend, who died a few years ago, incorrectly called the year and time of year, was confused in dates. On his face was an expression of horror.

Oneiric (oneiroid syndrome) or dream-like fantastic delusional derangement of consciousness, is characterized by a kaleidoscopic quality of psychopathological experiences, wherein reality, illusions and hallucinations are merged into one. It is typically accompanied by motor and, in particular, catatonic disturbances. Characteristic of catatonic schizophrenia that sometimes occurs during substance intoxication and epilepsy. Considered mainly endogenous syndrome.

Case example:

Patient K., 42 years old was delivered to the clinic by rescuers; he was discovered in a clearing in the mountain forest, sitting by alone. For questions not answered, instructions performed passively. The state of lethargy and passivity with indifference continued for another week. Then the Patient K was leaving state reported that was kidnapped from the forest by the aliens and about 30 years, traveled with them "in the light beam" in the past. Saw how they build the pyramids, canals in Mexico and canals on Mars. After discharge Patient K published in the esoteric newspaper article about the types of aliens and gave examples of their language, consisting of stretching, the letter «a».

Amentia (amential syndrome) is characterized by complete disorientation, incoherence of the speech (thinking), fleecing movements and partial or complete amnesia after the release of amentia. When the delirium in amentia one of the first symptoms is mumbling and fleecing of motion (mussitant delirium). Occurs when organic disorders and intoxications, also refers to exogenous syndromes.

Case example:

Patient L., 34 years upon admission to the clinic called correctly your passport details, but was disoriented in time and place. He was hanging outside the window, felt fear. For two nights did not sleep. By the end of the day lies within the bed, stereotyped movements tightens on his blanket. It is quiet, muttering, repeating single syllables, sometimes shouting «go, go», looks around, biting his lip.

Twilight state

A twilight state is a well-defined interruption of the continuity of consciousness (Sims et al., 2000). It is usually an organic condition and occurs in the context of epilepsy, alcoholism, brain trauma and general paresis. It may also occur with dissociative states.

It is characterized by:

1. abrupt onset and end;
2. variable duration, from a few hours to several weeks;
3. the occurrenceof unexpected violent acts or emotional outbursts during otherwise normal, quiet behaviour (Lishman, 1997).

Consciousness may be markedly impaired or relatively normal between episodes. There may be associated dream-like states, delusions or hallucinations. It is sometimes associated with the temporal lobe seizures of epilepsy; it may occur with other organic states without epilepsy.Similar behaviour may occur in apparent hysterical dissociation and it is also described as an acute reaction to massive catastrophe.

Case example:

Patient D. 30 years has a history of epilepsy. She with her husband was waiting for her flight during the two days was at the airport, which was constantly postponed. Suddenly she disappeared. She was found 10 kilometers from the airport, broke a window in kindergarten and fell asleep on the floor. She could not to call a date though called month and year, and believed that «the husband moved out, and they have already arrived home».

Ambulatory automatism characterized by the shutdown of consciousness with automatic actions and amnesia. If such actions are accompanied by agitation, but continue to a few seconds (Jogging, cotton door), talk about the Fugue, if a long time (several days), talk about the TRANS. Occur in epilepsy.

Case example:

Patient L., 24 years, two years ago he suffered a traumatic brain injury. Periodically he had get headaches with nausea. One day he rode a bicycle to the store and disappeared. Patient L was discovered by police in the city, at a distance of nearly 40 miles through a week. He could not call his name and accurately to determine the date, didn't know how to come in the city. Neurological examination show horizontal nystagmus. Confused, trying to recall the events of the past week. Relatives established that he passed through the neighboring settlements, which was seen acquaintances, but their questions did not react, «looked ahead». This man lived a few days in an abandoned house, collecting the leftovers. After the therapy recovered memory only current events, but for the period of the trance remained amnesia. Dual orientation characteristic of delusions, such as delusions of grandeur, when the patient calls himself simultaneously a significant person and his name, or with delusions of staging argues that, although located in this place, still believes it is not true, staged.

Case example:

Patient Zh., 30 years, political leader of one of the parties. He was delivered with a rally of his party in psychomotor agitation. Patient Zh. is in the correct orientation in place and time, but insists that at the time of the meeting concurrently with the speeches of speakers behind the stage there were executions,

since he heard the shots. Understands that is in office, but believes that all men are recruited by the opponents. Although he knows the date of hospitalization, believes that using drugs others «alienate from the date of the election, replacing the calendars». Calls it correctly, but believes that at the same time is «devoted to higher ideas». Special States of consciousness include psychosensory disorders such as derealization, depersonalization on the background narrowing of consciousness.

