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Canine psychiatry: Addressing animal psychopathologies

Abrar Ul Haq**Abstract**

Animals exhibit analogous behavioural conditions that are equivalent to certain human psychiatric disorders. Canine psychiatry is a growing field at the moment that is focussed on working with our fuzzy companions. The most commonly reported psychiatric disorders in dogs are generalized anxiety disorder, Obsessive compulsive disorder, Separation anxiety disorder and Post traumatic stress disorder (PTSD). The canine behavioural disorders have healthy legitimacy at all explored levels for human psychiatric disorders like generalized anxiety disorder, obsessive-compulsive disorder, impulse control disorders and panic disorders. In addition, natural canine models can assist our understanding of human psychiatric disorders. There are number of drugs used to offset psychiatric disorders in pets like tricyclic antidepressants, selective serotonin reuptake inhibitor, benzodiazepines and atypical antidepressant. Besides medication, behavioural teaching and counselling is done with a final aim to offset the medication.

Keywords: canine, behaviour, psychopathology, medicine**Introduction**

Psychiatry is the branch of medicine devoted to the diagnosis, treatment and prevention of mental, emotional and behavioural disorders ^[1, 2]. There are cornucopias of abnormalities that are affective, behavioural, cognitive and perceptual. Psychiatry treats mental disorders which are conventionally divided into three tiers i.e., mental illness, severe learning disabilities and personality disorders ^[3]. Animal psychopathology is the study of mental or behavioural disorders in animals. Historically there has been an anthropocentric inclination to emphasize the study of animal psychopathologies as models for human mental illness ^[4]. If we talk about the behavioural disorders in animals or pets its very much similar to human psychiatric disorders. So, one of the newest additions to the field of psychiatry is directed at working with our furry friends. Nowadays, pet psychiatry is a growing field in which professionals are tasked in dealing with pets showing troublesome behaviours which have become so extreme that they are now impacting upon their owner's happiness and welfare. The example of such behaviours includes aggression towards humans or other animals, compulsive behaviours, inappropriate elimination, soiling, hyperactivity or symptoms of fears and phobias. Pet psychiatry looks towards medical as well as behavioural interventions. It is quite widely accepted now that domestic pets can suffer from mental health issues that are very similar in nature to that of humans. Dogs have been shown to display similar rates of depression to humans ^[5]. The most common disorders studied in pets include eating disorders (Activity anorexia, Thin sow syndrome, Pica) and behavioural disorders like Generalized anxiety disorder (GAD), Obsessive compulsive disorder (OCD), Separation anxiety disorder (SAD) and Post traumatic stress disorder (PTSD).

A. Eating Disorders**1. Activity anorexia**

Activity anorexia is one of the eating disorders seen in primates & rats which are very much similar to human anorexia nervosa or hyper gymnasia. In this condition, rats begin to exercise excessively while simultaneously cutting down on their food resulting in excessive weight loss, and ultimately death. For its management the rats are first trained to the feeding schedule and then given unrestricted access to a running wheel thereby preventing Activity anorexia behaviour ^[6, 7].

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2. Thin Sow syndrome

This syndrome is mainly related to social and environmental stressors like overcrowding. It's observed in stalled sows and is similar to Activity anorexia. The sows after early pregnancy show a hyperactive behaviour, eat little and suffer from emaciation, hypothermia resulting in wasting and often death [7]. Drug Amperozide, a neuroleptic compound with anti-stress and anxiolytic properties have shown full recovery in sows suffering from thin sow syndrome [8].

3. Pica

It is the ingestion of non-nutritional substances seen in various non-human animals like rats, chickens, cattle, parrots and cats. Chickens display a type of pica when they are feed-deprived. They increase their non-nutritive pecking, such as pecking wood or wire on fences or the feathers of other birds [9]. In case of parrots (macaws) clay clicking for 2-3 hours a day has been observed from the riverbeds in the Amazon. They show this behaviour to detoxify the seeds they eat which contain tannin and alkaloids [10].

B. Behavioural disorders

1. GAD

In GAD the animal shows constant and crescent reactivity, alertness and exploration and a great motor activity that interferes with a normal social interaction [11]. Generalized anxiety is not exclusive to human beings, but observed in other animals such as dogs [12]. Both behavioural modification techniques and pharmacological treatment (e.g. Alprazolam, clomirpamine, diazepam) is used for its management [13].

