



The psychological and emotional care of the orphaned puppy: the management and the risk of behavioural disorders

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Abstract: Under the loving and expert guidance of the mother, who knows how to educate its playful experiences, the puppy grows emotionally balanced, learns to be autonomous, to control its exuberance and to relate properly with conspecifics and not. Without the mother, a human being has to take care of the orphaned pup.

The caregiver has to ensure to the puppy not only its physical health, but also its psychological health, in order to grow psychologically well-balanced subjects. The people that decide to take care of orphaned puppies must be aware and should emulate, as far as possible, the maternal behaviour. The studies about sensitive period has allowed to identify periods of the puppy's growth during which a specific stimulus reaches its maximum effect. The socialisation period is the hardest one. The caregiver has to give to the pup the possibility of knowing both conspecifics and heterospecific and ensure to it an enriched style of life.

Despite all the good will, the caregiver's action has inevitable shortcomings and possible errors. However, it is essential that the human helps the orphan in its psychic maturation, in order to prevent pathological behaviours. Especially the caregiver should manage correctly the attachment and detachment, to avoid the development of fears, anxieties, phobias and those syndromes that are caused by an alteration of sensory homeostasis, such as sensory deprivation syndrome, hypersensitivity-hyperactivity syndrome, primary desocialization, stereotypes and compulsive disorders, depression and aggressions.

Key Words: Behavioral disorder, caregiver, orphaned pup.

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Introduction

The causes that make the puppy an orphan can be various. Most often, the death of the mother or the abandonment of the puppies are the principal cause. Sometimes the mother is alive, but she can be ill or can assume an altered behaviour towards her offspring, such as aggression or a refusal of the litter (Peterson, 2011; Veronesi, 2013). The first thing to do in front of orphan puppies is the assessment of their age. The age is a fundamental factor that the caregiver should know, because it is important to choose the care and attention to be given to puppies. In order to establish the age of puppies, such as in case of abandonment, there are some physiological parameters that can be use (table 1) (Casal, 2012; Veronesi, 2013).

The physical and behavioural development of the puppy is divided in different sensitive periods, which partly overlap. The start and the ending of each phase are biologically determined and can change according to the breed or to individual characteristics. The definition of these periods varies between the authors (table 2) (Lindsay, 2000; Battaglia, 2009).

Table 1. Physiological events useful in the assessment of puppies' age (Veronesi, 2013).

Detachment of umbilical cord	< 3 days
Flexing hyper tonus	< 4 days
Extensor hyper tonus	4 days – 28 days
Eye opening	8 days – 16 days
Opening of auditory canals	6 days – 14 days
Eruption of deciduous teeth	14 days – 21 days
Reflexes of suction and portage and ano-genital reflex.	21 days – 28 days

Table 2. Sensitive periods define by the authors.

Prenatal Period	from the 45th day of gestation to the birth		Champagne, 2008; Heim and Binder, 2012; Serpell, 2017.
Neonatal Period	from the birth to 12 days	Scott and Fuller, 1965; Scott et al., 1974.	Champagne, 2008; Heim and Binder, 2012; Serpell, 2017.
Transition Period	from 13th to 21st day	Scott and Fuller, 1965; Scott et al., 1974.	Champagne, 2008; Heim and Binder, 2012; Serpell, 2017.
Socialization Period	from 22nd to 84th day	Scott and Fuller, 1965; Scott et al., 1974.	Champagne, 2008; Heim and Binder, 2012; Serpell, 2017.
Juvenile Period	from 84th day to sexual maturation	Scott and Fuller, 1965; Scott et al., 1974.	Champagne, 2008; Heim and Binder, 2012; Serpell, 2017.
Pubertal Period	from puberty to the 14th month		Champagne, 2008; Heim and Binder, 2012; Serpell, 2017.

During these periods, learning process and the establishment of stable and lasting association are facilitated (Scott & Fuller, 1965). The theory of sensitive periods underlines that dog behaviour evolve during the life of the individual, according to its experience and the environmental stimuli. While the puppy grows up, the experiences that it lives during the sensitive periods influence and determine its behavioural phenotype (Case, 2010; Battaglia, 2009). An adult dog that during the sensitive period has not received the correct stimulation, can show difficulties to modulate its sensorial responses, responding in the same manner to stimuli of different intensity (Pageat, 1999).