Exceptional States of consciousness include pathological intoxication and pathological affect.

Pathological intoxication — narrowed state of consciousness that arises in the use of minimal doses of alcohol, aggression or other unwarranted actions with subsequent amnesia.

Case example:

Patient N., 19, was taken out of the pool, where he participated in competitions in diving. At the time of the swim was under water trying to strangle his opponent. When extracted from water behaved inadequately, rushed to his comrades, stripped his trunks, inarticulate scream. The condition is amnesia. At clarification of circumstances it turned out that previously, the inner surface of the mask when you swim only dry rubbed, but in this day coach has recommended to wipe it with alcohol. Previously N. never hard liquor was taken and only once tried beer.

Pathological affect — Inadequate a strong reaction to the insult, humiliation, loss with narrowing of consciousness, aggression, auto-aggression. Special ethnic changes of consciousness (amok, low) also refer to pathological affect. According to the description of ethnographers Indian custom of self-immolation of widows after the death of a spouse often has been associated with affective narrowing of consciousness.

Case example:

Patient S., 35 years, was in inpatient treatment for alcohol addiction, was getting ready to be discharged. He was expected his wife and two sons will arrive by car. They got in a car accident and died. After the message about this event he turned around and ran away, hit a passerby and tore at his clothes, causing considerable damage.

Funds are also multiple consciousness, which is characterized by the transition of a person into a different person with other habits, behavior, name, and amnesia of the previous personality.

Diagnosis of disorders of consciousness:

Psychiatristalgebraic model of consciousness is quite simple — It equates consciousness to the orientation in itself, time and space. Orientation in itself includes awareness of mind and body and interpersonal communications, orientation in time is purely calendar character, and orientation in space — formally territorial. Person should tell you who was talking to whom, he should name the current date

and the place. If he does not talk about this it means restriction of consciousness. If unable to name correctly — doctor talks about disorientation. To determine the characteristics of attention, it is important to establish the degree of passivity of attention, the presence of a definition of perception (the patient looks or listens, asks), the degree of attenuation of remembering and memory, impaired thinking, decreased ability to judgements and conclusions. In a speech at minimal disorders of consciousness can detect replays (perseverative), repetitions of the question (echolalia), increasing distances between words, the increase in the number of words such as «Yes», «here», «well», not the end of words.

SYNDROME	DELIRIUM	ONEIROID	TWILIGHT STATES
Beginning	Gradual within 1–2 days through the states of anxiety, sleep disorders	Gradual through the stage of acute delusions and derealization	Sudden
Symptoms	Illusions, true hallucinations, excitement	Catatonia, pseudo-hallucinations, dual orientation	Brutal aggression or automatic behavior
Duration	3–5 days	Several days or weeks	Several minutes or hours
Ending	Critical after deep sleeping	Gradual	Sudden
Amnesia	Partial	Partial	Total
Outcome	Full recovery, in severe cases Korsakov's syndrome, dementia or death	Remission of high quality	Status idem
Nosology	Organic damage or intoxication	Schizophrenia or abuse of hallucinogen drugs	Epilepsy or other organic paroxysmal disorders

Catatonic syndrome

Catatonic syndrome — the mental disorder with dominance of disturbances in the motive sphere which is expressed block (stupor) or excitement. According to the DSM-IV-TR, some 5–9 % of all psychiatric inpatients show some catatonic symptoms.

The concept of catatonia was first described by Kahlbaum (1874). Catatonic stupor is one of the most dramatic psychiatric conditions, but is becoming increasingly rare in the Western world. However, it has been suggested that catatonia is under-recognized and under-diagnosed (Van der Heijden et al., 2005). Although the introduction of antipsychotics has reduced the incidence of catatonia, it is still not uncommon (Stompe et al, 2002) and its detection rate can be significantly improved by using a standardized rating scale (Van der Heijden et al, 2005).

Mechanism of catatonia

The exact cause of catatonia has not been elucidated, but a number of hypotheses have been offered.

