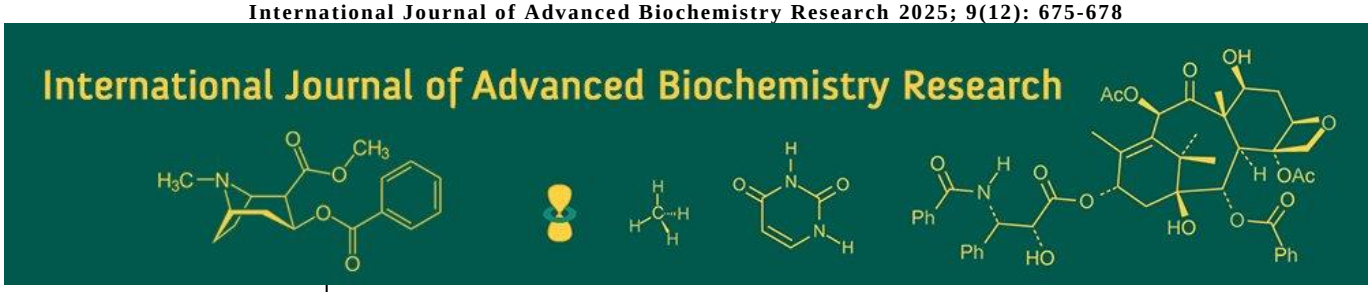

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Breeding management practices of pet dogs in Bengaluru, implications for canine welfare and responsible urban pet ownership

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Abstract
Dogs have served as human companions for centuries, contributing to security, livelihood, and emotional well-being (Selby and Rhoades, 1981; Machová *et al.*, 2020). With a rapid rise in pet dog ownership in urban India, particularly in Bengaluru, understanding responsible breeding management has become increasingly important for animal welfare (Business Standard, 2022; Economic Times, 2024). The present study examined breeding management practices among pet dog owners in Bengaluru, with special emphasis on differences between purebred and non-descript dogs and variations according to breed size. Data were collected from 400 pet dog owners visiting the Veterinary College Clinic, Bengaluru, using a structured interview schedule. Dogs were classified as purebred (n = 295) or non-descript (n = 105) and further grouped by size as toy, medium, and large breeds. The results revealed that 70 per cent of the respondents did not crossbreed their dogs, with the average age at neutering recorded as 1.17 years, which is in line with recommended welfare practices (Green, 2023). Owners of purebred dogs primarily selected mates based on adherence to breed standards, reflecting global trends in pedigree conservation (Kumar, 2020; Mehta, 2021). Differences were noted in preferred mating locations, with purebred owners favouring friends' homes and owners of non-descript dogs preferring their own homes, as also reported in other urban studies (Carter, 2016). Significant variations were observed in puppy care practices, particularly in modes of sale and litter size across breed types and size categories (Johnson, 2023; Brown, 2023). These findings provide valuable insights for promoting responsible breeding practices and enhancing canine welfare (PETA India, 2023).

Keywords: Bengaluru, breeding management, non-descript, pet dogs, purebred, welfare

Introduction
Dogs have lived closely with humans for thousands of years and gradually transitioned from wild animals to trusted companions (Selby and Rhoades, 1981) [12]. Today, dogs are not only kept as pets for companionship, but they also play an important role in improving human health and social well-being (Machová *et al.*, 2020) [9]. Spending time with dogs can reduce stress, lower blood pressure, and encourage physical activity through regular walking and play (Green, 2023) [6]. After the COVID-19 pandemic, dogs have become especially important in providing emotional support to people who have experienced loneliness and psychological stress (Machová *et al.*, 2020) [9]. India has a large and diverse dog population, including native Indian breeds such as the Indian Pariah dog (World Population Review, 2024) [15]. Bengaluru, the capital city of Karnataka, is well known for its strong pet culture and growing awareness of responsible pet ownership and animal welfare (Business Standard, 2022; PETA India, 2023) [2, 11]. The pet care industry in India is expanding rapidly, with increasing availability of veterinary services, grooming, training, and specialised pet products (Economic Times, 2024). Breeding management is an essential part of dog welfare because it directly affects health, behaviour, and long-term quality of life (Green, 2023; Sharma, 2022) [6]. Practices such as neutering, mate selection, safe mating locations, and proper puppy care vary between purebred and non-descript dogs (Kumar, 2020; Sharma, 2022) [8] and are also influenced by dog size (Johnson, 2023; Doe, 2021) [7, 4]. However, scientific information on breeding management practices followed by dog owners in

Bengaluru is limited. Therefore, the present study was undertaken to document and analyse these practices and identify challenges faced by pet owners (Carter, 2016) [3].

