Schizophrenia

(Core Course 8 – Unit 3a)

Historical Background:-

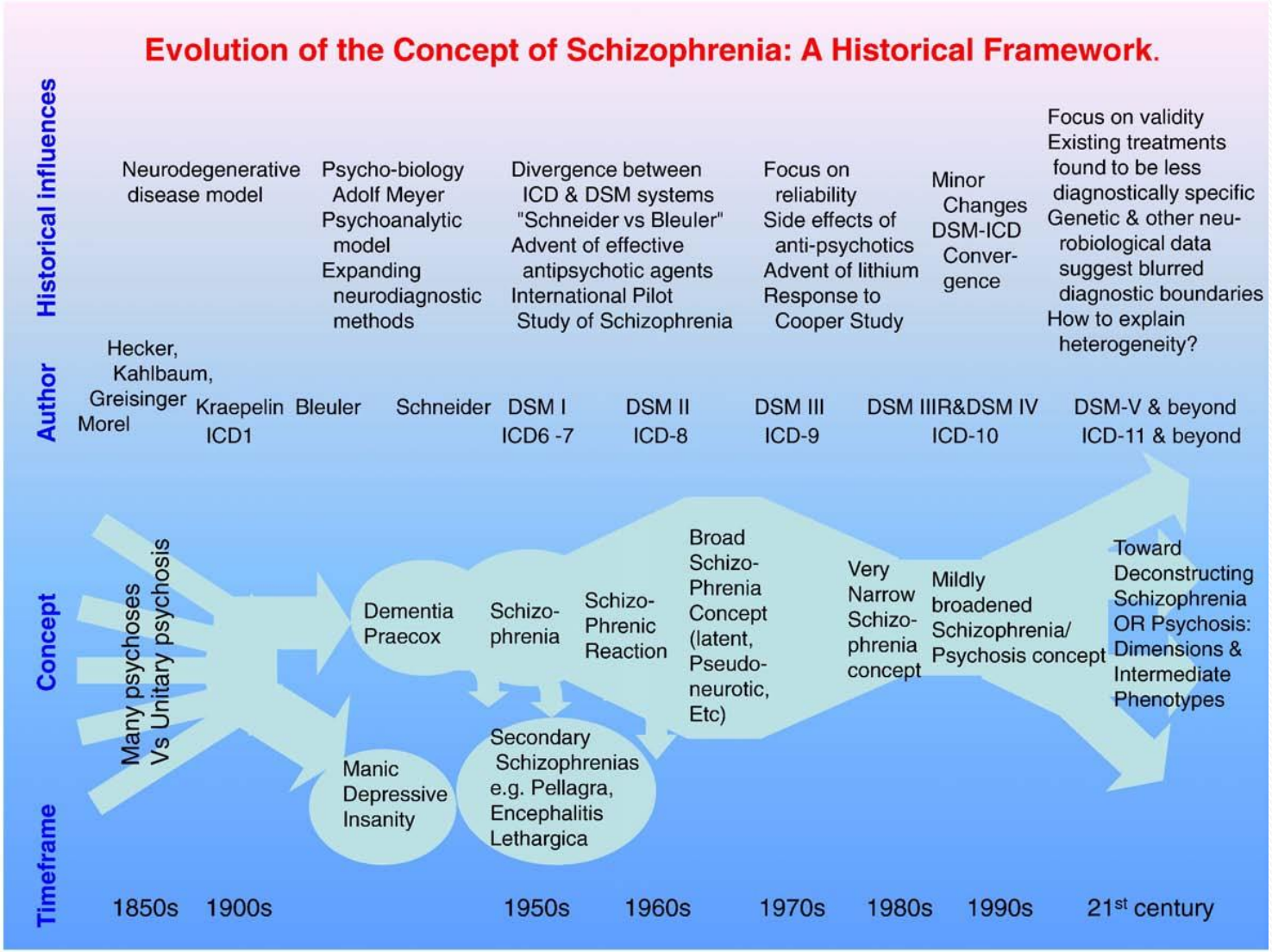
• Historically, the most ancient document on schizophrenia-like illness is one by Charaka, in Ayurveda, written about 33 centuries ago.
• From the West, Morel is generally credited for his description in 1860 of 'demence precoce' akin to the present concept of schizophrenia though Haslam, earlier in 1880, had described the syndrome clearly.
• Description of the illness as a deteriorating one did not correspond to what was observed at follow-up patients. One outcome of this was the approach to diagnosis based on symptoms, rather than outcome, adopted by Eugen Bleuler. He coined the term *schizophrenias* in 1911.
• In the later half of this century, the psychopathological approach of Bleuler was replaced by the phenomenological approach to clinical diagnosis based on inner subjective experience of the patients. Kurt Schneider described 11 first rank symptoms (FRS) whose presence in the absense of coarse brain disease was diagnostic of schizophrenia.