According to Northoff (2002), a «top-down modulation» of basal ganglia due to deficiency of cortical gamma-aminobutyric acid (GABA), the primary inhibitory neurotransmitter of the brain, may explain the motor symptoms of catatonia. This explanation might account for the dramatic therapeutic effect of benzodiazepines, which cause an increase in GABA activity. Similarly, hyperactivity of glutamate, the primary excitatory neurotransmitter, has also been suggested as an underlying neurochemical dysfunction (Northoff et al, 1997). GABAergic drugs are most effective in treating acute catatonia, as evidenced by numerous case reports and clinical trials. Glutamate dysfunction may contribute to some of the catatonia phenotypes.Very recently, antibodies against GABA A-receptor subunits were detected in patients with neuropsychiatric syndromes, including subjects with catatonia-like behaviors; 1 of the 2 improved rapidly following plasma exchange. Still, a controlled clinical trial of GABA agonist lorazepam indicated no effect on chronic catatonia. Taken together, alterations in GABAergic and glutamatergic neural activity may contribute to some but not all phenotypes of catatonia.

Established that the N-methyl-D-aspartate (NMDA)-receptor antagonist ketamine elicited catatonia-like signs when administered in healthy subjects. In line with this, a mouse model of reduced NMDA-receptor expression indicated abnormal motor and social behavior with face validity when compared to catatonia. Furthermore, the clinical presentation of many subjects with anti-NMDA-receptor encephalitis mimics acute catatonia with stereotypies, mutism, echophenomena, rigidity, and abnormal involuntary facial movements. In fact, some acute catatonia cases may even resemble misdiagnosed anti-NMDA-receptor encephalitis.

Osman & Khurasani (1994) have suggested that catatonia is caused by a sudden and massive blockade of dopamine. This may explain why dopamine-blocking antipsychotics are not generally beneficial in catatonia. Indeed, by exacerbating dopamine deficiency, antipsychotics may cause worse of the condition. Clozapine-withdrawal catatonia is postulated to be due to cholinergic and serotonergic rebound hyperactivity (Yeh et al, 2004).

In chronic catatonia with prominent speech abnormalities, positron emission tomography (PET) has identified abnormalities in metabolism bilaterally in the thalamus and frontal lobes (Lauer et al, 2001). A very interesting hypothesis proposed by Moskowitz (2004) suggests that catatonia may be understood as an evolutionary fear response, originating in ancestral encounters with carnivores whose predatory instincts were triggered by movement. This response, of remaining still, is now expressed in a range of major psychiatric or medical conditions, where catatonic stupor may represent a common “end-state” response to feelings of imminent doom.

Clinical features of catatonia

Catatonia is a syndrome that encompasses more than two dozen signs, some of which are relatively nonspecific.

Stupor is the classic and most striking catatonic sign. It is a combination of immobility and mutism, although the two can also occur independently.

Posturing: the patient is able to maintain the same posture for long periods. A classic example is the «crucifix». An extreme version of posturing is catalepsy.

Waxy flexibility: the examiner is able to position the patient in what would be highly uncomfortable postures, which are maintained for a considerable period of time.

Negativism: the patient resists the attempts of the examiner to move parts of their body and, according to the original definition; the resistance offered is exactly equal to the strength applied.

Automatic obedience: the patient demonstrates exaggerated cooperation, automatically obeying every instruction of the examiner. Mitmachen and Mitgehen are forms of automatic obedience. In Mitmachen the body of the patient can be put into any posture, even if the patient is given instructions to resist. Mitgehen is an extreme form of automatic obedience in which the examiner is able to move the patient's body with the slightest touch, but the body part immediately returns to the original position (unlike in waxy flexibility).

Ambitendency: the patient alternates between resistance to and cooperation with the examiner's instructions; for example, when asked to shake hands, the patient repeatedly extends and withdraws the hand.

Psychological pillow: the patient assumes a reclining posture, with their head a few inches above the bed surface, and is able to maintain this position for prolonged periods.

Forced grasping: the patient forcibly and repeatedly grasps the examiner's hand when offered.

Obstruction: the patient stops suddenly in the course of a movement and is generally unable to give a reason. This appears to be the motor counterpart of thought block.

Echopraxia: the patient imitates the actions of the interviewer. Aversion The patient turns away from the examiner when addressed.

Mannerisms: these are repetitive, goal-directed movements (e.g. saluting).

Stereotypies: these are repetitive, regular movements that are not goal-directed (e.g. rocking).

Motor perseveration: the patient persists with a particular movement that has lost its initial relevance.

Excitement: the patient displays excessive, purposeless motor activity that is not influenced by external stimuli.

