



Pampered pets or poor bastards? The welfare of dogs kept as companion animals

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ABSTRACT

Over the past two centuries, the typical life of dogs has changed dramatically, especially in the Global North. Dogs have moved into human homes, becoming human companions. In many respects, this change seems to have led to improvements in dog welfare. However, the shift into family homes from the free-roaming lifestyle characteristic of dogs as they lived and co-evolved with humans in the past, has created a typically more confined and isolated lifestyle for dogs. In addition, over the same period, selective breeding of dogs, largely driven by human aesthetic ideals and concepts of breed purity, has transformed dog populations. In this discussion paper, based on a narrative literature review, we compare the welfare of companion dogs with that of modern village dogs. We adopt this comparison because dogs have lived in ways resembling village dog life for most of their history. As such, the comparison may serve as a good basis for assessing the effects of the ‘petification’ of dogs. We argue that compared to the typical village dog, the typical modern suburban or urban companion dog experiences good welfare in a number of respects. This is especially the case when it comes to security, satisfaction of nutritional needs (though companion dogs have problems with a high prevalence of obesity), and proper veterinary care. However, in other ways the modern companion dog often suffers from a range of human-created challenges leading to poor welfare. We examine two key challenges for companion dogs: 1) unrealistic social demands that can lead to anxiety, depression, and aggression, and 2) ill devised breeding schemes that result in breeding-related diseases for many companion dogs.

1. Introduction

During the past two centuries, the typical life of dogs has changed dramatically, especially in the Global North. While dogs previously fulfilled various roles as guardians, herders, hunting aids, and companions (Sykes et al., 2020), industrialization and urbanization brought changes in human lifestyle that also transformed the human-dog relationship, with dogs becoming mainly companion animals and in-house residents (King et al., 2012; Howell, 2016).

These companion dogs experience good welfare in many ways, with a multi-billion dollar industry that offers specialized food, veterinary care, toys, accessories, and other services and commodities (Armbruster, 2019). However, the companion lifestyle looks very different from the free-roaming lives dogs led in the past. Many dogs only go outside with

their owner and on a leash, with limited freedom to explore, play, and socialize off-leash (Armbruster, 2019). Due to busy owner lifestyles, many companion dogs stay home alone for many hours daily, further limiting dogs’ opportunities to socialize. In addition, over the same period, selective breeding, largely driven by human aesthetic ideals and concepts of breed purity, has transformed dog populations.

In this paper, through a narrative literature review, we will examine two challenges for companion dog welfare linked to these changes: 1) social demands on companion dogs and associated behavioral problems, and 2) selective breeding of companion dogs and associated breeding-related problems. We will employ a comparative approach inspired by ethologists’ work with other domestic animal species. For example, Alex Stolba, David Wood-Gush, Per Jensen, and others conducted pioneering work on the welfare of intensively farmed pigs by comparing them with

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free-ranging pigs in pig parks (Broom, 2011). We adopt a similar structure here, comparing the life and welfare of companion dogs with an opposite extreme, modern village dogs, since dogs have lived in ways that resemble modern village dog life for most of their history (Coppinger and Coppinger, 2001). In light of this comparison, we will outline ways to improve the welfare of companion dogs.

We should note that it is not our aim to romanticize the life of village dogs. They have their own welfare problems, e.g., lack of sufficient and adequate food, lack of veterinary care, and human hostility (Jackman and Rowan, 2007); problems that are often aggravated by uncontrolled reproduction. However, we suggest that this comparative approach can serve to put companion dog welfare into perspective. So, before delving into the challenges for companion dogs, we must first outline the life-style of the typical village dog.

2. The life of the village dog

Humans and dogs have lived in close proximity for thousands of years (Vilà et al., 1997; Thalmann and Perri, 2019). For most of that time dogs have been free to roam outside, similar to today's village dogs. Humans did not intentionally shape the evolution of the first dogs, but being less fearful of humans was a key evolutionary pressure (Hansen Wheat et al., 2019a, 2019b).

