UNIT 1 CONCEPT OF DEVELOMENT, GROWTH AND DEVELOPMENT, LIFE SPAN PERSPECTIVE, METHODS OF STUDYING DEVELOPMENT AND CHARACTERISTICS OF DEVELOPMENT

Structure

1.0 INTRODUCTION

From the moment the human child is first conceived, to the day the individual dies, they keep changing constantly and developing. While some of the changes humans undergo are as a result of chance incidents and personal choices, the vast majority of life changes and stages the human passes through are due to certain common biological and psychological factors partly inherited and partly environmental and are shared by all people.

Development refers to the biological and psychological changes that occur in human beings between birth and the end of adoloscent, as the individual progresses from dependency to increasing autonomy. Because these developmental changes may be

strongly influenced by the genetic and enviornmental factors during prenatal life and these are the part of the study of child development. Developmental change may occur as a result of genetically-controlled processes known as maturation, or as a result of environmental factors and learning, but most commonly involves an interaction between the two. Developmetal psychology refers to development throughout the lifespan, and pediatrics, the branch of medicine relating to the care of children.

In this unit we are also going to introduce the concept of life span development. It deals with important developmental stages that human beings go through birth, infancy, adolescence, adulthood, old age and death. As the humans grow up from one stage to another stage they learn to make use of their body parts, learn how to express themselves and communicate with persons, learn how to maintain relationship with others and how to love and care for others. In this unit we will be focusing on the concept of development, issues and stages. In development of humans, and then put forward the concept of life span development, and its characteristics and theories of child development.

1.1 OBJECTIVES

After go through this unit, you will be able to:

- define the concept of human development;
- describe about the growth and development;
- explain life span perspectives;
- explain the significant issues involved in the process of human development;
- identify the stages and important domains of development;
- analyse the characteristic features of life span development; and
- explain the research methods and its obstacles in studying the life span.

1.2 CONCEPT OF DEVELOPMENT

Development describes the growth of humans throughout the lifespan, from conception to death. It refers to development as patterns of change over time. It does not just involve the biological and physical aspects of growth, but also the cognitive and social aspects related to the development. The scientific study of human development seeks to understand and explain how and why people change throughout life. This field examines change across a broad range of topics including motor skills and other psycho physiological processes. Cognitive development refers to the areas of problem solving, moral understanding, conceptual understanding, language acquisition, social, personality, and emotional development, and self-concept and identity formation. Growth is defined as an increase in size. In other words development is defined as a progression towards maturity. Even though development is a continuous process with competencies developing, then disappearing, only to appear at a later age, it is not continuous in the sense that it increases constantly but rather in a series of waves with whole segments of development reoccurring repetitively. For example, new borns walk, if held, and then this ability disappears only to reappear at eight or ten months of age.

1.2.1 Goals of Development Changes

The goal of development is to enable people to adapt to the environment in which they live. Self actualisation is essential to achieve these changes. It plays an important

role in mental health; people who make good personal and social adjustment must have opportunities to express their interest and desires in ways that give them satisfaction but, at the same time, conform to accepted standards. Lack of these opportunities will result in frustrations and generally negative attitudes towards people and life in general.

1.3 GROWTH AND DEVELOPMENT

Growth refers to the development of children from birth to adolescence. From newborns to teenagers, parents often have questions if their children are developing normally. WHO is also coordinating an international effort to develop child growth standards for infants and young children (age 0-5 years). There is a process of child development, which makes a growth curve. Growth curve is defined as a statistical curve derived from plotting weight and height against chronological age for comparing an individual child's growth pattern with the average age of growth. In short we can say that personality is influenced by many factors and these factors are involved in the development of the personality of a child.

The strongest factor in the process of development of personality is society and the child's experiences in the society and in the environment. Most of the children's learning comes from the society, their surroundings and their experiences. Although these experiences are supervised by the parents and teachers, more often they occur in spontaneous family or neighborhood settings. As such one finds that every child is different from the other. Another factor that influences personality is the cultural factors. Through everything from music, television, and incidental remarks overheard but hardly understood by the child to deliberate modeling and training, the child is encouraged to embody the typical or ideal personality of her culture.

Place is the third factor which is involved in the development of a child, in addition to the biological factor. As children grow up from one stage to another, they learn to make use of their body parts, learn how to express themselves and communicate with others. They also learn to form relationship with others, how to care for others, how to love and how to work.

Over the years, people who study children have created theories to explain how children develop. While these theorists realise that every child is special and grow in his or her unique way, they also have recognised that there are general patterns that children tend to follow as they grow up, and these patterns have been documented by the theorists. Also there are four areas in which children's growth and development take place and these are discussed below.

i) **Physical:** Physical growth is perhaps the most obvious. Children grow in height and weight over the years and their appearance changes to a great extent during puberty. Children also develop certain physical abilities during their progression towards adulthood, including crawling, walking, running and (possibly) writing. Their motor coordination becomes well refined and they can shoot across a target relatively more accurately.

ii) **Psychological and cognitive:** Children also develop psychologically and cognitively as their brains absorb more information and they learn how to use that information. Literally, children have to learn how to think on purpose and to process or organise all the information that comes to them from the environment. They must learn how to solve problems, to talk, and to complete mental tasks such as remembering telephone numbers or using computers.

iii) **Social and emotional:** Children grow socially and emotionally. They learn how to interact, play, work, and live with other people such as family, friends, teachers, and employers. They learn how to understand both their own feelings and that of others' emotions. They also learn ways of dealing with strong emotions. In order to function well as independent adults, children must develop a sense of self-esteem as they go through the long process of figuring out what shape their identity will take. They develop a sense of morality as they learn the difference between right and wrong.

iv) **Sexuality and gender identity:** Children also develop sexually and form a gender identity. This development is unique because it spans developments across the other physical, psychological, and social channels. Early on, children learn how their bodies work and look and what it means to be a boy or a girl; they learn how boys and girls are different. As they grow older and enter adolescence and puberty, they continue to learn how their bodies work sexually and how to responsibly handle their sexuality so as to balance their sexual desires and appropriate behaviour. They continue to decide for themselves what it means to be masculine or feminine throughout their lifespan.

Different theorists have come to different conclusions concerning how exactly children develop across the various developmental channels. Some theorists believe that children develop smoothly and continuously, but other theorists believe that children develop more discretely in a series of stages, each of which is fairly stable.

1.3.1 Critical Periods During Development

There are certain periods of development known as difficult periods or critical periods. It is said that children who do not get special stimulation during their time of receptivity may get stuck at this period. For instance children learn to trust the parents if parents are consistently loving, affectionate and give the child care and love unconditionally. In such cases the child learns to trust its parent and from then onwards other adults in the environment.

However if the child is neglected and abused , not given the care, affection and love, he or she may develop distrust of parents and this distrust will be transferred to other adults in the environment. It must be remembered that even though the child's development may have been adversely affected, if he or she is given an opportunity to be with foster parents who care and love the child, the latter develops the capacity to trust other adults too in course of time.

1.4 LIFE SPAN PERSPECTIVES

Life span refers to the ongoing process that we go through while growing up. It is the period of time from conception extending to death. Studying life span development is very important because it helps in describing and explaining the mysteries of human development. Life span development includes issues such as the extent to which development occurs through the gradual accumulation of knowledge versus stage like development, or the extent to which children are born with innate mental structures versus learning through experience. Many researchers are interested in the interaction between personal characteristics, the individual's behaviour, and environmental factors including social context, and their impact on development.

The scientific study of development is important not only to psychology, but also to sociology, education, and health care. By better understanding how and why people change and grow, one can then apply this knowledge to helping people live up to their full potential. Life span development is defined as the pattern of change that

begins at conception and continues through the life cycle.

Lifespan development can also be defined as a methodical, intra-individual change associated with progressions corresponding to age. The development progresses in a manner implicating the level of functioning.

Life-span developmental psychology is the field of psychology which involves the examination of both constancy and change in human behaviour across the entire life span, that is, from conception to death (Baltes, 1987). Development occurs in different domains, such as the biological (changes in our physical being), social (changes in our social relationships), emotional (changes in our emotional understanding and experiences), and cognitive (changes in our thought processes). Some developmental psychologists prefer to restrict the notion of development only to changes which lead to qualitative reorganisation in the structure of a behaviour, skill or ability (Crain, 2000).

Lifespan development is a process in which the progression initiates with the emergence of a fetus from a one celled organism. As the unborn child enters the world, the environment in which the child exists begins to influence the child's development (Educational Foundation, 2001).

The developmental periods are child and adolescence, early adulthood, middle adulthood and late adulthood. The transition in each of the developmental periods, involves a necessary change in the character of the individual's life and sometime this takes up to six years to complete the change (Smith, 2009).

The transition deals with the common developmental stages that human beings pass through: birth, infancy, adolescent, adulthood, old age and death.

1.4.1 Understanding Life Span Development

Human development is a multidisciplinary study of how people change and how they remain the same overtime. It reflects the complexity and uniqueness of each person and their experiences as well as commonalities and patterns across people. There are four interactive forces that combine to shape human development and these are given below:

i) *Biological forces* include all genetic and health related factors that influence the development of a child. They provide raw materials (in case of genetics) and set boundary conditions (in the case of one's health) for development. Prenatal development, brain maturation, puberty, menopause, facial expression and change in cardio-vascular functioning, diet, and exercises are the some example of biological forces.

ii) *Psychological forces* include all internal perceptual, cognitive, emotional and personality factors that affect the development of a child. Intelligence, self confidence, honesty and self esteem are examples of psychological factors.

iii) *Socio-cultural forces* include interpersonal, societal, cultural and ethical factors that affect the development of a child. This is important to know that how people and environment interact with each other. The family, peers, coworkers and social institutions and culture influence development. Poverty is the example for socio cultural forces.

iv) *Life cycle forces* reflect differences in how the same event affects people of different ages. Each individual is a product of a unique combination of these forces. No two individuals even in the same family experience these forces in the same way.

1.4.2 Issues in Life Span Development

Life issues are common problems, issues and/or crises that happen to normal people living normal lives. Examples include managing one's relationships so that they are healthy and functional, surviving disabilities, coping with grief, loss and self-esteem issues. A number of major issues have emerged in the study of human development.

These issues include the following:

Is development due more to genetics or environment?

Does development occur slowly and smoothly, or do changes happen in stages?

Do early childhood experiences have the greatest impact on development, or are later events equally important?

i) **Continuity and Discontinuity:** The question of whether development is solely and evenly continuous, or whether it is marked by age-specific periods. Developmental Psychologists who advocate the continuous model describe development as a relatively smooth process, without sharp or distinct stages, through which an individual must pass.

That is, development is conceived of as a process of the gradual accumulation of a behaviour, skill, or knowledge. In contrast, those who hold to the second view would suggest that developmental change is best characterised as discontinuous in nature.

They describe development as a series of discrete stages, each of which is characterised by what had gone on in the past and how well the child was able to master the developmental tasks of that period etc. These theorists suggest that behaviours or skills often change qualitatively across time, and that new organisations of behaviours, skills, or knowledge emerge in a rather abrupt or discrete fashion.

ii) **Stability and Change:** Another issue which is of importance to developmental psychologists is the issue of stability versus change. The question here is whether development is best characterised by stability, for example, does a behaviour or trait such as shyness stay stable in its expression over time or change. To cite an example: Could a person's degree of shyness fluctuate across the life span?

iii) **Nature vs. Nurture:** Whether the behaviour ultimately developed by the child is due to hereditary factors or environmental factors. This issue is of great importance to psychologists. The debate over the relative contributions of inheritance and the environment is one of the oldest issues in both philosophy and psychology.

