

Emotional contagion is the emotional response triggered by perceiving the emotional state of another individual with people (interspecies) especially members of the social group or family with whom they have a strong social relationship or bond, primarily pet parents but also family dogs. To a lesser extent emotional contagion may also apply if dogs are responding to the emotional state of less familiar people or animals (e.g. scents, vocalizations). In short other words they can read (see, hear, smell) human and dog emotions (emotional matching), feel the emotional experience or have empathy for others. Fear, anxiety and stress result in negative emotional state or mood, compared to neutral or innocuous while positive may improve emotional state or mood. Emotional contagion has been assessed and documented in research studies by autonomic fear responses, behavioral and hormonal responses and neurophysiological stress responses such as HRV in controlled environments where pictures, recordings or odors are the only variable.

Contagion from owner to dog of a stress response highest with longer duration of ownership / living in the same environment, and increased daily amount of time spent together – female dogs showed higher capacity (empathy) (Maki)

Maki K et al. Emotional Contagion From Humans to Dogs Is Facilitated by Duration of Ownership
Frontiers in Psychology 2019; 10 <https://www.frontiersin.org/articles/10.3389/fpsyg.2019.01678/full>

However the pet's emotional state or mood; genetics, personality and health; the familiarity of the environment and stimuli; previous experience (learning); and any stress or fear evoking physical, visual, odor, or auditory stimuli together will impact the pets' response and may override, preclude or counter any effects of emotional contagion.

1. Dogs can learn to recognize emotional expressions of human faces. (Muller 2015). They have been shown to recognize human and dog emotions of positive (happy, playful) or negative (angry, aggressive) by combining images of facial expressions with vocalization (voices or barks) as demonstrated by looking longer at the facial expression that matched the emotional state. (Albuquerque 2016).

Albuquerque N, Guo K, Wilkinson A et al. Dogs recognize dog and human emotions. Biol Letters 2016; 12: 20150883. <http://dx.doi.org/10.1098/rsbl.2015.0883>
Muller CA, Schmitt K, Barber ALA et al. Dogs Can Discriminate Emotional Expressions of Human Faces Current Biology 2015; 25, 601–605

2. Emotional contagion or empathy in dogs. Behavioral and physiological response to babies crying with elevated cortisol, alertness and submissiveness but not to babbling or white noise

Yong MH. Emotional contagion: Dogs and humans show a similar physiological response to human infant crying, Behavioural Processes, Volume 108, 2014, Pages 155-165,

3. Comparing the response to recordings of positive and negative emotional sounds from humans and other dogs, and to non-emotional sounds, dogs display more reactive behavioral responses and immobility to the negative emotional sounds, indicating emotional "contagion" for negative sounds of dogs and humans. Dogs were also more likely to approach their owners after positive human sounds. (Huber 2017)

Huber, A.; Barber, A.L.A.; Faragó, T.; Müller, C.A.; Huber, L. Investigating emotional contagion in dogs (*Canis familiaris*) to emotional sounds of humans and conspecifics. Anim. Cogn. 2017, 20, 703–715

4. Human odors related to fear led to increased HR and stress responses, while odors of human happy odors were associated with more stranger related approach. (D'Aniello 2018)

D'Aniello B, Semin GR, Alterisio A et al. Interspecies transmission of emotional information via chemosignals; from humans to dogs (*Canis lupus familiaris*). *Anim Cogn* 2018; 21, 67-68

5. Owner nervousness contributing to pet nervousness in a veterinary clinic. (Stellato 2021)

Stellato AC, Flint HE, Dewey CE et al. Risk-factors associated with veterinary-related fear and aggression in owned domestic dogs. *Appl Anim Behav Sci* 2021; 241: 105374,