SYLLABUS (PSYCHOLOGY)
B.A. PART-III (Semester V)
Session 2021-22, 2022-23 and 2023-24

Psychopathology- A

For Regular and Distance Education Students Max. Marks: 50	Time Allowed: 3 hours Pass Marks: 35% of the subject Lectures to be delivered: 6 periods per week (For Regular Students)
For Distance Education Students Max. Marks: 70	

INSTRUCTIONS FOR THE PAPER-SETTER

For Regular and Distance Education Students:The question paper will consist of three sections: A,B and C. Sections A and B will have four questions from the respective sections of the syllabus and will carry 8 marks each. Section C will consist of 9 short answer type questions which will cover the entire syllabus uniformly and will carry 18 marks in all. Each short answer type question will carry 2 marks. The candidates are required to answer each short type question in 50 words i.e. in 5-7 lines.

For Distance Education Students: The question paper will consist of three sections A, B and C. Syllabus of each section (i.e. A&B) will have two subparts. Examiner will set two questions from Section A (each question having internal choice covering both parts of syllabus of section A) and two questions from section B (each question having internal choice covering the entire syllabus of section B). Each question will carry 8½ marks. Section C is compulsory, and shall comprise nine short answer type questions carrying 4 marks each. The short type answer should be written in approximately 25-30 words..

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt two questions each from the sections A and B and the entire section C. The candidates are required to answer each short type question in 50 words i.e. in 5-7 lines. Each short answer type question will carry 2 marks.

SECTION-A

(i) Introduction to Psychopathology: The concept of normality and abnormality; Psychological models of Psychopathology: Psychodynamic, Behavioural, Cognitive-Behavioural and Existential; Classification System: DSM (Recent version)

(ii) Causes of Psychopathology: Biological, Psycho-social and Socio-cultural.

SECTION-B

(i) Stress: Causes; GAS Model.
Psychosomatic Disorders: Ulcers, Hypertension, Asthma;Their Etiology and Treatment.

(ii) Correlation: Nature and Characteristic, Types (Rank Order and Product Moment); t-test (independent and related groups).
Note: The use of Non-Programmable Calculators and Statistical Tables are allowed in the examination.

REFERENCES

1. Carson, R.C., Butcher, J.N., & Mineka, S. (1996). *Abnormal Psychology and Modern Life.* New York: Harper Collins.
2. Davison, G.C., & Neale, J.M. (1998). *Abnormal Psychology.* New York: John Wiley & Sons.
3. Garrett, H.E. (1996). *Statistics in Psychology and Education.* New Delhi: Vakils Feffer and Simons.
4. Guilford, J.P., &Fruchter, B. (1981). *Fundamental Statistics in Psychology and Education.*Singaore: McGraw Hill.
5. Sarason, I.G., &Sarason, B.R. (1996). *Abnormal Psychology.* New Delhi: Prentice Hall of India.
6. Singh, A. (1994). *AsadharanManovigyan.* Publicaiton Bureau, Punjabi University.

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PUNJABI UNIVERSITY PATIALA	B.A.PART-III PSYCHOLOGY SEMESTER-V PSYCHOPATHOLOGY UnitI
DepartmentofDistanceEducationPunjabiUniversity,Patiala (*AllCopyrightsareReserved*)	LessonNo.: 1.1 INTRODUCTION TO PSYCHOPATHOLOGY 1.2 HISTORICAL BACKGROUND OF PSYCHOPATHOLOGY 1.3 PSYCHODYNAMIC MODEL OF PSYCHOPATHOLOGY 1.4 MODELS OF PSYCHOPATHOLOGY 1.5 BIOLOGICAL CAUSES OF PSYCHOPATHOLOGY 1.6 PSYCHOSOCIAL AND SOCIO-CULTURAL CAUSES OF PSYCHOPATHOLOGY NOTE: Students can download the syllabus from department's website www.pbidde.org

LESSON NO. 1.1 **LAST UPDATED JANUARY 2023**

INTRODUCTION TO PSYCHOPATHOLOGY

Structure

1.1.0 Objective

This lesson focuses upon the concept of abnormality by differentiating it from normality. This lesson highlights various view points in explaining the criteria for normal and abnormal behaviour.

1.1.1 Introduction to Psychopathology

Modren man's path to happiness is not an easy one. It includes endless personal and social problems. These problems might be due to wars, social justice, economic problem and unemployment. Every human being is suffering from one or the other unreasonable feeling which might be superiority, hatred, resentment, ego clashes and other dramatic experiences.

If we are to count the number of people suffering from physical diseases, this number would be less than the number of people in hospitals suffering from mental disease. It is found that there is increase in psychopathology of everyday life. People suffer from nightmares, slips of tongue, slips of pen and any deviation from routine behaviour, even including convulsive fits.

The 17th century has been called the age of enlightenment, 18th century as the age of reason, 19th century as the age of progress and the 20th century as the age of anxiety.

Man has been increasingly aware of the role of psychological factors playing in his life. These factors are worry, anxiety, guilt, complex and doubt. On every sight, we see anxious, unhappy and confused people who are missing the fulfillment of the best potential because they can not achieve a satisfactory adjustment in their life problems. Generally, an individual is able to solve his problem but sometimes, the stress istoo much, and he cannot adjust to it and shows abnormal behaviour.

1.1.2 **Concept of Normality and Abnormality**

In modern times, abnormal behaviour is the country's major problem. America alone spends 10 million dollars, every year on various magazines or tranquilizers (drugs to calm down the patient), drugs, etc. Psychology deals with the application of methods, concepts principles and findings of general and social psychology to study abnormal behaviour and its experiences, it is an attempt to understand and explain the abnormal in regard to normal and general. This defination does not specify what is abnormal and to know about that we must first know what is normal and what is the concept of normality.

1.1.2.1 **CONCEPT and CRITERIA OF NORMALITY**

The word normal is derived from Greek word "Norma" which means carpanter's Rule or Scale Square such as foot ruler. 'Normal' means that the person who is according to rules and conforming to the norms of the society.

Human behaviour is very complex. One's need to make adjustment in a dynamic society is very essential, and a person has to adapt himself toall social and cultural pressures. The person who does adjust to these standards is known as normal individual. One defination of normality portrays a person does not show symptoms of mental, emotional and psychological conflicts while adjustments (who is free from mental and psychological conflicts), and who can adequately adjust to different situations. Various definations have been given regarding the concept of normality.

First defination is given by Symonds. He has given four fold concept of normality.

1. A balance between the demands of society and the desires of the individual.
2. Maturity: The absence of childish and infantile patterns.
3. Adequate functioning and ability to overcome severe threats and frustrating situations.

4. Compromise between inner desires of the individual and demands of the society.

Definition by Levine :

Any person who does not have an emotional conflict, does not show any mental symptoms and is engaged in a useful activity in a normal way is called a normal person.

Definition by Menninger :

"Mental health is the adjustment of human beings to the world and each other with a maximum of effectiveness and happiness."It is not just efficiency or just contentment or the grace of obeying the rules ofthe game cheerfully but it is all these together. It is the ability to maintain even temper, an alert intelligence, socially considerate behaviour and a happy disposition.

Definition by H.B. English :

Mental health is a relatively enduring state wherein the person is well-adjusted, has a zest for life, for living and for self-actualization or self-realization. It is a positive state and not merely the absence of mental disorder.

Definition by WHO (World Health Organisation)

"Health is complete physical and social mental well-being and not merely the absence of disease." Many psychologists feel that adjustment is normality. They stress all types of healthy personality traits including creativity, individuality and fulfillment of one's capacity. Another definition stresses that a person is healthy when hedoes not show any mental symptoms.

CRITERIA OF NORMALITY :

Since there is no line of demarcation between the normal and abnormal, the behavioural differences are quantitative and not qualitative.

1. Adequate feelings of personal worth :

The person feels that he is important in the family and his worth in the family. He is well regarded by others and he feels that others have faith in his future success. Apart from this, he feels reasonably physically attractive.

2. Adequate feelings of security :

A normal person feels that he is wanted. He is comfortable and safe.

He has an idea that there are some people who care for him. He enjoys the affection of his family and has reasonably cordial relationship with friends and people in general.

3. Adequate feelings of self-confidence :

Normal person has faith in his ability to succeed, He feels that he willdo reasonably well. He understands and thinks independently.

4. Adequate feelings of self :

The normal person has some insight regarding the motives, desires and weaknesses. He attempts to evaluate his own behaviour objectively.

5. Adequate understanding of others :

A normal person gets along well with other people. He has some understanding of their motives, as well as their problems.

6. Adequate emotional maturity :

The person views obstacles as problems to be solved rather than an occasion of display of emotional tension. He tries to meet conflicting situation and tries to understand it.

7. Adequate integration of personality :

The person functions as an organized unit. His thought processes and his emotions are harmonious. He does not allow his emotional tensionsto build up inhibitions.

8. Adequate vocational relationship :

The normal person experiences reasonable success for his vocation. He enters an occupation which satisfies his need for approval and recognition.

9. Adequate basic harmony with the environment :

A normal person achieves a fundamental harmony with his environment when his own ambitions do not conflict too seriously with his ability to satisfy them or with the desires of others.

10. Adequate self-evaluation :

Such a person has adequate self-esteem, i.e., a feeling of values proportionate to one's individualities and achievements. It is an adequate feeling of being mentally bound of no feeling of guilt.

11. Adequate spontaneity and emotionality :

This involves ability to form strong and lasting emotional ties such as friendship and love relations. The ability to give adequate expressions to resentment without losing control over the ability to understand and

share other people's emotions and the ability to enjoy oneself.

12. Adequate contact with reality :

This includes :

i) Absence of excessive fantasy.

ii) Realistic and broad outlook of the world.

iii) Ability to tolerate the ordinary shocks of life such as illness, minor financial loss and failure.

iv) Ability to change oneself. If external circumstances cannot be modified.

13. Adequate bodily desires and the ability to satisfy them :

A healthy attitude towards bodily functions in terms of accepting them and not being pre-occupied by them. An individual should derive pleasure from physical things like eating, sleeping and relaxing etc. Sexual adequacy is also very important. Healthy desires towards sex and the ability to satisfy it without the feeling of fear or guilt. There should also be absence of excessive need to indulge in any type of these activities. A person should also have the ability of tolerating afair amount of deprivation.

14. Achievable life goals :

These include achievable realistic goals and reasonable persistence of efforts to achieve these goals and goals should involve some good for society also.

15. Ability to learn from experiences :

This includes avoiding the methods that have failed or indulging when the risk is not worth, and adapting to better methods which are available.

16. Ability to satisfy the group requirement :

This includes :

i) He should understand that he is not too different from other group members.

ii) He should accept the group norms.

iii) He should show interest in group activities and achieve the goals set by the group.

17. Emancipation from the group :

i) this involves atleast some personality and individuality to consider some thing good and other things bad.

ii) Independence of group opinion.

iii) Absence of excessive need for flattery and reassurance.

iv) Some degree of tolerance and appreciation of cultural differences or other activities.

CONCEPT OF ABNORMALITY

Behaviour disorders occur in a wide variety of forms- that range from severe to minor maladjustments to complete disorganisation of personality. A frustrating child sucks his thumb, worried businessman develops ulcer, a young housewife seeks to escape her anxiety by compulsive house-cleaning. An insecure and unwanted boy withdraws from stress by playing truant. A middle aged woman in fear of old age commits suicide. The existence of this type of deviant behaviour makes an urgent demand on society so that the troubled person must be helped. The word abnormal literally means away from normal. The word normal is derived from the Latin word 'Norma'. The word normal is combination of two Greek words ANOMALOS. 'AN' means 'not', 'OMLAOS' mean 'even'. So, ANOMALOS means not even or irregular.

The behavioural patterns differ in degree rather in kind. There is no clear cut dividing line between emotionally healthy and emotionally sick person and it not only depends upon the individual but also on the circumstances whether one remains emotionally calm or becomes emotionally upset. Every normal person has potentiality for abnormality.

The present concept of abnormality is quite different from the old concept. Previously, it was believed that abnormality is due to displeasure of Gods or the previous misdeeds. It was regarded that these persons cannot be cured and they were unfit for the society. Such persons were either taken to the religious heads or used to be kept in chains. The modern concept is quite different. Now, it is believed that every abnormal person has the potentiality of normality and they can be cured.

According to one defination, "Abnormal behaviour involves modes of

actions which differ so much from the average that they are not readilyrecognised as belonging to the same group."

From this point of view, abnormal behaviour is that which differs from the group average and deviates towards the extreme. According to Patrick & Howard, "Every normal person possesses the seeds of abnormality. He is abnormal, potentially, latently and actually."

According to Rosen and Gregory : Abnormal psychology is an attempt to understand and explain the abnormal within the framework of normal and general.

According to Coleman : Abnormal psychology is that field of psychology which specializes the development and integration of psychological principles for understanding abnormal behaviour.

According to Kisker : Kisker defines abnormal psychology as specialized field of psychology which deals with personality disturbances and behavioural disorder.

According to Page : Abnormal psychology is a subdivsion of the psychology which is limited to the study of the mental processes and behaviour of abnormal people.

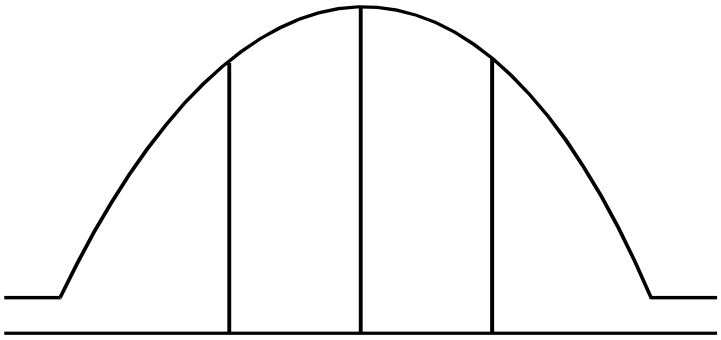
Another defination considers abnormal behaviour as combination of traits which are out of balance and in conflict with one another. Certain behaviour charactristics may be exceptionally strong or weak giving the individual the appearance of being different.

The best definition defines abnormal behaviour in terms of personal and social maladjustments. The maladjustive individual is the one who does not feel comfortable about himself and about other people and cannot meet the demands of life. His emotional disturbances often affect his relationship with his family, his work, and society in general.

1.1.2.2 APPROACH TO DIFFERENTIATE BETWEEN NORMAL AND ABNORMAL BEHAVIOUR OR METHODS OF DETERMINING NORMALITY AND ABNORMALITY :

1. Statistical Approach or View Point:

According to this approach, the term normal means some kind or those who fall in the centre of the normal probability curve, and the meaning of the abnormal is that which deviates from the normal. This view implies the



familiar bell-shaped distribution or the normal probability curve (NPC). Though there is no line of demarcation between subnormality, normality and super-normality because the difference is only quantitative and not qualitative, those who possess an average amount of intelligence, personality, stability or social stability and fall in the central area of NPC on the basis of above charactristics are considered normal.

The normal probability curve serves to wear out the common observation with respect to some charactristics like intelligence and personality charactristics. People may be classified as average , above average and below average or normal, subnormal and super-normal. The last two categories, i.e. subnormal and super normal have to do with abnormality in statistical meaning. This means that an idiot and genius are to be classified as abnormal. In reality, the super normal category has not been made a portion of the field of abnormal psychology. Because of their poor adjustment, they are called abnormal.

2. Adjustive View Point :

This approach involves the functional criteria which stresses the view of maladjusted and fundamental in the concept of abnormality. In terms of this approach, a normal person is one who is in harmony with social reality, who is well adjusted in the society, who conforms to the social norms. This is another way of indicating the role of community standards or cultural norms in thinking about the value of normality.

Resistance to this or deviation from social norms become the criteria of

abnormality.

This approach is closely related to the statistical approach. Both imply conformity with the prevailing standards of conduct. However, despite the close relationship, the two approaches are not identical because statistical approach does not lead to adjustment. The individual who does not adjust to the norms of society is called abnormal.

3. Ideal View Point or Approach

This approach presupposes some standards of flawless perfection or excellence. According to this approach, a slight disparity from the ideals would be abnormality. But this approach is not acceptable because no individual can be flawless or perfect in all respects. He may be perfect in one field but he cannot reach to the standards of excellence in every other field, and we can't call a person abnormal if he is not upto the mark according to the ideals of society.

4. Cultural Approach or View Point :

It is impossible in many respects to understand abnormality without reference to the cultural background. Some societies expect that individual should not show strong ambitions, he should restrain himself from becoming emotionally and physically violent and to cooperate with other members of the group every time. Different societies have different customs. Some societies put a limitation on ambitions, accumulation of wealth, killing and certain types of violence. What may be seen normal in one society may be considered abnormal in the other, but every society strongly disapproves the deviating mode of behaviour. It has been suggested that all concepts of normal and abnormal should be considered in terms of conformity to cultural norms.

5. Dichotomous Approach or View Point :

This approach divides people in terms of dichotomy, i.e., sane and insane (abnormal). This is common sense view that people are either normal or abnormal. But the opinion of some experts is opposed to this approach because this approach or this division is qualitative rather than quantitative. The distinction between health and disease is a matter of degree rather than kind. More agreement is towards statistical approach rather than this approach.

6. Multiple Criteria Approach or View Point :

This approach gives a number of prevailing traits which are considered essential for mental health.

1. Attitude towards self acceptance : You are supposed to accept what you are.
2. Perception of Reality.
3. Integration of Personality.
4. Sufficient competencies (mental and Physical).
5. Autonomy of self reliance.
6. Self-actualization

This approach includes multiple traits as criteria for normalacy, but gives sufficient importance to self and any individual who does not possess these traits is considered abnormal.

7. Theoretical Approach or View Point :

This approach has been divided into three parts :

i) Naturalism: Emphasis on instincts and drives.

ii) Humanism: Stresses self-direction.

iii) Culturalism: Stresses cultural adjustments.

8. Research Approach :

i) Biological Research: It aims at understanding the genetic process, brain functioning, etc.

ii) Psychological Research: It aims at understanding psychological problems in the area of learning, perception, motivation, etc.

iii) Sociological Research: It aims at understanding social conditions like families, tradition, customes, social relations etc.

1.3 **Let us sum up**

It is very difficult to conclude and say that anyone of the above mentioned approaches fulfils the explanation needed for defining the criteria of normality or abnormality. Different approaches study normality and abnormality according to their view point. Perhaps, the combination of few of them together fulfills the need for defining thecriteria.This criteria, though of general nature and in many instances interrelated, should provide an understanding of the behavioural tendency which in general constitutes normality. In brief, they indicate that the well-adjusted individual has integrated his basic needs to the demands of social living and has high frustration tolerance. He views problems as challenges and meets stress producing situations with responsible approach and intelligent action. He faces reality with a certain amount of confidence and courage.

1.4 **Keywords**

1. Abnormal Psychology:

Aberrant psychology is a discipline of psychology that focuses on psychopathology and abnormal behaviour in therapeutic settings. From depression to obsessive-compulsive disorder (OCD) to personality problems, the word encompasses a wide spectrum of diseases. This field frequently employs counsellors, clinical psychologists, and psychotherapists.

2. Clinical Psychology:

Clinical psychology is the application of science, theory, and clinical expertise to better understand, prevent, and treat psychological distress or dysfunction, as well as to improve subjective well-being and personal growth. It is a branch of psychology that focuses on assessing, understanding, and treating psychological disorders in clinical settings.

3. Adaptive Behaviour:

It is a type of behaviour that allows a person (typically a youngster) tofunction best in their environment while causing the least amount of friction with others. In the fields of psychology and special education, this word is employed. Adaptive behaviour, like the term “life skills,” refers to everyday abilities or tasks that the “average” individual can do.

1.5 **Exercise** :

1. State the concept of "Normality" in detail.
2. Discuss various view points in defining abnormality.
3. What are the various approaches to differentiate between Normaland Abnormal behaviour?

4 Write short notes on the following:

i) Adjustive view point of abnormality

ii) ANOMALOS

iii) Maturity

1.6 REFERENCES

1. Carson, R.C., & Butcher, J.N.(1992) : Abnormal psychology and Modren Life, Harper Collins Publishers, New York.
2. Davison, G.C.,& Neale, J.M.(1996) : Abnormal psychology, Wiley & Sons, Inc., New York.

LESSON NO. 1.2 **LAST UPDATED JANUARY 2023**

Historical Background of Abnormal Psychology and DSM Classification

1.2.0Objectives :

The students will understand about the various stages over the years that abnormal psychology had gone through. The lesson highlights the work of great thinkers, scientists, philosophers and reformers in understanding, explaining and treating the abnormality in a more logical, scientific and in a more human way. The lesson also brings forth the DSM classification system. The understanding of DSM will facilitate students understanding on the diagnostic criteria of abnormality.

1.2.1.Introduction :

Throughout most of history, beliefs about mental disorders have been generally characterized by superstition, ignorance and fear. With the development of modern research methods, psychotherapeutic drugs, techniques of psychotherapy and community mental health concepts and facilities, abnormal psychology has come a long way from the superstitions and often, cruel treatment of persons with mental disorders characteristics of earlier times.

1.2.2Demonology in Ancient Times :

The earliest treatment of mental disorders of which we have any knowledge was that practiced by Stone Age dwellers some half years

ago. For certain forms of mental disorders probably those in which the individual complained of severe headaches and developed convulsive attacks, the early shaman or medicine man treated the disorder by means of an operation now called trephning. This operation was performed with crude stone instrument and consisted of chipping away one area of the skull in the form of a circle until the skull was cutthrough. This opening, called a trephine presumably permitted the evil spirit, that supposedly was causing pressure on the brain.

Reference to mental disorders in the early writings of the Chinese, Egyptians, Hebrews and Greeks show that they generally attributed such disorders to demons that had taken possession of the individual.

The decision as to whether the 'possession' involved good spirits or evil spirits usually depended on the individual's symptoms, if speech or behaviour appeared to have a religious or mystical significance, it was usually thought the person was possessed by a good spirit, or God. Such individuals were often treated with considerable awe and respect, for it was thought that they had supernatural powers. Most possessions, however, were considered to be the work of evil spirits, particularly when the individual became excited and overactive, and engaged in behaviour contrary to religious teachings. Among the ancient Hebrews, such possessions were thought to represent the wrath and punishment of God.

The primary type of treatment for demonical possession was exorcism, which included various techniques for casting the evil spirit out of the body of the afflicted one. These varied considerably but typically included prayer, incantation, noise making and various horrible-tasting concoctions, such as pugatives made from sheep's dung and wine. In extreme cases, flogging, starving and other more severe measures were often used in an attempt to make the body of the possessed person such an unpleasant place that the evil spirit would be driven out.

Such treatment was originally in the hands of shamans, but was eventually taken over in Greece and Egypt by the priests. Although these priests were dominated in the main by the beliefs in demonology and established exorcistic practices,they did make a beginning in the more humane and scientific treatment of mental disturbances. (384-
322 B.C.) Aristotle was a pupil but not a follower of Plato. In his extensive writings on mental disorders, Aristotle generally followed th Hippocratic theory of disturbances in the bile. For example, he belived

that very hot bile generated amorous desires and was also responsible for suicidal impulses.

1.2.3Later Greek and Roman thought:

Some of the Greek and Roman physicians continued on the path established by Hippocrates. Particularly in Alexandria, Egypt (which after its founding in 332 B.C. by Alexander the Great became the centre of Greek culture), capital practices developed to a high level, and the temples dedicated to Saturn were first rate sanatoriums. Pleasant surroundings were considered of great therapeutic value for the mental patients. The later Greek and Roman physicians also employed a wide range of other kinds of therapeutic measures, including dieting, massagar, hydrotherapy, gymnastics and hypnotism, as well as certain less desirable measures, such as bleeding, purging and mechanical restraints.

Among the Greek and Roman physicians who continued in the Hippocratic tradition were Asclepiades, Aretaeus, Galen. Asclepiades was the first to note the difference between acute and chronic mental disorders and to distinguish between illusion, delusion and hallucinations. Asclepiades' progressive approach to mental disorders was also evidenced by his opposition to bleeding and mechanical restraints.

The first hint that certain mental disorders were an extension of normal psychological processes was put forth by Aretaeus near the endof the first century A.D. People who were irritable, violent and easily given to joy and pleasurable pursuits were thought to be prone to the development of manic excitement, while those who tended to be serious were thought to be more apt to develop melancholia. His insight into the importance of emotional factors and of the pre-psychotic personality of the patient was quite an achievement for his day.

Galen (A.D. 130-200) did not contribute much that was new to the therapy or clinical description of mental disorders. although he did make many original contributions concerning the anatomy of the nervous system and maintained a scientific approach to mental disorders. He divided the causes of mental disorders into physical and mental.

The Dark Ages in the history of abnormal psychology began with Galen's death in A.D. 200. The contribution of Hippocrates and the

later Greek and Roman physicians were shortly lost in the welter of popular superstition and most of the physicians of later Rome returned to some sort of demonology.

1.2.4 Demonology in the Middle Ages:

With the collapse of Greek and Roman civilization, there was a tremendous revival of the most ancient superstitions and demonology. The last half of the Middle Age saw a peculiar trend in abnormal behaviour, involving the widespread occurance of group mental disorders that were apparently cases of hysteria mania. Whole groups of people were affected simultaneously. Dancing manias taking the form of epidemics of raving, jumping, dancing and convulsions.

Known as tarantism in Italy, the dancing mania later spread to Germany and the rest of Europe, where it was known as St. Vitu's dance. Other peculiar manifestations also appeared. These epidemics continued into the seventeenth century, but apparently reached their peak during the fifteenth and sixteenth centuries- a period noted oppression and famine. Undoubtedly, many of the peculiar manifestations during this period were related to the depression, fear and wild mysticism engendered by the terrible events of the time.

1.2.5 Early Philosophical and Medical Concepts:

During the Golden Age of Greece, considerable progress was made in the understanding and treatment of mental disorders. Originally, membership in the medical priesthood of the Greek temples of healing was hereditary, but gradually outsiders were admitted and various 'schools' began to form. It was in one of these groups that Hippocrates received his early training.

Hippocrates:

The great Greek physician Hippocrates (460-377 B.C.) has been called the father of modern medicine', He denied the intervention of deities and demons in the development of disease and insisted that mental disorders has natural causes and required treatment like other diseases. Hippocrates also emphasized the importance of heredity and predisposition "and pointed out that injuries to the head could cause sensory and motor disorders. Hippocrates classified all the varieties ofmental disorder into three general categories- mania, melancholia and phrenitis- and gave detailed clinical descriptions of the specific disorders included in each category, such as alcoholic delirium and

epilepsy. Hippocrates relied heavily on clinical observation. He realized the clinical importance of dream for understanding the personality of the patient.

The methods of treatment advocated by Hippocrates were far in advance of the exorcistic practices then prevalent. He also believed in the importance of environment, and not infrequently removed his patients from their families.

Hippocrates emphasised on natural causes, clinical observation and brain pathology in relation to mental disorders was truly revolutionary. However, Hippocrates had very little knowledge of physiology thus, in his concept of the 'four humor' -blood, black bile, yellow bile and phlegm. Hippocrates apparently conceived the notion of a balance of physiological processes as essential to normal brain functioning and mental health.

In his work on Sacred Diseases, he stated that when the humors were adversely mixed or otherwise disturbed, physical or mental diseases resulted. Although this concept went far beyond demonology, it was too crude physiologically to be of any great value. Medical treatment based on such inadequate anatomical and physiological knowledge was to continue for many centuries often proving tragic.

Plato and Aristotle:

Great philosopher Plato (429-347 B.C.) studied the problem of dealing with mentally disturbed individuals who committed criminal acts. He made it clear that such persons were obviously not responsible for their acts and should not receive punishment in the same way as normal persons. In addition to the emphasis on the more humane treatment of the mentally disturbed, Plato contributed to a better understanding of human behaviour by pointing out that all forms of life, human included, were motivated by physiological needs or "natural appetities". He also anticipated Freud's insight into the dream tended to satisfy itself in imagery when the higher faculties no longer inhibited the "passions". Plato also emphasised the importance of individual differences in intellectual and other abilities, and pointed out the role of socio- cultural influences in shaping the thinking and behaviour of the individual. Despite these modern ideas, however, Plato shared the belief of his time that mental disorders were partly organic, partly oral and partly divine.

The question of whether mental disorders could be caused by psychological factors like frustration and conflict was discussed and rejected by celebrated systematist Aristotle.

In the middle Ages, treatment of mentally disturbed was left largely to the clergy. Monasteries served refuges and places of confinement. During the early part of the medieval period, the mentally disturbed for the most part were treated with considerable kindliness. Much store was set by prayer, holywater, sanctified ointments, the breath or spittle of the priests, the touching of relies, visits to holy places, and mild forms of exorcism. Such method were often intermixed with vague ideas of medical treatment derived mainly from Galen.

As exorcist techniques became more fully developed, it was emphasized that it 'was Galen's pride which had led to his original downfall. As theological beliefs concerning abnormal behaviour became more fully developed and were endorsed by the secular world, treatment of the mentally disturbed became more harsh. It was generally believed that cruelty to people afflicted with "madness" was punishment of the devil residing within them and when "scourging" proved ineffective, the authorities felt justified in driving out the demons by more unpleasant methods. Flogging, starving, chains, immersion in hot water and other torturous methods were devised in order to make the body such an unpleasent place of residence that no self-respecting devil would remain in it. Undoubtedly, many men and women who might have been restored to health by mere gentle and human measures were driven into hope less derangement by such brutal treatment.

During the later part of the fifteenth century, it became the accepted belief that demoniacal possession were of two general types:

(a) possessions in which the victim was unwillingly sezied by the devil as a punishment by God for past sins; and

(b) possessions in which the individual was actually in league with devil, consummated by signing in blood and presented to them by Satan which gave them certain supernatural powers. They could cause storms, flood, injuries to enemies and ruination of crops and turn themselves into animals. In short, they were witches.