Schneider formulated what he considered to be pathognomic of first rank symptoms of schizophrenia (Schneider, 1959).

- 1. Audible thoughts (voices speaking out his thoughts aloud).
- 2. Voices arguing (Referring to the patient in 3rd person)
- 3. Voices commenting on one's actions.
- 4. Somatic passivity (experiencing externally controlled body changes)
- 5. Thought withdrawal
- 6. Thought insertion
- 7. Thought broadcasting
- 8. Made volition.
- 9. Made affect
- 10. Made impulse
- 11. Delusional perception (a real percept elaborated in a delusional way)

• The clarity, which was attempted to be brought by FRS in defining schizophrenia, was lost in the several other attempts which tended to widen the concept, diffusing into other illnesses, especially the affective disorders.

Schematic Representation :-



Concept :-

Schizophrenia spectrum and other psychotic disorders include schizophrenia, other psychotic disorders, and schizotypal (personality) disorder. They are defined by abnormalities in one or more of the following five domains: delusions, hallucinations, disorganized thinking (speech), grossly disorganized or abnormal motor behavior (including catatonia), and negative symptoms.
(DSM-V p. 87)

Clinical Features :-

A discussion of the clinical signs and symptoms of schizophrenia raises three key issues:-

- No clinical sign or symptom is pathognomonic for schizophrenia; every sign or symptom seen in schizophrenia occurs in other psychiatric and neurological disorders. This observation is contrary to the often-heard clinical opinion that certain signs and symptoms are diagnostic of schizophrenia. Therefore, a patient's history is essential for the diagnosis of schizophrenia; clinicians cannot diagnose schizophrenia simply by results of a mental status examination, which may vary.

• Schizophrenia simply by results of a mental status examination, which may vary. Second, a patient's symptoms change with time. For example, a patient may have intermittent hallucinations and a varying ability to perform adequately in social situations, or signiьcant symptoms of a mood disorder may come and go during the course of schizophrenia.
• Clinicians must take into account the patient's educational level, intellectual ability, and cultural and subcultural membership. An impaired ability to understand abstract concepts, for example, may reject either the patient's education or his or her intelligence. Religious organizations and cults may have customs that seem strange to outsiders but are normal to those within the cultural setting. *(Kaplan and Sadock)*

The following are some symptoms of schizophrenia, although none of them appears in all cases. In an effort to categorize cases of schizophrenia so that they can be studied and treated more effectively, it is common practice to consider **positive symptoms** (symptoms that seem to represent an excess or distortion of normal function) separately from **negative symptoms** (symptoms that seem to represent a reduction or loss of normal function).

Positive Symptoms

•Delusions: Delusions of being controlled (e.g., Martians are making me steal), delusions of persecution (e.g., My mother is poisoning me), or delusions of grandeur (e.g., Tiger Woods admires my backswing).

•Hallucinations: Imaginary voices making critical comments or telling patients what to do.

•Inappropriate affect: Failure to react with the appropriate emotion to positive or negative events.

• Incoherent speech or thought: Illogical thinking, echolalia, peculiar associations among ideas, belief in supernatural forces.

•Odd behavior: Difficulty performing everyday tasks, lack of personal hygiene, talking in rhymes, catatonia (remaining motionless, often in awkward positions for long periods).

