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PRACTICAL EXAMPLES OF OWNER-DIRECTED AGGRESSION IN DOGS.

Dr Jonathan Bowen BVetMed, MRCVS, DipAS(CABC).
Royal Veterinary College
Behavioural Medicine Service
Queen Mother Hospital for Animals, Royal Veterinary College, Hawkshead Lane, North Mymms, Hertfordshire, AL9 7TA.
United Kingdom

INTRODUCTION

Although common within referral populations, owner-directed aggression (ODA) is not a generally common problem. ODA is influenced by both inherited and environmental factors, so it is likely to vary substantially in prevalence nationally, regionally and between communities with different attitudes toward dogs and patterns of husbandry. In a convenience sample population in the UK, the prevalence was approximately 3%.

Genetics and temperament provide the predisposition, early life shapes behavioural foundations, and the owner's management style often determines the outcome. Many risk factors are avoidable, and good owner advice, particularly before homing, can offer valuable prevention against this problem:

- Choose dogs with suitable temperaments.
- Provide appropriate rearing and socialisation.
- Avoid aversive handling and training methods.
- Educate and support owners, especially those with limited experience.

DOG-RELATED FACTORS

Breed and genetics affect baseline risk. Small- to medium-sized breeds such as Chihuahuas, Dachshunds, Beagles, Cocker Spaniels, and English Springer Spaniels tend to score higher for ODA, whereas Golden Retrievers generally score lower (Duffy et al., 2008). Lineage can be important: show-bred Springer Spaniels displayed more "dominance"-type ODA than field-bred lines. Nevertheless, variation within breeds is high, and breed alone accounts for little of the overall risk (Casey et al., 2014).
Sex: Males are more often affected than females (Hsu & Sun, 2010; Mikkola et al., 2021). In some contexts, being female—particularly spayed females—appears to be protective (Casey et al., 2014).
Neutering: Findings are inconsistent. Some studies report higher ODA in neutered dogs (Hsu & Sun, 2010), while others find lower rates or no effect (Mikkola et al., 2021). The impact likely depends on sex, temperament, and context.
Age: Older dogs show a greater risk, possibly due to pain or reduced tolerance (Mikkola et al., 2021).
Temperament: High fearfulness (Mikkola et al., 2021) and strong assertiveness or "dominant" tendencies (Duffy et al., 2008) can both predispose to ODA, through defensive or status-related pathways. Low sociability is also linked to higher risk (Gobbo & Zupan, 2020).
Size: Smaller breeds are more likely to display ODA (Mikkola et al., 2021), possibly because of differences in how they are handled by owners.
Pain and health issues: Orthopaedic pain and other chronic medical conditions are strongly associated with increased ODA (Le Brech et al., 2016).

DEVELOPMENTAL AND EARLY-LIFE FACTORS

Early rehoming (before 7–8 weeks) increases the risk, particularly for resource-guarding behaviour (Pierantoni et al., 2011; Pirrone et al., 2015). Rehoming at eight weeks or later is protective.
Socialisation: Positive exposure to people, handling, and varied environments during the sensitive period (approximately 3–12 weeks) reduces fear-based aggression (Casey et al., 2014). Poor socialisation is a recognised risk factor.
Aversive early experiences: Harsh punishment, abuse, or other traumatic events in puppyhood are associated with increased risk (Herron et al., 2009).
Training methods: Positive-reinforcement training in early life is associated with a lower risk of aggression, whereas punitive methods increase it (Arhant et al., 2010; Casey et al., 2014).

Maternal care: Low levels of maternal care are linked to higher aggression in adulthood (Foyer et al., 2016).
Adolescent management: Continued training and structured management during adolescence may help prevent the escalation of early aggressive tendencies, though evidence specific to ODA is limited.

OWNER-RELATED FACTORS
Experience: First-time owners are more likely to experience ODA in their dogs; those with previous experience tend to recognise and address early signs more effectively (Mikkola et al., 2021).
Age: Younger owners report more ODA, while older owners are less likely to encounter it (Casey et al., 2014).
Gender: Findings are mixed. Some research links young male owners to more severe cases, while others find slightly higher ODA scores among dogs owned by women (Hsu & Sun, 2010; Casey et al., 2014).
Personality: Higher levels of neuroticism in owners are associated with greater ODA risk (Podberscek & Serpell, 1997; Dodman et al., 2018). Calm, emotionally stable owners tend to have dogs with lower aggression levels.
Attachment style: An avoidant attachment style towards the dog is linked to greater ODA (Gobbo & Zupan, 2020). Secure, engaged relationships are generally protective.
Handling and training style: Aversive or confrontational approaches increase ODA risk, while reward-based methods reduce it (Herron et al., 2009; Casey et al., 2014). Inconsistent discipline can also heighten risk.
Lifestyle and interactions: Practices such as hand-feeding scraps or allowing uncontrolled access to valued resources can encourage resource guarding (Le Brech et al., 2016). Consistent boundaries, adequate exercise, and appropriate management of interactions with children can help to prevent incidents.