Village dogs likewise live close to humans, typically associating with one or more human families (Boitani et al., 2007). They are medium-sized and phenotypically very similar worldwide, although there are some variations according to climate; e.g., village dogs in northern regions tend to be larger and have longer hair (Coppinger and Coppinger, 2001). Globally, village dog populations share similar characteristics: 1) a high population turnover, 2) a sex ratio skewed towards males, and 3) high pup mortality of about 40–70% (Pal, 2010; Pal et al., 1998b). High population turnover is due to a low life expectancy (3–4 years), dog migration (in and out of the village), and high fecundity with surplus pups (Lord et al., 2013; Belo et al., 2017). The skewed sex ratio possibly results from a human preference for male dogs and the culling of female pups by villagers (Boitani et al., 2007). A high pup mortality is an effect of high fecundity, causing weaned pups to compete with adult dogs for food (Lord et al., 2013). Despite the aforementioned welfare problems, village dogs appear well adapted to village life. They generally have close to optimal body condition (Ortolani et al., 2009; Ruiz-Izquierre et al., 2014), they breed up to twice per year (Lord et al., 2013), and pregnant females prefer to make dens in areas of high human activity (Majumder et al., 2016).

Village dogs are raised in litters of about 6 puppies (Pal, 2010). They are well-socialized to conspecifics, and as adults usually roam alone or in small groups of 2–3 dogs (Ortolani et al., 2009). They scavenge refuse around households and compete for food resources with other dogs or animals (Sarkar et al., 2019). Village dogs' experiences with humans may range from positive to negative, and this can affect their behavioral responses towards humans. Human socialization opportunities for village dogs usually occur from an early age with reinforcing experiences throughout life. Daily social interactions with familiar and unfamiliar humans may include human–dog play, begging for food, and following humans in daily work and activities (Ruiz-Izquierre et al., 2014; Corrieri et al., 2018). There is evidence to suggest that socialization of village dogs varies from culture to culture (Ortolani et al., 2009). Less socialized village dogs in Ethiopia will flee when approached by a stranger (Ortolani et al., 2009). But even well-socialized village dogs in Mexico will not approach when called by an unfamiliar human (Ruiz-Izquierre et al., 2014). These findings indicate that village dogs are adapted to the specific human culture to which they belong and the individual humans they interact with, while simultaneously living a life not wholly dependent on humans.

3. Social demands on companion dogs and associated behavioral problems

When comparing the life of companion and village dogs, one obvious difference is the extent to which owners control the life of companion dogs. This is particularly the case when it comes to the social life of companion dogs. Owners often decide how much social interaction the dog will have, as well as how and with whom the dog can socialize.

As mentioned previously, village dogs depend on humans for food resources and may also enjoy the company of humans, but they are not dependent on humans to fulfill their social needs. This appears to be very different for companion dogs. As dogs have moved into human homes, more emphasis has been placed on how they interact with us and they are increasingly thought of as family members (Power, 2008). The 'ideal dog' is expected to be social and friendly, both calm and energetic, and easy to train (King et al., 2009; Diverio et al., 2016). The selective pressure that results from this ideal is for animals that are more approachable, more intent on communicating with humans, and less aggressive towards humans (Gess et al., 2005; Udell et al., 2008, but see Hansen Wheat et al., 2019b for slightly different results).

While these changes have led to dogs being considered more as family members, with the benefits of safe shelter, abundance of food, better health care, etc., the counterpoint is that dogs have become more dependent on the humans with whom they live. Indeed, the tendency to show signs of distress upon separation from a human caregiver is also present in hand-reared, intensively socialized wolves (Lenkei et al., 2020). This indicates that both phylogenetic and ontogenetic factors contribute to companion dogs being more dependent on their owners. This dependence can lead to behavioral and welfare problems for the dog. Many dogs live under conditions in which the humans are absent for a major part of the day. Not surprisingly then, separation-related problems, which can be described as a set of problem behaviors shown by dogs when the caregiver or attachment figure is absent (Amat et al., 2020), are very common (e.g. Ogata, 2016; Tiira et al., 2016).