Negative Symptoms

•Affective flattening: Reduction or absence of emotional expression.

•Alogia: Reduction or absence of speech.

•Avolition: Reduction or absence of motivation.

•Anhedonia: Inability to experience pleasure.

The recurrence of any two of these symptoms for 1 month is sufficient for the diagnosis of schizophrenia *(Tamminga & Holcomb, 2005; Walker et al., 2004).* Only one symptom is necessary if the symptom is a delusion that is particularly bizarre or an hallucination that includes voices.

DSM-V Diagnostic Criteria:-

A. Two (or more) of the following, each present for a significant portion of time during a 1 -month period (or less if successfully treated). At least one of these must be (1), (2), or (3):

1. Delusions.
2. Hallucinations.
3. Disorganized speech (e.g., frequent derailment or incoherence).
4. Grossly disorganized or catatonic behavior.
5. Negative symptoms (i.e., diminished emotional expression or avolition)

B. For a significant portion of the time since the onset of the disturbance, level of functioning in one or more major areas, such as work, interpersonal relations, or self-care, is markedly below the level achieved prior to the onset (or when the onset is in childhood or adolescence, there is failure to achieve expected level of interpersonal, academic, or occupational functioning).

C. Continuous signs of the disturbance persist for at least 6 months. This 6-month period must include at least 1 month of symptoms (or less if successfully treated) that meet Criterion A (i.e., active-phase symptoms) and may include periods of prodromal or residual symptoms. During these prodromal or residual periods, the signs of the disturbance may be manifested by only negative symptoms or by two or more symptoms listed in Criterion A present in an attenuated form (e.g., odd beliefs, unusual perceptual experiences).

D. Schizoaffective disorder and depressive or bipolar disorder with psychotic features have been ruled out because either 1) no major depressive or manic episodes have occurred concurrently with the active-phase symptoms, or 2) if mood episodes have occurred during active-phase symptoms, they have been present for a minority of the total duration of the active and residual periods of the illness.

E. The disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.

F. If there is a history of autism spectrum disorder or a communication disorder of childhood onset, the additional diagnosis of schizophrenia is made only if prominent delusions or hallucinations, in addition to the other required symptoms of schizophrenia, are also present for at least 1 month (or less if successfully treated).

Specify if: The following course specifiers are only to be used after a 1-year duration of the disorder and if they are not in contradiction to the diagnostic course criteria.

• First episode, currently in acute episode: First manifestation of the disorder meeting the defining diagnostic symptom and time criteria. An acute episode is a time period in which the symptom criteria are fulfilled.

•First episode, currently in partial remission: Partial remission is a period of time during which an improvement after a previous episode is maintained and in which the defining criteria of the disorder are only partially fulfilled.

•First episode, currently in full remission: Full remission is a period of time after a previous episode during which no disorder-specific symptoms are present.

•Multiple episodes, currently in acute episode: Multiple episodes may be determined after a minimum of two episodes (i.e., after a first episode, a remission and a minimum of one relapse).

•Multiple episodes, currently in partial remission

•Multiple episodes, currently in full remission

•Continuous: Symptoms fulfilling the diagnostic symptom criteria of the disorder are remaining for the majority of the illness course, with subthreshold symptom periods being very brief relative to the overall course.

•Unspecified

Specify if:
With catatonia

Specify current severity:
Severity is rated by a quantitative assessment of the primary symptoms of psychosis, including delusions, hallucinations, disorganized speech, abnormal psychomotor behavior, and negative symptoms. Each of these symptoms may be rated for its current severity (most severe in the last 7 days) on a 5-point scale ranging from 0 (not present) to 4 (present and severe).