DIAGNOSTIC APPROACH
Given that this is a multifactorial problem, it is important to collect information about the specific characteristics of the dog's behaviour, health-state, temperamental factors, environment and functioning (both as a pet and the dog's welfare).

Details should be collected for as many bite incidents, and near-misses, as possible. The aim is to identify triggering events and stimuli, emotional states before, during and after aggression, motivation (e.g. food or object guarding), and the dog's level of behavioural regulation. Evidence that is important for the assessment of behavioural regulation includes presence or absence of warning signals, behaviour during the bite incident, how the bite incident ends, and evidence of redirection.

This information can be used to construct a risk assessment, which should include an evaluation of;
- Situational predictability.
- Behavioural predictability.
- Bite behaviour.
- Bite severity.
- Owner compliance.

Situational predictability is the degree to which there is a reliable pattern of triggering situations (including stimuli, events and contexts) for aggression. A dog that exhibits aggression only in a specific set of situations is highly situationally predictable. Dogs with low situational predictability are higher risk.

Behavioural predictability relates to whether the dog shows normal warning behaviour before escalating to a bite. This includes indicators of emotional state such as lip-licking, yawning, and trembling as well as threat avoidance behaviours such as hiding and avoidance, and threatening behaviours like staring, growling, and snapping. Dogs that show poor communication prior to a bite and then minimal warning before biting have poor behavioural predictability.

Next, we consider the dog's behaviour during a bite incident, including whether the dog bites once and releases, or bites and holds on, or attempts multiple bites. Also, whether the dog has spontaneously stops attacking, or has to be separated from the target. Lastly, we consider what level of bite damage the dog might cause, based on past incidents, the dog's size and behaviour during bite incidents.

The combination of poor situational and behavioural predictability makes a dog high risk for biting. The combination of bite damage assessment and behaviour during a bite incident gives us an indication of the harm the dog might cause.

To assess the overall risk, we have to take into account the presence of vulnerable targets, such as frail or impaired individuals and young children, as well as the history of compliance by the owner. If there have been numerous bite incidents (or near misses), the owner has shown minimal foresight or prevention, or has has engaged in minimisation, victim-blaming or failing to take responsibility, then treatment may not be safe.

CHALLENGING BEHAVIOURAL CHARACTERISTICS

Dogs with owner directed aggression often exhibit problems of poor behavioural regulation; they give little warning of an attack, during an attack they bite multiple times or target multiple vulnerable parts of the body, they may need to be physically controlled in order to stop an attack, and they may continue to remain aggressive for some time after an attack has been stopped. These dogs may also tend toward redirection, which makes them hard to control safely. One of the characteristics of poor behavioural regulation is impulsiveness. Impulsiveness results from failures in inhibitory control of behaviour, but it appears not to be a generalizable trait; dogs may exhibit differences in inhibitory control in different contexts and behavioural patterns. In owner-directed aggression we are concerned with impulsive lack of inhibitory control that occurs specifically in the social domain. However, through arousal, inhibitory control is influenced by the broadly influential characteristic of excitability (Bray *et al*, 2015).

Other characteristics that are important in these dogs are cognitive bias, conditioned emotional responses and habitual responding. Cognitive bias, which is strongly influenced by negative emotional states such as anxiety, leads to the dog interpreting otherwise neutral or ambivalent interactions as threatening, which can lead to aggression.

TREATMENT

For the purposes of risk-reduction, the owner should avoid the triggering events and interactions that are known to provoke aggression. This also helps to reduce conditioned emotional and habitual responses that maintain the pattern of behaviour. More intrusive management, such as muzzling or physical exclusion, should be employed when bite damage is likely to be high, or situational predictability or behavioral predictability are low.

The primary purpose of medication is to improve behavioural regulation, for example, reducing impulsiveness.

Training and environmental enrichment can help to alter cognitive bias and habitual responding, which can be very valuable, but there is no evidence that these approaches can specifically improve behavioural regulation within the domain of social interaction or impulsive aggression. However, training a dog to calm or settle on cue can be an effective way to control excitability that generally affects behavioural regulation. It can also be used to create overtrained stimulus driven habitual responses that can be used to disrupt aggressive behavioural sequences.

PROGNOSIS AND FOLLOW UP

Safely, managing a dog with family-directed aggression is a long-term commitment. For dogs that have a biologically-based problem of behavioural regulation, medication may be needed for the long-term, perhaps for the rest of the dog's life. Owners should also be aware that illness, pain, and cognitive dysfunction, which are a natural part of a dog's ageing, can lead to changes in aggressive behaviour that could make their dog riskier in the future. Owners may always have to limit the dog's access to certain rooms, furniture, and resources, and they may have to reconsider the dog's future if they experience a major change in lifestyle, such as the arrival of a child.

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