The theory of sensitive periods finds its deep explanation into the ontogenesis of the central and peripheral nervous system, whose development is determined by the genotype, but it is modelled by external stimuli. The development of nervous system can be divided into two period:

The first phase, when neurons are formed, proliferate, differ themselves and migrate in their final location. This process occurs mostly during embryonal and foetal life. However, some brain's area continues to develop even after birth, such as the dog's occipital cortex, which at birth is still composed by numerous immature neuroblast and reaches the complete development at 3 weeks of age (Fox, 1965). Also, neurons from the olfactory region and of the hippocampus continue to mature in adulthood (Whitman & Greer, 2009);

The second phase is represented by the formation of the connections of axons and dendrites. This process, that is named synaptogenesis, is extremely important, because neural connections begin to be formed already in pre-natal life, but they continue also after the birth. This connection

between neurons are redundant, so they develop in excess. (Pageat, 1999). It has been assumed that this redundancy of synapsis represents a biological substrate already prepared to receive the transcriptions of a lot of stimuli or that it may be a sort of backup in case of damage (Huttenlocher, 1984). After this phase of redundancy, there is a phase of selective stabilisation of synapsis. This period is delicate: the unnecessary connections that do not received any external stimulus are delated, and the connection activated by the external stimuli survived. The external stimuli have a retroactive effect of reinforcement on the synapsis (Pageat, 1999).

During its ontogenesis, the brain increases its volume not for the number of new nervous cells, but mostly for the connections that born towards them. A puppy grown in a hypostimulant environment will have fewer connections and its brain's size will be littler (Coppinger & Coppinger, 2001). Therefore, the theory of sensitive periods explains why there are differences in the abilities and performance of individuals of the same species (Battaglia, 2009).

The management of orphaned puppies

Finding a surrogate mother of the same species is the best solution for orphaned puppies care. Fostering can ensure normal maternal care and the correct behavioural development of the puppies. However, it is not so simple to find another bitch that easily accepts the puppies (Casal, 2012; Veronesi, 2013; Peterson, 2011). Therefore, most of the times is a human being that must replace the mother, and one of the most demanding part in the care of puppies is to ensure to them a normal emotional development. This aim is difficult because the caregiver should manage the phases of attachment and detachment, two fundamental steps of psychological development of the dog (Giussani, 2005; Casal, 2012). For the orphaned puppy the companionship of its brothers or sisters is a great advantage. Indeed, in the first days of life other puppies are a source of heat and tactile stimuli. In the following weeks they are playmates and share new experiences. This helps a proper behavioural development and the learning of the fundamental rules of their existence (Gazzano, 2008; Luescher, 2011).

Therefore, especially when orphaned puppies remained alone, it is fundamental that the caregiver learns how to ensure a correct physical and psychological growth (Giussani, 2005). For example, Marchesini (2007) underlines how the respect of sleep-wake rhythm is important for the correct neurologic development and the pup's cognitive potentiality.

Both the lack of the exposure to appropriate stimuli and the experience lived in the wrong moment can alter the behaviours of puppies (Overall, 2013). If the experience is not lived in the right moment, it will define dyschronia, whereas the experience not lived is called privation. Finally, the experience removed before the time is defined deprivation (Marchesini, 2007).

The difficulties of the caregiver

During the prenatal period, the human intervention is limited, and it is focussed on ensuring the mother wellbeing. During the first two weeks, the neonates have a tight bond with their mother, that the caregiver cannot fully replace. A premature or prolonged separation from the mother can cause the transitional or permanence development of obsessive-compulsive behaviours and stereotypies, due also to neural modification in the *substantia reticularis* and changes in the neuroendocrine response (Lindsay, 2000; Giussani, 2016).

In the first days of life, the licking of perineal area by the bitch has the goal to help the puppy to defecate and urinate. After the third week, this behaviour represents an experience for the learning and memorization of the submission posture, fundamental into the communication between intraspecific. If the caregiver cannot imitate this maternal behaviour, there will be the risk that the puppy becomes unable to communicate with the conspecifics, showing aggressiveness or anxious (Giussani, 2016).