The person who were thought to be witches were tortured until a confession was obtained. The victims of these inhuman tortures writhing in agony and viewed with horror by those they loved-confessed

to anything and everything.

The full horror of the witch mania and its enthusiastic adoption by other countries including some American colonies, took place during the sixteenth and seventeenth centuries. And though religious and scientific thought began to change gradually,the basic ideas of mental disorder as representing punishment by God or deliberate association with the devil continued to dominate popular thought until well intothe nineteenth century.

1.2.6 Emergence of Humanitarian Approaches:

Any criticism or questioning of the theological doctrine of demonology during the Middle ages was made at the risk of the life itself yet even during the early part of the sixteenth century, some great men fromthe fields of religion, physics, medicine and religiosity challenged and attacked the concept of demonology and witchcraft.

In the early part of the sixteenth century, Paracelsus (1490-1541) insisted that the 'dancing mania' was not a possession but a form ofdisease and that it should be treated as such. He formulated the ideaof psychic cause for mental illness, and advocated treatment by "bodily magnetism" later recognized as hypnosis.

John Weyer (1515-1588) a physician and man of letters argued that a considerable number if not all, of those imprisoned, tortured and burned for witchcraft were really sick mentally or bodily and consequntly, great wrongs were being committed against innocent people.

Weyner was one of the first physician to specialize in mental disorders and his wise experience and progressive views justify his being regarded as the true founder of modern psychopathology. Unfortunately, however, he was too far ahead of his time. His works were banned by the church and remained to until the twentieth century.

Oxford educated Reginald Scott (1538-1599) devoted his life to exposing the fallacies of witchcraft and demonology. In his book 'Discovery ofWitchcraft' published in 1584, he convincingly and daringly denied the existence of demons, devils and evil spirits as the cause of mental disorders.

King James I of England, however, refuted Scott's thesis and ordered his book seized and burned. But churchmen also were beginning to question the practices of the time. The wise and far seeing St. Vincent

de Paul (1576-1660) surrounded by every opposing influence and at the risk of his life, declared that mental diseases were not different of bodily diseases.

In the face of such attacks which continued through the next two centuries, demonology was forced to give ground and the way was gradually paved for the triumph of observation and reason, cultivating in the development of modern experimental science and psychopathology.

1.2.7 Establishment of Early Asylums and Shrines:

From the sixteenth century on, monasteries and prisons gradually relinquished the care of person suffering from mental disorders to special institutions that were being established in increasing numbers. The care received by patients, however, left much to eb desired.

In 1547, the monastery of St. Mary of Bethlehem at London was officially made into a mental hospital by Henry VIII its name soon became contracted to 'Bedlam' and it became widely known for the deplorable conditions and practices that prevailed. The more violent patients were exhibited to the public for one penny a look, and the more harmless inmates were forced to seek charity on the streets of London.

Such hospitals or "asylums" as they were called gradually established in other countries. These easy asylums or hospitals, were primarily modification of penal institutions and the inmates were treated more like beasts than like human beings. This treatment was typical of the asylums of this period and continued through most of the eighteenth century.

Treatment of mental patients in the United States was little, if any better There were a few bright spots in this otherwise tragic situation. Out of the mere humane Christian tradition of prayer, the laying on of hands, or holy touch and visits to shrines for cure of illness, there arose several great shrines where treatment by kindness and love stood out in marked contrast to generally prevailing conditions. The one of Gheel in Belgium, visited since the thirteenth century, is probably most famous.

1.2.8 Humanitarian Reforms:

Although scientific skepticism had undermined the belief that mental disturbance was the devil's work, most early asylums were no better than concentration camps, the unfortunate inmates lived and died

amid conditions of incredible filth and cruelty. Humanitarian reform of mental hospitals received its first great impetus from the work of Phillippe Pinel (1745-1826) in France.

In 1792, shortly after the first phase of French revolution came to a close, Pinel was placed in charge of a hospital for the insane. He received the grading permission of the Revolutionary Commune to remove the chains from scree of the inmates to rest his views that mental patients should be treated with kindness and consideration as sick people and not as vicious beasts or criminals. The effect was almost miraculous. He was later given charge of another hospital, where the same recognization in treatment was instituted with similar gratifying results. Pinel's successor, Jean Esquirol (1772-1840) continued his good work and helped in establishment of same ten few mental hospitals, which helped put France in the prefront of humane treatment for the mentally disturbed.

At about the same time, an English' Quaker named William Tuke established a pleasant country house where mental patients lived, worked and rested in a kindly religious atmosphere. This represented the calcination of a noble battle against the brutality, ignorance and indifference of his time. However, the belief in demonology was too strong to be conquered overnight.

As word of amazing results obtained by Pinel spread to England, Tuke's small force of Quakers gradually gained support from John Connolly, Samuel Hitch and other great English medical psychologists. These innovations were of great importance in not only improving the case of mental patients but also in changing public attitudes towards the mentally disturbed.

The success of Pinel's and Tuke's experiments in more humanitarian methods revolutionzied the treatment of mental patients throughout the civilized world. In the United States, this was refleced in the work of Benjamin Rush (1745-1813), the founder of American Psychiatry. He encouraged more humane treatment of the mentally ill. But even he did not escape entirely from the established beliefs of his time. However, he can be considered an important transitional figure between the old era and the new.

The early work of Benjamin Rush was followed through by an energetic New England school teacher, Dorothea Dix (1802-1887) Dix carried on a zealous campaign between 1841 and 1881 which aroused the people

and legislatures to an awareness of the inhuman treatment accordedto the mentally ill.

During the early part of this periods of humanitarian reform, the use of moral therapy in mental hospitals was relatively widespread. It was based on the view that most of the people labelled as insane were essentially normal people who could profit from a favourable environment and help with their personal problems. There seems little doubt that moral therapy was remarkably effective, however unscientific it may have been.

1.2.9 DSM Classification system Introduction :

A psychiatric diagnoses involves classifying the patient's problem withinthe taxonomy of psychological disturbances. Any classification of the psychiatric disorder like that of medical illness should ideally be based on etiology. For a majority of psychiatric disorder, no distinct etiology is known at present hence the only rational way to classify is to classify them based on syndromes. A symptoms that occur together and delineate a recognizable clinical condition.

Disgnostic and Statistical Manual (DSM) :

DSM refers to Diagnostic and Statistical Manual of Mental Disorders, a manual includes all currently recognised mental health disorder, published by American Psychiatric Association (APA). It is used by clinicians, researchers, legal system and other agencies etc. The DSMis now in its Fifth edition DSM-5, published on 18 may, 2013. It provides all the information necessory (descriptions, list of symptoms etc.) to diagnose mental disorder.

History :

The initial impetus for developing a classification system of mental disorders was the need to standerdized psychiatric diagnostic categories and criteria. This creates a common language so that a specific diagnosis means the same thing to one clinician as it does to another. This also helps ensure diagnostic accuraly and consistency. The manual, commonly referred to as the DSM, is revised and updated from time to time.

Following are the vessiors of the DSM.

1. DSM-I (1952)
2. DSM-II (1968)
3. DSM-III (1980)

4. DSM-III-R (1987)
5. DSM-IV (1994)
6. DSM-IV TR (2000)
7. DSM-5 (2013)

1. DSM-I (1952)

It contained only 66 disorders with short lists of symptoms for each and some discussion of the believed cause of these disorders. It was published in 1952 as the first edition of DSM.

2. DSM-II (1968)

It consists of 182 disorders and was 134 pages long. For the first time a new section, named behavioural disorders of childhood and adolesence was added.

3. DSM-III (1980)

It was published in 1980. It includes comprehensive description of each disorder, specific diagnostic criteria and a multi-axial system. The multiaxial system includes following Axis :-

1. Clinical Psychiatric syndrome.
2. Personality and specific development disorder
3. Physical disorder - It also has two dimensional axis.
4. Severity of psychosocial stressor.
5. Highest level of adoptive functioning in the past year.

4. DSM-III-R (1987)

DSM-III-R is the revised version of DSM-III published in 1987. It includes a number of categories that had not appeared in DSM-III but its major organisation of mental disorder was similar to that of DSM-III. DSM-III-R has 253 diagnostic categories whereas there are 228 in DSM-III.

5. DSM-IV (1994)

It was published in 1994 and includes 383 categories. The size of DSM-IV grew to 886 pages. The major change from previous versions was the inclusion of a clinical significant criteria to almost half of the categories which means that symptoms cause clinically significant distress or impairment in social, occupational or other important areasof functioning.

6. DSM-IV TR (2000)

A text revision of the DSM-IV known as DSM-IV-TR was published in 2000. It covered all the categories of mental disorders for both adults and children. It is the text revision of the DSM-IV and hence no major changes were included. It is based on multiaxial system incudes 5 axis to differentiate among disorders.

Axis 1 - consists of particular clinical syndromes or other conditions that may be a focus of clinical attention.

Axis 2 - consists of maladaptive personality features, personality disorder.

Axis 3 - this axis is for reporting current general medical conditions relevant to management of individual's mental disorders.

Axis 4 - this is for reporting psychosocial and environmental problem that may affect the diagnosis and prognosis of mental disorder.

Axis 5 - is for reporting the clinicians judgement of the individuals overall level of functioning.

7. DSM-5 (2013)

DSM 5 is the latest version of Diagnostic and statistical manual published by American Psychiatric Association (APA) in 2013. DSM-5 defines mental disorder as a syndrome that is present in an individual and that involves clinically significant disturbance in behaviour, emotion regulation, or cognitive functioning. DSM-5 also recognizes that mental disorders are usually associated with significant distressor disability in key areas of functioning such as social, occupational or other activities.

Predictable or culturally approved responses to common stressors or losses (such as death of a loved one) are excluded. It is also important that this disfunctional pattern of behaviour does not stem from social deviance or conflicts that the person has with society as a whole. One should keep in mind that any definition of abnormality or mental disorder must be somewhat arbitrary, it should always be regarded as a work in progress and regular updates and modifications are to be expected. Although earlier versions of the DSM used roman numerals to refer to each specific edition (e.g., DSM-IV), Arabic numerals are now being used (e.g. DSM-5) to facilitate updating.

In most respects DSM-5 is not greatly modified from the DSM-IV-TR version, however some significant differences exist between them. Notable changes in the DSM-5 include reconceptulization of Asperges syndrome from a distinct disorder to an autism spectrum disorder. It eliminates subtyper of 'schizophrenia' and also deleted 'bereavement exclusion' for depressive disorder. It renamed gender identity disorder to gender dysphoria, along with a revised treatment plan, the inclusion of binge eating disorder as a discrete eating disorder, The renaming and reconceptualization of paraphilias to paraphilic disorders.

The major change is the removal of axis system and the splitting of disorders not otherwise specified into other specified disorders and unspecified disorders. Instead of axis DSM-5 includes III sections. Section I includes description of chapter organisation, it describes the process of DSM revision, Section II includes the listing of all disorders and section III includes emerging measures and models for further research.

1.2.10 Let us sum up

Thus, through the combined efforts of many dedicated people, contemporary mental health movement had its start. And with the development of modern scientific views on psychopathology, it received great impetus contributing greatly to better public understanding of mental disorders. The latest scientific approach towards psychopathology has led it towards the development of DSM classification system of mental disorders.

1.2.11 Keywords

1. Humors:

Hippocrates (460-377 B.C.E.) postulated that when the body's essential fluids become unbalanced, the body and mind become ill. Black bile, yellow bile, phlegm, and blood are among these fluids. Too much phlegm makes a person tired, too much black bile makes a person depressed, too much yellow bile makes a person irritable, and too much blood makes a person optimistic, happy, and confident.

2. Psychometric Abnormality:

A divergence from a statistically determined norm, such as the population average IQ of 100, is referred to as psychometric aberration. In this scenario, an IQ score of less than 70–75 may indicate that someone has a learning problem and will have difficulty functioning with life.

3. DSM:

The American Psychiatric Association's (APA) Diagnostic and Statistical Manual of Mental Diseases is a publication that uses a common vocabulary and set of criteria to classify mental disorders. Clinicians, researchers, psychiatric drug regulatory bodies, health insurers, pharmaceutical corporations, the legal system, and legislators all use it.

4. Exorcism:

Exorcism is an old religious or spiritual practise of exorcising demons or other spiritual beings from an afflicted person. This can be accomplished by making the creature swear an oath, performing ritual, or simply asking it to leave in the name of a higher power, depending on the exorcist's beliefs.

1.2.12EXERCISE

Q:1 Write a short note on the Hippocrates contribution in the treatment of mental disorders.

Q:2 Explain the term "Exorcism".

Q:3 Discuss the historical background of Abnormal Psychology.

Q.4 Explain DSM classification system

Write short notes on the following:

Exorcism; Hippocrates; Humors; DSM;

1.2.13 REFERENCES

1)) Carson, R.C., & Butcher, J.N.(1992). Abnormal psychology and Modern life. Harper Collins Publishers, New York.

2)) Davison . G.C.& Neale, J.M.(1996). Abnormal psychology. John Wiley & Sons Inc., New York.

LESSON NO. 1.3 **LAST UPDATED JANUARY 2023**

Psychodynamic Model of Psychopathology

Lesson Structure :

1.3.0 Objective :

The lesson highlights the psychoanalytical perspective of abnormal behaviour. After reading the lesson the students will be able to explain and understand the unconscious processes like desires, needs and experiences affecting the coping and adjustment level of the individual.

1.3.1 Introduction :

The first step towards understanding psychological factors in mental disorders were taken by Sigmund Freud (1856-1939). Freud developed his psychoanalytic model over a period of five decades of observation and writing. The major principles of his model were based on the clinical study of individual patients - mostly neurotic who were undergoing treatment for their problems. Freud developed a theory of psychopathology that emphasized the inner dynamics of unconscious motives called the psychoanalytic perspective. The method he used to study and treat patients is called psychoanalysis. Over the last half century, other clinicians have modified and revised Freud's theory, resulting in new psychodynamic perspectives.

The psychodynamic perspective can be reviewed under :- The roots of psychodynamic thought

(a) Freud and the beginnings of psychoanalysis

(c) the basic principles of psychoanalysis;

(d) newer psychodynamic perspectives; and

(e) the impact of the psychodynamic perspective views of human nature and human behaviour.

1.3.2 The Roots of Psychodynamic Thought :-

The roots of psychoanalysis are found in a somewhat unexpected place that is study of hypnosis especially in its relation to hysteria. Hypnosis,an induced state of relaxation in which an individual is highly open to suggestion, first came into widespread use in late eighteenth and early nineteenth century in France.

Mesmerism :

Anton Mesmer (1734-1815), a German physician who further developed Paracelsus ideas about the influence of the planets on the human body. Mesmer believed that the planets affected a universal magnetic fluid in the body, the distribution of which determined health or disease.

Mesmer attempted to put his views into practice in Vienna and various other towns, but it was in Paris in 1778 that he gained a broad following. He opened a clinic there in which he treated all kinds of diseases by 'animal magnetism'. By his means, Mesmer was reportedly able to remove hysterical anesthesias and paralysis. He also demonstrated most of the phenomena later connected with the use of hypnosis.

Eventually branded a charlatan by his medical colleagues, Mesmer was forced to leave Paris and he quickly faded into obscurity. His methods and results, however, were at the center of scientific controversy for many years. In fact, mesmerism, as his technique came to be known, was as much a source of heated discussion in the early nineteenth century as psychoanalysis became in the early twentieth century. This discussion led to a revival of interest in the hypnotic phenomenon as itself an explanation of the 'cures' that took place.

The Nancy School :-

Liebeault (1823-1904), a French Physician practised in the town of Nancy used hypnosis successfully in his practice. Also in Nancy at this time was a professor of medicine, Bernheim (1840-1919), who became interested in the relationship between hysteria and hypnosis.

Bernheim and Libeault worked together to develop the hypothesis that hypnotism and hysteria were related and that both were due to suggestion. Their hypothesis was based on two lines of evidence:

(a) phenomena observed in hysteria, such as paralysis of an arm, inability to hear, etc. (all of which occurred when there was apparently nothing anatomically wrong) could be produced in normal subjects by means of hypnosis, and

(b) the same symptoms also could be removed by means of hypnosis.

Thus, it seemed likely that hysteria was a sort of self-hypnosis. The physicians who accepted his view ultimately came to be, known as the Nancy School.

Meanwhile, Jean Charcot (1825-1893) who was head of the Salpetriere Hospital in Paris and a leading neurologist of his time, disagreed with the findings of the Nancy School and insisted that degenerative brain changes led to hysteria. In this, Charcot was eventually proved wrong,but work on the problem by so outstanding scientist did a great deal to awaken medical and scientific interest in hysteria.

In one of the major medical debates of history, in which many harsh words were spoken on both sides, the adherents of the Nancy School finally triumphed, representing the first recognition of a psychologically caused mental disorders. And it soon became apparent that psychological factors were involved in morbid anxiety, phobias, and other psychopathologies. Eventually, Charcot himself was won over to the new point.

Towards the end of the nineteenth century, it was clear to many that there were mental disorders with a psychological basis as well as those with an organic basis. But one major question remained to be answered: How do these psychologically based mental disorders actually develop?

1.3.3 The Beginning of Psychoanalysis

The first systematic attempt to answer this question was made by Sigmund Freud. Freud was a Viennese physician who specialized in neurology and received an appointment as lecturer on nervous diseasesat the University of Vienna. In 1885, he went to study under Charcot and later became acquainted with the work of Liebeault and Bernheim at Nancy. He was impressed by their use of hypnosis with hysterical

patients and came away convinced that powerful mental processes could remain hidden from consciousness.

On his return to Vienna, Freud worked in collaboration with another physician, Joseph Breuer. (1842-1925), who had introduced an intersting innovation in the use of hypnosis on his neurotic patients. He directed his patients to talk freely about their problems while under hypnosis. The patients usually displayed considerable emotion, and on awakening from their hypnotic states felt considerably relieved. Because of the emotional release involved, this method was called 'catharsis'. This simple innovation not only helped patients discharge their emotional tensions by discussing their problems , but it also revealed to the therapist the nature of the difficulties that had brought about certain symptoms. The patient, upon awakening, saw no relationship between their problems and their hysterical symptoms, but the therapist could usually see it quite readily.

Thus was made the discovery of the "unconscious" - the realization of the important role played by unconscious processes in the determination of behaviour.

Moreover, Freud soon discovered that he could dispense with hypnosis entirely. By encouraging patients to say freely whatever came into their minds without regard to logic or deceny, Freud found that patients would eventually overcome inner obstacles to remembering and would discuss their problems freely. The new method was called 'free association'. Another method which allowed him to understand patients' conscious and unconscious thought processes was 'dream analysis' which involved having patients record and describe their dreams. These techniques helped analysts and patients gain insight and achieve a more adequate understanding of emotional problems. The term psychoanalysis was given to the principles involved in analyzing and interpreting what the patient said and did, and in helping them gain insight and achieve a more adequate adjustment.

Freud devoted the rest of his long and energetic life to the development and elaboration of the psychoanalytic model.

1.3.4 BASIC PRINCIPLES OF THE PSYCHOANALYTIC MODEL

The psychoanalytic model is both highly systematized and complex. The actual techniques involved in psychoanalysis are based on the general principles underlying Freud's theory of personality. Its general

principles can be as follows :-

Id, ego and super ego :

Basically, the individual's behaviour is assumed to result from the interaction of three key subsystems within the personality the id, ego and super ego.

The id is the source of instinctual drives, which are inherited and considered to be of two opposing types:

(a) 'Life instincts', which are constructive drives primarily of a sexual nature, and which constitute the libido the basic energy of life; and

(b) 'Death instincts', which are distructive drives that tend toward aggression, destruction and eventual death. Freud used the term sexual in a broad sense to refer to almost anything pleasurable, fromeating to creativity. The id is concerned only with the immediate gratification of instinctual needs without reference to reality or moral considerations and is said to operate in terms of pleasure principle.

Consequently, a second key subsystem develops the ego - which mediates between the demands of the id and the realities of the external world. The basic purpose of the ego is to meet id demands, but in such a way as to ensure the wellbeing and survival of the individual. This requires the use of reason and other intellectual resources in dealing with the external world as well as the exercise of control overid demands - ego is said to operate in terms of the reality principle.

Freud (1856-1939) viewed id demands, especially sexual and aggressive strivings, as inherently in conflict with the rules and prohibitions imposed by society.

Since the id-ego relationship is merely one of expediency, Freud introduced a third key subsystem - the superego. The superego is essentially what we refer to as the conscience; it is concerned with right and wrong.

Freud believed that the interplay of id, ego and superego is of crucial importance in determining behaviour. Often, inner conflicts arise because each subsystem is striving for somewhat different goals. Neuroses and other mental disorders result when the individual is unable to resolve those conflicts.

Anxiety, defence mechanisms and the unconscious :-

The concept of anxiety is prominent in the psychoanalytic model. Freud distinguished among three types of anxiety that people can suffer :

(a)) Reality anxiety : arising from dangers or threats in the external worlds.

(b) Neurotic anxiety : caused by the id's impulses threatening to break through ego controls, resulting into behaviour that will be punished in some way.

(c) Moral anxiety : arising from a real or contemplated action that is in conflict with an individual's superego or moral values, and arousing feelings of guilt.

Often, the ego can cope with anxiety through rational measures. If these do not suffice, however the ego resorts to irrational protective measures that are referred to as 'ego defence mechanisms'. These defence mechanisms discharge or soothe anxiety, but they do so by helping an individual push painful ideas out of consciousness rather then by dealing directly with a problem.

Another important concept in the psychoanalytic model is that of the 'unconscious'. Freud thought that the conscious part of the mind represents a relatively small area, while the unconscious part is the much larger portion. In the depths of the unconscious are the hurtful memories, forbidden desires, and other experiences that have been repressed - that is, pushed out of consciousness. Until such unconscious material is brought to awareness and integrated into the ego structure - for example, through psychoanalysis - it presumably leads to irrational and maladaptive behaviour.

Psychosexual stages of development :-

Freud conceptualized five psychosexual stages of development, each stage is characterized by a dominant mode of achieving libidinal (sexual) pleasure.

(a) Oral Stage:

During the first two years of life, the mouth is the principal erogenous zone; an infants greatest source of gratification is assumed to be sucking.

(b) Anal Stage:

From age 2 to 3, the membrane of the anal region presumably provide the major source of pleasurable stimulation.

(c) Phallic Stage:

From age 3 to age 5 or 6, self-manipulation of the genitals provide the major source of pleasurable sensation.

(d) Latency Stage:

In the years from 6 to 12,sexual motivations recede in importance as a child becomes preoccupied with developing skills and other activities.

(e) Genital Stage :

After puberty, the deepest feeling of pleasure come from heterosexual relations.

Freud believed that appropriate gratification during each stage is important if an individual is not to be fixated at that level. In general, each stage of development places demands on an individual and arouses conflicts that must be resolved. One of the most important conflicts occurs during the phallic stage, when the pleasures of self- stimulation and accompanying fantasies pave the way for the Oedipus Complex. Oedius, according to Greek mythology, unknowingly killed his father and married his mother. Each young boy, Freud thought, symbolically relives the oedius drama. The Electra Complex is the female counterpart of the oedipus complex.

For either sex, resolution of this conflict is considered essential if a young adult is to develop satisfactory heterosexual relationships.

1.3.5 Neuer Psychodynamic Perspectives

In seeking to understand his patients and develop his theories, Freud was chiefly concerned with the workings of the id, its nature as a source of energy and the manner in which it could be channelled or transformed. Later theories, notably including his daughter Anna Freud (1875-1982), were much more concerned with how the ego performed its central functions as the 'executive' of personality. This second generation of psychodynamic theorists defined and elaborated on the ego defence reactions.

Contemporary approaches focus on neither the nature of the id nor the ego, but rather on the objects toward whom the child has directed these impulses and which the child has introjected into his or her own personality. Object in this context refers to the symbolic representation of another person in the child's environment, most often a parent. The concept of introjection, refers to an internal process in which the child

incorporates symbolically, through images and memories, some person viewed with strong emotion.

The earliest development of this object - relations emphasis in psychodynamic thought took place in the 1930's in England under the ledership of Melanie - Klein, W.R.D. Fairbairn.; and D.W. Winnicott. These theorists developed the general notion that internalized objects could have various conflicting properties - such as exciting or attractive versus hostile, frustrating, or rejecting - and moreover, that these objects could split off from the central ego and maintain independent existences, thus giving rise to inner conflicts.

The work of Margaret Mahler (1897-1985) in the United States complemented and added additional insights to this approach.

Many other American analysts became advocates of the object-relations point of view. Among them is Otto Keruberg noted especially for his studies of both borderline and narcissistic personality.

These newer developments in psycodynamic therapy emphasize interpersonal relationships and how the quality of early relationships affects a person's subsequent ability to achieve fulfilling adult interactions.

1.3.6 Let us sum up

In historical perspective, Freudian psychoanalysis can be seen as the first systematic, psychodynamic approach to show how human psychological processes can result in mental disorders. Much as the biological perspective had replaced superstition with organic pathology as the suspected cause of mental disorders. Then psychoanalytic perspective replaced brain pathology with exaggerated ego defences as the suspected cause of at least some mental disorders.

Freud greatly advanced our understanding of both normal and abnormal behaviour. Two of Freud's contributions stand out as particularly note worthy.

1. He developed techniques such as free association and dream analysis for becoming acquainted with both the conscious and unconscious aspects of mental life.

2. He demonstrated that certain abnormal mental phenomena occurs in the attempt to cope with difficult problems, and are simply exggerations of normal ego- defence mechanisms.

1.3.7 **Keywords**

1. Mesmerism:

A therapeutic practise promoted by Franz Anton Mesmer in the late 18th century, who claimed to be able to treat people by using a vitalistic force he called animal magnetism. The treatment entailed applying magnets to the patient's diseased body parts and inducing a trancelike state by gazing into the patient's eyes, making particular "magnetic passes" over him or her with the hands, and so on.

2. Catharsis:

A catharsis is an emotional release. According to psychoanalytic theory, this emotional release is linked to a need to relieve unconscious conflicts. For example, experiencing stress over a work-related situation may causefeelings of frustration and tension.

3. Pleasure Principle:

The pleasure principle, according to Freud's psychoanalytic theory of personality, is the driving force of the id, which seeks instant gratification of all needs, wants, and urges. To put it another way, the pleasure principle seeks to satisfy our most fundamental and primitive desires, such as hunger, thirst, rage, and sexual desire.

4. Life instinct:

The survival instincts of both individuals and species are focused on the maintenance of life. This desire motivates people to do measures that will

help them maintain their own life, such as taking care of their health and safety.

5. Neurotic Anxiety:

Anxiety that arises from unconscious conflict and is dysfunctional in nature, according to psychoanalytic theory: It has a troubling effect on emotion and behaviour, as well as increasing treatment resistance. Moral anxiety, which is guilt postulated to originate in the superego, contrasts with neurotic anxiety, which is realistic fear over an external risk or threat.

1.3.8 EXERCISE

1. Explain "Mesmer's" views regarding the causes of abnormal behaviour.
2 Discuss the Psychodynamic Perspective in detail.
3. Write short notes on the following:

Oral stage

Catharsis

Repression

Ego defence Mechanism

1.3.9 REFERENCES

1. Carson & Butcher : Abnormal Psychology and Modern Life.2. Davison & Neale : Abnormal Psychology.

LESSON NO. 1.4 *Lesson Updated in February 2023*

The Cognitive Behavioral and Existential Model of Psychopathology

Lesson Structure

1.4.0 Objective :

This chapter focuses on understanding of Cognitive mechanisms like thinking, planning and decision making on the behaviour of an individual. The students will be able to understand that how thoughts and behaviour are interconnected. The lesson also highlights the role of constructive choices in leading a meaningful life.

1.4.1 Introduction :

The behavioural perspective was a reaction to the subjectivism of an earlier era in psychology. It quickly gained wide acceptance among psychologists.

Since the 1950's, psychologists including some learning theorists, have focused on cognitive processes and their impact on behaviour. Cognitive psychology involves the study of basic information - processing mechanisms, such as attention and memory, as well as higher mental processes such as thinking, planning and decision making. The currentemphasis within psychology as a whole, is on understanding all of these facts of normal human cognition.

Developments in clinical psychology have paralleled this reorientation in psychology as a whole. Developments in this area were led by

individuals who were formerly identified with the behavioural tradition in clinical psychology. The cognitive behavioural perspective of abnormal behaviour focuses on how thoughts and information processing can become distorted and lead to maladaptive emotions and behaviour. Unlike behaviouism's focus on overt behaviours, the cognitive view treats thoughts as "behaviours" that can be studied empirically and that can become the focus of attention in therapy. Today, the cognitive behavioural perspective is highly influential, both because of the successes it has had in developing effective treatments and because of the insights it has provided into the importance of distorted cognitions in understanding abnormal behaviour.

1.4.2 The Basics of Cognitive-Behavioural Model

John.B. Watson (1878-1958), founder of behaviourism laid emphasis on the whole system of overt behaviour and was built up out of the conditioning process. Contemporary learning theorists support Watson's processes of behaviour acquisition and behaviour change. The behaviouristic approach continues to exert a powerful influence. The behavioural model developed in part because psychologists found many of Freud's ideas about mind vague, complicated and untestable. This model asserts that human beings behave according to the dictates of their environment, Psychologists using this perspective focus on learning. They view behaviour as a product of stimulus response (S-R) relationships, not of intrapsychic events. They donot got into the past or try to get people figure out why they are the way they are. To change behaviour, they concentrate on altering the relevant aspects of the environment, particularly sources of reinforcement.