Note: Diagnosis of schizophrenia can be made without using this severity specifier

ICD 10 Diagnostic Criteria:-

Although no strictly pathognomonic symptoms can be identified, for practical purposes it is useful to divide the symptoms into groups that have special importance for the diagnosis and often occur together, such as:

- thought echo, thought insertion or withdrawal, and thought broadcasting;
- delusions of control, influence, or passivity, clearly referred to body or limb movements or specific thoughts, actions, or sensations; delusional perception;
- hallucinatory voices giving a running commentary on the patient's behaviour, or discussing the patient among themselves, or other types of hallucinatory voices coming from some part of the body;
- persistent delusions of other kinds that are culturally inappropriate and completely impossible, such as religious or political identity, or superhuman powers and - 79 - abilities (e.g. being able to control the weather, or being in communication with aliens from another world);
- persistent hallucinations in any modality, when accompanied either by fleeting or half-formed delusions without clear affective content, or by persistent over-valued ideas, or when occurring every day for weeks or months on end;
- breaks or interpolations in the train of thought, resulting in incoherence or irrelevant speech, or neologisms;
- Catatonic behaviour, such as excitement, posturing, or waxy flexibility, negativism, mutism, and stupor;

•"negative" symptoms such as marked apathy, paucity of speech, and blunting or incongruity of emotional responses, usually resulting in social withdrawal and lowering of social performance; it must be clear that these are not due to depression or to neuroleptic medication;
• significant and consistent change in the overall quality of some aspects of personal behaviour, manifest as loss of interest, aimlessness, idleness, a self-absorbed attitude, and social withdrawal.

Diagnostic Criteria as per DSM-V:-

• The characteristic symptoms of schizophrenia involve a range of cognitive, behavioral, and emotional dysfunctions, but no single symptom is pathognomonic of the disorder. The diagnosis involves the recognition of a constellation of signs and symptoms associated with impaired occupational or social functioning. Individuals with the disorder will vary substantially on most features, as schizophrenia is a heterogeneous clinical syndrome.
• At least two Criterion A symptoms must be present for a significant portion of time during a 1-month period or longer.
• Schizophrenia involves impairment in one or more major areas of functioning (Criterion B). If the disturbance begins in childhood or adolescence, the expected level of function is not attained. Comparing the individual with unaffected siblings may be helpful.

• Some signs of the disturbance must persist for a continuous period of at least 6 months (Criterion C). Prodromal symptoms often precede the active phase, and residual symptoms may follow it, characterized by mild or subthreshold forms of hallucinations or delusions.
• Mood symptoms and full mood episodes are common in schizophrenia and may be concurrent with active-phase symptomatology. However, as distinct from a psychotic mood disorder, a schizophrenia diagnosis requires the presence of delusions or hallucinations in the absence of mood episodes. In addition, mood episodes, taken in total, should be present for only a minority of the total duration of the active and residual periods of the illness.

In addition to the five symptom domain areas identified in the diagnostic criteria, the assessment of cognition, depression, and mania symptom domains is vital for making critically important distinctions between the various schizophrenia spectrum and other psychotic disorders.

Subtypes of Schizophrenia :-

1. **Paranoid Type :** The paranoid type of schizophrenia is characterized by preoccupation with one or more delusions or frequent auditory hallucinations. Classically, the paranoid type of schizophrenia is characterized mainly by the presence of delusions of persecution or grandeur.
2. **Dirorganized Type :** The disorganized type of schizophrenia is characterized by a marked regression to primitive, disinhibited, and unorganized behavior and by the absence of symptoms that meet the criteria for the catatonic type.
3. **Catatonic Type :** a. The classic feature of the catatonic type is a marked disturbance in motor function; this disturbance may involve stupor, negativism, rigidity, excitement, or posturing. Sometimes the patient shows a rapid alteration between extremes of excitement and stupor.
4. **Undifferentiated Type :** Frequently, patients who clearly have schizophrenia cannot be easily fit into one type or another. These patients are classified as having schizophrenia of the undifferentiated type.
5. **Residual Type :** The residual type of schizophrenia is characterized by continuing evidence of the schizophrenic disturbance in the absence of a complete set of active symptoms or of sufficient symptoms to meet the diagnosis of another type of schizophrenia.

