INSTINCTS AND EMOTIONS

INSTINCT

Instinct is the inherent inclination of a living organism toward a particular behaviour. The fixed action patterns are unlearned and inherited. The stimuli can be variable due to imprinting in a sensitive period or also genetically fixed. The term "instinct" in psychology was first used in the 1870s by Wilhelm Wundt. By the close of the 19th century, most repeated behaviour was considered instinctual. In the early twentieth century, there was recognized a "union of instinct and emotion". In 1932, McDougall argued that the word 'instinct' is more suitable for describing animal behaviour, while he recommended the word 'propensity' for goal directed combinations of the many innate human abilities, which are loosely and variably linked, in a way that shows strong plasticity. Instinct or innate behaviour is the inherent inclination of a living organism towards a particular complex behaviour. The simplest example of an instinctive behaviour is a fixed action pattern **(FAP),** in which a very short to medium length sequence of actions, without variation, are carried out in response to a corresponding clearly defined stimulus.

A baby leatherback turtle makes its way to the open ocean.

Any behaviour is instinctive if it is performed without being based upon prior experience (that is, in the absence of learning), and is therefore an expression of innate biological factors. Sea turtles, newly hatched on a beach, will instinctively move toward the ocean. A marsupial climbs into its mother's pouch upon being born. Honeybees communicate by dancing in the direction of a food source without formal instruction. Other examples include animal fighting, animal courtship behaviour, internal escape functions, and the building of nests.

Sigmund Freud considered that mental images of bodily needs, expressed in the form of desires, are called instincts.

F.B. Mandal proposed a set of criteria by which a behaviour might be considered instinctual:
a) be automatic,

b) be irresistible,

c) occur at some point in development,

d) be triggered by some event in the environment,

e) occur in every member of the species,

f) be unmodifiable, and

g) govern behaviour for which the organism needs no training (although the organism may profit from experience and to that degree the behaviour is modifiable).

In *Information behaviour: An Evolutionary Instinct* (2010, pp. 35–42), Amanda Spink notes that "currently in the behavioural sciences instinct is generally understood as the innate part of behaviour that emerges without any training or education in humans." Furthermore, she notes that "behaviours such as cooperation, sexual behaviour, child rearing and aesthetics are [also] seen as 'evolved psychological mechanisms' with an instinctive basis."

EMOTION

We experience in our life various feelings of anger, fear, disgust, repulsion, etc. Emotions largely determine human behaviour and extension workers should learn how to

utilize them for the purpose of education of rural people.

Definition for emotions are:

- **Jersild:** Emotions denote a state of being moved stirred up or aroused in some way. Emotions involve feelings, impulses and physical and physiological reactions. These feelings, impulses, physiological reaction etc., occur in an almost unlimited variety of mixtures and gradations.
- **Rass:** Emotions are modes of being conscious in which the feeling element is predominant.
- **Munn:** Emotions are acute disturbances of the individual as a whole, psychological in origin, involving behaviour, conscious experiences and verbal functioning.
- **Gerow:** Emotion is a reaction involving subjective feelings, physiological response, cognitive interpretation and behavioural expression.

CLASSIFICATION OF EMOTION

There are number of ways to classify emotional responses and each has its own supporters. **Wilhelm Wundt** organized emotions on three interesting dimensions;

- ***pleasantness/unpleasantness,***
- ***relaxation/tension, and***
- ***clam/ excitement.***

Carroll Iyard's classification has nine primary emotions. They are –

- fear,
- anger,
- shame,
- contempt,
- curiosity,
- acceptance and
- joy.

HORMONES AND EMOTIONS IN MAN: A BASIC KNOWLEDGE

We experience a variety of emotions throughout the day. Mostly, these emotions are transient in nature. But, when these emotions become intensely negative or are unremitting they can dramatically affect our biochemistry and behaviour.Certain brain areas and the presence of

levels of different chemicals in your brain controls emotions. For example, if we are in danger, our brain releases stress hormones that can initiate fight or flight reactions by flooding certain regions with the neurotransmitter epinephrine (adrenaline). When the danger subsides, our brain inhibits the stress response by sending out a calming signal in the form of chemicals.