A reinforcer is an event whose occurance increase the probability thata certain stimulus will evoke a certain response. Reinforcers reward the individual for doing the right thing or not doing the wrong thing. If the reward is desirable enough, the individual is likely to keep on performing properly as long as the response is reinforced. A positive reinforcer increases the probability that the proper response will be made by giving the individual something pleasent. A negative reinforcer, on the other hand increases the probability that the proper response will be made by taking away something unpleasant as soon as that desired response occurs. Punishment, another way of changing behaviour, is an unpleasant consequence for a wrong response. All of

these have been applied to a variety of situations and, in search on maladaptive behaviour using classical and operant conditioning. To understand the cognitive perspective a saying clarifies *'People are disturbed not by things, by the views which they take of them.'*

- (Epictetus, first century A.D.)

If the Greek philosopher Epictetus were alive today he would likely be a cognitive psychologist. The word 'cognitive' comes from the latin word 'cognitare' meaning "to have known". Cognitive psychology addresses human beings as information processors and problem solvers. The cognitive view seeks to account for behaviour by studying the ways in which the person attends to, interpret and uses available information. It places great emphases on mental processes that we are aware of as opposed to hidden feelings. Typically cognitive perspective pays more attention to our present thoughts and problem solving strategies.

George Kelly (1905-1966) contributed substantially to the cognitive viewpoint by developing a personality theory in which he postulated that people build personal constructs - uniquely individual ways of perceiving other people and events. People then use these personal constructs to interpret events around them. For example, the way a person interprets a comment made by an acquintance can produce emotional upset even though the comment was 'neutral and not intended to hurt. Thus, it is the meaning an individual attaches to a stimulus, filtered through his or her own personal constructs that results in negative feelings and an emotional reaction.

A learning theorist, Albert Bandura (1974) placed considerable emphasis on the cognitive aspects of learning. He stressed that human behaviour regulate their behaviour by internal symbolic processes-thoughts. That is, they learn by internal reinforcement. We prepare ourselves for difficult task, for example, by visualizing what the consequences would be if we did not perform them. We take our car to the garage to get it checked so that we do not "see" ourselves standed on the road.We do not always require external reinforcement to alter our behaviour patterns; with our cognitive abilities, we can solve many problems internally. Bandura (1974) says that human being have a "capacity for self-direction" and that recognition of this capacity "represents a substantial departure from exclusive reliance upon environmental control."

Bandura was one of the first to give attention to MODELLING. Modelling can be used to change behaviour because people are able to learn by watching how other people do things. Opportunities for observational learning arise when another person acts as a a model and performs some response or group of responses.The observer doesnot need to have had practice in making the observed response and does not necessarily have to be reinforced inorder to learn it. Exposureto models whose behaviour and skills we admire, plays an important role in our personal development and contributes to our self-esteem. Models may have desirable or undesirable effects on those who observe their behaviour.

Clinical studies support the conclusion that observation learning plays a part in the acquisition of maladaptive behaviour. Anxiety in patients can often be traced to modelling experiences. A severe phobia may represent an exaggeration of a major or minor fear observed in a parent. Role playing or practising behaviour shown by a model is another important learning technique.

While the behavioural perspective focuses attention on the role of external environment in shaping and governing our actions, cognitive social learning theorists believe that the environment often exerts its influence on behaviour indirectly through the individual's thought prosesses. Our behaviour is effected by our memories of the past and anticipations of the future as well as by impactful stimulus configurations.'

1.4.3 Attribution theory :

Attribution theory has also contributed significantly to the cognitive behavioural Model (Fiske and Taylor, 1991). Attributions simply refer to the process of assigning causes to things that happen. We many times attribute causes to external events, such as rewards or punishments;or we may assume that the causes are internal that they derive from traits within ourselves or others. Casual attributions help us explain our own or other people's behaviour and make it possible to predict what we or others are likely to do in the future. For example, if a person does something mean, we may assume that he has a quality of meanness and expect it to cause mean behaviour in the future. Or if someone fails a test, he may attribute the failure to lack of intelligence (a personal trait) or to ambiguous test questions or unclear directions

(environmental causes). Attributional style refers to a charactristic waythat an individual may tend to make attributions for bad events or for good events. For example,depressed people tend to attribute bad eventsto internal,stable and global causes("I failed the test because I'm stupid" as opposed to" I failed the test because the teacher was in a bad mood and graded it unfairly." No matter how inaccurate one's attributions may be, they become important parts of our view of the world and can have significant effects on our emotional well being. They can also make us see other people and ourselves as unchanging and unchangeable, leading us to be inflexible in our relationships.

Another pioneering cognitive theorist,Aaran Beck (b.1921),adopted the concept of schemas from cognitive psychology (e.g.Neisser,1967,1982). A schema directs attention to new information and guides the retrieval of stored information, the integration of information and related inferences and interpretations, Schemata exert important influences over.

(1) affect and feelings: and

(2) behavioural responses.

Maladaptive behaviour results from dysfunctions of the cognitive system. For example dysfunctional schemata concerning the self ("I ama selfish person") often develops early in life in response to certain situations and are reactivated later in life.

This can result in distortions,such as catastrophizing about the consequences of being less than perfect(Beck et al.,1978). This influences the type of maladaptive behaviour a person displays.For example, a depressed person might attend unduly to failure, rejection and their consequences. Beck's therapy is intended to help patients restructure their thinking. For Beck, psychological difficulties are due to automatic thoughts,faulty assumption about the motivations andreactions of others and negative self-statements.

The development of a cognitive-behavioural view distinct from behaviourism is not surprising.The most important point is precise identification of specific problem behaviours, followed by techniques directed specifically at those behaviours.Indeed,some behaviourally oriented therapies,such as systematic desensitization, have always relied on asking clients to conjure up images in their minds,certainly a cognitive process.Cognitive behavioural theoreticians and clinicians

have simply shifted their focus from overt behaviour itself to the underlying cognitions assumed to be producing that behaviour. The issue then becomes one of altering the maladaptive cognitions.

In some cognitive-behavioural therapy, clinicians are concerned with their clients self-statements with what people say to themselves by way of interpreting their experience. For example, people who interpret what happens in their lives as a negative reflection of their self-worth are likely to feel depressed.These clinicians are using a variety of techniques designed to alter whatever negative cognitive bias the client harbours (Beck et al., 1985). The most widely used cognitive behavioural therapies are Ellis' rational-emotive therapy and Beck's cognitive behavioural treatment.

1.4.4 Impact of the Cognitive-Behavioural Model :

The cognitive-behavioural view point has had a powerful impact on contemporary clinical psychology.Support has been found for the principle of altering human behaviour through changing the way people think about themselves and others. Many traditional behaviourists, however, are skeptical of the cognitive-behavioural view point. Skinner questioned the move away from principles of operant conditioning and toward cognitive behaviourism. After Skinner, this debate continues on this perspective even today.

1.4.5 THE EXISTENTIAL MODEL

Existentialists believe that people are free to choose among alternative courses of action. If this is true, why are so many people unhappy and dissatisfied ? Why does maladaptive behaviour exist? For one thing, not everyone chooses wisely. A person can choose to act either authentically or inauthentically. To act authentically means to freely establish one's own goals. To act inauthentically means to let other people dictate those goals. For each person, there are also certain goals that place definite limits on what he or she may become. These may be characteristics that are present at birth, such as learning ability, physical appearance, or the presence of a disabling disease, or they may be environmental, including the influence of parents and later of school and peers. These expand or contract the individual's chances for fulfilment based on the qualities present at birth. The primary task of the therapist, according to this view, is to help empty, lonely people expand their experiences and fulfil their own uniqueness,

that is, to help them make constructive choices.

Existential thinkers are especially concerned with the inner experiences of an individual in his or her attempts to understand and deal with the deepest human problems.

Basic Concepts of Existentialism :

1. Existence and Essence:

The basic theme of existentialism is that our existence is a given, but what we make of it-our essence-is upto us. It is an individuals responsibility to shape the kind of person he is to become, and to live a meaningful and constructive life.

2. Choice, Freedom and Courage:

Our essence is created by our choices, because our choices reflect the values on which we base and order our lives. As Sartre said," I am my Choices". In choosing what sort of people to become, we have absolute freedom. The locus of value is within each individual. We are architects of our own lives.

3. Meaning, Value and Obligation:

A central theme is the will-to-meaning. This trait is considered a basic human characteristic and is primarily a matter of finding satisfying values and guiding one's life by them. Each of us must find our own pattern of values. It also places strong emphasis on our obligations to each other. The most important consideration is not what we can get out of life but what we can contribute to it. Our lives can be fulfilling only if they involve socially constructive values and choices.

4. Existential anxiety and the encounter with nothingness:

A final theme, non-being or nothingness adds an urgent and painful note to the human situation. In its ultimate form, nothingness is death, fate of all human beings. This can lead to existential anxiety a deep concern over whether we are living meaningful and fulfilling lives.We can overcome our existential anxiety and deny victory to nothingness by living a life that counts for something.

Existential psychologists focus on the importance of establishing values and acquiring a level of spiritual maturity worthy of the freedom and dignity bestowed by one's humanness. Much abnormal behaviour, therefore, is seen as the product of a failure to deal constructively with existential despair and frustration.

1.4.6 **Let us sum up**

There are a variety of reasons why people seek counselling. This involves a search for personal progress and insight into their own life, as well as stressful current circumstances, chronic disease, and dissatisfaction. Through therapeutic approaches, psychological treatment aims to reduce maladaptive behaviour. In order to improve a person's behaviour, cognitive behaviour therapy tries to influence his or her self-statement and event construal. This therapy is used to treat a wide range of clinical issues, including depression, rage, adjustment, mood, and other disorders.

1.4.7 Keywords

1. Cognition:

The mental processes involved in learning and comprehension are referred to as cognition. Thinking, knowing, remembering, judging, and problem-solving are examples of cognitive processes. Language, imagination, perception, and planning are examples of higher-level brain activities.

2. Token Economy:

It is a reward system utilised in behaviour modification programmes. It involves providing tangible rewards (tokens, food, stickers, etc.) for favourable behaviour. For example a child might receive a sticker as a reward for completing a chore. The underlying premise is to promote desirable conduct.

3. Existential anxiety:

It is all about our existence in life, and it involves angst about big issues such as life's meaning, freedom, and our inevitable death. This type of anxiety might be triggered by growing older or facing climate change or difficult political situations. While it can cause great suffering, existential anxiety can also be highly positive.

4. Modeling:

It is a strategy used in cognitive behaviour therapy and behaviour therapyin which the learning occurs solely via observation and imitation without comment or reinforcement by the therapist. It is the process in which oneor more people or other things act as role models for a youngster to follow. Parents, other adults, and other children are frequently used as models, but they can also be metaphorical.

1.4.8 Exercise

1 Explain the cognitive behavioral model in detail.

2 Explain the role of Attribution theory in determining our thought process.

3 Describe the existential model in detail.

4 Write short notes on the following:

Attribution style

Existential Anxiety

Catastrophizing

Modeling

1.4.9 REFERENCES

1 Carson, R.C., Butcher, J.N., and Mineka, S. Abnormal Psychologyand Modern Life (10th ed.) Harper Collins.

2. Sarason, I.G. and Sarason, B.R. (1998) : Abnormal Psychology : Problem of Maladaptive Behaviour (8th ed.) Prentice Hall of IndiaPvt. Ltd., New Delhi.

LESSON NO : 1.5 **LAST UPDATED JANUARY 2023**

BIOLOGICAL CAUSES OF PSYCHOPATHOLOGY

LESSON STRUCTURE

1.5.0 OBJECTIVE

In the previous lessons you have studied about the concept of abnormality and the various perspectives related to abnormal behaviour. With the advent of scientific instruments, microscopes a detailed information on the anatomy of human body and eugenics suggests that biological factor plays a predominant role in the causation of abnormality.

By the end of this lesson you should be able to explain:

- Various biological factors responsible for abnormal behaviour

- The concept of genogenic and chemogenic factors
- Role of chromosomes, glands and neurotransmitters in causation of abnormal behaviour.

1.5.1 INTRODUCTION :

From early times, those who observed disordered behaviour grappled with the question of its cause. Hippocrates, for example, suggested that imbalance in bodily hormones produced abnormal behaviour. To other observers, the cause was possession by demons or evil spirits. Later, bodily disfunction was suggested as a cause. Each attempt at identifying a cause brought with it a theory, or model of abnormal behaviour. But till today, we are still puzzling over the causes of abnormal behaviour and speculation about causes continues to give rise to new models of abnormality.

Although understanding the causes of abnormal behaviour is clearly a desirable goal, it is enormously difficult to achieve it because human behaviour is so complex. Even the simplest human behaviour, such as speaking or writing a word, is the product of thousands of prior events - the connections among which are not always clear.

1.5.2 Necessary, Sufficient and Contributory Causes :

Several terms can be used to specify the role a factor plays in the etiology, or casual pattern of abnormal behaviour. A necessary cause is a condition that must exist for a disorder to occur. A necessary cause, however, is not always sufficient by itself to cause a disorder- other factors may also be required. A sufficient cause of a disorder is a condition that guarantees, the occurrence of a disorder, e.g., one current theory hypothesizes that hopelessness is a sufficient cause of depression (Abramsen, 1989). According to this theory, if you are hopeless, enough about your future, you will become depressed. However, a sufficient cause may not be a necessary cause. Continuing with depression- for e.g., hopelessness is not a necessary cause of depression-there are other causes of depression as well. A contributory cause is one that increases the probability of developing a disorder but that is neither necessary nor sufficient for the disorder to occur. A contributory cause may be a condition that comes before and paves the way for a later occurrence of disorder under certain conditions. For e.g., parental rejection could increase the probability that a child may have difficulty in handling close personal relationship later on or may increase the probability that being rejected in a relationship in adulthood might precipitate depression. Parental rejection is a contributory cause for the person's later difficulties but it is neither necessary nor sufficient (Abramson et al. 1989)

In addition to distinguishing between necessary, sufficient and contributory causes of abnormal behaviour, we must also consider the time frame under which the different causes operate. Some casual factors occurring relatively early in life may not show their effects for many years. These would be considered distal casual factors that may contribute to a predisposition to develop a disorder. Other casual factors operate shortly before the occurrence of the symptoms of a disorder, these would be considered proximal casual factors. This factor may be a condition that proves too much for a person and triggers a disorder (a disappointment at work or loss of a loved one). For example, leaving dirty clothes lying in the bathroom floor may be minor annoyance in a basically well-adjusted family, but the same action causes a heated argument in a family already experiencing major difficulties.

A reinforcing cause is a condition that tends to maintain maladaptive behaviour that is already occurring. For example, is the extra attention, sympathy and removal from unwanted responsibility that may come when a person is ill; these pleasant experiences may discourage recovery or in case of severe depression where the depressed person's behaviour may alienate friends and family leading to a greater sense of rejection that reinforces the existing depression (Hammen, 1991).

A predisposition towards developing a disorder is termed as diathesis. It can derive from biological, psychological or socio-cultural causal factors. Most mental disorders are conceived of as the result of stress operating on a person with a diathesis for the type of disorder that emerges. In this lesson we will discuss the biological factors which may contribute in the causation of abnormal behaviour.

1.5.3 BIOLOGICAL ETIOLOGY

Biological factors influence all aspects of our behaviour including our intellectual capabilities, basic temperament, primary reaction, tendencies, stress, tolerance and adaptive resources. Thus, a wide range of biological conditions, such as faulty genes, diseases, endocrine imbalances, malnutrition, injuries and other conditions that interfere with normal development and functioning are potential causes of abnormal behaviour.

Biological Etiology is divided into different parts. These are **Genogenic** and **Chemogenic**

1.5.3.1 Genogenic Factors (Originating from Genes)

Genogenic or genetic factors play a vital role on the individuals personality, temperament and overall behaviour. Genetic factor predisposes an individual towards some kind of abnormality eg; schizophrenic parents have a greater probability of begetting schizophrenic children. The major genogenic factors are heredity, chromosomes, congenital defects, constitution and temperament.

1.5.3.1.1 HEREDITY

Heredity includes chromosomes and genes which individual inherits from parents. Each living organism is a result of interaction of his hereditary and environment and the relationship is shown as:

O=F(T, H, E.)

i.e., organism is a function of time, hereditary, and environment.

The importance of hereditary is either over-estimated or under-estimated. Almost all forms of typical deviations have been attributed to hereditary causes some psychologists and by others to non-hereditary ones, i.e. environment, summary of experimental findings indicates that approximately 3/4 of mental defecting and 1/4 of psychotics have these conditions due to unfavourable heredity.

Heredity is a contributory factor for additional 15% of psychotic and neurotic as well as some cases of anti-social behaviour. One never inherits nervousness, anxiety delusions, excitiability, hallucinations and anti-social tendenceis and repression. All that one inherits is the 'gene' which in some cases may control the development of nervous system or other parts of the body. These genes can be responsible for development of certain physiological

structures that favours development of particular abnormality. The quality of hormones and tissues inherited influence genes that produce physiological structure, favouring development of some form of psychological abnormalities that one is not destined to develop. As a result with such a handicap, it is easy for a person to develop a disease and it becomes predisposing factor. But whether he does or doesn't develop that disease will depend upon genes and external environment.

A person who inherits a predisposition to mental diseases, but if he has been brought up in an environment in which he does not face any emotional traumas, he may never exhibit mental symptoms.

Many studies on heredity can be criticized because of faulty environmental designs or lack of adequate control. Most studies had to rely on family history which are often inadequate or inaccurate or confusing. These studies are usually of twins.

The result of twin studies usually shows a similarity between identical twin than between fraternal or other twin. Many studies have been made of rates at which schizophrenia in one monozygotic twin (generally identifiable) predicts schizophrenia in other (Gottesman and Shield, 1962). These rates are called, "Concordance Rates."

Few studies of identical twins separated at birth thus, minimizes the effect of environment that lead to inconclusive evidence regarding role of hereditary in development of abnormality. There are only two types of mental disorders which follow a particular hereditary pattern.

(a) Huntington's Chorea :

It is a disease which is established by a single dominant gene. The symptoms are speech impairment, intellectual and emotional disturbances and is also characterized by jerks and tritching. It also hampers the movement of the limbs.

(b) Amaurotic Family Idiocy :

It is a type of mental deficiency in which there are personality disturbances. Most typically operate polygenically, i.e., through the action of many together in some sort of addictive of interactive fashion.

1.5.3.1.2 CHROMOSOMAL ABNORMALITY

Dramatic progress in the field of genetics during recent years has enabled to direct chromosomal abnormality as the main cause of mental abnormality. The first major breakthrough in this area was identification of 46 chromosomes in nucleus of each normal living cell and the discovery that encoded in chromosomes is the hereditary play for development. When fertilisation takes place the normal inheritance of the new individual consists of 23 pairs of chromosomes, one of each pair being from mother and other from father, 22 pairs are called autosomes (determine general anatomical structures) and remaining 1 pair is named as the sex chromosomes (determining sex of the individual). When the chromosomes is deficient in a specific genetic inference then results may be any of the

wide disorder or abnormality in autosomes may lead to diseases like range of other defects. There are a variety of different chromosomal disorders, depending upon what is actually wrong with the chromosome. A very common abnormality is trisomy. A trisomy occurs when a baby has 3 copies of a chromosome instead of just two. A trisomy abnormality can bring on **Downs syndrome**, **Patau's syndrome**, and **Edward's syndrome**.

Sometimes a baby will be born without the second sex chromosome (has chromosomes 45X0 in stead of 46XX or 46XY). This baby will be a girl and suffer from **Turner's syndrome**. Other babies are born with too many X chromosomes, resulting in **Klinefelter syndrome**. Example : In colour blindness, hemophilia (clotting of blood). E.g. in Mongolism in which the individual has slanting eyes, flat face and other characteristics that produce a superficial resemblance to mongolians have discovered the presence of an extra chromosomes involving a trisomy. Regarding sex chromosomes in males the mother gives X, father Y chromosome. Females are less suspectable to defects from faulty sex chromosomes as they have 2X chromosomes. Thus, if one proves faulty the other can generally handle work of development. Since, males have single X chromosome, paired with single Y chromosome, therefore, if there are defects in either it would mean trouble.

Even in case of **Down's** Syndrome where a trisomy in 21st chromosome has been identified, it has been observed that 65% of the foetuses spontaneously abort. (Creasy and Crolla, 1964). Another predisposing cause in Down's syndrome is parental age at conception. The probability of this defect rises sharply with the age of the mother especially after 40 and less sharply yet still significantly with the age of the father [(Hook, 1980), Steve et al. (1981), Wright, Schaefer and Solomons (1969)].

Anomalies may also occur in the sex chromosomes producing a variety of complication that may presdispose a person to development of abnormal behaviour. For example, **Klinfelter's Syndrome** also involves 46 chromosomes (XXY)- These have male body structure (usually infertile) and a predominantly male gender identity. They are however, far more likely than males with the usual 46 chromosomes to develop several kinds of psychopathology such as juvenile delinquency and problems arising out of gender identity confusion.

Poland and Lowry (1964) : There is a disease **Turner' Syndrome** which is due to some defect in sex chromosome [45(X,O)]. It is characteristic by short structure webbing of neck and sexual infertlisation. Nearly 50% of still born infants have such chromosome abnormalities.

1.5.3.1.3 CONGENITAL DEFECTS (A defect a child is born with)

Gene Mutation : Wright et al (1969) reported that certain defects at time of birth or during pregnancy cause abnormal behaviour. It was estimated that 5 out of 100 babies born in U.S.A. had such defects. There are number of factors associated with congenital defects as discussed below;

(A) FACTORS DURING EMBRYONIC PERIOD :

Period extends from beginning of conception to 2nd prenatal month. During this month the development of embryo takes place. All main structures of body and sex of child are determined during this stage; so any malformation of limbs of body can occur during this period.

(B) FACTOR'S DURING FOETAL PERIOD :

Period extends from 2nd month to process of birth. Factors which can cause mental abnormalities are :

1. Dysfunctioning of Glands :

As function of glands is determined during this period and secretion of any type of glands can cause abnormality, e.g., over secretion of thyroxin can cause development of some mental disease and under secretion can cause cretirism.

2. Nutritional Deficiency :

If the foetus does not receive good diet, it can lead to mental deficiency like idiots etc. Deficiency in vitamin B complex can produce neuropsychiatric disorders.

3. Infections :

If foetus is affected by some infection from mother, it can lead to problems. Syphilies from mother that can lead to general paresis (psychosis).

4. Ionizing Radiations (X-Rays) :

Occurring at any time after fertilization may interfere with normal development of child and result in congenital defect. E.g., a higher incidence of mental retardation associated with micro eplisly (Small size of brain) has been reported anxiety in children of survivors of nuclear bombing at Nagasaki and Hiroshima (Miller, 1969).

5. Drugs :

Children born to mothers who use some type of drugs can develop different types of abnormalities. In a study, it was reported that mothers who took drugs like Thalidomide during pregnancy gave birth to defected children. They had not formed arms and legs (Blay et al., 1963).

Lewis (1969) observed that mothers who experience severe stress during pregnancy have high rate of pre-mature births; such babies show different symptoms as feeding difficulties, sleep disorders, irritability and other problems after birth.

Medrick and Schul Singer (1965) have observed that during the abnormal parental condition, the children are at high risk of developing mental abnormality in life.

(C) FACTOR'S DURING INTERANATAL PERIOD :

It extends from onset of labour pains to moment of delivery. The period which can produce maximum numbers of injuries to the head and leads in various types of mental abnormalities. There are 3 phases in this period :

(i) Onset of labour pains;

(ii) Passage of child from the birth canal

(iii) After birth

Out of these three phases, the second phase has maximum chances of developing cerebral birth traumas. This trauma can be due to many factors :

- Too large head;
- Instrumental birth (forceps)
- Breech presentation (legs coming first)
- Age of mother (about 30 at the first birth)
- Premature birth

(D) FACTORS DURING POSTNATAL PERIOD :

Any organic factor which can produce mental abnormality after child is born is called postnatal. They include :

(i) Postnatal Head Trauma; and

(ii) Acute Infection.

(i) Postnatal Head Trauma :

Any injury to head sustained after falling of or any accident can produce a number of abnormalities. The effects are both mental as well as physical. The physical symptoms could be loss of speech, memory etc., depending upon which part has been injured. Mental symptoms include irritablity, anxiety, aggression, seclusiveness.

(ii) Acute Infection :

Any infection caught by child during early age like chicken pox, small pox, dpithiria, whopping cough, etc. lead to major symptoms both of physical and mental type. One particular disease called Encephalitis, is a sort of infection caught by child and which has travelled to brain and can cause different types of mental disorders.

1.5.3.1.4 CONSTITUTION AND TEMPERAMENT

The term constitution refers to the physical built up of individuals. It is the sum total of individual's biological capacities. The word temperament means tendency of a person to behave in a certain distinctive way. Constitution and temperament are the different aspects which show up quite early in an individual's life. In new born babies, we not only see difference in physical make up but also difference in their temperament. For example, some are sleepy, others are aggressive, some calm, others crying, and so on. Since ancient times attemps have been made to classify people into different physical types. Kretschmer and Sheldon have given different physical types of personality. He classified them into 4 types.

(a) Pyknic (fat);

(b) Asthenic (thin);

(c) Athletic (muscular); and

(d) Diplastic (Disproportionate)

Sheldon classified people into 3 categories and described their temperament also. These categories are :

(a) Endomorphic (fat);

(b) Ectomorphy (thin); and

(c) Mesomorphy (muscular)

(a) Endomorphic :

Physique : Soft, round

Temperament ; Comfort-loving, sentimental, pleasure seeking, socializing

Most likely Psychopathology : Severe mood alternations involving extreme elations or depression (particulalry in latter)

(b) Mesomorphic :

Physique : Strong, muscular, athletic

Temperament : Active, energetic, religious, more achievement-oriented' aggressive.

Most likely psychopathology : Delinquency, crime behaviour, forced alternations involving extreme elation or depression.

(c) Ectomorphic :

Physique : Slender, fragile

Temperament : Sensitive, delicate, intellectual, more religious

Most likely psychopathology :

Schizophrenia, anxiety, nausia, peptic ulcer.

1.5.3.2 CHEMOGENIC FACTORS; this is associated with the body chemistry. Our behaviour is greatly affected by the chemicals present in our body like hormones, neurotransmitters etc

1.5.3.2.1 DYSFUNCTIONING OF GLANDS

Any disfunctioning of endocrine glands (ductless glands) can produce mental symptoms.

(A) Thyroid Gland :

The hormone secreted by thyroid is Thyroxin. Any hypo-secretion of thyroxin can bring a marked deficiency which can reduce the individual to imbecile level and a hypersecretion or excess of thyroxin can make a normal person tense and unstable.

The main component of Thyroxine is lodine. The diseases associated with thyroid deficiency can be Myxedema, critinism and goitre. The difference between Cretinism and Myxedema is the one of age.

1. Cretins are feeble minded, dwarfs and

2. Myxedema patients are also mentally retarded. They are over-weight and have puffed facial features because of delayed onset of diseases. These individuals are usually average height and are rarely feeble minded.

It is of two types : Hypo thyroxin and hyper thyroxin. Both effect memory, thinking and mental ability, In Hypo Thyroxin physical development stops and results in dwarfism.

Hyper Thyroxine : (8 feet high) giant, irritated, anxiety prone, upset, unstable, tongue, becomes thick and have speech problem, voice disorders.

(B) Parathyroid Gland :

Parathyroid gland secretes parathyrox in which controls calcium.Removal or disfunctioning of these glands can develop a disease called Titany in which there are marked muscular twitching, cramps, convulsion and emotional unstability and restlessness.

(C) Adrenal Gland :

The hormone secreted by Adrenal gland is Adrenin. If Adrenin is secreted more, then patient gets tired quickly, body's resistence decreases, irritation increases, skin's colour gets darker. Voice also gets changed. If males start secreting more hormones of Adrenin than feminine traits start developing. If females secreting more hormones of Adrenin, then masculine and muscular traits start developing.

It has been divided into 2 parts :

(i) Cortex : Secretes cortin

(ii) Medulla : Secretes Adrenalin

In times of great emotional stress, adrenalin is discharged in desired quantity to meet with the situation. In situation of fear, anger and rage, adrenalin has a unique power to mobilizing total resources of body for vigorous action. The diseases associated are

(1) Addison's Disease :

Deficiency of cortin from adrenal cortex can cause increased tiredness, loss of appetite, anaemia, irritability and darkening of skin.

(2) Cushing's Syndrome :

Excessive secretion of cortex will give rise to the muscular weakness, reduced sex drive, tiredness and disfiguring body changes.

(3) Virilism :

In women, excess of cortin (increased androgen) can bring about condition virilism in which they take on a muscular physique. They develop male secondary sex characteristics. They have beards, have a hoarse voice and loose softness of the body.

(4) Feminism :

Excess of cortin (increased androgen) in males can cause female changes in body. They develop female secondary characteristics like shrill voice, softness of body, loss of hair on face.

(5) Puberty Praecox (Early Age) :

When children have excess of cortin, start developing an adult body structure. A child of 5-6 years can have all the characteristics of mature adults. They can reproduce and have the same level of sex drive.

(D) Pituitary Glands :

These are the master glands and control the growth of body. The hormone secreted by them is Matortopin. During the growing years, the over secretion of these glands can make the child giant size of 6 to 9 feet and if underactive, the person remains dwarf. Pubertal destruction of glands is also disturbed the gondal development (sexual) and post pubertal destruction can cause sexual regression. Metrnal including cactation may be experimentally included in females and animals by citing prolactin which is pituitary product. It effects the thinking and reasoning and mental ability of the person. Somatotropin is secreted more.

(E) Gonads or Sex Glands :

The masculine sex glands are testes and secretes the hormones endrogen. The female sex glands are ovaries and secretes oestrogen. The hormones are secreted in abundance during puberty and are responsible for growth of sex organs and secondary sex characteristic, i.e. appearance of pubic hair, statistics of body, voice and distribution of hair on face or body. The dysfunction of these glands includes Eunichism or Hermaphroditism (having both sex characteristics).