This debate concerns the relative degree to which heredity and learning affect the behaviour of the individual. Both genetic traits and environmental circumstances are involved in an individual's development, although the amount of influence the two has is not clearly evident. In fact it may be stated that the individual and his or her circumstances decide how much of the behaviour is influenced by heredity factors and how much by environmental factors. Today, most psychologists believe that it is an interaction between these two forces that causes development. Some aspects of development are distinctly biological, such as sexual development during puberty. However, the onset of puberty can be affected by environmental factors such as diet and nutrition.

1.4.3 Stages of Development

Often, developmental stages are defined by milestones. The term milestone refers to the development that has to take place according to the age of the child. For instance, almost all children start standing and walking at the age of 1 year and more, start saying a few words by the time they are one and half to two years etc. That a developmental stage has been successfully passed is indicated by the child mastering the developmental tasks of the particular period of development. Often, special milestones mark children's accomplishments, such as walking in infancy and entering school in early childhood, and these milestones can help mark children's movement inside and between developmental stages.

Individuals pass various stages throughout their life. There are systematic progressions in a certain order through a series of phases. Step by step they move closer to some form of adult status. This movement can be seen as involving changes in intellectual and physical powers (Example, changes in intelligence, expertise and ability to reason) and the impact of life events and experiences.

The main developmental periods of a human being are:

i) Childhood and adolescence {birth to age 20 (early childhood transition by age 03)}

ii) Early adulthood (age 17 to 45)

iii) Middle adulthood (age 40 to 65)

iv) Late adulthood (over 60 years of age) *(Tennat and Pogson, 1995)*

1.4.4 Domains of Human Development

The domains of development are categories used by scientists. The categories include physical, cognitive and social domains which all characterise human development. The physical domain is characterised by how humans grow and change physically, at all stages of development especially during childhood and adolescence. When the physical changes are maximum, this domain includes how humans view the world as development progresses as a result of physical development and interactions.

Psychological domain focuses on adjustment of the individual to the environment. Adjustment is the process which is essential for survival of the organism. The child has to learn to suck, ingest food, eliminate, breath on own, eliminate on own etc, which activities were taken care of when the child was still within the mother's womb.

Adjustment also is required as the child grows up to learn to eat on own, eliminate as is required and not as the child wishes. The child has to learn to talk, walk, express, communicate and so on. All these adjustments are again necessary if the child has to survive.

Adjustment to self, others and environment are important tasks which become increasingly complex as the child grows up, and which all the child has to master and accomplish. Success leads to healthy adjustment while failure leads to maladjustment. Adjustments in the way the world is viewed as the body develops are also included in this domain.

Cognitive domain focuses on learning, attention, perception and memory etc. The manner in which learning takes place and how the child makes progress in school

and home are of great importance in the child's growth and development. How these components of cognitive domain functions and improves indicate the progress the child makes. The social domain deals with the adjustment to people that are with others and learn the right ways of interactions. The cognitive domain is concerned with how learning occurs and why memory deteriorates during old age. The social domain contains adjustment in variables within social situations such as personality research, social skills and developing relationships. All the domains operate together and are affected by each other (Boyd & Bee, 2006).

Self Assessment Questions

State whether the statement is *True or False.*

1) Changes occur from conception to death. ( )
2) Children's learning come from the society, his surroundings and his experiences. ( )
3) There are four areas in which children grow. ( )
4) Two interactive forces that combine to shape human development. ( )
5) Two interactive forces that combine to shape human development. ( )
6) Individuals pass only one stage through out the life. ( )
7) As the child grows ups adjustment to self, others and environment are important tasks which become increasingly complex. ( )
8) Psychological domain focuses on adjustment of the individual to the environment. ( )

1.5 CHARACTERISTICS OF LIFE SPAN DEVELOPMENT

The lifespan perspective argues that significant modifications take place throughout development. It consists of development of humans in multidimensional, multidirectional, plastic, multidisciplinary, and contextual factors. The development involves three factors i.e. growth, maintenance and regulation.

Changes that occur are interpreted in terms of the requirements of the culture and context of the occurrences. According to Paul Baltes, humans have the capacity, plasticity and the ability for positive change to the environmental demands that are being made on the individual constantly. Individual learns ways and means to compensate and overcome difficulties throughout the life. According to Baltes positive characteristics of growing old such as learning ways to compensate and overcome (Boyd and Bee, 2006) are considered important characteristics of old age. These characteristics form a family of beliefs which specify a coherent view of the nature of development. It is the application of these beliefs as a coordinated whole which characterises the life-span approach. The important characteristics beliefs of the life span approach are given below:

1) ***Lifelong development:*** This belief has two separate aspects. First, the potential for development extends across the entire life span, that is, there is no assumption that the life course must reach a plateau or decline during adulthood and old age. Second, development may involve processes which are not present

at birth but emerge throughout the life span. No age period dominates during development. Researchers increasingly study the experiences and psychological orientations of adults at different points in their development. Gains and losses in development occur throughout the life cycle.

2) ***Development is Multidimensional****:* Multidimensionality refers to the fact that development cannot be described by a single criterion such as increases or decreases in a behaviour. It occurs in the biological, cognitive and social emotional domains.

3) ***Development is Multidirectional:*** The principle of multidirectional maintains that there is no single, normal path that development must or should take. In other words, healthy developmental outcomes are achieved in a wide variety of ways. Development is often comprised of multiple abilities which take different directions, showing different types of change or constancy. Some dimensions or aspects of development may be increasing while others are declining or not changing.

4) ***Development is Plastic****:* Plasticity refers to the within-person variability which is possible for a particular behaviour or development. For example, infants who have a hemisphere of the brain removed shortly after birth (as a treatment for epilepsy) can recover the functions associated with that hemisphere as the brain reorganises itself and the remaining hemisphere takes over those functions. A key part of the research agendas in developmental psychology is to understand the nature and the limits of plasticity in various domains of functioning. Development can be modified by life circumstances to some extent. Plasticity involves the degree to which characteristics change or remain stable.

5) ***Development is Contextual:*** Development varies across the different contexts in which we live our lives. For example, social and rural environments are associated with different sets of factors which have the potential to impact on development; understanding how development differs for individuals within these two settings requires an understanding of the differing contexts. It occurs in the context of a person's biological make-up, physical environment and social, historical and cultural contexts.

6) ***Development is Multidisciplinary:*** The study of developmental psychology is multidisciplinary. That is, the sources of age-related changes do not lie within the province of any one discipline. For example, psychological methodologies may not be appropriate for understanding factors that are sociological in nature. Rather, an understanding of human development will be achieved only by research conducted from the perspective of disciplines such as sociology, linguistics, anthropology, computer science, neuroscience and medicine.

7) ***Development involves Growth, Maintenance, and Regulation:*** The mastery of life involves conflict and competition among three goals of human development: growth, maintenance and regulation.

8) ***Development is embedded in History****:* Development is also historically situated and is always influenced by historical conditions. The historical time period in which we grow up affects our development.

9) ***Normative Age Graded Influences:*** Biological and environmental influences that are similar for individuals in a particular age group (example: Childhood, Puberty) also influences development.

10) ***Normative History Graded Influences:*** Biological and environmental influences that are associated with history that are common to people of a particular generation (example: Depression, the AIDS epidemic) also influences.

11) ***Non-normative Events:*** Unusual occurrences that have a major impact on an individual's life; the occurrence, the pattern, and sequence of these events are not applicable to most individuals (e.g. Death of a parent at young age, getting a serious illness, winning a lottery).

1.6 FACTS OF DEVELOPMENT

We all know that development is the critical period for child development. Some significant facts must be taken into consideration to understand the pattern of development. Each of these has important implications and is explained as follows:

1) ***Early foundations are critical*:** Early foundations are critical because attitudes, habits and pattern of behaviour established during early years determine to a large extent how successfully individuals will adjust in their later life.

2) ***Role of maturation and learning in development:*** Maturation and learning play a significant role in the development. Maturation is unfolding individual's inherent traits. Learning is development that occurs from experience and efforts on the individual's part. Maturation provides the raw material for learning. Generally development is influenced by the interaction of both.

3) ***Development follows a definite and predictable pattern*:** It follows a definite and predictable pattern. There are orderly patterns of physical, motor, intellectual and speech development. Development is governed by certain laws: (i) Cephalocaudal Law – It means that development spreads over the body from head to foot and (ii) Proximodistal Law – It means that development spreads outward from the central axis of the body to extremities.

4) ***All individuals are different:*** No two people react in the same way to the same environmental stimuli and, one can never predict with accuracy how people will react to a situation. These individual differences are significant because they are responsible for individuality in personality make up.

5) ***Each Phase of development has characteristic behaviour:*** Each Phase has certain characteristic behaviours. The patterns are marked by periods of equilibrium, when individuals adapt easily to environmental demands and as a result make good personal and social adjustment and by periods of disequilibrium, when they experience difficulty in adaptation, make poor personal and social adjustment.

6) ***Hazards in each phase:*** Each stage is related to certain hazards such as physical, psychological and environment. These hazards inevitably involve adjustment problems. We should be aware of these hazards because awareness of these makes it possible to prevent or to at least alleviate these.

7) ***Development is aided by stimulation:*** While most development occurs as a result of maturation and environmental experiences, much can be done to aid development so that it will reach its full potential. Stimulation is especially effective at the time when ability is normally developing, though it is important at all times.

8) ***Cultural changes affect the development:*** An individual's development is molded to confirm to cultural standards and norms, while changes in these standards affect the developmental pattern.

9) ***Every stage has social expectation:*** Every stage has certain societal expectation. The individual will be successful in fulfilling those expectations only if s/he is adhering to the rules and regulations of the family and society.

10) ***Traditional beliefs***: Traditional beliefs about physical and psychological characteristics affect the judgments of others as well as their self evaluation. So long as these beliefs persist, they have a profound influence on the development pattern.

1.7 RESEARCH METHODS FOR LIFE SPAN DEVELOPMENT

As you know development is a continuous process in a development of a child. It occurs over a life time period, thus we need to special techniques are employed to study the life span development. These techniques are discussed here:

1) ***Longitudinal method****:* For the study of developmental changes in the same group or individual, over a period of time, this method is useful. The same individual is tested at different age group. Example, case study of children behaviour in classroom.

2) ***Cross-section method:*** This method studies the development changes by testing individuals of different ages at the same time only once. This method helps to get the norms or standards of typical pattern of development for different age. This is faster and cheaper method than longitudinal method. It does not loose subjects who dropout of the study since the subjects are tested only once. Example for this method is eating behaviour of 5 years old.

3) ***Sequential method:*** To overcome the drawback of longitudinal and cross-sectional method this method was used. This is best method which combines the longitudinal and cross-sectional method. People in a cross-sectional sample are tested more than once and the results are analysed to determined the differences that show up overtime for the different groups of subjects. This method gives a more realistic assessment.