Hormones and chemicals keep the body working normally. Listed are a few of them and how their balance affect the way our moods, emotions and stresses are triggered.

- **Oestrogen**

Oestrogen, the primary sex hormone of women is released from Ovaries. Effect of oestrogen on emotions is due to its ability to increase serotonin and endorphins; chemicals associated with positive mood states. There are three major endogenous oestrogensin females that have estrogenic hormonal activity: oestrone, estradiol and estriol. The oestrone steroid is the most potent and prevalent of these.

Oestrogen is also the hormone linked to mood disruptions in women, as seen in premenstrual syndrome, premenstrual dysphoric disorder and postpartum depression.Low oestrogen levels are associated with depression, anxiety and mood swings. However, high oestrogen levels can also wreak havoc with our system. So a right biochemical balance is essential for the well-functioning steroid hormones system. Oestrogen helps in maintaining levels of serotonin, dopamine and norepinephrine by decreasing level of monoamine oxidase- the enzyme responsible for their deactivation.

- **Progesterone**

Progesterone is a female sex hormone produced by a temporary gland within the ovaries called corpus luteum and plays a key role in reproduction. Our brain is highly responsive to progesterone concentrations. Insomnia, anxiety and migraine are commonly seen with imbalance of oestrogen and progesterone. Progesterone counterbalances the action of oestrogen. While oestrogen has an excitatory effect on brain, progesterone has calming effect. Studies have shown that progesterone shows anxiolytic (anti-anxiety) effects by activating gamma-aminobutyric acid (GABA) receptors in the brain. GABA is an inhibitory neurotransmitter that assists in relaxation and sleep.

- **Dopamine**

Dopamine is a neurotransmitter, released by hypothalamus and is involved in focus, attention, memory, drive, muscle control and ovulation. It is associated with alertness, memory, cognition, happiness and vigilance. Low levels of dopamine in the body can result in depression, impulsivity, mood swings, attention deficit, cognitive issues, compulsive behaviour, cravings, apathy and loss of satisfaction in life activities. It inhibits rational thinking as seen in schizophrenia.

Dopamine is important in brain’s reward system and elevations in its level can lead to addictive behaviour, suspicious personality and possible paranoia.

- **Serotonin**

It regulates wide range of physiological and biological functions including mood, arousal, aggression, thinking abilities and memory.Right levels of serotonin are related to relaxation,

mood upliftment. Excess of serotonin causes sedation and apathy, whereas deficiency of serotonin is associated with low mood, lack of will, poor appetite control, anxiety disorders, depression, social behaviour and sexual problems.

Conditions like anxiety disorders, depression, impulsivity, mood disorders, and disturbance in the sleep-wake cycle, obesity, eating disorders, and chronic pain are associated with disruptions in serotonin level. Meditation enhances serotonin production by inhibiting activity in the stress producing regions of the brain.

- **Acetylcholine – Information Processor Neurotransmitter**

Acetylcholine is the primary neurotransmitter released from nerve endings in both central and peripheral nervous system. It is in charge of muscle movement, alertness, concentration and memory. When levels are optimal, mood is elevated, mind is focused and intelligence increased. But with the low levels learning, recall, ability to think clearly can plummet.

It also controls primitive drives and emotions like anger, fear, rage and aggression. With the imbalance in these neurotransmitters these emotions can affect both the individual and people around them. Note that there is an inverse relationship between acetylcholine and serotonin (if one increases the quantity of other decreases). In lower amounts, Ach act as a stimulant for brain as it stimulates release of dopamine and serotonin. But too much of Ach inhibits brain and causes depression.