Based on owner reports, the prevalence of separation-related problems has been reported to lie between 5% and 30% of all companion dogs (Howell et al., 2016; Tiira et al., 2016; Dinwoodie et al., 2019; Salonen et al., 2020). However, these estimates are likely to be too low. Some owners are unaware of the problem, because the separation-related behavior is only present after the owner has left and does not leave 'evidence' (e.g., destruction) (van Rooy et al., 2018). Other owners may fail to detect the more subtle signs of anxiety or stress in their dog around departures or upon their arrival home (Mariti et al., 2012). There is even evidence that some owners are aware of their dog showing separation-related behavior, but fail to recognize the need or possibility for treatment (Bradshaw et al., 2002).

The most commonly reported clinical signs of separation-related problems are vocalization, elimination, and destructive behavior (Ogata, 2016; Amat et al., 2020;). However, dogs can also display other signs in relation to separation from their owner(s), such as behavioral indicators of stress or anxiety (panting, pacing, trembling, etc.), depression (lethargy, listlessness), or physiological signs (salivation, anorexia, vomiting, diarrhea, etc.) (Ogata, 2016; Amat et al., 2020; de Assis et al., 2020). These signs can more easily be overlooked by the owner, but are nonetheless indicators of an underlying negative affective state (Mendl et al., 2010; Karagiannis et al., 2015). Although some separation-related behaviors could potentially reflect different emotional/motivational backgrounds (Lenkei et al., 2018; de Assis et al., 2020), undoubtedly dogs that display signs of distress or frustration during separation experience reduced welfare.

Dogs are obligate social animals that thrive in the company of others. Village dogs have been found to have a calm, less excitable disposition, that can be explained by the continuous exposure to the street environment, and to humans, animals, and other dogs (Corrieri et al., 2018). It follows that being left alone for many hours is something that has to be learned, and lack of habituation to alone time appears to be a risk factor

for separation-related problems (e.g. Ogata, 2016). In recent years the owner and dog attachment style has also been investigated in relation to separation-related problems (e.g., Parthasarathy and Crowell-Davis, 2006; Konok et al., 2015, 2019) and is now thought to play a larger role in the development of separation-related problems than previously expected (Meneses et al., 2021). Some authors have previously found that too much attachment or hyperattachment is a problem (Flannigan and Dodman, 2001). However, more recent studies highlight the type of attachment of both owner and dog as a predictor of separation-related problems, with avoidant attachment styles in the owner possibly contributing to insecure attachment and separation disorder in the dog (Konok et al., 2019).

An additional issue worth mentioning with regard to the risk of separation-related problems is the ‘pandemic puppy’ phenomenon. The surge in dog ownership during the COVID-19 pandemic has implications for the risk of developing separation-related problems. According to Packer et al. (2021), people who acquired a puppy during the COVID-19 pandemic were more likely to be first time dog owners and less likely to engage in behaviors that would ensure the acquisition of a healthy and well functioning puppy (e.g., visiting the breeder). Additionally, due to pandemic-associated lockdowns and restrictions on social life, it is reasonable to assume that puppies have been accustomed to being with their caregivers most of the time, likely not habituating to being left alone from an early age. Even for adult dogs these lifestyle changes have been challenging, with several studies reporting that the increased time at home and changes to routine are associated with an increase in behavioral problems (Bowen et al., 2020; Christley et al., 2020; Holland et al., 2021; Shoosmith et al., 2021; Harvey et al., 2022). All of these factors are likely to result in an increased prevalence of separation-related problems presently and in the years to come.