4) ***Time lag method:*** This method is studying the development of different age groups in different years to determine the effect of historical events on behaviour. This method is rarely used in developmental psychology, because it takes a long time and large numbers of subjects are required and have to be the same age at the time of testing.

Self Assessment Questions

Fill in the blanks.

1) The development involves three factors such as ———, ———— and ————.

2) Gains and losses in development occur throughout the ———————— development.

3) Multidimensional development occurs in the biological, ————and socio-emotional domains.

4) Maturation and ———— play a significant role in the development.

5) Development is governed by two laws: (i)————— (ii)————————.

6) Each stage has physical, ————and ————————hazards.

7) ————————method is the best method to combine the longitudinal and cross-sectional method.

8) ————————— studying the development of different age groups in different years to determine the effect of historical events on behaviour.

1.8 OBSTACLES IN STUYDING LIFESPAN DEVELOPMENT

There are some obstacles in the study of life span development. The five major obstacles are discussed in the following section:

1) ***Representative Sample:*** The representative sample of a subject is the first obstacle for studying the developmental period. The different age level of the subject is the main concern for the researcher. The data collection from the school children is easy for the researcher but in the case of new born or infant, it is not that much easy. They often face strong parental objection and their mood. Getting older adolescents and young adults who are not attending school to volunteer a subject is also difficult because they may not be available for study at any one particular place. The difficulty arises with the young adult, middle aged adults, or old age person, when many persons shy away from the testing situation. They don't want to disclose their person detail to the researcher, even they are paid off.

2) ***Establishing rapport with the subject*****:** The establishing personal rapport to the subject is the second difficult task for the researcher. It is rather difficult to get full personal detail about the subject. They will never share their personal detail. It is also being noted that personal rapports vary from one stage to another stage. Even school children and college students, who often fill tests as a part of their class work, mostly they fill false information. There is no guarantee to the information being accurate. As, a result, it is questionable whether data obtained from the subject is the true picture of subject's attitude, feelings, and values. This obstacle may be reduce only by the personal rapport with the subject.

3) ***Appropriate Methodology*****:** Adaptation of an appropriate methodology is the main concern of a researcher. We take different age group subjects in a study, some time our target group may be one child, some time the subject may be an adult or some time he may be old person. Because of the wide age range of subject and the variety of different areas of development that must be studied to give a composite picture, assorted methods have to be used. Cross-sectional is the problem for researcher. Cultural changes always play a role in the patterns of physical and mental development of a child. These changes affect values of the subject.

4) ***Accuracy of data*****:** Accuracy of data is the fourth obstacle in studying the life span development. The data obtained from the studies will be accurate. Inaccuracy of the data may show the picture of false information of normal development at a particular age given by the subject. The data may vary in many cases such as in regard to intelligence being studied by different methods,

or using observational method for studying the behaviour, well-being, life satisfaction or happiness. The data vary for different age levels. The accuracy of such measures is questionable. Even through the longitudinal approach has a methodology advantage over the cross-sectional approach, the problem of accuracy is still ever present.

5) ***Ethical aspects*:** The ethical aspect is a difficult task for the study of life-span development, as the rights of subject is to be considered by the researcher, even if the subject is being paid by the researcher for the study. Consent of the subject if adult and consent of parents/ guardians if child is an important and necessary step before data collection. These considerations also apply to younger or older subjects.

1.9 LET US SUM UP

In this unit we have studied about the concept of development, growth and development, meaning of life span development and methods of studying development. The key points of our discussion in this unit are:

1) Development refers to the biological and psychological changes that occur in human beings between birth and the end of adoloscent period as the individual progresses from dependency to increasing autonomy. Because these developmental changes may be strongly influenced by the genetic and enviornmental factors during prenatal life, these are the part of the study of child development Growth refers to the development of children from birth to adolescence.

2) There are four areas, in which children grow, i.e. (i) physical, (ii) psychological and cognitive, (iii) social and emotional and (iv) sexuality and gender identity. According to Educational Foundation (2001) lifespan development is a process beginning at conception that continues until death. The progression initiates with the emergence of a fetus from a one celled organism. As the unborn child enters the world, the environment in which the child exists begins to influence the child's development.

3) There are four interactive forces that combine to shape human development and these are (i) biological forces, (ii) psychological forces, (iii) socio-cultural forces and (iv) life cycle forces.

4) Then we discussed about the issues, stages and important domains of development. Characteristics of life span development included many development as being lifelong and following a predictable pattern etc. To understand the pattern of development, certain fundamental facts must be taken into consideration. Each of these has important implications.

5) To know the developmental techniques we need to use some research methods, such as longitudinal method, cross-sectional method, sequential and time lag method. In other words, there are some obstacles to apply the research methods as sample not being representative. In some cases there is difficulty in establishing rapport with the subject and yet in certain other cases, the methodology used is not appropriate and thus the accuracy of data becomes questionable. In some cases the ethical aspects of research create difficulty in getting the subject to cooperate and the researcher to collect the data.

1.10 UNIT END QUESTIONS

1) What is life span development?

2) Explain characteristics of development.

3) What are major issues involved in the process of development?

4) Describe significant facts about development.

5) What are the different periods of development?

6) What are the various domains of human development?

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1.12 ANSWERS TO SELF ASSESSMENT QUESTIONS

True or False

1) True, 2) True, 3) True, 4) False, 5) False, 6) False. 7) True, 8) True.

Fill in the blanks

1) growth, maintains, regulation
2) life cycle
3) cognitive
4) learning
5) cephalocaudal, proximodistal
6) psychological, environment
7) sequential method
8) time-lag method.

UNIT 2 PRENATAL DEVELOPMENT (*GENETICS, ENVIORNMENT INFLUENCE AND HAZARDS OF DEVELOPMENT*)

Structure

2.0 INTRODUCTION

Prenatal development is the process in which an embryo or fetus, gestates during preganancy, from fertilisation until birth. Often, the terms fetal development, foetal development are used in a similar sense.Most physiologists and members of the medical profession believed that most development takes place before birth. Development before birth takes place in three stages or period's i.e. ovum, embryo and fetus. Many factors are considered to understand the behaviour of a developing child. Mainly five factors are considered:

1) Genetically determined biological variables

2) Nongenetically determined biological variables (i.e., lack of oxygen during the birth process and malnutrition)

3) The child's past learning

4) The immediate socio psychological environment (parents, siblings, peers and teachers)

5) The social and cultural milieu in which the child develops.

We always considered biological and environment separately for ease of exposition but they always act in unison. This is as true of the individual cell as it is of the whole person. The science of genetics and embryology has shown dramatic progress during the last 25 years. This unit will deal with the current knowledge of human genetics and prenatal factors affecting the course of development. In this unit you will be able

to understand the major happenings during the nine months of prenatal developement and what genetics, environmental influence and hazards affect the course of development.

2.1 OBJECTIVES

After going through this unit, you will be able to:

- explain the concept and characteristics of the prenatal period;
- describe the stages of prenatal period*;*
- point out the genetic factors;
- describe the attitudes of significant people towards the child; and
- analyse the common physical hazards in each subdivision of the prenatal period.

2.2 BEGINNINGS OF THE LIFE

The new life begins with the combination of a male sex cell and female sex cell. The development of each individual begins when a sperm cell from the male penetrates the wall of an ovum, or egg, from the mother. These sex cells are developed in the reproductive organs. For example, the male sex cells are produced in the male gonads, the testes, while the female's sex cells are produced in the female gonads, the ovaries. Development begins at conception. At the moment that the tiny Tadpole-shaped sperm penetrates the wall of the ovum, it releases 23 minute particles called chromosomes. At approximately the same time, the nucleus, the inner core of the ovum, breaks up, releasing 23 chromosomes of its own, so that the new individual begins life with 46 chromosomes.

All the child's biological heritage from the father and mother is contained in these 23 pairs of chromosomes. Of these pairs, 22 are autosomes, possessed equally by males and females. The 23 pair, the sex chromosomes, differs in males and females. It is these chromosomes that determine a child's sex. A female will have two X chromosomes (XX), while a male has an X and Y chromosomes (XY).

Male and female sex cells also differ in two important ways. First, in the mature ovum there are 23 matched chromosomes while in the mature spermatozoa there are 22 matched chromosomes and one unmatched chromosome which may be either an X or a Y chromosomes. The X and Y chromosomes are the sex determinant chromosomes. The mature chromosome ovum always contains an X chromosome. If it is fertilised by a Y-bearing spermatozoa, the offspring will be a boy. If it is fertilised by an X-bearing spermatozoa, the offspring will be a girl.

Once the male and female cells have united, nothing can be done to change the sex of the newly formed individual. Whether this individual is male or female has a lifelong effect on the individual's patterns of behaviour and personality. The question arises why the sex of an individual is important to lifelong development. The answer of this question consists of three points, viz. the following:

i) Each year children come under increasing cultural pressure from parents, teachers, their peer group and society at large to develop attitudes and behaviour patterns that are considered appropriate for members of their sex. Children who learn to behave in ways that are considered appropriate for their sex are assured of social acceptance.

ii) Learning experiences are determined by the individual's sex. Children learn what is considered appropriate for members of their sex. A boy who learns to play girls' games is called a sissy and girls who want to play boys games are called tomboy type girl.

iii) Attitude of parents and other family members are also important to individuals. During the early years, when the foundations of personality pattern are being laid, the children (if twins) must get equal share of the mother's attention. Where the mother gives more attention to one and not to the other, the latter may feel rejected and thus develop a personality which may be negative. Recent studies show that the traditional preference for a boy, especially for the first born, still persists which is so strong that the attitude of parents and family members are affected and in the process the developing infant.

The second way in which male and female sex cells differ is in the number of preparatory stages of development they pass through before they are ready to produce a new human being. All sex cells, male or female, must pass through the preliminary stages of development as for example the male sex cell must go through two preliminary stages (i) maturation and (ii) fertilisation, while female sex cell must go through three preliminary stages (i) maturation (ii) ovulation and (iii) fertilisation.

Maturation is the process of chromosome reduction through cell division: one chromosome from each pair goes to a subdivided cell, which in turn splits lengthwise and forms two new cells. The mature cell, which contains 23 chromosomes, is known as a haploid cell. Maturation of sex cells does not occur until sex maturity has been attained, following the onset of puberty in both boys and girls.

Ovulation is a preliminary stage of development limited to the female sex cells. It is the process of escape of one mature ovum during the menstrual cycle. It is observed that the two ovaries alternate in producing a ripe ovum during each menstrual cycle.

Fertilisation, which occurs at the time of conception, is the third stage of development preliminary to the beginning of a new life. It normally occurs while the ovum is in the Fallopian tube.

2.3 CHARACTERISTICS OF PRENATAL PERIOD

The prenatal period has some important characteristics, each of which has a long lasting effect on development during the life span.

- This is the most important and first period of development in the life span.
- It is the first but shortest period for the new born baby or infancy, which starts from the conception and ends at the birth time of baby. This period is approximately 270 to 280 days or nine months of a calendar.
- Heredity factors are also important for prenatal development; it serves as the foundation for later development. While favourable or unfavourable conditions both before and after birth may and probably will affect to some extent the physical and psychological traits that make up this heredity endowment. The changes will be quantitative and not qualitative.
- Favourable and unfavourable conditions of the mother's body can foster the development of hereditary potentials. Some times the hereditary potentials are so influenced by environmental conditions that they affect the embryo or the fetus as the case may be affecting the development adversely.