Eunichism :

Varying degree of deficiency of sex hormones during childhood results in failure to develop secondary sex characteristics and lack of sexual interest and drive.

Menopause :

In late 40's, women undergo a change of life called Menopause. In this period, there are certain psychological reactions also like irritability, restlessness, mental depression and insomnia.

Abnormalities Associated with Endocrine Dysfunctions

	Glands	Functions		Dysfunctions
1.	Pineal	Helps regulating biologi cal clock and sexual development (it paces up)		
2.	Pituitary	Regulates growth and stimulates activities of other glands	1.	Gigantism
			2.	Midgetism : (dwarfism)
			3.	Acromegaly; (Thickness

			of body extremities)
3.	Parathyroid	Regulates Ca & P	1. Titany (Twitched & Cramps-convulsions)
4.	Thyroid	Regulates Metabolic Rate, growth and development of intelligence	1. Cretinism 2. Myxedema 3. Tension 4. Weight loss due to hypersecretion
5.	Adrenals	Secretes Adrenaline Affects neural functioning	1. Addison's disease 2. Cushing syndrome 3. Feminism 4. Verilism 5. Puberty praecox
6.	Gonads	Sexual development of the body. Testes produce endrogens and ovaries produce estrogens	1. Eunuchism 2. Menopause
6.	Thymus	It plays a role in sexual development	

1.5.3.2.2 ROLE OF NEUROTRANSMITTERS

The neurons communicate with the help of the process "synapse", releasing a chemical known as neurotransmitters. The belief that neurotransmitter imbalances in the brain can result in abnormal behaviour is one of the basic tenets of the biological perspective today. Sometimes psychological stress can bring on neurotransmitter imbalances. These imbalances can be created in a variety of ways, for e.g. there be excessive production and release of the neurotransmitter substance into the synapses, causing a functional excess in levels of that neurotransmitter. Alternatively, there may be dysfunctions in the normal process by which neurotransmitters, once released into the synapse, are deactivated.

There are dozens of different kinds of neurotransmitters, but there are four neurotransmitters studied extensively in relationship to psychopathology : (1) norepinephrine, (2) dopamine, (3) serotonin, and (4) GABA.

Dopamine has been implicated in schizophrenia, although it is not the only cause for the schizophrenic disorder there are certain other factors as well. Serotonin has been found to have an important effect in the way we process information from our environment (Spoont, 1992) and seems to play a role in emotional disorders such as anxiety, depression and suicide. Finally GABA (gamma aminobutryic acid) was the most recently discovered of the neurotransmitters and it is strongly implicated in anxiety.

1.5.3.2.3 MALNUTRITION

Any deficiency of diet can cause serious mental symptoms since malnutrition during infancy not only reduces physical development but also lowers the resistence to disease. It can also interfere with the brain growth and that results in lower intelligence. In a post mortem study of an infant who died of malnutrition, Wink (1968) found a total brain cell content that was 60% below that of normal infants. Even in case of babies who suffer from severe malnutrition but survive, their brain growth is blocked because the period of the fastest growth of brain is from 5-10 months after birth. The problem of Scrimshaw (1969), Behar (1968) found more than 300 million of pre-school children lacked sufficient protein in their food. Since then, the condition has not improved but deteriorated. Not only malnutritioned children suffer mental and physical deficiency, but children of malnourished mothers also show serious defects.

Einsenburg (1990) observed that gross brain pathology in children is not a major factor for abnormality but it is more in elderly people. The ageing process often results in Sizheirmer's disease (aging disorders) due to malnutrition.

Kolata (1981) observed that atleast 16% of people above the age of 65 have significant brain damage due to malnutrition.

Doping (1966) and Krapline (1962) observed that in infancy stage, if there is malnutrition, i.e. nutritional deficiency, then the development of brain functioning stops. Normal growth also stops and only 60% of the brain gets developed.

1.5.3.2.4 BRAIN DYSFUNCTION

This is a recent factor discovered after a major scientific breakthrough in psychopathology when researchers proved that general paresis was related to destruction of brain tissue by neurosyphilis. The incidence of damage of brain tissue increases notably among the elderly, mostly because of the ageing process itself (often resulting in Alzheimer's disease). Brain damage in the elderly some-times leads to abnormal behaviour and it reduces the person's capacity to cope.

Some subtle deficiencies of brain function, such as those involved in attention deficit disorders and specific hearing disabilities in children, may increase the chances of serious disorders in children.

1.5.3.2.5 PHYSICAL DEPRIVATION

Injuries and diseases strike all of us from time to time and upset our normal equilibrium. The effect of psychological events often have deep effects. Depression, for example, frequently accompanies significant physical illnessess. Also obvious physical disabilities may result in social stigmatization that is itself demoralizing and destablizing, leaving a person vulnerable

to other types of stress (Jones et al 1984). Even without serious illness or disability, people may experience challenges to their equilibrium. We deal with two such situations :

(a) Deprivation of basic physiological needs ; and

(b) Non optimal levels of stimulation.

(a) Basic Physiological Needs :

The most basic human requirements are those for food, oxygen, water, sleep and elimination of wastes. In order to survive, people must constantly renew themselves through rest and take in food and water. Insufficient rest, inadequate diet, or attempts to carry a full workload under the handicap of severe cold, fatigue, or emotional strain may interfere with a person's ability to cope and predispose individual to a variety of problems. Experimental studies of volunteers who have gone without sleep for periods of 62 to 98 hours have shown increasing psychological problems as the sleep loss progresses including for time and place, such as feelings of depersonalization.

It is also now recognized that chronic but relatively mild sleep deprivation can have adverse emotional consequences in children and adolescents. Studies of dietary deficiencies have also found effects on psychological functioning, the exact changes depending largely on the type and extent of the deficiencies. Severe malnutrition, which is associated with a host of other potentially damaging variables such as parental neglect and limited access to health care (Brozek & Schurch, 1984) not only impairs physical development and lowers resistance to disease but also stunts brain growth and results in markedly lowered intelligence (Amcoff, 1980).

(b) Stimulation and Activity :

Healthy mental development depends on a child's receiving adequate amount of stimulation from the environment. However, there are limits as to how much stimulation is beneficial to a developing organism as sensory overload can impair adult functioning (Gottschalk et al., 1962), and although we do not yet have evidence on this, one might assume that infants and children are similalry effected. In general, each person seems to have an optional level of stimulation and activity that may vary over time, but that must be maintained for normal psychological functioning. Under excessive pressure, we may strive to reduce the level of input and activity. On the other hand, under some conditions such as boredom- we may strive to increase the level of stimulation by doing something engaging.

1.5.4 The Impact of the Biological View Point :

Biological discoveries have affected the way we think about human behaviour. We recognize the important role of biochemical factors and innate characteristics many of which are genetically determined, in both normal and abnormal behaviour. Since 1950's there are many new developments in the use of drugs that can dramatically alter also the severity and causes of certain mental disorders. Gorenstein (1992), argue "psychological causes can be distinguished from biological causes" only prior to the entry into the central nervous system. This is because once a psychological cause have had its effect on a person, the effect of that psychological event is also mediated through the activity of the central nervous system. This dysfunction could have arisen from psychological and biological causes.

Self Check Exercise

Write short notes on the following terms.

(a) Huntington's Chorea

(b) Down's Syndrome

(c) Pituitary Gland

1.5.5 Let us Sum Up

In this lesson we have discussed the biological causes of abnormal behaviour. Many factors are considered to be potential causes of biological dysfunction, ranging from head injury to poor nutrition. Genetics, evolution, and viral infection are areas that have received a great deal of attention. Treatments by biological practitioners utilize psychotropic medications, electroconvulsive therapy (ECT), and neurosurgery.

1.5.6 Keywords

1. **Genogenic Factors (Originating from Genes)**

Genogenic or genetic factors play a vital role on the individuals personality, temperament and overall behaviour. Genetic factor predisposes an individual towards some kind of abnormality eg; schizophrenic parents have a greater probability of begetting schizophrenic children. The major genogenic factors are heredity, chromosomes, congenital defects, constitution and temperament.

2. **Huntington's Chorea :**

It is a disease which is established by a single dominant gene. The symptoms are speech impairment, intellectual and emotional disturbances and is also characterized by jerks and tritching. It also hampers the movement of the limbs.

3. **Klinfelter's Syndrome** also involves 46 chromosomes (XXY)- These have male body structure (usually infertile) and a predominantly male gender identity. They are however, far more likely than males with the usual 46 chromosomes to develop several kinds of psychopathology such as juvenile delinquency and problems arising out of gender identity confusion.

4. **Brain dysfunction**

This is a recent factor discovered after a major scientific breakthrough in psychopathology when researchers proved that general paresis was related to destruction of brain tissue by neurosyphilis. The incidence of damage of brain tissue increases notably among the elderly, mostly because of the ageing process itself (often resulting in Alzheimer's disease).

5. **Thyroid Gland :**

The hormone secreted by thyroid is Thyroxin. Any hypo-secretion of thyroxin can bring a marked deficiency which can reduce the individual to imbecile level and a hypersecretion or excess of thyroxin can make a normal person tense and unstable.

1.5.7 REFERENCES

1. Carson & Butcher : Abnormal Psychology and Modern Life
2. Coleman : Abnormal Psychology and Modern Life
3. Sarason & Sarason : Abnormal Psychology - The Problems of Maldaptive Behaviour
4. *On line sources*

http://www.princeton.edu

http://www.cliffsnotes.com

http://www.psychologyfacts.blogspot.com

LESSON NO : 1.6 **LAST UPDATED JANUARY 2023**

Psychosocial & Socio-cultural Causes Of Psychopathology

Lesson Structure

1.6.0 Objective

1.6.1 Introduction

1.6.2 Early Deprivation and Traumas:

1.6.2.1 Institutionalization

1.6.2.2 Deprivation in the home or inadequate mothering

1.6.2.3 Environmental deprivation

1.6.2.4 Childhood Traumas

1.6.3 Pathogenic Interpersonal Relationship or Parental Relationships

1.6.3.1 Marital instability

1.6.3.2 Pathogenic relationships

1.6.4 Pathogenic/maladaptive family structure

1.6.4.1 Inadequate family

1.6.4.2 Disturbed family

1.6.4.3 Anti-social family

1.6.4.4 Disrupted family

1.6.5 Faulty Parent-Child Relationships :

1.6.5.1 Rejection

1.6.5.2 Over-protection

1.6.5.3 Communication failure

1.6.5.4 Undesirable parental models

1.6.5.5 Rigid and unrealistic moral standards

1.6.5.6 Position of child in the family

1.6.5.7 Sibling Rivalry

1.6.5.8 School Relationship's or Peer Relationships

1.6.5.9 Lack of competencies for adulthood

1.6.0 OBJECTIVE

In the previous lesson you studied the role of biological factors in the causation of maladaptive or abnormal behaviour. There are many factors that can cause the abnormality or the factors can have a cumulative effect as well. For example, if genetically an individual is predisposed to carrying schizophrenic traits and is reared in a pathogenic family, then the individual becomes more vulnerable in acquiring such an abnormal personality. In this lesson, you will get acquainted with the:

- Relevance of psychosocial factors in the causation of abnormal behaviour.
- Faulty psychological development resulting in mental abnormality

Sociocultural theorists believe that abnormal behavior is rooted in social ills, such as poverty, discrimination, and social stressors. After reading this lesson you will be able to answer

- How socioeconomic status and poverty affect the psychological state of an individual.
- The interplay of sociocultural influences on the personality of an individual.
- To be able to think critically about cultural and societal influences, which contribute to differential rates of psychopathology among various ethnic groups.

1.6.1 INTRODUCTION :

Psychosocial causes of abnormality are those developmental influences that may handicap a person psychologically, making him or her less resourceful in the struggle to cope.

Further, it is observed that psychological forces play a primary role in the development of personality strength or personality weakness. The degree to which an individual reaches maturity depends upon the kind and strength or gratification of his psychological needs.

Faulty psychological development can cause mental abnormality. There are 3 types of faulty psychological development :

1. **Immaturities** : In which individual fails to develop dimensions of maturity.
2. **Weak spots**: When traumatic experience leaves him sensitized and vulnerable to the certainty of a stress or situation.
3. **Distortions**: When an individual fails to achieve normal personality integration.

There are several problems that an individual faces during his span which leads to unhealthy psychological developments, and these can cause the individual to develop mal-adaptive patterns. There are various stages of life in which the individual encounters different problems. There can be five stages as shown :

1. Childhood :
2. Adolescence:
3. Adulthood;
4. Middle Age; and
5. Old age.

During every stage, the individual encounters certain traumatic experiences which can reduce his stress tolerance, and can also make him develop different types of psychological ailments. The psychosocial factors that can affect the psychological well being of an individual either adversely or beneficially are explained as below.

1.6.2 EARLY DEPRIVATION AND TRAUMAS;

It can effect the early years of life. According to Freud, the foundations of personality are laid during childhood for the adult environmental relations, habits, thinking and reaction patterns. The early deprivation can cause serious personality problems. Such deprivation can lead to :

(i) Fixation in the oral stage

(ii) Failure to develop basic trust (As postulated by Freud and Erikson)

(iii) Lack of development of the needed skills because of absence of reinforcement. (as postulated by Skinner)

1.6.2.1 Institutionalization :

Here, as compared to an ordinary home, there is less warmth and physical contact, environment and spatial stimulation, and lack of encouragement. Though some institutions

provide stimulation and affection more than some families, but the main difficulty is that they are unable to provide adequate personal contact with infants.

In a study by Provence and Lipton in 1962, the behaviour of infants living in an institution was compared with those living in the family. These children are mostly intellectually, emotionally, socially maladjusted.

In some studies, it has been shown that those children who are sent to institutions before the age of one year get abnormal symptoms like aggression, selfishness and are self-centred.

Beres (1950) in his study, took 38 adolescents, who at the age of 3 weeks to 3 years, were sent to institutions and came out at the age of about 16 years. These children got mal-adaptive behaviour and were categorised as follows :

4 children psychosis patients

4 children Mentally deficient

2 children Psychoneurosis patients

21 children Character disorders

and only 7 children were Family adjustable children

Burnstein (1981) says that abandoned children are at a high risk for psychological disturbances and that excessive level of aggressiveness, rebelliousness and disobedience are very likely.

Skolnide (1986), Freeman, Kaplan and Sadock (1976) represented that in case of prolonged parental deprivation, the child may not be able to accomodate new experiences because his expectations of being abandoned may make his adjustment difficult.

In a study by Robins, Rutler & Rees (1975), it was found that in contrast to the babies living in family, the institutionalised infants also showed faulty learning capacity. With more severe deprivation the development may be even more retarded. There would appear "afectionless, psycho-pathy" which is the inability to form close relationships and often the development of anti-social behaviour. It is a syndrome which is commonly found among children who have institutionalization at an early age, particularly before the age of 1 year. The prognosis is also considered unfavourable.

1.6.2.2 Deprivation in the Home or Inadequate "Mothering":

It has been observed that children who are separated from their mothers don't show any severe mental symptoms, but those who have had disturbed maternal care are affected. In a study by Ribble, it has been observed that indifferent, rejecting, punishing mothers can cause negativistic behaviour even at an early age.

Other studies found that infants of cold mothers had a background of persistent bed wetting, feeding problems, aggression and low conscious development. Another form of deprivation which has been shown to effect emotional attachment adversely is a series of separation from a mother or substitute mother. Ballard et al. (1967) represented the "failure

to thrive syndrome a serious disorder of growth and development freuquently requiring admission to the hospital.

Roff and Knight (1981) conducted a follow-up study of individuals averaging 43.7 years of age who had adjustment difficulties as children and who had become schizophrenic in young adulthood.

Studies showing imprints of mother on child have reported :

Duckling	13 hours to 16 hours
Animals	13 hours to 16 hours
Human beings	3 weeks to 6 weeks i.e., 40 days

If mother's touch is not provided to a child, then the child feels insecure and tense

1.6.2.3 Environmental Deprivation :

The human infant, like any other organism, is not a self-contained unit. He is dependent on his environment for a wide range of material condition. Hence deprivation of these needed elements can have a lasting adverse effect. It has been observed that children or people who have not met the satisfaction of their basic needs which are essential for the intellectual, emotional and self development show a wide range of mental symptoms in later life.

1.6.2.4 Childhood Traumas :

Most of us have had at one time truamatic experience and that temporarily shatters our feelings of security, adequacy and worth. The term 'psychic-trauma' is used to describe an aversive experience. Psychic traumas in infancy or early childhood are very damaging for the following reasons :

1. Children have limited coping resources and are helpless in face of threat.
2. Conditioned responses stemming from traumatic experience may generalize to other situations.

The after effects of early traumatic experience depend heavily on support and reassurance given to the child by parents and other significant people. Many psychic traumas in childhood though highly upsetting at time, probably have minor short term consequences. It is believed that certain deviations in parenting can have profound effects on a child's subsequent ability to cope with life's challenges.

1.6.3 PATHOGENIC INTERPERSONAL RELATIONSHIPS OR PARENTAL RELATIONS :

People differ in the ability to give and receive love. Maternal and other intimate relations represent a major source of needs and fulfilment in lives of most of us. However, such relations can also have damaging effects and can cause disillusionment and trauma.

1.6.3.1 Marital Instability :

Marital instability can have a damaging effect upon the development of individual's personality. It has been observed that children of divorced parents can develop a number of mental problems. In a study by Eladrich (1964), it was observed that out of 2000 persons at

interviews, 30% Americans selected to a happy home life as their most desired goal. Unfortunately, this goal appears impossible to achieve as the divorce rate in U.S.A. is the highest in the world with one in every 3 marriages ending in divorce. Thus it is relevant to note the role of a marital instability in the development of stable personality.

1.6.3.2 Pathogenic Relationships :

There are 3 types of pathogenic relationships that seriously affect the personality of children.

(a) Fraudulent Personal Contacts :

This involves terms of relation being violated by one person in such a way as to exploit the other. Such an approach is considered fraudulent. If 'A' achieves real goal by deceit and fraud and when 'B' becomes aware of it, he is likely to resent it and the new terms of relationship are likely to prove damaging.

(b) Collusion :

In collusion, relationship is established and maintained only if partners agree to follow adoptive rules and norms and if other than choosing socially established adoptive ones, that means partners have entered into conspiracy or collusion.

(c) Discordant Interpersonal Patterns :

Serious and continued agreements and conflicts interfere with the stable relationship and such discordant interactions may result when one or both partners don't play their expected roles in relationships. The partner who is not gaining satisfaction from relations may express feeling of frustration and disillusionment in hostile ways. Such as nagging, fighting, criticizing and doing things purposefully to annoy the other person. The disagreement can be on variety of topics including sexual behaviour, financial problems, value difference, etc. Whatever the reason is such relationships are likely to be frustrating, hurtful and generally pathogenic in their effect.

1.6.4 PATHOGENIC / MALADAPTIVE FAMILY STRUCTURE :

Pathogenic type of family can be a source of mal-adjustment. The family system includes bringing up of children in a healthy environment so that certain ideals and models are presented to children. In case of pathogenic family system children fail to adopt ideal models from their parents. However, several psychologists have categorised certain families which clearly have detrimental effect on child development.

1.6.4.1. Inadequate Family :

This type of family is characterized by inability to deal with ordinary problems of family living. It lacks the resources, physical or psychological for meeting the demands. Thus, inadequate family depends heavily on outside support for dealing with their problems. Such

inadequate families develop from immaturity, lack of education and other limitations of parents. Sometimes demands are so severe that they overtax even a highly adequate family.

1.6.4.2. Disturbed Family :

We find some parents who exhibit behaviour of personal instability, interact with other people in such a way which are destructive to others as well to themselves. These types of parents are found in all socio-economic levels. They keep their home in constant emotional tension. May be they are eccentric or have abnormal personality.

Lidz et al. (1965) described 2 family patterns as cases of schizophrenic patients they studied :

(I) **Marital Schism :** Both parents are constantly engaged in deep seated conflicts.

(II) **Marital Skew :** The healthier marital partner in order to minimise disharmony, may essentially accept and support the bizarre behaviour of his/her spouse.

Langer (1974) reported that in disrupted families, children have more mental problems and these children are more afraid as compared to controlled group families. In controlled group families children don't have any fright and their development is normal.

In general, disturbed homes have been found to be associated with incidence of psychological disorder among children and adults. Landes et al. (1972) reported that parental quarrelling, conflicts and general tensions are unfortunate conditions for growing child. They represent a threat to the base of healthy personality.

1.6.4.3 Anti-Social Family:

In some families, parents are engaged in anti-social behaviour. Such anti-social values handicap marital and others family relationships. This provides undesirable models for the child. Such children learn undesirable behaviour patterns like dishonesty, cunningness, lying, etc.

1.6.4.4 Disrupted Families :

They are incomplete families whether as a result of death, separation or some other condition. A number of studies have shown the traumatic affects, divorce can have on the child. Feelings of insecurity, rejection may aggravate conflicting loyalties. Sometimes the child gets spoiled while staying with one or the other parent.

Rutter (1979) reported that delinquency and other abnormal behaviour are much frequent among children from disrupted homes it has been observed that divorce is much more traumatic for children whose homes were happy than those who come from unhappy families.

Hetherinton, Cox & Cox (1978) reported that absence of a father has detrimental effects on the formation of a secure gender identity for both boys and girls.

PATHOGENIC FAMILY PATTERNS

1.6.5 FAULTY PARENT-CHILD RELATIONSHIPS

Several types of parent child relations are harmful for the development of personality :

1.6.5.1 Rejection :

Rejection has been defined as overt behaviour towards individual leading him to believe that he is neither loved nor valued. Various forms of parental rejection are :

(a) Emphasizing child's weaknesses

(b) Physical neglect

(c) Severe punishment and rigid disciplinary action

(d) Failure to spend time with children

(e) Unfavourable comparison with siblings

(f) negative attitude like ridiculous nagging, scorn towards the child

(g) Deliberate statement that the child is unwanted.

In many phases, parents also become cruel and abusive in their treatment towards the child.

Hurley (1965) found that parental rejection was associated with reduced intelligence during the early child school years. He concluded that an unpleasant emotional climate and discouragement can inhibit the child's intellectual development and function.

Pringle (1965) found that many adults who had been rejected in childhood had serious difficulty in giving and receiving affection.

Langer et al. (1974) found parental coldness to be a casual factor. In general, research studies indicate that parental rejection tends to foster low self-esteem, feelings of insecurity and inadequacy, retarded conscience and general intellectual development, increased aggression, loneliness and inability to give and receive love.

1.6.5.2 Over-Protection and Restrictiveness :

Maternal overprotection "Momism" involves the interference in the development of child's personality. Over-protective mother may watch over children constantly, protecting them from the slightest risk, overly cloth them and medicate them.

Levy (1945) found in a study that in an experimental group of abnormally protective mothers, 5% has little in common with their husbands, and looses his spontaneity and cannot become an independent person. The child looses the ability of decision making, he becomes weak personality, stubborn, obstinate, selfish, exploiter and impatient.

Becker (1964) concluded that while restrictiveness may foster well-controlled, socialized behaviour, it also tends to nurture fear, dependency, submission, repressed part of the adolescent is a way of rebelling against severe restrictions.

1.6.5.3 Communication Failure:

Parents sometimes discourage a child from asking a question. Thus, there is no information exchange which is essential for healthy personality development. The parents help the child to develop a realistic frame of reference and essential competency. Inadequate communication attributes to social disadvantage to families who belong to low socio-economic

levels. This may be because parents are too busy in their concerns to listen to children about the conflicts and pressures they face to give the child the needed support and assistance during a traumatic situation. Many investigators believe that communication deviance has a special relevance for schizophrenia. (Carson 1992).

Alexander (1973) has reported that faulty patterns of communication have been found to be more common in the backgrounds of emotionally disturbed adolescents and young adults that in those of young people more adequately adjusted. Normal families tend to show a much higher incidence of supportive interactions and communication which tend to foster the unity of the family and well-being of the family members.

According to Laing and Esterson (1964), an even more subtle and damaging communication pattern involves contradicting or undermining the child's statements and conclusions so that he is left confused and devaluated as a person.

1.6.5.4 Undesirable Parental Models :

Since children imitate the behaviour of their parents, it is apparent that parental behaviour can have a highly beneficial or detrimental effect on a way child learns to perceive, think and act. Parents who model faulty reality will have an effect on their child who will develop the possibility to depend upon defence mechanisms in dealing with their problems. A parent who is emotionally disturbed, alcoholic or drug addict, can serve as an undesirable model and create emotional disturbances in children.

Jenkins (1966) found that half of a group of children diagnosed as "over anxious and neurotic" had mothers who were disturbed, of extreme anxiety, nervousness and related symptoms. Undesirable parental models are undoubtedly an important reason for development of delinquency, crime and other forms of mal-adaptive behaviour which tends to ruin families.

Green, Gains and Sandgrund (1974) found that child abuses tend to come from families in which they themselves had been rejected and mistreated.

Kadushin (1967) had cited a number of studies in which children coming from homes with undesirable parental models have grown up to be successful and well-adjusted adults.

1.6.5.5 Rigid and Unrealistic Moral Standards:

Extremely rigid parental values lead the child to be critical in evaluating his own behaviour. The individual blindly accepts the morale he has been taught and does not dare to evaluate against severe restrictions.

1.6.5.6 SIBLING RIVALRY :

When a child feels that more parental affection and love are directed to a brother or sister than to himself or when there is a new arrival in the family and he becomes centre of attraction, adjustment problems arise for the first child. Many times, such children threaten to kill or injure the younger one. He may kick or push them to show his anger. When a child learns that this direct and open aggression leads to further deterioration of parental affection, they adopt indirect method for complaining against that child. Such sibling jealousy and rivalry for parental affection leads to the feeling of insecurity and the elder children show regressive behaviour in an attempt to maintain central position to get their attention. The

child may resort to bed wetting, thumb sucking, nail biting and may develop feeding difficulties. Such ways are defence reactions in the form of regression. Both the hostile and regressive behaviour will disappear if the parents make him feel that the child is important and precious to them.

1.6.5.6 POSITION OF CHILD IN THE FAMILY OR ORDER OF BIRTH :

The position of a child provides him a particular personality structure. Adler, the psycho-analyst has emphasised the importance of order of birth in the personality development.

(a) Eldest Child :

For sometime, the eldest child is the only child who is subjected to faulty parents - child relationship. He may become demanding and egoistic. He is likely to be jealous of other children and his attitude usually compares with the coming of the second child. Eldest child is usually over-burdened with the demands of the parents. Being the eldest, these children are expected to perform tasks beyond their capacity. In many cases, they are required to be substitute parents for their other sibling. When they are not able to fulfil the demands of their parents, they start showing maladjusted behaviour.

(b) Youngest Child :

The youngest child is laded and dominated by other brothers and sisters who have real imaginary authority over him. Being subject to constant pressure and demand. It is devoid of many expression essential to the development of self reliance and direction. Therefore, this situation may have him to become dependent and develop feelings of inferiority.

In many instances, younger child is perplexed, spoilt and encouraged to remain rigid in his attitude and behaviour. Such children continue to depend on others for satisfaction of their needs and desires. They develop the attitude that whenever they are in difficulty, someone will come to help them and will resume the responsibility, which they are unable to do. Even as an adult, the child hesitates to make decision and especially encounter many frustrations.

(c) Intermediate Child :

This child may neither receive attention given to the eldest nor the recognition given to the youngest. Such a situation may lead to a sense of insecurity. It is aggravated when the parents fail to sense the middle child's need for status and recognition which gives him the feeling of insecurity.

(d) The only Child :

His personality is to be damaged the most. He is more dependent, he is deprived of the consonant with siblings and as they grow up, they are frequently frustrated and react with feeling of resentment and superiority. They have no competitive spirit. They don't want to share their things with others. These children are more subjected to frustration when they are to go to the school and work. They are considered to be one of average normal children.

1.6.5.7 SCHOOL RELATIONSHIP OR PEER RELATIONSHIPS :

If the home has delayed the development of self-reliance by over indulgence and excessive protection, the last few days in school may be marked by a degree of emotional

strain continuing, a serious barrier to adequate adjustment. The child has to stick to a time schedule and has to adjust himself with respect to rules which were not at home, and meet certain standards related to the school curriculum.

In addition, a child who is dependent upon parental decisions and is to participate in work and play activities in the school feels inadequate and worthless. If the child is emotionally imbalanced and has deep rooted feeling of inadequacy, the new circumstances may effect his desire to adjust among the most difficult situation.

The teacher's authority, confinement for long periods to one room and competition leads to need for affection and attention of the teachers and associates. The placement of restrictions upon a child's social and physical activities may add to the relationship with teacher resulting in tension while it may lead to maladjustment. Problems can also arise with peers due to popularity, status and invariance [Dodge (1980) and Coi (1990)].

1.6.5.8 LACK OF COMPETENCIES FOR ADULTHOOD :

During the adolescence period and early adult period, the individual requires various competencies essential for adult living for earning a living such as marriages, parenthood, citizenship and getting along with other people. Failure to achieve these competencies is an important factor of etiology of mental illness. Various types of competencies can be seen. Inadequate physical, emotional and social competency are all examples of the lack of competencies for adulthood.

1.6.5.9 INADEQUATE SELF-EVALUATION :

Ego defence mechanisms are constantly preventing us to face reality about ourselves and we make use of these defence mechanisms. Every individual gradually builds a frame of reference, i.e. set of basic assumptions concerning facts and values which provide him with meaningful picture of himself and his world. Without such a frame of reference, he would be incapable of consistent and purposeful actions. His basic assumptions may be accurate or inaccurate, conscious or unconscious, rigid or flexible. All these factors lead to faulty psychological developmental contributing, in one way or the other, to inaccuracies in love or in other ways fail to live up to our ethical or moral values. Such behaviour leads to a feeling of guilt which is extremely unpleasant and frustrating. In our society, many social prohibitions and moral attitudes centring around sex desires and hostility makes them particularly difficult to cope with.