Companion dogs are not only expected to manage long periods of social isolation, they are also expected, as family members, to behave in a “civilized” manner. This includes showing friendly behavior when interacting with conspecifics (King et al., 2009; Diverio et al., 2016) and yet dogs are not always provided with the appropriate socialization to fulfil this demand. Village dogs, on the other hand, have good opportunities for appropriate socialization with conspecifics. They are around other dogs most of the time, but also have the opportunity to withdraw from close encounters. Critically, they are free to choose when and with whom to interact. As a consequence, village dogs exhibit relatively low levels of intraspecific aggression except during specific periods relating to reproduction (i.e., males competing for females) or lactation (Pal et al., 1998a; Corrieri et al., 2018). For companion dogs, interaction with conspecifics is primarily controlled by the human, who determines with whom or even if the dog is allowed to interact. Owners of puppies are frequently advised to socialize their dog with other dogs (Gazzano et al., 2008; Howell et al., 2015), but owners are often cautious about allowing off-leash interactions with other dogs before completing primary vaccinations (Kinsman et al., 2022). Withholding a puppy from interacting with other puppies or dogs can lead to problems with intraspecific aggression later in life, although this does not seem to be a strong predictor of such problems (Appleby et al., 2002; Casey et al., 2013). On the other hand, pushing a puppy to interact with other dogs too much or too early can also lead to problems with intraspecific aggression (Wormald et al., 2016), due to the negative experiences the puppy may have in such interactions. Compared to how village dogs interact with each other, the lack of choice for companion dogs to interact and/or withdraw from interaction with conspecifics, may contribute to the development of intraspecific aggression. This type of aggression is a more commonly reported problem among dog owners (Casey et al., 2013; Dinwoodie et al., 2019) compared to what has been found in village dogs. In addition to the risk of injuries and inherently negative subjective experience for the dog, aggression is also considered one of the most severe types of behavioral problem, often resulting in relinquishment or euthanasia (Siracusa et al., 2017). As such, it must be considered a serious welfare problem for companion dogs.

Whether dogs are withheld from interaction with conspecifics because of problematic behaviour or owner convenience, there are potential welfare problems related to the lack of such interaction. Dogs are a social species and interactions with known conspecifics are important (Mariti et al., 2014), and possibly irreplaceable by human interaction. For example, the level of play with conspecifics is independent of how much play dogs engage in with their owners (Rooney et al., 2000). Compared to the opportunities available to village dogs to be routinely around another dog or two, the companion dogs that lack this interaction with conspecifics potentially suffer from reduced welfare.

Finally, the demands on companion dogs in terms of social interaction with human family members constitute a risk for both dog welfare and human safety. The commonly heard phrase “the kids can just do anything to the dog” likely reflects a widespread opinion that dogs are expected to tolerate pretty much everything from their human caretakers. Additionally, if the dog does not like the social interaction, they are expected to just walk away. Most dogs will feel uncomfortable with some forms of close interaction (e.g., hugging, kissing) and if they do not perceive walking away as an option or have learned that walking away will not work, they will communicate a need for greater distance with behavioral signs that can escalate to aggressive behavior (Shepherd, 2009). Undoubtedly, the majority of dogs, including village dogs, are interested in interaction with humans. But the unrealistic expectations of many owners in terms of their companion dogs’ tolerance of close or lengthy interaction combined with a poor ability to recognise early warning signs (Mariti et al., 2012; Owczarczak-Garstecka et al., 2018) can result in dangerous situations.

Ultimately, few dogs embody the ‘ideal’ companion dog that can both tolerate social isolation for many hours a day and meet the high expectations of social interaction with the family and unfamiliar dogs. The owner’s unmet expectations can have detrimental effects on both human and dog welfare, as well as the human-dog relationship, which can ultimately result in the dog being relinquished or euthanized (Siracusa et al., 2017). Even though village dogs may be put down if they show aggression towards humans and conspecifics, they typically have more autonomy in social relations than companion dogs enabling them to better avoid severe conflicts.

4. Owners’ expectations can help prevent problems and improve companion dog welfare

As for most behavioral problems, the two outlined here (separation and aggression-related problems), are complex, and addressing such problems often entails a multifactorial approach which examines the dog’s breed, personality, learning history, and environment (Casey et al., 2013; Haug, 2008; Ogata, 2016; Meneses et al., 2021). By comparing modern companion dogs with their free-living counterparts, modern village dogs, we propose that changing the environment of companion dogs, especially the social demands we place on them, can play a role in preventing separation and aggression-related problems.

For problems related to separation, owner expectations of dogs’ social needs are important. Many dogs will not thrive if they are left alone for long hours, and consequently some life- and workstyles are not suitable for keeping a companion dog. Furthermore, in addition to ensuring social company for the dog, owners need to provide gradual habituation to time spent alone (Gazzano et al., 2008; Blackwell et al., 2016), avoid sudden big changes in time spent alone (Harvey et al., 2022), and keep the dog physically and mentally stimulated (Blackwell et al., 2016).

