

B.N.Bandodkar College of Science, Thane
T.Y.B.Sc – Paper IV
Animal Behaviour
Aggression

Aggression refers to behavior between members of the same species that is intended to cause pain or harm. Predatory or defensive behavior between members of different species is not normally considered "aggression." Aggression is defined as an agonistic behavior which is a system of behavior pattern that has the common function of adjustment in situations of conflict among conspecifics. The term agonistic includes all aspects of conflicts such as threat, submission, chases and physical combat. Most agonistic behavior involves **competition for some resources**. Like most behaviors, aggression can be examined in terms of its ability to help an animal reproduce and survive. Animals may use aggression to gain and secure territories, as well as other resources including food, water, and mating opportunities. Researchers have theorized that aggression and the capacity for murder are products of our evolutionary past.

Forms of aggression:

1. **Territorial** – Exclusion of others from a physical space to maintain its individual distance e.g. New Zealand gannets.
2. **Dominance** – Animals remember each other by previous encounters and maintain their status as dominant or submissive e.g. dogs, monkeys, wolves and birds.

Dominance may be linear or other forms as follows:

Linear – $A > B > C > D$; **triangular** – $A > B > C > A$ and **Coalition** – $A > B$ or $A > C$ and $B + C > A$



3. **Sexual** – Use of threat and physical **punishment**, usually by males to obtain and retain females called as **combat**.
4. **Parent-offspring** – Disciplinary action against off-springs.
5. **Weaning** – Restriction of access of off-springs to milk.
6. **Predatory** – Act of predation, possibly includes **cannibalism**. This is called as **aberrant behavior**.

Factors affecting aggression:

1. **Internal factors:**

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- a. **Limbic system** – Hypothalamus is involved in defense and escape behavior e.g. pigeons, cats, monkeys, opossums.
- b. **Hormones** – Neurosecretion and hormones like epinephrine are related to physiological arousal. Dopamine or serotonin also may affect aggressiveness. Testosterone also makes males more aggressive during breeding. E.g. elephants ‘Mast’ stage.

2. External factors:

- a. **Learning and experience** – Researchers generally accept that some external factors trigger the aggression in animals. Previous experience can produce semi-permanent changes in the individual and agonistic behavior is exhibited accordingly as dominant or submissive.
- b. **Pain and frustration** – Noxious stimuli such as noise; injuries etc. cause individuals to attack each other or any objects. Frustration due to limited resources and the high crowding may trigger disruption of the limbic and hormonal control and the individuals become aggressive. Such instances are common in aggregated animals.
- c. **Xenophobia** – crowding (strangers, group size), breeding (cats) and feeding activity (fishes cannibalism) exhibit aggression normally during limited resources are available.

Restraint of aggression:

1. **Displays** – aggressive displays like large antlers of deers, explicit coloration in fish and birds, postures and gestures in fish, mammals, are used to convey aggressive and to avoid conflicts. This behavior has importance to avoid unnecessary killing or wounding.
2. **Evolutionary** – aggression and threats take less energy and physical combat are advantageous to individuals and the phenomenon has taken ages in the evolutionary course.
3. **Social control and disorganization** – Cichlid fish has shown that when strange fish of the same species are continually introduced in the group, fighting remains at a high level. So introduction of strangers disrupts the social control. In other instance when the male or female dominant Rhesus monkey dies or leaves the group, aggression within group increases called as social disorganization.