Speech abnormalities: *Echolalia, logorrhoea and verbigeration* are the main speech abnormalities in catatonia. Echolalia refers to the repetition of the examiner's words. Logorrhoea is characterized by incessant, incoherent and usually mo-

notonous speech. Verbigeration is a form of verbal perseveration in which the patient repeats certain syllables (logoclonia), words (palilalia), phrases or sentences.

Differential diagnoses of catatonia

Although traditionally link to schizophrenia, catatonia is more commonly associated with mood disorders (Pommepuy & Januel, 2002). For example, Abrams & Taylor (1976) recorded that, in a sample of 55 people with catatonia, only four had **schizophrenia** and more than two-thirds had **affective disorders**, especially **mania**. Similarly, Barnes et al (1986) reported only one person with schizophrenia in their sample of 25, but nine with affective disorders. Increasing age may be a significant risk factor for catatonia in **depression** (Starkstein et al, 1996). Catatonia may also occur as a feature of **post-partum psychiatric disorders** (Lai & Huang, 2004). **Temporal lobe epilepsy** is a recognized cause of catatonia (Kirubakaran et al, 1987). Catatonia is a potential risk of abrupt **discontinuation of clozapine**, and is reversible by reinstatement of the drug (Yeh et al, 2004). Immobility seen in advanced dementia might reflect a catatonic state seen in other serious organic disorders, and may respond to lorazepam (Alisky, 2004). There have been case reports suggesting that patients with **thrombotic thrombocytopenic purpura** may be at higher risk of developing catatonia (Yacoub et al, 2004). Catatonia **induced by cocaine** (Gingrich et al, 1998) **and ecstasy** (Masi et al, 2002) have been reported. Prescribed medication such as **ciprofloxacin** (Akhtar & Ahmad, 1993) can also cause catatonia. **Metabolic abnormalities** such as hyponatraemia may cause catatonia (Lee & Schwartz, 1997), and people with rare metabolic disorders such as **Wilson's disease** (Davis & Borde, 1993) and **Tay Sachs** disease (Rosebush et al, 1995) may also present with the condition. Prior brain injury and physical illness at onset of psychosis are more common in patients who subsequently develop catatonia than in those who do not (Wilcox & Nasrallah, 1986). A history of severe infectious disease in childhood, including rheumatic fever, is associated with an increased risk of catatonia in adult life (Wilcox, 1986). **Hysteria** has also been traditionally mentioned as a cause of catatonia. In a significant minority, no cause is identified (Barnes et al, 1986). Benegal et al (1993) reported a high prevalence of idiopathic catatonia, and found it to be more common in females.

Differential diagnosis between different types of excitation

CATATONIC EXCITEMENT	MANIACAL EXCITEMENT	HYSTERICAL EXCITEMENT
• purposeless, impulsive • absence or poor reaction to the acts of spectators (sometimes muteness) • stereotypical • manneristic posture and facial expression • echolalia and echopraxia	• purposeful • marked striving to personal contacts •increased drives • facial expression of happiness (sometimes anger)	• stress induced • evident reaction to the acts of spectators • demonstrative behaviour (loud cries, sobbing, convulsions, suicide actions, etc.) • histrionic posture and facial expression

Differential diagnosis between different types of stupors:

CATATONIC STUPOR	DEPRESSIVE STUPOR
•bizarre inconvenient posture (i.e. foetal posture) •manneristic facial expression •muteness (sometimes paradoxical answers to whispering speech) •negativism (often eating is absolutely refused) •echolalia and echopraxia	•posture of suffering •facial expression of sadness or anguish •poor associations, one word answers, but no muteness •the loss of appetite but no active resistance while eating

Catatonia in ICD-10 and DSM-IV:

ICD-10

The ICD-10 diagnosis of catatonic schizophrenia (category F20.2) requires that the patient prominently exhibits at least one of the following catatonic features, for at least 2 weeks: stupor, excitement, posturing, negativism, rigidity, waxy flexibility and command automatism (automatic obedience). If a patient with severe depression is in a stupor, a diagnosis of «severe depressive episode with psychotic symptoms» (F32.3) is made, even if there are no delusions or hallucinations. Similarly, a patient with manic stupor will be diagnosed as having «mania with psychotic symptoms» (F30.2). Thus, for depression or mania, only stupor, which is the most extreme of catatonic signs, seems to have diagnostic implications, whereas for schizophrenia a broader range of signs are considered relevant. Catatonia due to physical causes is diagnosed as «organic catatonic disorder» (F06.1).