1.6.5.10 OVER PERMISSIVENESS AND INDULGENCE :

Although it happens less commonly than is popularly supposed, sometimes one or both parents cater to the child's slightest whims and in doing so, fail to teach and reward desirable standards of behaviour. Over-indulged children are characteristically spoilt, selfish, inconsiderate and demanding.

Sear (1961) found that high permissiveness and low punishment in the home were correlated positively with anti-social, aggressive behaviour, particularly during middle and later childhood.

Over-indulged children also tend to be impatient, to approach problems in an aggressive and demanding manner', and find it difficult to accept present frustrations in the interests of long range goals.

Unlike rejected emotionally deprived children, who often find it difficult to enter into warm interpersonal relationship, indulged children enter readily into such relationship but exploit people for their own purpose in the same way they have learned to exploit their parents. In dealing with authority, such children are usually rebellious since, for so long, they have had their own way and distortions in the individual's view of himself or the view on which adjustive reactions are based. If he makes miscalculations, it may lead to failure and self devaluation. This is especially true when he over-estimates or under-estimates either his ability or the opportunity. The psychological factors are very important for the development of mental abnormality. They are psychological stressors temporarily unnerve the response and thereby they can contribute to physical illness. Mental patients suffer from severe self devaluation. There are three sources of devaluation :

(a) Failure :

In our highly competitive society individually many of us fail to achieve the goals that we set for ourselves. These aspirations are in contrast to our ego ideals, i.e., what we want to be, and when we fail to attain the wanted goals, feeling of failure is intensified giving rise to insecurity and inferiority.

(b) Status Comparison :

Only few of us attain the personal status that we wanted to live. Our job, homes or the material possessions may not be according to the aspirations. We always dream of becoming very wealthy, very famous or genius. We spend a good time comparing our possessions with others which may lead to self devaluation in comparison to others.

(c) Feeling of Guilt :

It is one of the main sources of self-devaluation and may lead to engaging ourselves in immoral, sexual behaviour, showing selfishness and hostility, etc.

1.6.5.11 UNREALISTIC DEMANDS :

Some parents place excessive pressure on their children to live up to unrealistically 'high' standards. Thus, they may be expected to excel in school and other activities where the child has the capacity for exceptionally high level performance, things may work out, but even here, the child may be under such sustained pressure that little room is left for spontaneity or development as an independent person.

However, the child is never able to quite live up to parental expectations and demands. Even if he tries hard and he fails, he seems to fail in the eyes of his parents and ultimately in his own eyes as well. This results in painful frustration and self-devaluation.

Cooper Smith (1966) has shown that high parental expectations are both common and helpful for the child's development. Yet, such expectations need to be realistic, and to take into consideration the capabilities and temperament of each child.

The child who accepts these kind of rigid parental standards is likely to develop a rigid and restricted personality and to face many guilt-arousing, and self-devaluating conflicts.

Thus, we can see that unrealistic expectations and demands - either too high, too low or distorted and rigid - can be important causes of faulty development and maladjustment.

1.6.5.12 FAULTY DISCIPLINE :

Parents have been particularly confused during recent years about appropriate forms of discipline. In some cases, parents have restored to excessively harsh discipline, convinced that if they "spare the rod", they will spoil the child. And in still other cases, parents have seemed to lack general guidelines, punishing children one day and ignoring or even rewarding them the next for doing the same or similar things.

Lack of discipline tends to produce a spoiled, inconsistent anti-social, aggressive child and an insecure one as well. On the other hand, overly severe or harsh discipline may have a variety of harmful effect including fear, and hatred for the punishing person, little initiative or spontaneity and unfriendly feelings towards others.

Eroln et al. (1964), and Steinmetz and Straus (1963) have reported that when severe discipline takes the form of physical punishment towards the child for breaking rules rather than the withdrawal of approval, the result tends to be increased aggressive behaviour on the part of the child.

Deur and Parke (1960) found that children with a history of inconsistent reward and punishment for aggressive behaviour were more to punishment and to the extinction of their aggressive behaviour than the children who had experienced more consistent discipline.

1.6.5.13 EARLY PSYCHIC TRAUMA :

Most of us have had traumatic experience that temporarily shattered our feelings of security, adequacy and worth and were important in influencing our later evaluation of ourselves and our environment. Traumas leave psychological wound that never completely heal. In general, early traumas seem to have more far reaching consequences than later ones, largely because critical evaluation, reflection and self-defenses are not yet well-developed in children. During adolescence and adulthood, however, a traumatic experience may actually tend to immunize the individual to a similar later experience by making it a familiar phenomenon earlier having been perceived, the individual has seen it in the perspective of some known experience and self-defenses have been developed.

1.6.5.14 SEVERE STRESS :

The various causes of abnormal behaviour we have discussed such as psychic trauma and marital difficulties - are also sources of severe stress. In addition, there are certain other common sources of stress in our society which are directly relevant to understanding mal-adaptive behaviour.

In contemporary life, there are a number of frustrations that lead to self-devaluation and hence, are particularly difficult to cope with. Among them are failure, losses, personal limitations and lack of resources.

1.6.6 INTRODUCTION TO SOCIOCULTURAL FACTORS

Studies have made it clear that there is a relationship between socio-cultural conditions and mental disorders that typically occur in a given culture. Further, studies showed that the patterns of both physical and mental disorders in a given society could change overtime as socio-cultural conditions changed. These discoveries have added another dimension to modern perspective regarding the abnormal behaviour.

It is generally recognized that the more severe types of mental disorders described in Western Psychology are found and considered maladaptive in societies throughout the world. When people become so mentally disordered that they can no longer control their behaviour, perform their expected roles, or even survive without special care then their behaviour is considered abnormal in any society.

Research supports the view that many psychological disturbances are universal, appearing in most cultures studies (Alissa, 1982), For e.g., incidence and symptoms of schizophrenia are found amongst all people, but recent studies have shown certain psychological symptoms consistently found among similarly diagnosed clinical groups in other countries in Turkey by Savacir & Erol (1990), in China by Cheung & Sons (1989).

Although some universal symptoms appear, cultural factors do affect abnormal behaviour. Human biology does not operate in a vacuum; cultural demands serve as casual factors and modifying influences in psychology. Socio-cultural factors often create stress for an individual (Alissa, 1982). For example, children growing up in an oppressive society that offers few rewards and many hassles are likely to experience more stress and thus be more vulnerable to disorder than children growing up in a society that offers ample rewards and considerable social support. In addition, growing up during a period of great fear, such as a period of persecution, war, famine, draught, can make a child vulnerable to psychological problems.

In an example, Klienman (1986) traced the different ways that Chinese people deal with stress as compared with Westerners. He found that in Western societies, depression was a frequent reaction to individual stress. In China, relatively low rate of depression is reported instead. Effects of stress were worse, typically manifested in physical problems such as fatigue, weakness and other complications. In Thailand, adults are highly intolerant of behaviour such as aggression, disobedience and disrespectful acts in their children. Children are taught to be polite and to inhibit any expression of anger.

These studies indicate the prevalence of certain psychological problems in different cultures. Stressful Socio-Cultural environment is responsible for various mental disorders.

1.6.7 THE SOCIO-CULTURAL ENVIRONMENT

As an individual has biological inheritance similarly he receives a socio-cultural inheritance. Because each group fosters its own cultural patterns by systematically teaching

its offspring, all its members tend to be somewhat alike. Children reared among headhunters became headhunters; children reared in societies that do not sanction violence learn to settle their differences in nonviolent ways. Thus in a society characterized by a limited and consistent point of view there are not the wide individual differences.

Subgroups within a general socio-cultural environment such as family, sex, age, class, occupational, ethnic, and religious groups - foster beliefs and norms of their own, largely by means of social roles that their members learn to adopt. When social roles are conflicting, unclear, or uncomfortable, when an individual is unable to achieve a satisfactory role in a group, healthy personality development may be impaired.

1.6.8 PATHOGENIC SOCIETAL INFLUENCES

There are many sources of pathogenic social influences some of which stem from socio-economic factors and others from socio-cultural factors regarding role expectations and the destructive forces of prejudice and discrimination.

1.6.9 DISORDER-ENGENDERRING SOCIAL ROLES :

Sometimes even an advanced society asks its members to perform roles in which the prescribed behaviors either are deviant themselves or may produce maladaptive reactions. Soldiers are ordered by the superiors to deliberately kill and maim other human beings may subsequently develop serious feelings of guilt.

1.6.10 SOCIAL CHANGE AND UNCERTAINITY :

The rate and pervasiveness of change is very high in todays world. Everything is changing and all aspects of our life are getting affected our job, education, beliefs and values. Constantly we are trying to adjust to these changes and hence results into stress. Even the environmental changes like pollution, global warming and epidemics are also stressful and results upto despair and sense of hopelessness.

1.6.11 STATUS AND UNEMPLOYMENT

Some researchers (Kessler et al., 1994) have found the correlation between socio-economic status (SES) and the prevalence of abnormal behaviour - the lower the socio-economic class, the higher the incidence of abnormal behaviour. Anti-social personality disorder is strongly related to social class i.e. it occurs three times the rate in the lowest income category as in the highest income category. Depression is more prevalent in higher income social class.

Unemployment has an adverse effect on the mental as well as physical health of an individual.

1.6.12 PREJUDICE AND DISCRIMINATION IN RACE, GENDER AND CULTURE

It has been noted that women as compared to men are more prone to suffer from emotional disorders mental health professionals believe this is a consequence both of the vulnerabilities (such as passivity and dependence) intrinsic to the tradition cope (being full time mothers, full time homemakers, and full time employees) as their traditional roles rapidly change. In every society, vast number of people are subjected to demoralizing stereo types

and overt discrimination in areas such as employment, education and housing. Prejudice against any ethnic or racial group results into mental disorder in that discriminated group.

1.6.13 Let us sum up

It is reported that there is good evidence on the importance of psychosocial influences on psychopathology in general, although less known about the specific risk and protective mechanisms. Maltreatment in childhood and in adulthood, including sexual abuse, physical abuse, emotional abuse, domestic violence and bullying, has been linked to the development of mental disorders, through a complex interaction of societal, family, psychological and biological factors. Negative or stressful life events more generally have been implicated in the development of a range of disorders, including mood and anxiety disorders. The main risks appear to be from a cumulative combination of such experiences over time, although exposure to a single major trauma can sometimes lead to psychopathology, including PTSD. Resilience to such experiences varies, and a person may be resistant to some forms of experience but susceptible to others. Features associated with variations in resilience include genetic vulnerability, temperamental characteristics, cognitive set, coping patterns, and other experiences.

Relationship issues have been consistently linked to the development of mental disorders, with continuing debate on the relative importance of the home environment or work/school and peer group. Issues with parenting skills or parental depression or other problems may be a risk factor. Parental divorce appears to increase risk, perhaps only if there is family discord or disorganization, although a warm supportive relationship with one parent may compensate. Details of infant feeding, weaning, toilet training etc. do not appear to be importantly linked to psychopathology. Early social deprivation, or lack of ongoing, harmonious, secure, committed relationships, have been implicated in the development of mental disorders.

Problems in communities or cultures, including poverty, unemployment or underemployment, lack of social cohesion, and migration, have been implicated in the development of mental disorders. Stresses and strains related to socioeconomic position (socioeconomic status (SES) or social class) have been linked to the occurrence of major mental disorders, with a lower or more insecure educational, occupational, economic or social position generally linked to more mental disorders. There have been mixed findings on the nature of the links and on the extent to which pre-existing personal characteristics influence the links. Both personal resources and community factors have been implicated, as well as interactions between individual-level and regional-level income levels. The causal role of different socioeconomic factors may vary by country. Socioeconomic deprivation in neighborhoods can cause worse mental health, even after accounting for genetic factors. In addition, minority ethnic groups, including first or second-generation immigrants, have been found to be at greater risk for developing mental disorders, which has been attributed to various kinds of life insecurities and disadvantages, including racism. The direction of causality is sometimes unclear, and alternative hypotheses such as the Drift Hypothesis sometimes need to be discounted.

Mental disorders have also been linked to the overarching social, economic and cultural system. A value system that promotes individualism, weakens social ties, and creates ambivalence towards children, is being spread or imposed via globalisation, could adversely affect children's mental health.

1.6.14 Keywords

1. Environmental Deprivation :

The human infant, like any other organism, is not a self-contained unit. He is dependent on his environment for a wide range of material condition. Hence deprivation of these needed elements can have a lasting adverse effect. It has been observed that children or people who have not met the satisfaction of their basic needs which are essential for the intellectual, emotional and self development show a wide range of mental symptoms in later life.

2. Collusion :

In collusion, relationship is established and maintained only if partners agree to follow adoptive rules and norms and if other than choosing socially established adoptive ones, that means partners have entered into conspiracy or collusion.

3. Faulty discipline:

Parents have been particularly confused during recent years about appropriate forms of discipline. In some cases, parents have restored to excessively harsh discipline, convinced that if they "spare the rod", they will spoil the child. And in still other cases, parents have seemed to lack general guidelines, punishing children one day and ignoring or even rewarding them the next for doing the same or similar things.

4. Sibling rivalry :

When a child feels that more parental affection and love are directed to a brother or sister than to himself or when there is a new arrival in the family and he becomes centre of attraction, adjustment problems arise for the first child. Many times, such children threaten to kill or injure the younger one. He may kick or push them to show his anger.

1.6.15 Exercise

Q.1. Write a detailed note on the role of psychological factors leading to abnormal behaviour.

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Q.2. Explain the pathogenic family structure in reference to the development of abnormal behaviour in children.

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Q.3 Explain the role of sociocultural factors in causing abnormal behaviour.

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Q.4. How socioeconomic status and poverty affects the psychological state of an individual.

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1.6.14 REFERENCES

1. Carson & Butcher : Abnormal Psychology and Modern Life
2. Coleman : Abnormal Psychology and Modern Life
3. Sarason & Sarason : Abnormal Psychology the Problem of Maladaptive Behaviour

4. *On line sources*

http://www.princeton.edu

http://www.cliffsnotes.com

http://www.psychologyfacts.blogspot.com

http://en.wikipedia.org/wiki/causes_of_mental disorders

B.A. PART-III
(SEMESTER-V)

PSYCHOLOGY
PSYCHOPATHOLOGY

UNITII

LESSON NO. :

2.1 Stress: Causes, Selyes (GAS);

2.2 Psychophysiological Disorders: Etiology and Prevention of Hypertension

2.3 Psychophysiological Disorders: Etiology and Prevention of Asthma and Ulcers

2.4 Correlation: Nature and Characteristics

2.5 Types of Correlation: Product Moment and Rank Order

2.6 t-Test

NOTE :

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B.A. Part-III *Psychology*

Abnormal Psychology

Lesson No. : 2.1 *Writer: Dr. Naina Sharma*

Stress: Nature, Categories of Stressors and Causes of Stress

Lesson Structure

2.1.0 OBJECTIVES

This lesson provides an introduction to the concept of stress. We shall discussthe nature of stress, stressors, eustress and distress.

By the end of this lesson you should be able to

. Explain the nature of stress and the categories of stressors.

- Identify the factors predisposing a person to stress.
- Examine the reactions to stress.

2.1.1 INTRODUCTION

In the previous lessons we have studied various view points of abnormal behavior and the underlying causes of abnormal behavior and found that the subjective well being and homeostasis is essential for the normal functioning of an individual. In this lesson the emphasis is on "Stress" and "Stressors". The term stress has been used to refer both to the adjustive demands placed onan organism and to the organisms internal biological and psychological responsesto such demands. Adjustive demands are referred as stressors, the effectsthey create within an organism is referred as stress and the effort to deal with stress and coping strategies.

2.1.2 Stress

Stress is a negative emotional experience accompanied by behavioral, biochemical and physiological changes that are related to perceived acute or chronic challenges. According to Neufeld (1990), stress is a by product of poor or inadequate coping. Hence stress and coping is interdependent. Different people have different physical and psychological reactions to the same event as stressful, whereas others simply take it in stride.

All situations, positive and negative, that require adjustment can be stressful. According to Hans Selye(1956, 1976 a) – stress is eustress when positive and distress when negative stress; during a wedding would be eustress and during failure would be distress.

2.1.3 Categories of Stressors

Stressors are the activators of stress. There are wide ranges of stimuli that can potentially produce stress. Stressors have various characteristics.

a) They are intense in nature that is they produce a state of overload - we fail to adapt to them.

b) They evoke incompatible tendencies in us, such as tendencies both to approach and to avoid some object or activity.

c) They are uncontrollable- beyond our limits to control.

The above characteristics suggest three basic categories of stressors i.e., frustrations, conflicts and pressures.

2.1.3.1 Frustration: When an individual's goals, desires or strivings are thwarted it results into frustration. The obstacles can be both environmental and internal. Some common examples of environmental obstacles are discrimination, death of a loved one, group prejudice etc. Physical handicaps, lack of needed competencies, and inadequate self- control are sources of frustration that can result from our own personal limitations.

The frustrations we face depend heavily on such factors as age and other

personal characteristics, our specific life situation and the society in whichwe live.

2.1.3.2 Conflict:

In many situations the stress stems out of the necessity of choosing between two needs or goals. The choice of one alternative means frustration with regard to the other. Conflict can be classified into three types.

1. *Approach- avoidance conflicts:*

This type of conflict involves strong tendencies both to approach and to avoid the same goal. A student may want to pursue his studies in USA but is scared of leaving his family in India.

2. *Double- approach conflict:*

It involves competition between two or more desirable goals. For e.g. a person has to choose one invitation out of two on the same day. To a large extent, such simple "plus-plus" conflicts result from the inevitable limitations in ones time, space, energy and personal and financial resources- and are handled in stride.

3. *Avoidance-Avoidance Conflict:*

It is a choice between two undesirable alternatives, like caught between the devil and deep sea. A student for example has to choose preparing a project he intensely dislikes or quitting and being called a failure.

2.1.3.3 Pressure

Stress may stem not only from frustrations and conflicts but also from pressure to achieve particular goals or to behave in particular ways. Such pressures may originate from external or internal sources. A student may feel severe stress because of the pressure from parents to get good grades. In general pressure forces a person to speed up, intensify of change the direction of goal oriented behavior. In certain situations pressure seriously tax our adjustive resources and if they become excessive, they may lead to a breakdown of organized behavior.

2.1.4 Causes of Stress

There are wide range of factors that contribute to stress. Among the most important of these are major stressful life events, such as the death of a loved one or a painful divorce; minor hassles of everyday life; work related stress and certain aspects of the physical environment.

Stressful life events:

Death of a spouse, injury to one's child, war, failure in school or at work makes us experience traumatic changes at some time or other. The greater the number of stressful life events experienced by an individual and the longer these events are in duration, the greater the likelihood that the person's subsequent health will be adversely affected.

2.1.4.1The Hassles of Daily Life:

Daily life is filled with countless minor annoying sources of stress- termed hassles- that seem to make up for their relatively low intensity by their much higher frequency. According to Folkman & Lazarus 1988, their daily hassles are the important cause of stress. The more stress people report asa result of daily hassles, the poorer their psychological well being.

2.1.4.2 Work related stress:

The jobs or careers are a central source of stress. Several factors produce stress at the work settings for e.g.: discrimination, extreme overload or under load, role conflict and performance appraisals.

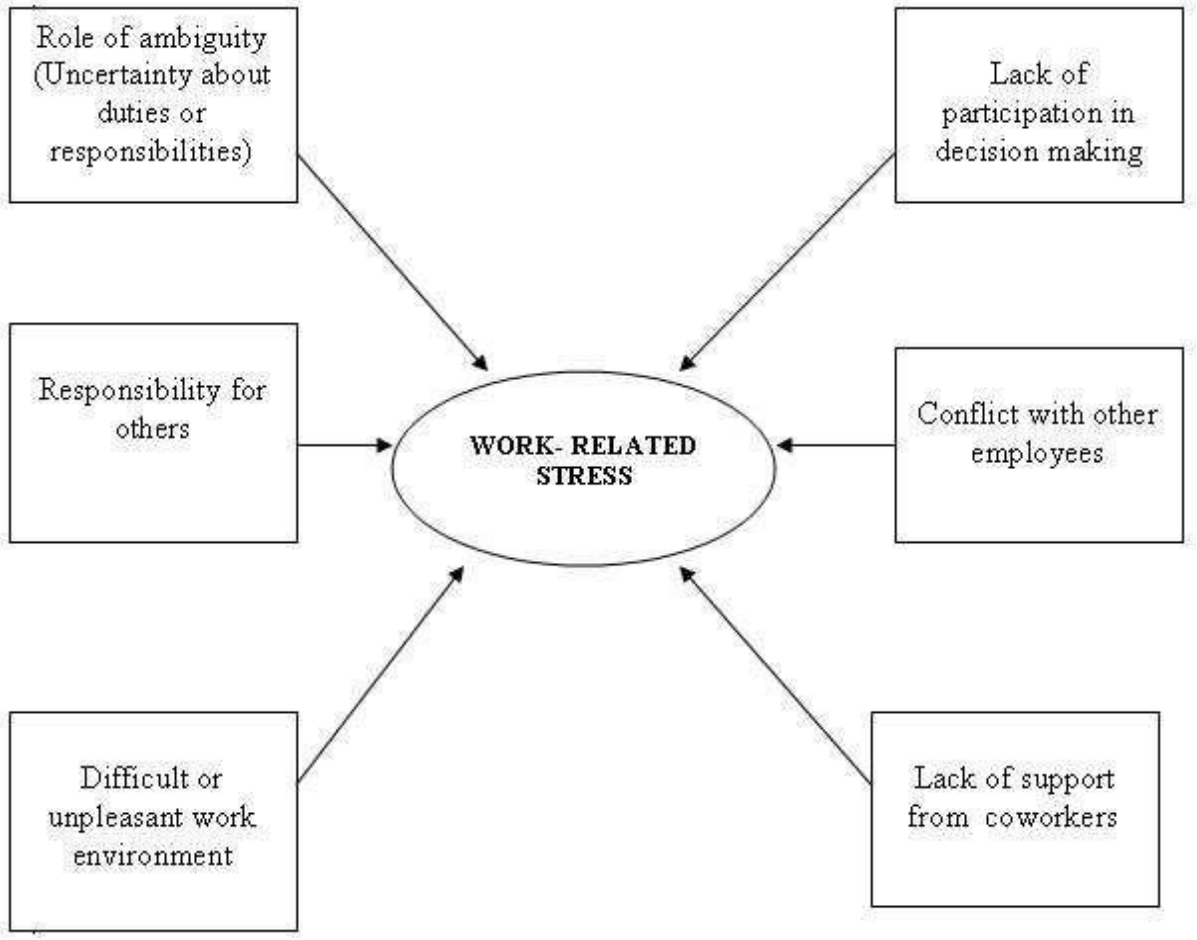


Fig. 2.1.4.3 : Indicates the sources of Work- Related Stress

Environmental sources of stress:

Natural events or disasters like tsunami, hurricane, floods, and draughts

can be highly stressful. The survivors of these devastating events often experience the severe psychological aftermath termed posttraumatic stress disorder.

2.1.5 Factors Predisposing a Person to Stress:

The severity of stress is gauged by the degree of disruption in the humansystem that will occur if the individual fails to cope with the adjustive demand. On a psychological level the severity of the stress depends not only on the nature of the stress and individuals resources- both personal and situational- but also on how the stress situation is perceived and evaluated. The factors predisposing a person to stress can be categorized into three headings.

(a) Characteristics of the adjustive demands.
(b) Characteristics of the individual
(c) External resources & support.

(a) Characteristics of the adjustive demands: An individual is more stressed if the stressor occurs for a prolonged time (duration) for e.g. chronic illness. Another factor is multiplicity of stressors. If an individual is stressed because of a loss of job and simultaneously he finds his wife is diagnosed to have cancer, his resources to adjust will exhaust because of culminating effect of stressors.

Often new adjustive demands that have not been anticipated and with no ready made coping patterns are available will place an individual under severe stress.

(b) Characteristics of the individual: The situation that one person finds highly stressful may be only mildly stressful or even non stressful for another. The difference in results is because of the individual differences in the perception of the problem, anticipation of the harm and stress tolerance of the individual. The individuals who are optimisticin life are better at making adjustments to the demands put by the stressor in comparison to pessimistic people.

(c) External resources and support: Family support or friends support greatly enhances the individual's capacity to adjust and cope with the threatening life situations. One of the chief modes of adjustment for a stressed individual is to seek emotional or instrumental support. So the individual who lacks the external support is more vulnerable to stress.

2.1.6 Some Psychological, Bodily and Behavioral Reactions to Stress

1. Psychological Responses
   . Feeling Upset
   . Inability to concentrate
   . Irritability

- Loss of self-confidence
- Worry
- Difficulty in making decisions
- Racing thoughts
- Absent mindedness.

2. *Bodily Responses:*

- Rapid pulse
- Pounding heart
- Increasing perspiration
- Tensing of arm and leg muscles
- Shortness of breath
- Gritting of teeth

3. *Behavioral Responses:*

- Deterioration in performance effectiveness
- Smoking and use of alcohol or other recreational drugs.
- Accident proneness
- Nervous mannerisms
- Increased or decreased eating
- Increased or decreased sleeping

2.1.7 Clinical Reaction to Stress

Stress plays a role in most of the conditions that make up abnormal psychology. Stress disorders that require clinical attentions are pathological because they go beyond expected, normal emotional and cognitive reactions to severe personal challenges.

According to DSM IV TR stress results into maladaptive behavior if the coping mechanism is not appropriate. This can result into three types of clinical disorders.

Adjustment disorders : A person with an adjustment disorder is someone who has not adapted as well as the average personto one or more stressors that have occurred in the previous three months.

Acute stress disorder: Stress disorder stems out of facing or experiencing extremely traumatic stressors. Acute stress disorder is marked by the symptoms of dissociation that include a subjective sense of numbness, detachment and absence of emotional responsiveness.

Dissociative Disorder: In dissociation there is a breakdown or fragmentation in the coherence of mental life; one group of mental processes seems to become separated from the rest.

2.1.8 Treating Stress- Related Problems:

There are a wide range of therapies for the treatment of stress- related disorders. The treatment is decided with respect to the individual factors and the type of the stressors.

. Supportive Therapy: In supportive therapy the therapist provides acceptance and motivates the client to indulge in effective problem solving behavior. The approach of the therapist is non critical towards his client.

. Medications: Medications are generally followed by some psychotherapy as drugs relieve the individual's nervous system and the individual temporarily feels relaxed.

. Cognitive Modifications: In this therapy the client is made to restructure or redefine the anxiety producing situation in a different way i.e., in a more positive way.

. Relaxation Training and Systematic Desensitization are other stress reducing therapies.

2.1.9 Selyes GAS (General Adaptation Syndrome)

The two sides of stress

Before we study about various coping skills/styles its important to discuss the two sides of stress.

Selye's GAS (General Adaptation Syndrome) model provides a framework for understanding how stress affects us physically. Hans Selye has explained the physiological response to stressors in a sequence of three stages.

Stage I: During the alarm stage the body prepares itself for immediate action; arousal of the sympathetic nervous system releases hormones that help to prepare our body to meet threats or dangers.

Stage II: During the resistance stage the body draws on resources at an above- normal rate to cope with a prolonged stressor.

Stage III: During the exhaustion stage the body's capacity to cope with stress is depleted and susceptibility to illness increases dramatically.

The Cognitive Side of Stress

Same stressors has a different effect on different individuals i.e., when confronted with the same potentially stress inducing situation; some persons experience stress, whereas others do not. The reason is that individuals differ in their perceptions. In simple terms, the stress occurs only to the extent that the persons involved perceive it.

The cognitive appraisal model illustrates how our interpretation of

potentially stressful events greatly affects our reactions to them.

Primary appraisal addresses the following questions. How threatening is a potentially stressful event?

. If the event is not perceived as threatening, then we experience no stress.

. I f the event is perceived as threatening, and then we engage in secondary appraisal of the situation.

Secondary appraisal addresses the following questions: Given that an event is viewed as a threat, do we have the resources to cope withit effectively?

. If the answer is yes, we do not experience stress.

. If the answer is no, we experience stress.

The coping skills that people adopt largely depend on the cognitive appraisal of the stressor; it influences how much stress they feel and how well they cope with it.

Task Oriented Reactions

In coping with stress, a person is confronted with two problems.

(a) To meet the requirements of the adjustive demand.

(b) To protect the self from psychological damage and disorganization. When the person feels competent to handle a stress situation,his behavior tends to be task oriented- that is aimed primarilyat dealing with the requirements of the adjustive demands.

Task – oriented reactions may involve making changes in one's self or one's surroundings or both, depending on the situation. The task oriented reactions can be classified as attack, withdrawl and compromise.

Attack: In attack behavior; the individual tries to remove or surmount obstacles to his goals. Attack behavior may be destructiveas well as constructive; they range from obvious actions; such as physical assault or learning new skills, to subtle means such as patience or passive resistance.

Withdrawl: Attack and withdrawal- fight and flight are fundamental forms of coping with stress found in all animals. Withdrawal serves to remove the organism from dangerous situations it cannot overcome.In addition to withdrawing from danger physically, the individual may withdraw in various psychological ways- for example by admitting defeat, avoiding certain types of adjustive demands, or reducing emotional involvement in a situation and becoming apathetic.

Compromise: Compromise entail changing one's method of operation, accepting substitute goals, or working out some sort of accommodation

in which one settles for part or what was initially wanted.