Etiology

Biological Theories:-

- Genetic Factors: There is a genetic contribution to some, perhaps all, forms of schizophrenia, and a high proportion of the variance in liability to schizophrenia is due to additive genetic effects. Schizophrenia-related disorders (e.g., schizotypal personality disorder) occur at an increased rate among the biological relatives of patients with schizophrenia. The likelihood of a person having schizophrenia is correlated with the closeness of the relationship to an affected relative (e.g., first- or second-degree relative). In the case of monozygotic twins who have identical genetic endowment, there is an approximately 50 percent concordance rate for schizophrenia. This rate is four to five times the concordance rate in dizygotic twins or the rate of occurrence found in other 1st-degree relatives.

  Some data indicate that the age of the father has a correlation with the development of schizophrenia. In studies of schizophrenia patients with no history of illness in either the maternal or paternal line, it was found that those born from fathers older than the age of 60 years were vulnerable to developing the disorder. Presumably, spermatogenesis in older men is subject to greater epigenetic damage than in younger men.

- Biochemical Factors:-

Dopamine Hypothesis : The simplest formulation of the dopamine hypothesis of schizophrenia posits that schizophrenia results from too much dopaminergic activity. The theory evolved from two observations. First, the efficacy and the potency of many antipsychotic drugs are correlated with their ability to act as antagonists of the dopamine type 2 receptor. Second, drugs that increase dopaminergic activity, notably cocaine and amphetamine, are psychotomimetic.

Serotonin : Current hypotheses posit serotonin excess as a cause of both positive and negative symptoms in schizophrenia.

Norepinephrine : A selective neuronal degeneration within the norepinephrine reward neural system could account for this aspect of schizophrenic symptomatology of Anhedonia. However, proposal are inconclusive.

GABA : The inhibitory amino acid neurotransmitter γ-aminobutyric acid (GABA) has been implicated in the pathophysiology of schizophrenia based on the finding that some patients with schizophrenia have a loss of GABAergic neurons in the hippocampus.

Neuropeptides : Neuropeptides, such as substance P and neurotensin, are localized with the catecholamine and indolamine neurotransmitters and influence the action of these neurotransmitters. Alteration in neuropeptide mechanisms could facilitate, inhibit, or otherwise alter the pattern of firing these neuronal systems.

Glutamate : Glutamate has been implicated because ingestion of phencyclidine, a glutamate antagonist, produces an acute syndrome similar to schizophrenia.

- Acetylcholine and Nicotine : Postmortem studies in schizophrenia have demonstrated decreased muscarinic and nicotinic receptors in the caudate-putamen, hippocampus, and selected regions of the prefrontal cortex. These receptors play a role in the regulation of neurotransmitter systems involved in cognition, which is impaired in schizophrenia.

Psychoanalytic Theories:-

- Sigmund Freud postulated that schizophrenia resulted from developmental fixations early in life. These fixations produce defects in ego development, and he postulated that such defects contributed to the symptoms of schizophrenia. Ego disintegration in schizophrenia represents a return to the time when the ego was not yet developed or had just begun to be established. Because the ego affects the interpretation of reality and the control of inner drives, such as sex and aggression, these ego functions are impaired. Thus, intrapsychic conflict arising from the early fixations and the ego defect, which may have resulted from poor early object relations, fuel the psychotic symptoms

Behavioral Theories:-

- According to learning theorists, children who later have schizophrenia learn irrational reactions and ways of thinking by imitating parents who have their own significant emotional problems. In learning theory, the poor interpersonal relationships of persons with schizophrenia develop because of poor models for learning during childhood.

- **A Diathesis-Stress Model of Schizophrenia**

Genetic factors and acquired constitutional factors (such as prenatal events and birth complications) combine to result in brain vulnerability. Normal maturational processes, combined with stress factors (family stress, cannabis use, urban living, immigration, etc.), may push the vulnerable person across the threshold and into schizophrenia.