The mother educates the puppies to the self-control and helps them to establish different points of reaction to face different stimuli, so they acquire a state of emotional equilibrium. The caregiver should replace the mother, but often he doesn't have her educational coherence. The human should provide the puppies gradual stimuli permeated of positive connotations and teach them the self-control. If the environment is poor of stimuli, it can be the origin of the sensory deprivation syndrome and the puppy can develop hypersensitivity, excess of reactivity, alert, fear and avoidance response. The lack of self-control can lead to the hypersensitivity-hyperactivity syndrome, and the subject will show an excessive emotional arousal, for example in response to tactile stimulations (Marchesini, 2007; Giussani, 2016).

The primary socialization gives to the puppy an identity of species and it learns how to communicate adequately with conspecifics (Dehasse, 1994). In future, the orphaned puppies that have not the possibilities of interaction with other dog during this period can show nervousness, fear and aggressive behaviours in presence of conspecifics (Seksel, 1997; Serpell, 2017). From the seventh week the pup imitates the mother and the brothers, learning most quickly new behavioural modules towards the activation of the mirror neurons (Antoni & Tarricone, 2002). The caregiver lack of the isomorphism, which is the base of the imitation learning, so the puppies can be supported by a well-balanced dog. If this does not happen and the pup has not any contact with other dogs, it can identify itself in another species, such as human, and develop avoidance behaviour towards conspecifics (Dehasse, 1994).

Without the mother, the attachment happens toward the caregiver (Peterson, 2011). The person who takes care of the pup should teach it the detachment, in order to avoid the development of an excessive attachment, insecurity and morbid behaviours. The pup must acquire independence and the capacity of get over the daily challenges. The caregiver, for example, can avoid the puppy to lie down in contact with him/her, or can decide to ignore the pup or leave it alone for period of time gradually longer, in order to teach him to manage the feeling of abandonment (Dehasse, 1994; Giussani, 2005; Luescher, 2011).

During the secondary socialization the pup learn to recognize human as social partner, to distinguish the difference between men, women, kids and old people, and to instore a correct interactive style. In the meantime, it gets familiar with the environment where it lives. In this cataloguing phase, the young dog must be exposed to the greatest possible number of events, so that, when it will be adult, it will be able to recognize and catalogue every element, with which set up a correct relation. If its knowledge repertoire is poor and inadequate, the adult dog risks to show pathological behaviours (Serpell, 2017). From the 8th week the fear begins to arise, the subject that is not trained to relate with different stimuli can undergo a strong sensibilization, with considerable emotional fluctuations unsuitable with the intensity of the new stimuli (Lindsay, 2000; Luescher, 2011). Also after its adoption, the caregiver or the future owner should ensure to the puppy an adequate environmental enrichment and the safe exposure to different experiences, in order to stimulate a normal neurologic and emotional development, to ensure a certain degree of mental stimulation and to grow up an emotional stable individual (Gazzano et al., 2008; Luescher, 2011). For example, to facilitate the acquisition of a correct intra- and interspecific communication, they have been conceived the puppy classes (Seksel, 1997; González-Martínez et al., 2019). Also, the teaching of sample orders, such as "rest" or "sit down", can help the owner and the puppy to have a better control of the situation. An inadequate quality and quantity of stimulation of the puppy can lead to the development of fear and anxious behaviours, with aberrant response to stressful situation (Lopate & Seksel, 2012). The individual learns to distinguish relevant or not biological and social stimuli through the exploration of different stimuli. Indeed, the subject hand-raised exposed to a variation of environmental stimuli (unknown persons, other animals and sensorial news) results more prepared to the exploration of new situation with more serenity compared to the dogs raised in a lab (Wright, 1983).

After the adoption, the owner has to assume the educational task, to prevent a regression of

the puppy and the onset of exuberant and undesired behaviours. If the education intervention of the owner is inadequate or lacks, the dog will assume wrong behaviours, without the respect of social rules and with emotional fluctuation. Anxious behaviours, simple or complex phobia, self-control reduction or lack of detachment can occur (Marchesini, 2007).

Behavioural disorders caused by an inadequate psychological and emotional care of the orphaned puppy

Aggressiveness

A unique definition of aggressiveness is difficult to identify (Reisner, 2004). According to Case (2010), aggressiveness can be defined as an agonistic behaviour characterized by a high arousal, that a subject uses to hurt another subject, which can react with aggressiveness or flying away. The aggressiveness is a normal behaviour of the dog, which uses it to communicate its emotional discomfort, using postures and warning signs (Capra & Robotti, 2007). The ritualization of the behaviour has led to the development of warning signals that, if correctly understood by the recipient, will prevent the real aggression (Horwitz & Mills, 2012, pp 13-16; Mège et al., 2003). The normal aggressive sequence has four phases: appetitive phase (threat, s.e. the growl), consummatory phase (s.e. bite), phase of cessation and rebalancing and the refractory period (Mège et al., 2003).

