

OPERANT CONDITIONING

OBSERVATIONAL LEARNING

CLASSICAL CONDITIONING

By - Ivan Pavlov

Classic experiment on dog with food and bell.

Each time the auditory stimulus is associated with the food stimulus.

It occurs at very young age even then it have a considerable impact on young child behaviour on the first visit to a dental office.

By now child experienced many unpleasant moments with paediatricians and medical personnel.

When child experience the pain the reflex reaction is crying & withdrawal.

Pavlov – conditioned stimulus

unconditioned stimulus

White coat (conditioned stimulus)

Pain(unconditioned stimulus)

cry & withdrawal (response)

Every time this stimulus is reinforced.

Dental considerations

Dental office atmosphere should be different from general physician office.

The treatment that can cause pain should be avoided in first visit.

OPERANT CONDITIONING

STIMULUS

classical conditioning

RESPONSE

operant conditioning

STIMULUS

An extension of classical conditioning by B.E SKINNER.

It explains complex behaviour.

Types of operant conditioning

Positive reinforcement

Negative reinforcement

Omission

punishment

Positive reinforcement

Pleasant consequence (toy)

follows response(well behaved during dental treatment)

Negative reinforcement

Withdrawal of unpleasant stimulus

Follows response

Eg: child – food – fear of injection

omission

Removal of pleasant stimulus after particular response.

Eg: child toy taken away if not behaved properly in dental office & and later with good response toy is given back.

punishment

Unpleasant stimulus is presented after a response.

Eg: no tv if no appliance .

Omission and punishment should be used cautiously by the dental personnel as these may create anger, frustration and fear respectively.

Voice control – mild form of punishment.

Orthodontic considerations

Treatment include a long term wear of the appliances like removable & myofunctional.

Child cooperation is needed more in home than in dental office .

Eg: can watch tv if you wear appliance.

can eat ice cream after good behaviour in dentist office.

pins saying “world’s greatest ortho patient”.

OBSERVATIONAL LEARNING (MODELING)

Behaviour can be acquired by imitation of behaviour observed in social context.

Much of child behaviour in dental office can be learned from observing siblings , other children or even parents.

2 stages: 1 – acquisition by observing.

2 - actual performance of behaviour.

Children can imitate what adults do if it is at their level of physical development

Eg; child imitating dad after seeing his dad driving car/ cell phone.

Modeling depend on several factors of which important one are characteristics of role model.

If a model is liked or respected the child is more likely to imitate him or her.

Role model can be parents or old sibling for young child but for adolescents it comes from peer group.

Observational learning is an important tool in management of dental treatment

Direct communication among patients.

Treated in open clinics rather than private cubicles.

EMOTIONAL DEVELOPMENT

Based on Sigmund Freud psychoanalytic theory of personality development .

This was extended by Erik Erikson.

He gave “EIGHT AGES OF MAN”.

Development of basic trust (birth-18months)

In this stage basic trust or lack of trust in the environment is developed.

Successful development of trust depend on caring of mother/mother substitute and take care of every needs of physiologic and emotional needs of infant.

Strong bond need to be developed between mother and child to develop basic trust.

Maternal deprivation syndrome can occur if the child is isolated.

If dental treatment needed in early age then parent should be along with child during treatment.

The child who developed lack of trust tend to be extremely frightened and uncooperative.

Development of autonomy (18months - 3yrs)

Age of 2 called “terrible two”. They are uncooperative and frequently express obnoxious behaviour.

The child of this age tend to move away from mother dependence and try to develop his own

identity.

Failure to develop autonomy leaves the child feeling shame and doubt.

From a sense of self control without a loss of self esteem comes a lasting sense of good will and pride; from a sense of loss of self control and foreign over control come a lasting propensity for doubt and shame.

Dental : simple treatment need parental assistance and complex treatment need either sedation or general anaesthesia.

Development of initiative

(3-6 yrs)

Initiative is shown by physical activity , motion, extreme curiosity, questioning & aggressive talking.

Major task for parents and teachers at this stage is to channel the activity into manageable tasks.

At this stage child is inherently teachable.

Opposite to initiative is guilt resulting from not fulfilling goals & from acts initiated but not completed.