Differential Diagnosis :-

1. Secondary Psychotic Disorders (psychotic disorder due to a general medical condition, catatonic disorder due to a general medical condition, or substance-induced psychotic disorder.)
2. Other Psychotic Disorders (schizophreniform disorder, brief psychotic disorder, schizoaffective disorder, and delusional disorders)
3. Mood Disorders (major depressive episode with delusions or hallucinations, unipolar or bipolar mood disorders, full-blown manic episode often presents with delusions and sometimes hallucinations.)
4. Personality Disorders (Schizotypal, schizoid, and borderline personality disorders)
5. Malingering and Factitious Disorders

Comorbidity with other disorders:-

Rates of comorbidity with substance-related disorders are high in schizophrenia. Over half of individuals with schizophrenia have tobacco use disorder and smoke cigarettes regularly. Comorbidity with anxiety disorders is increasingly recognized in schizophrenia. Rates of obsessive-compulsive disorder and panic disorder are elevated in individuals with schizophrenia compared with the general population. Schizotypal or paranoid personality disorder may sometimes precede the onset of schizophrenia. Life expectancy is reduced in individuals with schizophrenia because of associated medical conditions. Weight gain, diabetes, metabolic syndrome, and cardiovascular and pulmonary disease are more common in schizophrenia than in the general population. Poor engagement in health maintenance behaviors (e.g., cancer screening, exercise) increases the risk of chronic disease, but other disorder factors, including medications, lifestyle, cigarette smoking, and diet, may also play a role. A shared vulnerability for psychosis and medical disorders may explain some of the medical comorbidity of schizophrenia

Course and Prognosis :-

Course : The classic course of schizophrenia is one of exacerbations and remissions. After the ьrst psychotic episode, a patient gradually recovers and may then function relatively normally for a long time. Patients usually relapse, however, and the pattern of illness during the ьrst 5 years after the diagnosis generally indicates the patient's course. Further deterioration in the patient's baseline functioning follows each relapse of the psychosis. This failure to return to baseline functioning after each relapse is the major distinction between schizophrenia and the mood disorders. Sometimes a clinically observable postpsychotic depression follows a psychotic episode, and the schizophrenia patient's vulnerability to stress is usually lifelong. Positive symptoms tend to become less severe with time, but the socially debilitating negative or deьcit symptoms may increase in severity. Although about one-third of all schizophrenia patients have some marginal or integrated social existence, most have lives characterized by aimlessness; inactivity; frequent hospitalizations; and, in urban settings, homelessness and poverty.

Prognosis: Several studies have shown that over the 5- to 10-year period after the first psychiatric hospitalization for schizophrenia, only about 10 to 20 percent of patients can be described as having a good outcome. More than 50 percent of patients can be described as having a poor outcome, with repeated hospitalizations, exacerbations of symptoms, episodes of major mood disorders, and suicide attempts. Despite these glum figures, schizophrenia does not always run a deteriorating course, and several factors have been associated with a good prognosis

Treatment : Although antipsychotic medications are the mainstay of the treatment for schizophrenia, research has found that psychosocial interventions, including psychotherapy, can augment the clinical improvement. Just as pharmacological agents are used to treat presumed chemical imbalances, nonpharmacological strategies must treat nonbiological issues. The complexity of schizophrenia usually renders any single therapeutic approach inadequate to deal with the multifaceted disorder. Psychosocial modalities should be integrated into the drug treatment regimen and should support it. Patients with schizophrenia benefit more from the combined use of antipsychotic drugs and psychosocial treatment than from either treatment used alone.

Therapeutic Approaches:-

1. Pharmacotherapy
2. Other Biological Therapies like Electro Convulsive Therapy (ECT)
3. Psychosocial Therapy

    a) Social skills training
    b) Family oriented therapies
    c) Case management
    d) Assertive community therapy
    e) Group therapy
    f) Cognitive Behavioral Therapy (CBT)
    g) Individual Psychotherapy
    h) Personal Therapy
    i) Dialectical Behavior Therapy
    j) Vocational Therapy
    k) Art Therapy
    l) Cognitive Training

Conclusion:-

References:-

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2. Kaplan and Sadock's Synopsis of Psychiatry.
3. Textbook of Postgraduate Psychiatry by Vyas and Ahuja.
4. Diagnostic and Statistical Manual 5th edition.