Defense-Oriented reactions:

In defense-oriented response the behavior is directed primarily at protecting the self from hurt and disorganization, rather than at resolving the situations. There are two common types of defense oriented responses. The first consists of responses such as crying, repetitive talking and mourning that seem to function as psychological damage- repair mechanisms. The second type consists of the ego defense mechanisms. These mechanisms relieve tension and anxiety and protect the self from hurt and devaluation. There are many ego- defense mechanisms; we shall discuss only those that seem immediately relevant to an understanding of abnormal behavior.

Denial: This is the simplest and most primitive of all self- defense mechanisms. In this the individual simply refuses to accept the reality for e.g., during the death of a loved one, an individual may experience the feeling that "This isn't really happening to me". This mechanism temporarily relieves from the full impact of the traumatic situation.

Repression: This is a defense mechanism by means of which threatening or painful thoughts and desires are excluded from consciousness. It is often referred to as "selective forgetting." Repression may also help the individual to control dangerous and unacceptable desires.

Rationalization: Rationalization involves thinking up logically, socially approved reasons for past, present, or proposed behaviors. For

e.g. the child may state the role of teachers prejudice in securing low grades. Rationalization is often used to soften the disappointment of thwarted desires.

Projection: Projection is a defense reaction by means of which (a) others are seen as responsible for one's own shortcomings, mistakes and misdeeds and (b) others are seen as responsible for ones unacceptable impulses, thoughts, and desires.

In projective reactions, the individual attributes his own unacceptable desires and thoughts to others.

Reaction Formation : Sometimes an individual protects himself from dangerous desires by not repressing them but by developing conscious attitudes and behavior patterns that are just the opposite.For e.g. an alcoholic may indulge into protest and slogans for banning liquor in the state.

Displacement: In this type of the reaction there is a shift of emotions or symbolic meaning from a person or object towards which it was originally directed to another person or object. For e.g. a wife may displace the hostility around because of some trifle with husband by

rebuking her children. It means the anger is taken out on a safer object and hence venting out emotions.

Regression: Regression is a defense mechanism in which one returns to the use of reactions patterns long since outgrown. When a new addition to the family has seemingly undermined his status, a little boy may revert to bed- wetting and other infantile behavior that one brought him parental attention.

Evaluation: These defense mechanisms are essential for softening failure, alleviating anxiety and hurt and protecting ones feelings of adequacy and worth, we may consider them to the normal adjustive reactions unless they seriously interfere with the effective resolution of stress situations.

Individual Differences in Coping:

There are individual differences in coping behavior; one factor is the optimism and pessimism dimension. Optimists focus on problem focused coping: making and enacting specific plans for dealing with sources of stress. In contrast pessimist people indulge into escaping the stressful situation may be by giving up their goals.

Research indicates that female adopt more of emotions focused coping and men engage in problem focused coping skills.

Hardiness: is another factor which distinguishes people in their coping styles. Hardiness refers to cluster of characteristics. Hardy persons, those who are relatively stress- resistant, seem to differ from others in three respects. First they show higher levels of commitment- deeper involvement in whatever they do and stronger tendencies to perceive such activities as worth doing. Second, they tend to view change as a challenge and thirdly hardy persons have a stronger sense of control over events in their lives and over the outcomes they experience.

Apart from the inner factors such as a person's frame of reference, motives, abilities or stress tolerance- determine his or her coping strategies certain environmental conditions also play vital role in this mechanism.

Decompensation under excessive stress

Stressors challenge a person's adaptive resources, bringing into play both task and defense-oriented reactions. When stressors are severe, however, a person may not be able to adapt and may experience lowered integrated functioning and eventually, a breakdown. This lowering of adaptive functioning is referred to as decompensation.

2.1.11THE EFFECTS OF SEVERE STRESS

Stress can be damaging, if certain demands are too severe for our coping resources. Severe stress can extract a high cost in terms of lowered efficiency,

wear and tear on the system, and in extreme cases, severe personality and physical deterioration-even death.

(a) Lowering of Adaptive Efficiency

On a physical level, severe stress may result in alternations that can impair the body's ability to fight of invading bacteria and viruses. On a psychological level, the perception of threat leads to an increasingly narrow perceptual field and rigid cognitive process. It thus, becomes difficult for the person to see the situation objectively or to perceive the alternatives actually available. This process often appears to be a part of suicidal behavior.

(b) Depletion of Adaptive Resources:

In using its resources to meet one severe stressor an organism may suffer a lowering of tolerance for other stressors. In general, several or sustained stress on any level leads to a serious reduction in an organism's overall adaptive capacity.

(c) Wear and Tear on the system:

When pressure is severe and long-lasting, adjustment problems such as excessive worry may become chronic, and eventually lead to physical changes such as high blood pressure).

2.1.12 **Summary**

Stress can arise either from specific situation or from daily hassles of life. Stress can have undesirable effects on behavior, thought and bodily functioning. Different people react to stressors in different ways and the effect of stressors on different people is varied depending upon objective or subjective factors. Among the disorders that seem most related to stress are adjustment disorders, acute stress disorders and dissociate disorders. A variety of approaches are used either alone or in combination to treat stress- related disorders.Coping can be classified into two categories i.e. task Oriented and defence mechanism. When the individual tends to adjust to the stressorit involves task oriented coping and when individual feels that the stressoris beyond his resources to cope with, he tries to save his ego from being hurt and indulges into ego defense mechanisms. There are individual differences in coping with the same type of a stresor.

2.1.13 Keywords

Frustration

When an individual's goals, desires or strivings are thwarted it results into frustration. The obstacles can be both environmental and internal. Some common examples of obstacles are discrimination, death of a loved one, group prejudice, inadequade self control and physical handicaps etc.

Avoidance-Avoidance Conflict

It is a choice between two undesirable alternatives, like caught between the devil and the deep sea. A student for example has to choose preparing a project he intensely dislikes or quitting and being called a failure.

Adjustment disorders

A person with an adjustment disorder is someone who has not adopted aswell as the average person to one or more stressors that have occured in the previous three months.

Supportive Therapy

In supportive therapy the therapist provides acceptance and motivates the client to indulge in effective problem solving behaviour. The approach of the therapist is non critical towards his client.

Hardiness

It refers to cluster of characteristics. Hardy persons are relatively stress resistant, seem to differ from others in three respects i.e. higher levels of commitment, deeper involvement and stronger tendencies to perceive tasks as worth doing.

2.1.14 **Exercise**

Q: Write a note on task-oriented coping skills.

Q: What is Defense Mechanism? Explain the various types of DefenceMechanisms.

Q: Explain the role of cognitive appraisal in coping.

Q Discuss selyes Model of GAS.

Write short notes on the following;

Eustress; Burnout; Primary Appraisal; Denial; Appraoch-Avoidance conflict.

2.1.15 **References**

1. Carson and Butcher : Abnormal Psychology Modern Life.

2. Sarason and Sarason: Abnormal Psychology : The Problem Maladaptive behaviours

LESSON NO. 2.2 **LAST UPDATED JANUARY 2023**

PSYCHO-PHYSIOLOGICAL DISORDERS: ETIOLOGY AND PREVENTION OF HYPERTENSION

2.2.0 Objective

In this lesson, we will discuss how psychological factors can cause physical disorders. This is an important topic because psychological factors influence various serious physical disorders. Among these are heart attacks, high blood pressure, strokes, headaches, hypertension, asthma, muscle and joint pain, etc. the primary focus of this chapter would

be on the etiology and prevention of Hypertension. Ulcers and asthma would be discussed in detail in the next lesson.

1

2.2.1 Introduction

Psycho-Physiological disorders are categorized under mental disturbance that arise from psychological problems which are manifested through physical symptoms. However, these physical symptoms cannot be traced back to any serious physical disease or any origin. Nor are they under the conscious control of the patient.

Psycho-Physiological disorder is a physical disease which is thought to be caused or made worse by psychological factors. Some physical diseases are thought to be particularly prone by some psychological conditions like stress and anxieties.

Psycho-Physiological disorders are also called 'Psychosomatic disorders', which means that the mind is adversely affecting the body. According to American Psychiatric Association, Psycho-Physiological disorders are characterized by physical symptoms that are caused by emotional factors and involve a single organ system, usually under the control of the autonomic nervous system.

2.2.2 A brief history of the disorders:

Physicians have been aware that people's mental and emotional states influence their physical well being since the time of Hippocrates (460-311 B.C.). Hein Rotn first used the word 'psychosomatic', applying it to problems of insomnia. In the twentieth century, the discoveries of psychologists have shed new light on how the mind and body interact to produce health and illness. Sigmund Freud introduced the idea that unconscious thought can be converted into physical symptoms. The formal study of psychosomatic illness began in Europe. Cannon showed how different emotions produce pattern of physiological alternation, emphasizing the importance of the autonomic nervous system. It is also known that certain inherited traits respond differently to certain stimuli like stress and anxiety causing physical system break down. In the 3950's stress became the focus in psychosomatic, the main promoter of the idea being Hans Selye. Later on the environment and social models were combined with the one of the major life changes and social stress. It is a well known fact that psychological and social factors exert an influence over bowel and gastric dysfunctions, mainly peptic ulcers and irritable bowel syndrome, thus the bio-psychosocial model has been considered while understanding these diseases.

Sometime the term psychosomatic disorders is used when psychological factors cause physical symptoms, but where there is no real physical disease, these kinds of disorder should be called as somatoform disorders. Thus, we should distinguish between the Psycho-Physiological disorders and somatoform disorder. In somatoform disorders, psychological factors cause symptoms of physical disorders but there is no actual physical disorder (i.e. No tissue damage). On the other hand, in Psycho-Physiological disorders, psychological factors lead to real physical disorders. For example, prolonged psychological stress can cause the production of excess acid in the stomach, and the acid in turn cause ulcer (holes in the walls of the stomach).

2.2.3 Three important points about Psycho-Physiological disorders

Three important points must be remembered about Psycho-Physiological disorders:

1. A Psycho-Physiological disorder is a real disease that harms the body. The fact that such disorders are believed to be due to emotional factors does not make the disease imaginary.

2. Psycho-Physiological disorders must be distinguished from somatoform or hysterical disorders. The difference has been mention in previous section.
3. We should stress that the disorders termed "Psycho-Physiological" are not always due to emotional distress. E.g. Asthma is called a Psycho-Physiological disorder, but psychological factors are thought to be the primary cause in only 34% of all cases (Rees, 3964). Thus, these diseases may also have physical origin, but can be an outcome of psychological processes.

We have been using terms "Psychosomatic or Psycho-Physiological disorders" for the physical diseases that are influenced by psychological factors, but the American Psychiatric Association's Diagnostic and Statistical manual of mental disorders (DSM-IV) labels psychosomatic illness as under "Psychological Factors Affecting Physical Conditions."

The realization that psychological factors contribute to many physical disorders has led to the development of the new area of health psychology, in which psychologists work to identify, prevent and treat the psychological factors that lead to physical illness.

The parts of the body most commonly affected by psychosomatic disorders are; gastrointestinal and respiratory systems, Gastric and duodenal ulcers, ulcerative colitis and irritable bowl syndrome. Respiratory problems caused or worsened by psychological factors include asthma and hyperventilation syndrome.

Cardiovascular complaints include coronary artery disease, hypertension and migraine headaches. Psychosomatic disorders also affect the skin (eczema, allergies and etc.) and genitourinary system (menstrual disorders and sexual dysfunction). All these complaints are attributed in part to the emotional state of the patient; the most obvious difference among them is the part of the body affected. In present chapter, we will focus on hypertension and how psychological factors influence this disorder.

2.2.4 Hypertension

It is one of the most serious psycho-physiological disorders Hypertension or high blood pressure occurs when the supply of blood through the vessels is putting excessive pressure on the vessel walls. When high blood pressure is a recurring pattern, it can cause hardening of the arteries' walls and deterioration of the cell tissue. Hypertension is a serious medical problem for several reasons. It is a risk factor for other disorders such as coronary artery disease (Heart attacks), kidney failure and stroke. It may also produce some cognitive impairment.

Hypertension is a cardiovascular disease and it means high blood pressure. During states of calm, the beat of the heart is regular, the pulse is even, blood pressure is relatively low and internal organs are well supplied with blood. During stress, blood flows in greater quantity to the muscles of the trunk and limbs with increased heart beat we can feel. As it beats faster and with greater force, the pulse quickens and blood pressure mounts. Usually when the stress passes, the body resumes normal functioning and the blood pressure returns to normal. Under continuing emotional strain, however, high blood pressure may become chronic which we called hypertension.

2.2.4.3 Types of hypertension

2.2.4.3.1 Essential Hypertension

It is also called primary Hypertension. Essential hypertension is high blood pressure for which a physical cause has not been found and thus, it is assumed that the elevated pressure is due to psychological factors.

2.2.4.3.2 Secondary Hypertension

Secondary hypertension is high blood pressure that stems from known physiological causes such as excessive salt in the diet, kidney malfunction or arthrosclerosis. It is called secondary because the elevated blood pressure is a side effect of some other physical disorder.

In this chapter, we will be concerned mostly with essential hypertension as we are focusing on psycho-physiological disorders.

2.2.4.2 Measurement of Hypertension

Hypertension is determined by the levels of systolic and diastolic blood pressure as measured by a sphygmomanometer. The systolic blood pressure is the high level of pressure that occurs immediately after each heart beat, when blood is suddenly forced through the system. It is sensitive both to the volume of blood leaving the heart and to the arteries' ability to stretch to accommodate blood (their elasticity). Diastolic blood pressure is the low level of pressure that occurs just before each heart beat. It is the pressure in the arteries when the heart is relaxed. It is related to resistance of the blood vessels to blood flow.

Normal Systolic pressure is about 320 mm Hg (millimeters of mercury) and normal diastolic pressure is generally considered to be 20 mm. individuals are usually diagnosed as suffering from hypertension if they have sustained blood pressure reading of 340 mm of systolic and above 90 of diastolic blood pressure.

2.2.4.3 The etiology/development of essential hypertension:

2.2.4.3.1 Physiological Aspect:

Initially, stress results in a temporary increase in blood pressure, then the increased blood pressure cause the arteries to stretch and it is detected by a set of sensors called baro-receptors that send signals to the central nervous system to reduce blood pressure. If the pressure is high for a prolonged period of time, the baro-receptors adjust to the higher level of pressure and signal to the central nervous system only when the pressure goes even higher. In other words, after an extended increase in pressure, the baro-receptors reset themselves, and high pressure becomes the norm.

2.2.4.3.2 Psychological Causes:

2.2.4.3.2.1 Psychoanalytic Interpretation:

The classical psychoanalytic interpretations of hypertension are that affected people suffer from "suppressed rage". There is high incidence of hypertension among those who suppress hostility and anger but this hypothesis can not be said to be firmly established in respect to all.

2.2.4.3.2.2. Stressful conditions

Various stressful conditions have been examined to determine their role in the etiology of essential hypertension. Stressful events, natural disasters, anger and anxiety have been found to produce short term elevations in blood pressure. Chronic psychological stress e.g. loss of employment has been accepted as an important factor in essential hypertension. Crowded high stress and noisy environment all produce higher rates of hypertension. The underlying explanation of stress and hypertension relationship is the excessive arousal of sympathetic nervous system activity during stressful times. The stressful events that require active adaptability may have greater role in the development of hypertension than do stressful events that require only passive acceptance with recurring or prolonged exposure to stress; the physiological changes produced by heightened

reactivity may cause permanent damage, laying the ground work for chronic hypertension.

2.2.4.3.2.3 Personality and Hypertension

Hypertension, originally, was thought to be marked by personally traits, mainly by the tendency to suppress anger. Certain personality traits may be important in conjunction with other risk factors. The most researched trait is suppressed hostility. Another variable that is implicated in the development of hypertension as well as other cardiovascular disease is Type A Behaviour. Type A Behaviour Syndrome was originally formulated by Fredman & Rosenman (3914) as a behavioural and emotional style marked by an aggressive, increasing struggle to achieve more and more in less time, often in competition with other individuals. In particular Type A Syndrome is characterized by three components:

(i) Easily aroused hostility.
(ii) A sense of time urgency, and
(iii) Competitive achievement striving.

Thus, three main personality factors i.e. Type A Behaviour pattern, hostility and suppressed anger play an important role in the development of essential hypertension because these factors contribute to more frequent and more prolonged elevation in blood pressure.

2.2.4.4 Prevention & Treatment

Prevention of hypertension is usually focused on two factors: diet and stress management. First, attempt are made to change the person's diet and secondly, attempts are made to teach the person how to control or reduce stress in life because stress is a major contributor to cardiovascular diseases specifically hypertension.

Hypertension has been controlled in a variety of ways. Commonly, patients are put on low sodium diets to restrict their sodium intake. Reduction of alcohol is also recommended for hypertension patients. Weight reduction in overweight patients is strongly urged and exercise is recommended for all hypertensive patients. Caffeine restriction is often included as part of the dietary treatment of hypertension.

2.2.4.4.1 Drug Treatment

Most commonly, hypertension is treated with drugs like diuretics and beta-adrenergic blockers, but some anti hypertensive drugs have undesirable side effects, such as drowsiness, light headedness and erectile difficulties for men. Thus, many investigations have been undertaken on non-pharmacological treatment for essential hypertension. Efforts have been directed at weight reduction, restriction of salt intake, aerobic exercise, etc.

2.2.4.4.2 Psychological Interventions:

Psychological interventions have been applied to teach hypertensive individuals to lower sympathetic nervous system arousal. A variety of behavioural and cognitive behavioural methods have been evaluated for their potential success in lowering blood pressure. Some of the psychological interventions are as follows:

2.2.4.4.2.1 Stress management

The stress management condition is described as "teaching four methods of relaxation i.e. slow-breathing, progressive muscle relaxation, mental imagery and stretching, plus techniques to manage stress perception, reactions and situations. It is stressed here that role of stress management is more effective in preventing hypertension. Once hypertension is developed, other techniques must be used. There

are several approaches under the rubric of stress management and more than one are typically followed in any given instance. The main objectives of these programs are to reduce aroused level, restructure cognitions and to train them for behavioural skills.

2.2.4.4.2.2 Relaxation Techniques

Method that draw on relaxation include bio-feed back, progressive muscle relaxation, hypnosis and meditation all of which are thought to reduce the blood pressure via the induction of a state of low arousal. Deep breathing and imagery are often added to accomplish this task. The relaxation therapy may be especially effective with patients who have elevated sympathetic tone and low left ventricular mass.

2.2.4.4.2.3 Self-management Training

Such training provides techniques to the people to identify their particular stress and to develop plans for dealing with them. The programs include training in self-reinforcement, self-calming task, goal setting and time management. These cognitive Behavioural techniques are thought to reduce blood pressure by helping people avert the anxiety they would otherwise develop in response to environmental stress. Beside this technique people to express anger might be useful as suppress of anger has been linked to hypertension. People can be trained either to reduce their anger through cognitive restructuring and relaxing procedure or they can be told the appropriate ways to express their anger.

Overall, it has been found that psychological interventions appear to be more successful than no-treatment with mild hypertension. Psychological therapy may actually substitute for pharmacological approach. However, with the severely hypertensive, both during treatment and psychological intervention should be used.

2.2.5 Summary

Psycho-Physiological disorders are characterized by physical symptoms that are caused by emotional factors. The formal study of psychosomatic illness began in Europe in the 3920's. In the 3950's stress became the focus in psychosomatic, the main promoter of the idea being Hans Selye. The realization that psychological factors contribute to many physical disorders has led to the development of the new area of health psychology, in which psychologists work to identify, prevent and treat the psychological factors that lead to physical illness. Hypertension is a cardiovascular disease and it means high blood pressure. It is one of the most serious psycho-physiological disorders Hypertension or high blood pressure occurs when the supply of blood through the vessels is putting excessive pressure on the vessel walls. Prevention of hypertension is usually focused on two factors: diet and stress management. First, attempt are made to change the person's diet and secondly, attempts are made to teach the person how to control or reduce stress in life because stress is a major contributor to cardiovascular diseases specifically hypertension.

2.2.6 Keywords

1. Psychological Interventions:

Psychological interventions have been applied to teach hypertensive individuals to lower sympathetic nervous system arousal. A variety of behavioural and cognitive behavioural methods have been evaluated for their potential success in lowering blood pressure.

2. Essential Hypertension

It is also called primary Hypertension. Essential hypertension is high blood pressure for which a physical cause has not been found and thus, it is assumed that the elevated pressure is due to psychological factors.

3. Secondary Hypertension

Secondary hypertension is high blood pressure that stems from known physiological causes such as excessive salt in the diet, kidney malfunction or arthrosclerosis. It is called secondary because the elevated blood pressure is a side effect of some other physical disorder.

4. Psycho-Physiological disorders

These are categorized under mental disturbance that arise from psychological problems which are manifested through physical symptoms. However, these physical symptoms cannot be traced back to any serious physical disease or any origin. Nor are they under the conscious control of the patient.

2.2.7 Exercise

Q.1. Write the brief introduction of psycho-physiological disorders, describe various Psychological causes which may lead to development of hypertension.

Q.2 Critically examine different techniques that are used for treating hypertension.

Write short notes on the following:

Hypertension; Psychosomatic disorder: Systolic; Essential Hypertension

2.2.8 References

1. Taylor, S.E. (3993). Health Psychology. Los Angeles, CA: McGraw-Hill.
2. Carson, R.C. & Butcher, J.N. (3992). Abnormal Psychology and Modern Life (Ninth Edition). New York: HarperCollins.
3. Holmes, D. (3993). Abnormal psychology. New York: Harper Collins.

B.A SEM 5 Psychopathology

LESSON NO. 2.3 **LAST UPDATED JANUARY 2023**

PSYCHO-PHYSIOLOGICAL DISORDERS: ETIOLOGY AND PREVENTION OF ASTHMA AND ULCERS

Lesson Structure

2.3.0 Objective

Psycho-Physiological disorder is a physical disease which is thought to be caused or made worse by psychological factors. In this lesson, two common psycho-physiological disorders i.e. asthma and ulcers would be discussed. As basics of psycho-physiological disorders have been discussed in previous lesson, we will start directly from Asthma in which symptoms, types, and causes especially psychological ones would be the main concern. After mentioning treatment of asthma, we will shift our focus to ulcers. Discussing types, etiology and treatment of ulcers would be our primary concern

2.3.1 Introduction

In Psycho-Physiological disorders, psychological factors lead to real physical disorders. For example, prolonged psychological stress can cause the production of excess acid in the stomach, and the acid in turn cause ulcer (holes in the walls of the stomach). The parts of the body most commonly affected by psychosomatic disorders are; gastrointestinal and respiratory systems, Gastric and duodenal ulcers, ulcerative colitis and irritable bowl syndrome. Respiratory problems caused or worsened by psychological factors include asthma and hyperventilation syndrome. In present chapter, we will focus on asthma and ulcers and how psychological factors influence these disorders.

2.3.2 Asthma

A respiratory trouble causing impairment in breathing air by individual is characterized by this disorder. Wheezing while exhaling, coughing, tightness in the chest etc. are the features of the asthma. In Asthma, the air passages are narrowed, causing breathing to be extremely difficult (particularly exhalation). In addition, there is an inflammation of lung tissues mediated by the immune system. Numerous attempts have been made to define Asthma over the past two decades. National Heart, Lung and Blood Institute (1992) of the USA defined Asthma as "A lung disease manifested symptomatologically with airway obstruction that is reversible either spontaneously or with treatment; airway inflammation; and airway hyper-responsiveness.

People who have asthma have difficulty in breathing, feel constriction in the chest, gasping and apprehension. The asthma sufferer takes a longer time than normal to exhale and whistling sounds can be detected through the chest.

2.3.2.1 Types of Asthma

There are two types of Asthma:

2.3.2.1.1 Extrinsic Asthma

It is also called allergic asthma. The causes of such disorders are dust, pollens, etc.

2.3.2.1.2 Intrinsic Asthma

Intrinsic Asthma: It is also called infective asthma. Infections rather than allergic noxious agents play a significant role in the etiology of this sort of asthma.

Most often, asthmatic attacks begin suddenly. The asthmatic individual has a sense of tightness in the chest and coughs. Subjective reaction can include panic, fear, irritability and fatigue. A severe attack is a very frightening experience indeed. The asthma sufferer has immense difficulty getting air into and out of the lungs and feels as he or she is suffocating. The sufferer may become exhausted by the exertion and fall asleep as soon as breathing is more normal.

2.3.3 Etiology of Asthma:

Asthma is a disease with multiple causes. Medically, Asthma is viewed as an immunological disorder which interacts with psychosomatic medicine. Therefore, there are conflicting views on the precise role of the various emotional states responsible for eliciting

an asthmatic response. On one extreme, asthma is considered entirely a psychosomatic disorder, others view it as a psychological disturbance stemming from the occurrence of a pulmonary functional flare up.

While investigating the causes of asthma, Rees (1964) divided the various possible causes into three categories:

a) Allergic,
b) Infective,
c) Psychological.

Allergic agents like pollen, molds, fur and dust can predispose respiratory tract to bring Asthma. On the other hand, respiratory infections most often acute bronchitis can also make the respiratory system vulnerable to asthma. Among Psychological variables, anxiety, tension, frustration, anger, depression, are all may induce emotionally disturbance which inhibit the adequate functioning of the respiratory system and thus cause asthma.

It must be noted that the different causes of asthma varied in importance depending on the age of the individual. For younger than five years of age, the infective factor predominates. From ages six to sixteen the infective factor still predominates but psychological variables increased in importance. In the range from ages sixteen to sixty five, psychological factors decreased in importance until about the thirty fifty years thereafter becoming more consequential again (Rees, 1964).

Some cases of asthma have psychological factors as a primary cause. Even when asthma is originally induced by an infection or allergy, psychological stress can precipitate attacks. A study by Kleeman (1961), showed that 69% of the asthmatic attacks began with an emotional disturbance.

2.3.3.1 Psychological causes

2.3.3.1.1 Family Factor

The role of familial psychosocial factors in inducing asthmatic disorders has been observed among vulnerable children. Doctors have also noted certain asthmatic children whose symptoms improved markedly or remitted when isolated from a stressful familial environment. Parent-child relationship has found to be a significant predictor of Asthma. Although certain emotional factors in the home may be important in eliciting early asthmatic attacks in some children, in other the illness may originally develop for non-familial reasons.

2.3.3.1.2 Personality and Asthma

It has been suggested that particular personality traits are linked to asthma. Person with neurotic symptoms such as dependency, sensitivity, anxiety, perfectionism are more prone to be asthmatic.

2.3.3.1.3 Stress and Anxiety:

The emotional overtone as during stress and anxiety can make individual vulnerable to asthmatic attacks because this heightened arousal brings bio-physical changes in respiratory function.

Besides all other causes, a diathesis-stress explanation should be kept in mind, which states that, if individual's respiratory system is predisposed to asthma, any psychological stresses can interact with the diathesis or weakness to produce the disease.

2.3.4 Prevention/Treatment

In order to deal effectively with negative consequences of asthma, two specialists should be involved in the management of this condition, the physician and the behavioural

therapist or psychologist. As we are discussing psychological aspect of asthma, we will primarily focus on psychological therapies to deal with asthma.

The patients with physical symptoms and psychological disturbance due to psychosomatic diseases often have special therapeutic needs. Presently psychosomatic treatment uses psycho education, relaxation techniques, stress management and supportive therapy mainly cognitive-behavioural to deal with psycho-physiological disorders. Three distinct behavioural approaches are usually considered in management:

(i) Abnormal Pulmonary Function must be modified (Role of Physician).
(ii) Emotional disturbances must be changed (Role of Psychotherapist).
(iii) Maladaptive asthma related to inconsistent family behaviour and conditions must be altered (Family Interventions). A Psychotherapist can assist asthma patient with the help of five approaches:

2.3.4.1 Relaxation Training

There are various procedures to relax the patient so that their emotional arousal can be made to the optimal level. Herbert Benson is the promoter of relaxation techniques and considered these as strategic and preventive therapy approaches in psychosomatics.

Relaxation Techniques:-

(i) Edmund Jacobson's Progressive muscle relaxation therapy,
(ii) Deep breathing exercises improves the respiratory function and eliminate stress and tension.
(iii) Guided Imagery: It is a two component process: the first component implies deep relaxation and then imagination of restful mind and the body,
(iv) Biofeedback training: It is a combination of relaxation, visualization and cognitive method.
(v) Music therapy: It has indirect affect on psychosomatic disease, as it alleviates stress and anxiety which further leads to reduction in psychosomatic symptoms.

2.3.4.2 Systematic desensitization

Systematic desensitization involves Making the individual less sensitive to anxiety arousing situation by gradual approaching stressful situation in relaxed state of mind.

2.3.4.3 Self-management

Self-management: It is to educate clients to achieve self initiated skills and competence. It includes; 1) medical and behavioural knowledge 2) skill to control stressful events, 3) to cope positively with external stressors.

Since Psycho-Physiological disorders are the physical disturbances, sound psychotherapeutic practice requires close consultation with a physician.

2.3.5 Ulcers

The word ulcer refers to any abnormal break in the skin or a mucus membrane. The ulcers from which most people suffer are peptic ulcers which occur in the digestive system. In addition to causing considerable pain, ulcer can be dangerous because they lead to internal bleeding and can result in death. The term peptic is derived from pepsin, an important component of the acid stomach juices that aid in the early phases of digestion. This ulceration of the stomach or upper intestine (the duodenum) were found primarily in

young women, but a shift occurred in the second half of the nineteenth century and in the twentieth century men became far more prone to peptic ulcers than women.

2.3.5.1Types of Peptic Ulcers

Peptic ulcers are divided into two types, depending on where in the digestive system they occur.

2.3.5.1.1 Duodenal Ulcers:

These types of ulcers occur in the duodenum which is the first part of the small intestine where the food enters the intestine from the stomach. About 25% of such ulcers are caused by over production of gastric acid rather than by under protection of mucus.