For aggression-related problems, owner expectations of dogs’ social limits are important. Dogs are social animals and depend on social interaction for good welfare. But not all dogs are social butterflies and by allowing less social dogs to approach more slowly or withdraw from interaction with humans or conspecifics, the need for such dogs to escalate to aggressive behaviour is reduced (Shepherd, 2009). Also, greater consideration must be given to the quality as opposed to the

quantity of socialization experiences, allowing puppies to form positive associations to the interaction with humans and conspecifics. Finally, not all forms of interaction are inherently pleasant for dogs (e.g., hugs, being approached while eating, or nail-trims), and owners have a responsibility to either help their dogs to avoid such situations or teach them how to manage them in an appropriate manner.

Consequently, we suggest that more realistic owner expectations of their dogs' social needs and limits may help to prevent and reduce some forms of behavior problems and thereby improve the welfare of companion dogs.

5. Selective breeding of companion dogs

For centuries, dogs have been bred to meet various human needs. For instance, DNA evidence from archaeological remains associated with sled technology documents that using dogs as a means of transportation in arctic environments dates back approximately 9500 years (Sinding et al., 2020). But while evidence from paintings and pottery shows that differentiated breed characteristics were present 3000–4000 years ago (Harcourt, 1974), it was not until Victorian times that breeders started to produce distinct, standardized conformations specifying the dog's external form and morphology. During this time, the livestock notion of a breed (i.e., “a group of animals that has been selected by man to possess uniform characteristics, which are heritable and distinguish it from other groups of animals within the same species” (Sampson and Binns, 2006, p. 26) was applied to dogs. Since then, the desire to develop dogs with particular physical traits, behavioral characteristics, or unique skills has been the driving force behind selective breeding. In contrast, village dogs have remained minimally influenced by breeding goals defined by humans.

While village dogs are typically outbred landrace dogs (Shannon et al., 2015), nearly all dogs in the Global North are either purebreds or crosses of these. Thus, dogs with no known purebred ancestors are normally only found among populations of street or village dogs. Today there are approximately 400 dog breeds, each established by selection from a small gene pool resulting in distinctive physical and behavioral characteristics. Even though dogs are increasingly bred without pedigree, in most countries, the main drivers of dog breeding are national kennel clubs, which take responsibility for studbooks, breed restrictions, dog shows etc. The accelerated breeding process shaped by strictly controlled breeding within closed populations has created extraordinary diversity in dog morphology and behavior. However, it has also restricted gene flow and created bottlenecks associated with breed formation which have resulted in a loss of genetic variation. In turn, this has imposed a welfare cost on purebred dogs (Cruz et al., 2008) resulting from breeding-related health and behavioral issues.

With the recent development of affordable genotyping and sequencing technologies, huge quantities of genetic population data have become available. Evidence from these data provides an explanation of the genetic cost of breeding compared to the outbred landrace dogs to which village dogs typically belong (Shannon et al., 2015). Mean loss of heterozygosity in current dog breeds is 13% (Wade, 2011), a reduction of significant magnitude with detrimental effects on many breeding-related health issues. This underlines the need to avoid further loss of genetic variation if dog welfare is to be protected.

Furthermore, selection based on exaggerated morphological features, supported by demand from dog owners, imposes a detrimental selection pressure on a number of dog breeds. Exaggerated morphological features include, for instance, folded skin, and the apparently very popular feature of a flat, puppy-like face. Foreshortening of the facial skeleton (brachycephaly) has been selected for in a range of popular dog breeds, e.g., Pug, French bulldog, and English bulldog. In recent years, a chronic, debilitating respiratory syndrome affecting brachycephalic dog breeds has received considerable attention. As the syndrome predominantly affects dogs with a brachycephalic conformation, it is called Brachycephalic Obstructive Airway Syndrome

(BOAS) and it appears to be highly prevalent among the affected breeds. When comparing historic illustrations of brachycephalic dog breeds (e.g., “The painter and his pug” (Hogarth, 1745)) with their present day conformation, it is evident that the short-muzzled or flat facial conformation has become exaggerated over time. In addition it has been shown that BOAS risk increases sharply and in a non-linear manner as relative muzzle-length shortens (Packer et al., 2015). This directly ties breeding for exaggerated morphological features closely to severe health problems.