Child comes first to dentist at this stage, he is curious and eager to learn about things found there . After initial experience child can tolerate being away from mother during dental treatment.

Mastery of skills (7 – 11 yrs)

Child is working to acquire the academic and social skills.

The influence of peer group masks the parental figure as a role model.

Negative side is sense of inferiority.

Eg; academic success of others.

Dental : orthodontic treatment starts at this stage which involve wearing removable appliance

For appliance wear the social peer group should be supportive and the changes in how the teeth look is better motivating than attaining dental occlusion.

Development of personal identity (12-17 yrs)

Adolescence period where unique personal identity is acquired.

This stage physical ability changes , responsibilities increase and career possibilities begin to be defined.

Dental : most orthodontic treatment is carried out during this stage .

In this stage treatment should be instituted only if patient wants it , not just to please the parents.

Motivation for seeking treatment should be internal not the external.

So patient must be made understand that treatment is done FOR not TO him or her.

Development of intimacy(young adult)

A growing number if young adults are seeking orthodontic treatment because these individuals are seeking to correct a dental appearance which they think as flawed.

They may feel that change in their appearance will facilitate attainment of intimate relationships.

Guidance for next generation (adult)

Must be supportive and guide the own but also support the network of social services.

Opposite is stagnation with self indulgence and self centred.

Attainment of integrity (late adult)

Feeling that one had made the best of his life situation and has made peace with it.

Opposite is despair.

COGNITIVE DEVELOPMENT

By Swiss psychologist Jean Piaget.

Every individual is born with the capacity to adjust or adapt to both the physical and sociocultural environments in which he or she must live.

Adaptation occurs through two complementary processes, *assimilation* and *accommodation*.

Intelligence develops as an interplay between assimilation and accommodation.

Eg: bird & bee.

child's ability to adapt is age-related which is a crucial concept in Piaget's theory of development

4 stages in cognitive development.

Sensorimotor period(birth-2yrs)

At this stage, a child has little ability to interpret sensory data and a limited ability to project forward or backward in time.

During this stage, the child develops rudimentary concepts of objects.

Simple modes of thought that are the foundation of language develop during this time.

Preoperational period(2-7yrs)

During the preoperational stage, the capacity develops to form mental symbols representing things and events not present, and children learn to use words to symbolize these absent objects.

Children in the preoperational period understand the world in the way they sense it through the five primary senses. Concepts that cannot be seen, heard, smelled, tasted, or felt—for example, time and health—are very difficult for preoperational children to grasp.

A general feature of thought processes and language during the preoperational period is *egocentrism*, meaning that the child is incapable of assuming another person's point of view. another characteristic of thought processes at this stage is *animism*, investing inanimate objects with life.

Instructions are given in a way the child can understand.

"Brushing makes your teeth feel clean and smooth," and, "Toothpaste makes your mouth taste good," because these statements rely on things the child can taste or feel immediately.

On the other hand, it would not be useful to point out to the child how proud his father would be if he stopped sucking his thumb, since the child would think his father's attitude was the same as the child's (egocentrism).

Concrete Operation period(7-11yrs)

By this stage, the ability to see another point of view develops, while animism declines.

More concrete directions would be: "This is your retainer. Put it in your mouth like this, and take it out like that. Put it in every evening right after dinner before you go to bed, and take it out before breakfast every morning. Brush it like this with an old toothbrush to keep it clean."

But not "Now wear your retainer every night and be sure to keep it clean."

Formal operations period(11-adult)

At this stage, the child's thought process has become similar to that of an adult, and the child is capable of understanding concepts like health, disease, and preventive treatment.

The challenge for the dentist is not to try to impose change on reality as perceived by adolescents, but rather to help them more clearly see the actual reality that surrounds them.

The peer group effect on the patient is also need to be taken into consideration.

Take home message

The orthodontic treatment covers a wide range of age groups from infant to adult. For the good treatment outcome one must need patient compliance, which can get easily with a little skill from an adult but not from infant, so good knowledge about handling the child both in clinic and home is needed.

Author name:

Dr. Mohana Krishnan, Senior Lecturer

REFERENCES

Contemporary orthodontics – PROFITT.

Dentistry for the child & adolescent- McDonald