2.3.5.1.2 Gastric Ulcers:

Gastric Ulcers occur in the stomach and in contrast to duodenal ulcers; they are usually the result of too little protective mucus rather than too much gastric acid. In many cases, individuals develop gastric ulcers because they have ingested high levels of substance like aspirin or alcohol that reduce mucus, thus causing an acid-mucus imbalance.

2.3.6 Causes of Ulcer

2.3.6.1 Physiological Causes

Ulcers result from an imbalance between the level of gastric acid (primarily hydrochloride acid and pepsin) that is produced to break down food stuff and the level of mucus that is produced to neutralize the acid and thereby protect the walls of the intestinal tract. If the acid level gets too high because too much acid is being produced or because not enough mucus is being produced, the acid will create holes (ulcers) in the walls of the intestinal tract. The ulcers result in pain and vomiting (sometimes of blood).

2.3.6.2 Psychological Causes

A major reason for the overproduction of gastric acid is stress. Some types of stress are more likely to lead to ulcers than others. E.g. unpredictable stress is more likely to lead to ulcers than predictable stress. Another factor related with stress and ulcers is controllability as uncontrollable stress leads to more ulcers.

2.3.6.2.1 Prolonged Exposure to Anxiety

Intense anger or anxiety produced intense physiological reactions which can lead to development of ulcers as anxiety producing condition produce excessive secretion of hydrochloric acid.

2.3.6.2.2 Personality

Alexander (1950) developed a profile of the Ulcer-prone personality as someone whose disorder was caused primarily by excessive need for dependency and love. Repressed emotions resulting from frustrations, dependencies and love seeking needs are said to increase the secretion of acid in the stomach, eventually, eroding the stomach lining and producing ulcers.

2.3.6.2.3 Negative Attitude

Negative thinking and attitude induces immune-suppression and health endangering life style which may predispose toward peptic ulcer.

In general, the research consistently indicates that a predisposition to produce high level of gastric acid in combination with stress leads to the development of

ulcers. Then, rather than talking about the stress-ulcer relationship, we should talk about the predisposition-stress-ulcer relationship.

2.3.7 Treatment and Preventions

Medical treatment for ulcers involves removing the ulcer or cutting the vagus nerve to lessen acid production or using anti-acid drugs but because it does not remove the underlying problems i.e. acid production and stress, the ulcers are very likely to return. Thus, the treatment of choice should involve various types of stress-management training programs in which individual are taught to avoid or control stress. Following specific techniques can be used in management of ulcers.

(1) Learning better coping skills.
(2) Reappraisal of stressful situations and preserved ability of the self.
(3) Relaxation techniques (Breathing, progressive mustive relaxation, Bio-feed back).
(4) Psycho-educational techniques.

2.3.8 Summary

In Asthma, the air passages are narrowed, causing breathing to be extremely difficult (particularly exhalation). In addition, there is an inflammation of lung tissues mediated by the immune system. Asthma is a disease with multiple causes. Medically, Asthma is viewed as an immunological disorder which interacts with psychosomatic medicine. Therefore, there are conflicting views on the precise role of the various emotional states responsible for eliciting an asthmatic response. On one extreme, asthma is considered entirely a psychosomatic disorder; others view it as a psychological disturbance stemming from the outcome of a pulmonary functional flare up. Since Psycho-Physiological disorders are the physical disturbances, sound psychotherapeutic practice requires close consultation with a physician. The ulcers from which most people suffer are peptic ulcers which occur in the digestive system. In addition to causing considerable pain, ulcer can be dangerous because they lead to internal bleeding and can result in death. The treatment of ulcers should involve various types of stress-management training programs in which individual are taught to avoid or control stress.

2.3.9 Keywords

1. Intrinsic Asthma: It is also called infective asthma. Infections rather than allergic noxious agents play a significant role in the etiology of this sort of asthma.

2. Systematic desensitization

Systematic desensitization involves Making the individual less sensitive to anxiety arousing situation by gradual approaching stressful situation in relaxed state of mind.

3. Self-management

Self-management: It is to educate clients to achieve self initiated skills and competence. It includes; 1) medical and behavioural knowledge 2) skill to control stressful events, 3) to cope positively with external stressors.

4. Music therapy

It has indirect affect on psychosomatic disease, as it alleviates stress and anxiety which further leads to reduction in psychosomatic symptoms.

2.3.10 Exercise

Q1: Describe various causes of Asthma with main emphasis on psychological ones.

Q2: Explain the role of physiological factors in Ulcers.

Q3: How can we prevent ulcers and asthma with the help og Psychological principals.

2.3.11 References

1. Brannon, L.& Feist, J.(2000). Health Psychology: An Introduction to Behaviour and Health(4th edition) Brooks/Cole,USA.
2. Taylor, S.E. (1991). Health Psychology. Los Angeles, CA: McGraw-Hill.
3. Holmes, D. (1991). Abnormal psychology. New York: Harper Collins.
4. Davison, G.C., & Neale, J.M. (1996). Abnormal psychology (6th ed.) New York: Wiley.

B.A. PART- III **PSYCHOLOGY**

ABNORMAL PSYCHOLOGY

LESSON NO. 2.4 **LAST UPDATED JANUARY 2023**

CORRELATION: NATURE AND CHARACTERISTICS

Lesson Structure

2.4.0 Objective

Science, at a basic level attempts to answer questions through careful observation and collection of data. These answers can then (at a more complex or higher level) be used to further understand our knowledge of us and our world, as well as help us predict subsequent events and behavior. For this purpose various techniques are applied to understand the research findings. In this chapter, one of the important statistics used in psychological researches i.e. correlation, would be discussed in detail. This chapter would provide basic nature, types, calculations, assumptions and limitations of the correlation analysis which may help students in applying this statistics in their research work.

2.4.1 Introduction

Statistics refers to methods and rules for organizing and interpreting quantitative observations. Statistics is a collection of a bunch of mathematical techniques that help to analyze and present data. Statistics is also used in associated tasks such as designing experiments and surveys and planning the collection and analysis of data from these. Among other statistical tools, correlation is an important statistics used in psychology.

'Correlation' is a statistical tool which studies the relationship between two variables and Correlation Analysis involves various methods and techniques used for studying and measuring the extent of the relationship between the two variables. It determines the extent to which values of the two variables are "proportional" to each other. When two variables vary together, statisticians say that there is a lot of covariation or correlation. Statistical correlation is a statistical technique which tells us if two variables are related. If the change in one variable is accompanied by a change in the other, then the variables are said to be correlated.

2.4.2 Types of Correlations

There are three important types of correlation. They are (1) Positive, (2) Negative and (2) Zero correlation.

2.4.2.1 Positive correlation

If the values of the two variables deviate in the same direction i.e. if an increase (or decrease) in the values of one variable results, on an average, in a corresponding increase (or decrease) in the values of the other variable the correlation is said to be positive.

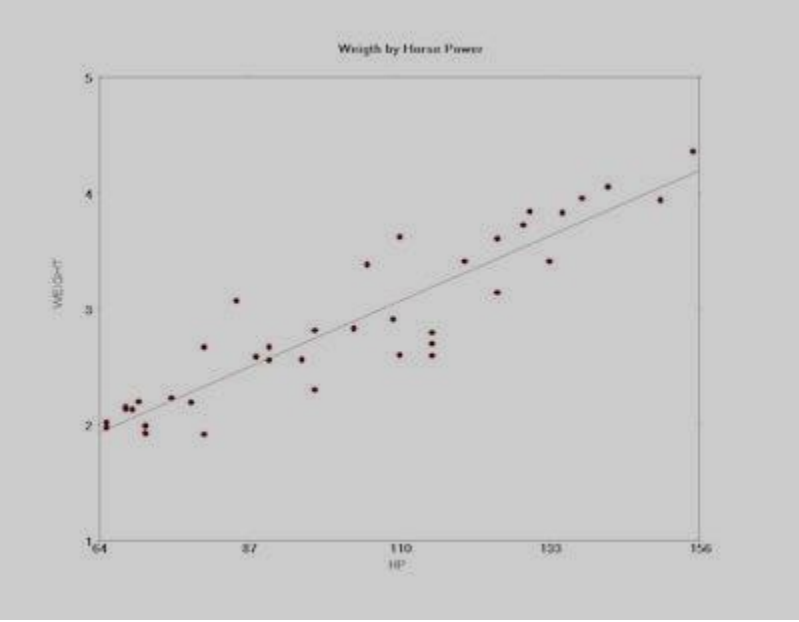
Some examples of series of positive correlation are:

(i) Heights and weights;

(ii) Household income and expenditure;

(iii) Amount of rainfall and yield of crops.

Suppose that an X value was above average, and that the associated Y value was also above average. Then the product would be the product of two positive numbers which would be positive. If the X value and the Y value were both below average, then the product above would be of two negative numbers, which would also be positive. Therefore, a positive correlation is evidence of a general tendency that large values of X are associated with large values of Y and small values of X are associated with small values of Y.

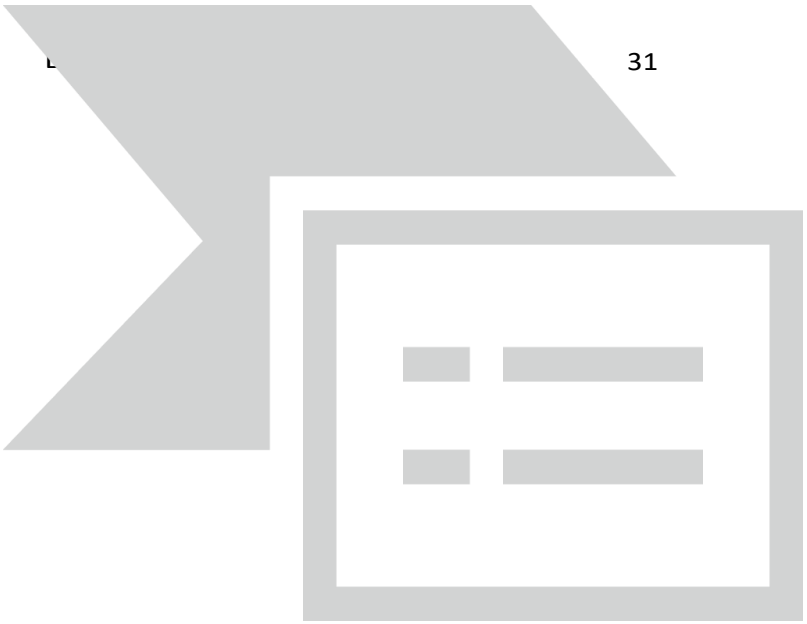


2.4.2.2 Negative correlation

Correlation between two variables is said to be negative or inverse if the variables deviate in opposite direction. That is, if the increase in the variables deviate in opposite direction. That is, if increase (or decrease) in the values of one variable results on an average, in corresponding decrease (or increase) in the values of other variable. Example of negative correlation is; Price and demand of goods. Suppose that an X value was above average, and that the associated Y value was instead below average. Then the product would be the product of a positive and a negative number which would make the product negative. If the X value was below average and the Y value was above average, then the product above would also be negative. Therefore, a negative correlation is evidence of a general tendency that large values of X are associated with small values of Y and small values of X are associated with large values of Y.

2.4.2.3 Zero correlation

When the two variables are independent and the change in one variable has no effect in other variable, then the correlation between these two variables is known as Zero Correlation.



Correlation analysis provides us with these three types of correlations between variables i.e. whether correlation is positive, negative or no correlation. With this information, researchers can predict variance in variables and can try to control it for better future outcome.

2.4.3 Characteristics of correlation

Correlations have several important characteristics.

- The value of r always falls between -1 and 1. Positive values indicate a positive association between the variables, while negative values indicate a negative association between the variables.
- Correlation does not mean causation. Even if there is a strong correlation between two variables, we can not say for sure that one variable is causing change in another variable.
- If r = 1 or r = -1 then all of the cases fall on a straight line. This means that the one variable is actually a perfect linear function of the other. In general, when the correlation is closer to either 1 or -1 then the relationship between the variables is closer to a straight line.
- The value of r will not change if you change the unit of measurement of either x or y.
- Correlations only measure the degree of linear association between two variables. If two variables have a zero correlation, they might still have a strong nonlinear relationship.

2.4.4 Correlation coefficient(r)

One of the most widely used statistics is the coefficient of correlation 'r' which measures the degree of association between the two values of related variables given in the data set. The correlation coefficient, r, quantifies the direction and magnitude of correlation.

A correlation coefficient is a number between -1 and +1 that measures the degree of association between two variables (call them X and Y). A positive value for the correlation implies a positive association (large values of X tend to be associated with large values of Y and small values of X tend to be associated with small values of Y). A negative value for the correlation implies a negative or inverse association (large values of X tend to be associated with small values of Y and vice versa). In general, r > 0 indicates positive relationship, r < 0 indicates negative relationship while r = 0 indicates no relationship (or that the variables are independent and not related). Here r = +1.0 describes a perfect positive correlation and r = -1.0 describes a perfect negative correlation.

Value of r	Interpretation
r=0	The two variables do not vary together at all.
0 < r < 1	The two variables tend to increase or decrease together.
r = 1.0	Perfect correlation.
-1 < r < 0	One variable increases as the other decreases.
r = -1.0	Perfect negative or inverse correlation.

A correlation coefficient of r=.50 indicates a stronger degree of linear relationship than one of r=.40. Likewise a correlation coefficient of r=-.50 shows a greater degree of relationship than one of r=.40. Thus a correlation coefficient of zero (r=0.0) indicates the absence of a linear relationship and correlation coefficients of r=+1.0 and r=-1.0 indicate a perfect linear relationship. The value of correlation coefficient does not depend on the specific measurement units used; for example, the correlation between height and weight will be identical regardless of whether inches and pounds, or centimeters and kilograms are used as measurement units. The coefficient of correlation can be calculated with the help of different methods. The most commonly used methods are Pearson's product moment correlation coefficient and Spearman's rank order correlation. These methods would be discussed in next chapter. The coefficient of correlation 'r' is given by the formula

$$r = \frac{n\sum x\,y - \sum x \sum y}{\sqrt{\left(n\sum x^2 - (\sum x)^2\right)\left(n\sum y^2 - (\sum y)^2\right)}}$$

2.4.5 Example

The following example illustrates this idea.

A study was conducted to find whether there is any relationship between the weight and blood pressure of an individual. The following set of data was arrived at from a clinical study. Let us determine the coefficient of correlation for this set of data. The first column represents the serial number and the second and third columns represent the weight and blood pressure of each patient.

S. No.	Weight	Blood Pressure
1.	78	140
2.	86	160
3.	72	134
4.	82	144
5.	80	180
6.	86	176
7.	84	174
8.	89	178
9.	68	128
10.	71	132

Solution:

x	y	x^2	y^2	xy
78	140	6084	19600	10920
86	160	7396	25600	13760
72	134	5184	17956	9648
82	144	6724	20736	11808
80	180	6400	32400	14400
86	176	7396	30976	15136
84	174	7056	30276	14616
89	178	7921	31684	15842
68	128	4624	16384	8704
71	132	5041	17424	9372
796	1546	63,776	243036	1242069

Then

$$r=\frac{10(124206)-(796)(1546)}{\sqrt{\left[(10)63776-(796)^2\right]\left[(10)(243036)-(1546)^2\right]}}$$

$$= \frac{11444}{\sqrt{(1144)(40244)}}$$
$$= 0.5966$$

Here, we can see that the correlation coefficient between weight and blood pressure has been found to be 0.5966. There is positive association between weight and blood pressure.

2.4.6 Interpretation of the correlation coefficient

To interpret correlations, four pieces of information are necessary.

- The numerical value of the correlation coefficient.

Correlation coefficients can vary numerically between 0.0 and 1.0. The closer the correlation is to 1.0, the stronger the relationship between the two variables. A correlation of 0.0 indicates the absence of a relationship.

- The sign of the correlation coefficient.

A positive correlation coefficient means that as variable 1 increases, variable 2 increases, and conversely, as variable 1 decreases, variable 2 decreases. In other words, the variables move in the same direction when there is a positive correlation. A negative correlation means that as variable 1 increases, variable 2 decreases and vice versa. In other words, the variables move in opposite directions when there is a negative correlation.

- The statistical significance of the correlation.

A statistically significant correlation is indicated by a probability value of less than .05. This means that the probability of obtaining such a correlation coefficient by chance is less than five times out of 100, so the result indicates the presence of a relationship.

- The effect size of the correlation.

For correlations, the effect size is called the coefficient of determination and is defined as r^2. The coefficient of determination can vary from 0 to 1.00 and

indicates that the proportion of variation in the scores can be predicted from the relationship between the two variables.

A correlation can only indicate the presence or absence of a relationship, not the nature of the relationship and Correlation is not causation. There is always the possibility that a third variable influenced the results.

Closer the coefficients are to +1.0 and –1.0, greater is the strength of the relationship between the variables. As a rule of thumb, the following guidelines on strength of

relationship are often useful (though many experts would somewhat disagree on the choice of boundaries).

Value of r	Strength of relationship
-1.0 to –0.5 or 1.0 to 0.5	Strong
-0.5 to –0.3 or 0.3 to 0.5	Moderate
-0.3 to –0.1 or 0.1 to 0.3	Weak
–0.1 to 0.1	None or very weak

Correlation is only appropriate for examining the relationship between meaningful quantifiable data (e.g. air pressure, temperature) rather than categorical data such as gender, favorite color etc.

2.4.7 Assumptions and Limitations

The correct use of the coefficient of correlation depends heavily on the assumptions made with respect to the nature of data to be correlated and on understanding the principles of forming this index of association. Correlation is a central measure within the general linear model of statistics. It can be employed for measurement of relationships in countless applied settings. However, in situations where its assumptions are violated, correlation becomes inadequate to explain a given relationship. These assumptions mandate that the distributions of both variables should be normal and that the scatter-plots should be linear and homoscedastic.

2.4.7.1 Assumptions

- **Linear relationship:**

The relation between two variables is said to be **linear** if the change of one unit in one variable result in the corresponding change in the other variable over the entire range of values. For example consider the following data.

X	2	4	6	8	10
Y	7	13	19	25	31

Thus, for a unit change in the value of x, there is a constant change in the corresponding values of y and the above data can be expressed by the relation

$$y = 3x + 1$$

In general two variables x and y are said to be **linearly related**, if there exists a relationship of the form

$$y = a + bx$$

where 'a' and 'b' are real numbers. This is nothing but a straight line when plotted on a graph sheet with different values of x and y and for constant values of a and b. Such relations generally occur in physical sciences but are rarely encountered in economic and social sciences. Thus, if the quantum of change in one variable has a ratio of change in the quantum of change in the other variable then it is known as linear relationship. Graphical representation of the linear relationship is given below:

It is assumed that the x-y scatter graph of points for the two variables being correlated can be better described by a straight line than by any curvilinear function. To the extent that a curvilinear function would be better, Pearson's r and other linear coefficients of correlation will understate the true correlation, sometimes to the point of being useless or misleading. Linearity can be checked visually by plotting the data.

- **Homoscedasticity:**

That is, the error variance is assumed to be the same at any point along the linear relationship. Otherwise the correlation coefficient is a misleading average of points of higher and lower correlation,

- **No outliers:**

Outlier cases can attenuate correlation coefficients. Scatterplots may be used to spot outliers visually. A large difference between Pearsonian correlation and Spearman's rho may also indicate the presence of outliers.

- **Minimal measurement error:**

It is assumed since low reliability attenuates the correlation coefficient. By definition, correlation measures the systematic covariance of two variables. Measurement error usually, with rare chance exceptions, reduces systematic covariance and lowers the correlation coefficient. This lowering is called attenuation.

- **Similar underlying distributions:**

Similar underlying distributions are assumed for purposes of assessing strength of correlation. That is, if two variables come from unlike distributions, their correlation may be well below +1 even when data pairs are matched as perfectly as they can be while still conforming to the underlying distributions. Thus, the larger the difference in the shape of the distribution of the two variables, the more the attenuation of the correlation coefficient and the more the researcher should consider alternatives such as rank correlation. This assumption may well be violated when correlating an interval variable with a dichotomy or even an ordinal variable.

- **Normal distributions:**

Common underlying normal distributions should be there, for purposes of assessing significance of correlation. Also, for purposes of assessing strength of correlation, note that for non-normal distributions the range of the correlation coefficient may not be from -1 to +1. The central limit theorem demonstrates, however, that for large samples, indices used in significance testing will be normally distributed even when the variables themselves are not normally distributed, and therefore significance testing may be employed. The researcher may wish to use Spearman or other types of nonparametric rank correlation when there are marked violations of this assumption, though this strategy has the danger of attenuation of correlation.

- **Interval level data**:

Scores on all the variables should at least be on interval scale.

2.4.7.2 Limitations

While 'r' (correlation coefficient) is a powerful tool, it has to be handled with care due to following limitations.

- It only measures linear relationship. It is therefore perfectly possible that while there is strong non linear relationship between the variables, r is close to 0 or even 0. In such a case, a scatter diagram can roughly indicate the existence or otherwise of a non linear relationship.
- One has to be careful in interpreting the value of 'r'. For example, one could compute 'r' between the size of shoe and intelligence of individuals, heights and income. Irrespective of the value of 'r', it makes no sense and is hence termed chance or non–sense correlation.
- 'r' should not be used to say anything about cause and effect relationship. Put differently, by examining the value of 'r', we could conclude that variables X and Y are related. However the same value of 'r' does not tell us if X influences Y or the other way round. Statistical correlation should not be the primary tool used to study causation, because of the problem with third variables.

2.4.8 Let us sum up

Correlation Analysis involves various methods and techniques used for studying and measuring the extent of the relationship between the two variables. Statistical correlation is a statistical technique which tells us if two variables are related. If the change in one variable is accompanied by a change in the other, then the variables are said to be correlated. If the values of the two variables deviate in the same direction i.e. if an increase (or decrease) in the values of one variable results, on an average, in a corresponding increase (or decrease) in the values of the other variable the correlation is said to be positive. Correlation between two variables is said to be negative or inverse if the variables deviate in opposite direction. When the two variables are independent and the change in one variable has no effect in other variable, then the correlation between these two variables is known as Zero Correlation. The correlation coefficient, r, quantifies the direction and magnitude of correlation. A correlation coefficient is a number between -1 and +1 that measures the degree of association between two variables (call them X and Y). The correct use of the coefficient of correlation depends heavily on the assumptions made with respect to the nature of data to be correlated and on understanding the principles of forming this index of association. While 'r' (correlation coefficient) is a powerful tool, it has to be handled with care due to its limitations.

2.4.9 Keywords

1. Statistics – it refers to methods and rules for organizing and interpreting quantitative observations. Statistics is a collection of a bunch of mathematical techniques that help to analyze and present data.

2. Correlation- is a statistical tool which studies the relationship between two variables and Correlation Analysis involves various methods and techniques used for studying and measuring the extent of the relationship between the two variables. It determines the extent to which values of the two variables are "proportional" to each other.

3. Positive correlation- If the values of the two variables deviate in the same direction i.e. if an increase (or decrease) in the values of one variable results, on an average, in a corresponding increase (or decrease) in the values of the other variable the correlation is said to be positive.

4. Normal distributions:

Common underlying normal distributions should be there, for purposes of assessing significance of correlation. Also, for purposes of assessing strength of correlation, note that for non-normal distributions the range of the correlation coefficient may not be from -1 to +1.

2.4.10 Long questions

1: What do you mean by correlation coefficients?

2: what are the various types of correlations?

3: What are the basic assumptions regarding data for applying correlation analysis?

2.4.11 Short Questions

Define the following

1. Zero Correlation

2. Correlation Coefficient

2.4.12 References

- Statistics in Psychology and Education by S.K. Mangal.
- Statistics in Psychology and Education by H.E. Garrett.

Web Links

http://www.edugyan.in/2017/03/correlational-research-and-its.html

https://www.simplypsychology.org/correlation.html

https://byjus.com/jee/correlation-coefficient/

B.A. PART- III **PSYCHOLOGY**

Psychopathology

LESSON NO. 2.5 **LAST UPDATED JANUARY 2023**

TYPES OF CORRELATION: PRODUCT MOMENT CORRELATION AND RANK ORDER CORRELATION

Lesson Structure

2.5.4 Let us sum up

2.5.5 Keywords

2.5.6 Exercise

2.5.7 References

2.5.0 Objective

As mentioned in previous chapter, Correlation' is a statistical tool which studies the relationship between two variables and it determines the extent to which values of the two variables are "proportional" to each other. Correlation Analysis involves various methods and techniques used for studying and measuring the extent of the relationship between the two variables. The present chapter would primarily be focused on two such methods to calculate correlation coefficients. First is the Pearson's product moment correlation and second is the Spearman's rank order correlation. In this chapter, the procedure to calculate and interpret correlation coefficients would be discussed.

2.5.1 Introduction

Statistical correlation is a statistical technique which tells us if two variables are related. If the change in one variable is accompanied by a change in the other, then the variables are said to be correlated. If the values of the two variables deviate in the same direction i.e. if an increase (or decrease) in the values of one variable results, on an average, in a corresponding increase (or decrease) in the values of the other variable the correlation is said to be positive. Correlation between two variables is said to be negative or inverse if the variables deviate in opposite direction. That is, if the increase in the variables deviate in opposite direction. That is, if increase (or decrease) in the values of one variable results on an average, in corresponding decrease (or increase) in the values of other variable. When the two variables are independent and the change in one variable has no effect in other variable, then the correlation between these two variables is known as Zero Correlation. The statistics used to measure the relationship is called correlation coefficient or 'r' which measures the degree of association between the two values of related variables given in the data set. The correlation coefficient, r, quantifies the direction and magnitude of correlation. A correlation coefficient is a number between -1 and +1 that measures the degree of association between two variables (call them X and Y). Several different correlation coefficients can be calculated, but the two most commonly used are Pearson's product moment correlation coefficient and Spearman's rank correlation coefficient. Descriptions of both the coefficients are given below.

2.5.2 Pearson's product moment correlation

An important aspect of correlation is how *strong* it is. The strength of a correlation is measured by the **correlation coefficient *r***. Another name for *r* is the **Pearson product moment correlation coefficient** in honor of Karl Pearson who developed it about in 1900. The Pearson product-moment correlation coefficient (or Pearson correlation coefficient for short) is a measure of the strength of a linear association between two variables and is denoted by r. Basically, a Pearson product-moment correlation attempts to draw a line of best fit through the data of two variables, and the Pearson correlation coefficient, r, indicates how far away all these data points are to this line of best fit. The Pearson correlation coefficient, r, can take a range of values from +1 to -1. A value of 0 indicates that there is no association between the two variables. A value greater than 0 indicates a positive association, that is, as the value of one variable increases so does the value of the other variable. A value less than 0 indicates a negative association, that is, as the value of one variable increases the value of the other variable decreases. This is shown in the diagram below

The stronger the association of the two variables the closer the Pearson correlation coefficient, r, will be to either +1 or -1 depending on whether the relationship is positive or negative, respectively. There is considered a strong correlation if the correlation coefficient is greater than 0.8 and a weak correlation if the correlation coefficient is less than 0.5. Different relationships and their correlation coefficients are shown in the diagram below.