DSM-IV

In DSM-IV a diagnosis of «schizophrenia, catatonic type» (code 295.20) is made if the clinical picture is dominated by at least two of the following: motor immobility, excessive motor activity, extreme negativism, peculiarities of voluntary movements, and echolalia/echopraxia. If a physical cause is identified the diagnosis is «catatonic disorder due to a medical condition» (code 293.89). As in ICD–10, there is no separate diagnostic category for catatonia due to either depression or mania, but catatonia can be added as a specifier in mood disorders.

Types of catatonia

Taylor & Fink (2003) believe that catatonia should be classified as an independent syndrome with the following subtypes: non-malignant, delirious and malignant. The nonmalignant type refers to the classic features first described by Kahlbaum, the delirious type includes delirious mania, and the malignant type includes lethal catatonia, neuroleptic malignant syndrome and serotonin syndrome. Van Den Eede & Sabbe (2004) have proposed an alternative classificatory system. They divide catatonia broadly into non-malignant and malignant types, with each further divided into retarded and excited subtypes. In their system, classic catatonia (Kahlbaum syndrome), delirious mania, neuroleptic malignant syndrome and lethal catatonia would respectively be examples of the

non-malignant retarded, non-malignant excited, malignant retarded and malignant excited subtypes. A further classification used by the Wernicke-Kleist-Leonhard school of psychiatry, which has proponents especially in Germany, identifies two main types of catatonia — systematic and periodic. These appear to have significant differences in symptomatology, treatment and prognosis (Pfuhlmann & Stober, 2001). The systematic type is less genetically determined, has a higher prevalence and earlier age at onset in males (Stober et al, 1998), and is associated with mid-gestational infections (Stober, 2001). Periodic catatonia has no differences in either age at onset or prevalence between males and females (Stober et al, 1998). Periodic catatonia, according to Stober et al (2002), is the first subtype of schizophrenia with confirmed genetic linkage. Leonhard (1979) differentiated chronic catatonia, on the basis of the speech abnormalities present, into speech-prompt and speech-sluggish (speechinactive) types. A specific category of autistic catatonia has been suggested for catatonia occurring in people with developmental disorders (Hare & Malone, 2004). Similarities between autism and catatonia include abnormal GABA function, small cerebellar structures and susceptibility genes on the long arm of chromosome 15 (Dhossche, 2004). Ictal catatonia, in which the seizure manifests itself as catatonia, is postulated to be due to involvement of the limbic system (Lim et al, 1986). Ictal catatonia is considered a manifestation of non-convulsive status epilepticus.

Rating scales for catatonia

Using a rating scale helps to identify people who have catatonia that might otherwise not have been diagnosed (Van der Heijden et al, 2005). The Bush–Francis Catatonia Rating Scale (BFCRS) appears to be the most widely used instrument for catatonia. The BFCRS has 23 items, and there is also a shorter, 14-item screening version. The reliability and validity of the BFCRS has been established (Bush et al, 1996). Ungvari et al (2005) reported that using the BFCRS, 32% of 225 patients with chronic schizophrenia met the criteria for catatonia. Their study adds strength to the view that catatonia is still not uncommon and that its incidence is grossly underestimated.

Diagnosis

Catatonic symptoms are quite noticeable. Important diagnostic distinctions, however, must be made to determine their cause. Catatonic schizophrenia is diagnosed when the patient's other symptoms include thought disorder, inappropriate affect, and a history of peculiar behavior and dysfunctional relationships. Catatonic symptoms associated with a mood disorder are diagnosed when there is a prior history of mood disorder, or after careful psychiatric evaluation. Medical tests are necessary to determine the cause of catatonic symptoms caused by infectious diseases, metabolic abnormalities, or neurological conditions. The patient should be asked about recent use of both prescribed and illicit drugs in order to determine whether the symptoms are drug-related.

LITERATURE

1. *Kiran, C.* Understanding delusions / C. Kiran, S. Chaudhury //Industrial psychiatry journal. — 2009. — Т. 18. — №. 1. — P. 3.

2. *McKenna P. J.* Disorders with overvalued ideas / P. J. McKenna // The British Journal of Psychiatry. — 1984. — Т. 145. — № 6. — P. 579–585.

