

DEVELOPMENT DURING INFANCY

(PHYSICAL, PSYCHOSOCIAL, COGNITIVE AND LINGUISTIC)

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 starts 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.

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 pattern. ***Cephalocaudally*** means the development takes place from head to tail and ***Proximodistal*** means from trunk to extremes. The behavior 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.

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 starts 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.

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.

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.

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.
- vi) 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.

PHYSICAL DEVELOPMENT IN INFANCY

Physical Growth: The first year of infant is characterized 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.

PSYCHOSOCIAL DEVELOPMENT IN INFANCY

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 behavior, 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 characterized 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 behaviors 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 includes 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 behavior, which are discussed here:

- i) **Attachment:** A new born baby in arms is the greatest feeling of motherhood. An infant always seeks 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 recognize 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 passes 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 recognized 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 behavior 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 attaching 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.

COGNITIVE DEVELOPMENT IN INFANCY

Cognition is a broad and inclusive concept that refers to the mental activities involved in the acquisition, processing, organization, 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 behaviors. 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 behaviors.

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.

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 uses 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 vocalizations to communicate their wants, needs and dispositions. Even though most children begin to vocalize 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 recognize 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 recognize 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.

Conclusion

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.

The hazards are divided into two types first is physical hazards such as unfavorable 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.

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 behavior, 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.

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),
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- (iii) Concrete operational stage (7-11 years)
- (iv) Formal operational stage (11-15 years).

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.