The dog that shows inappropriate aggressive behaviours out of context has to be considered clinically abnormal (Overall, 2013). An aggression can be defined pathological when it is an abnormal response compared to the stimulus, when the threat phase is absent or really brief, when the signs of pacification of the opponent are ignored and when the dog chooses to act the aggression, although it can have other alternatives (Ruffoni, 2018).

The canine aggressiveness can be determined by a genetic component, by neurologic or painful pathologies, or by negative experiences lived during the first weeks of life (missed learning of self-control and alimentary hierarchy, environment poor of stimuli, or insufficient intra-interspecific socialization) (Violet, 2016). Moreover, restlessness, anxiety, fear, great stressful situations, frustration, irritability and anger can lead to the manifestation of aggressive behaviours, when the dog is not able to slip its discomfort (Lindsay, 2001, pp. 166-169).

Reisner et al. (1996) and Cakiroglu et al. (2007) have demonstrated the correlation between aggressiveness and low level of serotonin in the cerebrospinal liquid and Rosado et al. (2010) in plasma. Even though an increase in TRP/5LNAs ratio in plasma could influence the 5-HT levels in the brain and, consequently, the diet could have a positive effect on some dog behavioural problems (Gazzano et al., 2018), the use of medications like fluoxetine, a Selective Serotonin Reuptake Inhibitor (SSRI), is one of the commonly remedy in small animal behavioural medicine (Kaur et al., 2016).

Fear, Phobias and Anxiety

The fear is a strong emotional reaction towards a specific, real and well-identified danger. This is a normal response useful to the survival of the subject. If the reaction is excessive and without reason, the fear loses its adaptive value and became a pathological condition, identified as phobia (Case, 2010; Landsberg et al., 2013).

A phobic subject can't have a normal lifestyle. Stimuli that have a vital importance for the species and derived from unborn mechanisms can cause exaggerated fear reaction, because of a sensibilization process and anticipation mechanism (Beaver, 2009). The French School distinguishes post-traumatic and ontogenic phobias. The first arise for the exposition of the subject to an intensive stimulus in a closed environment, the second are due to the experience that the animal has not done during the development phase (Colangeli & Giussani, 2004).

The phobias can be simple, complex or social (Beaver, 2009). The simple phobia is toward to well-identified event, whereas in the complex phobia the stimulus that causes fear responses is difficult to identified, because of emotional anticipation process. This can evolve in spontaneous recovery, instrumentalization or anxiety (Colangeli & Giussani, 2004; Beaver, 2009; Ruffoni, 2018). The social phobia can be simple or generalized and can be towards conspecifics or heterospecifics, such as towards people (Beaver, 2009).

Anxiety is a pathological state more incapacitating than phobia. Although it is characterized by reaction similar to the fear, it is not cause by really dangerous stimuli. It is an apprehensive state with emotional anticipation and fear reactions towards a possible future danger (Case, 2010; Landsberg et al., 2013). In the anxious state there is a disorganization of the self-controls and a loss of adaptation to any changes in the external or internal environment (Colangeli & Giussani, 2004).

Fear, phobias and anxiety compromise the well-being of the dog. The subject is not able to adapt to minimal variation of the environment, it lives in a continuous state of alert and can develop syndromes with different signs, but all originated by an alteration of sensorial homeostasis.

Sensory deprivation syndrome

The sensory deprivation syndrome is characterized by an incapacity of managing the sensory information that comes from the environment. A missed maternal educational support or an inadequate variety of stimuli offered by the caregiver during the socialization period exposed the puppy to develop this pathology and to have an exaggerated fear reaction in front of new stimuli. The dog has not a rich database of experience and it is not able to make the correct cataloguing of the stimuli, remaining in a continuous state of insecurity (Mège et al., 2003; Beata, 2006; Luescher, 2011).

Table 3. Stage of the sensory deprivation syndrome.