2. OCD

The Obsessive compulsive disorder (OCD) is a recognized disorder by animal psychiatry and one of the most disabling [14]. In animals OCD is divided into 3 categories, first is the conflict behaviour like (cannibalism, urine suction) followed by empty behaviours (e.g. licking, self-mutilation) and stereotyped behaviours (licking nose and lips, yawning, circling, tail chasing, snapping at the air etc) [15, 16]. Scientists have located chromosome 7 in dogs that confers a high risk of susceptibility to OCD [17]. Canine chromosome 7 expresses in the hippocampus of the brain, the same area where OCD is expressed in human patients. Similar pathways are involved in drug treatment responses for both humans and dogs, offering more research that the two creatures exhibit symptoms and respond to treatment in similar ways. This data can help scientists to discover more effective and efficient ways to treat OCD in humans through information they find by studying obsessive compulsive disorder in dogs. Canine compulsions are more common in some breeds like miniature and standard bull terriers, German shepherds, and Staffordshire bull terriers [18]. The treatment requires the interventions over the animal's environment, behavioural modifications and administration of psychotropic drugs. The serotonin reuptake inhibitors (ISRS) and the cognitive-behavioural therapy represent the first line of treatment for OCDs and related disorders [19]. The best effective drugs that are most useful for OCD are clomipramine, fluoxetine, and selegeline [20]. As far as aggressiveness is concerned the American psychiatric association doesn't consider aggressiveness in humans as a separate diagnostic category but it's one of the most frequent problems in dogs. Aggressiveness also studied due to some medical problems like intracranial neoplasm, cerebral hypoxia, endocrine disorders, rabies, canine distemper, hydrocephaly,

intoxication due to metals [16].

3. SAD

Separation anxiety disorder is a behavioural disorder seen in dogs when left alone at home or when they are separated from its owner [21]. Symptoms of this disorder frequently appears when the animal perceives that it is about to be left alone, and becomes more intense between 30 and 60 minutes after leaving. The signs observed include excessive vocalization, destructive behaviour, restlessness, inappropriate urination and defecation, hyper-salivation and escape attempts. Besides this, some uncommon symptoms like anorexia, vomiting and acral dermatitis due to licking have been reported. The owners also describe their dogs welcoming as an excessive effusive reaction [20]. Normally this disorder is seen in pups about 2-3 months old due to the early separation from their mother causing a tranquilizing effect. The efficient treatment of SAD is teaching the dog to develop tolerance for the owner's absence followed by correction of specific problems of destruction, barking and elimination. For the better management of SAD combination of behavioural modification program and pharmacological treatment has shown better results [22, 23].

4. PTSD

Post-traumatic stress disorder has been seen in household pets as well as military canines [24]. According to the National Institute of Mental Health, it is defined as an anxiety disorder that develops after exposure to a terrifying event or ordeal in which grave physical harm occurred or was threatened. Traumatic events that may trigger PTSD include violent personal assaults, natural or human-caused disasters, accidents, or military combat [25]. It has been estimated that about 5% of the 650 million military dogs being used today suffer from PTSD [26]. However, civilian dogs can also fall victim to PTSD in a number of circumstances. If a dog is abandoned to live in the wild, has been through a natural disaster like Hurricane, or is abused or has lost his caretaker, he could develop PTSD [27]. Treatment for any dog that suffers from PTSD can be very difficult and depends on the individual patient. Sometimes the dog needs time off work. Other cases require desensitization training. Many times, retraining is combined with drug therapy for anxiety. Many of the drugs used to treat separation anxiety in dogs are used for PTSD. Drugs such as clomipramine, fluoxetine and amitriptyline are the most commonly used pharmaceuticals for this condition. Exercise and play are other important facets of therapy for these dogs.

In general, medication in pet psychiatry is accompanied by behavioural teaching, counselling and modification with an ultimate aim to wean the pet off the medication. Pet psychiatrists usually get involved after a pet has been thoroughly assessed by a veterinarian to ensure there is no medical reason for such behaviours. The work of a pet psychiatrist involves extremely close working with owners and often involves team working techniques to achieve best outcome. For the discovery of psychiatric medicaments animal models have been central since 1950 for the discovery of such drugs in order to treat the serious disorders such as depression, anxiety disorders, and schizophrenia. Brain being one of the most complex organs contains thousands of distinct types of neurons which put up the challenges to brain research. So, for this a new technique called optogenetics which permits us to manipulate individual types of cells and circuits is now introduced which is having a powerful

implication for understanding brain disorders. This technology involves the insertion of genes into particular neurons in the brains of mice. This new technology has already contributed to the analysis of many circuits that play a role in normal thought and emotions, as well as in brain disorders. There are laundry lists of drugs used to counter psychiatric disorders in animals like Tricyclic antidepressants (Amitriptyline, Clomipramine), Selective serotonin reuptake inhibitor (Fluoxetine, Paroxetine), Benzodiazepines (Diazepam, Lorazepam, Alprazolam etc) and atypical antidepressant (Trazodone).

Summary

Thorough understanding of pet neuropsychiatry requires prompt familiarity with behavioural medicine, developmental biology and psychoanalytical models and an astute supervision of behavioural manifestations and vices should warrant psychiatric check-up. In addition, a consortium of medical, diagnostic, and psycho-therapeutic intervention needs to be put under consideration.

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