Thus, imprudent breeding strategies (or lack of strategy) have clearly added to the cost of breeding in a number of our dog breeds. As exemplified above, in some breeds, such as some of the brachycephalic breeds, this has even happened to a degree where it is debatable if the damage done is reversible without resorting to crossing with another breed (Ravn-Mølby et al., 2019).

To avoid further reduction of genetic variation and subsequently, increased inbreeding, the single most important parameter for sustainable breeding is a large effective population size. The effective population size is a measure of the rate of loss of genetic variation and increase in inbreeding due to random genetic drift. This is a key parameter in conservation and population genetics. To maintain a large effective population size, breeders need to use many animals for breeding (Falconer and Mackay, 2009). It is particularly important to use a substantial number of male dogs and use them equally. This occurs naturally in village dogs, which produce offspring with more than one partner (Natoli et al., 2021), but conflicts with a general tendency in companion dog breeding towards overrepresentation of popular sires. Furthermore, if a substantial fraction of a breed needs to be excluded from breeding due to health problems caused by genetics as mentioned above, maintaining a large effective population size becomes much harder.

6. New strategies for dog breeding can improve companion dog welfare

There is no easy way to revert from modern purebred dogs to the outbred village dogs and, as we shall argue here, there are reasons to doubt that this would be the best way forward. However, there are very good reasons to increase genetic variation in many companion dog breeds.

The strongest argument for maintaining pure dog breeds is that “you know what you get”. Additionally, the wide variety of dog breeds ensures that there is a breed for a wide range of purposes and preferences. However, in light of the ethical concerns regarding welfare in dog breeding, how does the future look for purebred dogs?

On the one hand, some breeds such as some of the aforementioned brachycephalic breeds appear to have reached a point of no return in terms of possibilities for improving health and welfare. On the other hand, in many breeds, the majority of dogs are healthy and some breeds even have a higher expected lifetime than mixed-breed dogs (Proschowsky et al., 2003). Thus, it appears it is not breeding of pedigreed dogs per se that is the problem. Rather it seems to be the selection of breeding dogs. A way forward is to optimize breeding strategies to maintain or increase genetic diversity. Selecting healthy dogs for breeding is not the only priority; in order to continue to be able to select against inherited diseases, genetic diversity is essential. Use of genomic selection in dog breeding has been suggested (e.g., Farrell et al., 2015). However, if this accelerates selection it could potentially lead to even more intense selection for extreme phenotypes with a significant cost in genetic variation.

An attractive method to improve animal breeding is optimal contribution selection (OCS), which aims to optimize the balance between genetic improvement and loss of genetic variation (see, e.g., Wellmann, 2019). While the use of OCS would improve breeding schemes, implementing it is difficult when selection decisions are decentralized. Thus, the main tools for improving breeding schemes in

the democratic, organized dog breeding community are to introduce more animals in breeding, limit the number of puppies from popular sires, and potentially promote seldom-used lines combined with cross breeding when necessary. As a result, the extreme welfare problems of some purebred dogs compared to the typical outbred landrace village dogs could be avoided or considerably limited.

7. Conclusion: The welfare state of modern companion dogs compared to village dogs

Compared to the typical village dog, the typical modern suburban or urban companion dog experiences good welfare in a number of respects. This is especially the case when it comes to security, satisfaction of nutritional needs (though companion dogs have problems with a high prevalence of obesity), and proper veterinary care. As a result, the median life expectancy of companion dogs across breeds is greater than ten years (Lewis et al., 2018) while it is roughly a third of that for the typical village dog.

However, in other ways the modern companion dog often experiences poor welfare, suffering from breeding-related diseases, loneliness, and unrealistic social demands that can contribute to anxiety, depression, or aggression. In this paper we have documented these problems based on existing literature and suggest that, perhaps counter intuitively, companion dogs do not have a welfare advantage over village dogs in all respects. As such, we have demonstrated how comparison between the two can highlight potential initiatives to improve the welfare of companion dogs.

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Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Merete Fredholm is member of the Health Board of the Danish Kennel Club; and Björn Forkman is a member of the committee of the Agria/Swedish Kennel Club research foundation. No other conflicts to declare.

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