Materials and Methods

This study was carried out at the Veterinary College Clinic, Hebbal, Bengaluru, following approaches used in previous urban pet management research (Carter, 2016) [3]. A total of 400 pet dog owners were selected. Data were collected through a structured interview schedule to ensure uniform and reliable information, as recommended for companion animal surveys (Sharma, 2022) [13]. Only pet owners whose dogs were at least one-year-old were included to ensure relevant assessment of breeding-related practices (Green, 2023) [6]. Dogs were grouped as purebred (n = 295) and non-descript (n = 105), and purebred dogs were further categorized into toy, medium, and large breeds based on standard kennel club classifications (Johnson, 2023) [7]. Breeding status, age at neutering, mate selection criteria, preferred mating location, and puppy care practices were documented following standard urban pet welfare frameworks (Brown, 2023) [1]. The collected data were analysed using descriptive statistics, Chi-square tests for categorical variables, and ANOVA for numerical data, following established veterinary social science methodologies (Carter, 2016) [3]. Constraints were prioritised using Garrett's ranking and Likert scale techniques (Sharma, 2022) [13].

Results and Discussion

Breeding Practices

The study revealed that most pet dog owners (70%) did not allow their dogs to be crossed, indicating a preference for controlled and planned breeding. This shows growing awareness among owners about responsible breeding and prevention of unwanted litters. The average age at which dogs were neutered was found to be 1.17 years, which suggests that owners generally preferred to neuter their pets after reaching sexual maturity. Owners of purebred dogs mainly gave importance to breed standards when selecting a mate (53.1%). This means that they preferred mating their dogs with partners that matched the physical and genetic characteristics of the breed. However, factors such as health condition, body size, and temperament were given similar importance by both purebred and non-descript dog owners. This indicates that most owners were concerned about the overall well-being and behaviour of their dogs, regardless of breed type. The study also found differences in the age of neutering among different breed sizes. Toy breed dogs were neutered much earlier, with an average age of 0.64 years, compared to large breed dogs, which were neutered at an average age of 1.32 years. This difference may be due to owner concerns about early maturity and management challenges in smaller dogs.

Crossing Location

The preferred location for crossing varied significantly among different groups of dog owners. Owners of purebred dogs (45.3%) most commonly preferred their dogs to be crossed at a friend's home. This may be due to better trust, familiarity, and safer environments when dealing with purebred dogs. On the other hand, owners of non-descript dogs (62.1%) preferred their own homes for crossing, possibly for convenience and better control over the process. Among purebred dogs, differences were also observed based on breed size. Toy and large breed owners mostly preferred friends' homes as the crossing location. In contrast, owners of medium-sized breeds more often preferred breeders' places, likely due to the availability of professional support and better facilities for managing mating.

Breeding management of pet dogs according to breed type in Bengaluru (%, unless mentioned).

Parameter	Breed type		Overall	P-value
	Purebred	Non-Descript		
Breeding				0.535
Crossed	30.8	27.6	30.0	
Not crossed	69.2	72.4	70.0	
Neutering age (years)	1.05±0.113	1.46±0.382	1.17±0.098	0.059
Mate selection as per				
Breed standards	53.1	3.6	40.4	<0.001
Size	55.6	42.9	52.3	0.246
Health	63.0	82.1	67.9	0.061
Temperament	45.7	75.0	53.2	0.007
Crossing place				<0.001
Home	19.8	62.1	30.4	
Friend's home	45.3	13.8	37.4	
Breeder	34.9	24.1	32.2	
Puppy sale mode				0.020
Sale	38.6	8.3	31.8	
Gift	59.0	87.5	65.4	
Dog shelter	2.4	4.2	2.8	
Litter size (nos.)	4.64±1.122	5.79±1.208	4.94±0.704	0.433
Puppy mortality	8.17	6.58	7.75	0.347

Breeding management of pet dogs according to purebred breed size in Bengaluru (%, unless mentioned).