	Stage 1	Stage 2	Stage 3
	Phobic stage or Stage of ontogenic phobia	Anxious stage or stage of permanent anxiety	Depressive stage or chronic depressive stage
The stimuli that trigger the fear reaction or the anxious state	Well-identified stimuli such as humans, dogs, objects' noises.	Different stimuli that are difficult to recognize. It is the evolution of the phobic stage.	It is a rare condition
Symptoms and dog's reactions	Hypervigilance, avoidance, escape and /or defensive aggression. Activation of adrenergic system (dilated pupils, tremors, polypnea, tachycardia).	Inhibition, avoidance and escape and aggression for fear. The explorative behaviour is restricted, and the dog shows the posture of the expectation. The subject is unable to adapt to changes (environments, people and objects) and it doesn't walk away from its secure place. The dog can defecate and urinate at home, and eats during the night, when not observed.	General culling, resulting in the disappearance of exploratory and play activities. There are also alterations of sleep, involuntary eliminations in inappropriate places
Evolution	It is a dynamic stage and the dog can manage the stimulus and heal spontaneously. It can switch from a simple phobia to a complex phobia. The repeated exposure to the triggers strengthens and worsens phobic state	Often replacement activities can emerge, and they can lead to self-injuries. As adaptive mechanism, the hyper attachment to the owner can arise, and the absence of the owner can cause panic attacks.	

This syndrome has three different clinical presentation, corresponding to three different stages of emotional degradation described in table 3 (Mège et al., 2003; Beata, 2006; Beaver, 2009; Giussani, 2016).

The therapy is long and often there are relapse. It differs according to the animal's resources and the condition of the family and environment. They can be used social and environmental enrichment, cognitive-relational activities. It can be employed a pharmacological therapy (idrolized alfa-S1-Kasein, selegiline, clomipramine, fluoxetine) and/or a pheromonal therapy. What for the family nucleus can be an insignificant change, for the dog can represent a great goal (Giussani, 2016).

Hypersensitivity-hyperactivity syndrome

The Hypersensitivity-Hyperactivity syndrome (HS-HA) is a pathological condition depending on the disfunction of the sensory filter, which causes a deficit in the emotional management and an alteration of the motor control. It follows a typical sequence: hypersensitivity, hyper-emotionality, hyperactivity. This pathology is caused by the growth of the dog in a hypo-stimulant environment. In this condition, the sensory filter, which is in the *substantia reticularis*, has not the possibilities of development. The pup is not able to give different importance to different stimuli, so it reacts to everything in the same manner (Pageat, 1999; Giussani, 2016). The hyperactivity derived from the missed learning of self-controls, so the dog cannot activate the stopping sequences and the consummatory phase lengthens (Ozella & Pessani, 2015).

The pup learns the self-control from the mother when it is 2-3 months old. The mother stops the action of the pup when its arousal is too high and can become self-defeating. She teaches to her puppies to handle waiting and frustration. In case of orphaned puppies, this teaching lacks and the puppy has a chaotic communication, because it wants to communicate a lot of things at the same time, all with the same importance. Failing to do it adequately, the pup can become aggressive (Giussani, 2016; Lindsay, 2001).

The alteration of the taste can cause hyperphagia (Ozella & Pessani, 2015). However, if it is associated with phobia, anxiety or sensory deprivation syndrome, there will be dysphagia and anorexia (Colangeli & Giussani, 2004). Regarding the sight, the pup can develop its predatory instinct and wants to follow everything, pulls the leash and reacts with anger or fear towards big noise object that moves. The dog is in a state of continuous hypervigilance and can't sleep. A tactile stimulus (simple touch or a friendly pat) can cause an excessive reaction and the pup can bite. The deficit of the filter on the olfaction causes an inadequate comprehension of the scent. Finally, a familiar sound bounded with positive activities, can cause confusion, excitement and the increase of the arousal (Giussani, 2016).

The continuous state of excitement and hypervigilance leads the dog to show uncoordinated, excessive, violent and invasive behaviours (Lindsay, 2001).

The hyperactive pups haven't got problems of comprehension, but they have difficulties with memorization and elaboration. The difficulties increase according to the arousal of the subject, and it is easier to memorize negative emotions, joint with fear and suffering. Therefore, it is important to work with a correct behavioural and cognitive-relational therapy, based on the use of positive reinforcement. The behavioural therapy can be supported through a pharmacological therapy, to reduce the anxiety and improve the concentration and the learning, such as the use of serotonin reuptake inhibitors, such as the clomipramine or fluoxetine. Reducing the arousal fluctuation and the impulsivity allows to the dog to think before to act (Pageat, 1999; Mège et al., 2003; Masson & Gaultier, 2018).