2.5.2.1 Assumptions of Pearson's product moment correlation coefficient

There are five assumptions that are made with respect to Pearson's correlation:

- The variables must be either interval or ratio measurements
- The variables must be approximately normally distributed
- There is a linear relationship between the two variables.
- Outliers are either kept to a minimum or are removed entirely.
- There is homoscedasticity of the data, that is, the error variance is assumed to be the same at any point along the linear relationship. Otherwise the correlation coefficient is a misleading average of points of higher and lower correlation,

To calculate Pearson's correlation, two variables can be measured in entirely different units. For example, you could correlate a person's age with their blood sugar levels. Here, the units are completely different; age is measured in years and blood sugar level measured in mmol/L (a measure of concentration). Indeed, the calculations for Pearson's correlation coefficient were designed such that the units of measurement do not affect the calculation - this allows the correlation coefficient to be comparable and not influenced by the units of the variables used. The Pearson product-moment correlation does not take into consideration whether a variable has been classified as a dependent or independent variable. It treats all variables equally. For example, you might want to find out whether basketball performance is correlated to a person's height. You might, therefore, plot a graph of performance against height and calculate the Pearson correlation coefficient. Lets say, for example, that $r = .67$. That is, as height increases so does basketball performance. This makes sense. However, if we plotted the variables the other way around and wanted to

determine whether a person's height was determined by their basketball performance (which makes no sense) we would still get $r = .67$. This is because the Pearson correlation coefficient makes no account of any theory behind why you chose the two variables to compare. This is illustrated below:

2.5.2.2 Calculations of Pearson product-moment correlation:

To calculate a correlation coefficient, you normally need three different sums of squares (SS). The sum of squares for variable X, the sum of square for variable Y, and the sum of the cross-product of XY. The **sum of squares for variable X** is:

The **sum of squares for v**

$$SS_{XX} = \sum (x_i - \bar{x})^2$$

$$SS_{YY} = \sum (y_i - \bar{y})^2$$

The **sum of cross product is:**

$$SS_{XY} = \sum (x_i - \bar{x})(y_i - \bar{y})$$

The **correlation coefficient(r)** is:

$$r = \frac{SS_{XY}}{\sqrt{(SS_{XX})(SS_{YY})}}$$

One another formulaich isderived from the formula mentioned above is :

$$r = \frac{N\Sigma xy - (\Sigma x)(\Sigma y)}{\sqrt{[N\Sigma x^2 - (\Sigma x)^2][N\Sigma y^2 - (\Sigma y)^2]}}$$

Where:

- N = number of pairs of scores
- Σxy = sum of the products of paired scores
- Σx = sum of x scores
- Σy = sum of y scores
- Σx^2 = sum of squared x scores
- Σy^2 = sum of squared y scores

2.5.2.3 Example

Let's assume that we want to look at the relationship between two variables, height (in inches) and self esteem. Perhaps we have a hypothesis that how tall you are effects your self esteem Let's say we collect some information on twenty individuals Height is measured in inches. Self esteem is measured based on the average of 10 1-to-5 rating items (where higher scores mean higher self esteem). Here's the data for the 20 cases:

Person	Height	Self Esteem
1	68	4.1
2	71	4.6
3	62	3.8
4	75	4.4
5	58	3.2

6	60	3.1
7	67	3.8
8	68	4.1
9	71	4.3
10	69	3.7
11	68	3.5
12	67	3.2
13	63	3.7
14	62	3.3
13	60	3.4
16	63	4.0
17	65	4.1
18	67	3.8
19	63	3.4
20	61	3.6

Now we're ready to compute the correlation value with the formula mentioned above Let's look at the data we need for the formula. Here's the original data with the other necessary columns:

Person	**Height (x)**	**Self Esteem (y)**	**x*y**	**x*x**	**y*y**
1	68	4.1	278.8	4624	16.81
2	71	4.6	326.6	5041	21.16
3	62	3.8	235.6	3844	14.44
4	75	4.4	330	5625	19.36
5	58	3.2	185.6	3364	10.24
6	60	3.1	186	3600	9.61

7	67	3.8	254.6	4489	14.44
8	68	4.1	278.8	4624	16.81
9	71	4.3	305.3	5041	18.49
10	69	3.7	255.3	4761	13.69
11	68	3.5	238	4624	12.25
12	67	3.2	214.4	4489	10.24
13	63	3.7	233.1	3969	13.69
14	62	3.3	204.6	3844	10.89
13	60	3.4	204	3600	11.56
16	63	4	252	3969	16
17	65	4.1	266.5	4225	16.81
18	67	3.8	254.6	4489	14.44
19	63	3.4	214.2	3969	11.56
20	61	3.6	219.6	3721	12.96
Sum =	**1308**	**75.1**	**4937.6**	**85912**	**285.45**

The first three columns are the same as in the table above. The next three columns are simple computations based on the height and self esteem data. The bottom row consists of the sum of each column. This is all the information we need to compute the correlation. Here are the values from the bottom row of the table (where N is 20 people) as they are related to the symbols in the formula:

Now, when we put these values into the formula given above, we get the following (I show it here tediously, one step at a time) :

$$r = \frac{20(4937.6) - (1308)(75.1)}{\sqrt{[20(85912) - (1308*1308)][20(285.45) - (75.1*75.1)]}}$$

$$r = \frac{98752 - 98230.8}{\sqrt{[1718240 - 1710864][5709 - 5640.01]}}$$

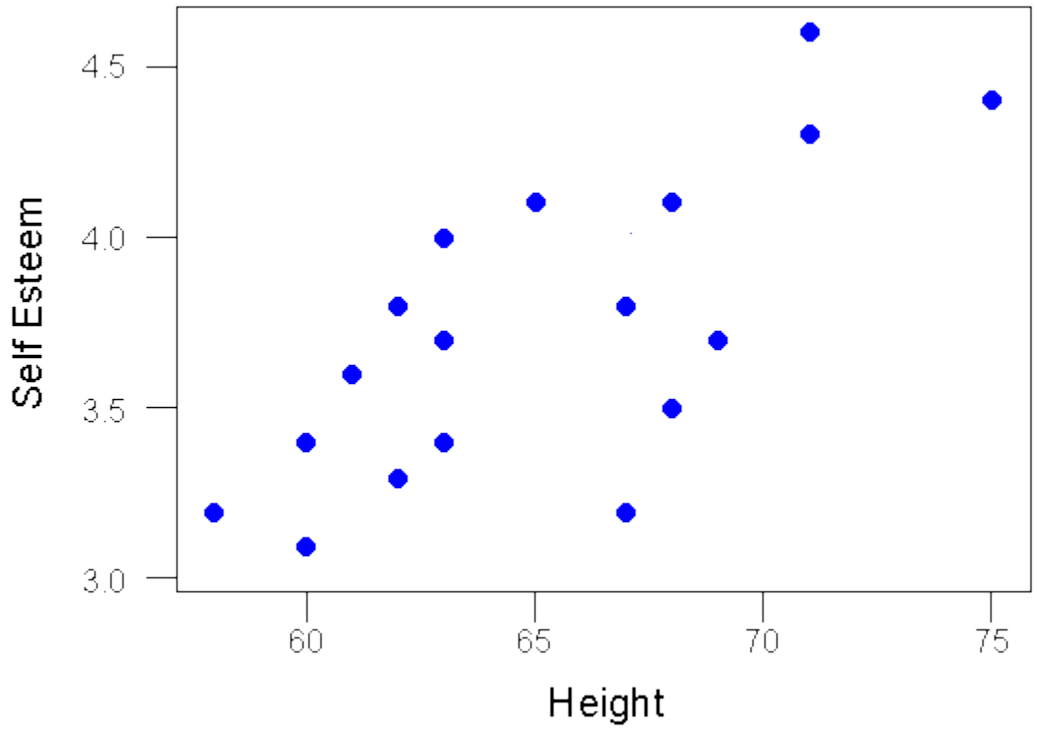
$$r = \frac{521.2}{\sqrt{[7376][68.99]}}$$

$$r = \frac{521.2}{\sqrt{508870.2}}$$

$$r = \frac{521.2}{713.3514}$$

$$r = .73$$

So, the correlation for our twenty cases is 0.73, which is a fairly strong positive relationship. It can also be observed in the following graph that both variables have positive relationship as the data line is move up from left to right.



2.5.2.4 Testing the Significance of a Correlation

Once you've computed a correlation, you can determine the probability that the observed correlation occurred by chance. That is, you can conduct a significance test. Most often you are interested in determining the probability that the correlation is a real one and not a chance occurrence. In this case, you are testing the mutually exclusive hypotheses:

Null Hypothesis:	r = 0
Alternative Hypothesis:	r < > 0

The easiest way to test this hypothesis is to find a statistics book that has a table of critical values of r. Most introductory statistics texts would have a table like this. As in all hypotheses testing, you need to first determine the significance level. Here, I'll use the common significance level of alpha = .05. This means that I am conducting a test where the odd that the correlation is a chance occurrence is no more than 5 out of 100. Before we look up the critical value in a table, the degrees of freedom or df has to be computed. The df is simply equal to N-2 or, in this example, is 20-2 = 18. Finally, it has to be decided whether we are doing a one-tailed or two-tailed test. In this example, since we have no strong prior theory to suggest whether the relationship between height and self esteem would be positive or negative, we'll opt for the two-tailed test. With these three pieces of information -- the significance level (alpha = .05), degrees of freedom (df = 18), and type of test (two-tailed) -- we can now test the significance of the correlation we found. When we look up this value in the handy little table at the back of any statistics book we find that the critical value is .4438. This means that if our correlation is greater than .4438, we can conclude that the odds are less than 5 out of 100 that this is a chance occurrence. Since our correlation of .73 is actually quite a bit higher, we conclude that it is not a chance finding and that the correlation is "statistically significant" (given the parameters of the test). I can reject the null hypothesis and accept the alternative.

The given type of correlation we have illustrated here is known as the Pearson Product Moment Correlation. It is appropriate when both variables are measured at an interval level and fulfill other assumptions. However there are a wide variety of other types of correlations for the circumstances where these assumptions are not fulfilled. For instance, if you have two ordinal variables, you could use the rank order correlation (rho) or the Kendall rank order Correlation (tau). When one measure is a continuous interval level one and the other is dichotomous (i.e., two-category) you can use the Point-Biserial Correlation. Here, in this

chapter let us discuss about the most commonly used type, i.e. Spearman rank Order Correlation

2.5.3 Rank Order Correlation:

Rank correlation coefficient is also a technique which can be used to summarize the strength and direction (negative or positive) of a relationship between two variables. The rank order correlation coefficient uses the *ranking* of the data, i.e. what position (rank) the data point takes in an ordered list from the minimum to maximum values, rather than the actual data values themselves. In statistics, rank order correlation is also known as **Spearman's rank correlation coefficient** or **Spearman's rho**, named after Charles Spearman and often denoted by the Greek letter ρ (rho). It is a non-parametric measure of statistical association between two variables because it can be used with data that violate some assumptions of parametric tests. For instance, to test for a rank order relationship between two quantitative variables when concerned that one or both variables is ordinal (rather than interval) and/or not normally distributed or when the sample size is small. Thus, it is used in the same data situation as a Pearson's correlation, except that it is used when the data are either importantly non-normally distributed, the measurement scale of the dependent variable is ordinal (not interval or ratio), or from a too-small sample.

2.5.3.1 Assumptions of the Spearman's rank correlation coefficient

Two variables that are ordinal, interval or ratio are required. Although you would normally hope to use a Pearson product-moment correlation on interval or ratio data, the Spearman correlation can be used when the assumptions of the Pearson correlation are markedly violated. A second assumption is that there is a monotonic relationship between your variables. Monotonic relationship is a relationship that does one of the following: (1) as the value of one variable increases so does the value of the other variable or (2) as the value of one variable increases the other variable value decreases. Examples of monotonic and non-monotonic relationships are presented in the diagram below.

A monotonic relationship is an important underlying assumption of the Spearman rank-order correlation. It is also important to recognize the assumption of a monotonic relationship is less restrictive than a linear relationship (an assumption that has to be met by the Pearson product-moment correlation). The middle image above illustrates this point well: A non-linear relationship exists but the relationship is monotonic and is suitable for analysis by Spearman's correlation but not by Pearson's correlation.

2.5.3.2 Calculations of rank order correlation

Calculation of Spearman's rank-order correlation depends on two conditions i.e. whether: (1) your data does not have tied ranks or (2) your data has tied ranks. The formula for when there are no tied ranks is:

$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2-1)}$$

where d_i = difference in paired ranks and n = number of cases.

Steps of calculations:

- Create a table from your data.
- Rank the two data sets. Ranking is achieved by giving the ranking '1' to the biggest number in a column, '2' to the second biggest value and so on. The smallest value in the column will get the lowest ranking. This should be done for both sets of measurements.
- Tied scores (if any) are given the mean (average) rank. For example, the three tied scores of 62 are ranked fifth in order of price, but occupy three positions (fifth, sixth and seventh) in a ranking hierarchy of ten. The mean rank in this case is calculated as (5+6+7) ÷ 3 = 6.

- Find the difference in the ranks (d): This is the difference between the ranks of the two values on each row of the table. The rank of the second value (price) is subtracted from the rank of the first
- Square the differences (d^2) to remove negative values and then sum them (Σd^2).
- Calculate the coefficient using the formula given above. The answer will always be between 1.0 (a perfect positive correlation) and -1.0 (a perfect negative correlation).

2.5.3.3 Example

A teacher is interested in those who do the best at English also do better in Math (assessed by exam) students in English are also the best performers in Math. She records the scores of her 10 students as they performed in end-of-year examinations for both English and Math. Let us find out the Spearman rank-order correlation between scores on English and math with the help of data given below. There are no ties on any scores.

English	56	75	45	71	62	64	58	80	76	61
Math	66	70	40	60	65	56	59	77	67	63

To find our required values of formula, we will complete the following table:

English (marks)	Math (marks)	Rank (English)	Rank (math)	d	d^2
56	66	9	4	5	25
75	70	3	2	1	1
45	40	10	10	0	0
71	60	4	7	3	9
62	65	6.5	5	1	1
64	56	5	9	4	16
58	59	8	8	0	0
80	77	1	1	0	0
76	67	2	3	1	1
61	63	6.5	6	1	1

Where d = difference between ranks and d^2 = difference squared.

We then calculate the following:

$$\sum d_i^2 = 25 + 1 + 9 + 1 + 16 + 1 + 1 = 54$$

We then substitute this into the main equation with the other information as follows:

$$\rho = 1 - \frac{6\sum d_i^2}{n(n^2 - 1)}$$

$$\rho = 1 - \frac{6 \times 54}{10(10^2 - 1)}$$

$$\rho = 1 - \frac{324}{990}$$

$$\rho = 1 - 0.33$$

$$\rho = 0.67$$

Hence, we have a ρ of 0.67. This indicates a strong positive relationship between the ranks individuals obtained in the math and English exam. That is, the higher you ranked in math, the higher you ranked in English also, and vice versa.

2.5.3.4 Significance and Interpretation: What does this value of 0.67 mean?

The closer value is to +1 or -1, the stronger the likely correlation. A perfect positive correlation is +1 and a perfect negative correlation is -1. The R value of 0.67 suggests a fairly strong positive relationship. A further technique is now required to test the significance of the relationship. The value of **0.67** must be looked up on the Spearman Rank significance table below as follows:

- Work out the 'degrees of freedom' you need to use. This is the number of pairs in your sample minus 2 (n-2). In the example it is 8 (10 - 2). Now plot your result on the table.
- If it is below the line marked 5%, then it is possible your result was the product of chance and you must reject the hypothesis.
- If it is above the 0.1% significance level, then we can be 99.9% confident the correlation has not occurred by chance.
- If it is above 1%, but below 0.1%, you can say you are 99% confident.
- If it is above 5%, but below 1%, you can say you are 95% confident (i.e. statistically there is a 5% likelihood the result occurred by chance).

In the example, the value 0.67 gives a significance level of slightly less than 5%. That means that the probability of the relationship you have found being a chance event is **about 5 in a 100**. You are 95% certain that your hypothesis is correct. The reliability of your sample can be stated in terms of how many researchers completing the same study as yours would obtain the same results: 95 out of 100.

2.5.3.5 Merits and demerits of Rank order correlation

Merits

- It is easy to calculate.
- It is simple to understand.
- It can be applied to any type of data. Qualitative or Quantitative. Hence correlation with qualitative data such as honesty, beauty can be found.
- This is most suitable in case there are two attributes.

Demerits

- It is only an approximately calculate measure as actual values are not used for calculations.
- For large samples it is not convenient method.
- Combined r of different series cannot be obtained as in case of mean and S.D.
- It cannot be treated further algebraically.

Rank order correlation provides a very quick and easy to use method of modeling correlation between variables. The technique is 'distribution independent', i.e. it has no effect on the shape of the correlated distributions. One is therefore guaranteed that the distributions used to model the correlated variables will still be replicated. But the fact that two variables correlate cannot prove anything - only further research can actually prove that one thing affects the other, make its use somewhat doubtful. Despite the inherent disadvantages of rank order correlation, it's ease of use and speed make it a very practical technique.

Self Check Exercise

1. The following are the heights and weights of 13 students of a class. Calculate Pearson's r.

Sr no.	Heights (Cms)	Weights(Kgs)
1	170	65
2	172	66
3	181	69
4	137	55
5	130	51
6	168	63
7	166	61
8	175	67
9	177	70
10	165	75
11	163	72
12	132	64
13	161	71
14	173	52
13	174	60

2. The ranks of two sets of variables (Heights and Weights) are given below. Calculate the Spearman rank difference correlation coefficient r.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	13
Heights	9	10	13	3	1	8	7	13	14	6	5	2	4	11	12
Weights	8	9	11	3	1	6	5	10	12	13	14	7	13	2	4

2.5.4 Summary

Correlation Analysis involves various methods and techniques used for studying and measuring the extent of the relationship between the two variables. Several different correlation coefficients can be calculated, but the two most commonly used are Pearson's product moment correlation coefficient and Spearman's rank correlation coefficient. The Pearson product-moment correlation coefficient (or Pearson correlation coefficient for short) is a measure of the strength of a linear association between two variables and is denoted by r. Basically, a Pearson product-moment correlation attempts to draw a line of best fit through the data of two variables, and the Pearson correlation coefficient, r, indicates how far away all these data points are to this line of best fit. The Pearson correlation coefficient, r, can take a range of values from +1 to -1.

There are a wide variety of other types of correlations for the circumstances where these assumptions are not fulfilled. For instance, if you have two ordinal variables, you could use the rank order correlation (rho) or the Kendall rank order Correlation (tau). When one measure is a continuous interval level one and the other is dichotomous (i.e., two-category) you can use the Point-Biserial Correlation. Rank order correlation or spearman's rank order correlation is a non-parametric measure of statistical association between two variables because it can be used with data that violate some assumptions of parametric tests. For instance, to test for a rank order relationship between two quantitative variables when concerned that one or both variables is ordinal (rather than interval) and/or not normally distributed or when the sample size is small. Thus, it is used in the same data situation as a Pearson's correlation, except that it is used when the data are either importantly non-normally distributed, the measurement scale of the dependent variable is ordinal (not interval or ratio), or from a too-small sample. Rank order correlation provides a very quick and easy to use method of modeling correlation between variables.

2.5.5 Keywords

1. Pearson's product moment correlation

An important aspect of correlation is how *strong* it is. The strength of a correlation is measured by the **correlation coefficient *r***. The Pearson product-moment correlation coefficient (or Pearson correlation coefficient for short) is a measure of the strength of a linear association between two variables and is denoted by r.

2. **Rank Order Correlation:**

Rank correlation coefficient is also a technique which can be used to summarize the strength and direction (negative or positive) of a relationship between two variables. The rank order correlation coefficient uses the *ranking* of the data, i.e. what position (rank) the data point takes in an ordered list from the minimum to maximum values, rather than the actual data values themselves.

3. **Merits of Rank order correlation**

- It is easy to calculate.
- It is simple to understand.
- It can be applied to any type of data. Qualitative or Quantitative. Hence correlation with qualitative data such as honesty, beauty can be found.
- This is most suitable in case there are two attributes.

2.5.6 Exercise :

- Write short answers on :
- (a) Define Correlation Coefficient (□□□)
- b) Write any two characteristics of correlation.
- (c) Formula for calculating Pears on product moment correlation.
-

2.5.7 References

- Statistics in Psychology and Education by S.K. Mangal.
- Statistics in Psychology and Education by H.E. Garrett.

Web links

https://www.youtube.com/watch?v=fPEwt4lpdOg

https://www.statisticshowto.com/probability-and-statistics/correlation-coefficient-formula/spearman-rank-correlation-definition-calculate/

https://en.wikipedia.org/wiki/Spearman%27s_rank_correlation_coefficient

B.A. PART-II **PSYCHOLOGY**

EXPERIMENTAL PSYCHOLOGY

LESSON NO. : 2.6 **LAST UPDATED JANUARY 2023**

Significance Between Means (Large Sample, Correlated And Uncorrelated).

2.6.0 Objective

The objective of this chapter is to understand the concept of significance of difference between means. Earlier we covered topic of standard error of mean. But in this case, we are dealing with two groups, and roughly we intent to know whether these two groups differ significantly in their means or not. We shall be covering numerical examples on standard error of difference between means in case of large sample (independent and correlated).

2.6.1 Introduction

It is to discover whether two groups differ significantly in mean performance. To enable us to say with confidence that there is a difference between the means of the population from which the samples were drawn, we need to know the standard error of difference of mean of the two samples-

Formula:

$$SE_{M1-M2} = \sqrt{SE_{M1}^2 + SE_{M2}^2}$$

M_1 = Mean of first group

M_2 = Mean of second group

SE_{M1-M2} = Standard error of a difference between mean one and mean two.

2.6.2 Standard Error of difference independent or uncorrelated mean

Means are uncorrelated or independent when computed from different samples or from uncorrelated test administered to the same sample. The formula for calculating standard error in this case is $SE_{M_1-M_2} = \sqrt{SE_{M_1}{}^2 + SE_{M2}{}^2}$

Where $SE_{M1} = \frac{\sigma_1}{\sqrt{N1}}$ $SE_{M2} = \frac{\sigma_2}{\sqrt{N2}}$

σ_1 = standard deviation of first group, σ_2 = SD of second group

N_1 = sample size of first group

N_2 = sample size of second group

SE_{M1} = standard error of mean of first group

SE_{M2} = standard error of mean of second group

2.6.2.1 Steps involved in calculating Standard Error of difference between two independent means:

	Group I	Group II
	N_1	N_2
	M_1	M_2
	σ_1	σ_2
1)	$SE_1 = \frac{\sigma_1}{\sqrt{N_1}}$	$SE_2 = \frac{\sigma_2}{\sqrt{N_2}}$

2) $SE_{M1-M2} = \sqrt{(SE_{M_1})^2 + (SE_{M_2})^2}$

3) $t = \frac{M_1 - M_2}{SE_D}$

4) If $N_1 = N_2$ then df = N-1

If $N_1 \neq N_2$ then df = $(N_1 - 1) + (N_2 - 1)$

(5) Refer to t-table (Table D in Garret and Woodworth (1981)) at 0.05 level of significance and at 0.01 level of significance, corresponding to your df value.

If calculated (t) is greater than table value of t then there is significant difference between the two means.

If calculated (t) is lesser than table value of t then there is non-significant difference between the two means.

2.6.2.2 Examples for calculating Standard Error of Difference between independent means.

Question Girls sample

N = 95, M = 29.21, σ = 11.56

Boys sample,

N = 83, M = 30.92, σ = 7.81.

Find the standard error of difference between means & check its significance.

First steps is to find the standard error of M_1 and M_2.

Formula:-

$SE_{M1} = \frac{\sigma_1}{\sqrt{N_1}}$ $SE_{M2} = \frac{\sigma_2}{\sqrt{N_2}}$

$SE_{M1} = \frac{11.56}{\sqrt{95}} = 1.18$ $SE_{M2} = \frac{7.81}{\sqrt{83}} = 0.85$

Standard error of mean

$SE_{M1-M2} = \sqrt{SE_{M1}^2 + SE_{M2}^2}$

$= \sqrt{(1.18)^2 + (0.85)^2}$

$= \sqrt{1.39 + 0.72}$

$= \sqrt{2.11} = 1.45$

Significance

Next step is to find the value of t

$$t = \frac{D}{SE_{M1-M2}}$$

D = Difference in the given means of the two groups

$$= \frac{30.92 - 29.21}{1.45}$$

$$= 1.17$$

Because $N_1 \neq N_2$

$df = N_1 + N_2 - 2$

$= 95 + 83 - 2 = 176$

See table for checking significance of difference between means at df = 176, if calculated t value is higher then table value, there is a significant difference between mean of boys and girls.

Example : An intelligence test was administrated to science and arts students

Science students: N = 75, M = 100, SD = 4.5

Arts students: N = 80, M = 90, SD = 3.5

Find whether the difference between means of science and arts students on intelligence test are significant or not:

$$SE_{M1} = \frac{4.5}{\sqrt{75}} \qquad SE_{M2} = \frac{3.5}{\sqrt{80}}$$

$$= \frac{4.5}{8.66} \qquad = \frac{3.5}{8.94}$$

$$= 0.51 \qquad = 0.39$$

Standard error of difference:

$$SE_{M1\text{-}M2} = \sqrt{SE_{M1}^2 + SE_{M2}^2}$$

$$= \sqrt{(0.51)^2 + (0.39)^2}$$

$$= \sqrt{0.26 + 0.15}$$

$$= \sqrt{0.41}$$

$$= 0.64$$

$$t = \frac{D}{SE_{M1} - SE_{M2}}$$

$$= \frac{100 - 90}{0.64}$$

$$= \frac{10}{0.64} = 15.62$$

Next step is to check significance, df = 75+80-2=153. See the table and interpret the results.

2.6.3 To find the Standard Error of difference between two Correlated Means.

In this case, same groups administered the same test on two different occasions. It is also called single group method.

Formula:-

$$\mathbf{SE_{M1\text{-}M2}} = \sqrt{SE_{M1}^2 + SE_{M2}^2 - 2r_{12}\, SE_{M1} \times SE_{M2}}$$

SE_{M1} = Standard error of mean of group 1.

SE_{M2} = Standard error of mean of group 2.

r_{12} = Correlation coefficient depicting correlation of group 1 and group 2.

2.6.3.1 Steps involved in calculating standard error of difference between two correlated means:

	Group I	Group II
	N_1	N_2
	M_1	M_2
	σ_1	σ_2

1) $SE_{M1} = \frac{\sigma_1}{\sqrt{N_1}}$ $SE_{M2} = \frac{\sigma_2}{\sqrt{N_2}}$

2) $SE_{M1\text{-}M2} = \sqrt{SE_{M1}^{\ 2} + SE_{M2}^{\ 2} - 2r\, SE_{M1} \times SE_{M2}}$

here (r) i.e. coefficient of correlation is given.

3) $t = \frac{M_1 - M_2}{SE_{M1-M2}}$

4) If $N_1 = N_2$ then df = N-1
If $N_1 \neq N_2$ then df = $(N_1 - 1) + (N_2 - 1)$

5) Refer to t-table, at 0.05 level of significance and at 0.01 level of significance.

If calculated (t) is greater than table value of t, tabulated (t), then the difference between means is significant.

If calculated t value is less than table value of t, then the difference between means is non-significant.

2.6.3.2 Examples for calculating Standard Error of difference between two correlated means:-

Question : At the beginning of school years the mean score of a group of 64 children on an educational achievement test was 45 with the standard deviation of 6. At the end of school year the mean scores on the same test was 50 with SD of 5. The correlation between scores on the initial and final test was 0.60. Has the class made significant improvement during the year?

Solution:-

$SD_1 = 6$ $SD_2 = 5$

$N_1 = 64$ $N_2 = 64$

$M_1 = 45$ $M_2 = 50$

$$SE_{M_1} = \frac{\sigma_1}{\sqrt{N_1}} = \frac{6}{\sqrt{64}} = \frac{6}{8} = .75$$

$$SE_{M_2} = \frac{\sigma_2}{\sqrt{N_2}} = \frac{5}{\sqrt{64}} = \frac{5}{8} = .62$$

$$SE_{M_1-M_2} = \sqrt{SE_{M_1}^2 + SE_{M_2}^2 - 2r_{12}SE_{M_1} \times SE_{M_2}}$$

$$= \sqrt{(.75)^2 + (.62)^2 - 2 \times .60 \times .75} \times .62$$

$$= \sqrt{.56 + .38 - .558}$$

$$= \sqrt{.32}$$

$$= 0.62$$

$$t = \frac{50 - 45}{0.62} = \frac{5}{0.62} = 8.06$$

Because $N_1 = N_2$,

So df = N – 1

df = 64 – 1 = 63

See the table value of t, corresponding to df = 63 at 0.05 and 0.01 levels. If calculated t value is higher than table value, difference between the means is significant.

Example 2

In a first trial of practice period, 25 twelve years olds have a mean score of 80 and SD of 8 upon a digit-symbol learning test. On the tenth trial, the mean is 84 and standard deviation is 10. The r between scores is 0.40. Is the gain in scores significant across trials?

Group I	**Group II**
$M_1 = 80$	$M_2 = 84$
$N_1 = 25$	$N_2 = 25$
$SD_1 = 8$	$SD_2 = 10$

r = 0.40

$$SE_{M1} = \frac{\sigma_1}{\sqrt{N_1}} \qquad SE_{M2} = \frac{\sigma_2}{\sqrt{N_2}}$$

$$= \frac{8}{\sqrt{25}} \qquad = \frac{10}{\sqrt{25}}$$

$$=1.6 \qquad =2$$

$$SE_{M1-M2} = \sqrt{(1.6)^2 + (2)^2 - 2x.40(1.6x2)} = \sqrt{2.56 + 4 - 0.8x3.2}$$

$$= 2$$

$$t = \frac{M_1 - M_2}{SE_{M1-M2}} = \frac{80-84}{2} = \frac{-4}{2} = 2$$

Check significance at 0.05 and 0.01 levels and interpret the results.

2.6.4 Let us sum up

In this lesson, we learnt the concept of standard error of difference between means. Also, we learnt how to apply this concept to data given to us. Numericals on standard error of difference between means were illustrated for independent and correlated samples.

2.6.5 Keywords

1. t- test:

A t-test is an inferential statistic that is used to see if there is a significant difference in the means of two groups that are related in some way. It's most commonly employed

when data sets, such as those obtained by flipping a coin 100 times, are expected to follow a normal distribution and have unknown variances. A t-test is a hypothesis testing technique that can be used to assess an assumption that is applicable to a population.

2. Level of significance:

The significance level, also known as alpha or, is a measure of how strong the evidence must be in your sample before you can reject the null hypothesis and declare that the impact is statistically significant. Before starting the experiment, the researcher sets the significance level.

3. Degrees of Freedom:

The maximum number of logically independent values, or values with the ability to fluctuate, in a data sample is referred to as degrees of freedom. Degrees of Freedom are frequently addressed in relation to several types of hypothesis testing in statistics, such as the Chi-Square test.

4. Standard Error:

The estimated standard deviation of a statistical sample population is the standard error (SE) of a statistic. The standard error is a statistical term that describes how well a sample distribution represents a population when standard deviation is used. In statistics, a sample mean differs from the population's real mean; this difference is known as the standard error of the mean.

2.6.6 Long questions

Q1. Discuss the Characteristics of Correlation.

Q2. Explain various types of Correlation.

Q3. Find out Correlation with the help of rank difference method.

Sr. No.	Marks in Maths	Marks in English
1	64	72
2	52	60
3	45	50
4	68	66
5	76	80
6	85	80
7	90	85
8	72	65

2.6.7 Short questions

Write short notes on the following

(a) Positive Correlation

(b) Formula for Pearson Product Moment Method.

(c) Zero Correlation

2.6.8 Suggested readings :

1 Garreett : Statistics in Psychology and Education.

2 Guilford and Fruchter : Fundamental Statistics in Psychology and Education.

Web Links

https://www.investopedia.com/terms/t/t-test.asp

https://www.britannica.com/science/Students-t-test

https://www.sciencedirect.com/topics/medicine-and-dentistry/student-t-test

https://www.slideshare.net/kiran2512/t-test-27876640

Type Setting :

Department of Distance Education, Punjabi University, Patiala.

Mandatory Student Feedback Form

https://forms.gle/KS5CLhvpwrpgjwN98

Note: Students, kindly click this google form link, and fill this feedback form once.