- At the time of conception, the sex of the baby is fixed. Except when surgery is used for sex transformation, the sex of the individual, determined at the time of conception, remains the same and does not change.
- During the prenatal period, proportionally greater growth and development take place than any other time throughout the entire life of human.
- Before birth (during nine month) the child grows from microscopically small cell to an infant who measures approximately twenty inches in length and weight, on the average 7 pounds. It is observed that during this time weight increases 11 million times.
- Many believe that this time is more hazardous than other periods of the life span. It certainly is a time when environment or psychological hazards can have marked effect on the pattern of later development..
- During the prenatal period, the attitudes of people towards the newly created individual has significant impact on the development. For example the mother's positive attitude is essential to the normal development of the newly created individual.

2.4 PERIODS OF PRENATAL DEVELOPMENT

The prenatal period is ten lunar months of twenty-eight days each in length or nine calendar months. However, the period can and does vary greatly in length, ranging from 180-334 days. There are approximately three times as many babies born prematurely as post maturely. Meredith has reported that the average length of the prenatal period is 38 weeks or 266 days. However, 70% of babies vary from 36 to 40 weeks or 266 days and 98% range from 34 to 42 weeks (238-294 days). The prenatal period is divided into three stages. These are (i) period of the zygot (ii) period of the embryo and (iii) period of the fetus. Let us take up each of these in detail.

2.4.1 Period of Zygote (*fertilisation to end of second week*)

Half of a person's genetic material comes from his father and half comes from the mother. These two halves come together to form a unique combination of genetic potentialities when the sperm fertilises the egg. In the nucleus of the fertilised egg, or zygote, are the materials that bear the pattern for a new person, one who is different from his parents and yet like them. This first cell in which the male genes are joined with the female is called the *Zygote*. The zygote looks like an unfertilised egg. The egg is so much larger than the sperm that it can absorb the sperm without showing it. However, the unfertilised egg has only twenty-three chromosomes, whereas the zygote has forty six –the twenty three that were in the egg originally and the additional twenty three contributed by the male. Less than two days after the sperm unites with the egg, the zygote divides into two cells. Then these two cells each divide again, and the process of division goes on, forming in nine months a new human being.

2.4.2 Period of Embryo (*end of the second week to end of the second lunar month*)

The embryo develops into a miniature human being. This stage begins on the 15th day after conception and continues until about the 8th week, or until the embryo is 1.2 inches in length. During this period the cells of the embryo are not only multiplying, but they are taking on specific functions. This process is called tissue differentiation. It is during this critical period of differentiation (most of the first trimester or three-

month period) that the growing fetus is most susceptible to damage from external sources (teratogens) including viral infections such as rubella, x-rays and other radiation, and poor nutrition.

A child who has one developmental problem may have other problems that arose at the same time. Kidney problems and hearing problems, for example, are often found together because both kidneys and the inner ears develop at the same time. Formation of the heart begins in 3 weeks, the beginning development of the brain and spinal cord, and the beginning of the gastrointestinal tract.

Teratogens introduced during this period may cause severe problems such as the absence of one or more limbs or a heart that is outside of the chest cavity at birth.

Beginnings of the vertebra, the lower jaw, the larynx (voice box), and the rudiments of the ear and eye develop at weeks 4 and 5 (1/4 inch long). The heart, which is still outside the body, now beats at a regular rhythm. Although arm and leg "buds" are visible with hand and foot "pads", the embryo still has a tail and cannot be distinguished from pig, rabbit, elephant, or chick embryo by an untrained eye.

Teratogens may cause very serious problems involving the esophagus, vertebrae, and eyes. The baby could be born with severe facial clefts or missing hands or feet.

At week 6 (1/2 inch, 1/1000 of an ounce), formation of the nose, jaw, palate, lung buds takes place. The fingers and toes form, but may still be webbed. The tail is receding, and the heart is almost fully developed. Teratogens at this point may leave the baby with profound heart problems or a cleft lip.

In the 7th week (7/8 inch, 1/30 ounce) eyes move forward on the face, and the eyelids and tongue begin to form. All essential organs have begun to form. Teratogens may cause heart and lung problems, a cleft palate, and ambiguous genitalia (not quite male or female).

At the 8th week (1 inch, 1/15 ounce) embryo now resembles a human being. The facial features continue to develop and the external ear appears. Also, we see the beginnings of external genitalia. By now, the circulation through the umbilical cord is well developed. The long bones begin to form and the muscles are able to contract. Teratogens may still cause heart problems and stunting of the fingers and toes

2.4.3 Period of Fetus (end of the second lunar month to birth)

At this point the embryo is developed enough to call a fetus. All organs and structures found in a full-term newborn are present. The head comprises nearly half of the fetus' size and the face is well formed at weeks 9 to 12 (3 inches, 1 ounce). The eyelids close now and will not reopen until about the 28th week. The tooth buds for the baby teeth appear. The genitalia are now clearly male or female.

Weeks 13 to 16 (6 inches) mark the beginning of the second trimester. Although the skin of the fetus is almost transparent, fine hair develops on the head called lanugo. The fetus makes active movements, including sucking, which leads to some swallowing of the amniotic fluid. A thin dark substance called meconium is made in the intestinal tract. The heart beats120-150 beats per minute and brain waves are detectable.

Eyebrows and lashes appear and nails appear on fingers and toes at week 17 to 20 (8 inches). This is an exciting time for the parents: The mother can feel the fetus moving (quickening) and also hear the heartbeat with the help of stethoscope.

All the eye components are developed, footprints and fingerprints are formed at week 21 to 24 (11.2 inches, 1 lb. 10 oz) and the entire body is covered in cream-cheese-like vernix caseosa. The fetus now has startle reflex action. Many reflexes, which are automatic and unlearned responses to specific stimuli, appear: swallowing, coughing, and sucking.

During 25 to 28 weeks (15 inches, 2 lbs. 11 oz) we can observe the rapid brain development of the fetus. The nervous system is developed enough to control some body functions, and the eyelids open and close. A baby born at this time may survive, but the chances of complications and death are high at this period.

The 29 to 32 weeks (15 to 17 inches, 4 lbs. 6 oz) development occurs towards independent life. For example, respiration movements are predicted even though oxygen is being provided through the placenta. There is a rapid increase in the amount of body fat and the fetus begins storing its own iron, calcium, and phosphorus. The bones are fully developed, but still soft and pliable. There are rhythmic breathing movements present, the fetal body temperature is partially self-controlled, and there is increased central nervous system control over body functions.

The body hair begins to disappear at the week of 33 to 36 (16 to 19 inches, 5 lbs. 12 oz. to 6 lbs. 12 oz.:). A baby born at 36 weeks has a high chance of survival.

At 38 weeks (19 to 21 inches 7 or 8 pounds) the fetus is considered full term. It fills the entire uterus, and its head is the same size around as its shoulders. The mother supplies the fetus with the antibodies it needs to protect it against disease.

Self Assessment Questions

State whether the statement is *True or False*.

1) Development before birth takes place in the three stages or period. ( )
2) Life begins with the only male cells. ( )
3) A female have X chromosomes and male have an X and Y chromosomes. ( )
4) X and Y chromosomes are the sex determines chromosomes. ( )
5) Prenatal period is nine calendar months. ( )
6) Prenatal period is divided into two stages. ( )

2.5 ENVIRONMENTAL INFLUENCES

So far in today's advanced technology, the fetus has been considered to be an active part of research in its own development. Many scientists believe that anything that affects the environment of the fetus can have an effect upon the development beginning at conception and not at birth.

Environment does indeed begin to influence the individual as soon as he or she is conceived. As the zygote undergoes mitosis (cell division), the new cells themselves become part of the mother's environment, and through their particular physical and chemical influence they guide and control the development of further new cells. Different genes are activated or suppressed in each cell, so that while one group of cells is developing into brain tissue, another is giving rise to the heart, another to the lungs, and another to the skeletal system. Meanwhile, the lump of cells is surrounded

by the larger environment of the mother's uterus, and this environment is surrounded by the mother and the world in which she lives.

i) **Mother's diseases**: Mother's diseases is the main cause of fetal death and their possible effects. German measles or rubella and cytomegalovirus diseases are among the most potentially dangerous of the infectious diseases in mothers. These diseases that affect the mother also affects the child and thus affects adversely the development. Studies have shown that there is a high incidence of defective babies if women contracted rubella early in pregnancy. In any case if the rubella virus crosses the placenta; it can result in stillbirth, deafness, pre maturity, miscarriage, defects in pancreas, heart and liver. It may also lead to mental retardation. Mumps, polio and influenza are the other viruses which have teratogenic effects. Diabetic mother is as likely to give birth to infants with congenital malformations as non diabetic mother, and their infant often will have respiratory difficulties soon after birth. Women who are suffering from blood poisoning during pregnancy frequently give birth to premature babies or to babies smaller than average babies. In case this blood poisoning is incurable, this may affect the mother and child both.

ii) **Drugs and Chemicals**: For a healthy delivery it is necessary to avoid any kind of drugs and chemicals unless they are professionally recommended by the doctors. Alcohol, antihistamines, aspirin (excess doses), barbiturates, heroin, lead, quinine, thalidomide, insulin (large doses, used in shock therapy) and tobacco are the drugs and chemicals which affect the possible prenatal period development. In many cases, the drugs cause stunting or complete absence of the arms, legs, and fingers. Abnormalities of the internal organs may also occur. Abel, (1980) and Stechler and Halton, (1982) found in their research that greater consumption of alcohol is known to harm the developing embryo and fetus. Having an occasional drink may not be harmful to the mother or fetus. During pregnancy time more than three times consumption of drinks per day would lead to children showing permanent growth retardation, brain cell abnormalities, eye, ear and other facial disfigurations, joint and limb abnormalities, heart defects, mental retardation, and attention deficits. Even smaller daily consumption of alcohol by pregnant women may result in poor attention and reaction time in their children at preschool age.

It has been noted that cigarette smoking had a high risk of delivering prematurely. It is associated with prematurity and low birth weight. These children may suffer from later growth and cognitive deficiencies. A pregnant woman should guard against exposure to all drugs and chemicals during pregnancy, but she must be particularly careful about taking drugs.

iii) **Radiation**: Radiation is responsible for causing damage to the fetus. Larger doses of therapeutic radiation may be injurious to the fetus and sometimes cause spontaneous abortion. There really seems to be no completely safe level of radiation. Even the various levels of natural radiation found in different parts of the world can be correlated with higher or lower chances of babies born in those parts of the world to have congenital abnormalities.

iv) **Abortion:** Termination of pregnancy could be due to natural causes or a pregnancy may be terminated medically due to certain medical reasons. In India if the parents or the family who do not want a baby girl, come to know of the child's sex, they may request the doctor to carry out abortion. Abortion procedure is generally performed by a licensed physician in a hospital or clinic

and it is carried out before the pregnancy advances beyond a specified number of weeks. With modern antiseptic and surgical techniques, abortion in the early months of pregnancy is safer than childbirth. The opposition to abortion now is based on moral and religious, not medical, grounds.

v) **Age of the mother**: The maternal age have a higher risk for infant defect, prematurity and infant death (Jensen, Benson, and Bobak, 1981; Vital and Health statistics, 1972).

