

## Psychological development: milestones from birth to adolescent

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### ABSTRACT

Global developmental delay (GDD) is a chronic neurological disturbance which includes defects in one or more developmental domains. The developmental domain can be motor, cognitive, daily activities, speech or language, and social or personal development and can be diagnosed early in childhood as the delay or absence of one or more developmental milestones. Hence the role of pedodontist becomes more crucial in identifying this condition. GDD affects multiple developmental domains that not only have direct bearing on maintenance of oral health, but also require additional behavior management techniques to deliver optimal dental care. This article discusses about the developmental milestones and cross-sectional analysis of psychological theories that can be applied to provide dental treatment in children. It will also discuss the opportunities for and challenges of psychological approaches aimed at the reduction of dental anxiety in children.

**Keywords:** *Milestones, Child Psychology, Theories, Anxiety, Management*

Psychological development is a dynamic process which begins at birth and proceeds through a series of sequential stages. These stages are governed by genetic, familial, cultural, interpersonal and interpsychic factors. A dental practitioner needs to understand several dimensions of child psychological development in order to relate effectively & to guide the child patient. An understanding of child development is essential, allowing us to understand the cognitive, emotional, physical, social growth that children go through from birth and into early adulthood.

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**Received: April 21, 2020; Revision Received: June 5, 2020; Accepted: June 25, 2020**

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**Kenneth Clark and George Miller (1970)** explained the *child psychology* as the study that deals with the mental power or an interaction between the conscious and subconscious element in a child.<sup>[1]</sup> The purpose of this chapter is to give a brief overview of normal child development, defined as average or “on-time” growth based on the attainment of specific physical, cognitive, linguistic, social-emotional, and behavioral milestones across specific stages. A foundational understanding of average development can be useful to practitioners in many ways, from history taking or planning diagnostic work at intake to augmenting case conceptualization and the selection of developmentally appropriate treatments.

### ***Developmental Milestones***

Developmental milestones are specific skill attainments occurring in a predictable sequence over time, reflecting the interaction of the child’s developing neurological system with the environment. Skills can be grouped in phases of development: gross motor, fine motor (including self-care), communication (speech, language and nonverbal), cognitive and social/emotional.<sup>[2,3,4]</sup>

<b>Physical</b>	<b>Emotional and social</b>	<b>Language/ communication</b>	<b>Cognitive</b>
<p><b><i>Birth- 2 months</i></b></p> <p><b>hold head up and begins to push up when lying on tummy</b></p> <p><b>Makes smoother movements with arms and legs</b></p>	<p>Smiles at people</p> <p>Can briefly calm herself (may bring hands to mouth and suck on hand)</p> <p>Tries to look at parent</p>	<p>Coos, makes gurgling sounds</p> <p>Turns head toward sounds</p>	<p>Pays attention to faces</p> <p>Begins to follow things with eyes and recognize people at a distance</p>
<p><b><i>By 4 months</i></b></p> <p><b>Holds head steady, unsupported</b></p> <p><b>able to roll over from tummy to back</b></p> <p><b>Can hold a toy and shake it and swing at dangling toys</b></p> <p><b>Brings hands to mouth</b></p>	<p>Delight , Distress</p> <p>Fixates at a face</p> <p>Smiles at a face</p>	<p>Begins to babble</p> <p>Babbles with expression and copies sounds he hears</p> <p>Cries in different ways to show hunger, pain, or being tired</p>	<p>Responds to affection</p> <p>Reaches for toy with one hand</p> <p>Follows moving things with eyes from side to side</p> <p>Recognizes familiar people and things at a distance</p>
<p><b><i>5-7 months</i></b></p> <p><b>Control of head &amp; arm movements</b></p> <p><b>Rolls over in both</b></p>	<p>Enjoys being cuddled</p> <p>Recognizes</p>	<p>localizes sounds</p> <p>Sounds like</p>	<p>Looks around at things nearby</p> <p>Brings things to mouth</p> <p>Shows curiosity about things</p>