Separation-related disorders and separation anxiety

The separation-related disorders derived from an emotional incompetence in the management of loneliness. According to the severity of the disorder, it arises when the owner is absent or when there is an obstacle between the dog and the owner, such as a close door (Blackwell, 2016). The anxiety that the puppy shows when it walks away too far from its mother has got a biological adaptive meaning. It is possible that the domestication and the genetic selection have led to very social subjects, which depend a lot from human beings (Horwitz, 2009). Moreover, this dependence can be strengthened by the requests by humans that anthropomorphise the dogs and ask them to assume childish roles (Serpell, 2017).

The etiological factor that cause the onset of the pathology is recognized by a sudden separation of the dog from the owner, preceded by an exclusive and constant human-dog contact. What is the cause of the development of separation-related disorders probably can be explained with defects in the separation process from the mother or from the figure of attachment, during the first months of dog's life (Serpell, 2017; Pierantoni et al., 2011). Pageat (1999) and the French school argue that the cause can be found in an excessive quantity of attachment (hyper attachment) between man and dog. The bond between the owner and its dog can be like the relation between a mother and her offspring, because the owner or the caregiver become a reference figure for the puppy (Topàl et al., 1998). Flannigan & Dodman (2001) have demonstrated that dogs who live with a single owner can show more often behaviours that characterized separation-related disorders compared to conspecifics that live in more complex familiar nucleus. Finally, Parthasarathy & Crowell-Davis (2006) assume that the separation anxiety is not caused by an excessive of attachment, but by an inappropriate relation dog-owner.

The dog that suffers this pathology shows an excessive request of visual and physical contact with its owner, looking for continuous reassurance from the family (Beaver, 2009). The symptoms are analogous to the manifestations of a panic attack, with continuous attempts to re-join with the figure of attachment (Ogata, 2016). When the dog recognizes the preparation of an imminent exit of the owner, it begins to follow the human in all the rooms, it is worried and pants, and it omits to eat. When the owner leaves the dog alone, it manifests its discomfort with a complex and various repertoire of excessive, repetitive and prolonged vocalization (barking, whining). They can be followed by the attempt to reach the owner, and, initially, it is represented by a hypertrophic and uncontrolled explorative behaviour towards the door, the windows or the object with the owner's scent (Ozella & Pessani, 2015). An oral phase follows the olfactory phase. This second stage can be destructive, and the dog can demolish or ingest objects. The animal can show motor restlessness, walks in circle, shakes and trembles. Sometimes, on the contrary, it immobilizes itself and is unable to move. The dog can manifest gastrointestinal symptoms with sialorrhoea, vomit, diarrhoea and involuntary urination (Horwitz, 2009).

The therapy with pheromone is adequate when the symptoms are mild. When the disorder is severe, a pharmacological long-term therapy with Serotonin Reuptake Inhibitor (fluoxetine, fluvoxamine) is indicated or, at least, a short-period medication with trazodone, a Serotonin Antagonist and Reuptake Inhibitor (SARI) (Ogi et al., 2018). When the patients are inhibited and do not communicate, it can be used the clomipramine. The therapy wants to reduce the level of anxiety and increase the sense of security when the dog is alone through desensitisation. It is necessary to reduce the dependence of the dog from the owner. It can be useful the teaching of orders, such as "rest" or "sit-down", that help the dog to remain calm away from its owner. Counter-conditioning techniques can be employed to reduce the anxiety caused by the preparations before the separation-time (Blackwell, 2006; Giussani, 2016).

Primary Desocialization

The socialization leads to the acquisition of communicative system between the pup and its conspecifics and its heterospecifics. The socialization period occurs from the 3rd to the 12th weeks (Lindsay, 2000). During this period the mother represents a teacher for the puppies, and they learn self-controls and, for example, the submission posture or the alimentary hierarchy (Giussani, 2005; Dehasse, 2007; Giussani, 2007).

The orphaned puppies miss the educational action of the mother. If the caregiver is not well prepared, these subjects risk to not learn self-controls and the correct communicative codes, so they will become unable to control themselves and to communicate, and, potentially, aggressive. The symptoms can be aggression for irritation or for conflict situations, bite without threat, unable to submission, absence of social hierarchical behaviours, both nutritive and sexual (Confente, 2018).

