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ISSN: 2394-1227 (Online)**Popular Article****Stray dog Population: Health Concern, Animal Welfare and Control Methods****Virender Pathak, Rajesh Rajput, Parul Shukla and Divya Gupta***Deptt. Of Veterinary Anatomy and Histology DGCN, COVAS, CSK HPKV, Palampur-176062**Corresponding author: [pathakv26@yahoo.com](mailto:pathakv26@yahoo.com)**Received:15/02/2024**Published:28/02/2024*

Stray animal overpopulation has become one of the most serious global problems with many negative impacts on the community, environment, and public health. Most of the stray animals do not depend on humans for food and shelter, and therefore, can reproduce uncontrollably. The uncontrolled reproduction of stray animals increases their population that leads to a higher chance of predation, road traffic accidents, transmission of zoonotic diseases, and therefore, becoming vectors for some diseases. Amongst the stray animals, stray dogs present unique challenge to the society.

According to the World Health Organization (WHO), the estimated number of stray dogs was approximately 200 million or more worldwide between 2009 and 2010 (Patti, 2011). With this number of strayed animals, four to five million are euthanized every year (Fournier and Geller, 2004).

India has about 62 million stray dogs, according to the State of Pet Homelessness Index 2021 by Mars Petcare, the global pet health and nutrition company. Cases of deaths caused by stray dog bites are shockingly high in India. Every year, over 55,000 people are killed by dog attacks globally, with India accounting for 36% of the global deaths due to rabies and 65% of the deaths in the South-Asia region according to World Health Organisation (WHO) data. Animal professionals, such as veterinary doctors, animal scientists, and animal welfare officers have considered pet animal overpopulation as a people problem rather than an animal problem

**Health concern**

Stray dogs are free-roaming dogs in communities that have become one of the major problems in society. They harm the environment and human health. Stray dogs have become a threat to human lives and health by spreading deadly diseases, such as rabies. It had estimated by WHO that there are more than 200 million stray dogs worldwide, and every year 55000 people die from rabies transmitted by rabid dogs' bites.

The main challenges and effects associated with stray animals on the community include predation, road traffic accident, defecation, urine spraying, nuisance, running and fighting during breeding, scavenging on open garbage and scattering all sealed refused, attacking people as in case of a rabid dog, soiling and threatening pet animals by attacking and biting.

**Animal welfare issues related to stray dog population**

To address the ethical issues and welfare of stray animals, there is a need to consider some factors, such as feeding, shelter, health care, and in some instant, their interaction with people. It also observed that some offsprings of strayed animals die or disappear within some months of birth with trauma from children or other stray animals, starvation, disease, and mobile accident.

Some communities consider the elimination of stray animals as humane than allowing them to live a miserable life. Humanely considering stray animal population control, one method does not fit all the conditions due to their differences. These agencies aim to control stray animal populations through enacting and enforcing appropriate policies that regulate humane animal population control and provide animal-control facilities. These include sterilization of all adopted animals. And the procedures require proper training, surveillance, and dedication from the staff and volunteers.

The ethical approach for stray animal population control from both human and animal welfare points of view. The human welfare view usually focuses on the spread of zoonotic diseases and other effects caused by stray animals. The animal welfare view rests on the expectation that disease and death in uncontrolled populations of strayed animals cause suffering that prevails over the associated control programs. These opinions are influenced by different views about the fundamental values related to suffering, freedom, and the existence of stray animals. The most used ethical way of

resolving this issue is either by the humane killing of strayed animals (mostly euthanasia) or by controlling their reproduction (sterilization or neutering).

### **Methods of controlling the population of stray animal**

#### **Contraception**

Contraception is the method used to prevent the occurrence of pregnancy in female animals and can be achieved through the use of a medication, device, or procedure.

The advantages of contraception include a longer duration before reverse, fewer side effects, suppression of sexual behavior, easy administration, a low cost, and also applicable for humans. On the other hand, the disadvantages of this method are the need for repetition, quick reverse when discontinued using the repeated dose, possible slow onset of activity in some drugs, possible chance of a reaction at the injection.