**Psychological development: milestones from birth to adolescent**

<b>Physical</b>	<b>Emotional and social</b>	<b>Language/ communication</b>	<b>Cognitive</b>
<p><b>directions (front to back, back to front)</b></p> <p><b>Sits without support</b></p>	<p>mother</p> <p>Distinguishes between familial persons and strangers</p>	<p>babbling, most vowels</p> <p>Makes sounds to show joy and displeasure</p>	<p>and tries to get things that are out of reach</p> <p>Begins to pass things from one hand to the other</p>
<p><i>7 - 9 months</i></p> <p><b>Control of trunk, sits without support, crawls</b></p>	<p>Specific emotional attachment to mother, protest separation</p> <p>Enjoys peeking</p>	<p>Understands “no”</p> <p>Makes different sounds like “mamamama” and “bababababa”</p> <p>Copies sounds and gestures of others</p> <p>Uses fingers to point at things</p>	<p>Watches the path of something as it falls</p> <p>Looks for things seeing you hide</p> <p>Puts things in his mouth</p> <p>Picks up things like cereal o’s between thumb and index finger</p>
<p><i>10- 12 months</i></p> <p><b>Control of legs, stands, creeps</b></p>	<p>Anger, fear of strangers, Affection, Curiosity</p> <p>Recognizes name, gives and takes object</p>	<p>Uses simple gestures, like shaking head “no” or waving “bye-bye”</p> <p>one to two words, imitates sounds</p>	<p>Finds hidden things easily</p> <p>Looks at the right picture or thing when it’s named</p> <p>Copies gestures and pokes with index finger</p> <p>Bangs two things together; puts things in a container, takes things out of a container</p>
<p><i>1-2 years</i></p> <p><b>Walks, walk up steps and run</b></p> <p><b>Makes lines on papers</b></p> <p><b>Pulls toys while walking, throws ball overhand</b></p> <p><b>Drinks from a cup, eats with a spoon</b></p>	<p>Temper, tantrums</p> <p>Capable of bowel control copies others, especially adults and older children</p> <p>Gets excited when with other children</p>	<p>Says and shakes head “no”</p> <p>Points to show someone what he wants and things or pictures when they are named</p> <p>Knows names of familiar people and body</p>	<p>Knows what ordinary things are for; e.g cellphone, brush, spoon</p> <p>Points to get the attention of others</p> <p>Points to one body part</p> <p>Scribbles on his own</p> <p>Follow 1-step verbal commands without any gestures; e.g, sit down</p>

**Psychological development: milestones from birth to adolescent**

<b>Physical</b>	<b>Emotional and social</b>	<b>Language/ communication</b>	<b>Cognitive</b>
	Shows more and more independence and defiant behavior	parts  Says sentences with 2 to 4 words Follows simple instructions	
<i>2-3 years</i>  <b>jumps, rides tricycle</b>  <b>Walks up and down stairs, one foot on each step</b>	Fear of separation, Violent emotions,  Plays tricks  Imitates parents, resists parental demands	uses short sentences	work toys with buttons and moving parts  puzzles with 3 or 4 pieces  Copies a circle with pencil or crayon; turns book pages one at a time  Screws and unscrews jar lids or turns door handle
<i>4-6 years</i>  <b>Catches and throws a ball overhand</b>  <b>Walks downstairs, jumps rope; walks backward</b>  <b>Balances on one foot with eyes closed, learn to tie shoes</b>  <b>Copies shapes while drawing, knows address and phone number</b>  <b>Dresses self</b>  <b>Recognizes and recites the alphabet</b>  <b>Permanent teeth may begin coming in</b>	Independent; does not like to share  Moody, aggressive, fears, imaginary playmates  explore the body and may play doctor and nurse  Fights with siblings  Generally more cooperative and responsible than 4-year-olds  please others and makes happy, more attached to parent	four to six words sentence, ask questions constantly,  know the colors, knows the days of the week and months, Can name coins and money  likes to tell stories, may use some “bad” words (if he or she has heard them spoken repeatedly)  Can understand commands with multiple instructions	begins to understand time less aware of only one’s self and more aware of people around him/her  obey parent’s rules, but does not understand right from wrong  Believes that his or her own thoughts can make things happen  Curious about real facts about the world  compare rules of parents with that of friends
<i>6-12 years</i>  <b>Enjoys activities,</b>	Independence		Rapid development of mental