Stereotypies and compulsive disorders

The stereotypies are repetitive and predictable motor patterns, acted without any apparent goal, which are shown in situations of conflict and frustration. The conflict arises when the subject has the motivation to produce two opposite behaviours, such as when it is unsure on the result of an event or when the owner response incoherently to dog's behaviour. The dog has a motivation to act but it is hindered (Landsberg et al., 2013).

When the dog has not of valid strategies to face a situation, it can act substitution activities or redirected behaviours. However, when the situations of conflict are repetitive and persistent, the stereotypies can be shown habitually and can progress in compulsive behaviours (Landsberg et al., 2013, pp. 164-174). These behaviours are anomalous, repetitive, exaggerated behavioural sequences and are the aberration of normal behavioural modules (grooming, predation, ingestion and locomotion). Therefore, they are shown self-traumatism, alopecia, tail chasing, pica and pacing (Tiira et al., 2012; Overall, 2013) and self-directed aggression (Ruffoni, 2018). Another compulsive behaviour, with a hallucinatory component, is the fly biting (Landsberg et al., 2013).

Stereotypies represent a mean to respond to a stressful situation and achieve an equilibrium. Instead, the compulsive behaviours interfere with the normal vital functions. The lack of the mother can be the cause of the development of the stereotypies for the frustration of the failure to satisfy the motivation to suckle or for insufficient social contact (Landsberg et al., 2013). The confinement in hypo stimulant environment can be another cause of this kind of behavioural disorders (Lindsay, 2000).

Anomalies of transmission of serotonin are identified as etiopathogenic mechanism. The therapy is based on offering to the animal social and environmental enrichments, such as play activities and interactions. In severe cases, it can be necessary a pharmacological long-term therapy (fluoxetine, clomipramine, anxiolytics and antiepileptics) (Landsberg et al., 2013).

Conclusion

Understanding how domestication and socialization influence the dog allows the human comprehension of this species and helps to improve the relationship between human and dog and to prevent or manage behavioural problems. The caregiver must survive the puppy and ensure it to grow up with an emotional stability. The people that decides to take care of orphaned puppies must have the right competences and know that the puppy have physical and psychological needs, in order to prevent behavioural disorders in the adult dog.

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La cura psicologica ed emozionale del cucciolo orfano: management e rischi di disturbi comportamentali

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Sintesi

Sotto la guida esperta ed amorevole della madre che sa come educare le sue esperienze di gioco, il cucciolo cresce emotivamente bilanciato, impara ad essere autonomo, a controllare la sua esuberanza e a relazionarsi correttamente con i conspecifici ed ad animali.

Se la madre è assente, un essere umano deve prendersi cura del cucciolo orfano. Colui che si prende cura del cucciolo deve assicurarsi che esso sia sano non solo fisicamente ma anche da un punto di vista psicologico, in modo da svilupparsi in un soggetto adulto equilibrato.

La persona che decide di prendersi cura del cucciolo orfano deve essere a conoscenza del comportamento materno canino e dovrebbe cercare, nei limiti del possibile di emularlo.

Gli studi sui periodi sensibili hanno permesso di identificare quelli in cui, durante la crescita del cucciolo, l'esposizione ad uno stimolo specifico produce il massimo effetto.

Il periodo di socializzazione è sicuramente quello in cui l'esposizione a determinati stimoli produce effetti più incisivi.

La persona che si occupa del cucciolo deve dare all'animale la possibilità di conoscere conspecifici ed eterospecifici, assicurando ad esse uno stile di vita ricco di stimoli.

Nonostante la buona volontà delle persone, l'azione di cura di un cucciolo può presentare carenze ed errori. È comunque essenziale che la persona aiuti il cucciolo nella sua maturazione psicologica in modo da prevenire l'insorgenza di disturbi comportamentali.

È soprattutto importante una corretta gestione del processo di attaccamento e di distacco per evitare lo sviluppo di paure, ansia, fobie e di quelle sindromi che sono causate da un'alterazione dell'omeostasi sensoriale, come la sindrome da privazione sensoriale, la sindrome di ipersensibilità-iperattività, la desocializzazione primaria, le stereotipie ed i disordini compulsivi, l'aggressività e la depressione.