In older woman (woman over 35 years) the ova, which have been present in an immature state from birth, may have been affected by aging or exposure to chemicals, drugs and other harmful agents. In young women (women under 18 years) the reproductive system may not be fully developed. Pregnant teenagers may also have generally poor prenatal care.

vi) **Nutrition/ Diet of the mother**: The mother is the only sole source of nutrition for the unborn child, a diet providing the proper balance of proteins, fats, carbohydrates, minerals, and vitamins is vital. Many correlational studies of humans indicate a relationship between maternal diet deficiencies and prematurity, low birth weight, stillbirth, growth retardation, and poor mental functioning (Knobloch and Pasamanick, 1974). Diet deficiencies during the first trimester of pregnancy are specially harmful, but deficiencies during the last trimester may also be important because of rapid brain growth during that time(Laster, 1975). Poor nutrition may simply not meet the diet needs of the fetus; it may also act indirectly by increasing the mother's vulnerability to pregnancy complication and disease.

vii) **Stress in the mother**: The effects of maternal stress are less important than the effects of maternal nutrition but some studies strongly believe that maternal stress may affect the fetus development(Stechler and Halton, 1982). It seems that maternal emotions could influence the growing child. The emotions act through the autonomic nervous system that activates the endorcrine glands, which, in turn, regulate the secretion of hormones such as adrenalin. Because hormones can pass through the placenta, they may affect the fetus. In a more recent study, motor depression in newborns was associated with anxiety rated in prospective mothers during the last month of pregnancy, but also with the use of medication during child birth(Standley, ZSoule, and Copans, 1979).

viii) **The Rh Incompatibility**: The Rh factor, is an inherited protein found in the blood of 85% of the population. The problem arises when the male carries the Rh positive factor, the female does not carry the Rh negative factors and the child develops as Rh positive. If the sibling blood comes into contact with the mother's, the mother system may manufacture antibodies to ward off the foreign Rh protein. The antibodies destroy the child's oxygen- carrying red blood cells, a condition known as *erythroblastosis* and death or mental retardation can occur.

Self Assessment Questions

Fill in the blanks

1) A women who are suffering the ——————during her pregnancy frequently give birth to premature.

2) Cigarette smoking is associated with the —————— and ——————.

3) Radiation is responsible of damage the ——————.

4) ——————is the procedure to know the child gender.

5) The mother is the only sole source of ——————— for the unborn child.

2.6 LET US SUM UP

In this unit you have studied about the detailed process of prenatal period, which is defined as extending from conception to birth and is approximately nine months long and it has many characteristics. It is the time when the heredity endowment and sex of the individual are determined, when conditions in the mother's body can disturb the pattern of prenatal period. Before they are ready to produce new individuals, male sex go through the two preliminary stages – maturation and fertilisation and female sex cells go through the three stages i.e. maturation, ovulation and fertilisation. The prenatal period is divided into three stages: the period of zygote; the period of embryo and the period of fetus. After a female egg is fertilised, it becomes known as a zygote. Once the egg is fertilised, the zygote begins a two-week period of rapid cell division and will eventually become an embryo. The zygote divides through a process known as mitosis, in which each cell doubles by dividing into two cells. This two-week stage is known as the germinal period of development and covers the time of conception to the implantation of the embryo in the uterus. The period of embryo, this extends from the end of the second week to the end of the lunar month. The period of fetus, this extends from the end of the second lunar month to birth. Attitude of the significant person toward the newly created individual are established during the prenatal period. Environmental influences that adversely affect the child development during the pregnancy. Some teratogens are diseases that infect the mother and infant. Some drugs and chemicals that cross from the mother's bloodstream into the infant. X-rays and abortion, which affect the mother's outside body.

2.7 UNIT END QUESTIONS

1) Define the prenatal period.

2) Elaborate the stages of prenatal development.

3) What are the two stages in which male sex go through?

4) What are the three stages in which female sex go through?

5) Define the genetic influences on prenatal period.

6) How can environmental influences affect the development of infant?

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2.9 ANSWERS TO SELF ASSESSMENT QUESTIONS

True or False

1) True, 2) False, 3) True, 4) True, 5) True, 6) False

Fill in the blanks

1) blood poising, 2) prematurity and low birth rate, 3) fetus, 4) Abortion,

5) nutrition.

UNIT 3 DEVELOMENT DURING INFANCY (*PHYSICAL, PSYCHOSOCIAL, COGNITIVE AND LINGUISTIC)*

Structure

3.0 INTRODUCTION

In unit one and unit two you have studied about the concept of development, life-span development and prenatal development. Now it is time to understand the infancy period. Infancy period is defined as a state or period of being an infant; the first part of life; early childhood. This is the first period of life and it is very much sensitive period for a child. This period is start from birth -2 years. In this unit we are going to introduce to concept of infancy period and physical, psycho-social, cognitive and linguistic aspects of development. You will also be able to understand the characteristics of infancy period, its adjustment, and some physical and psychological hazards during the infancy period.

Definition of Infancy: The first age of anything; the beginning or early period of existence; as, the infancy of an art.

3.1 OBJECTIVES

After going through this unit, you will be able to:

- define infancy and elucidate the Concept of infancy period;
- explain the Characteristic features of infancy period
- explain how the characteristics differ from characteristics of other periods in the life span;

- explain the adjustment of infancy period and the conditions influencing these adjustment;
- describe about the physical and psychological hazards which faces the child;
- describe physical and psycho-social development during the infancy; and
- explain cognitive and linguistic development during the infancy period.

3.2 CONCEPT OF INFANCY PERIOD

A child goes through the various stages in his full life such as infancy, childhood, adolescence, adulthood and lastly old age. This is the beginning period for a child and fastest period. Infancy period is defined in many areas, some by medical practitioners who define this period as of the period of young child. They do not specify any age limits. Some psychologists use the word infant in much the same way as members of the medical profession do. Infant is minor and is struggling for reaching the age of legal maturity. He is so helpless person and dependent on other persons. The first two years of an individual's life are the time of his most rapid development. Although every child develops at its own rate, each grows up in an orderly and predictable patterns. Cephalocaudally means the development takes place from head to tail and proximodistally means from trunk to extremes.

The behaviour and ability of 2 year old children are different from that of older children. The two year old children can eat, cry, move, babble, play, kick, and smile. Two year old children has the absence of qualities such as the ability to speak, to act with intention, to reason, to be self-conscious, and to experience the emotion of guilty, empathy and pride. Psychologists like Sigmund Freud, Erik Erikson and Jean Piaget highlighted a different aspect of an infant because each was loyal to assumptions that were part of the larger cultural context in which they lived.

3.3 CHARACTERISTICS OF INFANCY PERIOD

The characteristics of infancy period are as follows:

i) The infancy period is the shortest period of whole life-span development. It start's from birth to two years. This is the time when fetus comes into the world from the mother's womb where he lives almost nine critical months.

ii) Adjustment is equally important to the infant as he has to adjust with the outer surroundings. Most of the infants complete their adjustment period in two weeks or less than two weeks. In infants whose birth has been difficult or premature require more time for adjustment.

iii) Infancy period is a plateau in development. The growth and development which took place during the prenatal period suddenly come to a stop with birth. Infant loses weight after birth, is less healthy compared to what it was at the time of birth. At the end of this period infant again starts gaining weight.

iv) Bell, R.Q. et. al. (1971) suggested that infancy is a period of future prediction. We can start some future prediction about the infant. Some activities show the prediction of development. It is a preview of later development.

v) Infancy is considered a period full of hazards in terms of physical and psychological adjustment. Physical adjustment to the new environment is difficult for the child. The attitudes of the family members create more difficult situation for the infant.

Psychologically, the attitude of significant toward the infant gets crystallized. This attitude changes from one stage to another.

3.4 ADJUSTMENTS DURING INFANCY

As already discussed infants have to make certain important adjustments after birth. They have to make these changes quickly for their better development. If they are not able to effect those changes, they may face some problems regarding their adjustment. Even they may regress to a lower stage of development. There are four major adjustments during infancy period, which are described below:

i) *Temperature changes*: There is a constant temperature of 100 degree F in the uterine sac, while temperature in the hospital or home may vary from 60 to 70 degree F.

ii) *Breathing*: When the umbilical cord is cut, infant must begin to breathe on its own.

iii) *Sucking and Swallowing*: The infant must now get nourishment by sucking and swallowing, instead of receiving it through the umbilical cord. These reflexes are imperfectly developed at birth, and the infant often gets less nourishment than is needed and thus loses weight.

iv) *Elimination*: The infant's organs of elimination begin to work soon after birth. Earlier, the waste products were eliminated through the umbilical cord.

3.5 HAZARDS DURING INFANCY PERIOD

As mentioned earlier, the period of infancy is the shortest period of development for a child. In this short time there are many hazards. These hazards may be classified as physical and psychological hazards.

1) **Physical hazards:** The physical hazards of infancy though of low significance, its effect on infant can affect the entire life span of the child. Some physical hazards are given below:

   i) *Complication at the time of birth*: If the mother has some complications at the time of birth or delivery, chances of the child getting physically injured are high. A caesarean birth is likely to result in anoxia, a temporary loss of oxygen to the brain. If the anoxia is severe, brain damage will be far greater than if anoxia lasts for only a few seconds. The more complicated the birth and the more damage there is to the brain tissue, greater will be the effect on the infant's postnatal life and adjustment. The use of too much medicine at the time of birth may lead to a serious complication.

   iii) *Multiple births*: Children of multiple births are usually smaller and weaker than singletons as a result of crowding during the pre natal period, which inhibits fetal movements. These infants tend to be born pre mature, which adds to their adjustment problems.

   iv) *Post maturity:* If the size of fetus is large then at the time of birth, there may be a need to use instruments or surgery which becomes hazardous to the infant. Critical conditions of birth may create a hazard for the infant.

   v) *Pre maturity:* The condition of pre maturity may at times be the cause of death of the infant. Prematurely born infants are also especially susceptible

to brain damage. Anoxia is another problem when premature infant's respiratory mechanism is not fully developed. This effect may be such that it can also be long lasting.

2) **Psychological hazards:** Like physical hazards some psychological hazards also affect the infancy period. Some of these are:

   i) *Traditional beliefs about birth*: There are many traditional beliefs associated with birth. These beliefs also affect the development of the child. For e.g. some people believe that those children born with difficult births, have difficult life situation. Some believe that there is some good time or event during the birth. But there is less scientific evidence to support these beliefs.

   ii) *Helplessness*: Helplessness is another struggle for the infant in outer world. At the time of birth infants are in hospital and under the care of many doctors and nurses. The helplessness of the newborn is more of a psychological hazard in the case of first born children than of later-born children.

   iii) *Attitude of parents*: The attitude of the parents may be changed at the time of birth. There are many reasons to change this attitude toward the infant such as gender preferences, excessive crying and difficulty in nourishment, complication at the time of birth and unexpected arrival of twins and triplets. The mother's attitude is more important for the infant because infants are in direct touch with their mother.

3.6 PHYSICAL DEVELOPMENT IN INFANCY

Physical Growth

The first year of infant is characterised by rapid physical growth. A normal baby doubles its birth weight in six months and triples it in a year. During that time, there is great expansion of the head and chest, thus permitting development of the brain, heart, and lungs, the organs most vital to survival. The bones, which are relatively soft at birth, begin to harden, and the fontanelles, the soft parts of the newborn skull, begin to calcify, the small one at the back of the head at about 3 months, the larger one in front at varying ages up to 18 months. Brain weight also increases rapidly during infancy: by the end of the second year, the brain has already reached 75% of its adult weight.