**Psychological development: milestones from birth to adolescent**

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<p><b>stays busy, likes to paint and draw</b></p> <p><b>May lose first tooth</b></p> <p><b>Vision is as sharp as an adult's vision</b></p> <p><b>Jumps rope, rides a bike</b></p> <p><b>graceful with movements and abilities with time</b></p> <p><b>Dresses and grooms self completely</b></p> <p><b>Can use tools (i.e., hammer, screwdriver)</b></p>	<p>Pay more attention to friendships and teamwork</p> <p>Cooperates and shares, jealous of others and siblings, copy adults, want to be liked and accepted by friends, likes to play alone, but friends are becoming important, occasional temper tantrums, modest about body</p> <p>play with children of the opposite gender, interested in relationships</p>		<p>skills</p> <p>Learn better ways to describe experiences and talk about thoughts and feelings.</p> <p>Have less focus on one's self and more concern for others.</p> <p>Understands fractions, concept of space</p> <p>Enjoys using the telephone</p>
<p><b>Adolescence</b></p> <p><b>Beginning of puberty, pubertal changes</b></p> <p><b>Menstrual periods in girls</b></p>	<p>Wants independence from parents</p> <p>Peer influence and acceptance</p> <p>Romantic/sexual relationships become important long-term commitment in relationship</p>	--	<p>Ability to think abstractly</p> <p>Concerned with philosophy, politics and social issues</p> <p>Thinks long-term, sets goals</p> <p>Compares one's self to one's peer</p>

***Theories Of Child Psychology***

Though researchers have approached the study of child development over the last hundred or so years, only a few of the theories that have resulted have stood the test of time and have proven to be widely influential. Among this core group of theories are few that will serve as the basis for the documents in this series. These are:

***Theories on emotional development***

Psychoanalytical theory or psychosexual theory– *Sigmund Freud, 1905*

Psychosocial theory – *Eric Erickson, 1963*

**Psychological development: milestones from birth to adolescent**

***Theory on cognitive development***

Cognitive development theory— *Jean Piaget, 1952*

***Theories on learning and development of behavior***

Social Learning theory/ observational learning (modeling) – *Albert Bandura, 1963*

Classical conditioning theory— *Ivan Pavlov, 1927*

Operant conditioning theory – *Skinner, 1938*

***Other relevant theories***

Separation-individuation theory of child development – *Margaret S Mahler*

Theory of Hierarchy of needs- *Abraham Maslow, 1954*

***Cross sectional analysis of theories of child psychology***

*(Sigmund Freud/ Erik Erikson/ Jean Piaget Theory)<sup>[5,6,7,8]</sup>*

<b>Oral Stage (birth-18 mo)</b>	<b>Basic trust vs mistrust (0-1yrs)</b>	<b>Sensimotor (0-2 yrs)</b>
<b>Characteristics:</b> <i>Dependant stage</i>	<b>Characteristics</b> 1 <sup>st</sup> trusting relationship with caregiver	<b>Characteristics:</b> Object permanence Experiencing world through senses & actions (looking, hearing, touching & grasping)

**Pathology:**  
child's needs not adequately met excessive optimism, pessimism, demandingness, envy, jealousy

**Pathology:**  
Insecurity & mistrustful.  
Separation anxiety in child

**Clinical Considerations:**>Dental treatment with parents present & preferably with parent holding the child>As the child begins to interact with the environment & can be given toys while sitting on dental chair in his/her hand.