#### **Trap-neuter-return**

In this method, animals are trapped, neutered, and returned to their previous habitat. The procedure is performed by veterinary surgeons through spaying the female animal or castration in a male animal. However, this method requires a regular surveillance and maintenance program that can be costly. The expenses of the TNR method depend on the level of resources that the stakeholders execute for the management of the problems.

Mostly, the ongoing costs of stray animal control through the TNR method will be high. The technique is expensive, inappropriate for large-scale implementation, and time-consuming, as well as requiring many expert veterinary surgeons. Other disadvantages of this method that may be encountered, in case of poor management after the surgery, there's a chance of some complications such as urinary incontinence and there will be an increase in the incidence of cystic, hematologic, and osteo-tumors. However, it has many advantages, such as producing complete sterilization, minimizing the incidence of sexual behaviors, and reducing the incidence of mammary, ovarian, and uterine tumors.

#### **Euthanasia**

The euthanasia is a humane method of killing animals through medical measures. It can achieve by administering a large volume of anesthetic agents such as barbiturates, ketamine, a compound containing potassium beyond accurate dosage. It is painless and induces rapid unconsciousness followed by respiratory and cardiac arrest, and finally causes death. In other words, it is the painless inducement of a quick death. The World Society for the Protection of Animals (WSPA) advocates that the killing of pet animals through euthanasia is a humane method and should be carried out only by trained professionals.

The advantages of euthanasia as a method of control for stray animal populations include, it induces painless death without cruelty, not like poisoning, it is accepted ethically worldwide, the chemical agents are of low cost, and minimal materials are required. Regarding the disadvantages, this method must be performed by an expert, is difficult for a large population.

#### **Poisoning**

Poisons are chemical substances that cause damages or harm to the organs, the system, or the body. It happens due to chemical reactions occurring when an animal absorbs or is exposed to the chemicals by a sufficient quantity. Poisoning has been one of the methods for the control of the stray animal population. The most commonly used chemicals are anticoagulants and Sodium monofluoroacetate. The major problem associated with poisoning is that it is cruel, and animals suffer a painful and slow death. Regarding risks of poisoning, it may affect other non-targeted species that may directly or indirectly be exposed to the poison in the targeted environment. Likewise, there will be a risk of human exposure to the poison, especially children who are close to animals on playgrounds. However, poisoning as a method of stray animal population control can be advantageous since it is easy and efficient, cheaper, and can be used in a large population, it has less labor-intensive than other techniques.

#### **Shooting**

Shooting is another method of stray animal population control that is quick, painless, and efficient. It can be achieved if the bullets hit the targeted animals. There is a challenge of handling a gun by everyone without government permission. Shooting stray animals on the street is dangerous and has many risks if the target missed and mistakenly hits people. In other cases, some stray animals may not die on shooting and stay alive with pain and injury for long. These cases are mostly considered inhumane and brutal acts.

The use of shooting as a method of stray animal control is beneficial since it is considered humane if used on target animals, is target-specific, can be used as clean-up techniques, is the fastest method of controlling rabid dogs, and it can be applied to other animals with the same conditions. However, it requires a skilled and trained person to shoot, is dangerous to people and non-targeted animals, needs proper equipment, and may damage the brain if the animal was shot by the head, especially as in case of a rabid dog where the brain is required for the rabid test, can cause severe

wounds and pain if the animal does not die by shot instantly, and it needs government approval before carrying out the operation.

### **Conclusion**

Stray dog overpopulation has become a global challenge that requires immediate solutions to manage their population. The most common methods that are used for stray animal population control include surgical neutering (sterilization) and non-surgical contraception techniques. Other available control methods are trap neuter return, euthanasia, poisoning, trap and relocate, and gun shooting among others. To achieve successful control measures of stray animal populations and the problems they cause in a community or environment, the concerned authorities have to design and enact animal rights laws. The law needs to address the feeding, shelter, medical care (treatment and vaccination), management, welfare, and legal rights of stray animals. To establish a prominent system of monitoring and management of the stray animal population, the community has to be educated about the problems that the animals are causing if they were on free-roaming and to provide a possible solution to the problem that may cause by the stray animals.

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