Growth and size depend on environmental conditions as well as genetic endowment. For example, severe nutritional deficiency during the mother's pregnancy and in infancy are likely to result in an irreversible impairment of growth and intellectual development, while overfed, fat infants are predisposed to become obese later in life. Human milk provides the basic nutritional elements necessary for growth; however, in Western cultures supplemental foods are generally added to the diet during the first year.

The newborn infant sleeps almost constantly, awakening only for feedings, but the number and length of waking periods gradually increases. By the age of three months, most infants have acquired a fairly regular schedule for sleeping, feeding, and bowel movements. By the end of the first year, sleeping and waking hours are divided about equally.

Maturation: Maturation refers to a universal sequence of biological events in the central nervous system that permits a psychological function to appear, assuming that the child is physically healthy and lives in an environment containing people and objects. Maturation cannot cause a psychological function to occur; it only sets the limits on the earliest time of its appearance. Biological events in youth consider as maturation, when they grow between 12 to 15 years. It is an age of maturation and releases hormones from the pituitary gland located at the brain. But environmental factors, such as the quality of nutrition during childhood, can accelerate the emergence of puberty by several years.

Self Assessment Questions

Fill in the blanks

1) The period of infancy is ————————.
2) ————————period called fastest period of life.
3) A caesarean birth is likely to result in————————.
4) If the fetus is ————at the time of birth, the use of any instruments becomes hazards to the infant.
5) Maturation refers to a ————————sequence of biological events in the central nervous system.

3.7 PSYCHOSOCIAL DEVELOMENT IN INFANCY

Psychosocial development is the development of a persons understanding of the environment they are living in, and figuring out how that relates to them, their behaviour, and others. To put it in even simpler terms, it is learning about yourself, through your surroundings and other people.

The theory of psychosocial development is given by the psychoanalyst Erik Erikson. It is perhaps one of the best ways to understand the psychosocial development in infancy period. He describes the impact of social experience across the whole lifespan and it is one of the better theories of personality. Erikson has characterised infancy as the period during which the child develops basic and long-lasting expectations about his world.

The central idea of Erikson's psychosocial stage theory is the development of **ego identity**. Ego identity refers to the conscious sense of self that we develop through social interaction. According to Erikson, our ego identity is constantly changing due to new experience and information we acquire in our daily interactions with others. Erikson also believed that a sense of competence also motivates behaviours and actions. Each stage is concerned with becoming competent in an area of life. If the stage is handled well, the person will feel a sense of mastery, which he sometimes referred to as **ego strength** or **ego quality**. If the stage is managed poorly, the person will emerge with a sense of inadequacy.

Erikson also believed in each stage, people experience a conflict that serves as a turning point in development. These conflicts are centered on either developing a psychological quality or failing to develop that quality. During these times, the potential for personal growth is high, but so is the potential for failure. The psychosocial theory include the Stage 1 - Trust vs. Mistrust (birth to 1 years). The first stage of Erikson's theory of psychosocial development occurs between birth and one year of age and is the most fundamental stage in life. Because an infant is purely dependent on their family members, the development of trust is based on the dependability and quality

of the child's caregivers. If an infant successfully develops trust, he or she will feel safe and secure in the world. Caregivers who are inconsistent, emotionally unavailable, or rejecting contribute to feelings of mistrust in the children they care for. Failure to develop trust will result in fear and a belief that the world is inconsistent and unpredictable. Trust and mistrust is the main feature of infant development. A sense of trust requires a feeling of physical comfort and a minimal amount of fear and apprehension about the future. Trust in infancy sets the stage for a lifelong expectation that the world will be a good and pleasant place to live.

The infancy stage focuses on the infant's basic needs, being met by the parents. If the parents expose the child to warmth, regularly, and dependable affection, the infant's view of the world will be one of trust. If the parents fail to provide a secure environment and fail to meet the child's basic need, a sense of mistrust will result. If proper balance is achieved, the child will develop the virtue hope, the strong beliefs that, even when things are not going well, they will work out well in the end. Failing this, maladaptive tendency or sensory distortion may develop and the malignant tendency of withdrawal will develop.

Others type of social behaviour

There are other types of social behaviour, which are discussed here:

i) **Attachment:** A new born baby in arms is the greatest feeling of motherhood. An infant always seek love and attention from mother and he cries to be pick up , fed, and otherwise stimulated and often as not he cries when put down. At six weeks, infant will smile at his mother face and grasp his cloth. At this age infant can recognise their caretaker and his faces. He needs mother's and father's attention towards him. This early attachment is called 'indiscriminate'; the infant seeks stimulation rather than any particular person. The concept of attachment is investigated by Ainsworth and her associates (1978), was defined as an emotionally toned relationship or tie to the mother that led the infant to seek mother presence and comfort, particularly when the infant was frightened or uncertain. This indicates that all healthy infants have healthy and strong attachment with their caretakers and this strong bonding provides the basis for healthy emotional and social development during later childhood.

ii) **Smiling:** Smiling is the means of communication for infants in early years. An early smile of the infant is just a facial exercise of the muscles. A child first pass his smile to his mother and this is at first bestowed indiscriminately between the mother and child. The smile is an important influence on mother - child relationship. The mother's responsive smile is equally important to the child. It transforms the spontaneous smile of the infant into an exchange. This may be called first real social interaction. The *social smile* appears at 7 or 8 weeks of age, and by 3 months infants will smile almost any face. This smile is important to the caretakers and child because it invites adult to interact with the baby and therefore contributes to the attachment bonding.

iii) **Anxiety:** As we all know that mother and child relation is important in infancy period. The child first recognised his mother face and infant is aware that mother is special person at this time; he is at once in a position to lose her. An infant around 10 months may be seen crawling behind his mother, from one room to another room. If mother is disappearing, he may be cry and scream, and watch every door. Even his crying and searching at different places is an indication of attachment with the mother. The increase in attachment behaviour is considered to be an indication of separation anxiety.

iv) **Fear of strangers:** A second anxiety that is a direct result of the infant's first attachment is stranger anxiety. The child is specially attach with the mother and he can be easily upset by the approach of an unfamiliar adult, especially if his mother is not present around. The infant fixes his eyes on the stranger and stares, unmoving, for a short time. He is likely to cry and show the signs of distress. Stranger anxiety disappears toward the end of the first year, as the child comes in contact with a growing number of relatives.

3.8 COGNITIVE DEVELOPMENT IN INFANCY

Cognition is a broad and inclusive concept that refers to the mental activities involved in the acquisition, processing, organisation, and use of knowledge. The major processes under the term cognition include detecting, interpreting, classifying and remembering information, evaluating ideas, inferring principles and deducting rules imagining possibilities, generating, and strategies, fantasizing and dreaming.

At the infancy period children develop many elements of abilities to think and to understand the world around them. Infants have remarkably competent organisms, even on the first day of life. The newborn child is ready to the basic sensations of our species. They can see, hear, and smell, and they are sensitive to pain, touch, and changes in bodily position.

Infants are not only growing physically during the first 2 years of life, but also they are growing cognitively (mentally). Every day they interact with different persons and learn about their environment and pathways between nerve cells both within their brains, and between their brains and bodies. Cognitive change and development is a little harder to determine as clearly. Therefore, much about what experts know about mental and cognitive development is based on the careful observation of developmental theories, such as Piaget's theory of cognitive development and Erikson's psychosocial stages. According to Piaget's theory, infants interact with their environment entirely through reflexive behaviours. They do not think about what they are going to do, but rather follow their instincts and involuntary reactions to get what they need, such as food, air, and attention.

Piaget believed that as children begin to grow and learn about their environment through their senses, they begin to engage in intentional, goal-directed behaviours.

Jean Piaget was the most influential developmental psychologist of the twentieth century. The work of cognition has held center stage in child development research since 1960. His theory of cognitive growth and change is original, comprehensive, integrative and elegant. He recorded infant's and children's spontaneous activities, and presented problems of thousands of children and adolescents. His ideas have been the source of many research studies. In Piaget's theory, knowledge is assumed to have a specific goal or purpose to aid the person in adapting to the environment. The child does not receive information passively, and thoughts are not simply the product of teaching by others. Nor is the cognitive progress seen as primarily a product of maturation of a brain. Knowledge is acquired and thought processes become more complex and efficient as a consequence of the maturing child's interactions with the world. The individual is active, curious and inventive throughout the life cycle.

The theory of cognitive development is a comprehensive theory about the nature and development of human intelligence. It deals with the nature of knowledge itself and how humans come gradually to acquire it, construct it, and use it. Moreover, Piaget

claims that cognitive development is at the centre of human organism and language is contingent on cognitive development. Piaget considered cognitive development in terms of stages. He mentioned four stages in cognitive development, that is

i) Sensory motor stage (Birth -2years)

ii) Pre operational stage (2-7 years)

iii) Concrete operational stage (7-11years)

iv) Formal operational stage (11-15 years).

Let us take up these stages one by one and discuss.

Sensory Motor Stage (Birth -2 years): The first stage is the sensory motor stage which lasts from birth to about two years old. The infant uses his or her senses and motor abilities to understand the world, beginning with reflexes and ending with complex combinations of sensory motor skills. This stage can be divided into six separate sub-stages as given below:

i) *Reflexes (birth -1 month):* The child understands the environment purely through inborn reflexes such as sucking and looking.

ii) *Primary Circular Reactions (1-4 months):* Between one and four months, the child works on an action of his own which serves as a stimulus to which it responds with the same action, and around and around we go.

iii) *Secondary Circular Reactions (4-8 months):* The child becomes more focused on the world and begins to intentionally repeat an action in order to trigger a response in the environment.

iv) *Coordination of Secondary Reactions (8-12 months):* Develop certain focuses on the demand object. Responses become more coordinated and complex.

v) *Tertiary Circular Reactions (12-24 months):* Children begin a period of trial-and-error experimentation during this sub-stage.

vi) *Early Representational Thought:* Children begin to develop symbols to represent events or objects in the world in the final sensory motor sub-stage.

3.9 LINGUISTIC DEVELOPMENT IN INFANCY

Language development is a process starting early in human life, when a person begins to acquire language by learning it as it is spoken and by mimicry. Children's language development moves from simple to complex. Infants start without language. Yet by four months of age, babies can read lips and discriminate speech sounds. The language that infants speak is called babbling. Speech replaces gestures and babbling as the child starts communicating his desires and ask questions during 6 months period. Speech, symbolism, imitation of family members or others and morality are the most distinctive characteristics of infants. After few months time the infant use their name and personal pronouns I, me, or my. It represents the self awareness and self consciousness.

Usually, language starts off as recall of simple words without associated meaning, but as children grow, words acquire meaning, with connections between words being formed. As a person gets older, new meanings and new associations are created and vocabulary increases as more words are learned.

Infants use their bodies, vocal cries and other preverbal vocalisations to communicate their wants, needs and dispositions. Even though most children begin to vocalise and eventually verbalize at various ages and at different rates, they learn their first language without conscious instruction from parents or caretakers. In fact research has shown that the earliest learning begins in utero when the fetus can recognise the sounds and speech patterns of his mother's voice.