<b>Anal Stage (18 mo - 3yrs)</b>	<b>Autonomy vs Shame (1-2yrs)</b>	<b>Preoperational (2-6 yrs)</b>
<b>Characteristics:</b> Dev of personal autonomy & independence	<b>Characteristics</b> Toddler begins to push for independence	<b>Characteristics:</b> Child begins to represent world symbolically
<b>Pathology:</b> Anal eroticism & defenses against it result in fixation on anal function. Characterized by disorderliness, abstinence, stubbornness, willfulness, fragility	<b>Pathology:</b> Tantrums, stubbornness & negativism	

**Clinical Considerations:**  
>Child is moving away from mother, but still will retreat to her in threatening situations. So parent's presence is essential.  
>As child takes pleasure in doing tasks by him/herself; dentist must obtain cooperation from him/her by making him believe that the treatment is his choice not of the dentist/parent  
>Constructivism >Cognitive equilibrium >Animism

**Psychological development: milestones from birth to adolescent**

<b>Phallic Stage</b> (3 - 5 yrs)	<b>Initiative vs Guilt</b> (2 - 6 yrs)	<b>Concrete operation</b> (6 - 12 yrs)
<b>Characteristics:</b> <b>Oedipus complex</b> <b>Castration anxiety</b> <b>Electra complex</b>	<b>Characteristics:</b> Child becomes more assertive Broadening of skills Co-operate with others	<b>Characteristics:</b> Child's thinking process becomes logical Concrete operations develop based on the level of understanding so far
<b>Pathology:</b> <b>If the characteristics are not resolved, the balance between male &amp; female roles does not develop</b>	<b>Pathology:</b> Guilt from resulting conflicts	
<b>Clinical Considerations:</b> >Child encouraged to view this visit as a new adventure >As child is inherently teachable, can be taught about various things in dental set up >Concrete instructions like "this is a retainer or brush like this" >Abstract instruction "like wear the retainer every night & keep it clean" >Centering > Ego centrism		
<b>Latency Stage</b> (5 - 11 yrs)	<b>Industry vs Inferiority</b> (6 - 12 yrs)	<b>Formal operation</b> (11 - 15 yrs)
<b>Characteristics:</b> <b>Child gains better sense of initiative and starts adapting to the adverse environment</b>	<b>Characteristics:</b> Learning of social and academic skills Pleasure in learning, being productive	<b>Characteristics:</b> Child's thinking process becomes logical Concrete operations develop based on the level of understanding
<b>Pathology:</b> <b>Lack of inner control results in an immature behavior and decreased development of skills</b>	<b>Pathology:</b> Feelings of inferiority inability to take up responsibility later in life	
<b>Clinical Considerations:</b> >Utilizing child's drive for sense of industry and accomplishment, co-operation can be achieved >Acceptance from peers can be used for motivation of dental treatment		
<b>Genital Stage</b> (11 - 13 yrs)	<b>Identity vs role confusion</b> (12 - 18 yrs)	
<b>Characteristics:</b> <b>Sense of identity develops</b> <b>Matured personality</b> <b>Satisfy genital potency</b> <b>Realization of goal for survival &amp; reproduction</b>	<b>Characteristics:</b> As child is an adolescent, learns to answer satisfactorily "Who am I"	
<b>Pathology:</b> <b>Unresolved traits from previous phases are seen in a modified form</b>	<b>Pathology:</b> Role confusion	
<b>Clinical Considerations:</b> >Behaviour management can be challenging. >Any orthodontic treatment at this stage, should be carried out if child wants it, not parents, as parental authority is being rejected. Approval of peer group is extremely important		

## CONCLUSION

Developmental delay in milestones have direct impact on the oral health, hence require additional psychological approaches to deliver optimal dental care along with the aim of reduction in dental anxiety of children.

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### *Acknowledgements*

The author appreciates all those who participated in the study and helped to facilitate the research process.

### *Conflict of Interest*

The author declared no conflict of interest.

**How to cite this article:** P Goel, A Khurshid, M Sharma, M Sharma, N Irshad, S Chachra & A Dhindsa (2020). Psychological development: milestones from birth to adolescent. *International Journal of Indian Psychology*, 8(2), 467-474. DIP:18.01.056/20200802, DOI:10.25215/0802.056