3. Merriam-Webster Inc. Merriam-Webster's collegiate dictionary. — Merriam-Webster, 2004.

4. *Fox, E.* Emotion science cognitive and neuroscientific approaches to understanding human emotions. — Palgrave Macmillan, 2008.

5. *Scherer, K. R.* What are emotions? And how can they be measured? / K. R. Scherer // Social science information. — 2005. — Т.44. — № 4. — P. 695–729.

6. *Corballis, M. C.* On the evolution of language and generativity / M. C. Corballis // Cognition. — 1992. — Т. 44. — № 3. — P. 197–226.

7. *Edelman, G. M.* A universe of consciousness: How matter becomes imagination / G. M. Edelman, G. Tononi. — Basic books, 2000.

8. *Gazzaniga, M. S.* Mind matters: How mind and brain interact to create our conscious lives / M. S. Gazzaniga // Houghton Mifflin Harcourt, 1988.

9. *LeDoux, J.* The emotional brain: The mysterious underpinnings of emotional life / J. LeDoux // Simon and Schuster, 1998.

10. *Levinthal, C.* Meessenger of paradise: opiates and the brain, doubleaday / C. Levinthal // New York. — 1988.

11. *Andersen, B. L.* A biobehavioral model of cancer stress and disease course / B. L. Andersen, J. K. Kiecolt-Glaser, R. Glaser //American Psychologist. — 1994. — Т. 49. — №. 5. — С. 389.

12. *Rolls, E. T.* Limbic systems for emotion and for memory, but no single limbic system / E. T. Rolls // Cortex. — 2015. — Т. 62. — С. 119–157.

13. *Thayer, R. E.* The biopsychology of mood and arousal / R. E. Thayer. — Oxford University Press, 1989.

14. *Tomasi, D.* Laterality patterns of brain functional connectivity: gender effects / D. Tomasi, N. D. Volkow //Cerebral Cortex. — 2012. — Т. 22. — №. 6. — С. 1455–1462.

15. *Schimmack, U.* Experiencing activation: energetic arousal and tense arousal are not mixtures of valence and activation / U. Schimmack, R. Rainer // Emotion. — 2002. — Т. 2. — №. 4. — С. 412.

16. *Hall, E. M.* Integration: Helping to get our kids moving and learning / E. M. Hall // Physical educator. — 2007. — Т. 64. — №. 3. — С. 123.

17. Classification of depression: research and diagnostic criteria: DSM-IV and ICD-10 / A. M. Gruenberg [et al.] //Biology of depression. From novel insights to therapeutic strategies. — 2005.

18. *Rajagopal, S.* Catatonia //Advances in Psychiatric Treatment / S. Rajagopal. — 2007. — Т. 13. — №. 1. — С. 51–59.

19. Classification of depression: research and diagnostic criteria: DSM-IV and ICD-10 / A. M. Gruenberg [et al] //Biology of depression. From novel insights to therapeutic strategies. — 2005.

20. *Szelenberger, W.* Sleep disorders in psychiatric practice / W. Szelenberger, C. Soldatos // World Psychiatry. — 2005. — Т. 4. — №. 3. — С. 186.

21. World Health Organization et al. The ICD-10 classification of mental and behavioral disorders: clinical descriptions and diagnostic guidelines. — Geneva: World Health Organization, 1992.

22. New Oxford Textbook of Psychiatry / M. G. Gelder [et al] // Oxford University Press, 2009.

23. The Oxford Handbook of Clinical Psychology / D. H. Barlow [et al.]. — Oxford University Press, 2010.

24. *Jiloha, R. C.* Psychiatry for general practitioners / R. C. Jiloha, M. S. Bhatia // New Age International Ltd, 2010.

25. *Clark, T.* Core Clinical Cases in Psychiatry: A Problem-Solving Approach / T. Clark, E. Day, E. C. Ferguson // CRC Press, 2005.

26. Lishman's Organic Psychiatry: A Textbook of Neuropsychiatry / A. S. David [et al.]. — Wiley-Blackwell, 2012.

27. *Byrne, P.* Psychiatry: Clinical Cases Uncovered / P. Byrne, N. Byrne / Wiley-Blackwell, 2008.

28. *Toy, E. C.* Case Files: Psychiatry / E. C. Toy, D. L. Klamen // McGraw-Hill Medical Publishing, 2006.

29. *Thackery, E.* The Gale Encyclopedia Of Mental Disorders / E. Thackery // Gale Cengage, 2003.

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