Language is acquired with amazing rapidity, particularly after children speak their first word, usually sometime around the end of the first year. This can be understood during the months of 4-8 months child language characteristics is babbling such as, 'baba', 'dada' and 'gaga'. At the age of 12 months, the infant first utters the understandable words such as mommy, dog, dirty and yes. During 18 months the language transforms into two word combination such as mommy milk, my pencil and drink juice.

There are four main components of language development in children. Each component has its own appropriate developmental periods.

i) **Phonology** involves the rules about the structure and sequence of speech sounds. From shortly after birth to around one year, the baby starts to make speech sounds. At around two months, the baby will engage in cooing, which mostly consists of vowel sounds. At around four months, cooing turns into babbling which is the repetitive combination of consonant and vowel. Babies understand more than they are able to say.

   From 1–2 years, babies can recognise the correct pronunciation of familiar words. Babies will also use phonological strategies to simplify word pronunciation. Some strategies include repeating the first consonant-vowel in a multi syllable word ('TV'—> 'didi') or deleting unstressed syllables in a multi syllable word ('banana'—>'nana').

ii) **Semantics** consists of vocabulary and how concepts are expressed through words.

   From birth to one year, comprehension (the language we understand) develops before production (the language we use). There is about a 5 month lag in between the two. Babies have an innate preference to listen to their mother's voice. Babies can recognise familiar words and use preverbal gestures.

   From 1–2 years, vocabulary grows to several hundred words. There is a vocabulary spurt between 18–24 months, which includes fast mapping. Fast mapping is the babies' ability to learn a lot of new things quickly. The majority of the babies' new vocabulary consists of object words (nouns) and action words (verbs). By 3–5 years, children usually have difficulty using words correctly. Children experience many problems such as under extensions, taking a general word and applying it specifically (for example, 'blankie') and overextensions, taking a specific word and applying it too generally (example, 'car' for 'van'). However, children coin words to fill in for words not yet learned (for example, someone is a cooker rather than a chef because a child will not know what a chef is). Children can also understand metaphors.

iii) **Grammar** involves two parts. The first part is *syntax*, it refers to the rules in which words are arranged into sentences. The second is *morphology,* it refers to the use of grammatical markers (indicating tense, active or passive voice etc.). From 1–2 years, children start using telegraphic speech, which are two word combinations

iv) **Pragmatics** involves the rules for appropriate and effective communication. The three skills involved in this include (i) using language for greeting, demanding etc. (ii) changing language for talking differently depending on who it is you are talking to (iii) following rules such as turn taking, staying on topic, etc.

From birth to one year, babies can engage in joint attention (sharing the attention of something with someone else). Babies also can engage in turn taking activities. By 1–2 years, they can engage in conversational turn taking and topic maintenance.

Self Assessment Questions

State whether the statement is *True or False*.

1) Ego identity refers to the conscious sense of self. ( )

2) The Erikson's theory of psychosocial development occurs between birth to one year of age. ( )

3) Cognition involved in the acquisition, processing, organisation and use of knowledge. ( )

4) Sensory motor stage is divided into six sub stages of develoment. ( )

5) Six component of language development in children develop at infancy period. ( )

3.10 LET US SUM UP

In this unit we have studied about the infancy period with reference to the physical, cognitive, psychosocial and linguistic development. Let us take it one by one:

1) The period of infancy covers approximately the first two weeks of life. There are five important characteristics in the infancy period. This is the shortest period of life span; it is the time of adjustment; a plateau in development and consists of hazards filled event in life.

2) The hazards are divided into two types first is physical hazards such as unfavourable prenatal environment complication, the time of birth, multiple birth, pre and post maturity and second is the psychological hazards such as traditional beliefs about birth, helplessness, attitude of parents, etc. The infant has to do some adjustment in the outer life.

3) Physical development refers by the physical growth and maturation. Psychosocial development is the development of a person's understanding of the environment they are living in, and figuring out how that relates to them, their behaviour, and others. To put it in even simpler terms, it is learning about yourself, through your surroundings and other people. Erikson defines trust vs. mistrust in infancy period. Other types of social behaviour are also mentioned such as attachment, smiling, anxiety, and fear of stranger.

4) The theory of cognitive development is a comprehensive theory about the nature and development of human intelligence. It deals with the nature of knowledge itself and how humans come gradually to acquire it, construct it, and use it. Moreover, Piaget claims the idea that cognitive development is at the centre of human organism and language is contingent on cognitive development. Piaget concerned the cognitive development in terms of stages. He mentioned four

stages in cognitive development i.e. (i) Sensory motor stage (Birth -2 years), (ii) Pre operational stage (2-7 years), (iii) Concrete operational stage (7-11years) (iv) Formal operational stage (11-15 years).

5) Language development is a process starting early in human life, when a person begins to acquire language by learning it as it is spoken and by mimicry. Children's language development moves from simple to complex. Infants start without language. There are four component of language development i.e. phonology, semantics, grammar and pragmatics. It is discussed in detailed.

3.11 UNIT END QUESTIONS

1) Define infancy period.

2) What are the characteristics of infancy period?

3) Explain physical hazards during infancy period.

4) Explain psychological hazards during infancy period.

5) Elucidate the role of growth and maturity in physical development.

6) Define Erikson theory of psychosocial development during infancy period.

7) Explain six sub stages of sensory motor stage.

8) Elucidate the four component of language development.

3.12 SUGGESTED READINGS AND REFERENCES

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3.13 ANSWER TO SELF ASSESSMENT QUESTIONS

Fill in the blanks

1) birth to 2 years, 2) Infancy, 3) anoxia, 4) large, 5) universal.

True or False

1) True, 2) True, 3) True, 4) True, 5) False.

UNIT 4 EARLY CHILDHOOD (*PHYSICAL, PSYCHOSOCIAL, COGNITIVE AND LINGUISTIC)*

Structure

4.0 INTRODUCTION

In the previous unit you have studied about the infancy period its characteristics and common hazards during infancy period. The physical, psychosocial, cognitive and linguistic development of infancy were also discussed in detailed. Now in this unit we will discuss all these aspect in the early childhood period. Firstly, we have to understand the concept of early childhood period and its characteristics. Childhood begins when the infancy period is over approximately two years of the age group. Childhood period is divided into two age group (i) early childhood, 2-6 years (ii) late childhood, 6- to the time the child becomes sexually mature. Early childhood period is called as a conclusion of the infancy period. The child enters in the preschool and forms a personality that no –one adults or other children. His personality is absolutely individual. We generally consider as a 'little individual' or 'small figure' of the family. It is widely recognised age group and fairly long period in the life span. There are many factors are influence the child personality, that is,

i) Child social history: The child learning experiences comes form the society and these experiences are supervise by the parents or teachers;

ii) Culture: The child is encouraged to embody the typical or ideal personality of her culture;

iii) Place: the element of place and time that bring out some personality traits and leave others to reserve and;

iv) Biological makeup: facial features, physique, growth rate, genetic and temperament can advance the child personality.

4.1 OBJECTIVES

After going through this unit, you will be able to:

- define and describe early childhood;
- describe the characteristic of early childhood and explain how they differ from other periods in the life span;
- explain the physical and psychological hazards which faces the child;
- describe physical and psycho-social development in early childhood period; and
- explain cognitive and linguistic development in early childhood period.

4.2 MEANING OF EARLY CHILHOOD

Many psychologists define early childhood term in many ways. In a simple term early childhood age often focuses on children learning through play. It generally includes toddler hood and some time afterwards. Sometimes it is called a play age.

It is also defined as the period from birth to 8 years of age. A time of remarkable brain development, these years lay the foundation for subsequent learning (UNESCO).

The terms preschool or kindergarten age emphasise education around the ages of 3–6 years. The terms "early childhood learning," "early care," and "early education" are comparable with *early childhood education*. The terms day care and childcare do not embrace the educational aspects. Many childcare centers are now using more educational approaches. They are creating curricula and incorporating it into their daily routines to foster greater educational learning.

Researchers in the field and early childhood educators both view the parents as an integral part of the early childhood education process. Early childhood education takes many forms depending on the beliefs of the educator or parent.

4.3 CHARACTERISTICS OF EARLY CHILDHOOD

The characteristics of the early childhood are:

- Some parents feel that behavioural problems of childhood period are more troublesome then physical care of infants.
- Some behavioural problems occur in this period such as obstinacy, stubbornness, disobedience, negativistic and antagonistic.
- It is a toy age because most of the time children are engaged with their toys. These toys are also helpful to educate the children. Toys are important element of their play activities.
- This is a period when a child is considered physically and mentally independent. This is also a school going age.
- Children are become more self sufficient, independent, develop self-esteem.
- This is the age of foundations of social behaviour. They are more organised social life they will be required to adjust to when they enter first grade.
- Develop physical, cognitive, emotional and social development.

4.4 HAZARDS DURING EARLY CHILHOOD

There are some hazards during early childhood, which are divided into two categories, viz., (i) Physical hazards and (ii) Psychological hazards. Let us see what these are:

1) **Physical hazards**: Some of physical hazards that affect the children during the early childhood.

   i) *Illness*: Illness is highly susceptible in early age. Children are more prone to respiratory illness and wide spread infectious diseases. Today many viruses are spread in the air, if children are affected to this virus they will fall sick.. Children who are sick for an extended time fall behind in their learning of skills needed for play and other activities.

   ii) *Accidents*: The chances of deaths in early years are high because of accidents than at any other age. Some studies suggest that boys are having more accidents than the counterpart of girls. Most young children face the problems of getting knife and blade cuts, burns, infections and broken bones, etc. Some also get into physical accidents which may disable them temporarily or permanently.

   iii) *Obesity*: Obesity is always a hazard in early childhood years. Children with endomorphic body builds tend, as a group, to have more problems with obesity than do those who have mesomorphic body build. Children who are very fond of food, and having a typical personality are more prone to diabetics and heart attacks, as compared to normal children. This is also a health hazard in early period of development. Having junk food regularly make children more obese.

2) **Psychological hazards:** The common psychological hazards are discussed here:

   i) *Speech hazards*: Communication is an important tool for social belonging. They can communicate through their speech or language. Some time their language is not understandable to others and their communication is not clear and this will lead to the feelings of inadequate and inferiority. The quality of speech is poor in young children.

   ii) *Social hazards*: There are number of social hazards in early childhood. If a child has some communication problem he may be unpopular with the peer group children. Such children may feel not only the lonely but also feel deprived of opportunities to learn to behave in a peer approved manner. Some times children develop unhealthy social attitudes. Young children who have experiences of discrimination and prejudice because of religion, caste or sex, they manifest biased behaviours. As a result they minimize the contacts with the people at outside the home or inside the home.

   iii) *Play hazards*: Children who feel isolated in the play ground and lack of playmates, either because of geographical isolation or because they are not forced to engage in solitary forms of play, stand to be rejected by other children and do not develop the needed motor and other related skills and thus may feel handicapped and inferior to other children.

iv) *Moral hazards*: Inconsistent discipline slows down the process of learning to conform to social expectations. Children are confused when they find that different people have different views about the particular behaviour.