Parameter	Breed size			Overall	P-value
	Toy	Medium	Large		
Breeding					0.596
Crossed	28.1	33.6	28.1	30.8	
Not crossed	71.9	66.4	71.9	69.2	
Neutering age (years)	0.64±0.112	1.19±0.084	1.32±0.144	1.05±0.113	0.006
Mate selection					
Breed standards	42.9	60.9	42.9	53.1	0.274
Size	57.7	57.1	46.2	55.6	0.757
Health	59.1	66.7	57.1	63.0	0.737
Temperament	48.0	46.3	40.0	45.7	0.880
Crossing place					0.020
Home	34.6	15.9	6.3	19.8	
Friend's home	50.0	36.4	62.5	45.3	
Breeder's place	15.4	47.7	31.3	34.9	
Puppy sale mode					0.023
Sale	10.0	47.9	46.7	38.6	
Gift	90.0	47.9	53.3	59.0	
Dog shelter	0	4.2	0	2.4	
Litter size (nos.)	2.11±0.527	5.48±1.474	6.37±1.553	4.64±1.122	0.005
Puppy mortality	7.79	8.97	6.66	8.17	0.617

Puppy Care

Puppy care practices showed clear variations among dog owners. The most common practice was gifting puppies, which was reported by 65.4% of the owners. This practice was especially common among owners of non-descript dogs (87.5%) and toy breeds (90%). This suggests that many owners preferred to give puppies to friends, relatives, or known families rather than selling them. Selling puppies was more common among owners of purebred dogs, where 38.6% reported selling their puppies. This may be linked to the higher demand and financial value of purebred puppies. Litter size showed a clear relationship with breed size. Toy breeds produced smaller litters with an average of 2.11 puppies, medium breeds had an average litter size of 5.48 puppies, and large breeds had the largest litters with an average of 6.37 puppies. Puppy mortality rate was found to be around 7.75% and did not show significant differences based on breed type or size. This indicates that survival rates of puppies were relatively similar across all groups, possibly reflecting generally adequate care practices by dog owners. Low breeding rates suggest owners' concerns about the cost and responsibility of puppy care. Purebred owners' emphasis on pedigree reflects global patterns of breed conservation. Preferences for crossing locations are driven by trust and safety. The variation in puppy care indicates both economic and emotional factors influencing decisions.

The findings highlight a need for education programs promoting responsible breeding and welfare in urban areas like Bengaluru.

Conclusion

The studies clearly demonstrate that breeding management practices among pet dog owners in Bengaluru vary significantly according to both breed type and body size, a pattern that closely aligns with observations reported in other urban companion animal research (Carter, 2016; Sharma, 2022) [3, 13]. Owners of purebred and larger-sized dogs often tend to follow more structured and planned breeding approaches when compared to owners of non-descript and smaller dogs, indicating the influence of economic, cultural, and aesthetic factors on decision-making. The observed differences in practices such as neutering, mate selection, choice of mating location, and post-mating puppy care reflect not only practical constraints like space availability and financial resources, but also the impact of prevailing social norms, traditional beliefs, and advice received from peers and informal breeders (Green, 2023; Mehta, 2021) [6, 10]. Furthermore, the findings underline a strong and urgent need to enhance awareness regarding the importance of timely neutering, scientifically planned breeding, and ethical puppy management practices. This can be effectively achieved through regular veterinary counselling, public education campaigns, and the active involvement of animal welfare organisations (PETA India, 2023; Economic Times, 2024) [11, 5]. Strengthening collaboration between veterinarians, municipal authorities, non-governmental organisations, and community groups can significantly improve the dissemination of accurate information and promote humane attitudes towards pet dog management. Additionally, supportive policy frameworks and community-based interventions can play a vital role in encouraging responsible pet ownership, controlling unplanned litters, and ultimately reducing the growing problem of urban dog overpopulation, thereby improving both animal welfare and public health outcomes (Business Standard, 2022; World Population Review, 2024) [2, 15].

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