- **Oxytocin**

Oxytocin is a hormone that is made in hypothalamus and released into the blood by pituitary gland. It plays a role in pro-social behaviour, sexual reproduction, and during and after child birth. It evokes feelings of contentment, calmness, security and reductions in anxiety level. Oxytocin inhibits brain areas associated with behavioural control of fear and anxiety and protect against stress. Nasally administered oxytocin has been reported to reduce fear, by inhibiting amygdala (brain area responsible for fear responses). It increases trust, empathy, and social interaction and is responsible for romantic attraction and subsequent monogamous pair bonding.

MDMA(3,4-Methylenedioxymethamphetamine), an addictive drug commonly called as ‘ecstasy’, increases feeling of love, empathy and connection by stimulating oxytocin activity in the brain. Deficiency of oxytocin is involved in pathophysiology of depression and is related to poor communication, more anxiety and fear, disturbed sleep, sugar cravings and irritability.

- **GABA (gamma-aminobutyric acid) – Brain Activity Regulator**

GABA is an inhibitory neurotransmitter that is produced from glutamic acid (an amino acid) in the body. It slows down the activity of limbic system (the emotional alarm bell) reducing fear, anxiety and panic.

It acts like a natural tranquilizer and suppresses the hormone prolactin that stimulates night time incontinence. Glutamic acid and vitamin B6 helps in manufacture of GABA. Zinc also enhances GABA release and inhibits glutamate release- an excitatory neurotransmitter. Most of the patients with bipolar disorder have lower GABA level and this accounts for their restlessness and anxiety.

- **Testosterone**

Testosterone, a hormone produced by testes in men and to smaller extent by ovaries in women. It helps in muscle building, increasing libido, bone mass, muscle strength and energy level.

Testosterone also influences the parts of the brain responsible for regulating emotions. People with high endogenous testosterone levels, have significantly less activity in prefrontal brain regions and less communication between the prefrontal brain and the amygdala (the emotion control regions of the brain), ultimately increasing chances of aggressiveness, depression, impulsivity, anger, mood swings and lowering levels of empathy. Too little testosterone can also have deleterious effect on male emotional vitality, leading to more passivity, depression, anger, irritability, feelings of insecurity, anxiety.

- **Norepinephrine and epinephrine**

Norepinephrine is a catecholamine that acts as a neurotransmitter as well as a hormone. It is involved in arousal system of the brain and the sympathetic nervous system, where it is responsible for increase in blood pressure, breathing and respiratory rate. As a hormone, it is released by adrenal glands and is involved in the fight or flight response of the body to stress.

Epinephrine or adrenalin released by medulla of the adrenal glands, surges at the time of panic and emergency. It provokes stress response and brings out the arousal of extreme emotions like fear, anger or amusement. Too little norepinephrine and epinephrine have been found to be associated with depression, while an excess has been seen in mood disorders like schizophrenia

- **Endorphins**

Endorphins are neurotransmitters, chemicals that pass along signals from one neuron to the next. Neurotransmitters play a key role in the function of the central nervous system and can either prompt or suppress the further signalling of nearby neurons.The class of endorphins include three compounds – α – endorphin, β – endorphin and γ – endorphin.

Endorphins are produced as a response to certain stimuli, especially stress, fear or pain. They originate in various parts of the body -- the pituitary gland, spinal cord and throughout other parts of brain and nervous system -- and interact mainly with receptors in cells found in regions of the brain responsible for blocking pain and controlling emotion. Endorphins block pain, but they're also responsible for our feelings of pleasure. It's widely believed that these feelings of pleasure exist to let us know when we've had enough of a good thing and also to encourage us to go after that good thing in order to feel the associated pleasure. Maintaining a balance in these brain chemicals is a key for balanced emotions. One can help maintain emotional health to some extent by altering levels of these key chemicals through a balanced diet, limiting stress, constructive thoughts, yoga, pranayama and meditation.

The **four major hormones** which determine human’s happiness, are-

- Endorphins,
- Dopamine,
- Serotonin, and
- Oxytocin.