4.5 GROWTH AND DEVELOPMENT IN EARLY CHILDHOOD

Growth and development are complementary processes. Growth indicates the bodily changes in a qualitatively way such as height and weight, and development indicates the changes in both the qualitative and quantitative way (e.g. intelligence, creativity and language acquisition).

Development can be defined as a 'progressive series of orderly coherent changes. The various types of developmental changes follow certain principles. Some of these principles are as follows:

1) Growth and development follow an orderly sequence.

2) Each child normally passes through a number of stages, each with its own essential characteristics.

3) There are individual differences in rate and pattern of development.

4) Though the human being develops as a unified whole, yet each part of the body develops at a different rate.

5) Development is essentially the result of the interaction between maturation and learning. While maturation is the 'unfolding of characteristics potentially present in the individual's genetic endowment', learning refers to the relatively enduring 'changes that come about as a result of experience and practice.'

Self Assessment Questions

Fill in the blanks

1) Childhood period is divided into two age group (i)————————— (ii)—————————.

2) Early childhood period is called a conclusion of —————————period.

3) Physical hazards are ————,————,———— and ————.

4) Psychological hazards are————, ————, ————, and ———— ———.

5) Growth indicates the bodily changes in ————way.

4.6 PHYSICAL DEVELOPMENT IN EARLY CHILDHOOD

Early childhood period is more developing period in respect to the cognitive, physical social and language. Erikson, Kohlberg, Piaget, and Bronfenbrenner, explain the more subtle changes that occur inside the body.

Physical changes in early childhood are accompanied by rapid changes in the child's cognitive and language development. From the moment they are born, children use all their senses to attend to their environment, and they begin to develop a sense of cause and effect from their actions and the responses of caregivers

Height: Growth rate slows: the average child in this stage grows 21/2 inches in height and 5-7 pounds per year.

Weight: The average annual increase in weight is 3 to 5 pounds. At age 6, children should gain weight approximately six times as much as they did at birth. The average girl weighs 48.5 pounds, and the average boy weighs 49 pounds. Body fat declines during preschool years.

Body build: Body differences are fairly seen during this period. Some children have an endomorphic of flabby, fat body, some have mesomorphic sturdy look, muscular body build and some have an ectomorphic or thin body. Boys have more muscle while girls have more fat. The boy's muscles become larger, stronger, and heavier.

Motor skills: Gross and fine motor skills progress rapidly. Gross motor skills include running, skipping and jumping. Fine motor skills include turning pages of a book and learning to write and draw.

Brain development: The most important physical development during early childhood is the brain and nervous system growth.

Body proportion and shape: The average preschool child requires 1700 calories per day. Well balanced meals are important in this stage because their diet affects skeletal growth, body shape and susceptibility to disease.

Teeth: During the first four to six months of this stage, the last four baby teeth-the back molars-erupt. During the last half year of early childhood, the baby teeth begin to replaced by permanent teeth. When early childhood is over, the child generally has one or two permanent teeth in front and some gaps where permanent teeth will eventually erupt.

4.7 PSYCHOSOCIAL DEVELOPMENT IN EARLY CHILDHOOD

Erik Erikson's (1902-1994) theory of psychosocial development describes the impact of social experience across the whole lifespan. The theory of psychosocial development is one of the best-known theories of personality in developmental psychology. The word 'psychosocial' is Erikson's term, effectively from the words psychological (mind) and social (relatioships). He believed that his psychosocial principle is genetically inevitable in shaping human development, and it occurs in all people. In early childhood years, children start to develop self-conscious emotions, instead of purely reacting to caregivers' or other adults'. For example younger children feel perfectly happy himself and will not experience negative emotions until caregivers express their displeasure at the messy situation. Children may still enjoy playing with the play mates at early childhood stage and they may feel happy when they get praise or reward from the family members.

According to Erickson's developmental theory, children start to evaluate themselves at the early stage of development of "*Autonomy versus Shame and Doubt*." At the end of this stage, young children's self-evaluations are either autonomous and positive, or negative and ashamed. Young children who feel autonomous see themselves as good, valuable people who are able to do what is expected of them in a positive way. In contrast, young children who feel ashamed also feel worthless and incapable of doing what is expected of them.

As children become increasingly self-aware, more effective at communicating, and

better at understanding the thoughts and feelings of others, their social skills increase. Children in the early childhood stage become skilled at modifying and expressing their emotions to fit different social situations. For example, Billy may feel angry, but he knows that having a tantrum at school is inappropriate. Similarly, Sally learns that acting pleasant and happy even if she feels shy and scared is a better way to meet people at a birthday party when she doesn't know many of the other children. Changing or controlling one's emotions in social situations is an important skill that allows children to fit in with groups and start to create interpersonal relationships. Children who successfully complete this stage feel secure and confident, while those who do not are left with a sense of inadequacy and self-doubt.

4.8 COGNITIVE DEVELOPMENT IN EARLY CHILDHOOD

Jean Piaget described two processes of behaviour (i) assimilation and (ii) accomodation. *Assimilation* is the process of using or transforming the environment so that it can be placed in preexisting cognitive structures. Let us take an example of an infant who uses a sucking schema that was developed by sucking on a small bottle when attempting to suck on a larger bottle.

Accomodation is the process of changing cognitive structures in order to accept something from the environment.

Both processes are used simultaneously and alternately throughout life. An example of accomodation would be when the child needs to modify a sucking schema developed by sucking on a pacifier to one that would be successful for sucking on a bottle.

As schemas become increasingly more complex (i.e., responsible for more complex behaviours) they are termed structures. As one's structures become more complex, they are organised in a hierarchical manner (i.e., from general to specific).

Stages of Cognitive Development: Piaget identified four stages of cognitive development; sensory motor stage (birth- 2 years), preoperational stage (2-7 years), concrete operational stage (7-11 years) and formal operational stage (11-above).

At the pre-operational stage (Play age and Early Childhood) intelligence is demonstrated through the use of symbols, language use which matures, and memory and imagination are developed, but thinking is done in a non logical, non reversible manner. Egocentric thinking also predominates at this stage. Children form stable concepts and mental reasoning begins to develop.

From 2-4 years children develop symbolic reasoning (the ability to picture an object that is not present.). Egocentrism starts out strong in early childhood, but weakens. Magical beliefs are constructed.

Between 4-7 years of age the child develops intuitive thought (the use of primitive reasoning skills and wondering "why"). Starting school is a major landmark for children at this age. Piaget also noted that children feel great difficulty to accept the views of others and Piaget called this egocentrism. Egocentrism is when children experience difficulty in experiencing others person's perspective.

As we know that this is called a play age and many schools are adopting the Piaget's theory of cognitive development, which provides part of the foundation for constructive learning. Discovery learning and supporting the developing interests of

the child are two primary instructional techniques. It is recommended that parents and teachers challenge the child's abilities. It is also recommended that teachers use a wide variety of concrete experiences to help the child learn (example, use of manipulatives, group work, field trips or work, etc.).

4.9 LINGUSTIC DEVELOPMENT IN EARLY CHILDHOOD

Proper language development is the main concern in the early childhood. Language is the only powerful tool to enhance the ability of cognitive development. As we have already read that unclear communication may create the hazards for the development of a child. A good language always allows the child to communicate or interact with others persons and solve their problems. At the end of age seven, children are able to demonstrate some basic understanding of less concrete concepts, including time and money. However, the eight-year old still reasons in concrete ways and has difficulty understanding abstract ideas.

Beginning the first three years of life, children develop a spoken vocabulary of between 300 and 1,000 words, and they are able to use language to learn about and describe the world around them. By age five, a child's vocabulary will grow to approximately 1,500 words. Five-year-olds are also able to produce five-to seven-word sentences, learn to use the past tense, and tell familiar stories using pictures as cues.

At the age of six years a child can learn consonants that are to be mastered: f, v, sh, zh, th,1 .

They should dev elop the concept of 7 and their speech should be completely intelligible and socially useful. Children at this age should be able to tell others a well connected story about a picture seeing the relationships therein. Between objects and happenings

At the age of seven years a child masters the consonants s-z, r, voiceless th, ch, wh, and the soft g as in George . They should be able to handle opposite analogies easily: girl-boy, man-woman, flies-swims, blunt-sharp short-long, sweet-sour, etc . They must be able to understand such terms as: alike, different, beginning, end, etc. In addition children at this age should be able to tell time to quarter hour and do simple reading and write many words.

Self Assessment Questions

State whether the statement is *True or False*.

1) Early childhood is more developing period. ( )
2) Boys muscles get week during the early age. ( )
3) Children start to evaluate themselves at the early stage. ( )
4) Ego centrism is start at pre operational stage. ( )
5) Clear communication may hazards for the child. ( )

4.10 LET US SUM UP

In this unit we have studied about the early childhood period with reference to the physical, cognitive, psychosocial and linguistic development. Let us take it one by one:

1) Childhood begins when the infancy period is over approximately two years of the age group. Childhood period is divided into two age groups (i) early childhood, 2-6 years (ii) late childhood, 6- to the time the child becomes sexually mature. Early childhood period is called as a conclusion of the infancy period.

2) There are many factors which influence the child personality such as, child's social history, culture, place and biological makeup. Early childhood has its own characteristics, which make it strong and influential. Physical and psychological hazards are also affected in the early years.

3) Physical changes in early childhood are accompanied by rapid changes in the child's cognitive and language development. From the moment they are born, children use all their senses to attend to their environment, and they begin to develop a sense of cause and effect from their actions and the responses of caregivers

4) As children become increasingly self-aware, more effective at communicating, and better at understanding the thoughts and feelings of others, their social skills increase. Children in the early childhood stage become skilled at modifying and expressing their emotions to fit different social situations.

5) At the pre-operational stage (called as a play age and early childhood age) intelligence is demonstrated through the use of symbols, language use matures, and memory and imagination are developed, but thinking is done in a non logical, non reversible manner. Egocentric thinking also predominates at this stage.

6) Language development is the main concern in the early childhood. Language is the only powerful tool to enhance the ability of cognitive development. A good language always allows the child to communicate or interact with other persons and solve their problems. At the end of age seven, children are able to demonstrate some basic understanding of less concrete concepts, including time and money. However, the eight-year old still reasons in concrete ways and have difficulty understanding abstract ideas.

4.11 UNIT END QUESTIONS

1) What do you mean by the early childhood period?

2) What are the major characteristics of early childhood period?

3) Explain physical hazards during early childhood period.

4) Explain psychological hazards in early childhood period.

5) Elucidate the role of growth and development.

6) Define the concept of Erikson theory of psychosocial development in early childhood.

7) Explain the process of assimilation and accomodation in Piaget's theory of cognitive development.

8) Elucidate the of language development in early childhood period.

4.12 SUGGESTED READINGS

Amborn S.R. (1975) *Child Development*, Rinehart Press/Holt, Rinehart and Winson, San Fransico.

Hurlock, E. B. (1980). *Developmental Psychology* (5th edition) Tata McGraw- Hill Publishing Company Ltd.

Mussen, P. H, Conger, J.J & et.al (1984) *Child Development and Personality* (6th edition) Harper & Row, Publishers, New York.

4.13 ANSWERS TO SELF ASSESSMENT QUESTIONS

Fill in the blanks

1) early childhood and late childhood, 2) infancy, 3) illness, accidents, and obesity, 4) sppech, social, play and moral, 5) qualitative.

True and False

1) True, 2) False, 3) True, 4) True, 5) False